

(No Model.)

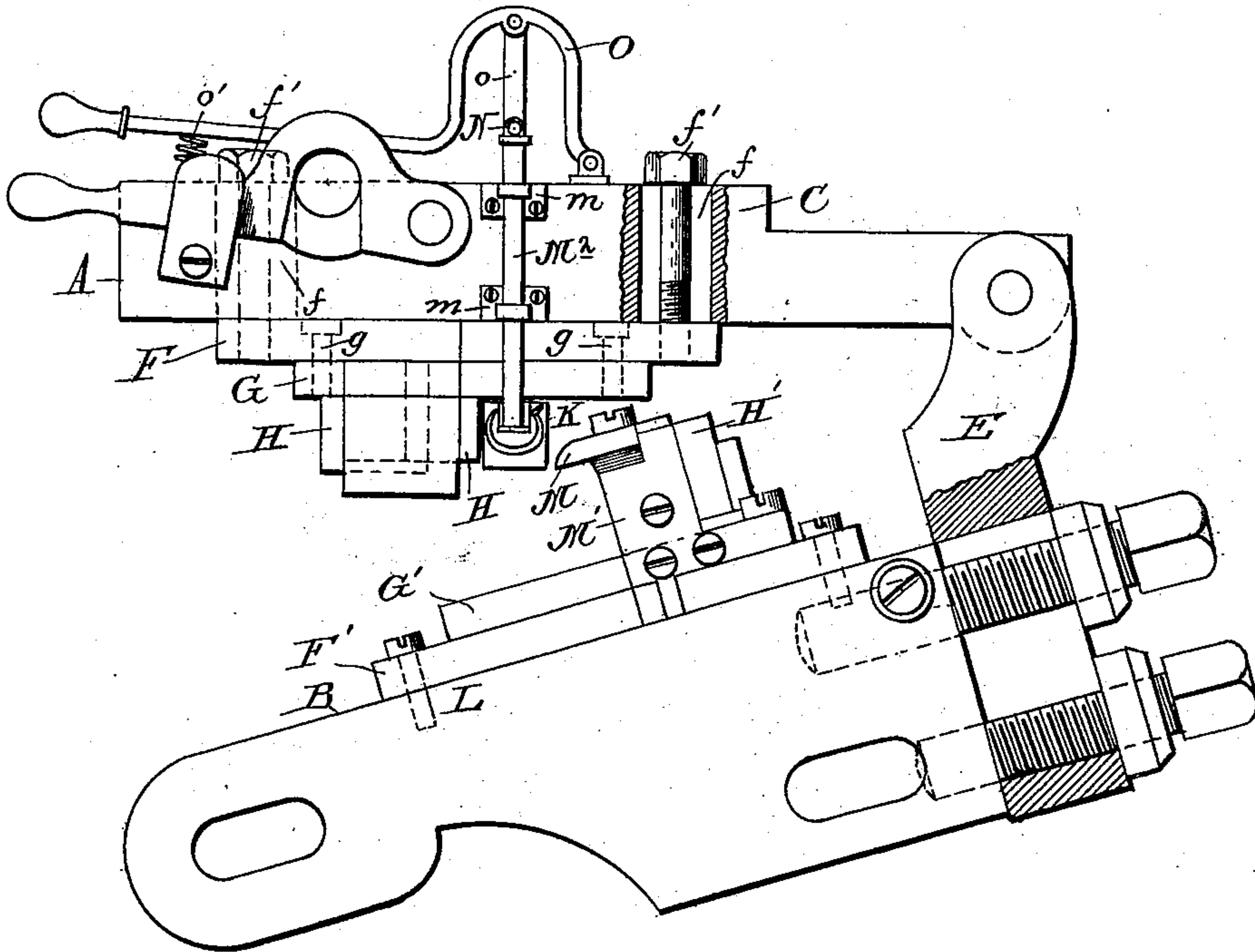
2 Sheets—Sheet 1.

F. H. BULTMAN.  
TYPE MOLD.

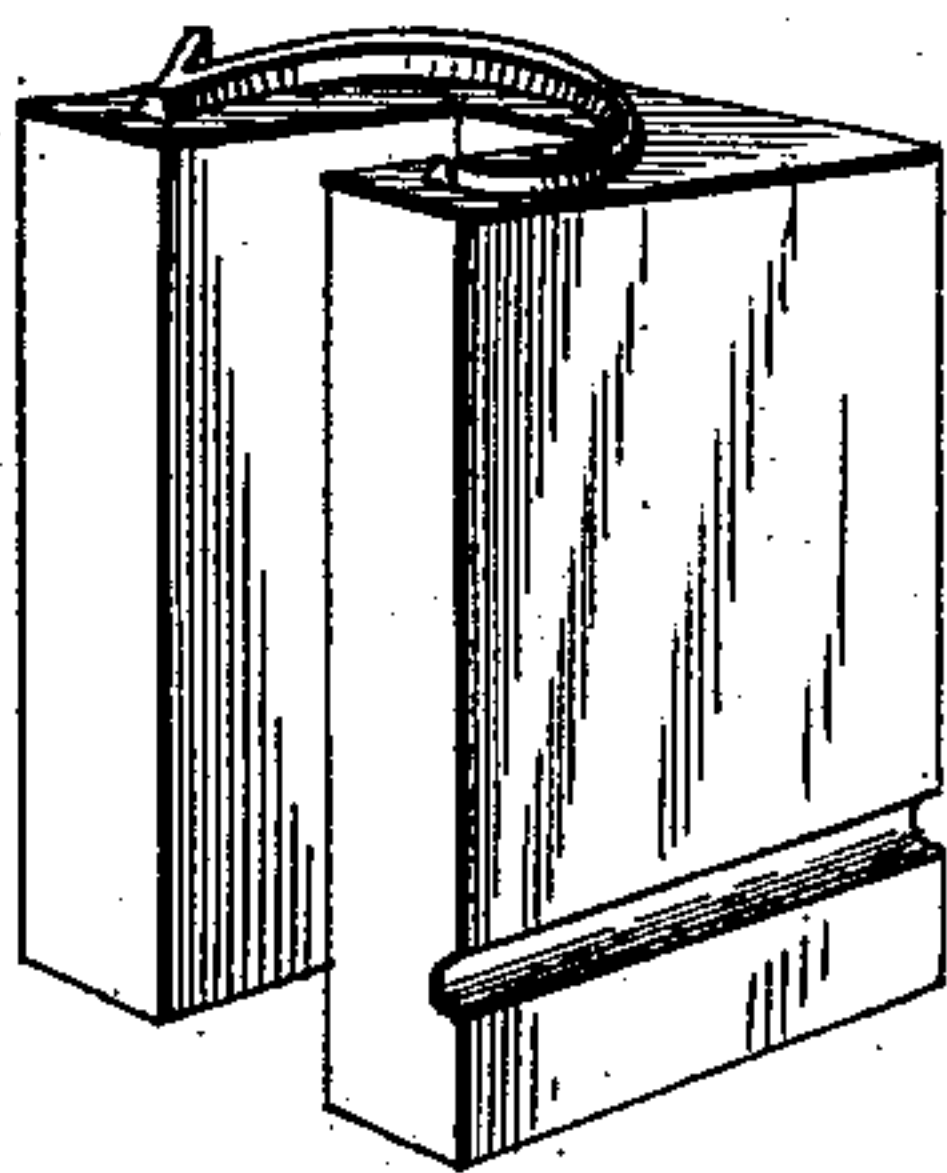
No. 507,258.

Patented Oct. 24, 1893.

*Fig. 1.*



*Fig. 6.*



WITNESSES  
*F. L. Ourand*  
*Joe Gregory*

INVENTOR  
*Fred. H. Bultman,*  
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(No Model.)

2 Sheets—Sheet 2.

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TYPE MOLD.

No. 507,258.

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Fig. 2.

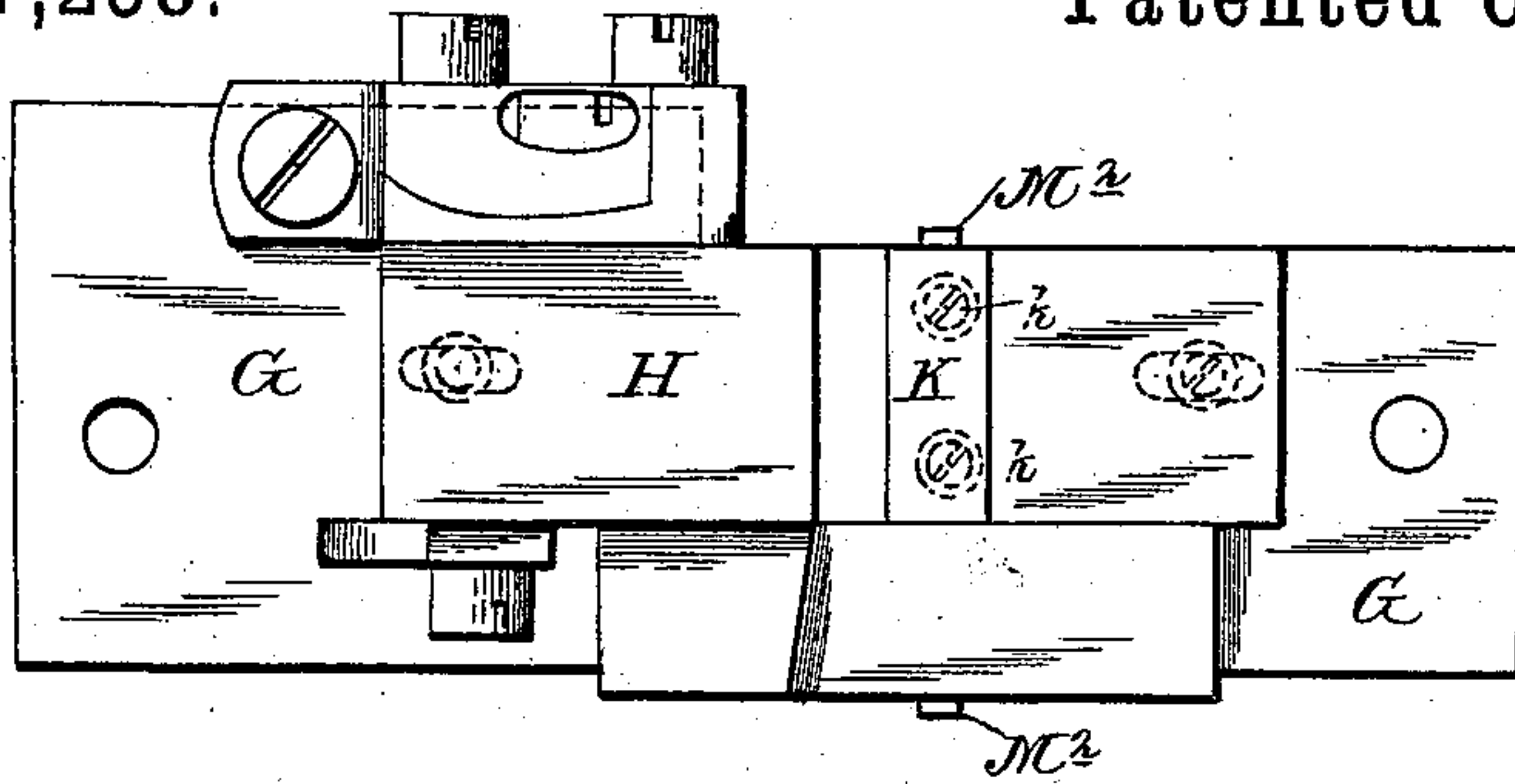


Fig. 3.

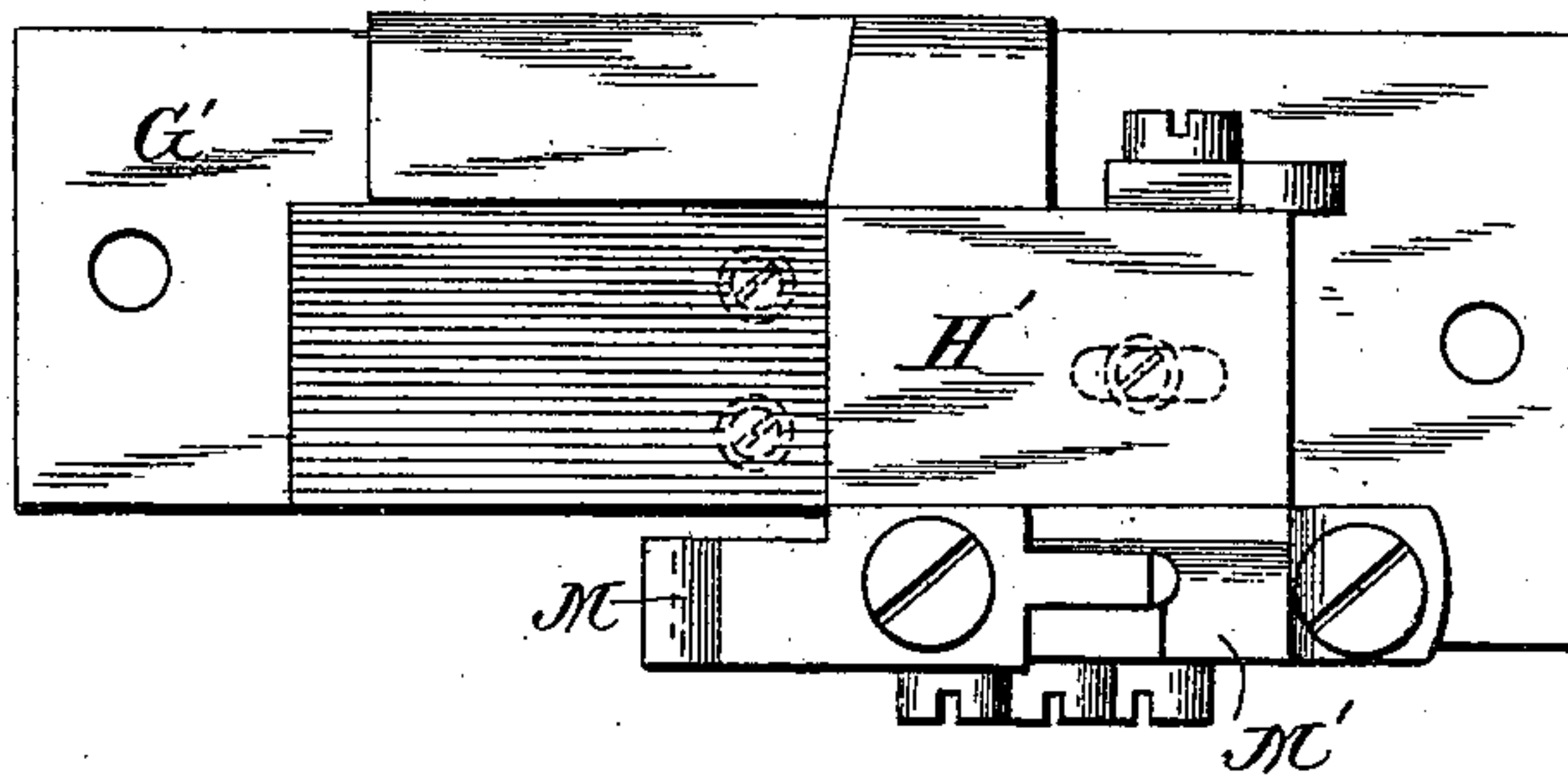


Fig. 4.

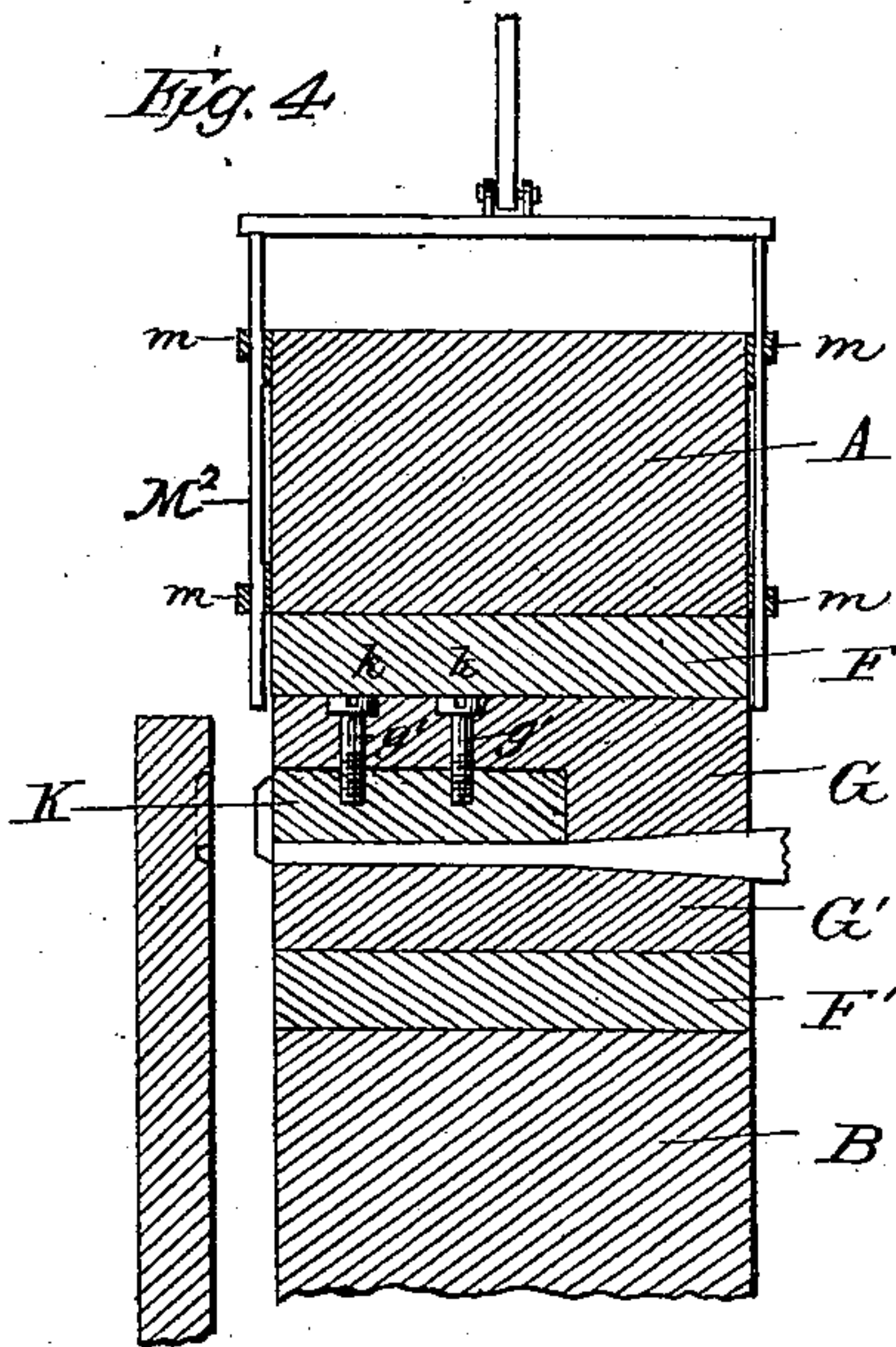
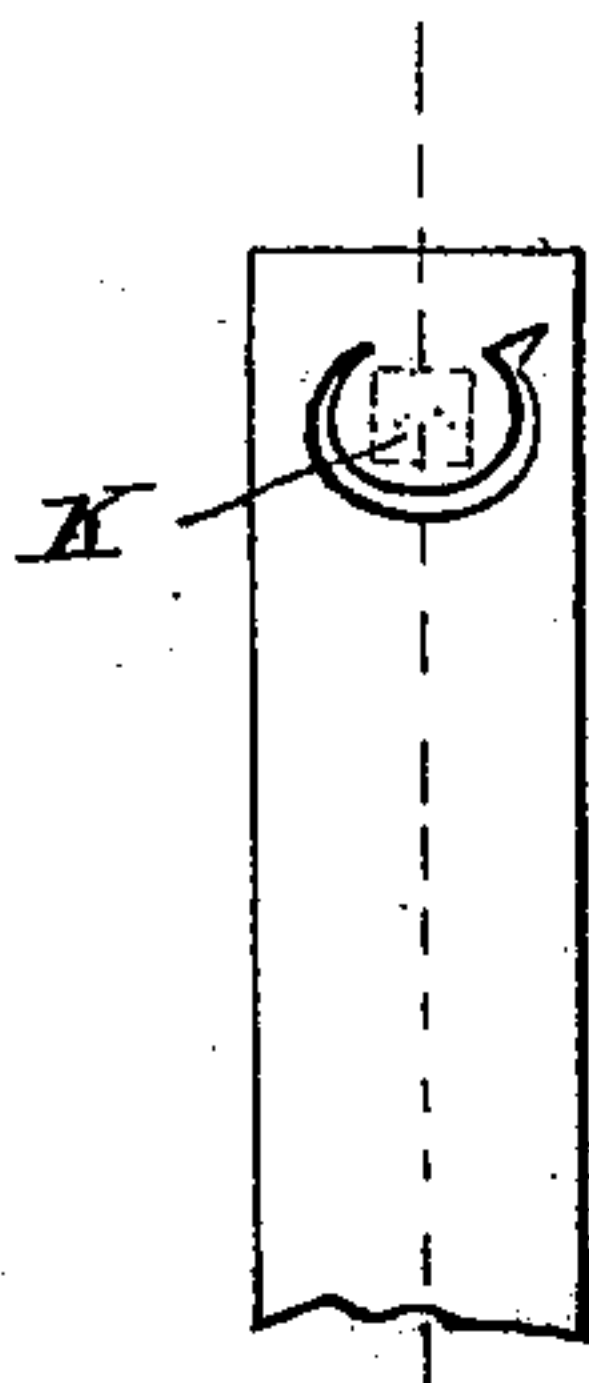


Fig. 5.



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# UNITED STATES PATENT OFFICE.

FREDERICK H. BULTMAN, OF CLEVELAND, OHIO, ASSIGNOR TO THE  
CLEVELAND TYPE FOUNDRY, OF SAME PLACE.

## TYPE-MOLD.

SPECIFICATION forming part of Letters Patent No. 507,258, dated October 24, 1893.

Application filed October 14, 1889. Serial No. 326,972. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK H. BULTMAN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Type-Molds; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in apparatus for casting mortised or cored type, and it consists in the construction, combination, and arrangement of parts, substantially as shown and described and particularly pointed out in the claim, whereby the construction and operation of this class of device will be simplified and at the same time new results obtained.

In the accompanying drawings, Figure 1 is a side elevation of the apparatus complete, showing the upper section raised, and containing a cast type ready to be released or discharged by depressing the fingers employed for that purpose. Fig. 2 is an inner view of the upper half or section of the mold, and Fig. 3 is a similar view of the lower half or section with the top section removed, the meeting faces of the two sections being thus revealed. Fig. 4 is a vertical cross section of the mold through the core and matrix showing the position of the parts for casting. Fig. 5 is a face view of the matrix; and Fig. 6 is a perspective view of a type made with the apparatus shown.

I am aware that it is not broadly new to form type with a core, as this has been done by others, but I am not aware that type has ever been cored in the manner set forth in my invention.

In the drawings A represents the upper section or part of the apparatus, and B the lower section or part. These parts respectively are acknowledged to be old, except as they are modified or changed to adapt them to the purposes of my invention. The upper part or section consists of the block piece C pivoted on the standards E. Attached to the under side of this block, by means of slots *f* and screws *f'* is the plate F, and to the under side

of this plate is secured the carriage plate G, by counter sunk screws *g* extending through from the top of plate F, and to this the body part or block H is attached, said body forming a plain solid side to the casting box. The carriage plate G is provided with holes *g'*, through which the core K is attached by screws *k*, and thus the cores may be removed from the casting box. The core K is shown here as attached to the upper section of the mold, and when in working position is fixed and has no movement except with the section itself. Its sides are plain and straight, corresponding to the sides of the casting box.

The lower section of the mold has the base L to which the standards E are attached, the plate F', the carriage G', and the body H', which are the counter parts of the parts F, G, and H, in the upper section.

M is a stop for the matrix fixed on the register M' for the matrix.

The parts H, H', and G, G', form the sides and top and bottom of the casting box.

The core shown is adapted, say, to the letter C, and is so arranged in the mold that when the mold is closed the core will form a mortise in the side of the letter, as seen in Fig. 6, of such size as will afford room for the insertion of smaller type and thus economize space and enable a style of printing to be done, and taste for variety to be displayed, not possible with the old fashioned solid type.

The vertical space in the mold when the two sections are closed upon each other is fixed and cannot be changed, so that there is a fixed limit in that direction to the length of core that can be used. Now, it sometimes occurs that a longer core is wanted than this vertical space allows, as when an unusually long wing is given to a letter. Suppose for example, it be the letter T, and the wing of said letter is wanted, say twice the relative length shown. In that case the upper section of the mold would be adjusted in a direction transverse to the line of separation of the mold the desired distance, and the wing of the letter would be correspondingly lengthened at the same time that it would be cored the whole distance. Of course other letters may be likewise inverted on the matrix when longer



wings and cores are desired. This arrangement enables me to core any letter so constructed as to allow coring, and to use any suitable size, number, or form of core needed to do the work.

To discharge or release the type from the mold, I employ fingers  $M^2$ , secured to the block C and arranged to pass down at either side of the top section of the mold immediately over the projecting ends of the type, as seen in Fig. 4. These fingers work in guides or loops  $m$  projecting over the side of the carriage, and are movable up and down by means of the cross bar N and lever O connected with said bar by a suitable link  $o$ . The lever O has a spring  $o'$  by which it is held normally in a raised position, thus keeping the fingers  $M^2$  raised and out of the way during the process of founding the type.

The operation of casting the type, briefly, consists first in closing together the two sections of the mold, then covering over the forward or open side of the casting box or type chamber with the matrix, holding the same firmly in engagement with the face of the mold, as well as the respective sections to each other. While in this closed position the casting box is forced full of metal which immediately hardens. The matrix is withdrawn, the mold sections separated and the ejecting fingers made to dislodge the type from the section of mold to which it adheres, which, in most cases, is the upper and movable section,

especially when a core is used, because of the greater surface presented for adhesion. This substantially ends the operation, the type falling by gravity into a suitable tray provided for that purpose.

It will be seen that part of the mold or casting box is in each section of the mold, and that in operation the core is fixed rigidly to the section and is not moved except as the section to which it is attached is moved. The core has no separate movement when the machine is at work.

What I claim is—

In an apparatus for casting mortised type, two separable mold sections, the said sections being adjustable in a line transverse to the direction of separation whereby the height or dimension of the face of the type may be varied, a core removably secured to one of the sections and projecting toward the other, the said core constructed to form a mortise in and extending through the face end of the type, and a letter matrix arranged with the open side of the letter toward the core and parallel or coincident with the said line of adjustment of the mold sections, substantially as shown and described.

In testimony whereof I hereunto set my hand this 7th day of October, 1889.

FREDERICK H. BULTMAN.

Witnesses:

H. T. FISHER,  
I. L. COREY.