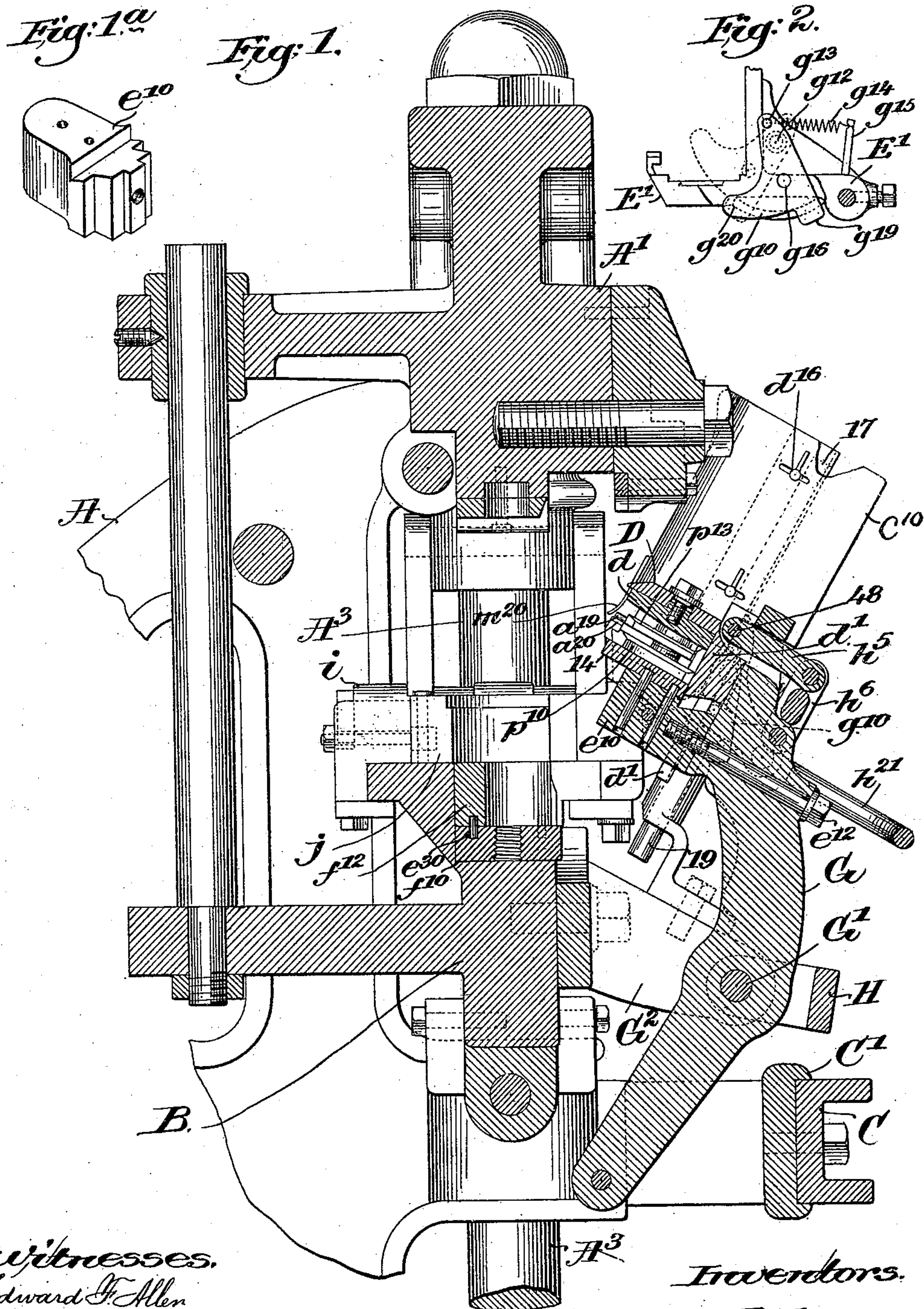


3 Sheets—Sheet 1.

No. 543,732.

Patented July 30, 1895.



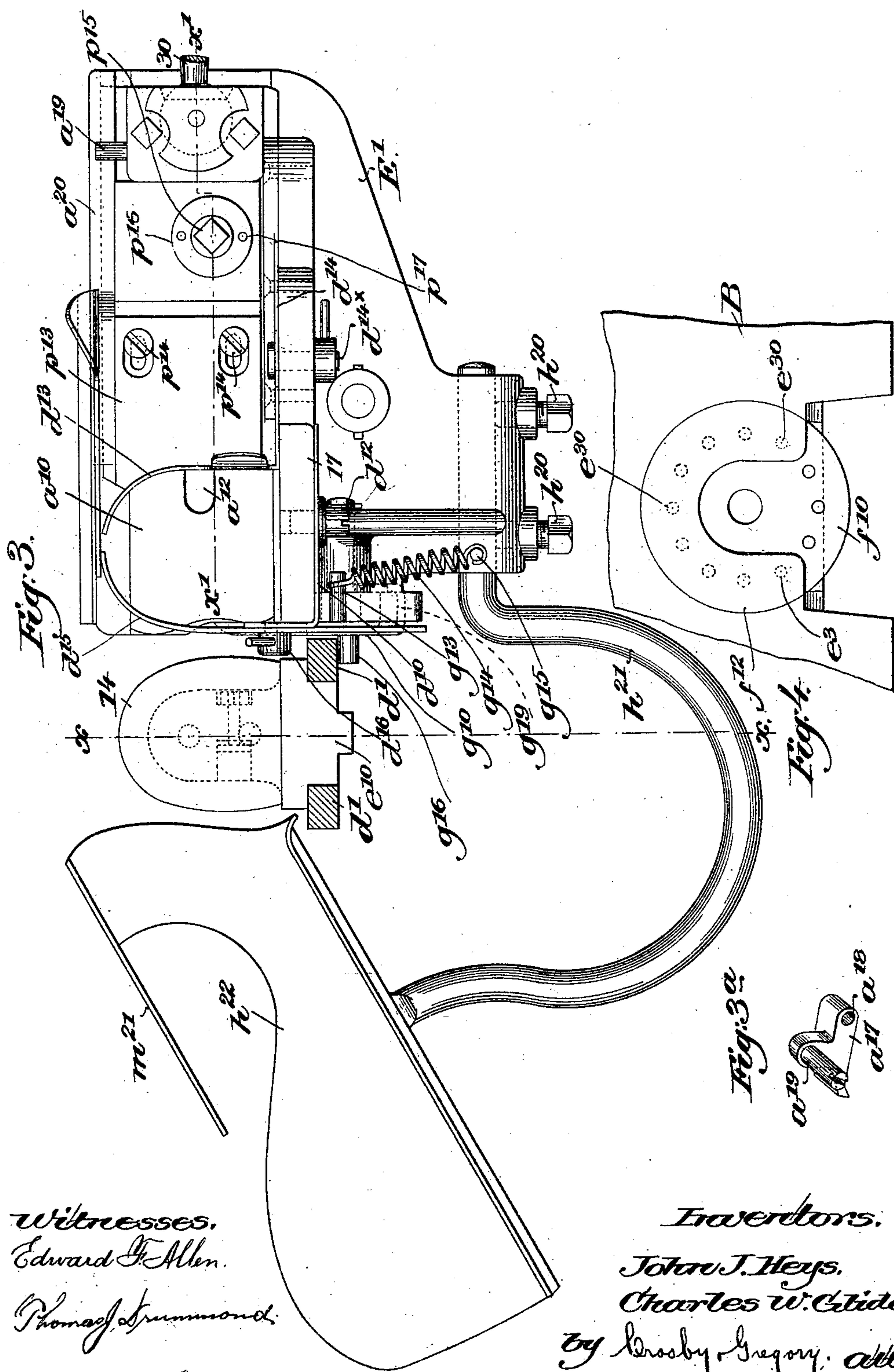
Witnesses,
Edward F. Allen
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3. Sheets—Sheet 2.

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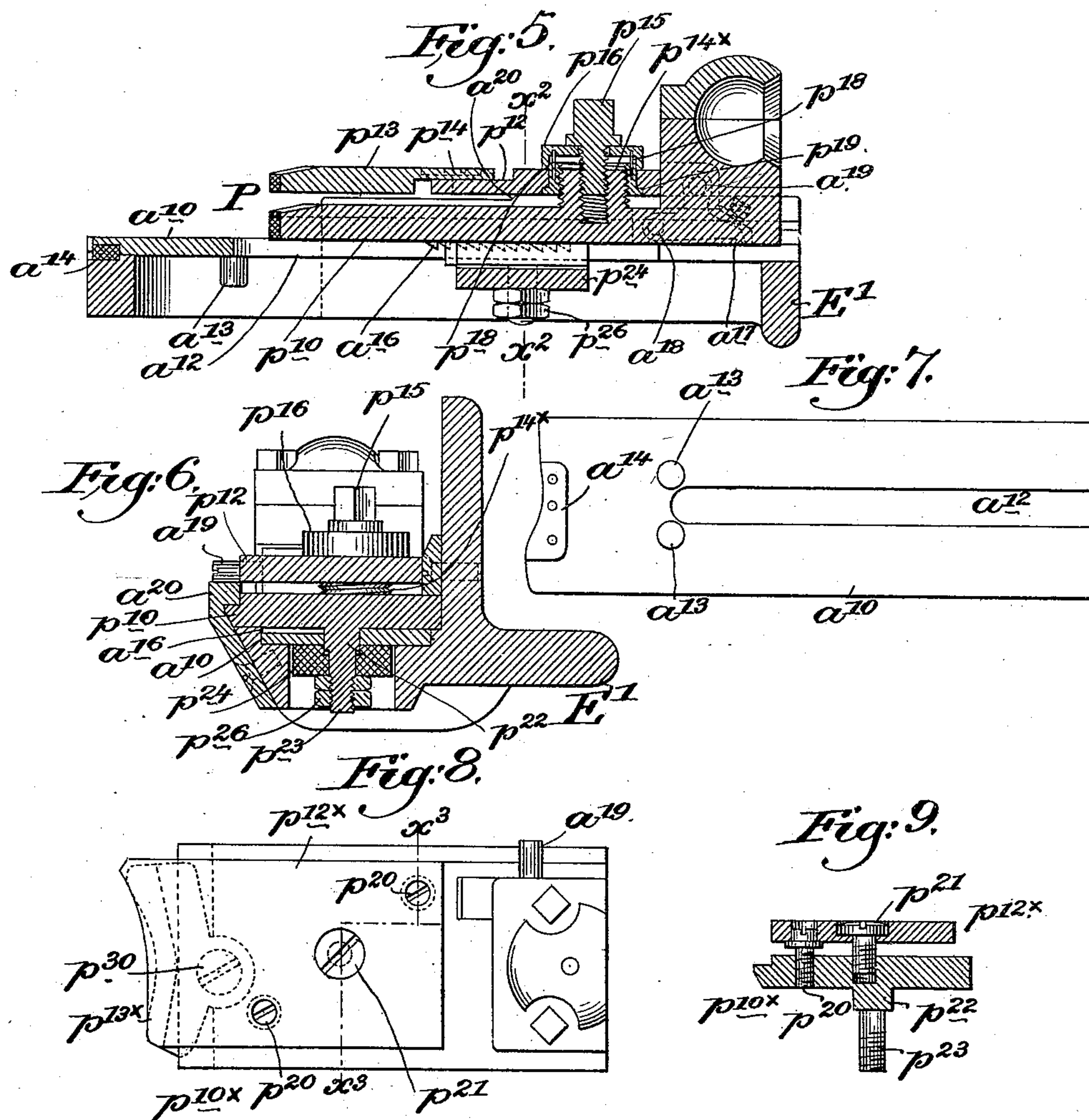
(No Model.)

3 Sheets—Sheet 3.

J. J. HEYS & C. W. GLIDDEN.
HEEL COMPRESSING MACHINE.

No. 543,732.

Patented July 30, 1895.



Witnesses,
Thomas Drummond,
Edward F. Allen.

Inventors,
John J. Heys,
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UNITED STATES PATENT OFFICE.

JOHN J. HEYS AND CHARLES W. GLIDDEN, OF LYNN, MASSACHUSETTS,
ASSIGNORS TO JAMES W. BROOKS, TRUSTEE.

HEEL-COMPRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 543,732, dated July 30, 1895.

Application filed October 30, 1894. Serial No. 527,458. (No model.)

To all whom it may concern:

Be it known that we, JOHN J. HEYS and CHARLES W. GLIDDEN, both of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Heel-Compressing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

10 This invention has for its object to improve the operative mechanism of heel-compressing machines to thereby increase their efficiency, our improvements being herein illustrated as applied to the machine represented in United States Patent No. 530,046, granted November 27, 1894.

One part of this present invention relates to improvements in the pusher of the heel-feeding mechanism, whereby it may be adjusted and thereby adapted to act upon heel-blanks of different thickness; also, to improvements in the hopper whereby it may be more readily adapted to heel-blanks of different sizes. We have also applied to the machine guards co-operating with the hopper to prevent the accidental escape of heel-blanks therefrom, thus avoiding the falling of a blank into the working machinery.

20 The particular features in which our invention consists will be hereinafter described, and defined in the claims at the end of this specification.

Figure 1 is a vertical section of a sufficient part of the heel-compressing machine referred to, with our improvements added, to enable our invention to be understood, the line of section for said figure being in the line x , Fig. 3, the heel-seat die and parts for moving it being, however, omitted. Fig. 1^a shows the block e^{10} detached. Fig. 2 is a detail showing the gate to prevent the accidental escape of a heel-blank from the hopper. Fig. 3 is a top or plan view of a part of the machine shown in Fig. 1; Fig. 3^a, details of the pawl a^{17} to be described. Fig. 4 is a detail showing part of the sliding cross-head B and removable bottom and wall. Fig. 5 is a section in the irregular dotted line x' , Fig. 3. Fig. 6 is a section in the line x^2 , Fig. 5, looking to the right. Fig. 7 is a detail showing an under side view of the heel-blank support to

support the heel to be acted upon by the pusher. Fig. 8 shows a modified form of pusher; Fig. 9, a cross section thereof in the dotted line x^3 .

The side pieces A, the stationary cross-head A', the tie-rods A³, connected thereto and in practice extended down substantially to the bottom of the framework, the movable cross-head B having an attached vertical post or guide-rod sliding in a bearing in said cross-head A', the girt C, its attached bracket C', bracket G², pin G', lever G, and rocker-lever H pivoted on said pin, carriers i , edge-compressing dies j connected thereto, the detach-able tread-plate 14, the heel-seat die D, having a removable plate d , the breast-gage d' , the link 30, the adjustable table E', its depending shank 19 and upright arm 17 are by like letters in said patent, and said parts, and may be all substantially as indicated which are movable, may in practice derive their movement as therein provided for, and need herein no further description except in illustration of our improvements as applied to the old and named parts.

The heel-feeding mechanism, as herein shown, consists, essentially, of a plate a^{10} , an under side view of which is shown in Fig. 7, and which is also shown in section in Figs. 5 and 6. The plate a^{10} , designated as the heel-blank support, rests in a suitable guideway formed in the table E', and is slotted, as at a^{12} , and provided at its under side with a suitable stop pin or projection a^{13} and with a buffer a^{14} , preferably a piece of rawhide. The buffer a^{14} at the end of the plate a^{10} will, in practice, meet the edge of the tread-plate 14 as the heel-blank support arrives in its farthest position to the left, viewing Fig. 5, thus stopping said plate, while the pusher (to be described) continues to travel in the same direction, it sliding frictionally along the said plate and pushing the heel-blank from said plate into position on the tread-plate.

The plate a^{10} is provided at its upper side, at one side of the slot a^{12} , with a series of ratchet-teeth a^{16} adapted to be engaged by a spring-controlled pawl a^{17} , (shown by dotted lines in Fig. 5 and in detail in Fig. 3^a), said pawl being pivoted at a^{18} and having a lug a^{19} , which, in the reciprocation of the pusher

P, rides over a cam-ledge a^{20} on the table E', said pawl, for a part of the stroke of the pusher derived from the link 30, common to said patent, away from the heel-compressing mechanism, engaging said ratchet teeth to thus effect the movement of the support a^{10} with it back to its proper starting-point, the said lug striking the high or throw part of said cam-ledge and disengaging said pawl from the said ratchet-teeth in order that the pusher may slide on the support a^{10} to uncover its front end, substantially as provided for in said patent.

The pusher P is composed essentially of a bottom plate p^{10} , on which is mounted the pawl a^{17} , referred to, and of an adjustable top plate composed, preferably, of two plates, p^{12} p^{13} , one being made longitudinally adjustable on the other by screws p^{14} on one entering slot of the other plate, as best shown in Figs. 3 and 5.

The top plate of the pusher has been by us made vertically adjustable in order that the thickness of the pusher may be made more or less to better adapt it to act from the seat to the tread ends of heels of different height and composed of several lifts, and by making the top plate adjustable as to its length the acting end thereof may be put in proper position to adapt it to the slope of the side or edge of the heel-blank, as some heels are made more or less tapering externally.

In Figs. 3, 5, and 6 it will be understood that the bottom plate of the pusher has a boss p^{14x} . (Shown as screw-threaded externally and internally.)

The internal threads receive a set-screw p^{15} , surrounded under its head by a washer p^{16} , having suitable holes or projections to be engaged by a suitable tool and be rotated when released from the said set-screw, the said washer having suitable pins or projections p^{18} , (see Fig. 5,) which enter suitable holes in the threaded bushing p^{19} , having an external flange on which may rest the plate p^{12} , said bushing, as shown, being free to rotate in the latter plate and being threaded to engage the external threads of the boss p^{14x} .

It will be understood that the rotation of the washer and bushing referred to, when the set-screw is relaxed, will enable the operator to increase or decrease the effective thickness of the pusher.

Believing ourselves to be the first to make a pusher adjustable as to its thickness, this invention is not limited to the employment only of the adjusting devices shown in Fig. 5, and instead we may employ any other suitable or equivalent means to effect the result stated.

One such modification is shown in Figs. 8 and 9, wherein p^{10x} shows the bottom plate of the pusher and p^{12x} a part of the top plate, suitable adjusting-screws p^{20} , having each a flanged head, being screwed into the bottom plate, the flanges of the screws supporting the top plate, a set-screw p^{21} confining the said

plate in adjusted position. The bottom plate p^{10} of the pusher has a guide-lug p^{22} to fit and slide in slot a^{12} and an extended threaded shank p^{23} , which receives on it a suitable friction-block p^{24} , one or more nuts p^{26} being screwed onto said threaded shank to cause the friction-block to be pressed with greater or less force against the supporting-plate a^{10} to prevent any accidental slipping of the pusher with relation to the plate a^{10} , for the purpose fully set forth in said patent. As the pusher is moved positively to the left, viewing Fig. 5, which is toward the heel-compressing mechanism, the pusher, with its acting end against the heel-blank lying on the support a^{10} , will both be moved together frictionally until the heel-blank is in position to be discharged from the support a^{10} , and the buffer a^{14} referred to, having met the tread-plate, or the pins a^{13} having met a fixed part, preferably of the table E', the further movement of said support is arrested while the pusher continues its movement in the same direction sufficiently far to push the heel-blank from the support a^{10} upon the tread-plate and between it and the heel-seat die then elevated sufficiently for that purpose. The pusher, it will be remembered, takes the lowermost heel-blanks, one after another, from a pile of blanks in the hopper C¹⁰ and takes them to the tread-plate of the heel-blank carrier, said tread-plate being carried by the lever G referred to, which in practice is and may be operated in time and order as provided for in said patent.

In the modified form of pusher, Fig. 8, one member p^{13x} of the top plate is shown as pivotally mounted at p^{30} on the plate p^{12x} , to thus enable it to tip and adapt itself to the shape of the heel.

The hopper herein to be described is composed of several parts, viz: a front wall-plate d^{10} , attached to the arm 17 by a suitable screw d^{12} , (see Fig. 3,) a curved plate d^{13} having a slotted shank d^{14} attached in an adjustable manner by an adjusting bolt or device d^{14x} on a flanged part of the table E', and a curved plate d^{15} attached in an adjustable manner by adjusting-bolts d^{16} to the wall-plate d^{10} .

The two plates d^{13} d^{15} may be adjusted readily on or with relation to the plate d^{10} to accommodate heel-blanks of the particular size to be used. In this present instance the block e^{10} , (shown separately in Fig. 1^a,) on which the tread-plate 14 rests, is connected with the lever G by a suitable bolt e^{12} , (see Fig. 1,) said block having a shank extended from one side into a slot in said lever, the said shank being straddled by the divided or bifurcated shank d' of the heel-seat die-carrier, the inner face of said shank constituting a guide for the breast of the heel-blank.

The heel-seat die D is jointed by a pin 48 with a lever h^5 mounted on a link h^6 pivoted in the carrier G, said lever h^5 and link being common to said patent, the lever h^5 , but partially shown, being in practice connected

with lever H, substantially as provided for in said patent and for the same purpose. In the patent referred to the block e^{10} was made to seat directly onto the movable cross-head B, preparatory to moving the same vertically to compress a heel. Herein we have provided the said cross-head with a circular opening in which we have laid preferably a circular-plate f^{10} , and on this plate have laid a lining-rim f^{12} , having an opening in which the block e^{10} may enter as the said block comes to rest on the plate f^{10} .

The removable plate and lining-rim may be changed for others in case it is desired to change the block e^{10} and thus insure correct contact of the parts. The lining-rim (shown as circular externally) is prevented from rotating by suitable dowel pins or devices e^{30} , (see Fig. 1,) and said dowel-pins may enter any one of a series of holes or notches in the plate f^{10} , and the latter may be rotated, if desired, to bring a new or unused surface into position to sustain the block e^{10} .

To prevent the accidental escape of the heel-blank from the hopper we have provided the table E' at the delivery side of the lower end of the hopper with a gate g^{10} , pivoted at g^{12} , said gate having a pin or projection g^{13} which is connected by a spring g^{14} to a pin or stud g^{15} of the said table.

The gate has a pin or projection g^{16} , which is normally held against the shank d' of the heel-seat die, as shown in Fig. 3, by said spring, and as the lever G is turned toward the movable cross-head B, with the heel-blank between the tread-plate and heel-seat die to be compressed, the said spring g^{14} , as the shank d' moves into compressing position, acts to lift the inner end of said gate into the position shown by dotted lines, Fig. 2, and thus prevent the escape of a heel-blank from the space below plates d^{10} d^{15} ; but as soon as the lever G is moved backwardly away from said cross-head the shank d' , by acting on said pin g^{16} , turns it into the position shown by full lines, Fig. 2, leaving the track or passage open for the pusher to push a heel-blank out of the hopper.

A lug g^{19} on the gate g^{10} acts against a suitable stop g^{20} , (shown by dotted lines, Fig. 2,) and thus stops the gate in closed position.

The table has suitably attached to it, as by screws h^{20} , the shank of a rod h^{21} , which sustains a delivery-chute h^{22} , the upper end of which is located opposite the tread-plate 14, when the lever G is in its outward or retracted position, the chute being inclined toward the delivery end, so that a compressed blank ejected from the tread-plate by the contact with, it may be, of an incoming heel-blank, may be directed to a suitable box or receptacle. (Not shown.)

To prevent the accidental escape from the hopper, at that side thereof next the cross-head B, of a blank when the pusher is acting to take a blank therefrom and put it onto the

tread-plate 14, we have provided the hopper at its side next the said cross-head with a guard m^{20} .

To prevent a compressed heel traveling down a chute h^{22} from rising therein and getting over the side walls thereof, we have provided the chute with a top guard m^{21} .

Our improvements relating to the pusher and the support for the heel-blank and the hopper may be employed to advantage in any heel-compressing machine.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The heel blank support, combined with a co-operating pusher composed of top and bottom plates, and adjusting devices to change the depth of the pusher and adapt it to heel blanks of different height, substantially as described.

2. The heel blank support, combined with a pusher composed of a bottom plate and a top plate made adjustable longitudinally with relation to the bottom plate to thus adapt the acting end of the pusher to the slope or inclination of a heel blank, substantially as described.

3. The heel blank support and pusher, composed of a bottom plate and a two-part top plate, combined with devices to adjust one part of the top plate on the other, and devices to adjust the entire top plate vertically with relation to the bottom plate, substantially as described.

4. The movable recessed cross-head of a heel compressing machine, and a heel blank carrier having a block e^{10} adapted to enter said recess, combined with a removable plate placed in said recess and to receive the impact of said block, substantially as described.

5. The movable recessed cross-head of a heel-compressing machine, and a heel blank carrier having a block e^{10} to enter said recess, combined with a removable plate placed in said recess and adapted to sustain said block, and a removable lining rim also located in said recess above said removable plate, substantially as described.

6. In a heel compressing machine, compressing devices, a heel blank hopper, a heel blank feeder, and means to actuate said feeder to take heel blanks singly from a pile of blanks in said hopper preparatory to their compression, combined with a safety gate intermediate the compressing devices and the hopper, and means to automatically close said gate at times and thereby prevent the accidental escape of a heel blank from the said hopper, substantially as described.

7. The table, the heel blank hopper mounted thereon, a heel blank feeder to take the heel blanks singly from a pile of blanks in the hopper, and a guard m^{20} at the rear end of the table and extended along one side of the path of movement of and above the feeder, to prevent the escape of a heel blank from said hop-

per or from the feeder and from falling over the guarded edge of the table, substantially as described.

8. In a heel blank compressing machine, a
5 hopper to receive a series of heel blanks, a heel blank feeder, and a heel blank carrier having an attached tread plate, and a heel seat die vertically movable with relation thereto, and mounted on said carrier com-
10 bined with a chute arranged to receive and guide the compressed blanks as they are dis-

charged from between the tread plate and heel seat die, and a top guard on said chute, substantially as described.

In testimony whereof we have signed our 15 names to this specification in the presence of two subscribing witnesses.

JOHN J. HEYS,

CHARLES W. GLIDDEN.

Witnesses:

JOHN C. EDWARDS,

EMMA J. BENNETT.