

C. HERMAN.
MOLDING MACHINE.
APPLICATION FILED JULY 2, 1910.

Patented Apr. 18, 1911.

989,971.

Fig. 1.

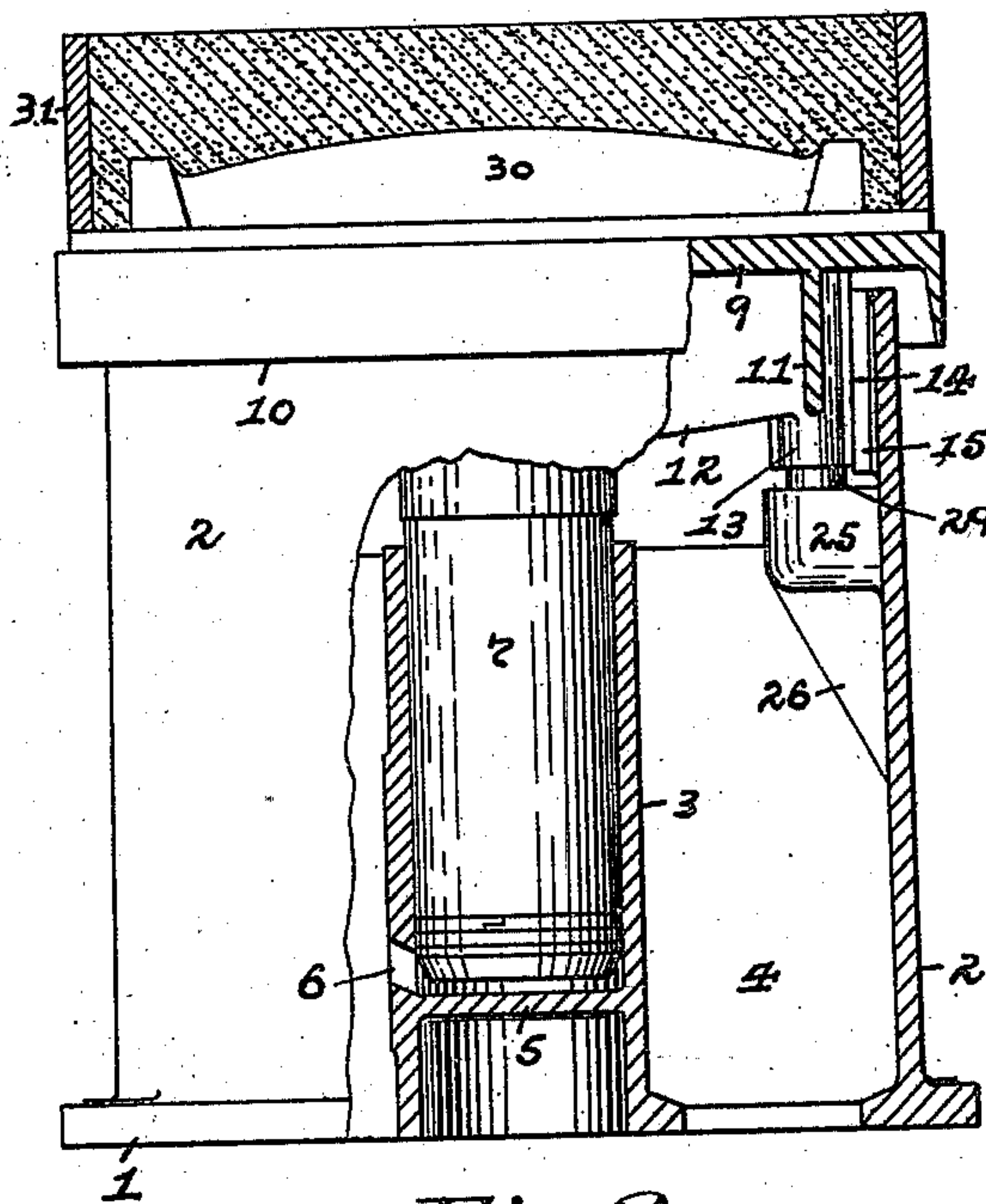
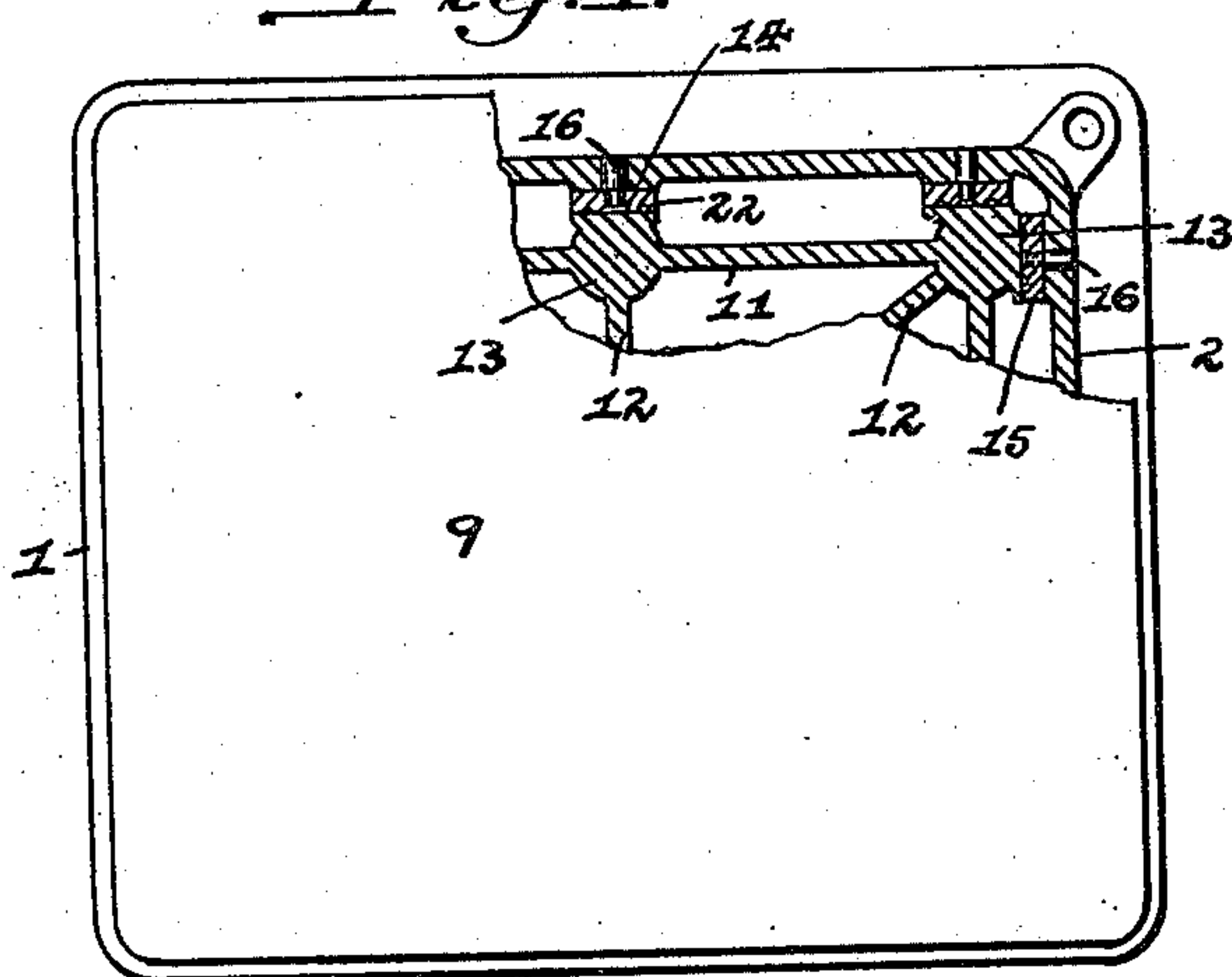


Fig. 2.

Fig. 4.

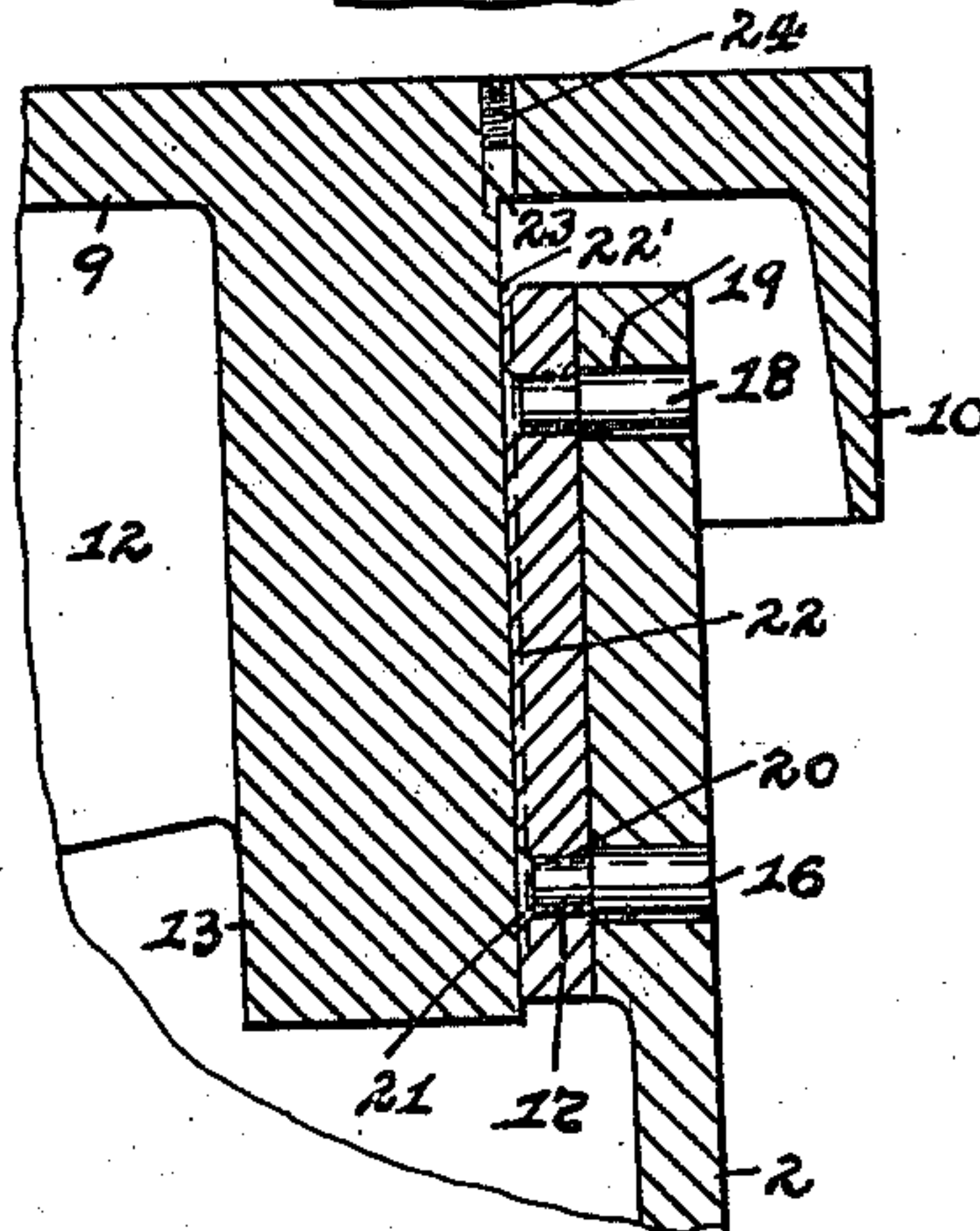
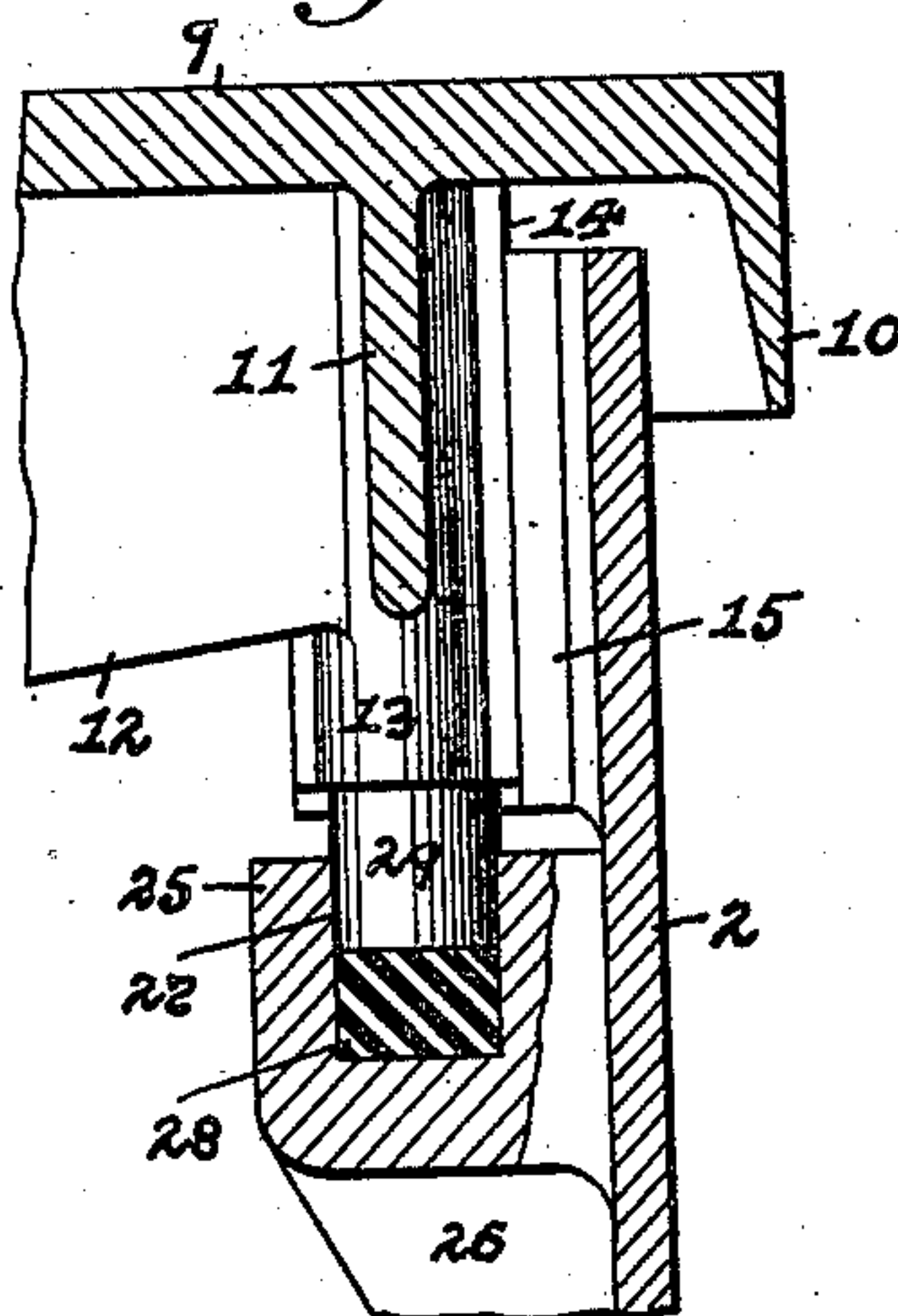


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

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MOLDING-MACHINE.

989,971.

Specification of Letters Patent.

Patented Apr. 18, 1911.

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To all whom it may concern:

Be it known that I, CHARLES HERMAN, a resident of Zelenople, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Molding-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to molding machines, and has special reference to what are known as jarring machines for forming sand molds, such as is shown in United States Letters Patent No. 908,002, granted to myself and others on December 29, 1908.

The object of my invention is to provide such a molding machine in which the pattern plate will be properly guided in its movements, and at the same time will enable such plate to be cushioned around the same during its striking in the jarring operation.

My invention consists, generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved molding machine, I will describe the same more fully, referring to the accompanying drawing, in which—

Figure 1 is a plan view of my improved molding machine and showing some of the parts in section. Fig. 2 is a side elevation of the same, showing some of the parts in section. Figs. 3 and 4 are enlarged detail sectional views of a portion of the same.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing, 1 represents the base of the machine, which has the casing 2 of rectangular shape extending up from the same, and within said casing and formed as part of the same is the cylinder 3. This cylinder 3 is positioned vertically within the casing 2 and has a series of vertical wings 4 connecting the outer sides of the same with the inner sides of said casing, while a cross-wall 5 is formed in the lower end of said cylinder and above the same is an opening 6 for the connection of

a supply pipe (not shown) to supply fluid, such as air, into said cylinder to operate the same. Within the cylinder 3 and above the cross-wall 5 therein is the plunger 7 which is connected at its upper end to a table or pattern plate 9, and such plate extends over the top of the casing 2 and is of rectangular shape in an inverted cup-shaped form, so that its outer annular flange 10 extending down from the outer edge of the same will fit around the upper end of said casing when the plate is in its lowered position. Extending down from the under face of the plate 9 is the inner annular flange 11, which is connected to the plunger 7 by a series of ribs or wings 12, and at each corner of the same and intermediate of said corners is a post or enlargement 13 extending around said flange from the bottom of the plate 9 to a point below said flange. The corner enlargements 13 are provided with two flattened faces 14 on the side of the same at right angles to each other and the intermediate enlargements are provided with a single similar flattened face on one side of the same, which faces are adapted to engage with removable bearing plates or slides 15 secured to the inner face of the casing 2 and at the upper end of the same by the driven pins 16. These pins 16 are provided with a contracted inner portion 17 and with an enlarged outer portion 18, so that they can be inserted exteriorly of the casing 2 through holes 19 in said casing and through holes 20 in said slides registering with said holes 19, and the portion 17 on said pins will fit within said holes 20 and the portion 18 thereon will fit in said holes 19. The inner ends of the holes 20 are countersunk beyond the ends of the portions 17 on the pins 16, as at 21, and the engaging face of the slides 15 for the faces 14 are provided with cross-recesses 22 therein having a flared upper end, as at 22', so that a suitable lubricant for such slides can be fed to said recesses and countersinks through a hole 23 extending through the plate 9 and closed by a suitable screw 24 fitting within the same.

Below each of the enlargements 13 is jarring post or bracket 25 which is formed as

part of and extends inward from the inner face of the casing 2, and each of said posts is provided with an angular rib 26 connecting the bottom of the same with the inner side of said casing. Within the upper face of the posts 25 is a seat 27 for the reception of a resilient jarring block 28, preferably formed of rubber, or other suitable flexible material, and fitting within said seat and against each of the upper faces of said block is a wearing block plate 29, which extends above its seat and is adapted to engage with the post 13 in line with the same in the jarring operation.

The use and operation of my improved molding machine is as follows—The pattern 30 is secured to the top of the plate 9 in the usual manner, and the sand filled flask 31 rests upon the top of said plate and around such pattern in the usual manner, so that the machine is then ready for the jarring operation, which is accomplished by allowing the compressed air or other fluid to enter the cylinder 3 from a source of supply and suitable valve mechanism (not shown) through the pipe attached to the opening 6 in said cylinder, and thereby acts to raise the plunger 7 within said cylinder and with it the plate 9 and pattern 30 and flask 31 thereon. As the plate 9 and flask 31 are thus raised, the air within the cylinder 3 is permitted to pass out of the same through the opening and by means of such valve mechanism, so that it can escape into the open air through said mechanism in the usual manner. As the air is thus exhausted from the cylinder 3 the plunger 7 therein will be lowered and thus permit the plate 9 with the flask 31 thereon to be dropped, so that the lower ends of the posts 13 on the bottom of said plate will engage with the blocks 29 on the resilient jarring blocks 28 in the posts 25 to jar the sand within said flask and around the pattern 30 on said plate. When the plate 9 and flask 31 are thus lowered with the plunger 7, the valve mechanism will permit the air to again enter the cylinder 3 through the opening 6 therein, for again raising said plunger, plate, pattern and flask in another jarring operation, as hereinbefore described, and during both these movements of raising and lowering the plate and flask, such plate is properly guided by the faces 14 on the plate posts 13 engaging with the slides 15 on the casing 2. These operations of raising and lowering the plate 9 and flask 31 for the purpose of packing the sand in said flask around the pattern 30 on said plate are preferably automatically performed and continued as long as the operating fluid is allowed to flow into the cylinder 3, and upon the closing of the valve controlling the fluid to said cylinder, the plate and flask will then be in their lowered positions, with the latter containing the com-

pleted mold, and then ready for its removal from the plate 9 in the usual manner, after which another sand filled flask can be placed on said plate and over the pattern thereon and the jarring operations repeated.

It will thus be seen that my improved molding machine is cheap, simple and efficient in its construction and operation, and will permit the pattern carrying plate to be completely and properly guided in its movements in the jarring operation, while the slides or plates used as guides are capable of adjustment and replacing in case of their becoming worn from usage, or from any other cause. The placing of the guides entirely around the pattern-plate and with the jarring blocks beneath the same will enable the jarring to be distributed evenly over the entire area of the plate and form the sand in the flask to be packed with a uniform solidity throughout the same and thereby form better molds. By the use of the jarring blocks in such position for engagement of the pattern-plate therewith, such plate is insured of a proper support and even for jarring throughout its area, while such blocks being in line with the guiding means for the plate will enable the posts for engaging with such blocks to be in proper alignment for striking the blocks in the jarring operation, and so insure a better and more compact jarring of the sand in the mold in the jarring operation.

Various modifications and changes in the design and operation of the various parts of my improved molding machine may be resorted to, without departing from the spirit of the invention or sacrificing any of its advantages.

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

1. In a machine for jarring sand molds, the combination of a table or pattern-plate, means for raising and lowering said plate, and a series of devices extending around the corners of said plate and intermediate of said corners for guiding the same in its rising and lowering movements.

2. In a machine for jarring sand molds, the combination of a table or pattern-plate, a casing around the plate, means for raising and lowering said plate, and a series of devices between said plate and casing and extending around the corners of the same and intermediate of said corners for guiding the plate in its rising and lowering movements.

3. In a molding machine, the combination of a table or pattern-plate, means for raising and lowering said plate, devices extending continuously around said plate for guiding the same in its rising and lowering movements, and resilient jarring blocks below said devices and extending continuously around and engaging with said plate for cushioning the same in the jarring action.

4. In a molding machine, the combination
of a table or pattern-plate, means for raising
and lowering said plate, devices extending
continuously around said plate for guiding
the same in its rising and lowering move-
5 ments, resilient jarring blocks below said
devices and extending continuously around
said plate to cushion the jarring action, and

wearing blocks on said jarring blocks for
engaging with said plate.

In testimony whereof, I, the said CHARLES 10
HERMAN, have hereunto set my hand.

CHAS. HERMAN.

Witnesses:

W. A. SWAIN,
Z. McMICHAEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
