

No. 821,296.

PATENTED MAY 22, 1906.

P. E. KENT.

LINOTYPE MACHINE.

APPLICATION FILED OCT. 20, 1905.

2 SHEETS—SHEET 1.

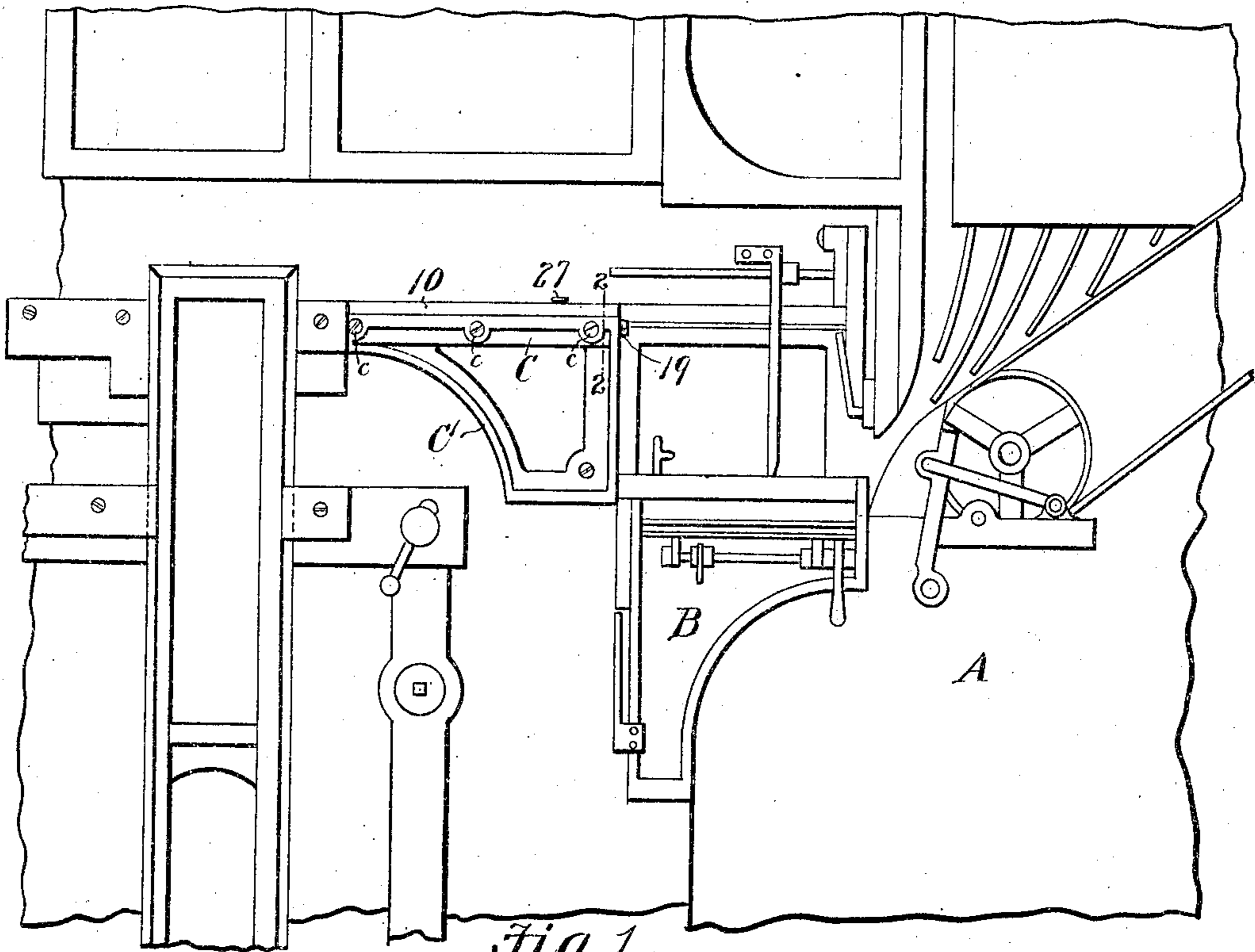


Fig. 1.

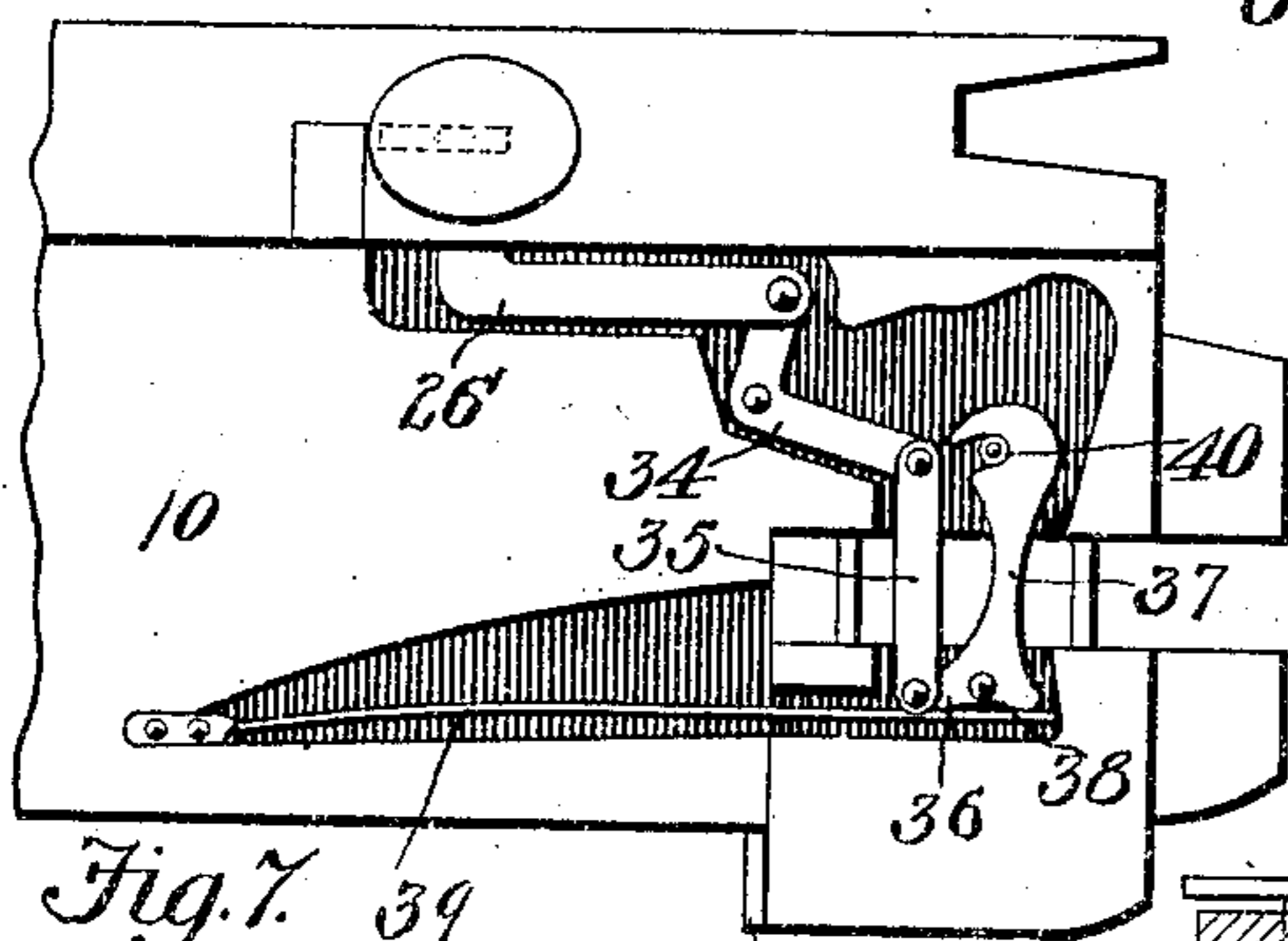


Fig. 7.

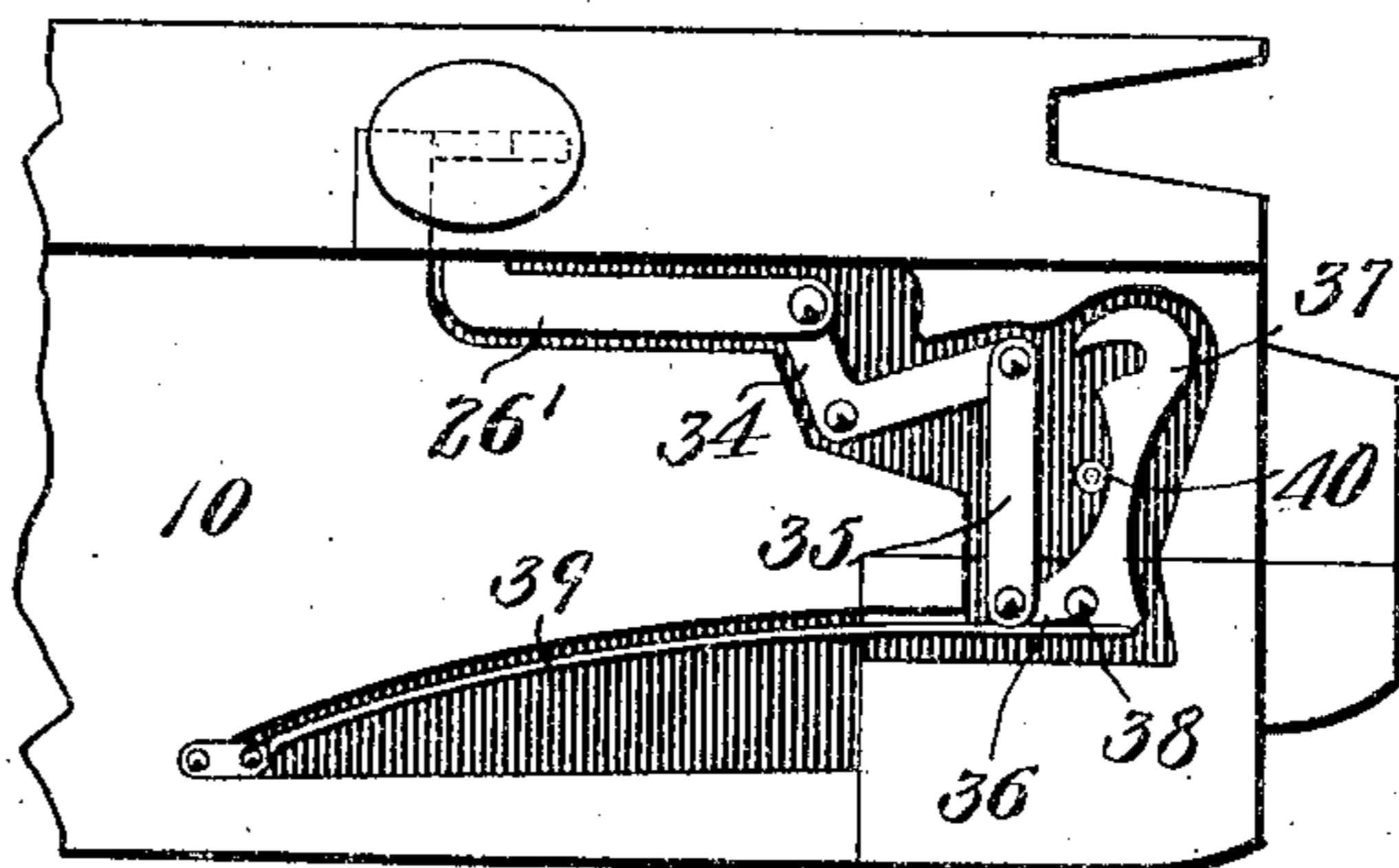


Fig. 8.

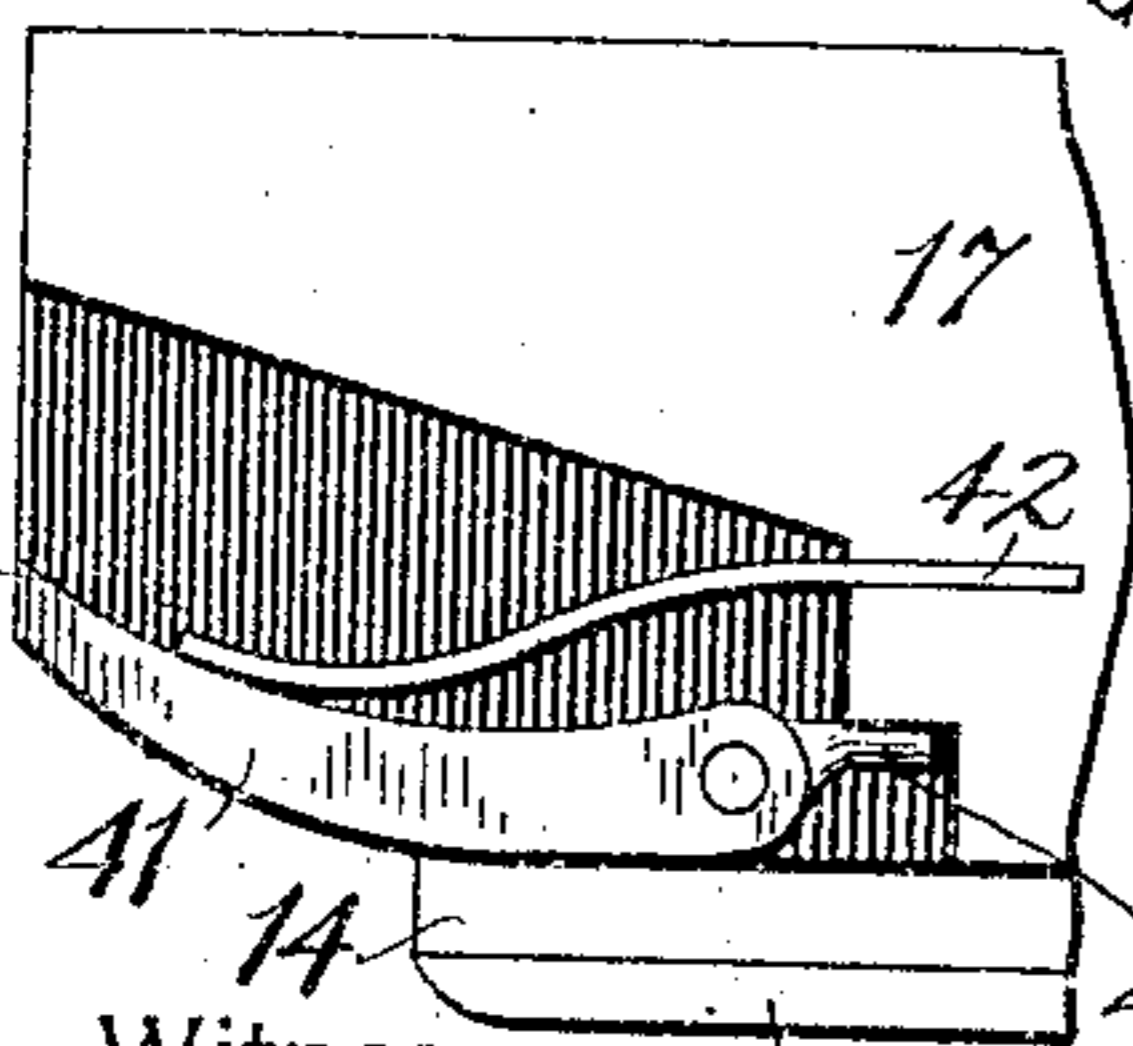
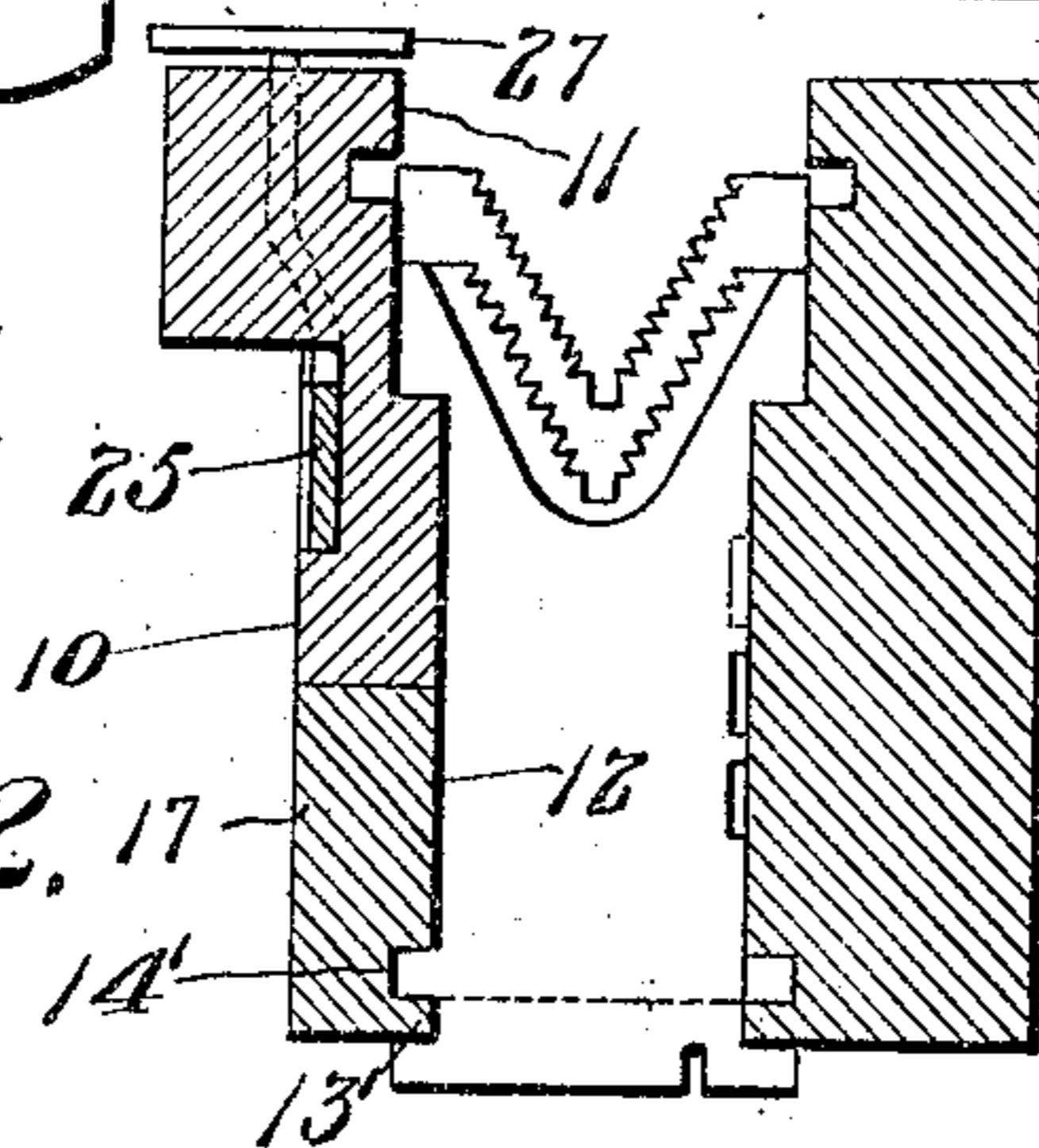


Fig. 11.

Fig. 2.



Witnesses

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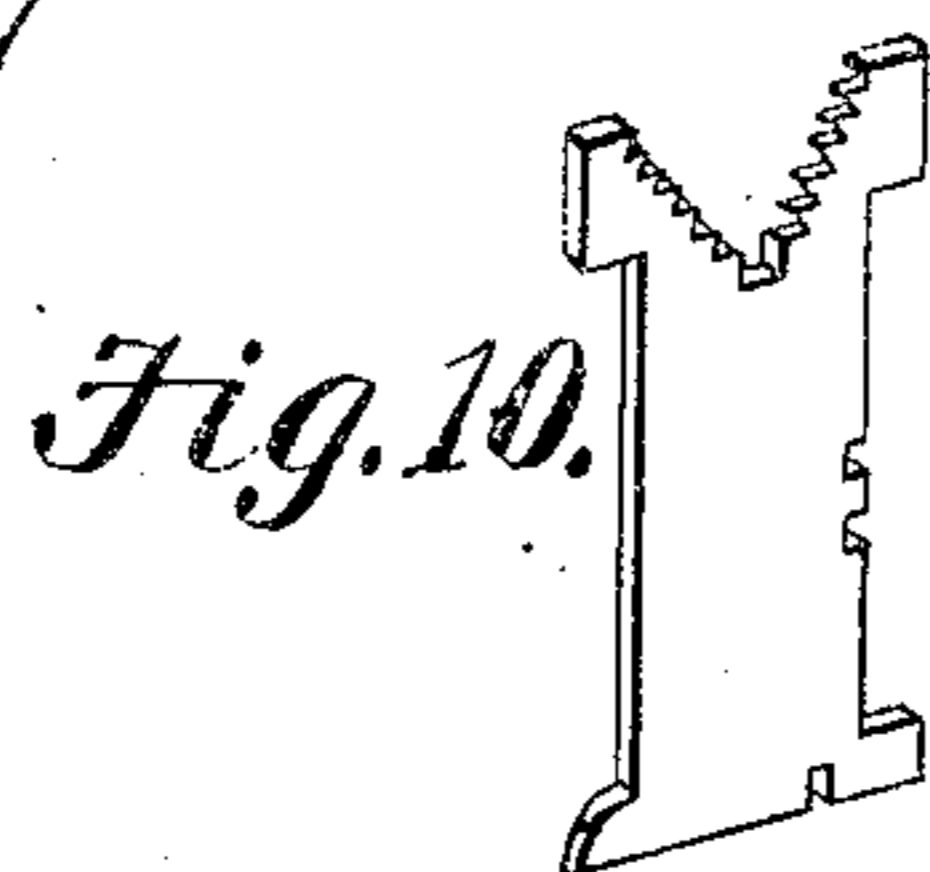
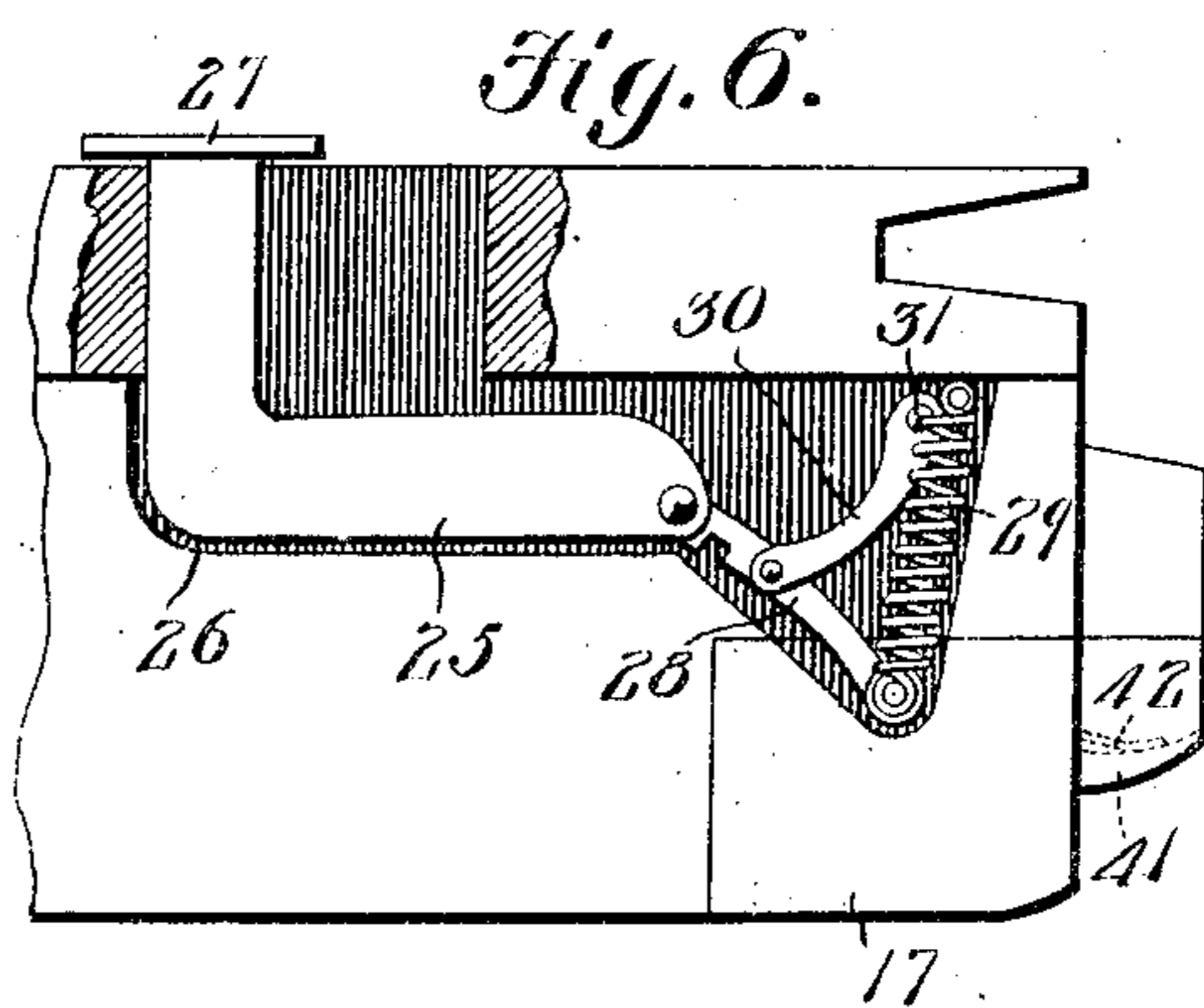
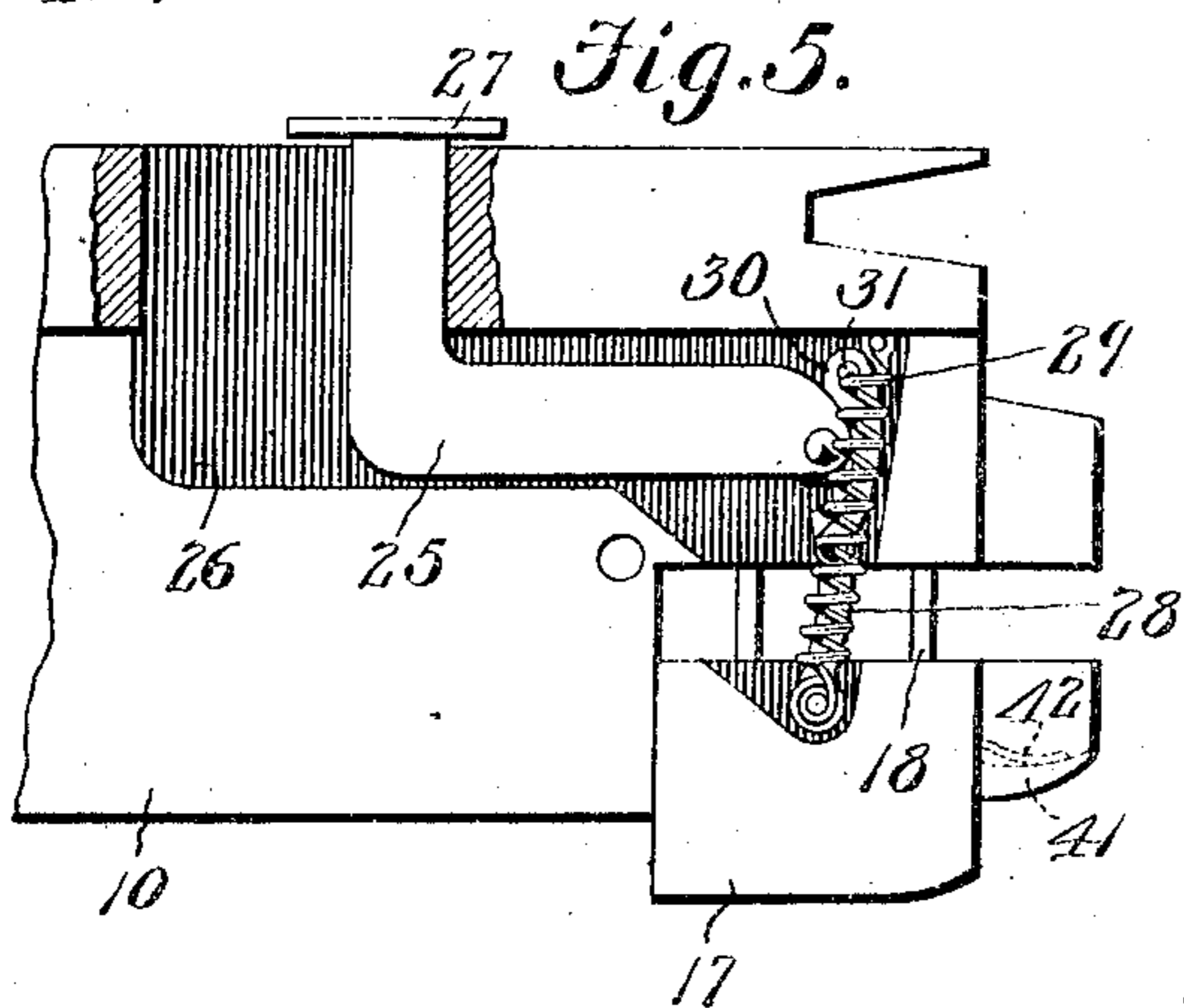
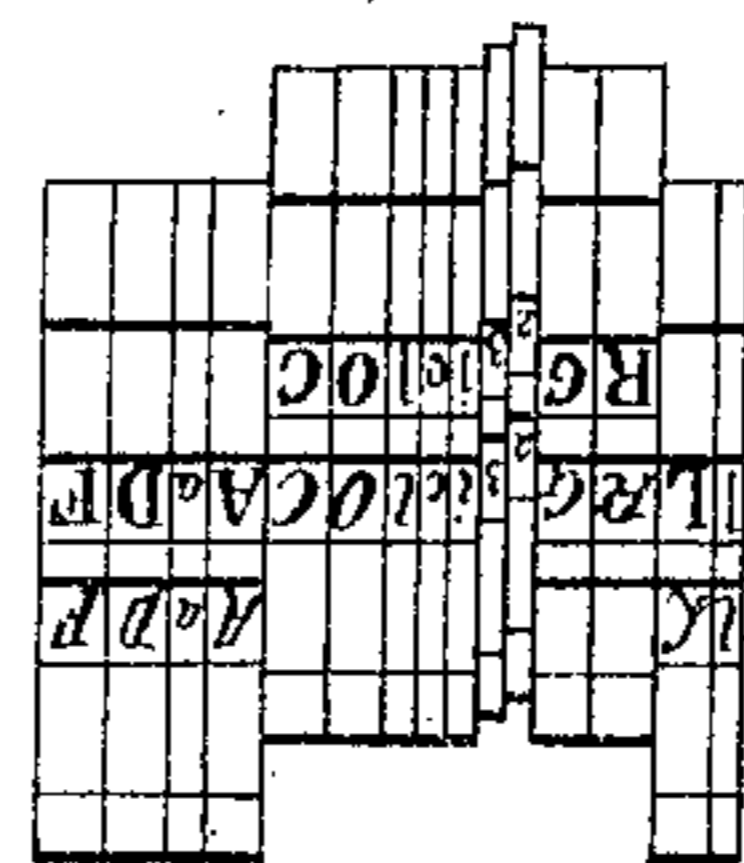
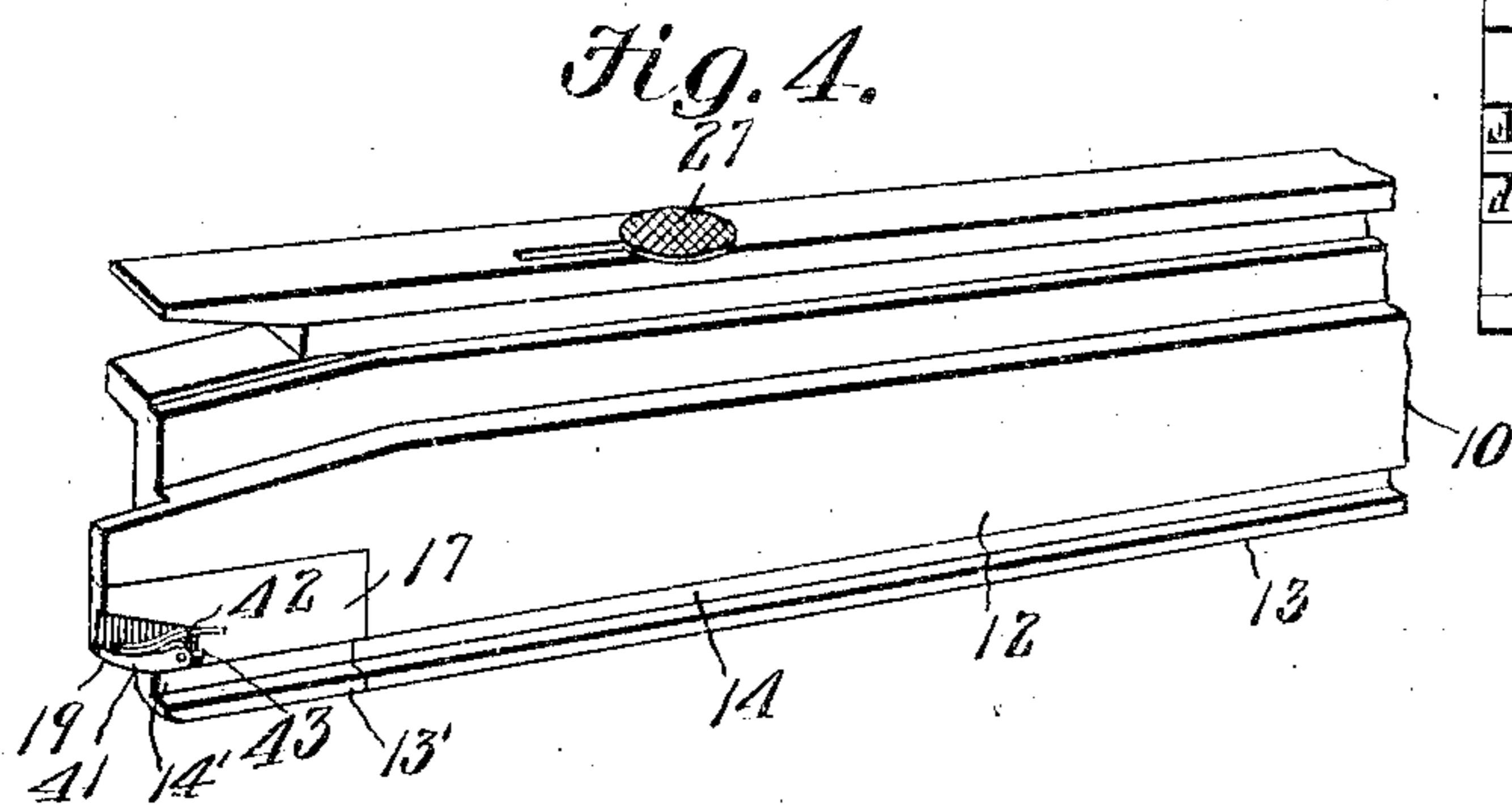
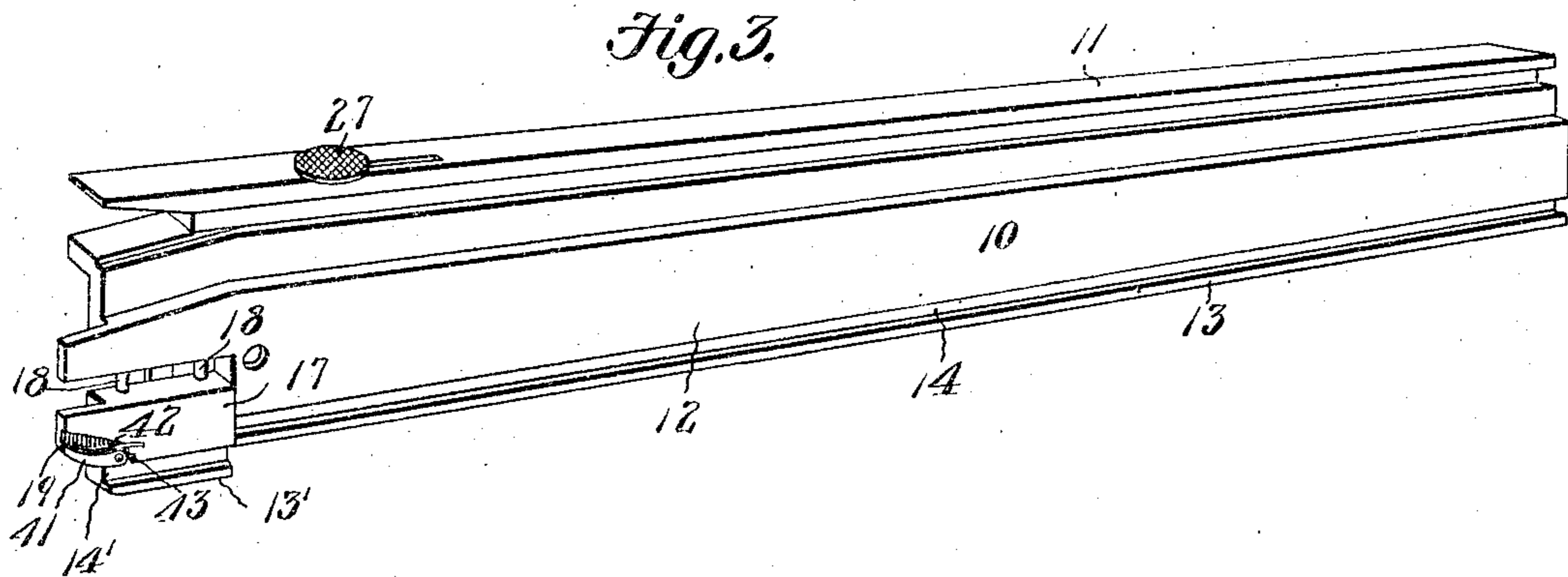
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UNITED STATES PATENT OFFICE.

PERRY E. KENT, OF UTICA, NEW YORK, ASSIGNOR TO MERGENTHALER
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LINOTYPE-MACHINE.

No. 821,296.

Specification of Letters Patent.

Patented May 22, 1906.

Application filed October 20, 1905. Serial No. 283,669.

To all whom it may concern:

Be it known that I, PERRY E. KENT, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented a new and useful Linotype-Machine, of which the following is a specification.

In the Mergenthaler linotype-machines the matrices and spacers fall from their magazines and are pushed consecutively into the vertically-movable assembler, frequently known as the "assembling-elevator," and after a line is assembled the assembler moves up and the line of matrices is pushed through an intermediate delivery-channel to a second elevator, by which they are carried down to the mold-wheel, and in two-letter machines—that is, machines where each matrix is provided with two dies representing the same character in different styles (for instance, Roman and italics)—the matrices are delivered to the assembler in such position that either one or other of their die-faces will be adjusted to operative position. Thus in a single line of matrices in which all of the line except one word is to appear in Roman and a single word in italics the matrices to form the word in italics will be arranged at a higher level than those which form the remaining portion of the line. This results in the arrangement of the lugs or ears at the lower ends of the matrices into two horizontal parallel rows, and in pushing the assembled line into the intermediate delivery-channel, which is provided with guides for the reception of said lugs, the latter are frequently bent or broken by collision with the ends of the lower guides. These disadvantages are known and recognized in the operation of the ordinary two-letter machines and are due for the most part to the construction of the guiding devices of the intermediate delivery-channel, the groove formed in said guide for the reception of the lower lugs of the upper row of matrices being separated from the path of the lower row by a rib that is provided with a short tapered face at its forward or entrance end and against which the lower lugs or ears of the matrices strike as they are pushed from the assembler into the groove, and the lugs are constantly exposed to danger of bending or mutilation from the fact that in ordinary work—for instance, newspaper, magazine, or

book work—the ordinary Roman type is almost constantly used, and the lugs of these matrices must pass below the rib of the intermediate guiding-channel, while italics or bold-face type, which appear infrequently, require the elevation of the matrices, and the lugs of these latter matrices pass above the rib, where they are not exposed to the same danger of mutilation, so that in the ordinary two-letter machine the larger percentage of matrices is constantly in danger of distortion or mutilation, while the smaller percentage is comparatively free from such danger.

It is the principal object of the present invention to change these conditions and to so arrange the guides of the intermediate channel that during ordinary work the large majority of matrices will not be exposed to danger of mutilation by jamming against the end of the rib when a two-letter machine is used for single-letter work.

A further object of the invention is to so construct the intermediate guide-rails as to permit of ready adjustment of the positions of the guides in accordance with the character of the work, and, further, to so arrange said guide that it may protrude within the assembler of the machine in order that no obstruction may be offered during the movement of the assembled matrices from the assembler to the channel.

A still further object of the invention is to provide a guide having a yieldable section so arranged that improperly-assembled matrices will be guided into the intermediate channel without danger of breakage or mutilation.

A still further object of the invention is to so construct the guide-rail that it may be substituted for the guide-rail in common use by merely detaching the latter and placing the improved guide-rail in its place, the guide-rails being made interchangeable, so that they may be quickly applied to existing machines at comparatively small expense.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the

structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an elevation of sufficient of a Mergenthaler linotype-machine to illustrate the application of the invention thereto. Fig. 2 is a transverse sectional view through the intermediate guide-channel on the line 2 2 of Fig. 1, the view being on an enlarged scale. Fig. 3 is a detail perspective view of the improved guide-rail forming the subject of the present invention, showing the parts adjusted for use on ordinary work. Fig. 4 is a similar view showing the position to which the parts are adjusted when a line containing or composed of italics is to be made. Fig. 5 is a front elevation of a portion of a rail with the parts in the position shown in Fig. 3. Fig. 6 is a similar view with the parts adjusted to the position shown in Fig. 4. Figs. 7 and 8 are views corresponding to Figs. 5 and 6, illustrating slight modifications of the adjusting device. Fig. 9 is an elevation of a number of matrices, showing some improperly assembled. Fig. 10 is a perspective view of a matrix having a mutilated lug or ear. Fig. 11 is a detail view, on an enlarged scale, of the yieldable member at the end of the adjustable guide block or switch.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In Fig. 1 of the drawings is illustrated sufficient of a Mergenthaler linotype-machine to illustrate the application of the invention thereto, A being the fixed frame, B the vertically-movable assembler, (the assembling-elevator,) and C the fixed intermediate guide-channel, to which the line of matrices is delivered from the assembler.

The present invention is confined to the construction and arrangement of the intermediate guide-channel, although, if necessary, it may be employed to advantage in connection with any portion of the machine where the matrices are received from any other portion thereof.

The intermediate channel is ordinarily provided with two parallel rails, both of which are secured to a bracket C'. These guide-rails are held in place by securing-screws c and may be readily detached when necessary.

In the present invention the outer guide-rail 10 is provided with an upper flange 11, which, as usual, extends to the outer edge of the bracket C', and the main body of the rail is provided with two parallel ribs 12 and 13, the upper face of the upper rib forming a support for the upper ears or lugs of the matrices, while the lower face of the lower rib 13 forms a guide for engagement with the upper edges of the lower lugs of the matrices. Between the two ribs 12 and 13 is a channel 14,

that is arranged for the reception of the lugs of those matrices which have been elevated for the purpose of forming italic or other characters, this groove corresponding to the similar groove in the ordinary rail and being employed for a similar purpose.

In order to better understand the present invention, it may be said that the guide-rail now in common use on a two-letter machine resembles in general the improved rail when the latter is adjusted above the normal level to the position shown in Fig. 4, and this being the case the groove 14 will receive the lower lugs of those matrices which are adjusted for the formation of italics or other characters, while the lower face of the rib 13 forms a guide for engagement with the upper edges of the lugs of those matrices which remain at the normal level and are employed for ordinary work, and the end of this rib is the point at which the lugs are injured when a two-letter machine is used with single-letter matrices or a Roman line of two-letter matrices, said lugs sometimes striking against the end of the rib and being bent or broken, as shown in Fig. 10.

In carrying out the present invention the entrance end of the rail is cut away, forming a recess for the reception of a preliminary guide block or switch 17, that is provided with a lower rib 13' and a groove 14', which may be adjusted into alinement with the rib 13 and groove 14, as shown in Fig. 4. This preliminary guide block or switch 17 is adjustable vertically and is provided with openings for the reception of pendent pins 18, that are carried by the main portion of the rail, so that said preliminary guide-block may be moved to the position shown in Fig. 3 or to the position shown in Fig. 4.

For ordinary work the preliminary guide block or switch is adjusted to the position shown in Fig. 3 with the upper wall of the groove 14' in alinement with the lower face of the rib 13, and the block is provided with a rounded or cam-shaped face 19, which by engagement with the upper edges of the lower lug of the matrices will guide them into the groove 14' in case said matrices are not properly alined in the assembler. The line of assembled matrices is forced from the assembler under the curved entrance 19, and the lugs are directed into the groove 14' without danger of mutilation and from said groove pass under the rib 13, while the upper lugs of the matrices rest on the upper face of the rib 12, the work proceeding with the same facility as in the ordinary single-letter Mergenthaler machine, where the lugs of the matrices are seldom, if ever, injured during the transfer from the assembler to the guide-channel.

When a line is to contain italics or other second characters of the matrix, it is necessary to so adjust the device as to permit the

entrance of the lower lugs of the elevated matrices to the groove 14, and for this purpose the preliminary guide-block can be instantly adjusted to the position shown in Fig. 4. The line of matrices assembled in the assembler are arranged with their lower lugs in two horizontal planes, one above and parallel with the other, the lugs of those matrices designed to form italics being uppermost. This line of matrices when forced from the assembler will be delivered to the guide-channel in such manner that the line of the uppermost matrices will be received in the groove 14' and thence will pass into the groove 14, while the lugs of the lower matrices or those adjusted for the formation of the ordinary type will pass under the rib 13' and thence under the rib 13 in the manner usually practiced in the two-line Mergenthaler machines in ordinary use.

In order to adjust the preliminary guide block or switch 17, it is preferred to employ a mechanism which is readily adjusted by the operator stationed in front of the keyboard. In one construction a slide 25 is arranged at the front edge of the rail, preferably in a recess 26, and the upper end of the slide is provided with a suitable button 27 for operating purposes. The inner and lower end of the slide is connected by a link 28 to the block 17, and a spring 29 connects the block to the main portion of the rail, said spring being so arranged as to normally retain the block 17 in the position shown in Fig. 6. The link 28 is connected at a point intermediate its ends to a link 30, that is pivoted on a stud 31 adjacent to the upper connection of the spring 29, and the link 30 is curved to receive the forward end of the slide, so that when the parts are adjusted to the position shown in Figs. 3 and 5 the spring 29 will act practically in the direct line of the link 28, and thus will lock the block 17 in the position to which it is adjusted.

In Figs. 7 and 8 is shown a slight modification of the adjusting devices. In this case the block or switch 17 is preferably provided with a dovetailed end 32, fitting in a correspondingly-shaped groove in the main body of the rail, and slide 26' is connected by a bell-crank lever 34 to one end of a link 35, the opposite end of which is connected to a lug 36, projecting from the lower end of a catch 37. The catch is pivoted on a stud 38 and is provided with a flat lower face against which bears the free end of a leaf-spring 39, said spring having two functions, one to elevate the block 17 and the other to maintain the forward curved face of the catch in engagement with an antifriction-roller 40, that projects from the main body of the rail, and when the slide 26' is moved from the position shown in Fig. 8 to the position shown in Fig. 7 the block 17 will be

carried down and as the inner face of the catch rides against the roller 40 the latter will be received in the slotted end of the catch and will be retained therein, so that the block 17 will be firmly locked in the position to which it is adjusted.

In all cases it is preferred that the adjusting devices be disposed in recesses formed in the body of the rail and the body of the block 17, so that the improved rail as a whole may be readily substituted for the rail now commonly used in two-letter machines.

In order to guide the properly-assembled matrices into the channel, the cam-surface 19 should of course be extended upward as far as possible, but if extended too far there is danger of the lugs or ears of the higher matrices catching against the cam-surface and becoming bent or broken. In order to avoid this, the cam-surface is formed in part of a yieldable member 41, this yieldable member being pivoted to the lower portion of the block and so arranged that its lower and forward edge shall constitute a portion of the cam-surface. This yieldable section is held in depressed position by a small leaf-spring 42, and its downward movement is limited by a suitable pin or lug 43. When the lug or ear of a matrix that is elevated above the others strikes against this yieldable section, the latter will give, and the matrix will then be pressed downward into proper position without danger of being broken by the initial collision. This yieldable guide at the entrance of the channel is of importance in that it prevents the abrupt engagement of the matrix lug or ear with an unyielding body, and after the initial shock has been absorbed by the spring the matrix is deflected into its proper course.

It will be noted that the forward ends of the rib 12 and the guide block or switch extend to a point somewhat beyond the left-hand edge of the assembler, or, in other words, project within the limits of the assembler, so that the matrices may be more readily transferred from the assembler to the guide.

With a device constructed in accordance with this invention the matrices adjusted for ordinary work in a two-letter machine are not subjected to excessive wear and are not exposed to danger of breakage or distortion.

I am aware that in a machine of the present class a mechanically-actuated vertically-movable switch has been pivoted within the intermediate channel in such manner that it can be set to override the ears of the matrices in the lower position, and thus insure their advance at the proper level, as shown in the application of Carl Grohmann, filed October 21, 1905, Serial No. 283,823, and this I do not claim.

I believe myself to be the first to provide a vertically-movable switch which may be

manually operated and set permanently in the required position and the first to extend a vertically-movable switch from the intermediate passage into the assembling-elevator and also the first to arrange said switch so that it will exert a yielding pressure on the ears of the matrices passing thereunder.

Having thus described the invention, what is claimed is—

10 1. In a linotype-machine, an adjustable matrix-guiding member disposed within the limits of the assembler in position to act on the outgoing matrices.

15 2. In a linotype-machine, an adjustable matrix-guide extending from the intermediate delivery-channel into the assembler.

20 3. In a linotype-machine, a guide-rail having an adjustable section arranged to extend into the assembler in position to act on the outgoing matrices.

4. In a linotype-machine, a guide-rail having an adjustable member arranged to present either a single or a double guideway for the matrix-lugs.

25 5. In a linotype-machine, a guide-rail adjustable to form either a single or a double guideway for the matrix-lugs.

30 6. In a linotype-machine, an intermediate channel having guide-rails, a portion of the rails being adjustable for engagement with the lugs of matrices delivered either in normal or raised position.

35 7. In a linotype-machine, a guide-rail forming a part of the intermediate delivery-channel, a block arranged at the entrance end of said rail and serving to direct the course of the matrices from the assembler to the rail, means for raising and lowering said block, and

means for holding said block in the position to which it is adjusted.

40 8. In a linotype-machine, a guide-rail forming part of the intermediate delivery-channel, a preliminary guide-block arranged at the end of the rail, a manually-operable slide for adjusting the block, a link extending between the slide and block, a secondary link 45 connecting the first link to a fixed portion of the rail, and a spring tending to hold the block in adjusted position.

50 9. In a linotype-machine, a guide-rail forming a part of the intermediate delivery-channel and having an adjustable section, and an adjusting means confined within the lines of the rail.

55 10. A matrix-guide having a vertically-yieldable section for engagement with the lower lugs of the matrices.

60 11. A matrix-guide having a vertically-yieldable portion for initial contact with the matrix-lugs.

12. A guide-rail having a cam-faced entrance end for engagement with the lower lugs of the matrices, a portion of the cam-face being vertically yieldable.

65 13. A guide-rail having a cam-shaped entrance end for engagement with the lower lugs of the matrices, and a pivotally-mounted spring-pressed member arranged to form a portion of said cam-face.

In testimony that I claim the foregoing as 70 my own I have hereto affixed my signature in the presence of two witnesses.

PERRY E. KENT.

Witnesses:

ARCHD. MACDONALD,
D. G. LOWNSEBURY.