U.S. DEPARTMENT OF COMMERCE
Patent Office

Address Only: COMMISSIONER OF PATENTS
Washington, D.C. 20231

July 8, 1975

Re: Letter received
June 25, 1975

R.R. Grayson, M.D.
103 West Main Street
St. Charles, Illinois 60174

The enclosed circular entitled "Obtaining Information From Patents" explains the nature and extent of the assistance this Office can give you. Your attention is called to section 3 of the circular.

An investigation of our Index of Patents which indexes inventors and assignees of record at time of issue reveals the following patents issued to Ephraim Hambujer in the years 1860-1900:

Patent number	Issue date	Title
429,130	June 3, 1890	pencil sharpener
443,479	December 23, 1890	lock
406,900	July 16,1889	slate pencil sharpener
415,636	November 19,1889	chisel
415,816	November 26,1889	lock
413,826	October 29,1889	locking device
387,354	August 7, 1888	wash board
365,809	July 5, 1887	caster
366,829	July 19,1887	lock
371,577	October 18,1887	lock
374,062	November 29,1887	store service
353,558	November 30,1886	car heater
348.842	September 7, 1886	brush
350,738	October 12, 1886	lock
313,590	March 10, 1885	hasp-lock
288,794	November 20,1883	button-hole stay
264,153	September 12, 1882	corset

The earliest patent of Ephraim's was not included in the above letter from the patent office, but was discovered by reading the 1882 corset patent which made reference to "the corset patented by me in June (26th), 1866 and numbered 55,972." This patent clearly shows that Ephraim was an inventor with a record of success over a period of at least 24 years. -RG

HILL, VAN SANTEN, STEADMAN & SIMPSON
A PROFESSIONAL CORPORATION
ATTORNEYS AND COUNSELORS AT LAW
70 TH FLOOR SEARS TOWER
CHICAGO, ILLINOIS 60606

JAMES VAN SANTEN
LEWIS T. STEADMAN
JOHN D. SIMPSON
WILLIAM C. STUEBER
P. PHILLIPS CONNOR
JOHN F. ATKINSON
DENNIS A. GROSS
JAMES A. MOEHLING
MARVIN MOODY
BRETT A. VALIQUET
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EDWARD A. LEHMAN
JAMES D. HOBART
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OTTO R. KRAUSE
A. DENNIS CLAESSENS
JAMES L. SIEKMANN
JOHN R. NYWEIDE
MARVIN A. HENRICKSON
DEAN A. MONCO
LEWIS T. STEADMAN, JR.

COUNSEL
ANTHONY R. CHIARA
J. ARTHUR GROSS
DONALD J. SIMPSON
RICHARD J. SCHWARZ
CHARLES M. LINDROOTH
CHARLES F. MERONI

RUSSELL N. MUEHLEMAN
RALPH F. RISSE
REG. PAT. AGENTS

CARLTON HILL (1919-1971)

CHICAGO OFFICE
TELEPHONE (312) 876-0200
TELEX 25-3422
TELECOPIER (312) 876-0898
CABLE-HILLSFORD CHICAGO

WASHINGTON OFFICE
SUITE 502-BLDG. 1
2001 JEFFERSON DAVIS HIGHWAY
CRYSTAL CITY
ARLINGTON, VIRGINIA 22202
TELEPHONE (703) 521-3939

May 23, 1984

Dr. Richard R. Grayson
103 West Main Street
P.O. Box 167
St. Charles, IL 60174

Re: Patents to Ephraim Hambujer, 1864-1913

Dear Dr. Grayson:

I have finally had a chance to look at the patentee indexes for the years 1864-1913 in an attempt to locate patents issued to Ephraim Hambujer. Below is a listing of patent numbers and years that I have located. Some of the volumes were missing and on my next trip to Washington I will check to see if they have been replaced. If you need copies of any of these patents or additional information, please feel free to contact me.

YEAR	PATENT NO.
1864	42,084
	42,287
	43,687
1865	48,274
	50,820
1866	52,043
	54,718
	55,972
	57,709

1867	62,954 63,040 68,436 68,437
1868	None
1869	None
1870	None
1871	None
1872	None
1873	135,425 137,917
1874	None
1875	Missing
1876	None
1877	Missing
1878	None
1879	None
1880	None
1881	None
1882	264,153
1883	288,794
1884	None
1885	313,590
1886	348,842 350,738 353,558
1887	365,809 366,829 371,577 374,062

1888	387,354
1889	406,900 415,636 415,816 415,826
1890	429,130 443,479
1891	Missing
1892	None
1893	None
1894	None
1895	Missing
1896	None
1897	None
1898	None
1899	None
1900	None
1901	None
1902	None
1903	None
1904	None
1905	None
1906	None
1907	None
1908	None
1909	914,828 Ernest Hamburger, per [illegible]
1910	None

1911	None
1912	None
1913	None

Very truly yours,

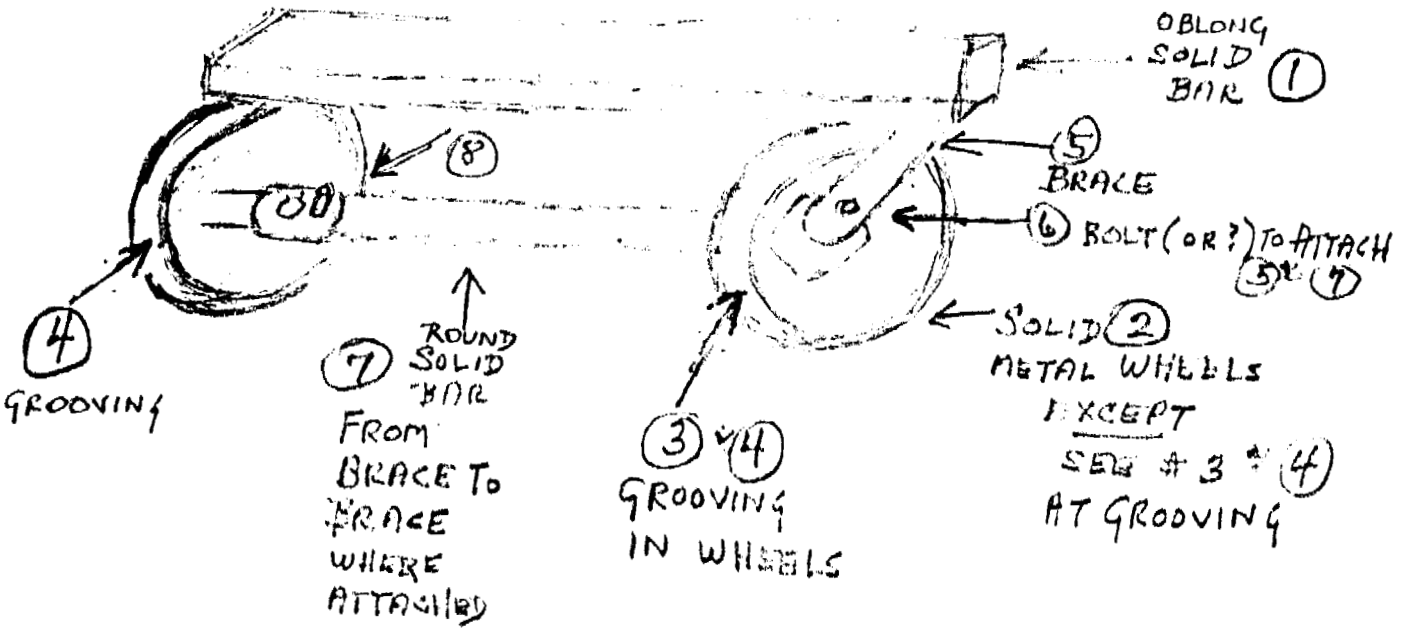
Kevin

Kevin W. Guynn
FOR THE FIRM

890/987

EPHRAIM HAMBUSER'S MODEL OF BRAKE WHEEL WHICH HE DESIGNED AND PATENTED AND SOLD TO THE BALTIMORE & OHIO R.R.

Drawing made by Bernice Beck from an old oil Painting of Ephraim holding this invention.



I DO NOT MAKE OUT (X) BUT IT IS A PIECE OF CIRCULAR METAL AROUND THE ROUND SOLID BAR WITH A SOLID PIN AND PERHAPS A BOLT OF SOME KIND—

MODEL MADE OF SOLID BRASS—
B & O RR TRAINS MFG'D BY BALDWIN TRAIN WORKS

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WASHINGTON OFFICE
SUITE 502-BLDG. 1
2001 JEFFERSON DAVIS HIGHWAY
CRYSTAL CITY
ARLINGTON, VIRGINIA 22202
TELEPHONE (703) 521-3939

June 21, 1984

Dr. Richard R. Grayson
103 West Main Street
P.O. Box 167
St. Charles, IL. 60174

Re: Patents of Ephraim Hambujer, 1864-1913

Dear Dr. Grayson:

Enclosed are copies of the patents which you marked in my previous letter. Although most of the patents appear to be for those of Ephraim Hambujer, there are a couple which may be from a different inventor. Patent number 52,043 gives an address of No.6 Allen Street in New York. None of these patents appear to show the railroad invention you previously described to me. On my next trip to Washington I will again look to see if some of the missing index books have been replaced to see if we can track down a patent on that invention.

Very truly yours,

Kevin W. Guynn
FOR THE FIRM

890:994
Enclosure

E. Hambujer,

Head Rest,

No 42,084, Patented Mar. 29, 1864.

42084

Fig. 1

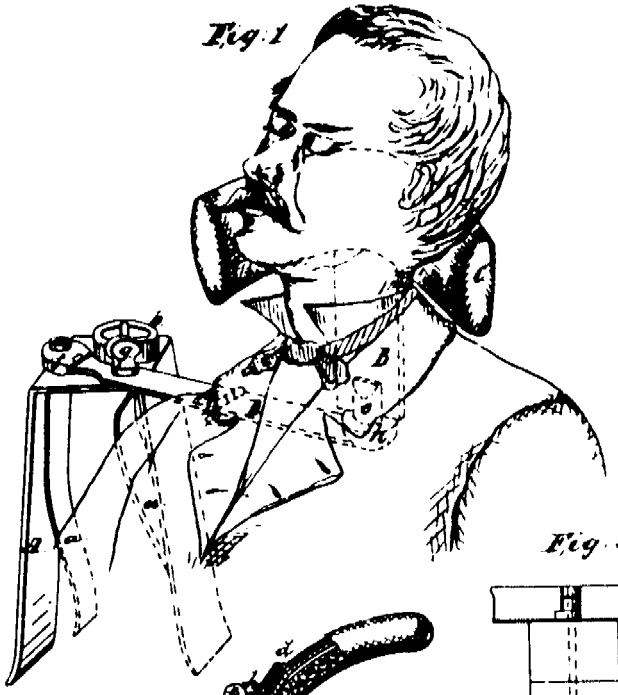


Fig. 2

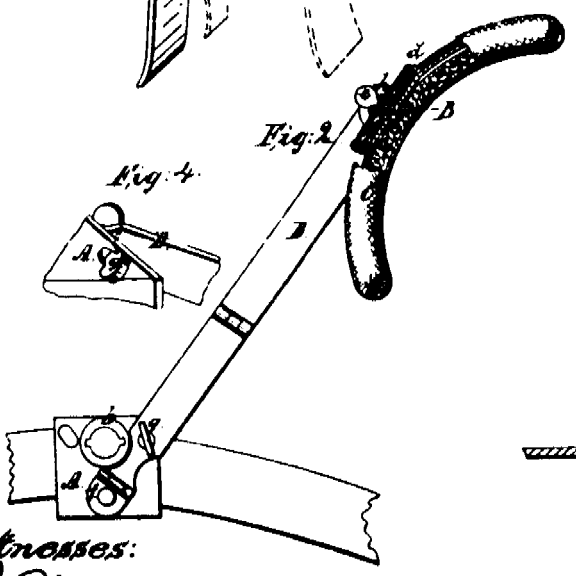


Fig. 3

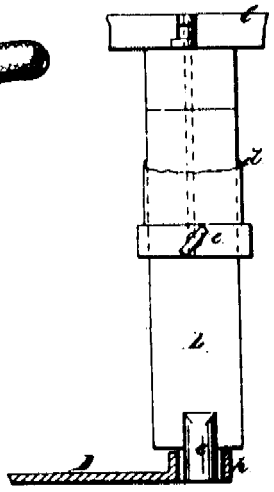


Fig. 4

Witnesses:

J. P. Hall

Geo. W. Reed

Inventor:

E. Hambujer

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

IMPROVEMENT IN HEAD-RESTS FOR RAILWAY-CARRIAGE SEATS.

Specification forming part of Letters Patent No. 42,084, dated March 29, 1864.

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Head-Rest; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of my invention. Fig. 2 is a plan or top view of the same, partly in section. Fig. 3 is a sectional rear elevation of the adjustable standard bearing the pad. Fig. 4 is a perspective view of the button used for securing the adjustable arm.

Similar letters of reference in the several views indicate corresponding parts.

This invention consists in a self-fastening spring-clamp capable of being attached instantaneously to the back of a chair or car-seat, or any other similar article, and provided with a stationary and with an adjustable socket, in combination with a vertically-adjustable pad, in such a manner that by fastening the clamp to the back of a chair or seat of any other description and inserting the pad in either one of the sockets the pad or head-rest can be readily accommodated to the desired position and to the stature or size of the occupant of said seat and a convenient and comfortable rest for the head is obtained.

To enable those skilled in the art to make and use my invention, I will proceed to describe it.

A represents a clamp, made of sheet metal or any other suitable material, in the shape of an inverted U, and provided on its inner surfaces with two springs, *a*, so that the same, when pushed over the back of a chair or seat, will take a firm hold and fasten itself readily in the desired position.

This clamp is provided with a stationary socket, *b*, to receive the stem *c* of the standard B, to which the pad C is secured. The stem *c* is round, and provided with two feathers, which fit into corresponding grooves in the socket; or said stem may be made polygonal or with one or more flat surfaces and fitted in a socket of corresponding shape, to prevent it from turning.

The standard B is made of a thin flat piece of iron or other suitable material and it is fitted into a socket, *d*, on the back of the pad C, so that said pad can be raised up and down and set to any convenient height by means of a set-screw, *e*.

D is an arm, which is connected to the upper surface of the clamp A by means of a swivel hinge, *f*, so that it can be raised and placed on either side of the socket *b*, and it is secured in the desired position by a button, *g*, or in any other convenient manner. This arm is made to fold in the middle of its length, so that in packing the head rest the clamp with the arm can be conveniently stowed away in a small compass, and its outer end is provided with a socket, *h*, similar to the socket *b*, and capable of receiving the stem *c* of the standard B.

If the clamp is adjusted on the back of a chair or other seat and the standard is inserted in the socket *c*, the pad is right behind the occupant of the seat in a convenient position to support the back of the head; but if it is desired to adjust the pad in a lateral position, the arm D is adjusted in the desired inclination on one side or the other and the stem *c* is inserted into the socket *h*. The pad is now in a convenient position to support the head in a lateral position, and the occupant of the seat is thereby enabled to adjust the head-rest according to convenience and comfort or to change it from one position to the other whenever it should be deemed desirable.

It is obvious that the material from which the different parts of my head-rest are made and the form or shape of its various parts can be changed at pleasure, and I do not wish to confine myself to the precise form shown in the drawings.

What I claim as new, and desire to secure by Letters Patent, is—

The self-fastening spring-clamp A, provided with a stationary socket, *b*, and adjustable socket, *h*, in combination with the vertically-adjustable head-rest or pad C, constructed and operating in the manner and for the purpose herein shown and described.

E. HAMBUJER.

Witnesses:

JAMES P. HALL,
M. M. LIVINGSTON.

E. Hambujer.

Street Sweeper.

No 42,287. Patented Apr. 12, 1864

Fig 1

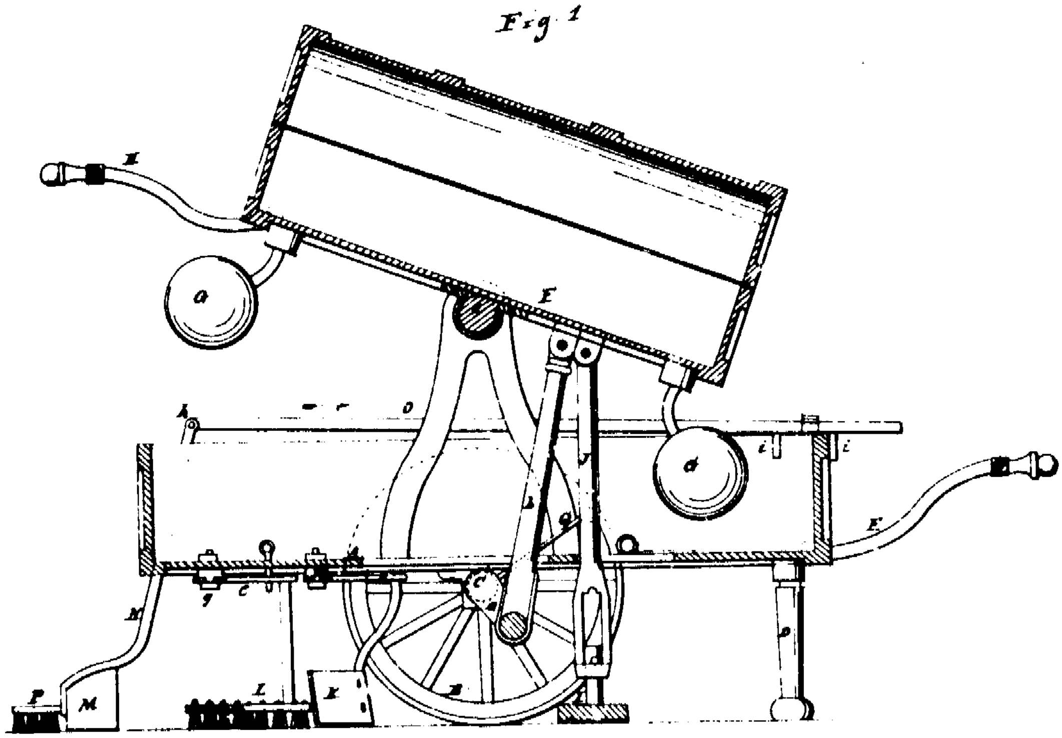
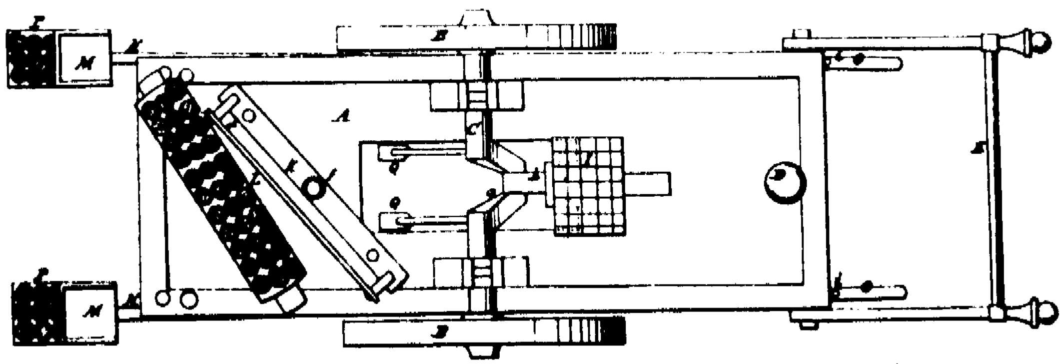


Fig 2



Witnesses: Inventor

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

E. HAMBUJER, OF NEW YORK, N. Y.

IMPROVEMENT IN STREET-SWEEPING MACHINES.

Specification forming part of Letters Patent No. 12,287, dated April 12, 1864.

To all whom it may concern:

Be it known that I, E. HAMBUJER, of the city, county, and State of New York, have invented a new and Improved Street Sweeping Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention. Fig. 2 is an inverted plan of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a machine which, when drawn through the streets of a city or town, will automatically pound and level the surface of said streets and collect the dirt and dust by an oblique adjustable scraper and brush, and by means of scoops in heaps on the sides of the streets, whence the same can be readily removed by the ordinary dirt-carts.

The nature of my invention and its peculiar advantages will be readily understood from the following description.

A represents a platform or car body, which is supported by the axle C of two wheels, B, and, if desired, another pair of wheels may be added, or the platform may be prevented from tilting by a leg or support, D.

E is the thill or draft-pole, which serves to draw my machine through the streets of a city or town.

The axle C is provided with a crank, *a*, which connects by a rod or pitman, *b*, with a box, F, which oscillates on a rock-shaft, *c*, and which takes the place of a working-beam in an ordinary steam-engine. This box is loaded on each end by a weight, G, and is provided with a handle, H, which serves to impart to the same an oscillating motion if the car is stationary. In practice this box will serve to inclose the tools of the workmen, and it is provided with a cover, which may be so arranged that it can be locked for the greater safety of the contents of the box. By means of this oscillating loaded box the motion of the machine is facilitated.

I is a pounder, which is suspended from the rod J, that is pivoted to the under side of the box F, and the shank of the pounder moves in a slot in the lower end of said rod, so that when the box is brought down the pounder strikes the ground, and is allowed to yield to prevent injury to the working parts of the machine. By means of this pounder stones lying on the streets can be broken, the pavement can be leveled, and made sufficiently rough to prevent the horses from slipping, and the surface of the street rendered even, and this pounder may either be used by moving the box F independent of the car, or by drawing the car through the streets. If the oscillating box is to be used independent of the car, the connecting-rod *b* has to be disconnected from the crank *a* or from the box.

K is a scraper, and L a brush, which are connected to the under side of the platform A by means of arms *d e* and screws and nuts *f g*. The arms *d e* are so arranged that the scraper and the brush can be adjusted to any desired position, and when the machine is in operation both will be set in an oblique direction, as shown in Fig. 2 of the drawings, so that the dirt and dust is thrown toward one side of the street.

It will be readily understood that by reversing the position of the scraper and brush the dirt and dust can be thrown toward the opposite side of the street. The dirt and dust which are collected by the scrapers and brush are gathered by one of the scoops, M, which scoop is raised when full, leaving the dirt in heaps at the sides of the street. Said scoops are secured to standards N, which are pivoted to the sides of the platform A, and the upper ends of which are connected by pivots *h* to rods O, which extend toward the front end of the platform. By pulling these rods in the direction of the arrow marked near it in Fig. 1, the scoops are raised from the ground, and stops *i* inserted in said rods serve to retain them and the scoops in the desired position. By these means the operator is enabled to collect the dirt in heaps on either side of the street without leaving the front end of the car. Brushes P, which are secured to the rear end of the scoops, leave the surface of the street in a clean condition.

This machine may be used for cleaning the sidewalks, and for making or marking out a ditch by means of hoes Q, which are secured

to the axle C. In drawing the machine over the ground the hoes are brought down and the ditch is marked.

What I claim as new, and desire to secure by Letters Patent, is—

1. The oscillating weighted box F, in combination with the platform A, crank-shaft C, and pounder I, constructed and operating in the manner and for the purpose substantially as herein specified.

2. The application of the oblique adjustable scraper K and brush L, in combination with the rising and falling scoops M and platform or car A, all constructed and operating in the manner and for the purpose substantially as herein shown and described.

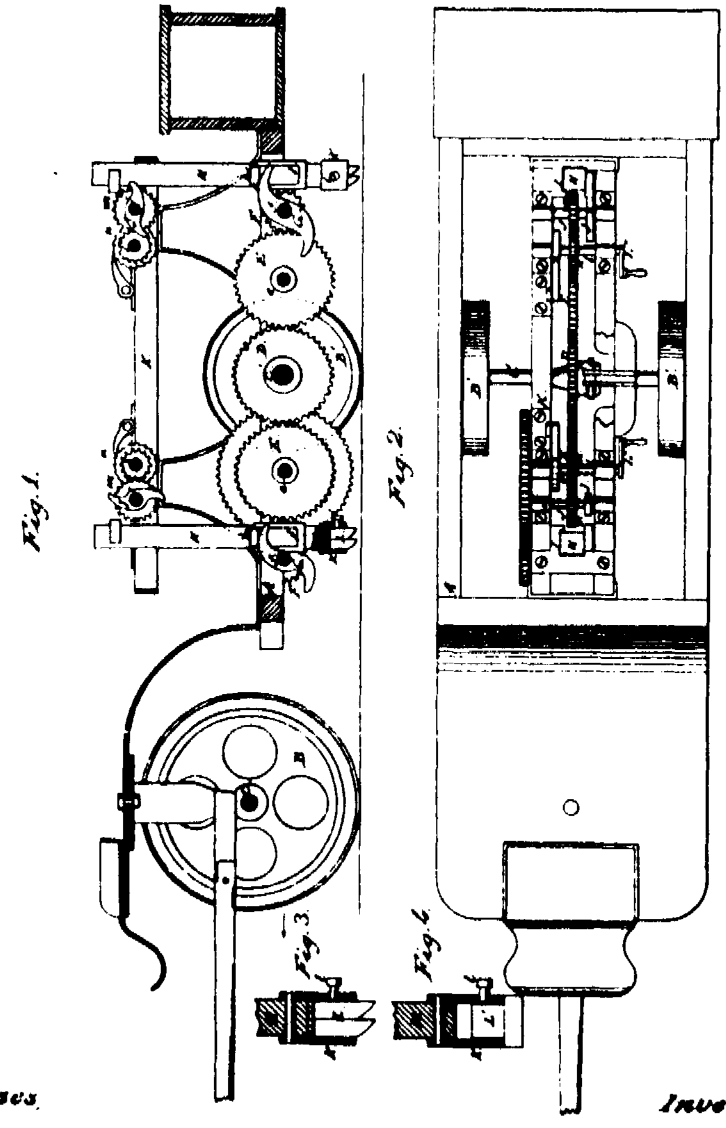
E. HAMBUJER.

Witnesses:
GEO. W. REED,
M. M. LIVINGSTON.

E. Hambujer.

Dressing Stone.

No. 43,687. Patented Aug. 2, 1864.



Witnesses
J. P. Hall
W. Fahnman

Inventor,
E. Hambujer

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF NEW YORK, N. Y.

IMPROVED MACHINE FOR ROUGHENING PAVEMENTS.

Specification forming part of Letters Patent No. **43,687**, dated August 2, 1864.

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of the city, county, and State of New York, have invented a new and Improved Machine for Roughening the Pavement in Streets, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention. Fig. 2 is a plan or top view of the same. Figs. 3 and 4 are detached views of the tool-holders with different tools, in a larger scale than the previous figures.

Similar letters of reference indicate like parts.

This invention consists in the application to a truck of one or more pounders and suitable cams and gear-wheels in such a manner that by the action of said cams the pounders can be raised and dropped automatically by the action of the machine, if desired, or by hand, if the machine is stationary, and by these means the surface of pavements in streets, or flags on sidewalks, can be roughened, or ice can be removed; or, by changing the shape of the tools used in the pounders, the machine may be used for leveling a street or other surface.

A represents the platform of a truck, which is supported by four wheels, B B′, two in front and two in the rear, or, if desired, only one wheel may be placed in front. These wheels run on axles C C′, and the axle C′ of the rear or driving wheels, B′, bears a cog-wheel, D, which gears in two cog-wheels, E, mounted on shafts *e* and these cog-wheels gear in pinions F, which are mounted on shafts *f*. The shafts *f* also carry the cams G, which act upon tappets *h*, projecting from the pounders H. The cams may be made with two arms each, as shown in the drawings, or with only one or more, and the number of gear-wheels between the axle C′ and the cam-shafts may be increased or diminished, as circumstances may dictate. The pounders H are guided in suitable boxes, I, secured to the platform of the truck, and as the truck is propelled in the direction of the arrow marked near it the cams G act on the tappets *h*, and the pounders are raised and dropped in quick succession.

In order to operate the pounders when the truck is stationary, I use cams J, which are mounted on shafts *j*. These shafts have their bearings in a frame, K, rising from the platform A, and a rotary motion is imparted to them by the action of cranks L*, secured to shafts *l*, which connect with the shafts *j* by gear-wheels *m n*. By this arrangement the pounders can be dropped repeatedly on the same place, and the pavement of a street or the flags of a sidewalk can be roughened in a short time and with comparatively little labor. The lower ends of the pounders form sockets *k*, which are pivoted to the stems, as clearly shown in Figs. 3 and 4, so that they can accommodate themselves to the sinuosities of the ground, and allow the tools to come down flat under all circumstances. The tools L L′ are secured in the sockets by set-screws *l*, and if chisel shaped tools L are used the depth of the socket is regulated by plates *o*, which are placed in the same, according to the length of the tools. If the tools are flat and provided with a shoulder, as shown at L′, these plates can be dispensed with.

The tools L are particularly used for the purpose of roughening the pavement in a street, or the flags of a sidewalk, and they may also be used for loosening the ice in streets or on sidewalks.

The tools L′ are particularly intended to level the surface of a street or any other surface before or after the paving-stones are put down.

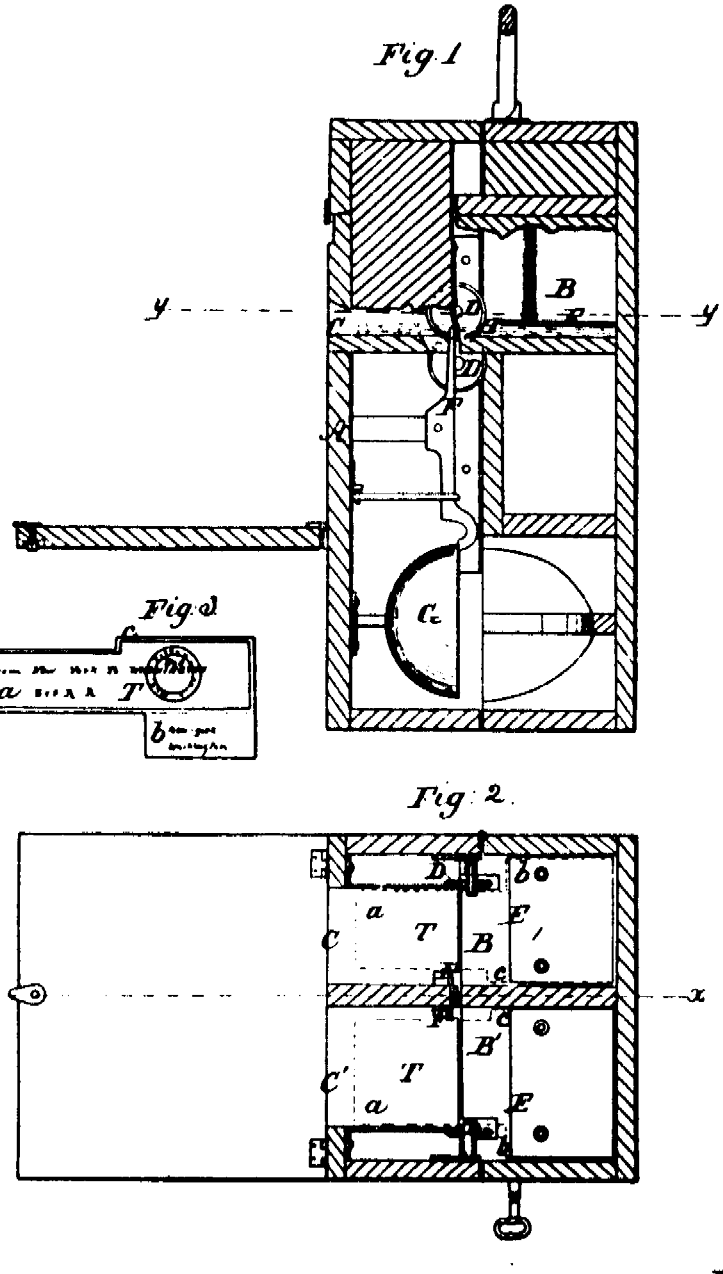
Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The adjustable hinged sockets *k*, applied to the pounders H, in combination with the tools L or L′, constructed and operating substantially as and for the purpose shown and described.

E. HAMBUJER.

Witnesses:
I. P. HALL,
M. M. LIVINGSTON.

E. Hambujer.
Card Rack
No 48,274. Patented Jun 20, 1865.



Witnesses
M. M. Livingston
Chas Kuser

Inventor,
E. Hamburger

UNITED STATES PATENT OFFICE.

E. HAMBUJER, OF NEW YORK, N. Y.

IMPROVEMENT IN TICKET-BOXES.

Specification forming part of Letters Patent No. 48,274, dated June 20, 1865.

To all whom it may concern:

Be it known that I, E. HAMBUJER, of the city, county, and State of New York, have invented a new and Improved Self-Controlling Ticket-Box; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention, the plane of section being indicated by the line *x x*, Fig. 2; Fig. 2, a horizontal section of the same, the line *y y*, Fig. 1, indicating the plane of section; Fig. 3, a face view of one of the tickets which I use in my box.

Similar letters of reference indicate like parts.

The object of this invention is to protect railroad and other companies from fraud by the conductors, who, under the present arrangement, are enabled to sell any number of tickets to passengers on the route and put the proceeds in their own pockets without the possibility of being detected. This difficulty is obviated by the use of the box which forms the subject-matter of this present invention.

The tickets are made in two sections, one to be retained by the passenger and conductor and the other to serve as a check, and to be returned, with the box, to the company. The tickets are inclosed in the box, and they are so placed in relation to suitable knives or circular cutters that whenever one of them is withdrawn from the box that portion which is intended to serve as a check is cut off and retained in the box, while the other portion is handed to the passenger, and afterward taken back by the conductor. The tickets are also provided with a shoulder, which serves to actuate the clapper of a bell whenever one of the tickets is withdrawn from the box, and thereby the attention of the passenger is called to the fact that the conductor has really taken the ticket from the box, and not from any other place.

A represents a box, made of wood or any other suitable material, and so arranged that it can be securely locked, the key being kept in the hands of the railroad or any other company. The interior of the box is divided off into a series of compartments, B B′, (two only being shown in the drawings,) which are intended to hold the different tickets required on a certain route, and these compartments are either stationary, as shown in the drawings, or they may be arranged in a revolving cylinder. In the former case the box must be provided with as many apertures C C′ as there are compartments, so that access can be had to each of the same for the purpose of withdrawing a ticket; but in the latter case (if the compartments are arranged in a revolving cylinder) one aperture in the box is sufficient, and by turning the cylinder several compartments are brought opposite said aperture, according to the class of ticket required.

The tickets T are made in a peculiar form, as shown in Fig. 3. The main portion *a* forms that part which is intended for the passenger and afterward to be taken back by the conductor, and the other portion, *b*, is intended as a check, which is retained in the box and delivered with the same to the company. Said tickets are also provided with a shoulder, *c*, the object of which will be presently further explained. The tickets are placed in the compartments B B′ in such a position that the edge *d* of the main ticket lies close to the cutters D, which are arranged in front of each compartment, and the ends of the tickets extend out through the aperture C or C′, so that they can be grasped with the hand and drawn out. Suitable presser-plates, E, hold the tickets in the compartments B B′ in the proper position. The shoulders *c* of the tickets are opposite to the upper end of the hammer F of a bell, G, which is situated in the lower part of the box, as clearly shown in Fig. 1. If one of the tickets is drawn out by the conductor, the shoulder *c* actuates the hammer, and a sound is produced which calls the attention of the passenger to the fact that the ticket has been withdrawn from the box, and the check *b* is cut off by the cutters D and drops down into the lower part of the box, to which access can only be had when the box is opened.

I claim as new and desire to secure by Letters Patent—

The use of a box provided with suitable cutters, and with or without a bell, in combination with tickets formed substantially in the manner herein described, or in any other equivalent manner, so that by the act of withdrawing the ticket from the box a portion of said ticket is retained and serves as a check for the ticket, as herein set forth.

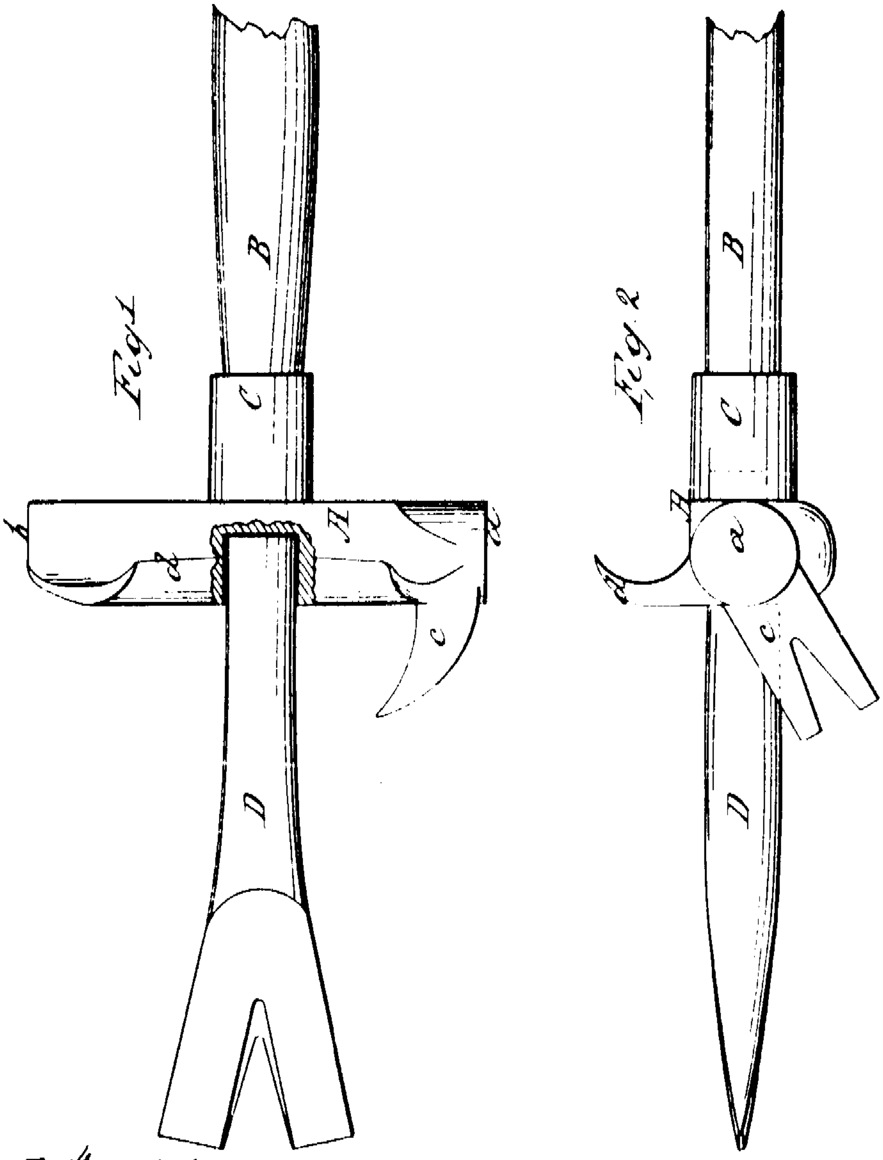
E. HAMBUJER.

Witnesses:
M. M. LIVINGSTON,
J. P. HALL.

E. Hambujer,

Combination Hammer.

No. 50,820. Patented Nov. 7, 1865.



Witnesses

Inventor

50820

Page 115.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF NEW YORK, N. Y.

TOOL FOR OPENING BOXES, &c.

Specification forming part of Letters Patent No. **50,820**, dated November 7, 1865.

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of the city, county, and State of New York, have invented a new and Improved Combination-Hammer; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a sectional side elevation of this invention. Fig. 2 is an end elevation of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a hammer which, besides the ordinary flat face for driving nails, presents a cutting-edge for cutting off hoops in opening boxes, or for cutting a recess in the edge of a box in closing, a scraper for scraping off the address on a box or for other similar purposes, a stationary claw for extracting nails, and a movable chisel-claw inserted in a socket in the hammer for the purpose of forcing open the covers of boxes, in such a manner that one and the same tool combines all the devices necessary or convenient in opening or closing boxes and for other operations.

A represents a hammer, provided with a handle, B, which is secured in the eye C. Said eye is long, so as to give to the handle a firm bearing; but said handle does not extend clear through the eye, leaving room for the chisel-claw D, which is inserted therein, if it is desired to elongate its shank and to obtain a long leverage in prying open a box. Said chisel-claw is constructed in the ordinary manner with a shank, by means of which it can be held in the left hand, while the right hand wields the hammer in driving said claw in under the cover of a box.

One face, *a*, of my hammer is flat, as shown, and the other, *b*, presents a sharp cutting-edge, the former being intended for driving nails or other similar purposes and the latter to take the place of a hatchet.

My hammer is also provided with a stationary claw, *c*, intended to extract nails in the usual manner, with the exception that my claw is situated over the flat face *a* of the hammer instead of at the opposite end thereof.

A scraper, *d*, serves to scrape off the addresses from boxes or to clean the covers of the same, so as to obtain a good surface for writing the new address

The form and shape of the hammer, or of the various parts thereof, may, of course, be changed in various different ways, and I do not wish to confine myself to the precise shape shown in the drawings.

What I claim as new, and desire to secure by Letters Patent, is—

A combination hammer containing a flat face and a sharp cutting-edge, a stationary claw, and a movable chisel-claw, and a scraper, substantially as herein set forth, as a new article of manufacture.

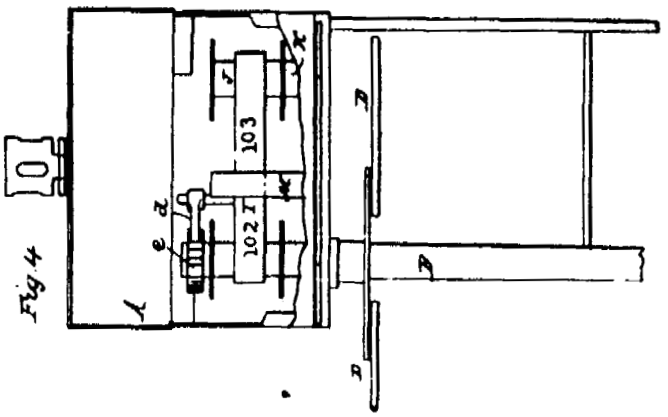
E. HAMBUJER.

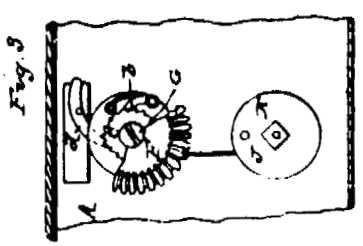
Witnesses:
M. M. LIVINGSTON,
C. L. TOPLIFF.

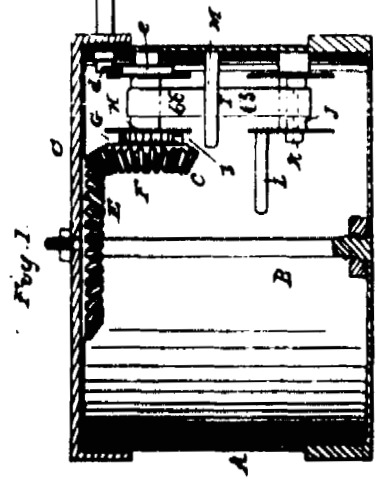
E. HAMBUJER.

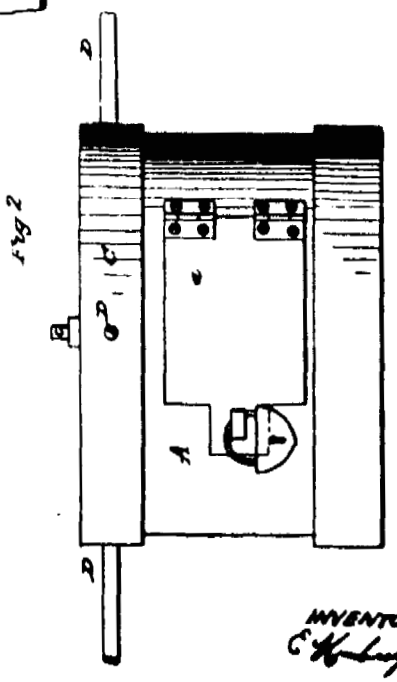
Passenger Register.

No. 52,043. Patented Jan'y 16, 1866.









WITNESSES

INVENTOR

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF NEW YORK, N. Y.

IMPROVEMENT IN PASSENGER-REGISTERS.

Specification forming part of Letters Patent No. 52,013, dated January 16, 1866.

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of No. 6 Allen street, in the city, county, and State of New York, have invented a new and Improved Passenger-Register; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical section of this invention. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse section of the same. Fig. 4 is a modification of the same.

Similar letters of reference indicate like parts.

This invention consists in the use of an endless or long continuous apron or strip of canvas or other flexible material marked with a series of figures commencing at one end and running along in regular order to the other end of the apron or strip, in combination with a box inclosing said strip and with a vertical arbor armed with radiating arms and placed in the passage-way of a ferry or in any other passage through which a series of persons pass, the number of which shall be ascertained, in such a manner that each person, in passing said upright arbor, is compelled to push against one of the radiating arms and to impart to the arbor a partial revolution, which, being transmitted to the apron or strip, causes the same to advance one figure, and that by these means the exact number of persons passing through the passage-way is registered and can be ascertained at any moment. The apron or strip is stretched over two drums, and it is prevented from turning back by ratchet-wheels and pawls or by other suitable devices.

A represents a box of sheet metal, wood, or any other suitable material, and provided with a door, *a*, through which access can be had to its interior. Through this box extends a vertical arbor, B, which may either be arranged as shown in Fig. 1, or which may be constructed in the manner shown in Fig. 4. In the former case the arbor is stationary and firmly secured to the bottom of the box, and the top or cover C of said box is made to turn loosely on the upper end of said arbor. From this cover extend three or more radiating arms, D, and secured to its inner surface is a bevel-wheel, E, which gears into another bevel-wheel, F, mounted on the end of a horizontal arbor, G. This arbor carries a drum, H, which rotates loosely thereon, being connected with the bevel-wheel F by a pawl, *b*, and ratchet-wheel *c*, so that in turning the bevel-wheel in one direction the drum is compelled to rotate, but in turning the bevel-wheel in the opposite direction the drum remains stationary. A stop-pawl, *d*, and ratchet-wheel *e* prevent said drum from turning back.

From the drum H extends an apron or strip, I, of canvas or other flexible material, to a drum, J, which is mounted on an arbor, K, and which can be turned by a hand-crank, L. This crank serves to wind the strip or apron back on the drum J after it has all been taken up by the drum H. The strip or apron is marked with figures, commencing at 1 and running along in regular order to its end. These figures are at such a distance apart that a partial revolution imparted to the top or cover will cause a new figure to pass an index or partition plate, M, (see Figs. 1 and 4,) so that when the box is opened the exact number of revolutions imparted to the cover of the box can be ascertained.

Instead of connecting the radiating arms to the cover of the box, however, they may be connected to the arbor, as shown in Fig. 4. In this case the drum H is mounted on the arbor inside the box, and the apron or strip extends over the second drum, J, which is mounted on a vertical arbor. The operation is in both cases the same.

The box or arbor is placed in the passage-way of a ferry or in another passage-way so that nobody can pass without coming in contact with one of the radiating arms, and that each person in passing through the passage-way is compelled to impart to the cover C or to the arbor a partial revolution, and the apron or strip is moved and a new figure is advanced beyond the partition-plate M. Persons passing through the passage-way in the opposite direction turn the cover or arbor without imparting motion to the apron, which is not allowed to move backward.

On opening the box the exact number of per-

sons having passed through the passage-way can be ascertained.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The apron or strip I, extending over drums H J, in combination with the vertical arbor B and radiating arms D, constructed and operating substantially as and for the purpose set forth.

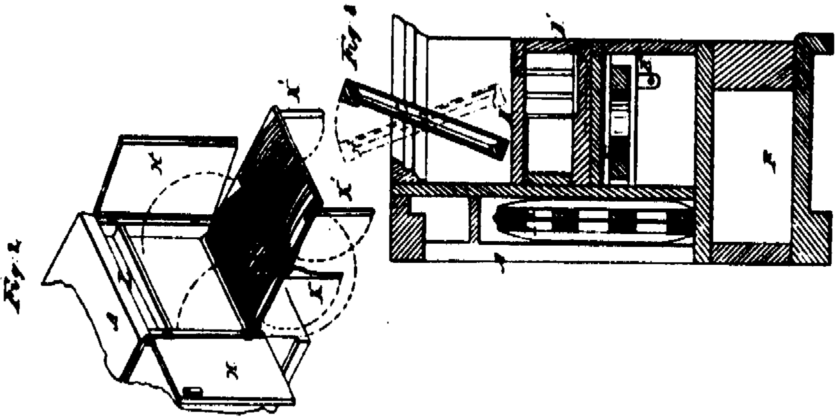
E. HAMBUJER.

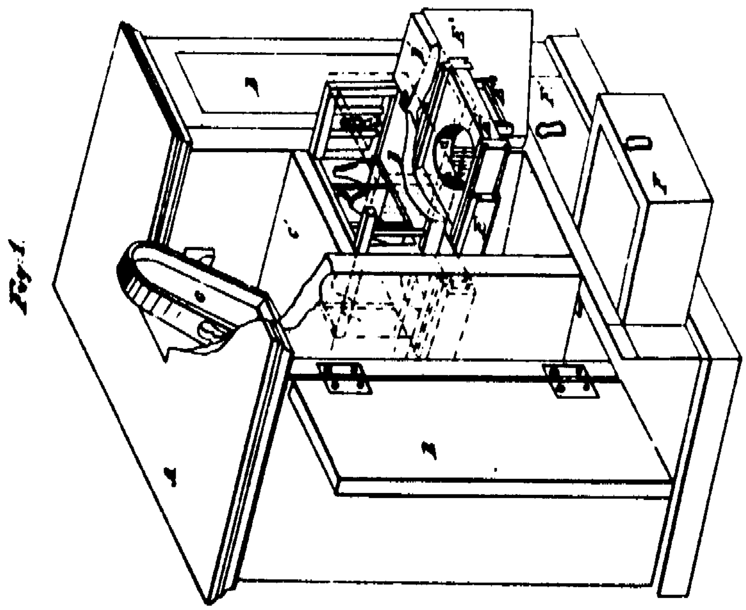
Witnesses:
M. M. LIVINGSTON,
C. L. TOPLIFF.

E. Hambujer,

Wardrobe Bedstead,

No. 54,718. Patented May 15, 1866.





Witnesses;
[illegible]
[illegible]

Inventor
E. Hambujer
[illegible]

UNITED STATES PATENT OFFICE.

E. HAMBUJER, OF DETROIT, MICHIGAN.

IMPROVED WARDROBE, BUREAU, DESK, WASH-STAND, AND BED COMBINED.

Specification forming part of Letters Patent No. 54,718, dated May 15, 1866.

To all whom it may concern:

Be it known that I, E. HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Furniture; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, made part of this specification, in which—

Figure 1 is a perspective view, parts being represented as broken away to show the construction. Fig. 2 is a perspective view of the back, showing the bed; and Fig. 3 is a vertical transverse section through the center.

In the different figures the same letters represent identical parts.

The object of my invention is to provide a single piece of furniture so arranged that it shall in a single article furnish a wardrobe, wash-stand, bureau, and writing-desk.

A is the exterior case, finished according to taste. In the front two doors, B B, close the front of the apartments fitted up as a wardrobe. A recess near the top receives the mirror C, in front of which is a ledge, C', answering as the top of a bureau. Beneath this is the sliding drawer D, which being drawn out, the front D', being folded down upon hinges on its lower side, forms a writing desk, being conveniently fitted with pigeon-holes or little drawers, or both, as desired. A notch is cut away from the lower part of the door D' inside and a corresponding one on the front of the bottom, so that the door may be turned down, as shown. Below this writing-desk opens in the front, the door E² folding upon hinges against the door B of the wardrobe.

E and E' are sliding frames working in grooves, dovetailed so as to secure them. The frame E works on slides attached to the sides of the bureau, and the frame E' working in dovetailed grooves in the inner and opposing faces of the frames E. The frame E' is formed as a wash-stand, having a hole to receive the wash-basin and allow it to slide back, and beneath it a rack, E², for suspending the towels, while the space beneath the frames suffices for the water-pitcher, &c. Under the whole is arranged such drawers F F' as may be desired.

The back of the case A is shown on a reduced scale in Fig. 2. It is closed by two doors, H and H', inclosing a recess containing the folding bed I I', made in two parts. The part I is hinged to the bottom of the recess, and the part I' is hinged to it, so that they may be folded together, as shown in Fig. 3, or extended as shown in Fig. 2. The outer side of the section I' is supported by two hinged legs, K', which fold up against the side when the bed is folded up. The joint between the sections is supported by the hinged legs K, which are attached to the part I, but are formed with a notch near the upper end, as shown, which fits under a projection on the side of the part I', as shown, so that these legs support both parts, and thus relieve the hinges on which the entire weight would otherwise have to be borne. A shelf, L, above the bed is intended to receive the bed-clothes when the bed is folded up.

Having fully explained the construction of my combined article of furniture, what I claim as my invention is—

1. A combined wardrobe, bureau, writing-desk, wash-stand, and bed, when arranged substantially as set forth.

2. In the folding bed I I', the middle legs, K, formed with a notch, as described, and hinged to one section I, in combination with a projection upon the end of the frame I', substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

E. HAMBUJER.

Witnesses:
JOHN FULLER,
WILLIAM HOLEY.

UNITED STATES PATENT OFFICE.

E. HAMBUJER, OF DETROIT, MICHIGAN.

IMPROVEMENT IN CORSETS.

Specification forming part of Letters Patent No. 55,972, dated June 26, 1866.

To all whom it may concern:

Be it known that I, E. HAMBUJER, of Detroit, Wayne county, Michigan, have made a new and useful Improvement in Corsets; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, sufficient to enable one skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, which are made part of this specification, and in which—

Figure 1 represents a rear elevation of my improved corset as applied to the person. Fig. 2 is a rear elevation of a portion of the same relaxed. Fig. 3 is a similar view, illustrating a modification in the manner of applying the whalebones. Fig. 4 is a horizontal section in the position shown in Fig. 2. Fig. 5 is a horizontal section in the position shown in Fig. 1.

Similar letters of reference indicate corresponding parts in the several views.

The nature of my invention consists, first, in constructing corsets with a continuous back, so that when the lacings are drawn tight a lap or fold will be formed underneath the eyelets and whalebones, serving to protect the back of the wearer from chafing or pressure from hard or uneven surfaces; second, in the combination of skirt-supporting hooks with a corset, as hereinafter explained.

In the drawings, A represents the body of the corset, made continuously at *a*, where the rear opening occurs in corsets of common form. B B represent whalebones, which stiffen the corset longitudinally in customary manner.

E E′ represent the two vertical ranges of lacing-eyelets, which may be located, both of them, between the bones B B, as in Fig. 3; or, if preferred, one range may be located between the bones and the other on the outside and close to one of them, as shown at E′ in Figs. 1, 2, 4, and 5. In this case the gore or lap *a*, Fig. 5, is so disposed as to lie beneath the bone B′, and thus prevent any undue pressure therefrom upon the back.

L represents the lacing. The front of the corset is to be provided with the customary metallic loops and buttons for putting on and off the lacings, being employed only to adjust the garment to the proper size.

H H H represent hooks, over which the skirt-strings or suitable eyes or loops upon the waistband of the skirt may be passed, so as to support the skirt easily in proper position and avoid the necessity of drawing the strings tightly around the waist.

By the above-described improvements the clothing is made to fit with greater ease and neatness, and the wearer entirely relieved from oppression therefrom.

Whether the eyelets are brought close together or not, all unpleasant pressure and chafing from the lacings and all wrinkling of the under-garment are entirely avoided.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A corset made substantially as herein described, with a continuous or connected back forming a lap or gore when the lacings are drawn to tighten the garment around the person.

2. In combination therewith, the skirt-supporting hooks H H, arranged substantially as described.

E. HAMBUJER.

Witnesses:
W. F. HALL,
EDWARD H. KNIGHT.

E. Hambujer.
Corset.

No. 55,972. Patented June 26, 1866.

Fig. 3.

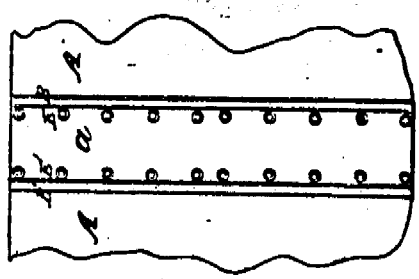


Fig. 1.

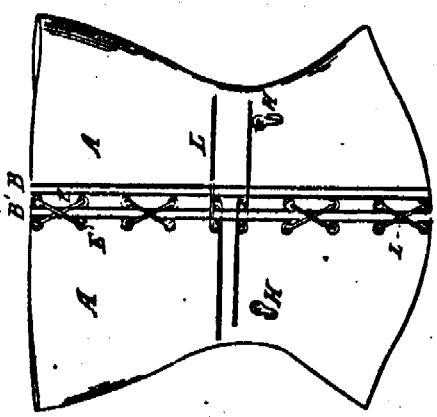


Fig. 5.

Fig. 2.

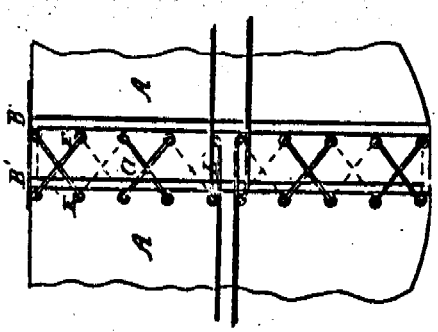


Fig. 4.

W. Hillman
C. Hilmer

E. Hambujer

F. Hambujer.

Convertible Chair.

No. 57,709. Patented Sep. 4, 1866.

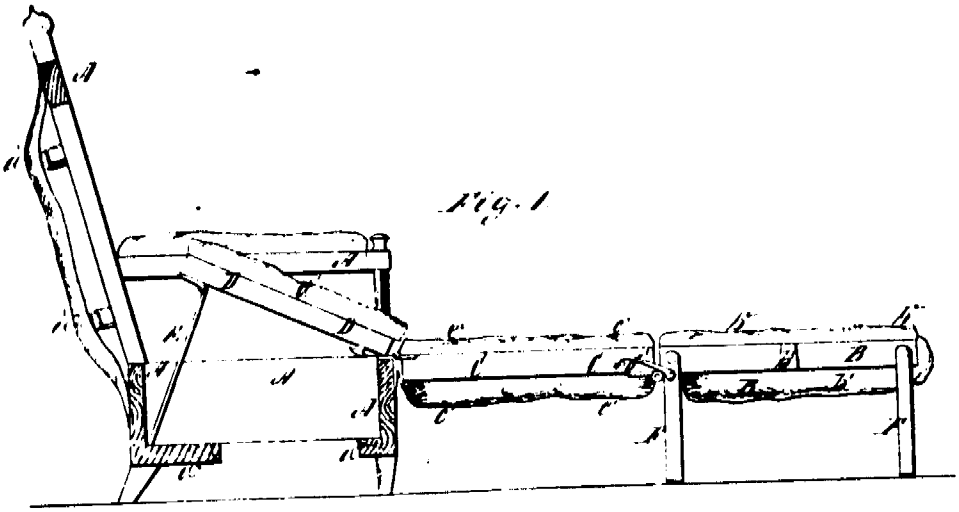
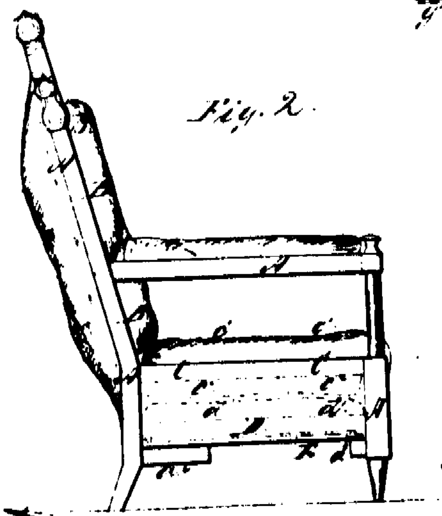


Fig. 1

Fig. 3.

Fig. 2.



Witnesses:

Inventor:

F. Hambujer

by Munn & Co

Attorneys

57709

UNITED STATES PATENT OFFICE.

E. HAMBUJER, OF DETROIT, MICHIGAN.

IMPROVEMENT IN FOLDING CHAIRS.

Specification forming part of Letters Patent No. **57,709**, dated September 4, 1866.

To all whom it may concern:

Be it known that I, E. HAMBUJER, of Detroit, Wayne county, and State of Michigan, have invented a new and Improved Bed-Chair; and I do hereby declare that the following is a *full, clear, and exact description* thereof, which will enable others skilled in the art to make and use the same, reference being had to the *accompanying drawings, forming* part of this specification, in which—

Figure 1 is a side view of my improved bed-chair opened, partly in section, through the frame of the chair. Fig. 2 is a side view of the same closed, part of the frame of the chair being broken away. Fig. 3 is a detail sectional view of the screw-socket by means of which the legs are pivoted to the frame of the bed-bottom.

Similar letters of reference indicate like parts.

My invention has for its object to furnish an easy-chair which may be readily converted into a comfortable bed; and it consists of an improved bed-chair formed by combining the back, seat, cushion, and legs with each other and *with the frame of the chair, as hereinafter* more fully described.

A is the frame of the chair. The rear side of the back of the chair is covered with cloth or leather, which is held out by the curved cross-bars or hoops a', as shown in Figs. 1 and 2, so as to form a space for the folded bed-clothes and for the part B, which, when closed, forms the cushion for the back of the chair, and when open forms the foot-part of the bed.

a^2 and a^3 are cross-pieces attached to the lower part of the seat-frame of the chair, to sustain the cushion and seat of the chair when closed, as shown in Fig. 2.

One side, b', of the part B is upholstered, so as to form, when closed, a cushioned back to the chair, and the other side is upholstered to form a mattress, b^2, for the bed.

The part B is hinged, as shown in Fig. 1, to the part C, which, when closed, forms the seat of the chair, and when opened forms the central part of the bed. One side, c', of this part C is upholstered to form the cushioned seat of the chair, and the other, c^2, to form the mattress for the bed, as shown in the drawings.

The part C is hinged to the front of the seat-frame of the chair, as seen in Fig. 1.

The part D forms the head part or bolster of the bed, and is upholstered only on one side, d', as shown. To this part are hinged two legs, E, one of which is shown in the drawings. These legs E, when the chair is arranged for a bed, support one end of the said part D, and the other end rests upon the upper edge of the front side of the seat-frame of the chair, as shown in Fig. 1.

When the chair is closed, the part D rests upon the cross-pieces a^2 and a^3, the legs E being folded down into the position shown in Fig. 2.

When the chair is opened up to form a bed, the part B is supported by four legs, F, two of which are pivoted to each side edge of the said part B, as shown in Fig. 1.

The legs F are pivoted to the frame of the part B by means of the screw-socket G. This socket is made in the form of a short tube, having a screw-thread cut upon its outer and inner surface, as shown in Fig. 3, and it is screwed into the hole formed for its reception in the frame of the part B by means of a screw-driver, for which purpose a notch is formed in the outer end of the said socket.

The legs F are pivoted to the socket G by means of a screw, g', which passes through the end of the said legs and screws into the said socket, as shown in Fig. 3.

The socket serves as a bearing for the screw g, which retains the leg in position. It prevents breaking away or wearing out of the opening made to receive it, and also the sagging or hanging of the screw out of its proper plane.

f' is a brace pivoted to the side of the legs F, the other end of which terminates in a hook, which hooks over a pin attached to the side of the frame of the part C and keeps the said legs in a vertical position.

When the chair is folded up the legs F are

turned around so as to lie along the edge of the part B, their ends resting against the block b^3, so as to be out of the way.

I claim as new and desire to secure by Letters Patent—

1. The head part D, having legs E, in combination with the parts C B, hinged to each other, and with frame A, provided with pivoted legs F, and braces f', arranged and operating substantially as represented and described.

2. The screw-socket G, in combination with the legs F, and frame of the part B, substantially as described, and for the purpose set forth.

Witnesses: E. HAMBUJER.
WM. F. MCNAMARA,
JAMES T. GRAHAM.

57709

E. Hambujer

Buckle,

No 63,040, Patented Mar. 19, 1867.

Fig. 3.

Fig. 2.

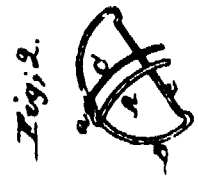


Fig. 1.

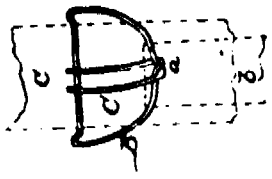


Fig. 4

Witnesses;
John A. Quidenheim
Chas. E. Wilson

Inventor;
E. Hambujer

63040

United States Patent Office.

E. HAMBUJER, OF DETROIT, MICHIGAN.

Letters Patent No. 63,040, dated March 19, 1867.

IMPROVEMENT IN BUCKLES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. HAMBUJER, of the city of Detroit, in the county of Wayne, and State of Michigan, have invented a new and useful improved Buckle; and I do hereby declare the following to be a full, clear, and exact description of the nature thereof, which will enable others skilled in the art to which it appertains to fully understand and construct the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front view of a buckle illustrating my invention, showing straps in red attached thereto.

Figure 2 is a perspective view thereof.

Figures 3 and 4 are modifications thereof.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to produce a complete buckle from one piece of wire, having a spring tongue, whereby a cheap and practical device is obtained, as will be herein more fully described.

In the drawings, A represents my improved buckle, consisting of a frame, B, and tongues, C, made of a single or continuous piece of wire. I make the frame in any known form, preferring, however, that it should be semi-cylindrical, as shown in the drawings. At the point *a* of the wire I bend or twist both ends at corresponding points, forming the base of the buckle, leaving tongues, C, which point towards the side *c* of the frame against which they will rest or bear. These tongues are then curved in the direction of their length, which, with the bend or twist, *a*, will allow them to spring or return to their places, if removed or drawn away from them, to allow of the insertion of the strap or cloth intended to be applied thereto. The strap *b* will be pierced by the tongues, and on turning over the end against the main body of the strap the base will be completely covered, and the strap held in place. The strap *c* is to be applied as ordinarily, the tongues piercing it and holding it against the top of the frame. The straps are readily removable. On withdrawing the strap *c* the tongues will spring to their places, and if the strap is loose or slack it will be securely held the same as if strained or stretched. Fig. 4 is a modification of my device, in which there are more twistings at the base *a*, and the tongues wider apart, forming greater bearing surface, but constructed on the same general principle as the parts heretofore described. Fig. 5 shows a buckle of another modification. After twisting the wire, the tongues are turned or curved at their inner ends in opposite directions, which adds strength and gives greater elasticity thereto. Various modifications may be made, to any particular form of which I do not limit myself further than to construct a buckle complete, of a single piece of wire, forming a frame, which is twisted at its base into a spring, and leaving tongues which always bear against the proper side of the frame, as will be readily perceived from the description herein.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A buckle constructed of a single piece of wire, the ends of which constitute the tongues, being coiled upon each other in the rear, and bowed thence toward their points, substantially as described.

To the above I have signed my name this 2d day of March, 1867.

E. HAMBUJER.

Witnesses:

JOHN A. WIEDERSHEIM,

CHAS. C. WILSON.

E. Hambujer.

Furniture Caster.

No 62,954. Patented Mar. 19, 1867.

Fig 3

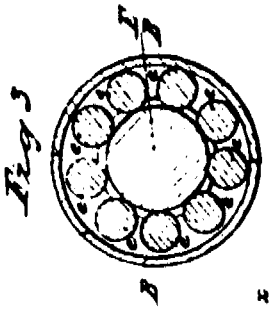


Fig 1

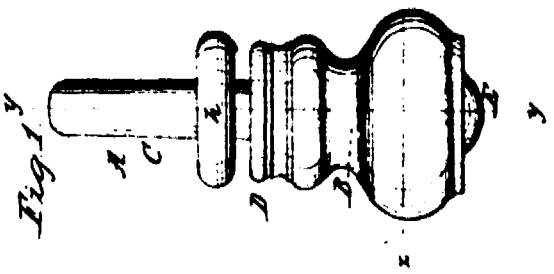
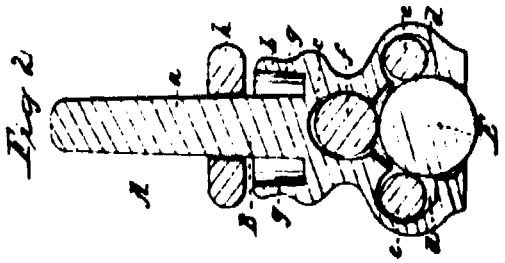


Fig 2



Witnesses.

Inventor.
E Hambujer

United States Patent Office.

E. HAMBUJER, OF DETROIT, MICHIGAN.

Letters Patent No. 62,954, dated March 19, 1867.

IMPROVED CASTER FOR FURNITURE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. HAMBUJER, of Detroit, in the county of Wayne, and State of Michigan, have invented a certain new and useful Improved Caster Roller: and I do hereby declare the following to be a full, clear, and exact description of the nature thereof, which will enable others skilled in the art to which it appertains to fully understand and construct the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side view of a roller illustrating my invention.

Figure 2 is a transverse vertical section of the same in the line *y y*, fig. 1

Figure 3 is a horizontal section in line *x x*, fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to produce a caster roller having a rolling ball, in such a manner that friction is greatly overcome, by means of friction balls arranged relatively to the main rolling ball, and it consists furthermore in the peculiar construction of the box or casket for receiving the balls, forming ready means of inserting them in their chambers, as also of retaining the complete caster in the opening of the leg of the article of furniture to which it is to be applied, as will be hereinafter more fully described.

A represents the box or body of my caster, formed of two sections B, of uniform shape and size, each having a semi-cylindrical shank, *a*, and flange, *b*, cast therewith at their upper ends, forming, when together, a complete shank, C, and flange D, as shown in fig. 1 of the drawings. A channel, *g*, is formed between the flange and shank, the use of which will be hereinafter explained. On the inner face of each section is formed a chamber, *c*, opening downwards into a channel or groove, *d*. The lower end of the sections is open, through which opening protrudes the main roller ball E. The groove *d* receives a series of friction balls, *e*, which are placed nearly equatorial with the roller ball E, and are in contact therewith. The chamber *c* receives the friction ball *f*, which is placed just above the roller ball, and is likewise in contact with it. The sections are placed properly together with the balls enclosed therein in their relative chambers, and the shank is inserted in the opening in the leg of the article of furniture to which it is to be applied, and the lower portions of said leg will drop or fit into the channel *g*, and rest on the bottom of the channel *g*, and securely hold the sections together. On moving or rolling the furniture, the main roller will revolve, the friction will be taken simultaneously by the equatorial balls *e* and the top ball *f* at every point of rotation, and thus the main roller ball will bear only against the other balls and not come in contact with any part of the box which would be likely to cause friction. The balls may be made of iron, brass, glass, or any like suitable material. The ring *h*, which encircles the shank C, illustrates the mode of holding the sections together, being but a substitute for the leg of an article of furniture.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The equatorial balls *e*, moving round the entire circumference of the grooved chamber *d*, in combination with the top ball *f*, operating relatively with the roller ball E, substantially as described for the purpose specified.

To the above I have signed my name this 27th day of February, 1867.

E. HAMBUJER.

Witnesses:

F. H. WRAVER,

JOHN A. WIEDERSHEIM.

E. Hamburger.

Car-Seat Lock.

No. 68,436. Patented Sept. 3, 1867.

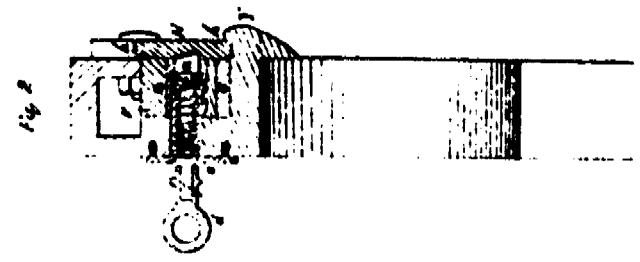


Fig. 2

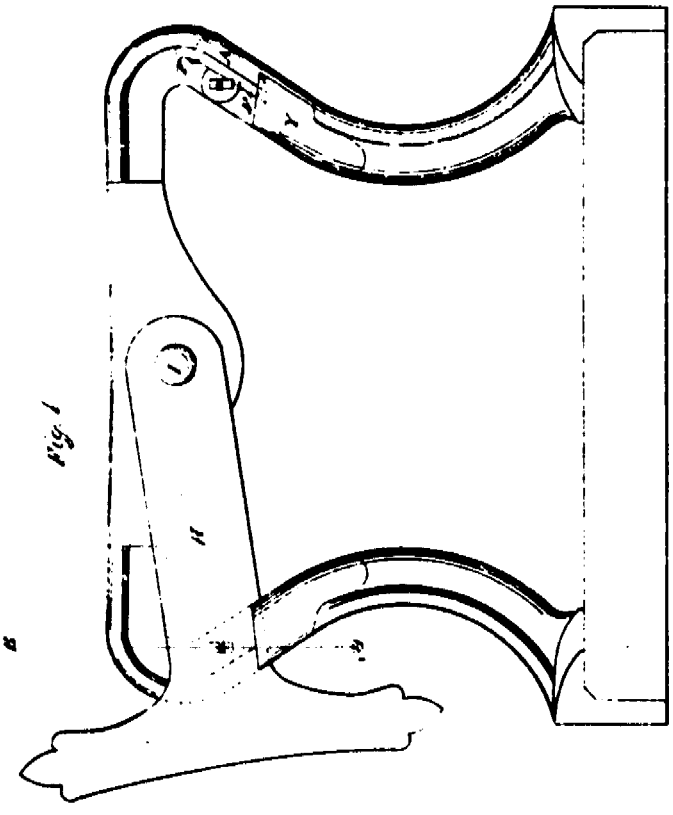


Fig. 1

Witnesses
Wm. A. Kinney
J. M. Wagner

Inventor
E. Hamburger

6 8 4 3 6

United States Patent Office.

E. HAMBUGER, OF DETROIT, MICHIGAN.

Letters Patent No. 68,436, dated September 3, 1867.

IMPROVEMENT IN LOCKS FOR CAR-SEATS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. HAMBUGER, of Detroit, in the county of Wayne, and State of Michigan, have invented a new and useful Improvement in the Locks for Arms of Car-Seats: and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is an elevation, and

Figure 2 is a sectional view.

The manner of securing the car-seat arm is shown at A, side elevation, the lock being held by two screws X X in its position. The arm H, to which the back cushion of the chair is bolted, works freely at the joint I, and in throwing the back of the seat from one side to the other, as may be required, said arm passes close in front of the bolt *c b a*, as shown at *a*, fig. 2, and upon coming to its proper position the square end of said bolt is forced, by the action of the spiral spring surrounding it, into a corresponding recess in the arm H, holding the latter in position and locking it fast. The inner angles of H (see section) are cut away at a suitable distance from the centre of the joint I, fig. 1, so that the arm H may, in passing down to its place, press the bevelled end of the bolt *c b a* back without making the use of the key *d* necessary, and lock itself in the required position. To prevent the arm H from being pulled away from the side of the chair, and as a support for the same, the block Y is attached to the chair, forming a projection in front of H, which rises above the lower part of H, its distance from the face of the chair being equal to the thickness of H.

The lock itself consists essentially of a cylinder containing the spring and bolt, having cast on it the flanges F F for the purpose of bolting the same to the chair. (See figures.) One end of the cylinder is open. It contains the spiral spring and bolt, as shown in fig. 2. In the other end of the cylinder is a square opening, through which the bolt *c b a* moves, and which it fits. The spring surrounding this bolt is kept in place in the cylinder by the plate *e* against which it abuts, through which is cut the key-hole for the admission of the key *d*, fig. 2, the other end of the spring pressing on the shoulder of the bolt *c b a*, as shown, and causing the square end of the latter to project from the cylinder, unless withdrawn by the key, as hereafter described. Upon the end of the bolt *c b a* towards the key-hole is cut a screw-thread corresponding with that on the inside of the tube of the key *d*. The key *d* being inserted through the key-hole in the plate *e*, fig. 2, engages with the screw-thread on the bolt *c b a*, and being withdrawn as far as required releases the square end of the bolt from the recess in the arm H, allowing the latter to be raised.

What I claim as my invention, and desire to secure by Letters Patent, is—

The lock for car-seats, consisting of the spring-bolt *a b c* catching in the recess of the arm H, and operated by the screw-key, as herein represented and described

E. HAMBUGER.

Witnesses:

JAS. W. ROMNYN,

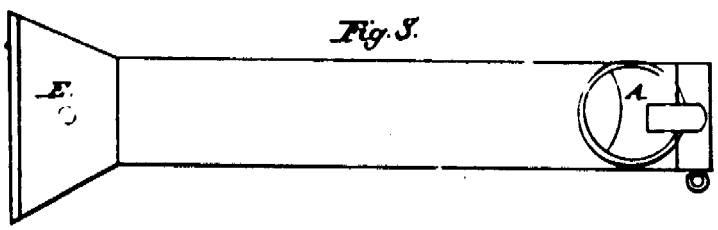
T. W. MIZNER.

E. HAMBUGER.

Stovepipe.

No. 68,437. Patented Sept. 3, 1867.

Fig. 3.



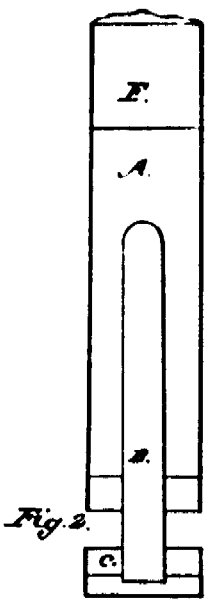
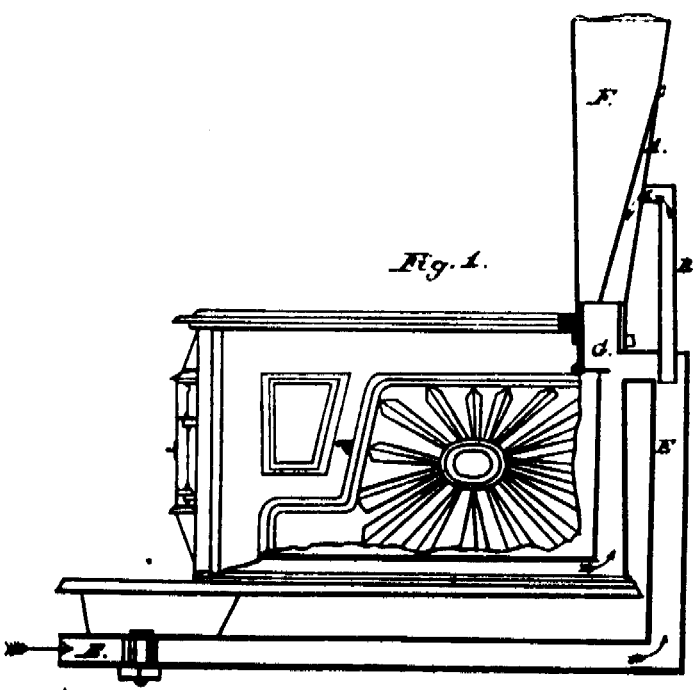
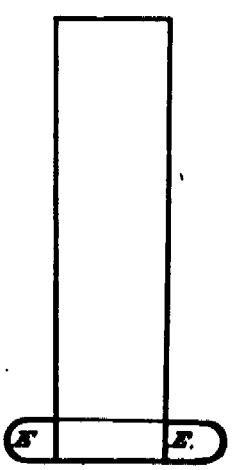


Fig. 2.

Fig. 1.





Witnesses:

Inventor:
E. Hambuger

United States Patent Office.

E. HAMBUGER, OF DETROIT, MICHIGAN.

Letters Patent No. 68,437, dated September 3, 1867.

IMPROVEMENT IN STOVE PIPES TO PROMOTE COMBUSTION.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. HAMBUGER, of Detroit, in the county of Wayne, and State of Michigan, have invented a new and useful Improvement in Fuel-Saving Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation.

Figure 2 is a vertical section of the apparatus, as applied in fig. 1; and

Figure 3 is a horizontal section of the same.

The nature of my invention consists in the construction and arrangement of the pipe or flue of fuel-burning apparatus, the device consisting in dividing the flue F at or near its lower part by an oblique diaphragm, A, (shown in figures,) so as to form a chamber open at the bottom into the throat of the stove or furnace, into which chamber the external cold air is admitted by one or more pipes or openings, (in the drawings by the pipe B.) The specific gravity of the cold air thus admitted being greater than that of the smoke and gaseous products of combustion, the latter are pressed back to the fire and their immediate escape by the flue retarded, by which a more perfect combustion is secured and economy of fuel attained.

Fig. 1 shows a stove or heater with the apparatus attached, the air entering at E, and passing in the direction indicated by the arrows through the pipe B. In the smoke pipe F, leading from the stove, is a partition or diaphragm, A, arranged as shown in the figure, which divides the smoke pipe obliquely into two parts, forming a chamber, open only at the bottom, into the upper part of which the cold air from the trunk E and pipe B enters. The stream of cold air, by reason of its greater specific gravity than that of the smoke and heated products of combustion from the fire in the stove or heater, descends through the chamber formed by the diaphragm, as described, and, uniting and mixing with the smoke of the fire at the opening at the bottom of the chamber, enters the stove or heater, pressing back the smoke, &c., having a tendency to prevent its immediate escape through the smoke pipe. This being at the throat of the stove, where the temperature is high, the smoke and combustible gases, which would otherwise escape, being mingled with the fresh air from the pipe B, are almost totally consumed, the incombustible products making their way off by the smoke pipe.

I claim as my invention, and desire to secure by Letters Patent—

The construction of the flue or pipe of fuel-burning apparatus, by dividing the same by an oblique diaphragm, A, forming a cold-air chamber, open at bottom into the throat of the stove or furnace, into which chamber the external air is admitted by one or more pipes or openings, retarding the escape of smoke and partially-consumed gases from the fire, and securing a more perfect combustion and economy of fuel, substantially as and for the purpose shown.

E. HAMBUGER.

Witnesses:

JAS. W. ROMEYN,

GEO. SEAMAN.

E. HAMBUJER.

Combined Cradles and Rocking-Chairs.

No. 135,425. Patented Feb. 4, 1873.

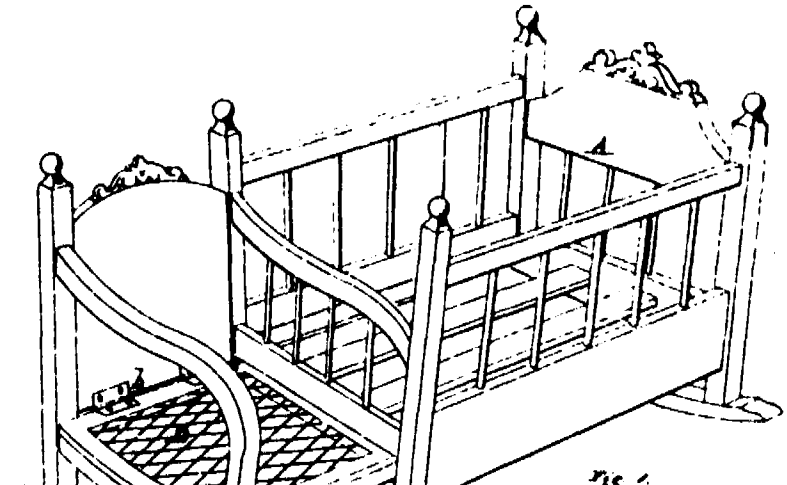


Fig 1.

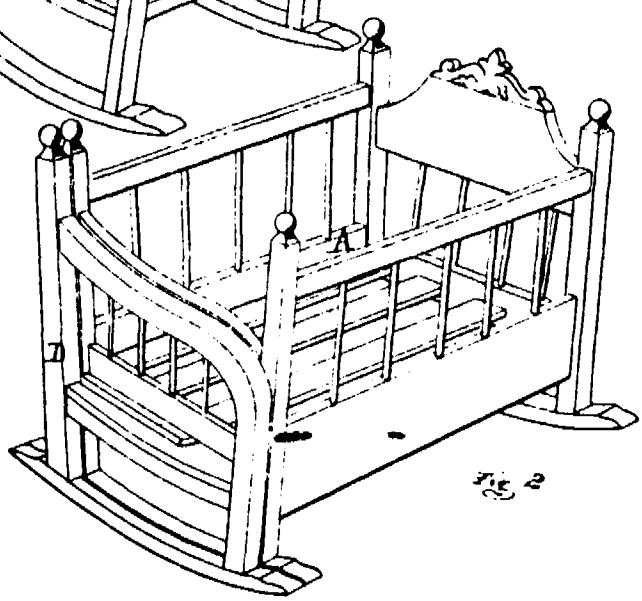


Fig 2

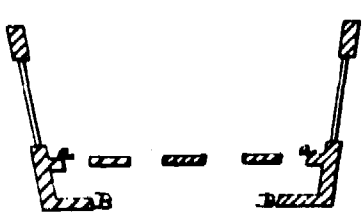


Fig 3.

WITNESSES:
H. L. Sprague
W. F. Clarke.

INVENTOR
E. Hambujer
By Atty
Wm. H. Sprague

Page 135.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

IMPROVEMENT IN COMBINED CRADLES AND ROCKING-CHAIRS.

Specification forming part of Letters Patent No. **135,425**, dated February 4, 1873.

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Combined Rocking-Chair and Cradle; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of a cradle with the rocking-chair attached and extended. Fig. 2 is a similar view with the chair withdrawn into the body of the cradle. Fig. 3 is a cross-section on the line *x x*, Fig. 1.

Like letters indicate like parts in each figure.

The nature of this invention relates to the construction of a combined rocking-chair and cradle in such a manner that a person can sit in the chair and rock, and at the same time and motion rock the cradle. The invention consists in forming a cradle with a telescope rocking-chair for the purpose and in the manner more fully hereinafter set forth.

In the drawing, A represents a rocking-cradle, the two lower side rails being provided with guide bars or slats B securely attached thereto. On the inner faces of side rails there is secured a strip, *a*, which, in connection with the slats B, forms a guide for the seat of a telescope rocking-chair, as is hereinafter described. Below one of the end rails, at a distance equal to the width of the groove formed by the rail B and strip *a*, is secured a rail, C, which may be mortised into the legs of the cradle, thus forming a slot or opening for the reception of the chair-seat. D represents a rocking-chair with one side removed. The back of the chair is hinged to the seat, as at *b*, so that it will fold inwardly upon the seat, which latter may be recessed to receive it or not, as may be desired. When the back is folded down the thickness of the seat and back should not exceed the width of the opening in the end rail. The seat is passed through this opening, and on the under side within the rail of the cradle is securely nailed or otherwise secured a strip or cleat that prevents the chair being entirely drawn out.

When the chair is not in use it can be pushed in or telescoped with the cradle, the arm and legs of the chair fitting snugly against the end of the cradle. Suitable stops are secured to the back standards of the chair-arm and cradle to prevent the back from falling back too far when it is opened.

It will be seen that by this construction of a cradle a person may rock the cradle, at the same time occupying a rocking-chair, and will not be obliged to lay aside any light work that they may have in hand.

What I claim as my invention, and desire to secure by Letters Patent, is—

The chair D, provided with the hinged back, in combination with the fixed cradle A, the chair D being adapted to slide into the cradle when the back is turned down, as described.

E. HAMBUJER.

Witnesses:
H. S. SPRAGUE,
H. F. EBERTS.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

IMPROVEMENT IN EXTENSION TABLES.

Specification forming part of Letters Patent No. 137,917, dated April 15, 1873; application filed February 8, 1873.

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Double Fall-Leaf Tables; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of my improved table with the fall-leaves partially extended on one side and closed on the other. Fig. 2 is a plan in elevation of the extension bracket and leg attached. Fig. 3 is a top-plan view of the extension bracket, showing the brace.

Like letters refer to like parts in each figure.

The nature of this invention relates to the construction of what are usually denominated fall-leaf tables, so arranged as to present nearly all the advantages of an extension table, and at much less expense. The invention consists in the peculiar construction and arrangement of the various parts, as more fully hereinafter expressed.

In the accompanying drawing, A represents a table, and B the top thereof, of the usual construction. To each side of this top B is hinged a fall-leaf, C, in the usual manner. To the outer edges of these fall-leaves C are so hinged other leaves, D, that they will fold inwardly and under the fall-leaves C. E is an extension bracket, hinged at one end to each side of the table-frame and under the edges of the sides of the top, so that the said bracket may be opened and stand at right angles with the frame, to support the fall-leaves C when the same are opened. When this is done the leaves D will hang in a vertical position against the leg F, which supports the outer end of the bracket.

Should it be desired to make the table-top larger still, the leaves D are elevated to the horizontal plane of the top. In order to sustain them in their position, the bracket is made in two pieces, *a b*, so arranged and constructed that one will slide within the other in any desired and convenient manner. Preferably, they may be made to so slide as in the ordinary extension-table supports.

In order to render the leaves D more firm, a brace, G, is so constructed and attached to the part *a* of the bracket that when the same is extended the brace may be extended at right angles therewith, forming an additional support to such outer leaves when extended.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The extension bracket E, provided with leg F and brace G, for the purposes specified.

2. The arrangement of the table A with the leaves C D and bracket E, constructed and combined to operate substantially as and for the purposes described.

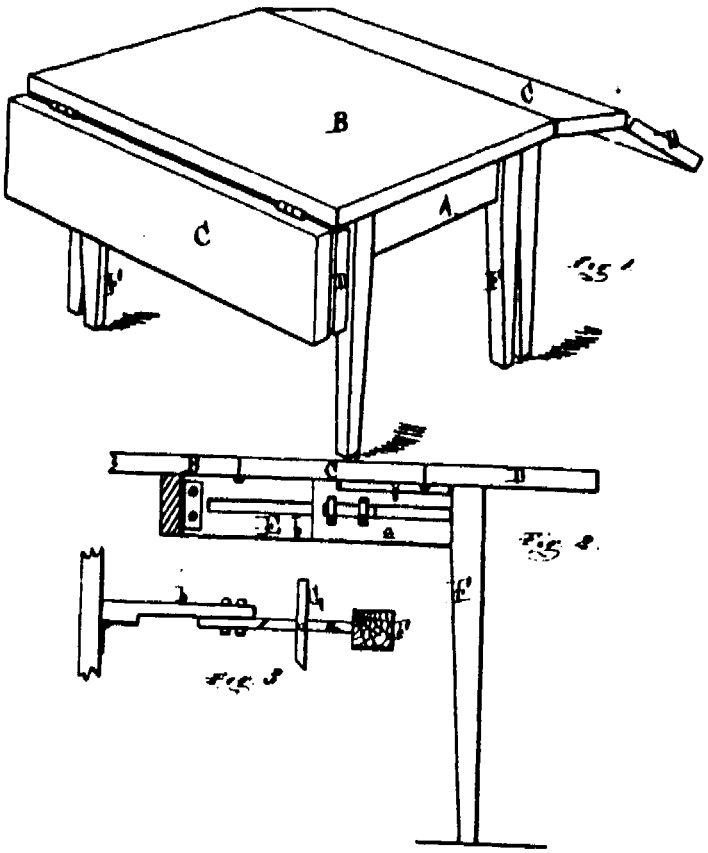
E. HAMBUJER.

Witnesses:
H. S. SPRAGUE,
CHAS. E. HEUSTIS.

E. HAMBUJER.

Extension Tables.

No. 137,917. Patented April 15, 1873.



WITNESS:
H. J. Sprague
H. P. Ellis

INVENTOR:
Ephraim Hambujer
By Atty
Hal D. Sprague

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

CORSET.

SPECIFICATION forming part of Letters Patent No. 264,153, dated September 12, 1882.

Application filed May 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Corsets; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

The nature of this invention relates to certain new and useful improvements in the construction of corsets, and is especially designed as an improvement upon the corset patented to me June 26, 1866, and numbered 55,972.

The invention consists in the peculiar construction of the corset, by means of which it may be increased or diminished in size circumferentially without disclosing an uncovered opening between the parts which form the back thereof, and the re-enforcement so provided with eyelets that in lacing the main fold of such re-enforcement is interposed between the lacing and the person of the wearer, as more fully hereinafter described.

Figure 1 is a rear elevation of the two parts forming the back of the corset, the adjacent edges of which are provided with eyelets in the usual manner. Fig. 2 is a cross-section on the line of any pair of eyelets, showing the re-enforcement and method of adjusting the same. Fig. 3 is an elevation in section, the reverse of Fig. 1.

In the accompanying drawings, A represents one half of the back of a corset, and B the opposite half of the back thereof, boned in any of the preferred styles, and provided with eyelets in their adjacent edges for lacing in the usual manner; but these parts are cut in one piece, the intervening section forming a re-enforcement, C, which folds together, and the outer edge of each fold is also provided with another series of eyelets, through which the lacing passes, as well as through the first series of eyelets mentioned. This lacing is lettered E, and is carried through both series of eyelets, passing between the back proper and the main fold of the re enforcement.

By this construction the corset may be adjusted to larger or smaller forms without leaving an opening in the back, as the re-enforcement will cover such opening, which, when disclosed, as in corsets of ordinary construction, makes discomfort to the wearer.

In my patent hereinbefore referred to a re-enforcement is shown; but it is so arranged that the lacing upon the inner face of the corset is next the person, thereby producing an unpleasant effect upon the wearer, which is entirely avoided by the present construction.

What I claim as my invention, and desire to secure by Letters Patent, is—

A corset wherein the back A B and re-enforcement are made in one piece, and such re-enforcement and adjacent edges of the back proper are provided with eyelets adapted to allow the parts to be adjusted by lacing, said lacing passing through both series of eyelets and in front or outside the main fold of such re-enforcement, substantially as described.

E. HAMBUJER.

Witnesses:
H. S. SPRAGUE,
F. R. ALDERMAN.

(No Model.)

E. HAMBUJER.

CORSET.

No. 264,153. Patented Sept. 12, 1882.

Fig. 1.

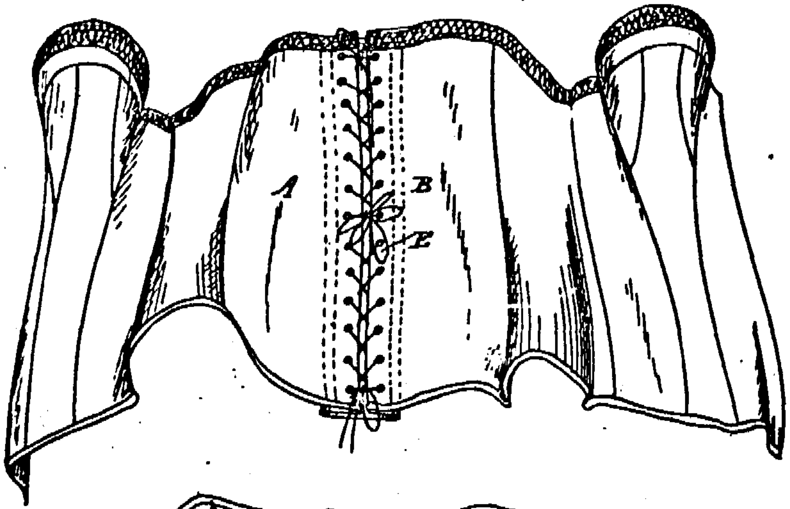


Fig. 2.

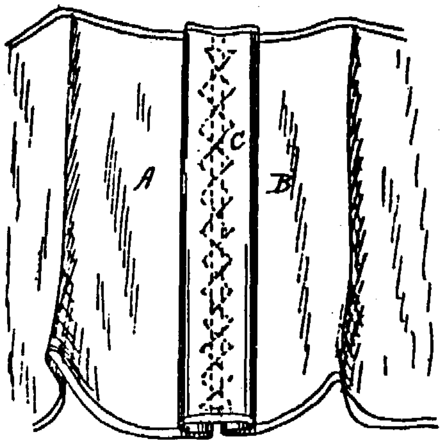
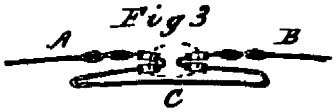


Fig 3



Attest:
[illegible] Sprague
[illegible] Alderman

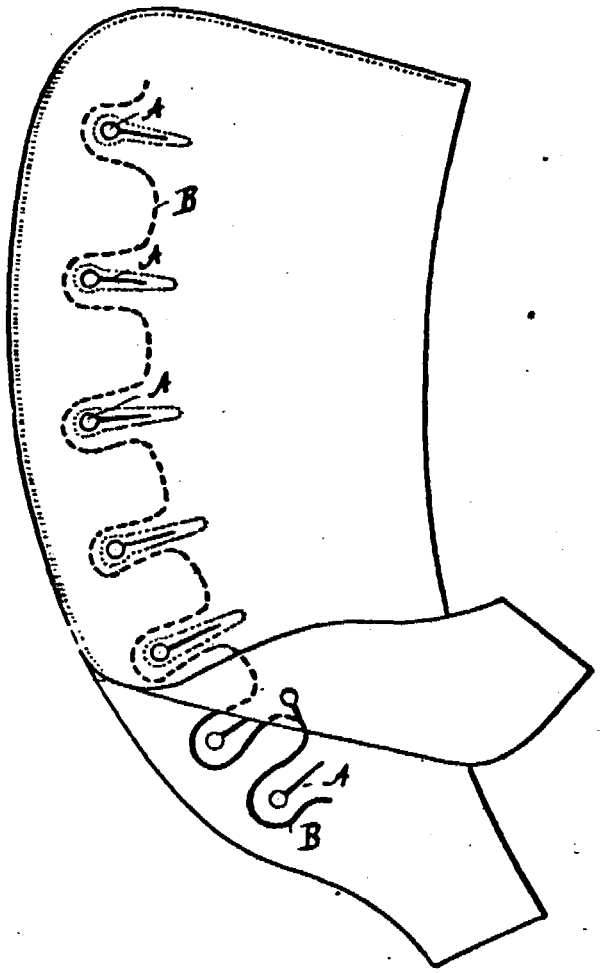
Inventor:
Ephraim Hambujer
By Thos. S. Sprague
Att'y.

(No Model.)

E. HAMBUJER.

BUTTON HOLE STAY FOR BOOTS AND SHOES.

No. 288,794. Patented Nov. 20, 1883.



Attest:
A. Barthel
Charles J. Hunt

Inventor:
E. Hambujer
by his Atty Thos S. Sprague

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO D. P. FRANK AND JOHN KOCH, BOTH OF SAME PLACE.

BUTTON-HOLE STAY FOR BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 288,794, dated November 20, 1883.

Application filed August 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Button-Hole Stays for Boots and Shoes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which forms a part of this specification.

The nature of this invention relates to certain new and useful improvements in the manufacture of what are commonly denominated "buttoned" boots or shoes, and other articles wherein button-holes are liable to be torn out.

The invention consists in securing between the outer portion of the article and the lining thereof corrugated annealed wire, secured in such manner that one of the corrugations of the wire lies in front of the button-hole, to enable it to withstand the strain, the next corrugation in the opposite direction lying between two adjacent button-holes, as more fully hereinafter described.

In the accompanying drawing, which forms a part of this specification, my invention is shown as applied to the front flap of a lady's buttoned shoe, in which A represents a series of button-holes, and B (shown in dotted lines) represents the corrugated annealed wire secured between the front and the lining of the article, so that one of the corrugations is in front of and in close proximity to the outer end of the button-holes, the next corrugation pointing to the rear between such button-holes, so that the connecting portions between the front and rear corrugations lie alongside of the button-holes.

The wire may be very small, so much so as not to make the article appear badly, and is secured between the fly and the lining by gumming, so as to give under the strain of the button-hook, while the flap is sufficiently elastic to resume its original position when the strain is removed.

I am aware that it is not new to run a comparatively straight wire along and parallel to the edge of the button-hole flap, between said edge and the button-holes; but such a wire would be very stiff, and would be troublesome in bending the foot in walking, whereas my wire, being curved and running back parallel with the sides of the button-holes, will be very flexible, and thus overcome this difficulty, and at the same time help to strengthen the button-holes on the sides as well as in front.

What I claim as my invention is—

As a means of staying button-holes in boots and shoes, a corrugated wire arranged so as to extend up one side, along the front of and down the other side of each button-hole, and secured between the front and the lining by gumming, substantially as described.

E. HAMBUJER.

Witnesses:
H. S. SPRAGUE,
E. SCULLY.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-FOURTH TO MARTIN MAIER, OF SAME PLACE.

HASP-LOCK.

SPECIFICATION forming part of Letters Patent No. 313,590, dated March 10, 1885.

Application filed October 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, having invented new and useful Improvements in Hasp-Locks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in hasp-locks, more especially designed for trunks, which will be strong, durable, and economical to manufacture, and which cannot be unlocked without two manipulations, one of them by means of a key.

The invention consists in the peculiar construction of the various parts, their combination, arrangement, and operation, all as more fully hereinafter described.

Figure 1 is a front plan view of my improved lock. Fig. 2 is a cross-section of the same on the line *x x* in Fig. 1. Fig. 3 is a longitudinal section on the line T T in Fig. 1, the parts being detached.

In the accompanying drawings, which form a part of this specification, A represents one part of the hasp, and B the other part, both being secured together by the joint C. The part A terminates in an enlarged and nearly circular plate, D, around which extends the outwardly-projecting flange *a*, having a central round aperture, through which passes the hollow plug *b*, which is interiorly threaded, as shown, for a part of its length. The lower end of this plug is provided with an outwardly-projecting flange, *c*, to prevent its being withdrawn through the central aperture in the plate D, and there is secured to the outer end of said plug an annular and milled edge flange, *d*. Within the hollow plug *b* is concealed the screw *e*, the head of which is so secured that the screw cannot be withdrawn, while its free rotation is not hindered. An annular flange, *f*, is cast upon the rear face of the plate D, which forms a recess within which the hollow plug is concealed and operates.

E is a plate having an exteriorly and interiorly threaded stud, *g*, formed upon its inner face and centrally located, and also having a projecting screw, *h*, projecting centrally from the outer face and cast integrally therewith. A chamber of a smaller diameter and a larger diameter is formed by the walls *i* and *j*, which are cast with the plate E, as shown in Fig. 2. The part B of the hasp also terminates in an enlarged and nearly circular-plate, F, with which is cast a centrally-located and rearwardly-projecting screw, *k*. G and H are flange-nuts, the former being designed to engage with the screw *h*, and the latter with the screw *k*.

In practice the plate F is secured to the trunk-body at the proper place by inserting the screw *k* through the front wall, and securing the same by means of the nut H. Then the plate E is secured, in a similar way, by means of the nut G, to the front wall of the trunk-top, so that the flange *f* will, when the part A of the hasp is raised, enter the smaller chamber formed by the walls *i*, and the plate D will enter the larger chamber formed by the walls *j*. The lock is now secured to the trunk, and can be locked by turning the hollow plug *b*, by means of its milled flange, until said hollow plug engages with the exterior thread of the stud *g*. The screw *e*, having suitable sockets, *n*, cut in its head, is now turned down to engage with the interior thread of the hollow stud *g*, and by this means the parts are so secured together that the hollow locking-plug *b* cannot be released until the screw *e* is released, which can be done by the use of a proper key made to fit the sockets in the head of such screw. This screw should be provided with, say, a right-hand thread, while the plug *b* should have a left-hand thread, or these threads should run in an opposite direction, so that in manipulating one it will not affect the other.

Of course, while this lock is described as attached to a trunk, it will be found equally valuable in all places where a hasp-lock is required.

What I claim as my invention is—

1. A hasp-lock wherein the locking of the same is obtained by means of two screws, the thread of each running in an opposite direction from that of the other, one of said screws

being operated by a key and the other by means of a milled flange, substantially as described.

2. In a hasp-lock, the combination of the plates D and E, constructed substantially as described, the former being provided with a rotating and interiorly-threaded hollow plug, *b*, and the latter with an exteriorly-threaded rigid stud, *g*, the parts arranged and operating substantially as and for the purposes specified.

3. In a hasp-lock, the combination of the plates D and E, constructed substantially as described, the former being provided with a hollow plug, *b*, interiorly threaded, and having within it a screw, and the latter having a hollow stud, *g*, exteriorly and interiorly threaded, arranged and operating as and for the purposes set forth.

4. In a hasp-lock, the plate E, having the exteriorly and interiorly threaded stud *g* and the screw *h*, both formed integral with said plate, in combination with the flange-nut G, plug *b*, and screw *e*, substantially as and for the purpose specified.

5. A hasp-lock consisting of the hasp A B and joint C, the plates D and E, the hollow plug *b* and stud *g*, the screw *e*, the screws *h k*, and nuts G H, the parts being constructed, arranged, and operating substantially as and for the purposes set forth.

EPHRAIM HAMBUJER.

Witnesses:
H. S. SPRAGUE,
E. SCULLY.

(No Model.)

E. HAMBUJER.

HASP LOCK.

No. 313,590. Patented Mar. 10, 1885.

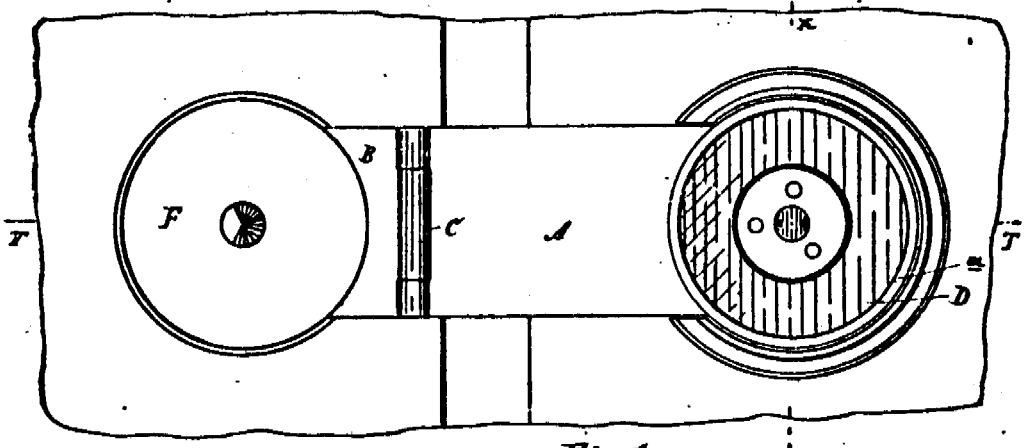


Fig. 1

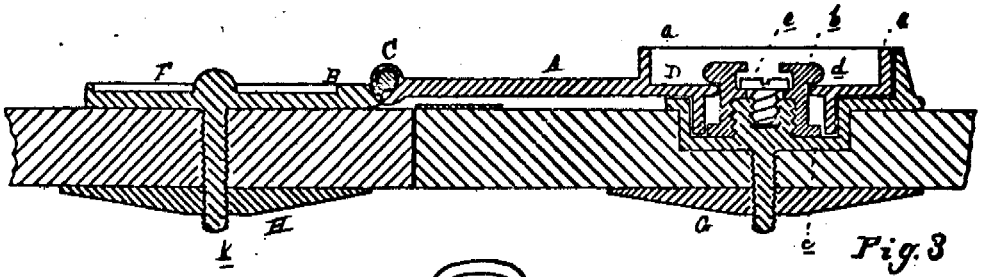


Fig. 3

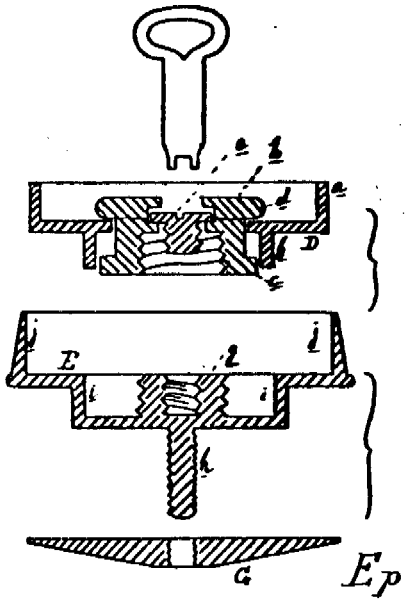


Fig. 2

Attest:
John Schumann
N. Hanyue

Inventor.
Ephraim Hambujer.
by his Atty
Thos. A. Sprague

(No Model.)

E. HAMBUJER.

BRUSH.

No. 348,842. Patented Sept. 7, 1886.

Fig. 1

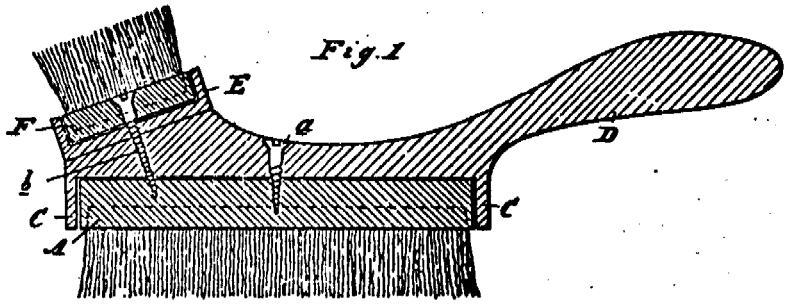
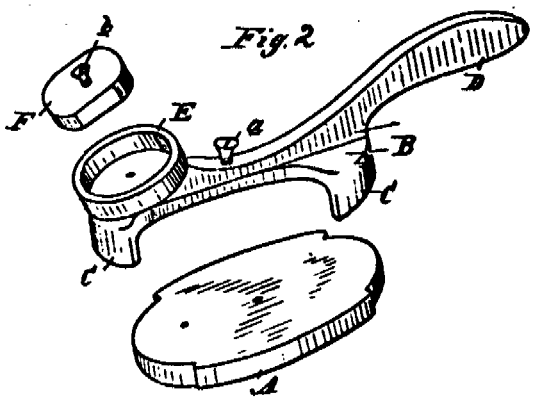


Fig. 2



Attest:
John Schuman.

Inventor:
Ephraim Hambujer.
by his Atty
Phil. d Spraque

Page 146.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR TO BERNARD G. MORRIS AND MARK G. MORRIS, BOTH OF SAME PLACE.

BRUSH.

SPECIFICATION forming part of Letters Patent No. 348,842, dated September 7, 1886.

Application filed May 10, 1886. Serial No. 201,671. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Brushes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in brushes.

The object of the invention is to provide means for securing a handle upon the brush-head, more specially of that class wherein the bristles are held in place by longitudinal binding-wires, such as are described in the patent to one McDonel, March 13, 1883, No. 273,867.

The invention consists in the peculiar combinations and the novel construction, arrangement, and adaptation of parts, all as more fully hereinafter described, and then specifically defined by the claim.

Figure 1 is a central longitudinal vertical section through my improved device with the various parts secured together. Fig. 2 is a perspective view showing the several parts detached.

In the accompanying drawings, which form a part of this specification, A represents the head of a shoe-brush, the ends of which are preferably semicircular in form, as shown.

B is a plate substantially of the form shown, each end of which is provided with a downwardly-projecting flange, C, between which flanges the curved ends of the brush-head snugly fit. It will readily be seen that by the employment of this flange-plate, if the brush is constructed after the McDonel patent hereinbefore referred to, the flanges C will effectually prevent the displacement of the binding-wires or the end staples that secure them in place, while it presents a much more finished appearance to the brush.

D is a handle, which is secured to the top of the plate B in any convenient manner, or it may be formed as an integral part of such plate B, this depending largely upon the material from which these parts are constructed.

The plate and handle are secured to the brush-head by means of a screw, *a*. Upon the forward end of the handle is a socket, E, into which the head F of the "dauber" is designed to closely fit. The socket E may, if desired, be rigidly secured to the handle, or it may be secured merely by the screw *b*, which passes through the center of the dauber-head, as shown. By this construction it will readily be observed that, beyond affording means for preventing the withdrawal or displacement of the binding-wires in a brush of the kind described, additional strength is given to the brush, the handle being prevented from turning upon the head by the flanges, while at the same time either the brush proper or the dauber may readily be removed and replaced with new brushes at very slight expense.

What I claim as my invention is—

In a brush, the combination of the head A, plate B, having flanges C, handle D, socket E, and dauber F, constructed, arranged, and operating substantially in the manner and for the purposes described.

EPHRAIM HAMBUJER.

Witnesses:
H. S. SPRAGUE,
E. SCULLY.

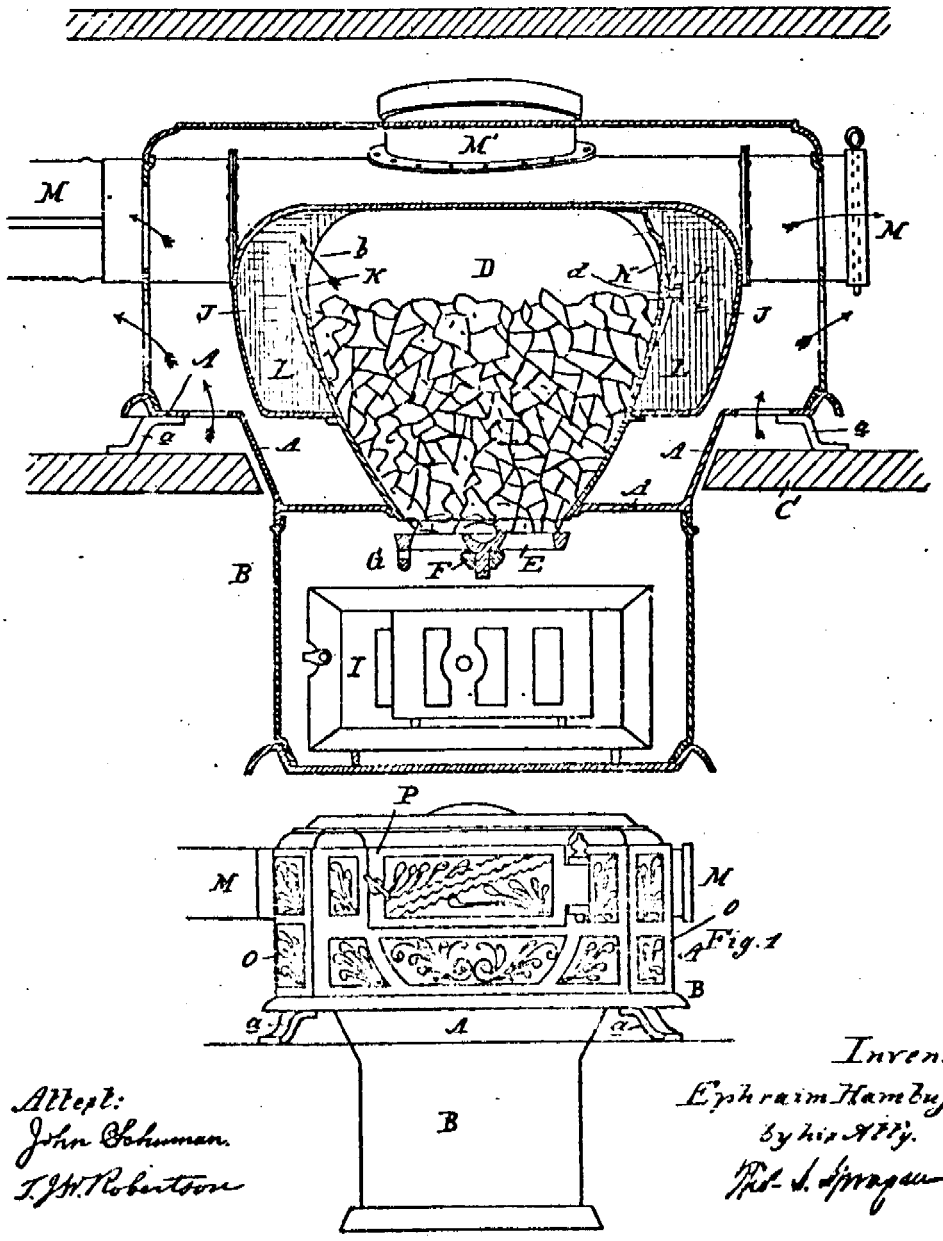
(No Model.) 2 Sheets—Sheet 1.

E. HAMBUJER.

CAR HEATER.

No. 353,558. Patented Nov. 30, 1886.

Fig. 2



Attest:
John Schuman.
T. J. W. Robertson

Inventor:
Ephraim Hambujer.
by his Atty.
Fitz A. Sprague

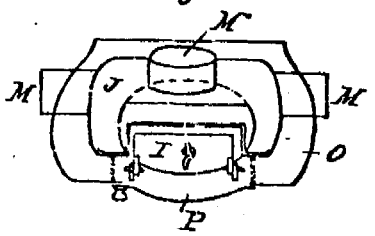
(No Model.) 2 Sheets—Sheet 2.

E. HAMBUJER.

CAR HEATER.

No. 353,558. Patented Nov. 30, 1886.

Fig. 5



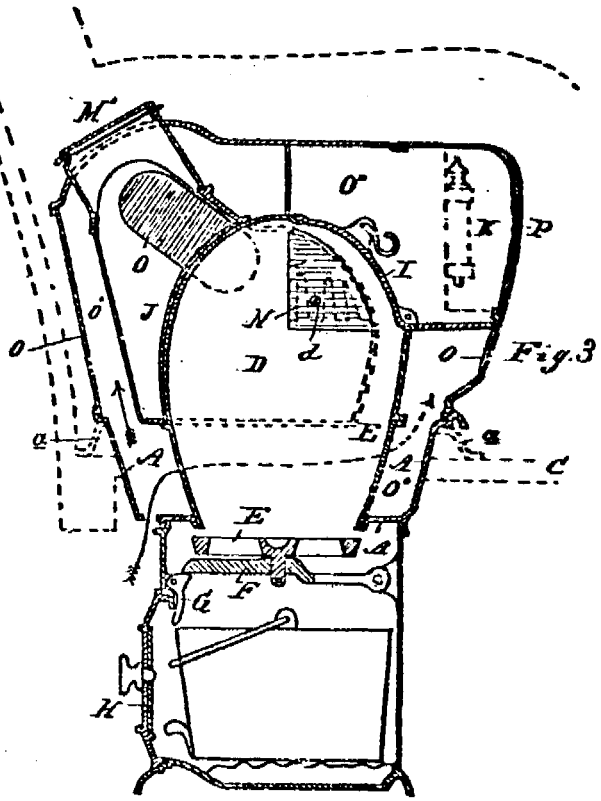
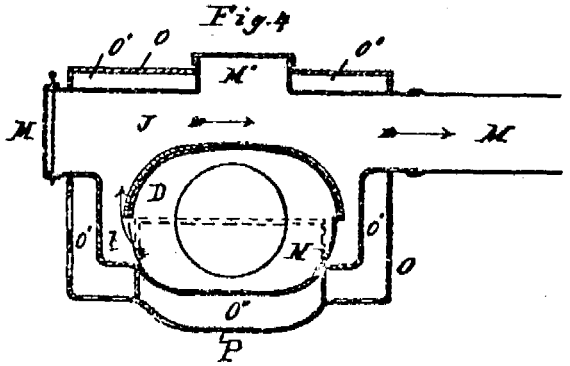


Fig. 4



Attest:
John Ehuman.
T. W. Robertson

Inventor:
Ephraim Hambujer
by his Atty
Thos. L. Lyman

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

CAR-HEATER.

SPECIFICATION forming part of Letters Patent No. 353,558, dated November 30, 1886.

Application filed April 12, 1886. Serial No. 198,629. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Car-Heaters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in heating-furnaces, especially designed for heating street or tramway cars where the room is limited, and which may be used without interfering with the seating capacity of the cars.

The heater is so constructed that the combustion-chamber and radiating parts rest upon the floor of the car beneath the seat, thereby heating the lowest stratum of air in the car, while the grate, ash-pit section, and ash-drawer project downward through the floor, so that the dust arising from clearing the grate and ash-pit is kept from the interior of the car. Means are also provided whereby, if the heater is situated midway between the two ends of the car, the smoke or exit pipe may be carried in both directions under the seat, and through the end walls of the car, and then up through the roof which covers the platforms, so that the driver at one end and the conductor at the other may receive some benefit from the fire.

The invention consists in the pecular construction of the parts, their location with relation to each other, and their combination, as more fully hereinafter described.

Figure 1 is a front elevation of my improved heater. Fig. 2 is a vertical longitudinal section, looking toward the rear of the heater. Fig. 3 is a vertical central cross-section from front to rear. Fig. 4 is a horizontal section through the smoke-jacket. Fig. 5 is a plan of the smoke-jacket, outer case, and feed-doors.

In the accompanying drawings, which form a part of this specification, A represents the base-plate of the heater, which is formed with a "well," as shown, and from which is pendent the ash-pit and draft-section B, designed to project through the floor C of a car, while the base-plate is provided with suitable feet, *a*, which rest upon the floor.

D represents the fire pot, which is supported by the base A, and below which is located a grate, E. This grate is pivotally set in a bracket, F, which latter is pivoted to a stud projecting from the wall of the ash-pit section, its opposite end being supported by a dog, G. When it is desired to dump the grate, the free end of the dog is pushed inwardly, freeing the end of the bracket from the head of the dog, allowing bracket and grate to swing downwardly and deposit the contents of the fire-pot into the ash-pit, from whence they may be readily removed through the door H.

The fire-pot is cast or formed dome shaped, and is provided with a feed-door, I, surrounding the ends and back of the fire-pot, and supported thereby is a jacket, J, into which the products of combustion pass from the fire-pot through an opening formed in the sides thereof, as at *b*. These openings have secured over them fingers K, which may be cast, if found preferable, as an integral part of the fire-pot, and they are for the purpose merely of preventing the fuel or contents of the fire-pot from falling into the chamber L, which is formed by the jacket J around the fire-pot, and either one of these openings, as may be desired, or as may be necessary from the position that the stove may occupy within the car, should be closed by a plate, N, the products of combustion passing from the fire-pot into the jacket, from whence they find an exit at either end of the jacket at M, or through a vertical pipe connected at M', as may be desired. This plate N is retained in position by means of a bolt, *d*, which projects outwardly between the fingers K of the fire-pot, and receives upon its outer end a nut, *e*, that will not slip between said fingers, the said plate being of sufficient size and shape to fully close the draft-opening at that point. For instance, if it is desired to have the products of combustion pass out upon the right-hand exit, as in Fig. 4, there is a cap placed over the other exits, M M', and the right-hand exit of the fire-pot is likewise closed, thereby forcing the products of combustion to pass to the left (referring to Fig. 4) into the jacket J, thence around the fire-pot and out at the right-hand end of the jacket, as is clearly shown by the arrows in the figure referred to, thereby

gaining a circulation of the products of combustion around the fire-pot within the jacket, radiating their heat through such jacket into the car. O is an external casing, that is preferably perforated at its sides and front, while its top is imperforate. It forms an air-space, O', surrounding the smoke-jacket J.

It will be seen upon referring to Figs. 2 and 3 that the heated air thrown off from the fire-pot and the jacket surrounding it will heat the air and cause a circulation of air through the outer space, O', as is clearly shown in Figs. 2 and 3, already mentioned. Of course, if desired, both of the openings at the ends of the fire-pot may be left open, particularly when a draft in a direct line, as through M', is necessitated by the position that the stove or heater may occupy in the car.

The case O is provided with a door, as P, which it is necessary in the construction shown to open before fuel can be introduced into the fire pot. It is evident, however, that a door of the construction shown or any other door or slide may be employed, as the mere function of the door is to provide a communication through the perforated case which surrounds the stove to the feed-door, and to serve as a shield or guard to prevent the clothes of any person occupying a seat immediately above coming in contact with such portions of the stove as may be sufficiently heated to burn or scorch them, while at the same time it gives a more ornamental finish to the structure. The space O'' between the fire-pot and the feed-door P is preferably separated by suitable partitions from the space O'.

In practice, the device being placed in a car and arranged substantially as shown and described, a fire is made in the fire-pot, either with coke or coal, as may be the most preferable. The cold air will rush through the perforated case O, become heated in passing over and around the jacket J, and be discharged in such heated condition into the car through the perforations in the casing, causing a circulation of the air in the car through the casing to heat such air and discharge it back into the car, and as such cars are usually constructed there will be leakage enough to insure a rapid change of the air within the car.

It will be noticed that this device occupies no space that is valuable for passengers, and that while the seat immediately over the device may be somewhat warm, it will not be inconveniently so, owing to the air-space.

If desired, and it would be preferable, the side of the car and under side of the seat may be covered with sheet-iron, so as to prevent the radiation of too much heat to the seat immediately above.

What I claim as my invention is—

1. The combination, with the fire-pot provided with openings *h*, of the fingers K, secured over said openings, and the plate N, pivotally secured to one of said fingers, substantially as and for the purpose specified.

2. In a car-heater, the combination, with the fire-pot, of the jacket J, surrounding the same and forming the chamber L, the fire-pot being formed with openings affording communication with said chamber, plates for controlling said openings, and one or more exits from said chamber through the said jacket, substantially as described.

3. In a car-heater, the combination of the fire-pot, the jacket J, surrounding the same and formed with exits M M, and exit M' at right angles thereto, removable caps for said exits, and the external casing, O, forming an air-space around the jacket J, substantially as described.

4. In a car-heater, the combination of the fire-pot, the jacket J, surrounding the same and provided with exits M M M', as described, and removable caps therefor, the perforated external casing, O, provided with feed-door P, and suitable partitions forming the feed-throat between the fire-pot and the feed-door, and the pivoted plates N, substantially as described.

EPHRAIM HAMBUJER.

Witnesses:
WM. TURNER,
CHARLES RAEDER.

(No Model.)

E. HAMBUJER.

LOCK.

No. 350,738. Patented Oct. 12, 1886.

Fig. 1

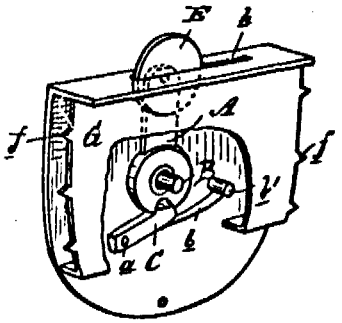


Fig. 2

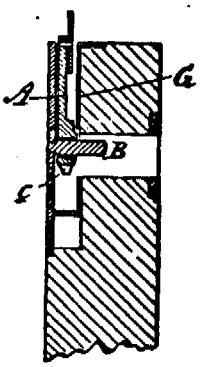


Fig. 5

Fig. 4

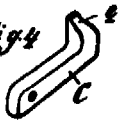


Fig. 3

Attest:
John Schuman.
Edmond Scully.

Inventor:
Ephraim Hambujer.
by his Att'y
Thos. S. Sprague

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO CARL H. MICHELL, OF SAME PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 350,738, dated October 12, 1886.

Application filed July 29, 1886. Serial No. 209,407. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Locks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in locks; and the invention consists in the peculiar construction and arrangement of parts hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view of said lock. Fig. 2 is a vertical central section thereof Figs. 3, 4, and 5 are perspective views of parts, as indicated by the letters of reference.

My improved lock belongs to that class commonly known as "latch-locks," and A is the latch pivotally secured upon a stud, B.

C is the tumbler pivotally secured at *a*. *b* is a spring secured to a stud, *b'*, projecting from the front plate of the lock and bearing against the said tumbler.

The latch is provided with a notch, *c*, into which the free end of the tumbler engages when the latch is thrown, as shown in Fig. 1.

To throw the latch, I provide a key, D, which has a pin or projection, *d*, on its end of suitable size and shape to enter the notch *c* of the latch. To throw the tumbler easily out of engagement with the latch, I provide the former with the beveled lip *e*, so arranged that by entering the key in the proper manner the projection *d* on the key first comes in contact with the bevel of said lip *e*, and, crowding it out of position, unlocks the latch and permits the engagement of the projection *d* into the notch of the latch, which leaves it free to be turned with the key.

The cap-plate G of the lock is provided with spurs *f*, which project from the edges of said plate, as shown, and are designed to engage into the wood upon the sides of the mortise made for the reception of the lock, said mortise being cut in the shape of the front plate and of the required depth, after which the lock is forced in a downward direction.

The free end of the latch is provided with a rolling disk, E, which passes out through the slot *h* in the top plate. This arrangement not only facilitates the locking and unlocking by reducing any possible friction of the latch with the walls of the slot *h* into which it engages, but likewise prevents the usual way of surreptitiously opening such locks by means of a knife-blade inserted into the crack above the lock, a practice which has been largely encouraged by the defective construction of the cheap locks in common use with all kinds of furniture and wherein a sliding bolt is employed.

As my latch lock can be made quite as cheap as the locks referred to, the difference in operation and the increased difficulty of tampering with it form a very desirable advantage.

What I claim as my invention is—

1. The combination, with the latch A, having notch *c*, of the spring-pressed tumbler C, having lip *e* engaging said notch, and the key D, formed with projection *d*, substantially as and for the purpose specified.

2. In a lock, the case consisting of the front, cap, and top plates, the latter provided with slot *h*, combined with the latch pivoted on the stud B, and having a disk, E, and notch *c*, the spring-pressed pivoted tumbler C, having bevel-lip *e*, and the key D, formed with projection *d*, all arranged for joint operation, as set forth.

his
EPHRAIM × HAMBUJER.
mark.

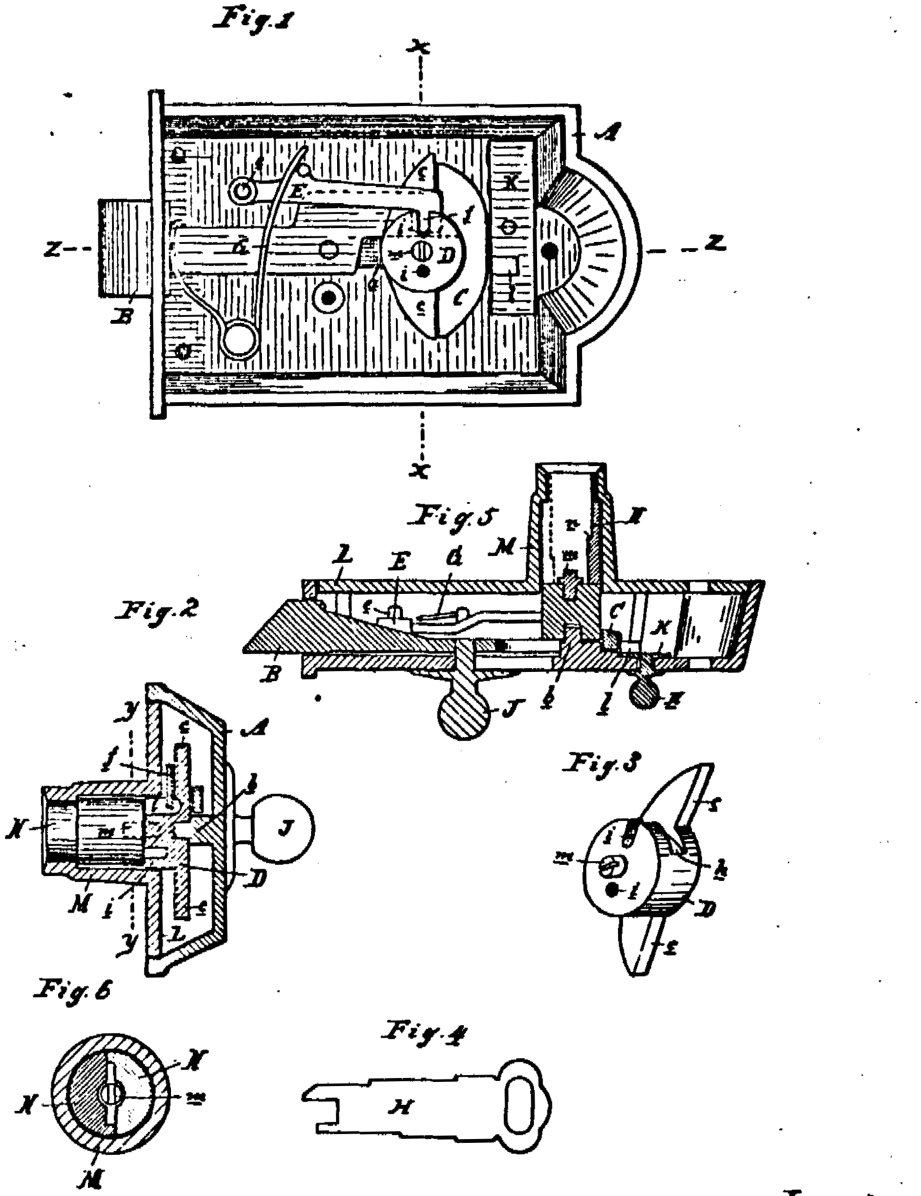
Witnesses:
H. S. SPRAGUE,
E. SCULLY.

(No Model.)

E. HAMBUJER.

COMBINED LATCH AND LOCK.

No. 366,829. Patented July 19, 1887.



Attest:

John Schuman

E. J. Scully

Inventor:

Ephraim Hambujer.

by his Att'y

Thos S. Sprague

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO J. CHARLES EICHHORN, OF SAME PLACE.

COMBINED LATCH AND LOCK.

SPECIFICATION forming part of Letters Patent No. 366,829, dated July 19, 1887.

Application filed May 12, 1887. Serial No. 237,947. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Combined Latch and Lock; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in combined latches and locks.

The invention consists in the peculiar construction, arrangement, and combinations of the various parts, all as more fully hereinafter set forth.

Figure 1 is a plan of my improved latch and lock with back plate removed. Fig. 2 is a cross-section of the same on line *x x*. Fig. 3 is a perspective view of the actuating-barrel. Fig. 4 is a plan of the key. Fig. 5 is a horizontal section on line *z z*, Fig. 1. Fig. 6 is a cross-section on line *y y*, Fig. 2.

In the accompanying drawings, which form a part of this specification, A represents the lock-case, which incloses the operating parts of the lock.

B is the latch-bolt, which has a sliding movement between the guide *a* and post *b*. The rear end of this bolt is provided with a T-head, C. Upon the post *b* is stepped the barrel D, which latter has laterally-projecting arms *c*.

E is a tumbler pivotally secured upon the post *e*, located near the front end of the case, its free end being provided with an arm, *f*, to engage with a recess, *h*, in the edge of the barrel D and in the pathway of the key.

In the face of the barrel D are formed two or more keyways, *i*, to receive the prong ends of the key H, one of such prongs being beveled off, so that as it is inserted in the lock it will force the tumbler outwardly and allow the barrel to be partially rotated for retracting the latch-bolt.

Secured to the latch-bolt and projecting through the front face of the case is a stud, J, by means of which the bolt may be retracted, as in the usual manner in locks of this character.

K is a locking-slide, which has a stud, *k*, projecting through the case, by means of which it may be moved so as to bring its stop *l* in the path of the latch-bolt to prevent the latter from being retracted.

In the center of the barrel D is formed a threaded hole, into which a screw-plug, *m*, of greater or shorter length, may be put to correspond to the depth of the step cut in the end of the key.

G is a spring which actuates both the latch-bolt and the tumbler.

The back plate, L, is secured to place in the usual manner, and is provided with a hollow boss, M, in which is located a key barrel or guide, N, for directing the key to its proper engagement with the operating parts of the lock. This key-barrel is split in halves longitudinally, and each half is provided with a flange, *n*, one or both of which may be notched, as shown, to engage with a shoulder or shoulders on the key. By changing the positions of these notches and lengthening or shortening the plug in the barrel D, the lock can be changed so that it will require a special key for each lock.

What I claim as my invention is—

1. In a combined latch and lock, the combination of the latch-bolt B, key-barrel D, provided with the adjustable central plug, *m*, recess *h*, and arms *c*, with the tumbler E, formed with arm *f* to engage said recess, and spring G, actuating both the bolt and tumbler, substantially as and for the purposes set forth.

2. In a combined latch and lock, the combination of the latch-bolt B, key-barrel D, tumbler E, spring G, hollow boss M, and key-guide N, provided with notched flanges *n*, substantially as described.

3. In a combined latch and lock, the combination of the latch-bolt B, key-barrel D, tumbler E, spring G, hollow boss M, key-guide N, and locking-slide K, when the parts are constructed, arranged, and operated substantially in the manner and for the purposes specified.

EPHRAIM HAMBUJER.

Witnesses:
H. S. SPRAGUE,
E. J. SCULLY.

(No Model.)

E. HAMBUJER.

FURNITURE CASTER.

No. 365,809. Patented July 5, 1887.

Fig. 1

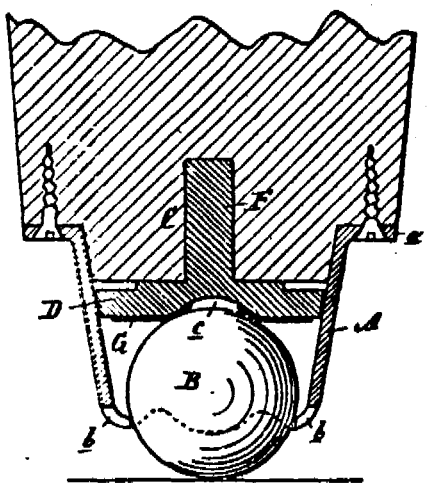


Fig. 2

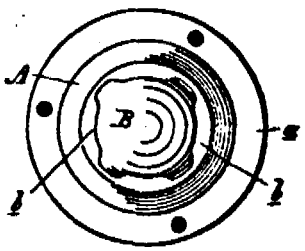
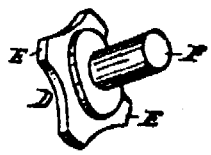


Fig 3



Attest:
John Schuman.
Edmond J. Scully.

Inventor:
Ephraim Hambujer.
By his Att'y
Charles J. Reed

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR OF THREE-FOURTHS TO S WIGHTMAN STEWART AND HENRY WÜNSCH, BOTH OF SAME PLACE.

FURNITURE-CASTER.

SPECIFICATION forming part of Letters Patent No. 365,809, dated July 5, 1887.

Application filed May 9, 1887. Serial No. 237,570. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Furniture-Casters; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to new and useful improvements in furniture-casters, and belongs to that class known as "ball-casters."

The invention consists in the construction and arrangement of the different parts, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a vertical central section showing the caster attached to a furniture-leg. Fig. 2 is a bottom view, and Fig. 3 is a detached perspective of the upper bearing of the ball.

A is a conical shell, provided at its upper end with an annular flange, *a*, by means of which and suitable screws the caster is secured in the ordinary manner. The lower conical end of the shell is cut away at several points to form three or more downwardly-projecting lips, *b*, which are preferably also bent inwardly to form side bearings for the ball B, which projects through the lower end of the cup, but cannot pass through.

C is an upper bearing, formed of a disk, D, fitting within the conical shell, and having formed upon its under side, and in the center thereof, the concave recesses *c*, of less diameter than the ball, so as to form the annular bearing for the ball upon the edges of the concavity. The disk D is supported upon the inner walls of the conical shell A, and may be cut away upon its periphery as shown, to form sectional bearing-surfaces E against the wall of the cylindrical shell, and between its annular bearing C and the side bearings of the ball the latter is allowed a slight vertical play. Upon its upper face the disk D is provided with an upwardly-projecting stem, F, which is intended to fit into a hole bored in the furniture-leg, and supported therein independently of the conical shell.

G is a washer of thin mica interposed between the upper bearing, C, and the top of the ball, and forms an anti-friction bearing for the ball, which permits it to rotate more freely than without it.

Instead of securing the caster by means of a flange, *a*, the leg may be simply inserted into the upper end of the conical cup and suitably fastened therein.

What I claim as my invention is—

In a furniture-caster, the combination, with the ball B, of the conical shell A, provided with the downwardly and inwardly projecting lips *b*, arranged to form side bearings for the ball, the disk C, supported upon the inner side of the conical shell and concaved upon its under side to form an annular top bearing for the ball, and the mica washer G, interposed between the ball and the top bearing of the ball, all substantially as and for the purposes set forth.

E. HAMBUJER.

Witnesses:
E. H. BOND,
CHAS. H. RAEDER.

U.S. DEPARTMENT OF COMMERCE

PATENT OFFICE

Washington, D.C. 20231

NOTICE OF UNAVAILABLE PATENT

PATENT NUMBER

371-577

IS CURRENTLY

UNAVAILABLE

FOR FILMING

(No Model.)

E. HAMBUJER.

WASH BOARD.

No. 387,354. Patented Aug. 7, 1888.

Fig. 1

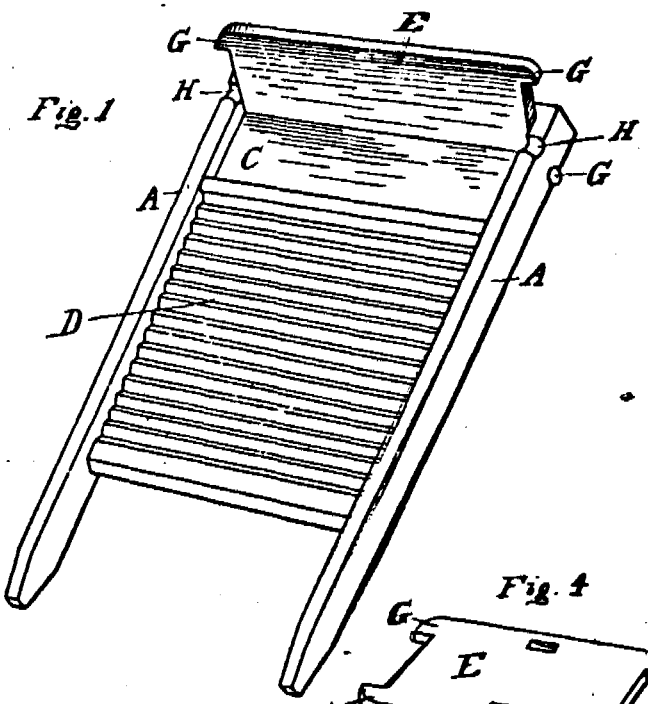


Fig. 3

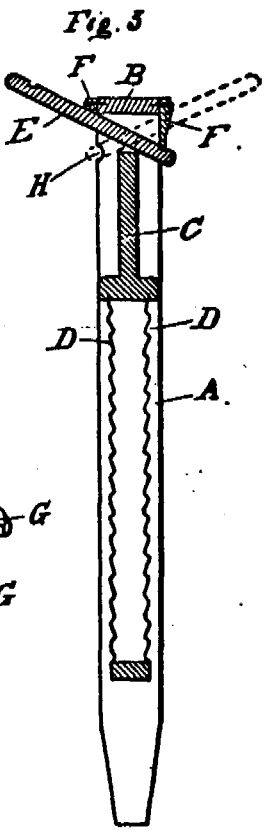
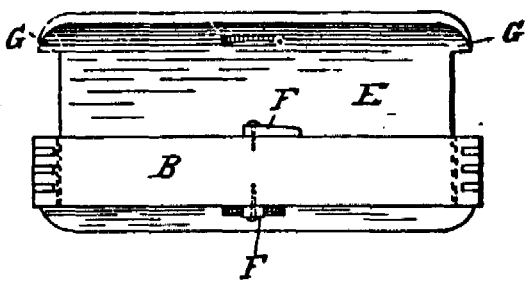


Fig. 4

Fig. 2



Witnesses:

P. M. Hulbert.

M. J. Sprague.

Inventor:

Ephraim Hambujer,

By Thos. L. Sprague & Son.

Atty.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

WASH-BOARD.

SPECIFICATION forming part of Letters Patent No. 387,354, dated August 7, 1888.

Application filed December 2, 1887. Serial No. 256,762. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Wash-Boards, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in wash-boards; and the invention consists in the peculiar construction, arrangement, and operation of a spatter-board, all as more fully hereinafter set forth.

Figure 1 is a perspective view of my improved wash-board. Fig. 2 is a top end view of the same. Fig. 3 is a vertical central section. Fig. 4 is a detached perspective view of the spatter-board.

In the accompanying drawings, which form a part of this specification, A are the side rails; B, the top rail; C, the soap-board, and D the rubbing-faces of a wash-board of any of the known constructions intended to be reversible.

E is a spatter-board slidingly secured between the top rail and the soap-board, so as to be extended to either side of the rubbing-face, as desired; and for the purpose of setting it at any convenient angle for use I provide a sufficient play to tilt the spatter-board, as shown, and to lock it in such position I provide the top rail with buttons F, upon opposite sides of the wash-board, or their equivalents, whereby the spatter-board may be firmly locked in position against accidental displacement.

At the corners of the spatter-board I provide suitable stops, G, which may be integral with the spatter-board or not, as desired, and which, in connection with notches H in the side rails, give more stability to the spatter-board when adjusted in position and prevent its accidental withdrawal.

It will readily be seen that by the use of my construction a simple and sufficient spatter-board is provided for the purpose, and which may be readily adjusted to extend to one side or the other, as may be desired.

My improved spatter-board will be found very convenient in shipping, as it permits a number of wash-boards to be conveniently "crated."

What I claim as my invention is—

The combination, with the wash-board, of a spatter board or guard slidingly secured between the side rails of the wash-board, and the buttons F, pivoted to the top rail of the wash-board upon opposite sides thereof, substantially as and for the purpose specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 25th day of November, 1887.

EPHRAIM HAMBUJER.

Witnesses:
H. S. SPRAGUE,
P. M. HULBERT.

(No Model.)

E. HAMBUJER.

SLATE PENCIL SHARPENER.

No. 406,900. Patented July 16, 1889.

Fig. 1.

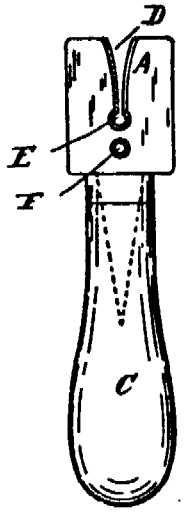


Fig. 2.

Fig. 3.

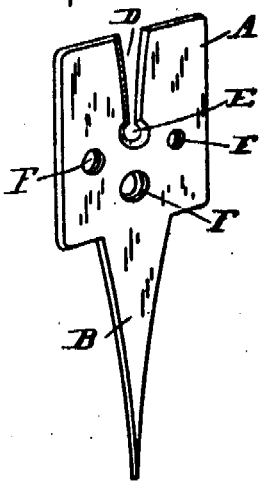
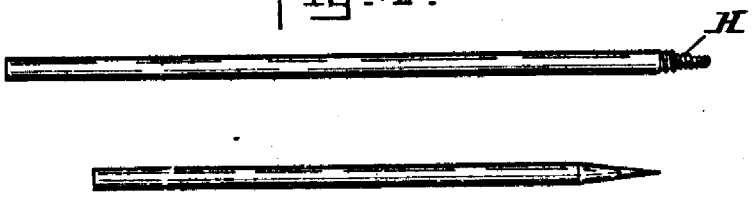


Fig. 4.



Witnesses:
Geo. A. Gregg.
J. Paul Mayer

Inventor:
Ephraim Hambujer
By Jas Whittemore
Atty

Page 161.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

SLATE-PENCIL SHARPENER.

SPECIFICATION forming part of Letters Patent No. 406,900, dated July 16, 1889.

Application filed May 9, 1889. Serial No. 310,159. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Slate-Pencil Sharpeners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in slate-pencil sharpeners; and the invention consists in the novel construction and arrangement of parts, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved slate-pencil sharpener. Fig. 2 is a side elevation thereof. Fig. 3 is an enlarged perspective view of the device slightly modified, and Fig. 4 are slate-pencils partly and fully sharpened.

A is a steel plate provided with the shank B, for securing it in a suitable handle C.

In the upper edge of the steel plate A is cut a V-shaped slot D, provided with a circular enlargement E at the narrowest end, and the edges of this slot and enlargement are sharpened.

In any suitable part of the body of the plate A, I form one or more apertures F, preferably by means of a pointed tool, which forms a burr G on the reverse side of the plate, and this aperture or apertures I screw-thread interiorly. The aperture F is made of smaller diameter than the diameter of the slate-pencil, and if more apertures are provided they are made of different sizes.

In practice a slate-pencil can be readily sharpened by first screwing it into the aperture F, or where there are more into the largest one. By rotating the pencil with the fingers this is easily accomplished and the pencil is thereby reduced in thickness for the length of the point. The screw-threads cut upon it are then shaved off and a tapering point formed by drawing the point of the pencil through the V-shaped slot D. The aperture E is adapted for cutting away the shoulder formed at the base of the point of the pencil.

If the sharpener is provided with several screw-holes F, as shown in Fig. 3, then the point of the pencil is formed by screwing the pencil successively into the different holes, beginning with the largest and finishing with the smallest, so that a point of the form shown at H in Fig. 4 is formed, which is then quickly finished to a tapering point by using the V-shaped slot, as before described.

My device is inexpensive, but will be found to be very serviceable, and it has the advantage that a slate-pencil, even of the softest kind of slate, may be sharpened without danger of breaking off the point.

What I claim as my invention is—

1. In a slate-pencil sharpener, the plate A, provided with the V-shaped slot D, having knife-edges and one or more screw-threaded apertures, as F, substantially as described.

2. As a new article of manufacture, a slate-pencil sharpener consisting of the steel plate A, secured to a handle and provided with the V-shaped slot D, the circular enlargement, and one or more screw-threaded apertures, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 6th day of May, 1889.

EPHRAIM HAMBUJER.

Witnesses:
W. A. ROSS,
A. B. EATON.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO ROBERT STEWART, JR., OF SAME PLACE.

LOCKING DEVICE FOR DOOR-KNOBS.

SPECIFICATION forming part of Letters Patent No. 413,826, dated October 29, 1889.

Application filed March 13, 1889. Serial No. 303,185. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Locking Devices for Door-Knobs, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a new and useful improvement in a combined door knob and lock; and the invention consists in the construction and arrangement of different parts, all as more fully hereinafter described, and then definitely claimed in the accompanying drawings.

Figure 1 is a perspective view of a door-knob provided with my improved lock. Fig. 2 is a vertical central longitudinal section thereof. Fig. 3 is a similar section with the parts of a modified construction. Fig. 4 is a detached perspective view of the sliding sleeve.

A is one of the two door-knobs of a door-lock. B is the rose in which this knob engages. C is a notch formed in the cup of the rose. D is a sliding sleeve on the shank of the knob. E is a projecting tongue on the sleeve adapted to engage into the notch C of the rose. F is a slot in the sleeve, and G is a projecting pin or screw-head on the shank of the knob engaging into the slot F of the sleeve.

In practice, the parts being constructed as described and shown, they are intended to operate as follows:

The sleeve D slides on the shank, and, by pushing it toward the rose, engages with its tongue into the notch C of the rose, and thereby prevents the door-knob from being turned, thus preventing the door from being opened; but when the sleeve is drawn back upon the shank the knob is again released and operates in the usual manner. To prevent the accidental displacement of the sleeve when it is not to be used, the slot F is provided with an offset F', for the purpose of preventing the sleeve from sliding on the shank by engaging the pin or screw-head G into said offset.

My device can be readily constructed as an attachment to all kinds of door-locks, provided with a latch operated by the ordinary door-knobs. It dispenses entirely with the use of a key to lock the door on the inside. It is so simple that its operation is readily understood, and, further, it is secure. The only means for unlocking it surreptitiously from the outside would be to remove the outside door-knob and push the spindle back sufficiently to disengage the locking-sleeve from the rose. To prevent this being done, I preferably provide a safety-catch, such as shown in Figs. 2 and 4, or as shown in Fig. 3. The former construction consists of a latch or dog H, attached to the sliding sleeve, and a suitable keeper or hook I, secured to the rose, all so arranged that in pushing the sleeve into its locking position the dog H engages with the keeper. By using a gravity-dog and applying it on the under side of the shank it operates automatically in closing and in opening. The disengaging of the dog from the keeper is accomplished by taking hold of the sleeve, as in the natural manner required to withdraw the sleeve.

In the modification shown in Fig. 3 the dog H' is secured to the rose and the keeper I' to the sliding sleeve. It is obvious that instead of a gravity-dog a spring-dog, as shown in Fig. 3, may be used.

What I claim as my invention is—

1. In a combined door knob and lock, the combination, with the shank of the knob, of the sliding sleeve D, provided with the tongue E, the longitudinal slot F, provided with the offset F', the pin or screw G on the shank of the knob engaging into said slot, and the notch C, formed on the cup of the rose, substantially as described.

2. In a combined door knob and lock, the combination of the sleeve slidingly secured on the shank of the knob and provided with a projecting tongue, and a notch formed on the rose, into which said tongue is adapted to engage, and a latch or dog and a keeper independent of said tongue and respectively attached to the sliding sleeve and the rose, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 6th day of March, 1889.

EPHRAIM HAMBUJER.

Witnesses:
J. PAUL MAYER,
P. M. HULBERT.

(No Model.)

E. HAMBUJER.

LOCKING DEVICE FOR DOOR KNOBS.

No. 413,826. Patented Oct. 29, 1889.

Fig. 1.

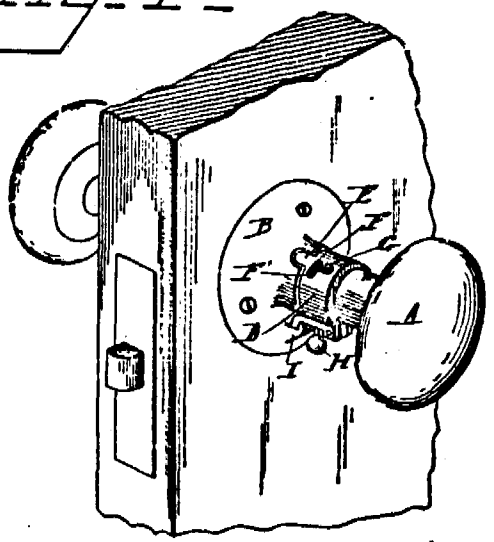


Fig. 2.

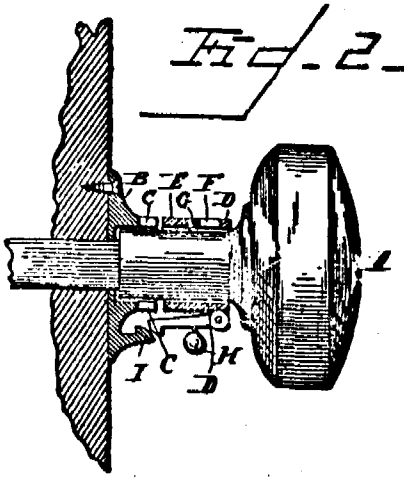


Fig. 3.

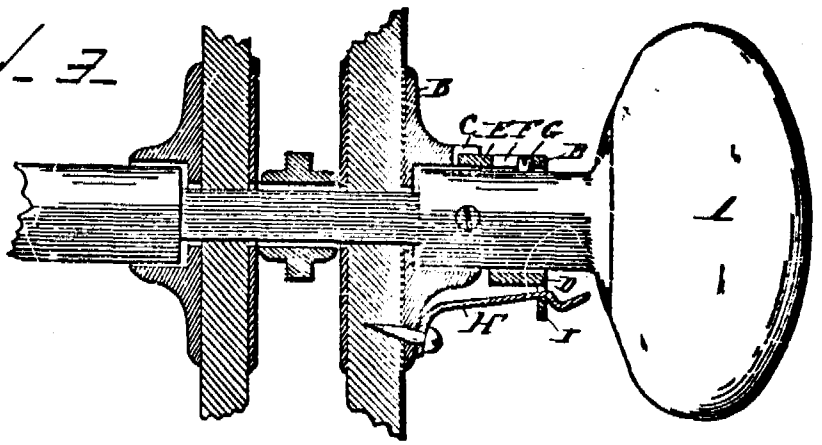
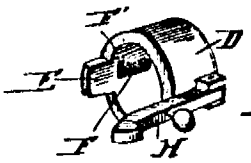


Fig. 4.



Witnesses
Wm. F. Robertson
Thomas Ernest

Inventor
Ephraim Hambujer
By his Attorneys
Thos. S. Sprague & Son

(No Model.)

E. HAMBUJER.

CHISEL FOR FORMING MORTISES FOR DRAWER LOCKS.

No. 415,636. Patented Nov. 19,.1889.

Fig. 3.

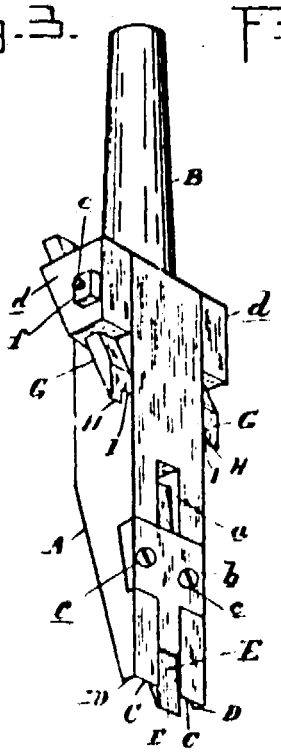


Fig. 4.

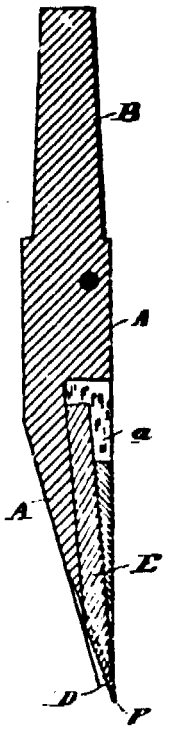


Fig. 5

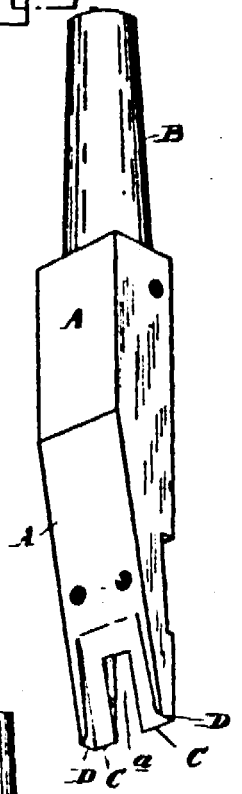


Fig. 1.

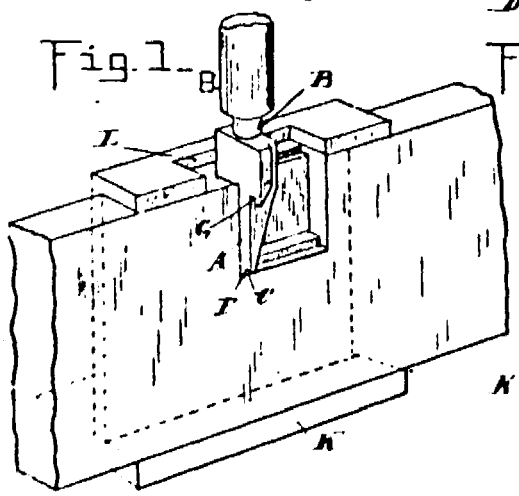
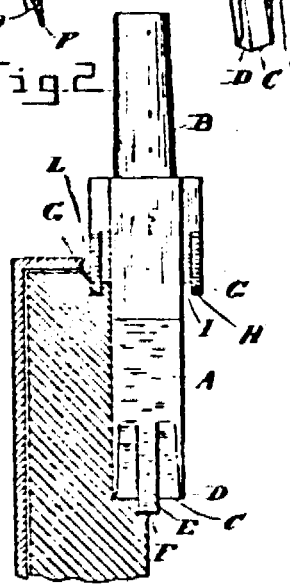


Fig. 2.



Witnesses:
Geo. C. Gregg
L. S. Bacon

Inventor:
Ephraim Hambujer
By Jas. Whittemore
Atty.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

CHISEL FOR FORMING MORTISES FOR DRAWER-LOCKS.

SPECIFICATION forming part of Letters Patent No. 415,636, dated November 19, 1889.

Application filed May 4, 1889. Serial No. 309,549. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Chisels for Forming Mortises for Drawer-Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in chisels for forming mortises for drawer-locks; and the invention consists in the peculiar construction and arrangement of the parts, whereby the peculiar mortise used for securing drawer-locks can be made at one operation of the chisel, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view showing the chisel arranged as for operation. Fig. 2 is a cross-section of Fig. 1. Fig. 3 is a perspective view of the preferable form of constructing the chisel. Fig. 4 is a vertical central cross-section of Fig. 3, and Fig. 5 is a detached perspective view of the body of the chisel.

A is the tapering body of the chisel, provided with the shank B for securing it to the chisel-bar.

C is a straight cutting-edge at the tapering lower end of the body of the chisel.

D are cutting-lips at right angles to the cutting-edge C.

E is a tapering tongue projecting below the cutting-edge C in the center thereof. F is a cutting-edge formed at the lower end of this tongue.

G are two short side chisels at the upper end of the chisel-body A on opposite sides, and H and I are straight cutting-edges formed on the lower end of the side chisels, the outer one projecting below the inner one. All the cutting-edges of the chisel are preferably arranged in the same plane with the face of the chisel-body, and in practice are intended to cut the drawer-lock mortise shown in Figs. 1 and 2, the shape of which in cross-section corresponds with the shape of one half of the chisel at either side of its center. Thus one half of the mortise may be cut by feeding the board in which the mortise is to be cut in one direction, beginning from the center of the mortise, and then by feeding in the opposite direction after reversing the chisel.

The board to be cut is placed upon the usual supporting-guide K, which is cut out at L for the chisel to work through into the wood, all as in the ordinary construction of mortising-machines in use for this kind of work.

The whole chisel, as described and shown in Figs. 1 and 2, may be formed integrally in one piece; but I preferably construct it in the more practical form shown in Figs. 3, 4, and 5, in which the tongue E is formed of a chisel-bar secured in an inclined recess *a*, formed in the body of the chisel, and a cap *b*, adapted to fit a corresponding recess formed in the body of the chisel, holds the said bar adjustably and removably in position by means of suitable screws *c*, which, when screwed in, cause the cap to bear against the bar.

The side chisels G, I preferably construct of separate chisel-bars of angle-bar steel, which are adjustably and removably secured to the body of the chisel by means of the grooved caps *d*, which fit on the outside of these chisel-bars and are secured to the body of the chisel by a transverse bolt *e*, which has a nut *f* for tightening, all so arranged that by tightening the nut sufficient pressure is exerted by the caps *d* to clamp the chisel-bars firmly to the body of the chisel. By means of this construction the cutting-edges may be easily ground and accurately adjusted in relation to each other, as it will be seen that every cutting-edge of the chisel is in independent adjustable relation to the main cutting-edge C, and therefore if any one cutting-edge needs regrinding the other need not be ground, as would be the case if the chisel were made in one integral piece. A practical form of chisel, however, is obtained by making the side chisel only adjustable in the manner described and making the cutting-edges at the lower end of the chisel integral with the body.

What I claim as my invention is—

1. The herein-described reversible chisel for forming mortises for drawer-locks, the same consisting of the body A, having the cutting-edges C C and cutting-lips D, the central tongue E, having the projecting cutting-

edge F, and the side chisel G, having the cutting-edges H and I, all arranged to operate substantially as described.

2. The herein-described reversible chisel for forming mortises for drawer-locks, the same consisting of the body A, provided with the cutting-edges C C and F and cutting-lips D, in combination with the detachable and adjustable side chisels G, formed of angle-bar steel, with the cutting-edges H and I, the grooved cap *d*, and the bolt *e*, having the clamping-nut *f*, substantially as and for the purpose described.

3. The herein-described reversible chisel for forming mortises for drawer-locks, the same consisting of the body A, having the cutting-edges C C and cutting-lips D, the central tongue E, formed by a separate chisel-bar adjustably and removably secured by the cap *b* in a recess *a* of the body of the chisel and provided with a projecting cutting-edge F, and the side chisels G, formed of separate chisel-bars independently, adjustably, and removably secured by the caps *d* and bolt *e* and having the cutting-edges H and I, all arranged and constructed to operate substantially as and for the purpose described.

In testimony whereof I affix my signature, in presence of two witnesses, this 2d day of May, 1889.

EPHRAIM HAMBUJER.

Witnesses:
ED. MCBREARTY,
A. B. EATON.

(No Model.)

E. HAMBUJER.

LOCK.

No. 415,816. Patented Nov. 26, 1889.

Fig. 1

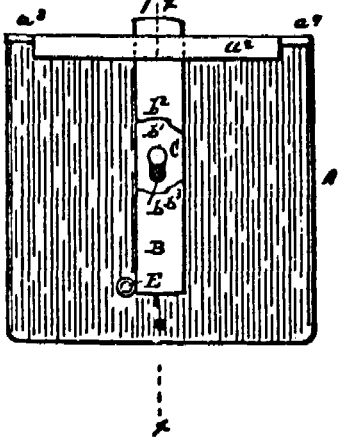


Fig. 2

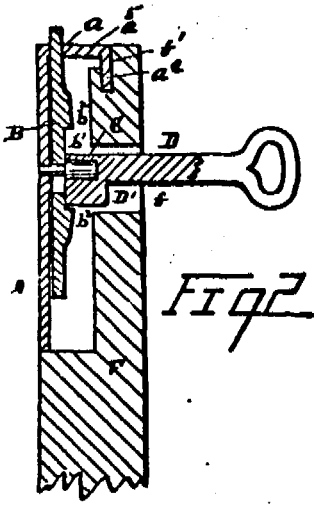


Fig. 3

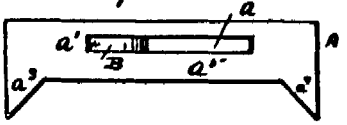
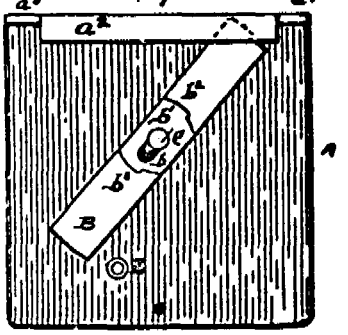


Fig. 4



Witnesses
John Lehmann.
Alfred H. Miller

Inventor
Ephraim Hambujer
By his Attorney
Newell S. Wright.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN.

LOCK.

SPECIFICATION forming part of Letters Patent No. 415,816, dated November 26, 1889.

Application filed April 19, 1889. Serial No. 307,858. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to a new and useful improvement in locks, the object being to construct a lock of simple and economical form and efficient in its operation, reducing the manufacture to the fewest possible number of parts, preventing the liability of breakage, the disarrangement of parts, as well as diminishing the cost in a very material degree.

I carry out my invention as more fully hereinafter specified, and pointed out in the claims, and more particularly illustrated in the accompanying drawings, in which—

Figure 1 is a view in elevation embodying my invention. Fig. 2 is a section of the same on the line x x, Fig. 1. Fig. 3 is an end view; and Fig. 4 a view in elevation, showing the latch thrown back in an unlocked condition, Fig. 1 showing the latch in a locked position.

I carry out my invention as follows:

A represents the face-plate of the lock. The front of the plate is provided with an elongated slot a, through which the latch is thrown when in a locked position, and vice versa.

B denotes the latch, constructed with an elongated slot b, preferably intermediate the extremities of the latch, and through which a post C engages the latch to the face-plate in such a manner that the latch may have a swinging movement thereupon, so as to be thrown into the positions shown in Figs. 1 and 4 for locking and unlocking the article to which the lock is attached. The latch is also provided with a recess, as at b', with suitably-shaped edges, as at b^2 b^3, constituting bearing-faces for the key D. The key will fit upon the post C, and as it is turned will form contact with the keyway-faces b^2 b^3 to operate the latch. If the latch be, for instance, in the position shown in Fig. 1—that is, in a locked condition—and it is desired to unlock it and throw the latch into the position shown in Fig. 4, the key is applied upon the post C, and the edge of the key coming in contact with the edge or keyway-face b^2 throws the forward end of the latch into the position shown in Fig. 4, the latch also having a forward movement by means of the elongated slot a allowing the latch to slide forward on the post C. Toward the rear end of the latch I engage upon the plate A a suitable guide roller or bearing E. It will be noticed that the keyway edges or faces b^2 b^3 are so constructed that as the end of the key strikes the edge b^3, the latch being in the position shown in Fig. 1, the latch is first forced forward sufficiently to allow the rear end to clear the bearing E, when the further throw of the key will swing the latch over, retracting the forward end within the elongated slot a, as shown in Fig. 4, the rear end of the latch swinging past the bearing E. To lock the latch, the key is engaged therewith, and bearing upon the appropriate keyway-edge of the latch throws the rear end of the latch past the bearing E and slightly rearward, thereby throwing the forward end of the latch into proper position. The forward edge of the latch striking against the end of the orifice or slot a, as at a', will obviously prevent the throwing of the latch in the contrary direction, and so the latch is always held securely in place for action as required, while there are no parts of the device liable to break or get out of order. The construction of every part is also very simple and economical.

The roller or bearing E, it will be seen, effectually prevents the latch from being swung over after being locked, as shown in Fig. 1 without the latch being first thrown forward to clear the bearing. Thus there is no possibility of inserting a thin blade between the edge of the face-plate and the adjacent hasp and swinging the latch out of engagement, since it can only be moved by a key.

Another advantage of my construction is due to the fact that it is impossible to remove the key from the lock without swinging the latch into a locked position. Thus when the lock is engaged upon the wood F it will be

seen that when the key is inserted through the key-hole *f* to unlock the latch the end D′ of the key is rotated into such position that it cannot be withdrawn without being turned so as to bring the end D′ into line with the key-hole, while it is also evident that the key cannot be so turned into position for removal without throwing the latch into a locked position. My invention, therefore, effectually guards against the possibility of leaving an article to which it is applied—as, for instance, a drawer—unlocked.

I prefer to construct the front of the plate A with an inwardly-directed flange a^2 to engage in a corresponding recess *f*′ in the wood. I design, also, to construct said front of the plate with points a^3 a^4, substantially in line with the front a^5 of the said plate, said points adapted to be driven into the wood to hold the lock in engagement therewith, and answering said purpose, instead of screws, to unite the lock to the wood.

What I claim as my invention is—

1. A lock consisting of the combination, with a face plate, of a latch constructed with keyway-faces adapted to be engaged by a key, said latch pivotally connected with said plate between said keyway-faces, substantially as set forth.

2. A lock consisting in the combination, with the face-plate, of a latch pivoted to said face-plate to swing and reciprocate, and constructed with keyway-faces adapted to be engaged by a key for operating said latch, and a bearing projecting from said face-plate in a position to bear against the said latch when the same is in locked position, substantially as set forth.

3. A lock consisting of the combination, with a face-plate provided with an elongated slot upon its front end, of a latch constructed with keyway-faces and with an elongated slot intermediate said keyway-faces, and a post secured to said face-plate and extending through said slot between said faces to unite the latch upon the face-plate, whereby said latch may be swung and reciprocated thereon, substantially as set forth.

4. In a lock, the combination, with a face-plate and the wood on which said face-plate is engaged, the said wood being provided with a key-hole, of a latch provided with keyway-faces and with an elongated slot intermediate said faces, and a post secured to said face-plate through said slot, said elongated slot being out of coincidence with said key-hole when the latch is in an unlocked position, thereby preventing the key from being withdrawn while the latch is in an unlocked position, substantially as set forth.

5. In a lock, a face-plate A, constructed with the front face a^5 and the rearwardly-extending flange a^2, substantially as set forth.

6. In a lock, a face-plate A, provided with a front face a^5 and points a^3 a^4 for securing the face-plate in position.

7. The herein-described lock, comprising a face-plate, a post projecting from the face-plate and fixed thereto, a latch provided with an elongated slot, through which it is pivoted on the post, a key-seat in the side of the latch in proximity to the pivotal post, and a key fitted to turn about the post in engagement with the latch, and thereby both reciprocate and swing the latch, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

EPHRAIM HAMBUJER.

Witnesses:
N. S. WRIGHT,
ALFRED H. MILLER.

(No Model.)

E. HAMBUJER.

PENCIL SHARPENER.

No. 429,130. Patented June 3, 1890.

Fig-1-

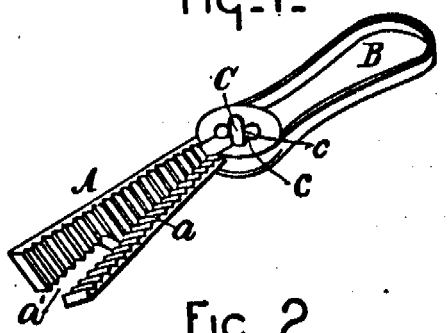
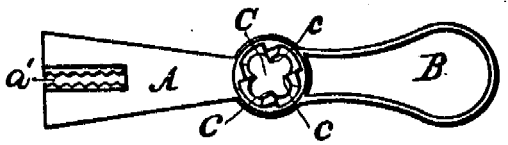


Fig-2-



WITNESSES
C. J. Shipley
L. A. Dooley

INVENTOR
Ephraim Hambujer
By Wells W. Leggett & Co.
Attorneys

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR TO IRA A. METCALF, OF SAME PLACE.

PENCIL-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 429,130, dated June 3, 1890.

Application filed October 12, 1889. Serial No. 326,771. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Slate-Pencil Sharpeners; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention is designed to produce a slate-pencil sharpener which can be cheaply manufactured and which will be effective in operation.

In the drawings, Figure 1 is a perspective view of my sharpener. Fig. 2 is a plan view of the under side of the same.

In the manufacture of my sharpener I prefer to construct it of cast-iron and afterward nickel-plate it; but I would be understood as including by my invention any manner of constructing it and any suitable metal to be used in the construction.

In carrying out my invention, A represents the serrated portion on which the pencil is sharpened, and B the portion forming the handle. The serrated portion is made a trough shape, as shown at *a*, and in this serrated portion the pencil is laid to be sharpened. The end of the trough is preferably provided with the slot *a'*, into which the point of the pencil may enter when being sharpened.

C is a tapering orifice with which the sharpener may or may not be provided. This orifice is provided with the serrations or edges *c*.

To sharpen the pencil, the end may be inserted in the orifice and the blunt end tapered. The tapered end may then be placed in the serrated trough and moved back and forth until the point is formed. If a long taper is desired, the pencil may be moved back and forth with the point in the slot.

What I claim is—

1. The herein-described slate-pencil sharpener, comprising the serrated and slotted trough-shaped portion A, having the handle B at one end, substantially as shown and described.

2. The herein-described slate-pencil sharpener, consisting of the serrated trough-shaped portion A, having the handle B at one end, and provided at the base of said handle with the tapering orifice C, having serrated edges, substantially as shown and described.

In testimony whereof I sign this specification in the presence of two witnesses.

EPHRAIM HAMBUJER.

Witnesses:

W. H. CHAMBERLIN,

L. A. DOELTZ.

UNITED STATES PATENT OFFICE.

EPHRAIM HAMBUJER, OF DETROIT, MICHIGAN, ASSIGNOR TO THE DETROIT LOCK AND MANUFACTURING COMPANY, OF SAME PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 443,479, dated December 23, 1890.

Application filed June 30 1890. Serial No. 357,175. (Model.)

To all whom it may concern:

Be it known that I, EPHRAIM HAMBUJER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in locks, and the invention is designed to form an improvement on Patent No. 415,816, granted to me November 26, 1889.

The invention consists in certain additional features, whereby it becomes much more difficult to pick the lock, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a view in elevation of the lock complete. Fig. 2 is a section of the same as attached in position. Fig. 3 is an end view of the casing. Fig. 4 is a view in elevation showing the latch thrown open. Fig. 5 is a detached elevation of the latch. Fig. 6 is a modification of Fig. 1, and Fig. 7 is a detached perspective view of the cam-plate.

A represents the usual face-plate provided with an elongated slot *a*, through which the locking-latch operates.

B is a key-post secured to the face-plate and adapted to receive the door or drawer, to which the lock is attached in the usual manner.

C is the latch, provided with an elongated slot *c*, through which the key-post projects and upon which said latch is adapted to slide in contact with the face-plate. This latch is also provided with a camway D, cut, cast, or stamped into the latch, the peculiar form and operation of this keyway being hereinafter explained. At the lower end the latch has a curved guiding-edge *d* and a shoulder or projection *e*, and the free end *f* of the latch is preferably rounded.

E is a cam-plate secured upon the latch by the key-post, free to turn, the key-post having preferably a shoulder or projection *d'*, which holds the parts in position free to move independently of each other. This cam-plate throws the latch open and closed by means of a stud *f'*, engaging into the camway D, and this cam-plate is adapted to be engaged by the key, so as to be turned upon the post thereby. To this end any of the usual means for interlocking the parts are provided, and which are varied in the different locks. In the drawings the ordinary means—such as a notch *g* in the cam-plate adapted to register with a stud on the key—are shown.

In practice, the parts being arranged substantially as shown and described, they are intended to operate as follows: Supposing the parts in the position as shown in Fig. 1, the key upon being inserted into the lock will interlock with the cam-plate, and by turning the key in the usual manner the cam-plate by its engagement into the camway of the latch will first lift the latch perpendicular, owing to a certain initial eccentricity of the camway. This lifting of the latch is made possible by the slot *c* in the latch, which allows the latch to slide upwardly while at the same time the turning is prevented by a stop *i*, near the lower corner of the latch. As soon as the latch is raised sufficiently to pass the stop *i* the latch is free to turn upon the key-post, and this is obtained in the further movement of the cam-plate by its engagement in the end of the camway. By continuing the movement of the two until the free end of the latch is withdrawn into the face-plate the lock is opened. In the reverse movement of the key (which cannot be detached when the lock is open) the cam-plate travels freely on the latch until it strikes reversing-curve *j* in the camway. This compels the latch to swing back upon the key-post as a pivot until it is free from the stud *i*, when it will be drawn back into position, as in Fig. 1. The projection *c* prevents the latch from being thrown too far in opening, and the curved edge *d* guides the latch while being swung open or closed.

It will be seen that the form of the camway may be varied without altering the spirit of my invention, it being shown longer in Fig. 6.

The cam-plate E performs the office of a safety-guard to prevent picking the lock, and at the same time it acts as a tumbler for the latch.

What I claim as my invention is—

1. In a lock, the combination, with the casing, of a latch pivoted upon the key-post, a tumbler likewise pivoted upon said post and engaging with said latch, and a bearing for the key in said tumbler, substantially as described.

2. In a lock, the combination, with the casing, of a latch pivoted upon the key-post having a limited sliding movement thereon, a stop to lock it in its locked position, a camway on said latch, and a tumbler engaging said camway and adapted to disengage the latch from the stop and turn it upon its pivot, substantially as described.

3. In a lock, the combination, with the casing, of the pivoted latch C, having the camway D, and the cam-plate E, having the stud *f'* engaging in said camway, substantially as described.

4. In a lock, the combination of the pivoted latch C, having the slot *c*, allowing a limited sliding movement of said latch, the camway D, having the reversing-curve *j* in said latch, and the cam-plate E, having the stud *f'* engaging in said camway, substantially as described.

5. In a lock, the combination of the pivoted latch C, having slot *c*, the camway D, having the reversing-curve *j*, the projection *e*, curved edge *d* on said latch, the stud *i*, and cam-plate E, having the stud *f'*, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EPHRAIM HAMBUJER.

Witnesses:
JAMES WHITTEMORE,
P. M. HULBERT.

(Model.)

E. HAMBUJER.

LOCK.

No. 443,479. Patented Dec. 23, 1890.

Fig. 1

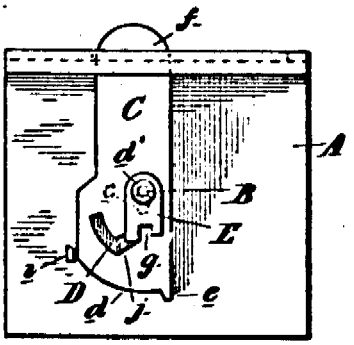


Fig. 2

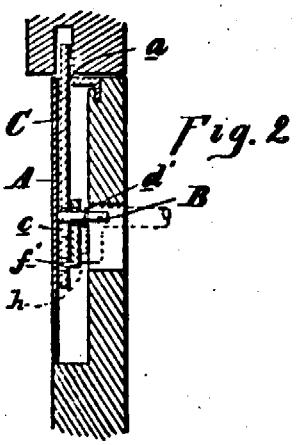


Fig. 3

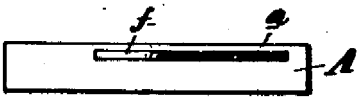


Fig. 4

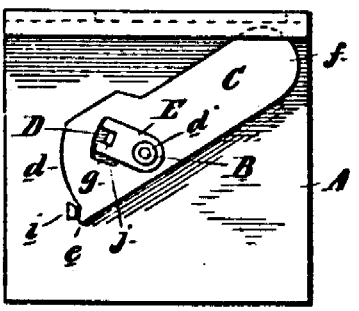


Fig. 6

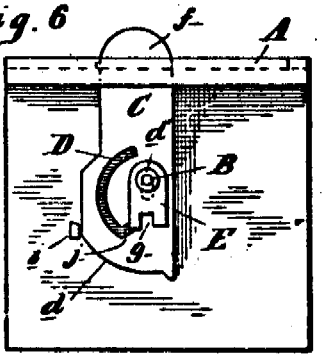


Fig. 5

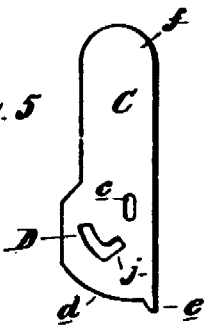


Fig. 7

Witnesses:
C. M. Hulbert
W. B. Dogherty.

Inventor:
Ephraim Hambujer
By Thos. A. Sprague & Son
Atty.