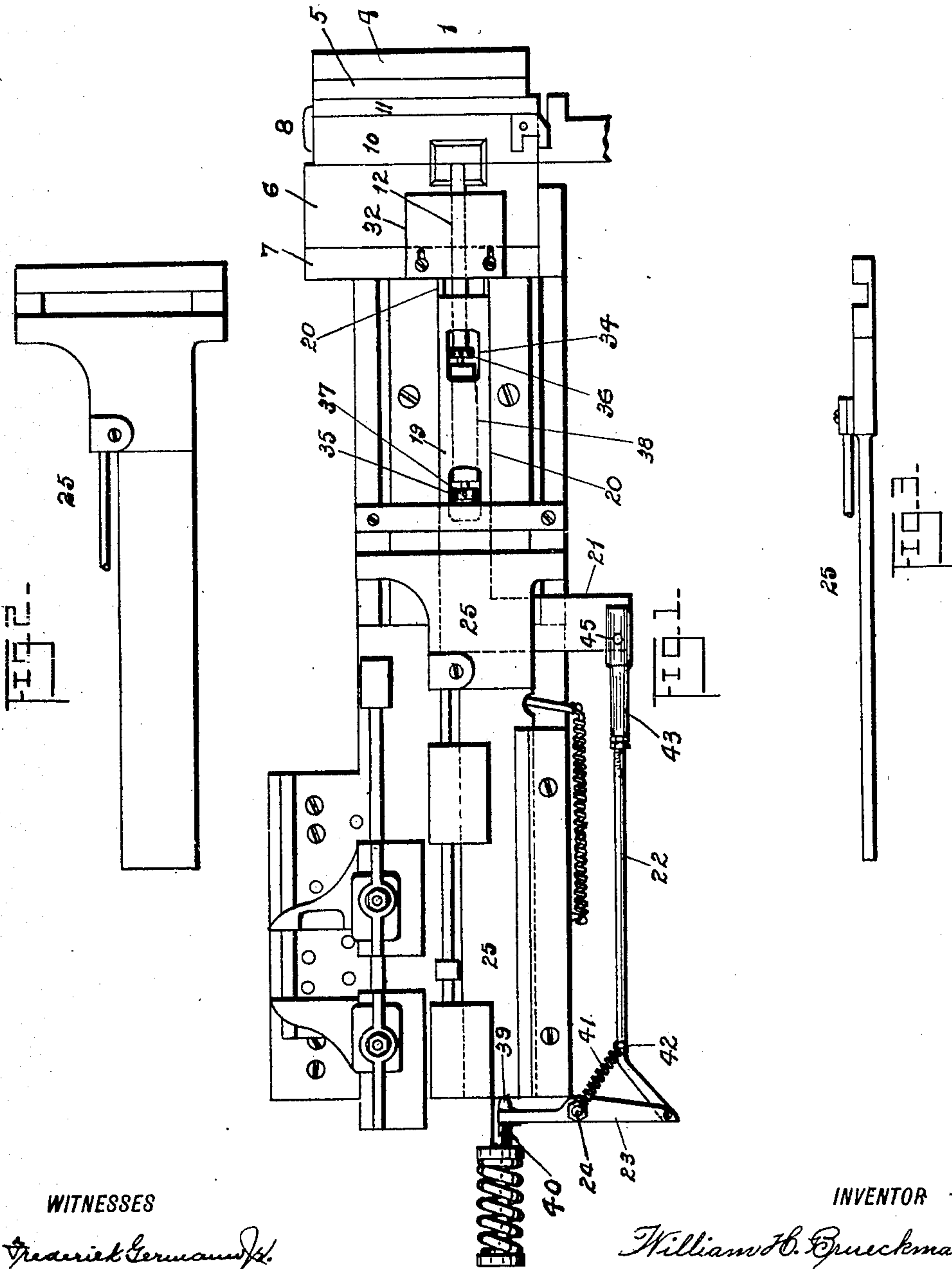


W. H. BRUECKMANN.
TYPE CASTING MACHINE.
APPLICATION FILED AUG. 3, 1908.

Patented June 22, 1909.
3 SHEETS—SHEET 1.

925,866.



WITNESSES

Fredrick Germann
John W. Lampfer

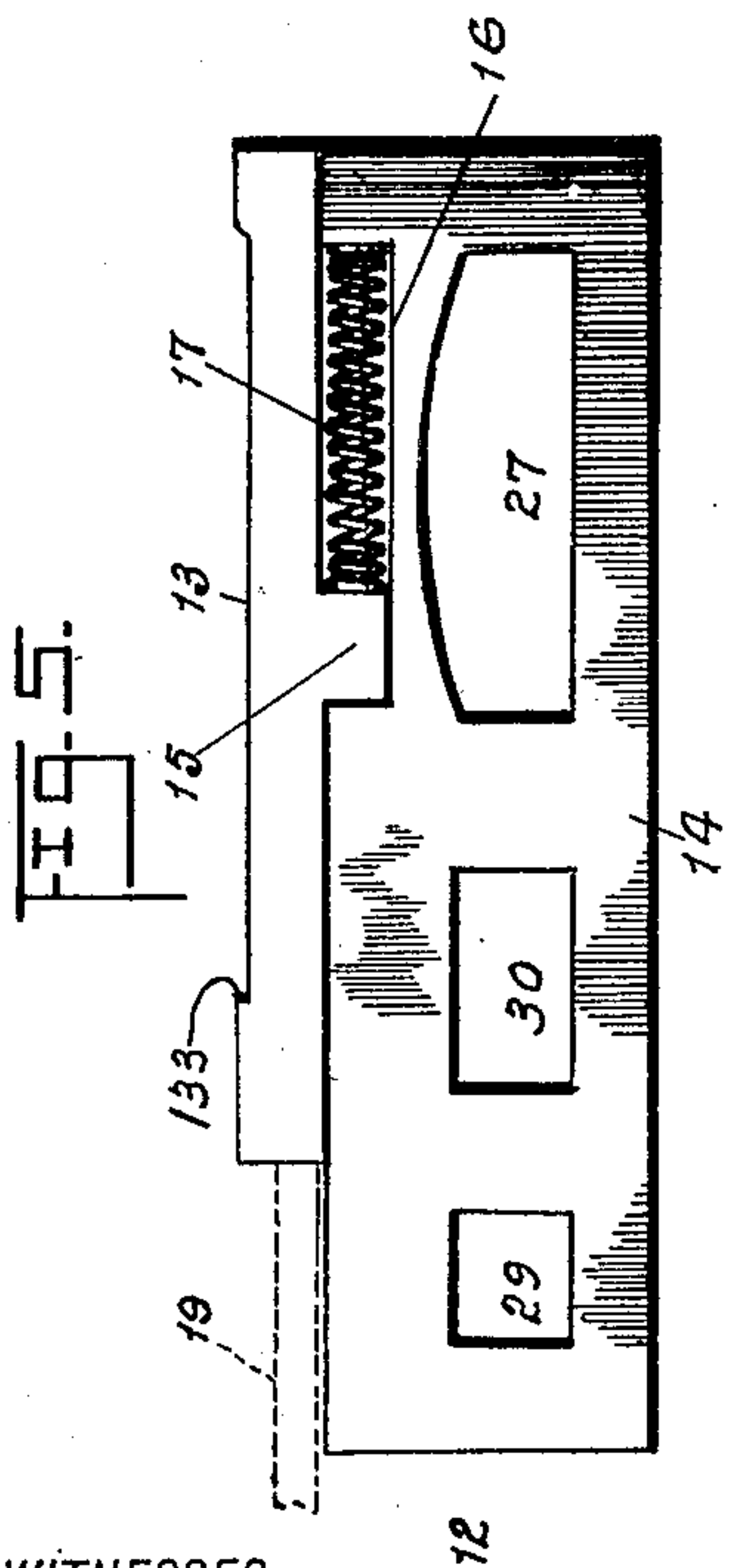
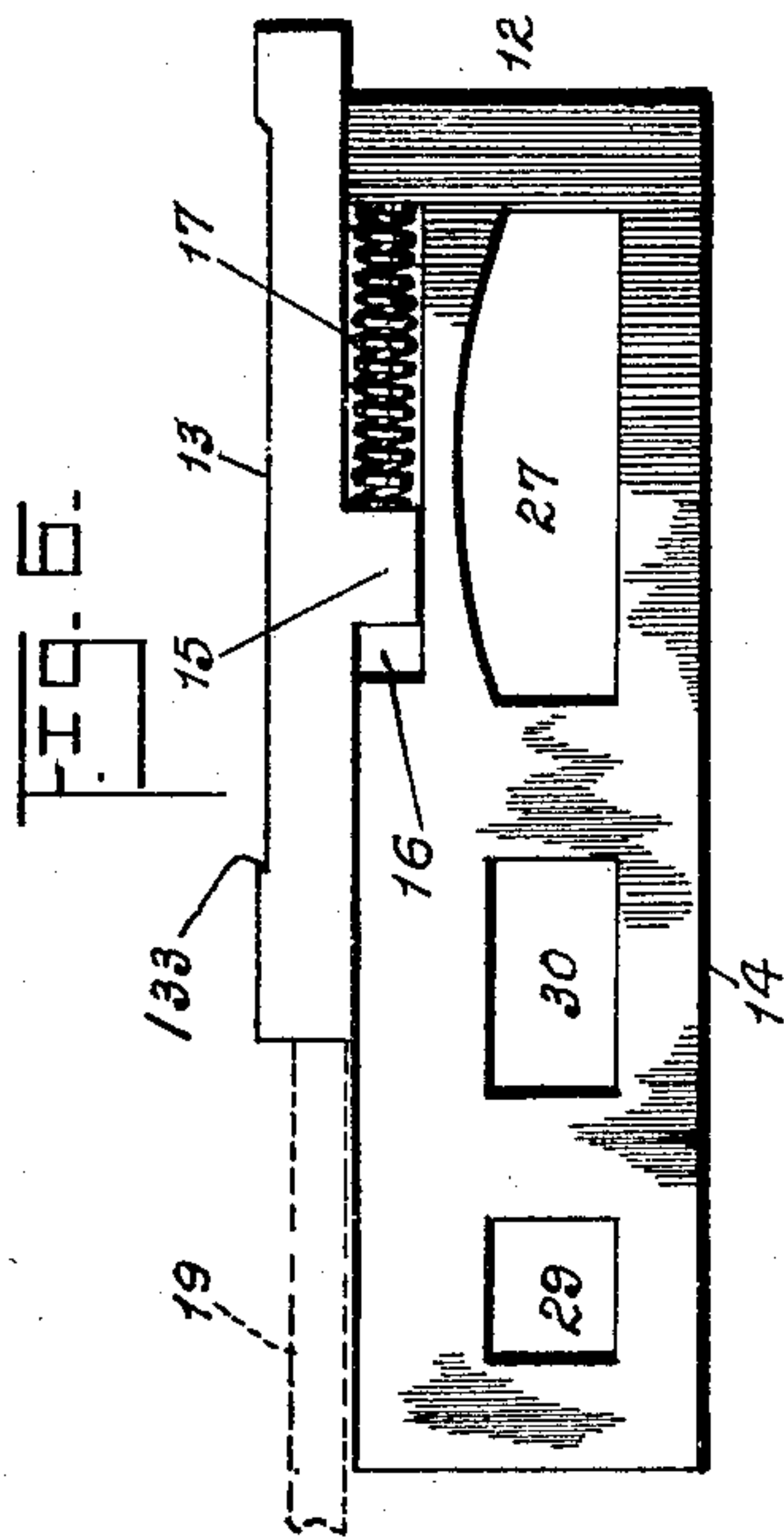
INVENTOR

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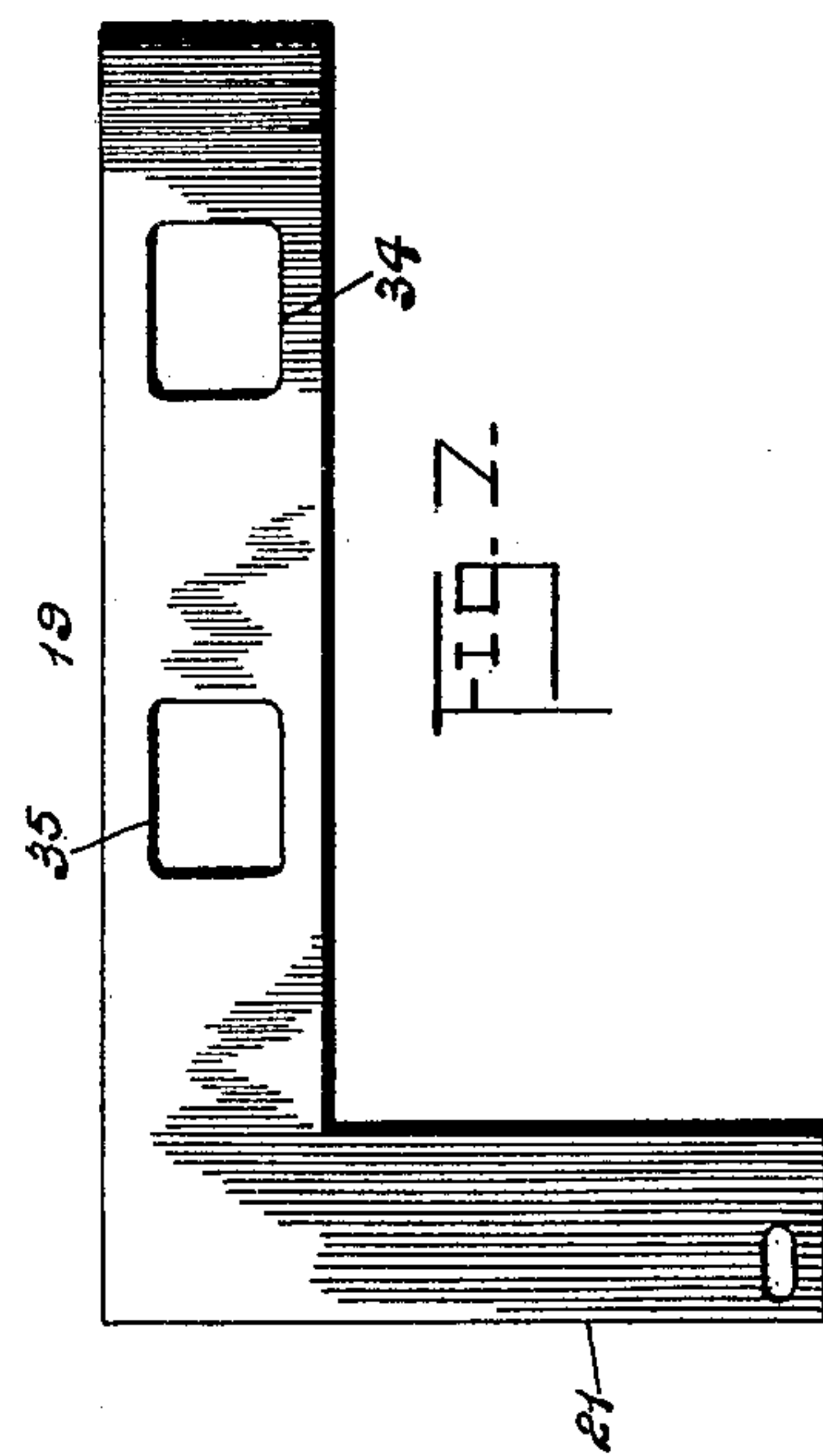
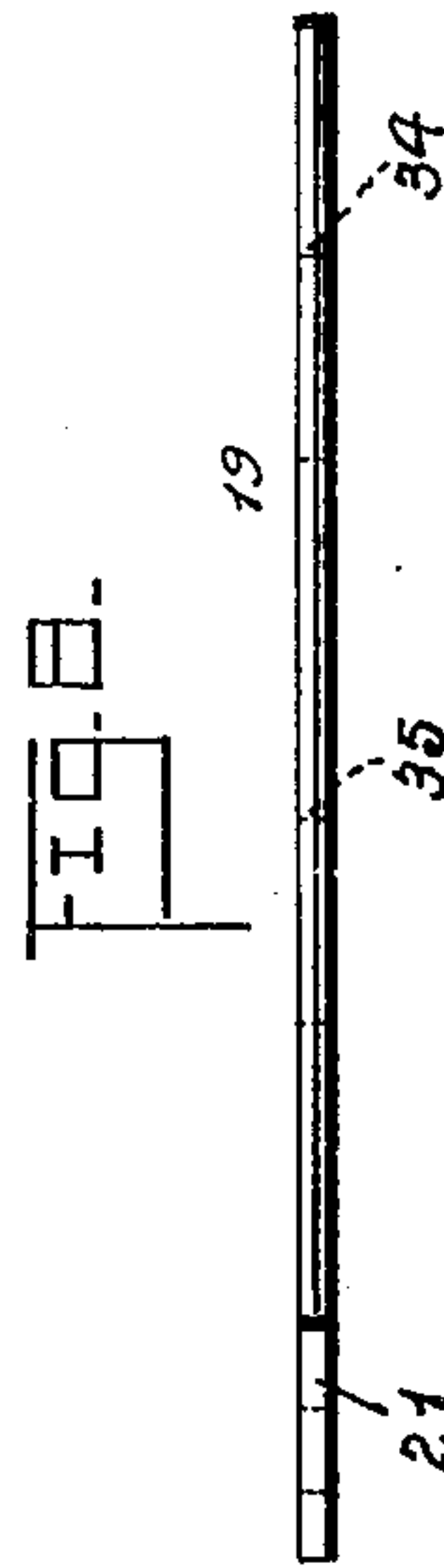
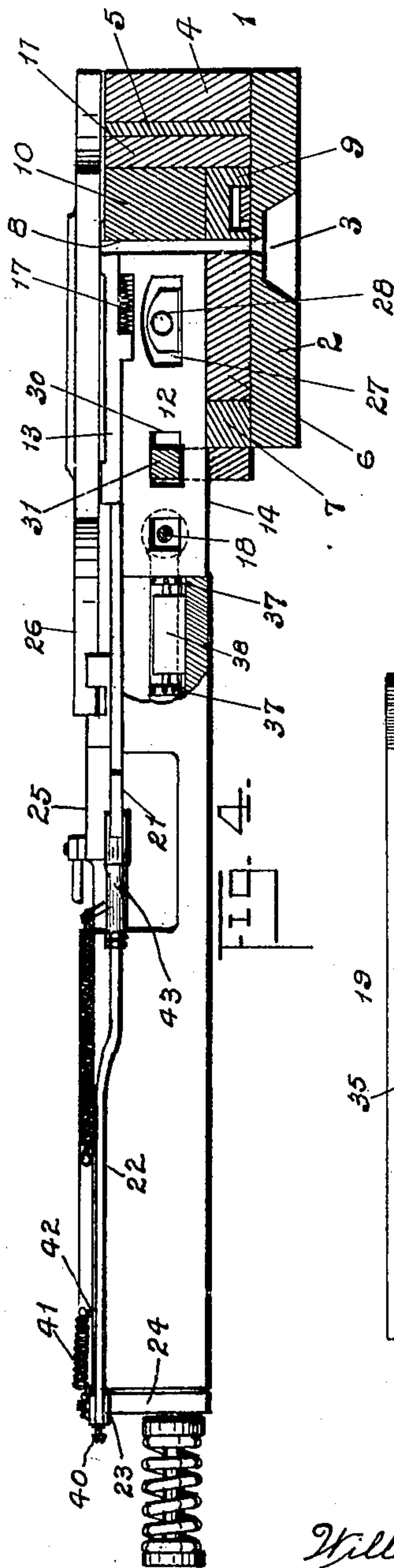
Patented June 22, 1909.
3 SHEETS—SHEET 2.

925,866.



WITNESSES

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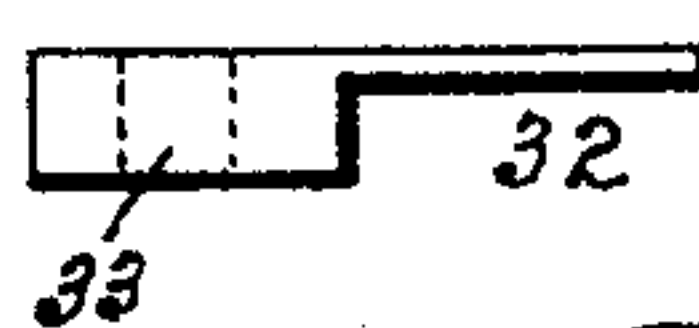
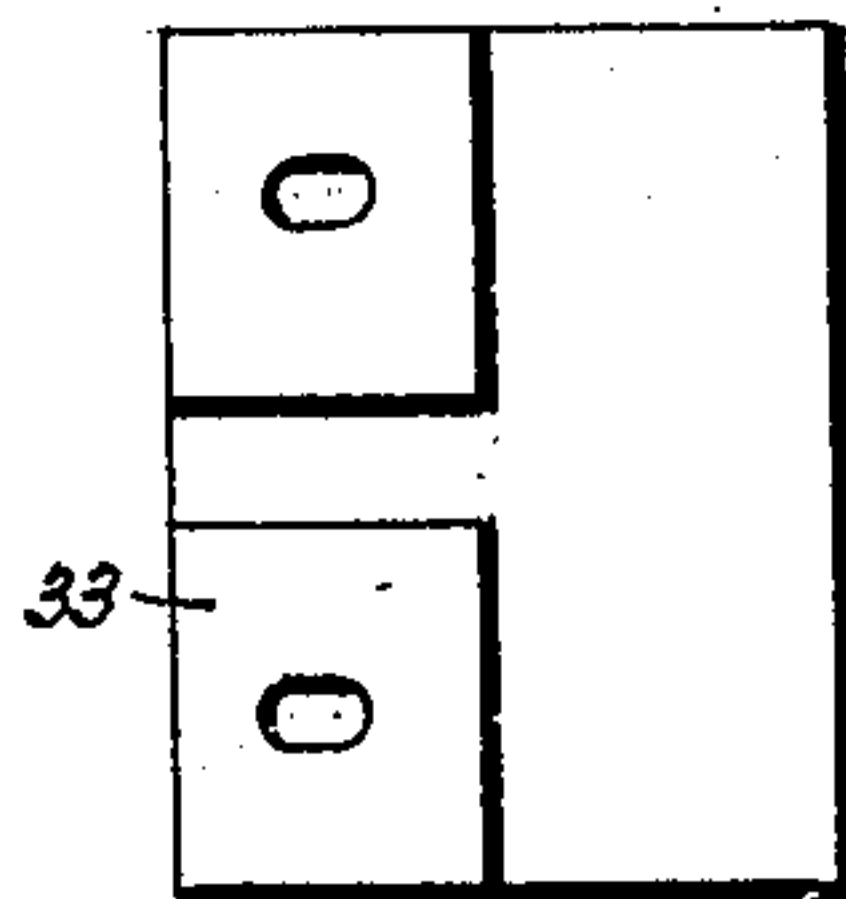
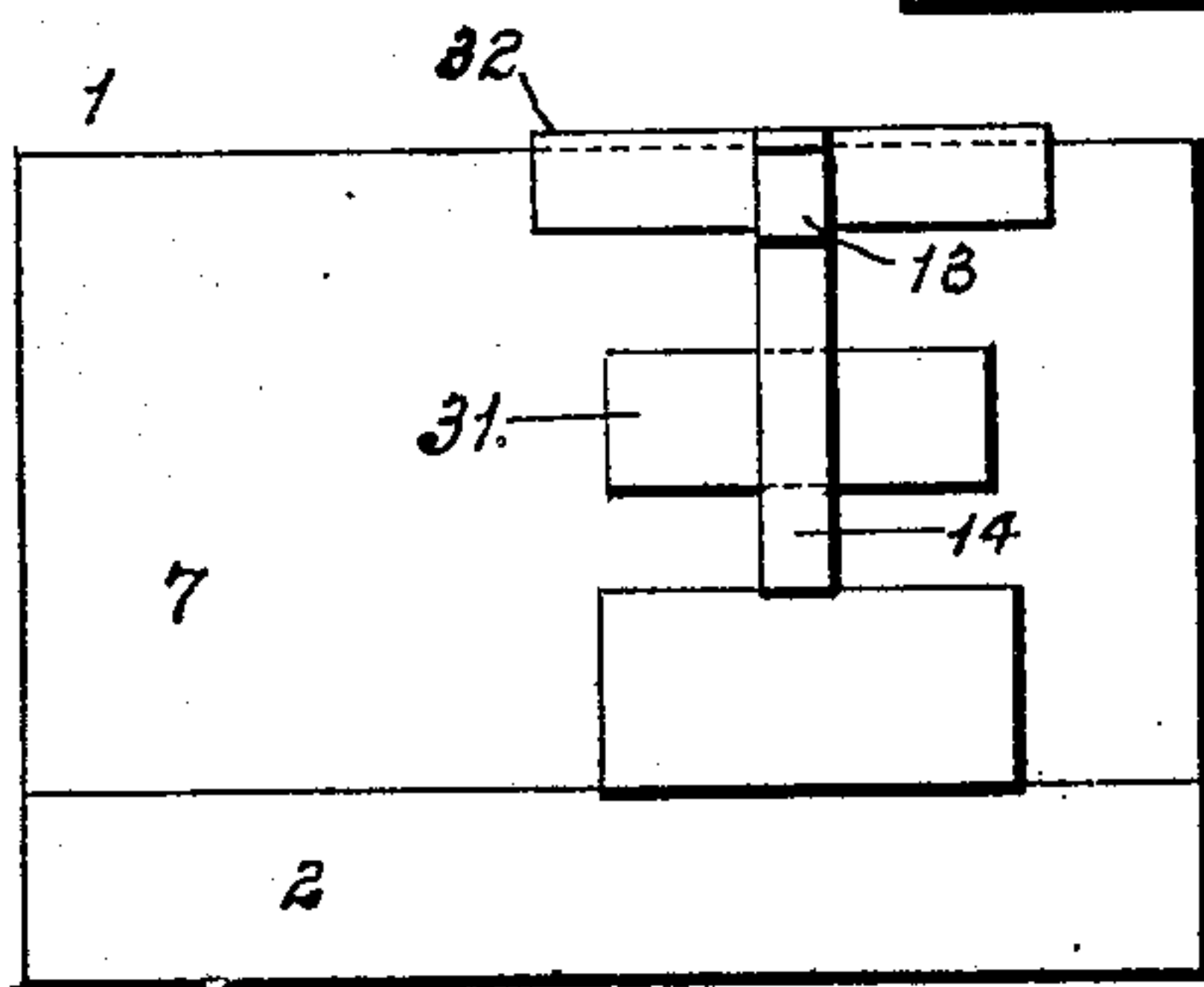
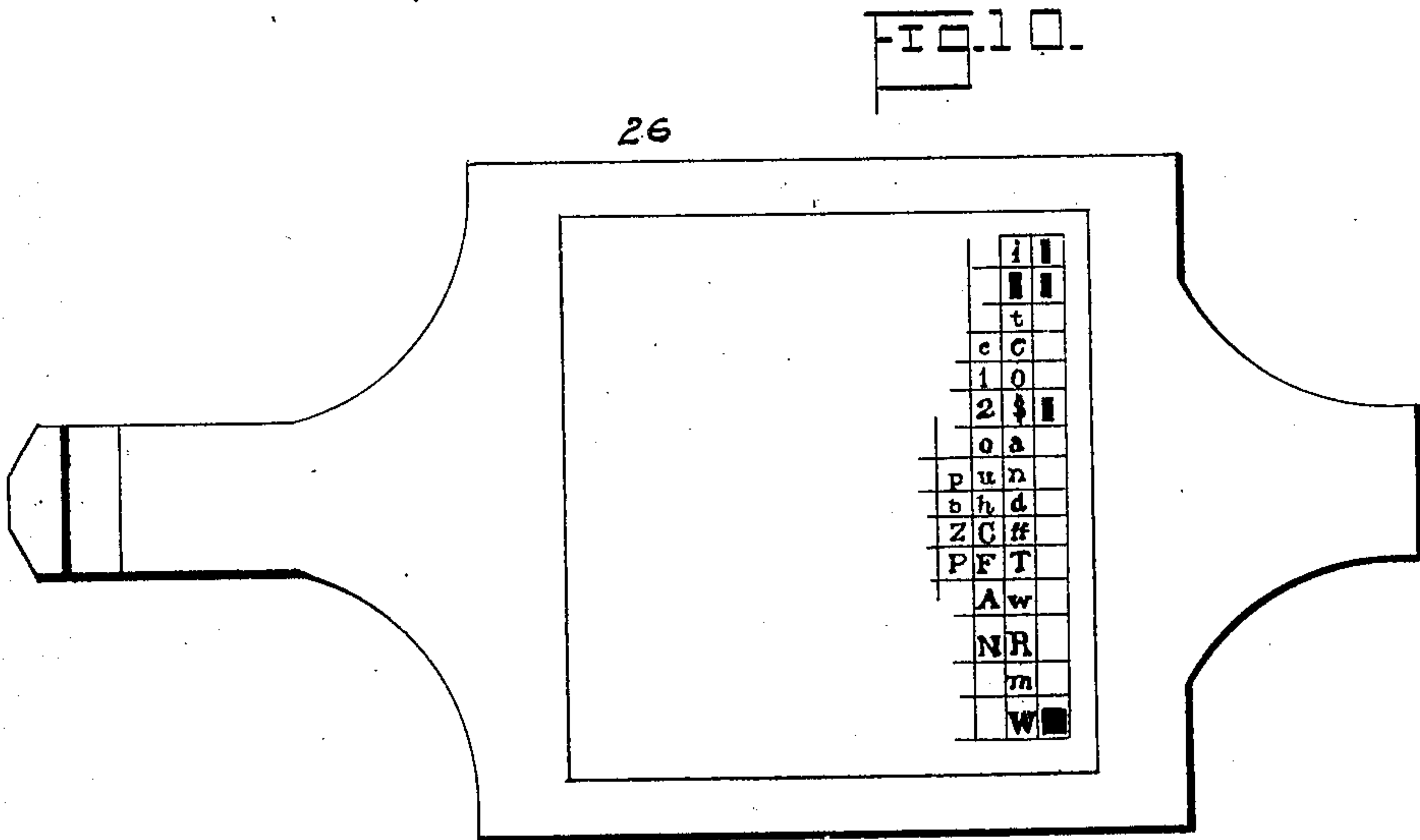
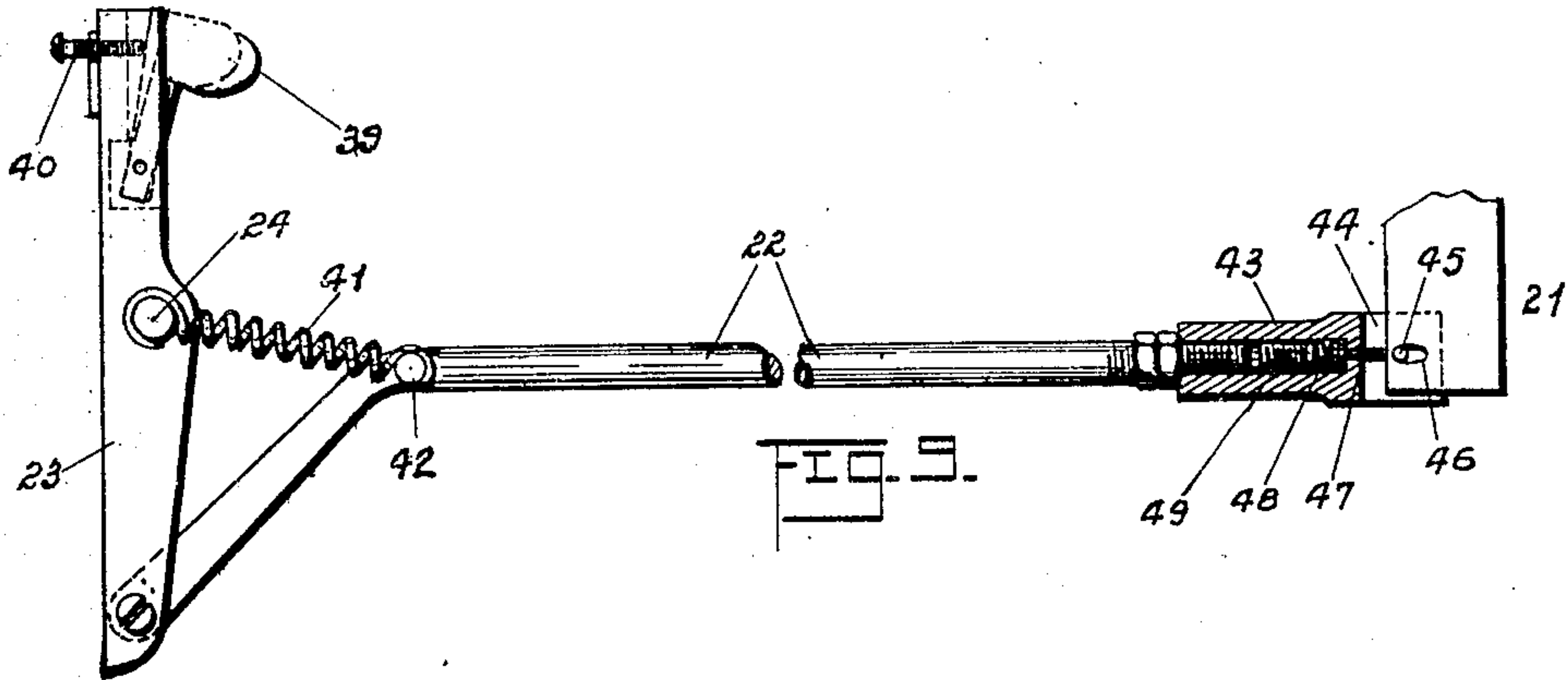
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3 SHEETS—SHEET 3.



WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM H. BRUECKMANN, OF NEWARK, NEW JERSEY.

TYPE-CASTING MACHINE.

No. 925,866.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed August 3, 1908. Serial No. 446,587.

To all whom it may concern:

Be it known that I, WILLIAM H. BRUECKMANN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain Improvements in Type-Casting Machines, of which the following is a specification.

This invention relates to that class of automatic casting and composing machines in which individual type are cast in the order of composition and automatically set up in lines in a galley.

The objects of the invention are to provide improved means for casting the quads and spaces with shorter body portions than those of the character type, so that in the printing they will not be so liable to form an imprint where none is desired; to provide for this purpose a simple construction which can be attached to machines already in use; to secure a durable construction, not liable to get out of order, and yet which can be accurately and exactly adjusted; to economize space on the machine, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts in the several figures, Figure 1 is a plan of a portion of a machine of my improved construction, illustrating the means for operating the double-action mold blade; Fig. 2 is a plan of the cross slide of the machine removed, and Fig. 3 is an edge view of the same; Fig. 4 is a side elevation of the said mold blade and its actuating parts, the mold being in section. Fig. 5 is a side view of the mold blade detached and with its upper member retracted for casting character type, and Fig. 6 is a similar view of the mold blade with its upper member projected; Fig. 7 is a plan of a certain mold blade slide which operates in the cross slide guide, and Fig. 8 is an edge view of the same; Fig. 9 is a detail view of a certain lever and connecting rod for operating said mold blade slide, partly in section; Fig. 10 is an underneath view of the die case; Fig. 11 is a rear elevation of the mold and blade therein, and Figs. 12 and 13 are underneath and side edge views, respectively, of a certain mold-blade holding plate.

In said drawings, 1 indicates the mold, comprising a base plate 2 having a passage 3 through which molten metal is forced, and upon this plate the usual front abut-

ment 4 and its shoe 5, the block 6 and its squaring plate 7, all said parts being fixed upon the base plate 2 and forming between themselves a slideway for the cross block 8. The said cross block 8 comprises the usual adjustable gate block 9, cross block proper 10, and squaring plate 11. All these parts are of usual construction, and the mold blade 12 slides transversely of the block as usual.

The improved mold blade of my invention is divided into upper and lower members 13 and 14, which fit smoothly together at their adjacent edges, one being provided with a stop projection 15 and the other with a recess 16 to receive said stop projection. The end wall of said recess farthest from the cross block 8 of the mold provides a stop to limit movement of the upper mold blade member with its working end face in alinement with the end face of the main mold blade member. The other end of the recess 16 is at sufficient distance from the projection 15 of the upper mold blade member to receive in the said recess between said parts an expansion spring 17, which normally holds the upper mold member with its said projection 15 against the stop wall of the recess 16 and the end faces of the mold blade members in alinement for the casting of character type. For casting quads and spaces, however, the upper mold blade member 13 is slid forward with respect to the lower mold blade member 14, so as to close the top of the mold cavity and so shorten the piece to be cast. It is to the means for shifting this upper mold blade member with respect to the lower one that my invention relates and which will next be described.

The lower member of the mold blade is of course attached to and reciprocated by the usual operating rod 18, and the upper member moves therewith except as it is pushed forward to project beyond the lower member when quads and spaces are to be formed. To effect such pushing, the rear end of the upper mold blade member is adapted to be engaged by the end of a slide 19 which passes over the rear end of the lower member and abuts against the end of the upper slidable one. This slide works in a way 20, formed in the frame of the machine, and at its rear end has a lateral arm or projection 21 which extends outside the slideway, as clearly shown in Fig. 1. This slide 19 takes the place, or occupies the same space and posi-

tion as a slidable cover which is now provided in machines of this type to protect the parts beneath from dirt and foreign matter. No room has therefore to be made for an additional part, but I simply substitute my slide for the old slidable cover. From the said arm or projection 21, a connecting rod 22 extends back to one end of a lever 23 fulcrumed to swing in substantially horizontal plane upon a post 24 on the frame of the machine. The other end of this lever 23 is adapted, as will be hereinafter more particularly described, to be engaged by the rear end of the cross slide 25 which carries the die case 26, when the said die case is brought into position for casting quads and spaces, and thus the said lever 23, connecting rod 22, slide 19 and upper member of the mold blade are operated to accomplish the results first above mentioned.

It will be understood that in the use of my invention, the die case is arranged with all the quads and spaces in one row thereof, and that row next the front of the machine, as shown in the drawings. To bring these matrices into position, therefore, for casting, it is necessary for the die case to shift its maximum movement away from the mold or toward the back of the machine. This causes the rear end of the cross slide 25 to engage the lever 23 and operate the upper mold blade member, as above described.

In consequence of the above desirable disposition of the quads and spaces in the die case, the keys for forming quads and spaces are arranged all in the lowest row on the keyboard, nothing else being in this row, but the characters beginning in the next row. This is the only change in the key-board, or in the arrangement of matrices in the die case, which is required by my invention from that in common use.

The mold blade lower member 14 has near its forward end the usual opening 27 for the point block 28, and at its opposite end is an aperture 29 for the usual attachment of the operating rod 18. Midway between these said openings, is the aperture 30 to receive transversely the stop block 31 upon the rear of the mold. The upper member 13 of the mold blade is furthermore held down in place against the lower member by a plate 32 which is screwed fast to the squaring plate 7 of the mold, as shown in Fig. 1. This holding plate 32 is slotted at its thickest rear part 33, to receive the mold blade, and at its front part simply overlies said blade. It thus holds the upper mold blade member against displacement with respect to the lower member as it is pushed forward by the slide 19 or returned by the spring 17, or as it slides with the mold blade as a whole. The holding plate 32 furthermore at its rear edge serves as a stop to be engaged by a shoulder 133 on the top edge of the upper mold-blade

member, whereby forward movement of said mold blade member is limited. This limit permits the said upper member 13 to move forward to the cross-block 8, for casting quads and spaces, but positively stops it from projecting into the path of the cross-block so that it might be struck and injured thereby. The main member 14 of the mold blade has its movement similarly determined by the stop block 31, above referred to, as is common.

The slide 19 is provided with apertures 34, 35 to permit access to the adjusting screws 36, 37 of the abutment slide 38, at the rear of the mold blade, and which is common in machines of this type.

In order to provide for adjustment of the engagement of the rear end of the cross slide 25 with the lever 23, as above described, the end of said lever is provided with a hinged contact piece 39 adapted to be adjusted toward and away from the end of the cross slide by a set screw 40, as shown most clearly in Fig. 9. This not only enables the moment of contact to be adjusted, but also provides a means of regulating the stroke of the slide 19. Furthermore, in order to return the said lever 23 and the connecting rod 22 to initial position after engagement by the cross slide 25, a spiral spring 41 extends from the said rod as at 42 to the fulcrumal post 24 of the lever 23, as also shown in Fig. 9.

Sometimes in the operation of the machine there may be a tendency to drive the upper mold blade member 13 farther forward than it has room to go, and to avoid breakage by such an occurrence I prefer to provide a yielding connection between the slide arm 21 and connecting rod 22, as shown particularly in Fig. 9. To this end, the extremity of the connecting rod screws into a socket 43 the opposite end of which is slotted as at 44 to receive the slide arm 21, a pin 45 being passed through said parts, and one of them as the slide arm, slotted as at 46 to receive said pin. In the said socket 43, beneath the end of the rod 22, is arranged the head of a plunger 47 which projects through the bottom of the socket against the edge of the slide arm 21 as shown. Next the said plunger head is a spring 48, and above that an adjustable screw plug 49 which enables the tension of the spring to be adjusted. Normally the parts stand in the position shown in Fig. 9, and the pressure of the plunger 47 against the slide arm 21 is enough to operate the slide. If, however, the slide should encounter an obstruction, obviously the spring plunger will yield and the slot 46 allow movement of the pin 45 idly.

Having thus described the invention, what I claim as new is:

1. In a type casting machine, a mold-blade comprising upper and lower members arranged edge to edge with their sides in the

same parallel planes, the lower member having a point-block opening, means between said edges and parallel planes for normally holding said members in predetermined relation, a mold providing a slideway for said mold-blade, a point-block in said opening of the lower member, means securing said point-block to said mold, means for operating said upper member independently of the lower, and means for operating the said lower member of the mold-blade.

2. In a type-casting machine, a mold-blade comprising upper and lower members arranged edge to edge with their sides in the same parallel planes, one of said edges being recessed and the other having a projection extending into said recess and the lower member having a point-block opening adjacent to its forward end, a spring in said recess between one end wall thereof and said projection, a mold providing a slide-way for said mold-blade, a point-block in said opening of the lower member, means securing said point-block to said mold, means for operating said upper member independently of the lower, and means for operating the said lower member of the mold-blade.

3. In a type casting machine, a mold-blade comprising upper and lower members arranged edge to edge with their sides in the same parallel planes, the lower member having a point-block opening and a recess in its upper edge directly above said opening, a projection on the upper member projecting into said recess and adapted to engage one end wall thereof, a spring between the other end wall of the recess and said projection, a mold providing a slideway for said mold-blade, a point-block in said opening of the lower member, means securing said point-block to said mold, means for operating said upper member independently of the lower, and means for operating the said lower member of the mold-blade.

4. In a type casting machine, a mold-blade comprising upper and lower members arranged edge to edge with their sides in the same parallel planes, one of said members having in its edge a recess intermediate of its ends, the other member having its adjacent edge slidably engaging said edge of the first mentioned member at both ends of said recess and having an intermediate projection projecting into said recess, the rear end of the upper member having at a point which always overlaps upon the upper edge of the lower member a shoulder at its upper edge, a mold providing a slideway for said mold-blade, stop means upon said mold for said shoulder, means for operating said upper member independently of the lower, and means for operating the said lower member of the mold-blade.

5. In a type casting machine, a mold-blade comprising upper and lower members ar-

anged edge to edge with their sides in the same parallel planes, the lower member having a point-block opening adjacent to its forward end and having in its upper edge a recess intermediate of its ends, the upper member having its adjacent edge slidably engaging said edge of the first mentioned member at both ends of said recess and having an intermediate projection projecting into said recess, the rear end of said upper member having at a point which always overlaps upon the upper edge of the lower member a shoulder at its upper edge, a spring in said recess between one end wall thereof and said projection, a mold providing a slideway for said mold-blade, stop means upon said mold overlying the upper member and adapted to engage said shoulder thereof, a point-block in said opening of the lower member, means securing said point-block to said mold, means for operating said upper member independently of the lower, and means for operating the said lower member of the mold-blade.

6. In a type casting machine, the combination with a double-action mold-blade comprising upper and lower members, means for operating said lower member, and a cross-slide, of a slide adapted to engage the upper mold-blade member, and means for transmitting movement from said cross-slide to said slide.

7. In a type casting machine, the combination with a double-action mold-blade comprising upper and lower members, means for operating said lower member, and a cross-slide, of a slide adapted to engage the upper mold-blade member, a lever adapted to be engaged at one arm by the cross-slide, and a connecting rod joining the other arm of said lever to the said slide.

8. In a type casting machine, the combination with a double-action mold-blade comprising upper and lower members, means for operating said lower member, and a cross-slide, of a slide adapted to engage the upper mold-blade member, a lever upon a fixed fulcrum, an adjustable contact piece upon one arm of said lever adapted to be engaged by the cross-slide, and a connecting rod joining the other arm of said lever to the said slide.

9. In a type casting machine, the combination with a double-action mold-blade comprising upper and lower members, means for operating said lower member, and a cross-slide, of a slide adapted to engage the upper mold-blade member, a lever adapted to be engaged at one arm by the cross-slide, a connecting rod joined to the other arm of said lever, and means yieldingly uniting the other end of said connecting rod to the said slide.

10. In a type casting machine, the combination of a mold, a cross-slide guide, a cross-slide, a slide between said cross-slide and its

guide, means for causing said cross-slide by its extreme backward movement to force said slide forward, a double-action mold-blade in said mold comprising upper and lower members and said upper member being adapted to be engaged by said slide in its said forward movement, means connecting said upper member to the lower member to normally move therewith, and means for operating said lower member.

11. In a type casting machine, the combination with a mold, a double-action mold-blade comprising upper and lower members, the upper member being movably independent of the lower member, a slide adapted to engage said upper member, a cross-slide, means for transmitting extreme rearward movement of said cross-slide to the said slide, a die having case quads and spaces in the row next the front of the machine, means connecting said die case to said cross-slide, and means for operating said die case.

12. In a type casting machine, the combination with a mold-blade comprising upper and lower members, means for operating said lower member, a mold-blade abutment slide, and a cross-slide, of a slide between said cross-slide and mold-blade abutment slide adapted to drive the upper mold-blade member, and means for transmitting movement from said cross-slide to said slide.

13. In a type casting machine, the combination with a mold-blade comprising upper and lower members, means for operating said lower member, a mold blade abutment slide, and a cross-slide, of a slide between said cross-slide and mold-blade abutment slide adapted to drive the upper mold-blade member, and means for transmitting rearward movement of said cross-slide to said slide to move it forward.

14. In a type casting machine, the combination with a mold-blade comprising upper and lower members, means for operating said lower member, a mold blade abutment slide, and a cross-slide, of a slide between said cross-slide and mold-blade abutment slide adapted to drive the upper mold-blade member, and means for causing said cross-slide by its extreme backward movement to force said slide forward.

15. In a type casting machine, the combination with a mold-blade comprising upper and lower members, means for operating said lower member, and a cross-slide, of a slide adapted to drive the upper mold-blade member, means adapted to be engaged by said cross-slide at the last part of its backward movement and being independent of said slide for the preceding portion of such movement, and connections between said means and said slide.

16. In a type casting machine, the com-

bination of a mold, a mold-blade in said mold comprising upper and lower members, means connecting said upper member to the lower member to normally move therewith, means for operating said lower member, a mold-blade abutment slide, a cross-slide, a slide between said cross-slide and mold-blade abutment slide adapted to drive the upper mold-blade member forward, and means for causing said cross-slide by its extreme backward movement to force said slide forward.

17. In a type casting machine, the combination with a mold, a mold blade comprising upper and lower members, the upper member having a forward movement independent of the lower member, a die case having only quads and spaces in its row of matrices next the front of the machine, means for operating said die case, and means operated by extreme rearward movement of the die case in any position laterally to slide the said upper mold-blade member forward.

18. In a type casting machine, the combination with a mold, a mold-blade comprising upper and lower members, the upper member having a forward movement independent of the lower member, a die case having only quads and spaces in its row of matrices next the front of the machine, means for operating said die case, a slide adapted to move in the same direction as the mold and drive the said upper mold-blade member forward, and means operated by extreme rearward movement of the die case in any position laterally to move said slide.

19. In a type casting machine, the combination with a mold, a mold-blade comprising upper and lower members, the upper member having a forward movement independent of the lower member, a die case having quads and spaces next the front of the machine, means for operating said die case, a cross-slide for said die case, a slide beneath said cross-slide adapted to drive the said upper mold-blade member forward, and means adapted to be engaged by said cross-slide upon extreme rearward movement of the die case to operate said slide.

20. In a type casting machine, the combination with a mold-blade comprising upper and lower members, the upper member having a forward movement independent of the lower member, of a slide having a movement independent of the mold blade in the direction of movement of said mold blade and adapted to engage the said upper member thereof, an actuating member for moving said slide, and yielding transmission means between said actuating member and slide.

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In the presence of—

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