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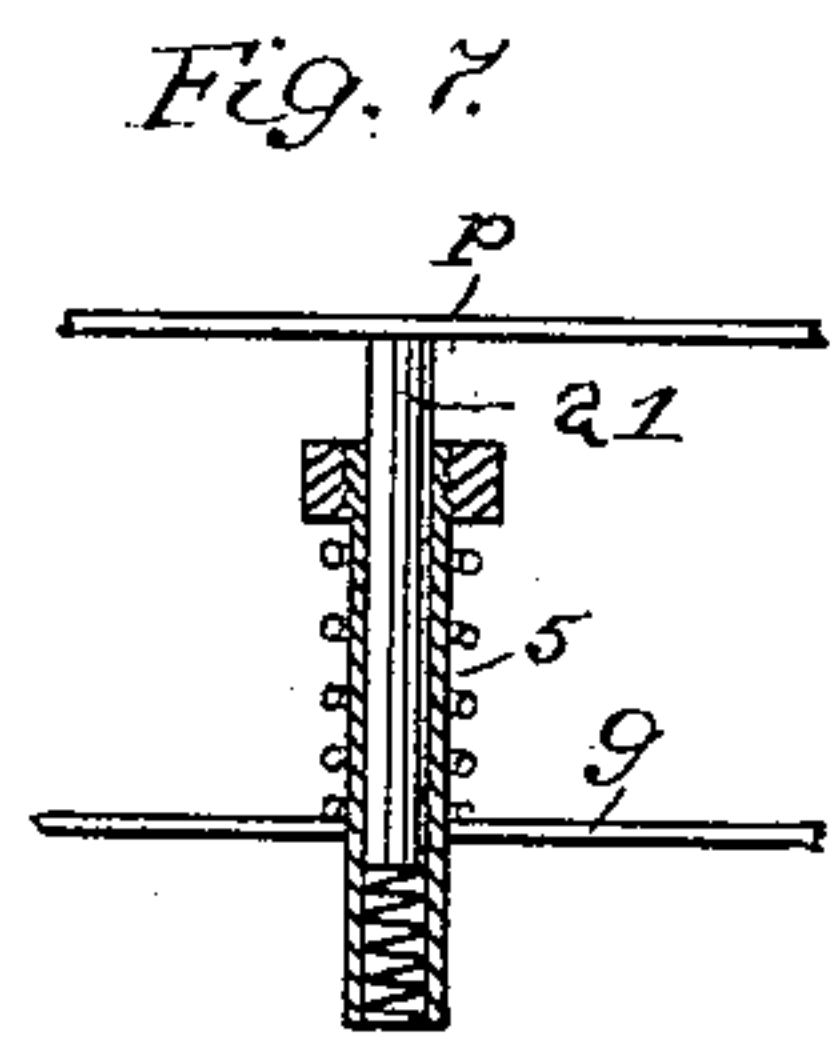
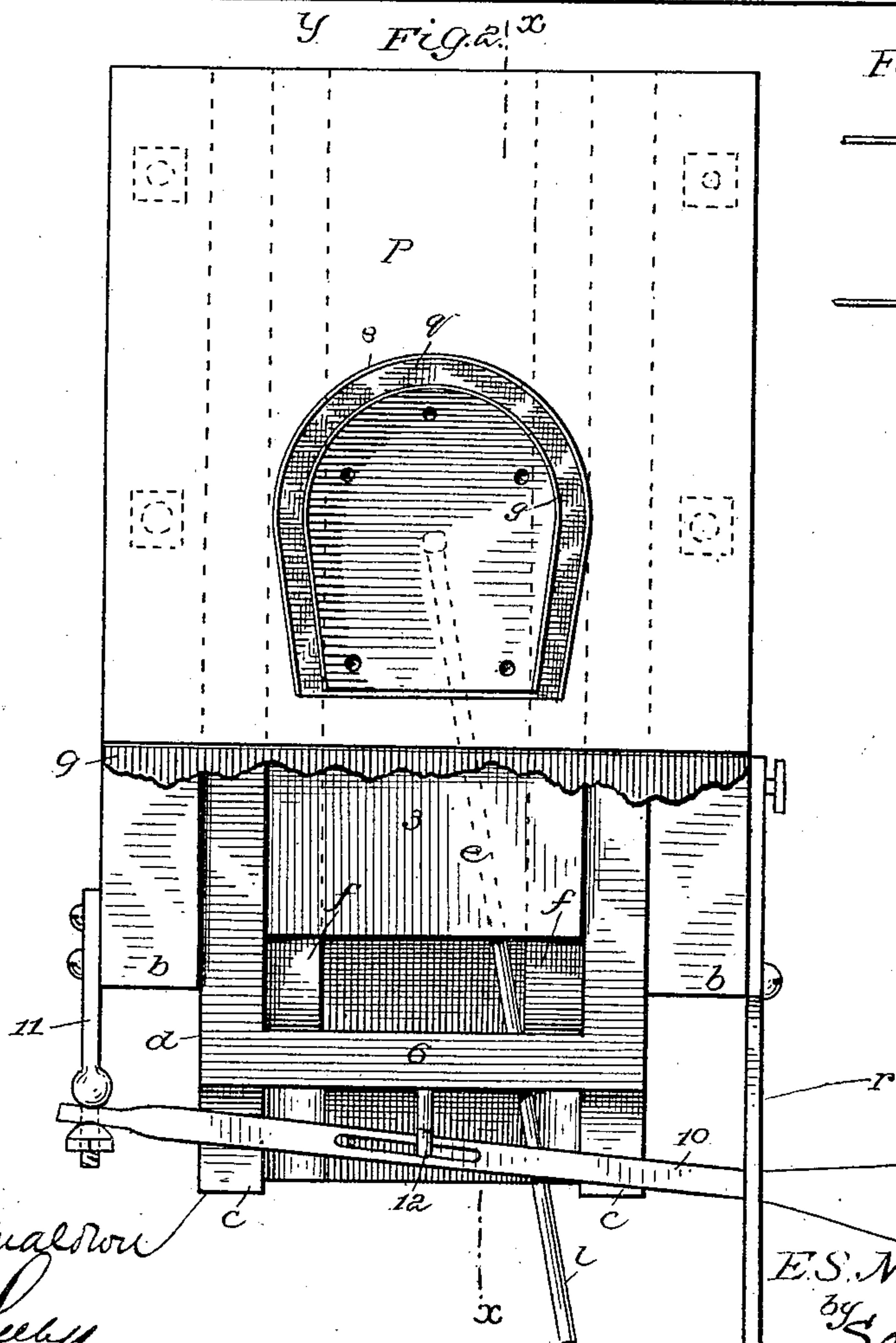
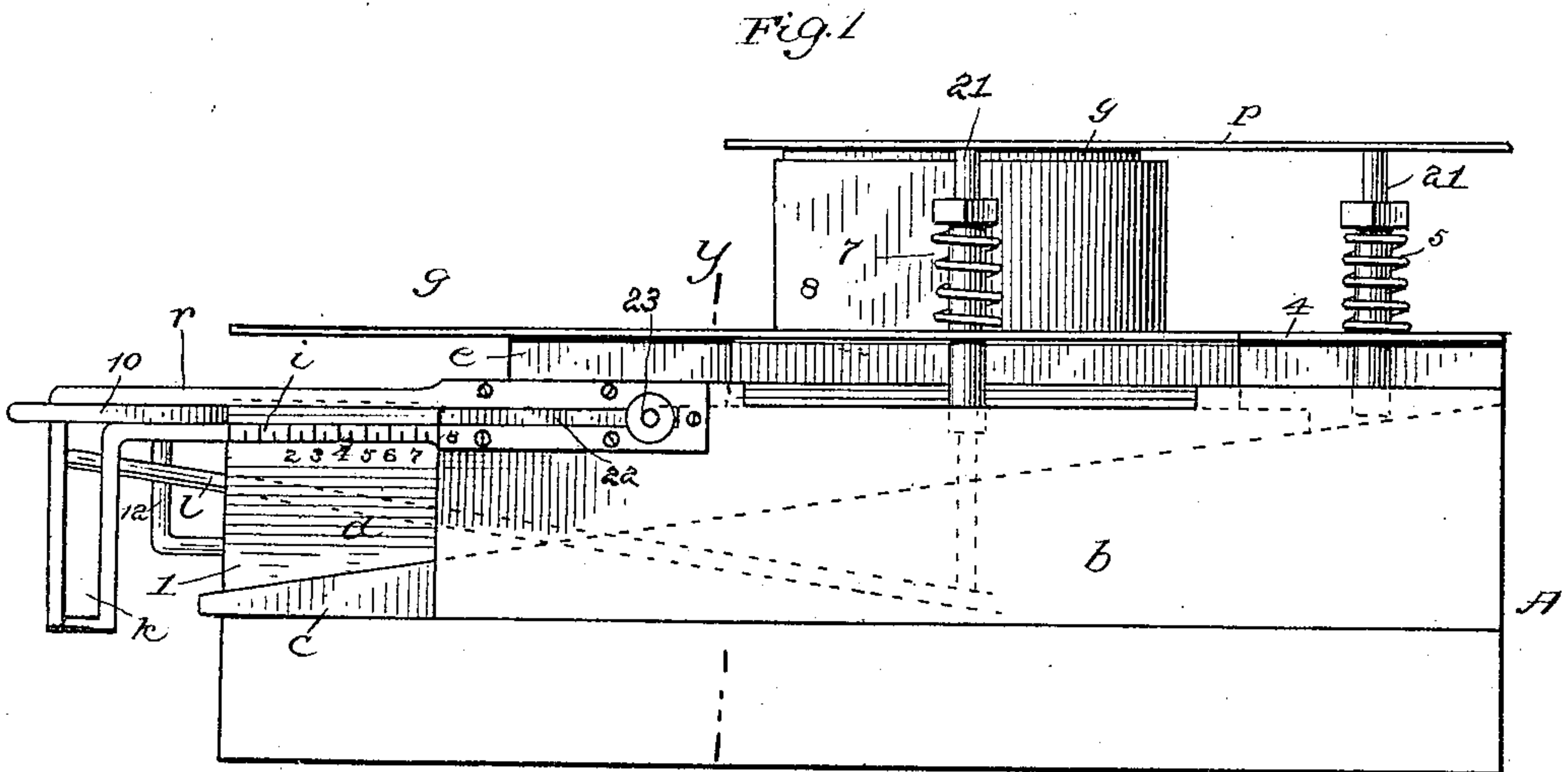
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E. S. MANSELL.

HEEL MACHINE.

No. 263,293.

Patented Aug. 22, 1882.



Attest:

Walter D. Mansell  
L. W. Luby

Inventor  
E. S. Mansell  
by  
Ellis Spear  
Atty.

(No Model.)

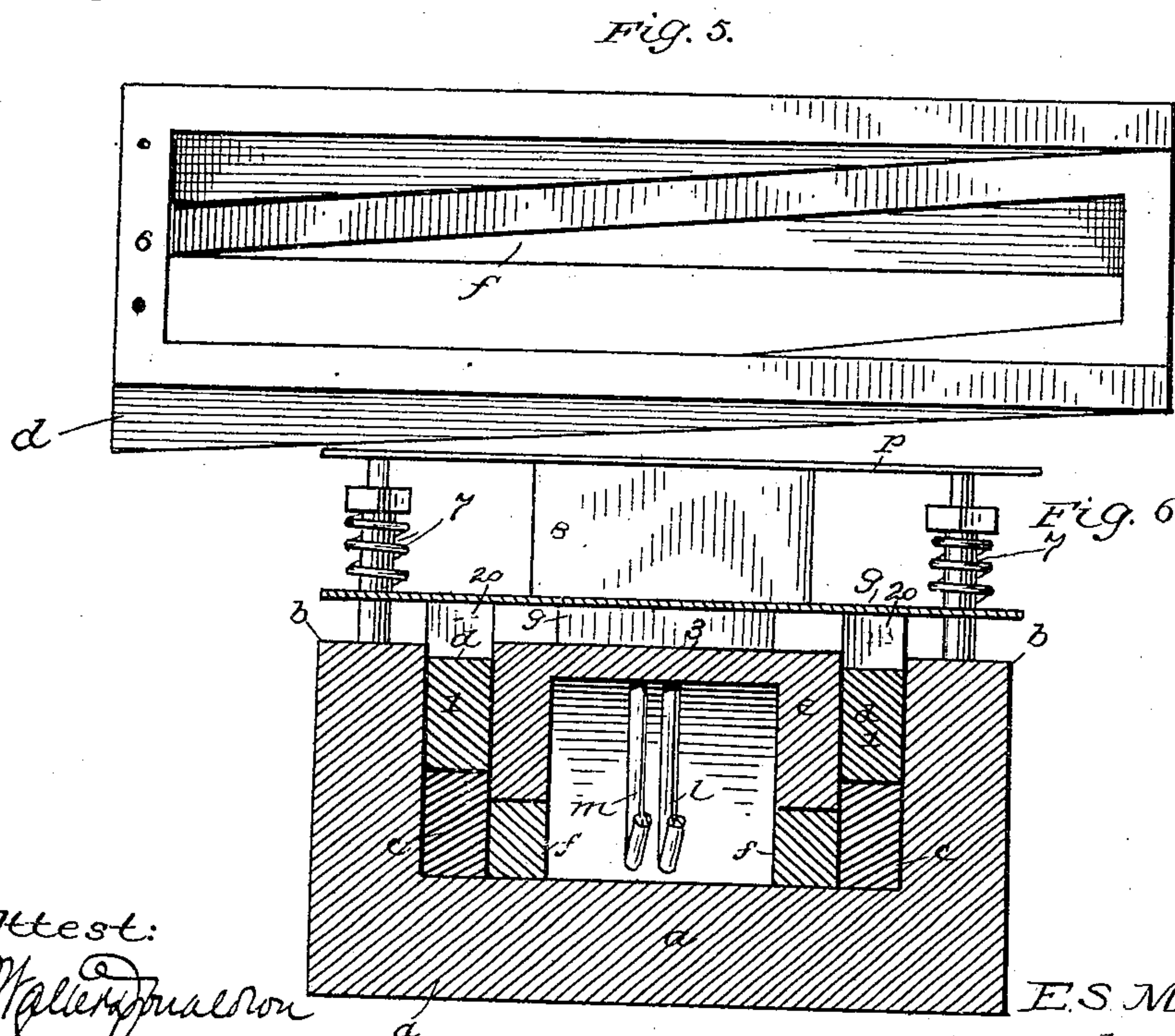
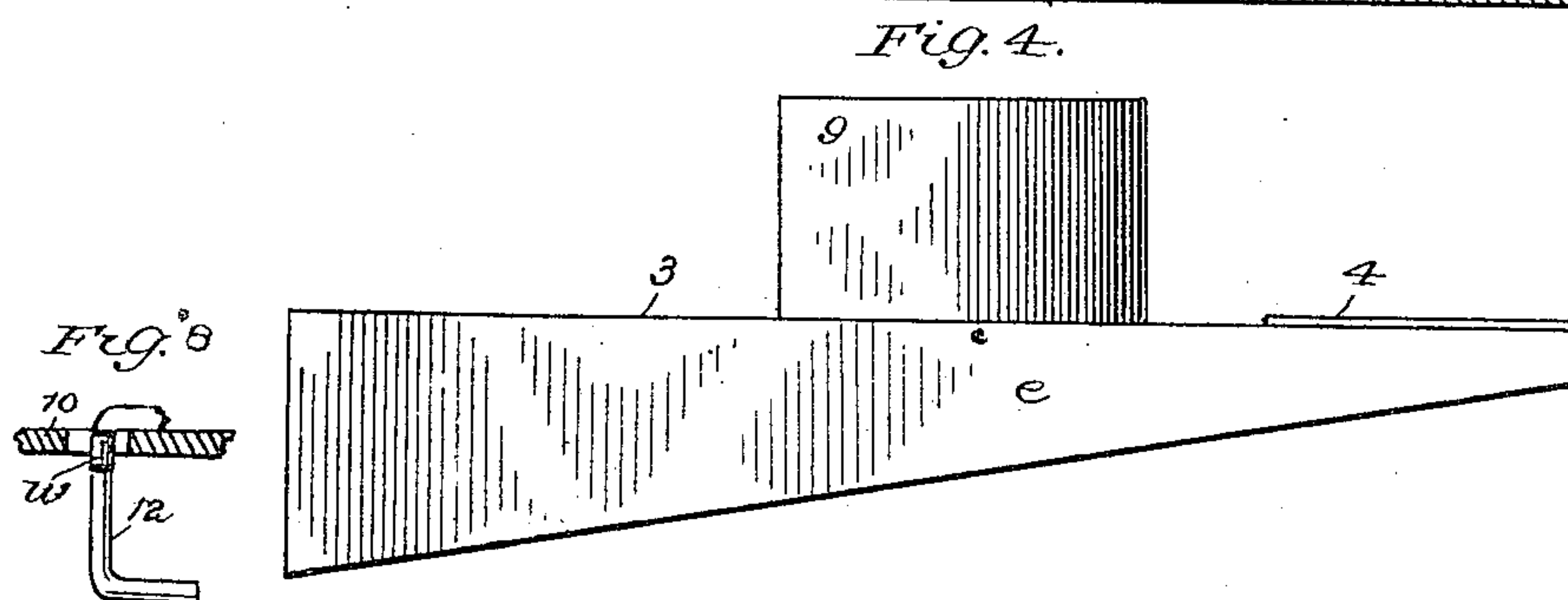
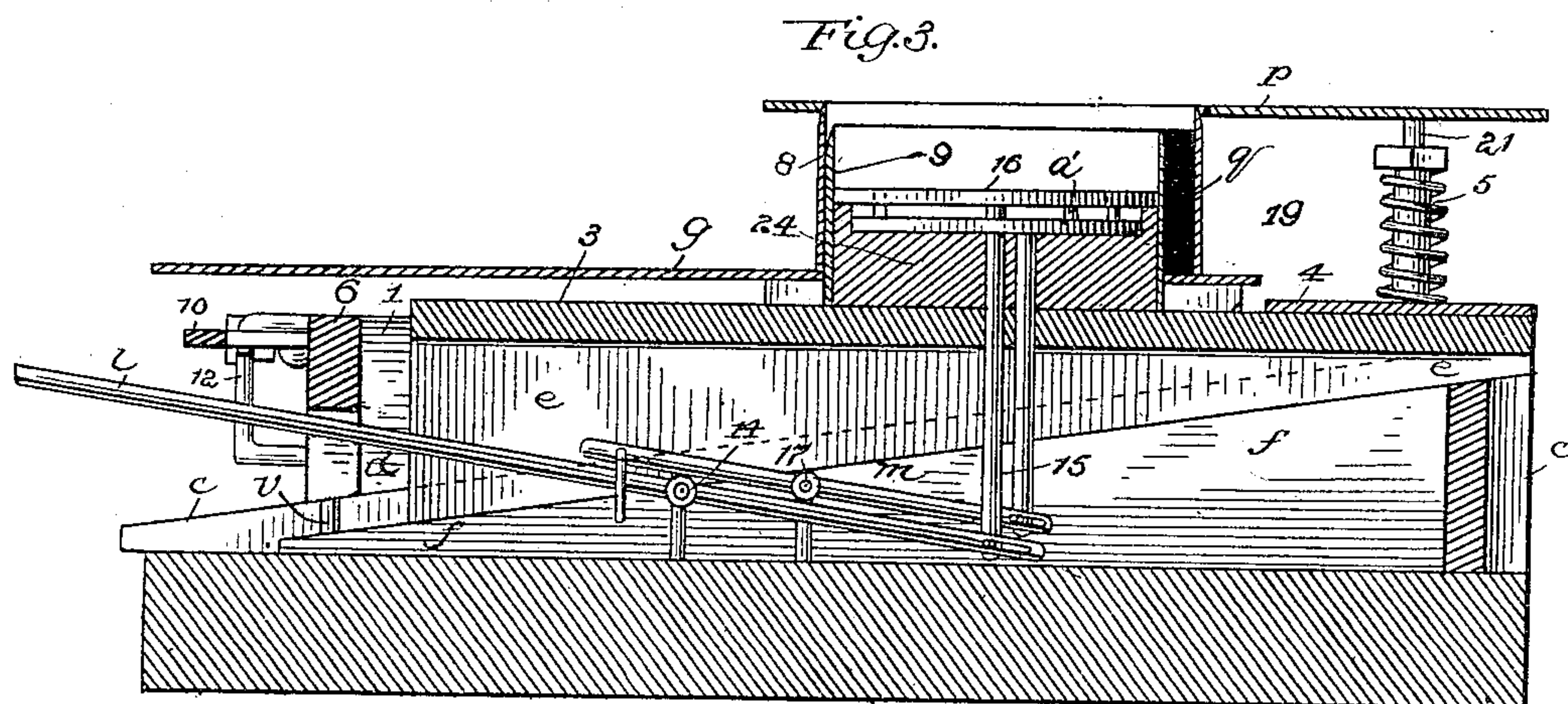
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E. S. MANSELL.

## HEEL MACHINE.

No. 263,293.

Patented Aug. 22, 1882.



Attest:

Walter Brunson  
LA July

Inventor

*E. S. Marisell,*

by  
Elin Spear

Atty.

(No Model.)

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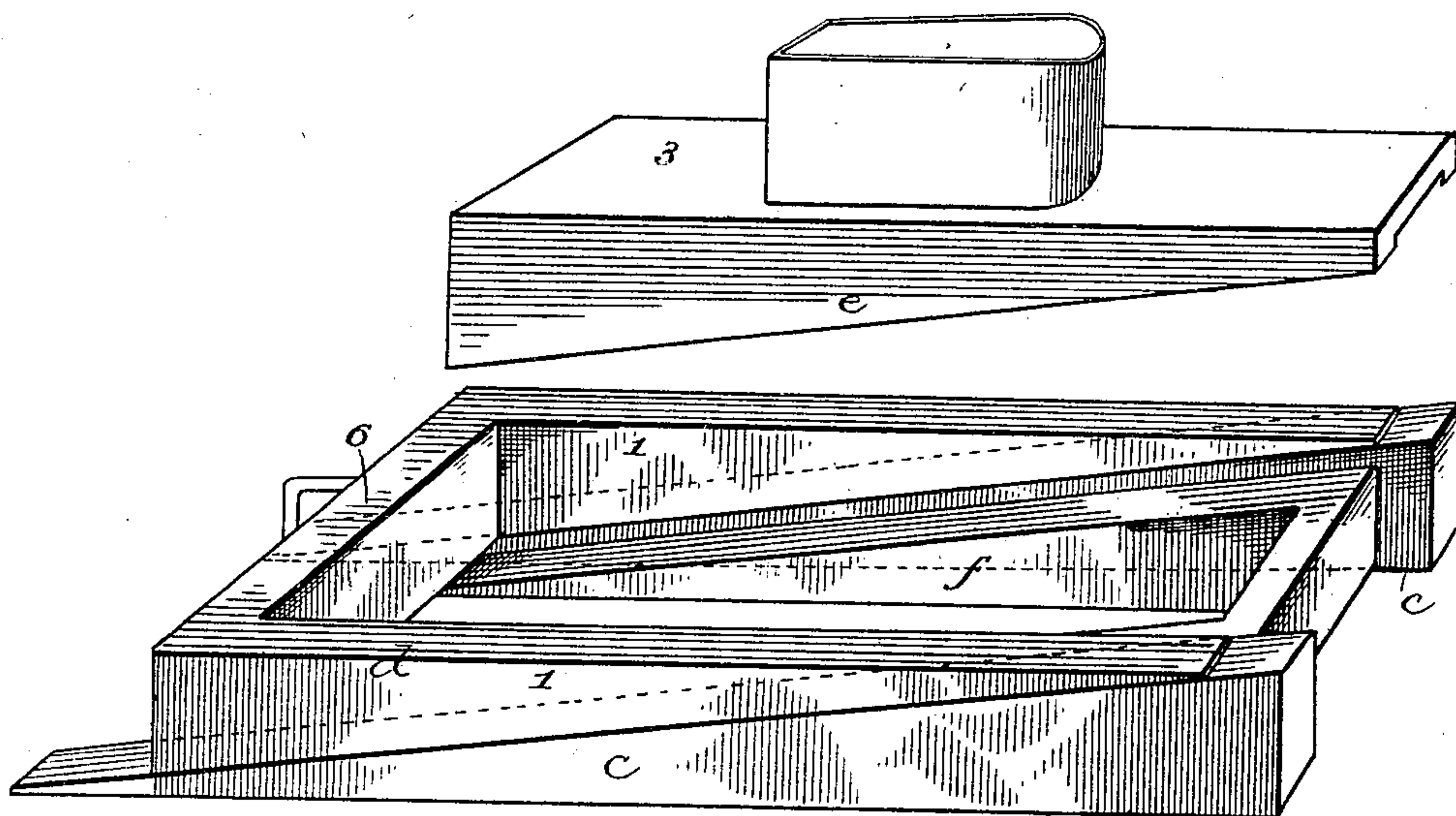
E. S. MANSELL.

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*Fig. 9.*



*Attest:*

*Walter Donaldson*  
*L. W. Luby*

*Inventor*

*Elbridge S. Mansell*

*by*

*Elis Spear*

*Atty.*



# UNITED STATES PATENT OFFICE.

ELBRIDGE S. MANSELL, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GEORGE O. TARBOX, OF SAME PLACE.

## HEEL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 263,293, dated August 22, 1882.

Application filed April 18, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ELBRIDGE S. MANSELL, of Lynn, county of Essex, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Heel-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to apparatus for cutting and filing the lifts for forming what are known in the trade as "deck-heels" for boots and shoes.

In machines of this class two cutters are required, one adapted in size to cut the smaller lifts which form the lower part of the heel-blank, and the other of larger size to cut the larger lifts forming the upper part of the heel-blank.

In the machine which is the subject of this application these two cutting-dies are located one within the other in proper position to cut and place the lifts for forming a heel-blank, and both dies are caused to move vertically by suitable mechanism, which at the same time lowers one and raises the other to change the relative height of the cutting-edges, so as to cause first one and then the other to cut upon the leather or other material. In this respect the present invention is an improvement upon that shown in an application filed by me in the United States Patent Office on the 11th day of August, 1881. In that application only one cutting-die was shown as adjustable, while in the present application both are movable simultaneously, whereby the relative height of the cutting-edges is changed sufficiently for the work with less movement of the parts.

My present invention also includes an ejector in connection with the cutting-dies, and, further, it includes improvements in the mechanism for adjusting the cutting-dies vertically for operating the ejector, and other details hereinafter fully described.

In the drawings, Figure 1 shows a side elevation of the apparatus. Fig. 2 is a plan view, partly in section. Fig. 3 is a longitudinal section on line *x x* of Fig. 2. Figs. 4 and 5 represent the inclined ways. Fig. 6 represents a cross-section on line *y y* of Fig. 1. Figs. 7 and 8 represent details. Fig. 9 represents in per-

spective the frame carrying the inner die and also the inclined ways, their position being shown in full and dotted lines.

In these drawings I have not shown the table or the cutting-block or any of the mechanisms for operating the cutting-block, as those parts may be the same as those shown in my application heretofore specified.

The sliding plate which supports the cutting-dies and the mechanisms for shifting these dies is shown at A. It may be made to slide upon the table horizontally, as in my application aforesaid. Upon this plate I fix two guide-rails, *b b*, Figs. 1 and 6, between which are the inclined ways by means of which the cutting-dies are shifted. An independent set of inclined ways is provided for each die, the inclines of one set being reversed in respect to the inclines of the other, and the moving parts connected, so that the movement in one direction will lower the inner and raise the outer die, while reverse movement of the ways will raise the inner and lower the outer die, and both dies moving at the same time in opposite directions only half the amount of movement of each is required. The outer die, marked 8, rests directly upon a plate, *g*, which is supported upon inclined ways 1, which, with the cross-piece 6 at their larger end, form the frame *d*. (Shown more clearly in Fig. 9.) The frame *d* rests upon the inclined ways *c c*, which ways are fixed to the plate A.

It will be apparent from an inspection of Fig. 9 that when the frame *d* is drawn forward—that is to say, to the left hand of the figure—it will be lowered, and with it the plate *g* and the outer die; but the plate *g* does not move horizontally with the frame *d*, but is supported upon interposed rails 20, under which the inclined ways 1 slide freely, the plate *g* being held against horizontal movement with the frame *d* by means of the posts 7, which pass loosely through holes in the said plate, and are fixed in the rails *b b*.

The inner cutting-die, 9, is supported upon an inner frame, 3, which has ways *e e*, similar to those of the frame *d*, but inclined in the opposite direction. To the rear of this frame is fixed a plate, 4, which extends on each side



over the rails *b b*, and is held against horizontal movement upon said rails by means of the posts 5. The ways *e e* rest upon wedges *f f*, which wedges at their forward or smaller ends  
5 are attached to the cross-piece of the frame *d*, so that when the frame *d* is drawn forward it draws the wedges *f* forward with it.

It will be apparent, therefore, that the forward movement of the frame *d*, which lowers  
10 the plate *g* and outer cutting-die, will, by drawing forward the wedges *f*, (see Fig. 3,) raise the frame 3, and with it the inner cutting-die, 9. Backward movement, or movement to the right of the figures, will reverse the movement of  
15 the frames and cutting-dies.

I have shown in Figs. 1, 2, and 3 convenient means for giving the required movement to the described die-shifting mechanisms. These means consist of the lever 10, extending across  
20 the front of the plate *A*, pivoted upon one side to an arm 11, and working in a slotted arm on the opposite side. It is connected to the cross-piece 6 of the frame *d* by a hook, 12, which works in a slot in the lever.

The ejector is shown in Fig. 3 at 16, located within the inner die. It is connected by a plunger-rod to a lever, *l*, pivoted at 14. The lever *l* extends to the front and passes under the lever 10. This lever 10, when drawn forward, is directly over a vertical part, *k*, of the  
30 slotted bracket *r*, which vertical part allows the lever 10 to be depressed, and as it is depressed it carries down the forward end of the lever *l*, thus throwing up the ejector 16 and  
35 pushing out the finished blank. This forward movement of the lever 10 at the same time raises the inner and lowers the outer die, and leaves the apparatus ready to commence the cutting of another set of lifts for another blank.

In order that the heel-blank may not stick to the ejector 16, I provide a plate, 19, as an auxiliary ejector underneath the ejector 16, which plate is supported upon a plunger-rod connected to a lever, *m*, pivoted at 17, and connected to the lever *l* by a link in front of the  
40 pivot 14. The plate 19 is perforated to allow the plunger of the ejector 16 to pass through it freely, and has blunt pins *a'*, which pass through holes in the plate 16. The pins are  
50 of sufficient length to pass through the ejector 16, and project slightly above its surface. This serves, when the lever *l* is depressed, to lift the blank slightly from the ejector 16 and prevent it from sticking thereto.

In order to support the leather in place ready for the cutting, I mount a yielding table, *p*, having an opening corresponding in size and shape to the outer cutting-die upon legs 21. The posts 5 and 7, which hold the plates *g* and  
60 4 in place, are made hollow, as shown in Fig. 7, in order to admit these legs, which are supported therein upon springs. These springs are adapted to hold the plate in position to receive the leather, and to allow it to be depressed when the block descends to press the  
65 leather upon the cutting-die. Coiled springs

are placed outside the posts 5 and 7 to hold the plates *g* and 4 down.

In order to prevent small cuttings of leather from falling into the space between the outer  
70 and inner dies, I place therein a packing of rubber, *q*, which will yield sufficiently to give place for the upper lifts.

I regulate the height of the lower part of the heel-blank by means of a block or plate, 24,  
75 fitted within the inner cutting-die, as shown in Fig. 3. A thicker or thinner block may be used, according to the height of the heel required; or, instead of interchangeable blocks, the plate may be raised or lowered by set-  
80 screws. It will be apparent that these regulate only the thickness of the smaller lifts of the deck-heel, or those cut by the inner die. The height of the pile of lifts cut by the outer die may be regulated by regulating the amount  
85 of horizontal movement of the lever 10.

It will be borne in mind that the rear movement of the lever 10 raises the outer die. Therefore, by increasing or diminishing the amount of this rearward movement of the le-  
90 ver 10 the relative height of the outer die may be increased or diminished. This regulation I accomplish by means of a slide, 22, held adjustably in the slot of the bracket *r* by means of a thumb-screw, 23, and I provide on  
95 the bracket a graduated scale, *i*.

The slide may be set with its forward edge at 8, 7, or any other figure, serving to stop the lever 10 in the slot at the point where the forward end of the said slide is set.

Having thus described my invention, what I claim is—

1. In a machine for cutting lifts and forming heel-blanks, and in combination, a die block and frame having inclined ways and  
105 supporting a vertically-moving plate, which carries the outer cutting-die, and a second frame carrying the inner cutting-die, and supported upon a third reversely-inclined frame attached to that first specified, whereby the cutting-dies  
110 are moved in reverse directions by the forward or backward movements of said frames.

2. In combination with the described inclined frames and ways and their cutting-dies, the hand-lever 10, adapted to move in a hori-  
115 zontal slot, and connected to the frame, substantially as described.

3. The combination, with the frames and cutting-dies, of the plunger-lever *l*, pivoted as shown, and provided with a rod and plunger  
120 at its rear end, and the lever 10 connected to the frame *d*, and adapted to work in the horizontal and vertical guide-slots, substantially as shown.

4. The supplemental lever *m*, having a ver-  
125 tical plunger and plate, and pins set in said plate and passing through the plunger, in combination with the lever *l*, and with the dies and operating mechanisms, whereby the blank is raised from the plunger, substantially as  
130 described.

5. The plate *p*, supported upon legs set in



the hollow guide-standards upon springs, whereby the said plate yields when the cutting-block is pressed down.

5 6. In a machine for cutting lifts, two independent cutting-dies, in combination with adjusting mechanism, substantially as described, for vertically adjusting each of such dies with relation to the other, so that one of them is raised and the other is lowered, and for hold-  
10 ing one of them in raised or operative position.

7. The two independent cutting-dies, in combination with adjusting mechanism, substantially as described, for imparting a vertical adjustment to each of said dies, so that one of  
15 them is raised and the other lowered, and for

holding them in raised or operative position, and with an ejector to act upon the lifts within the inner die.

8. The cutting-die and its ejector, combined with the auxiliary ejector, to detach the lower lift from the plunger-plate of the main ejector, substantially as described. 20

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

ELBRIDGE S. MANSELL.

Witnesses:

F. L. MIDDLETON,

J. W. HAMILTON JOHNSON.