

No. 674,375.

Patented May 21, 1901.

J. S. BANCROFT.

GALLEY MECHANISM FOR TYPE CASTING AND COMPOSING MACHINES.

(Application filed Sept. 25, 1900.)

(No Model.)

4 Sheets—Sheet 1.

FIG. 7.

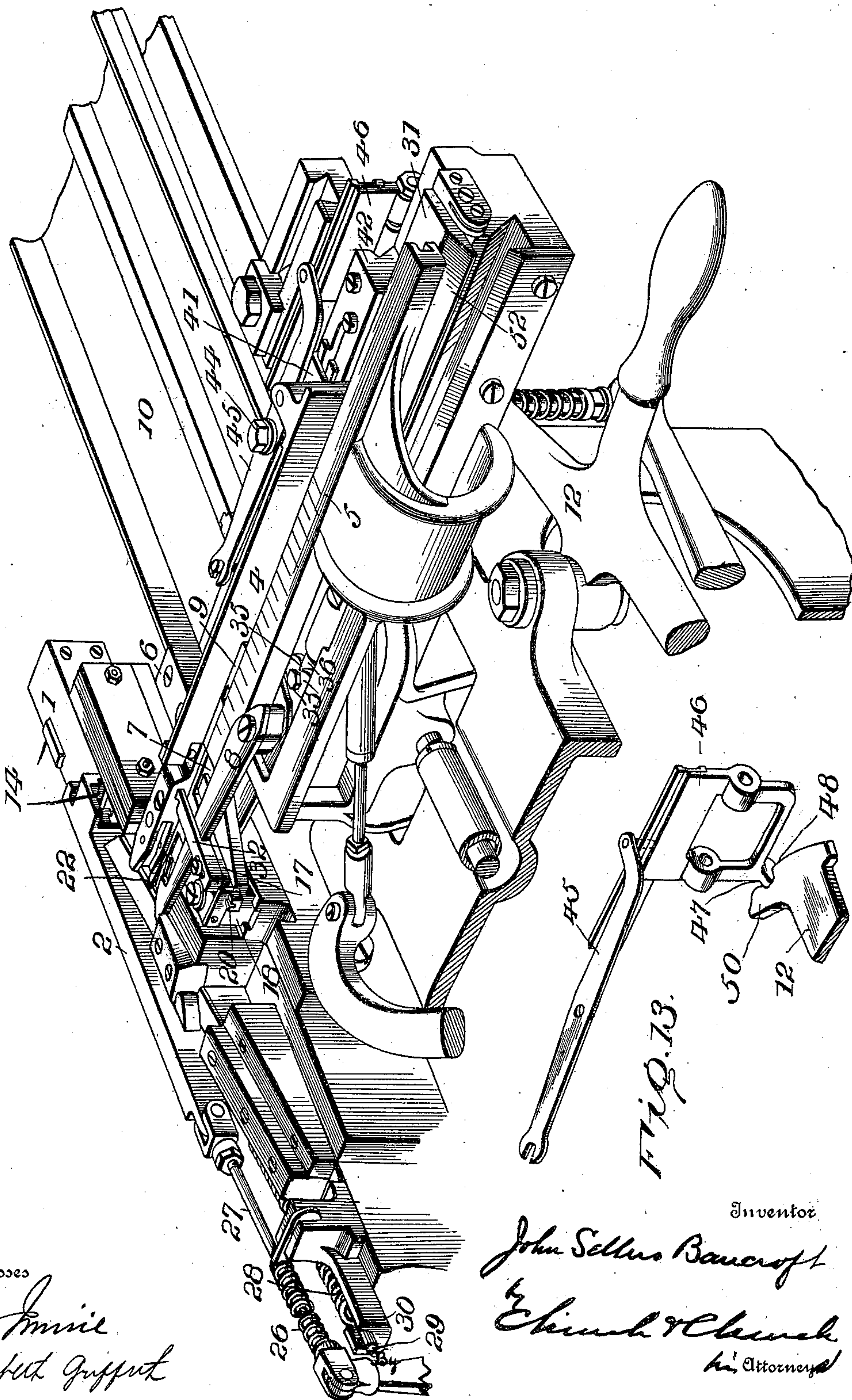


FIG. 13.

Witnesses

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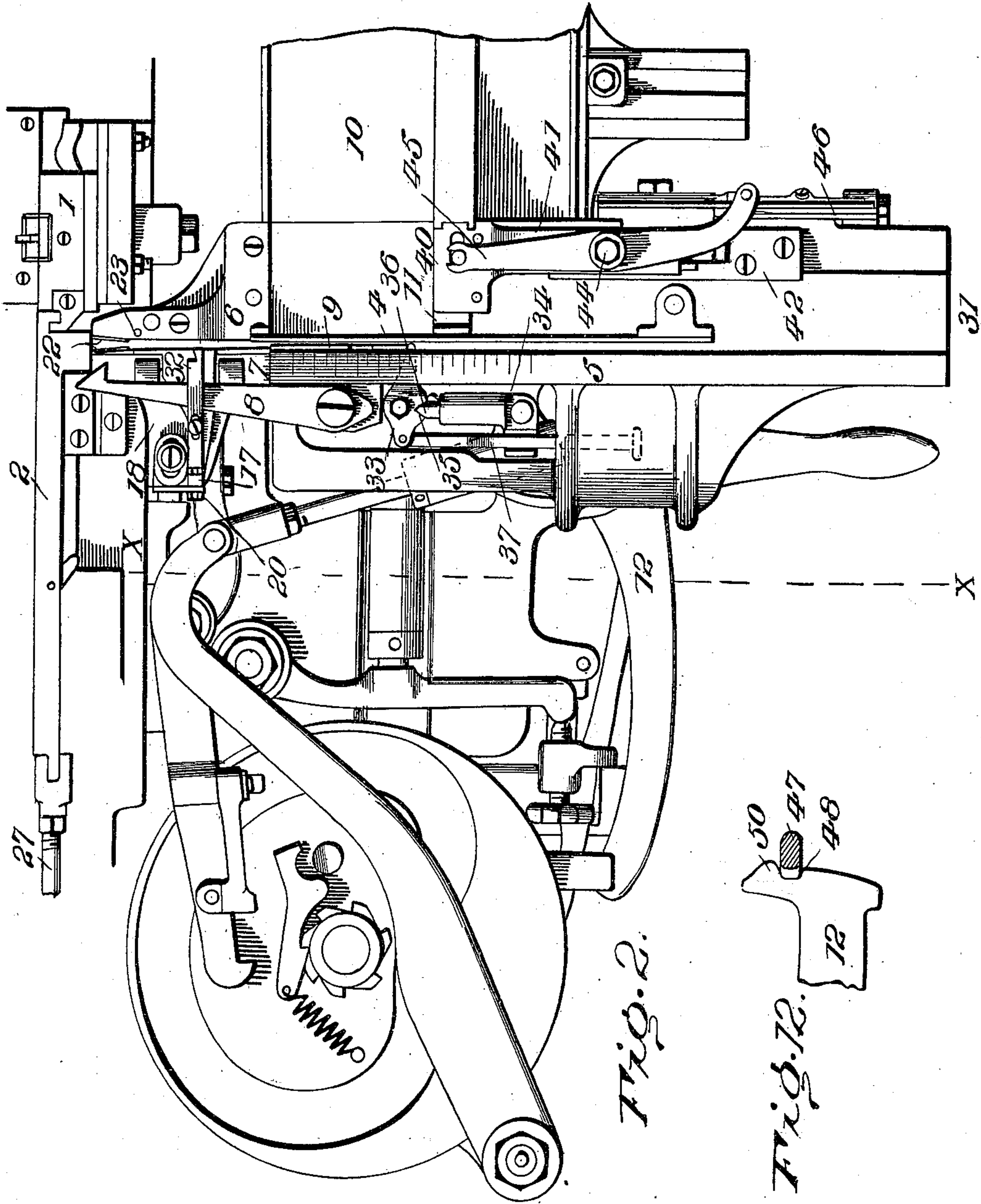


Fig. 2.

Fig. 12.

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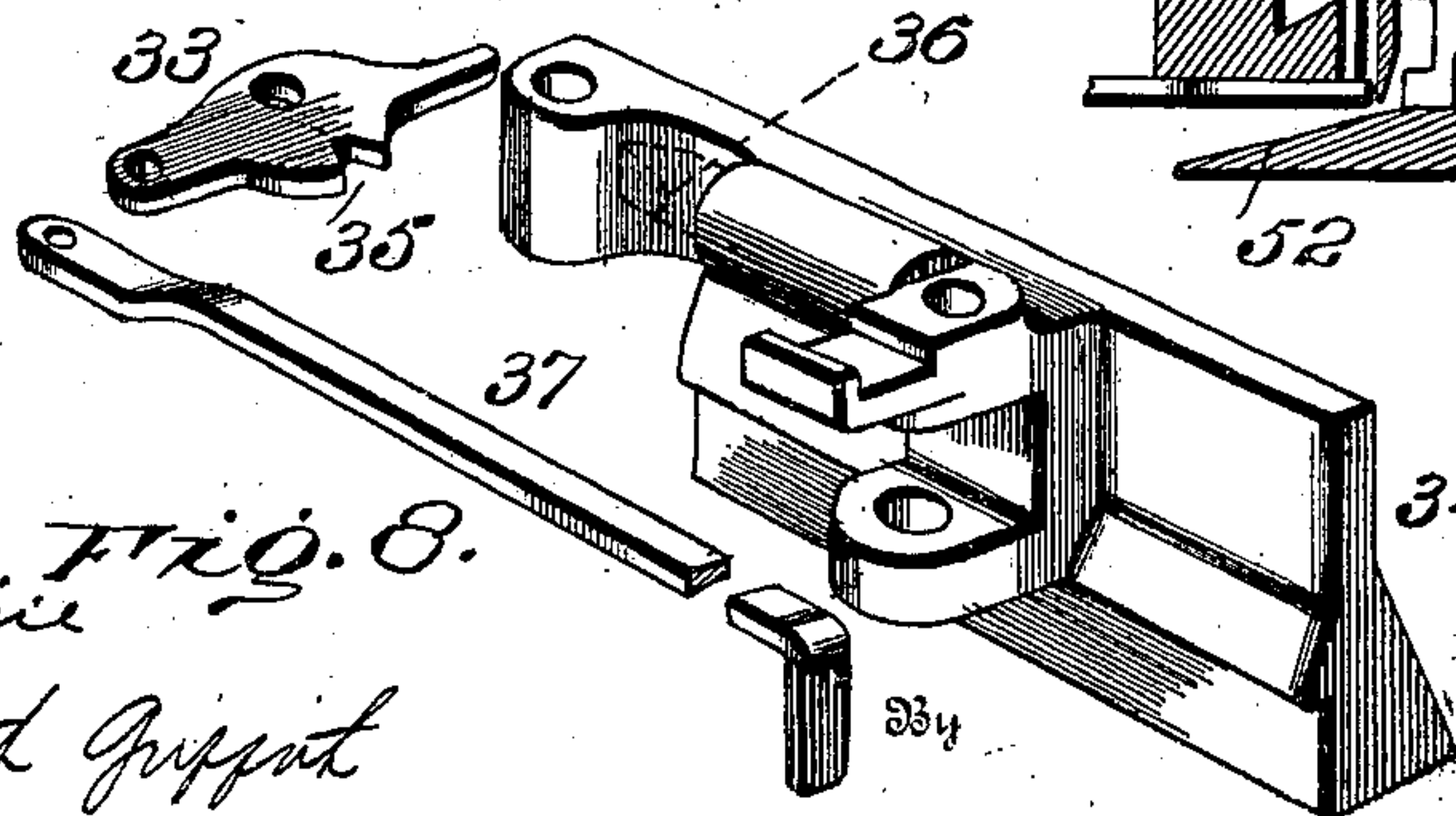
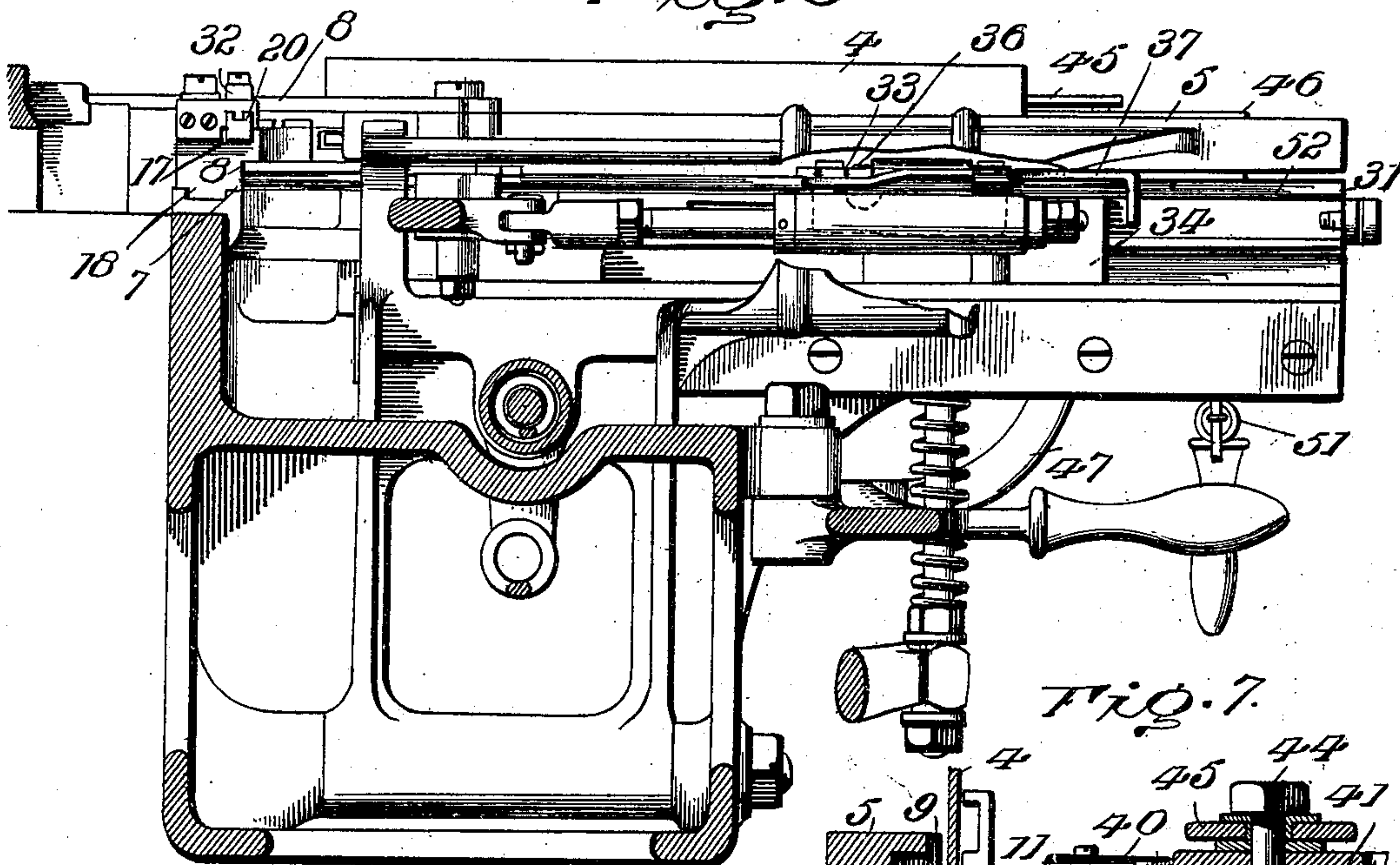
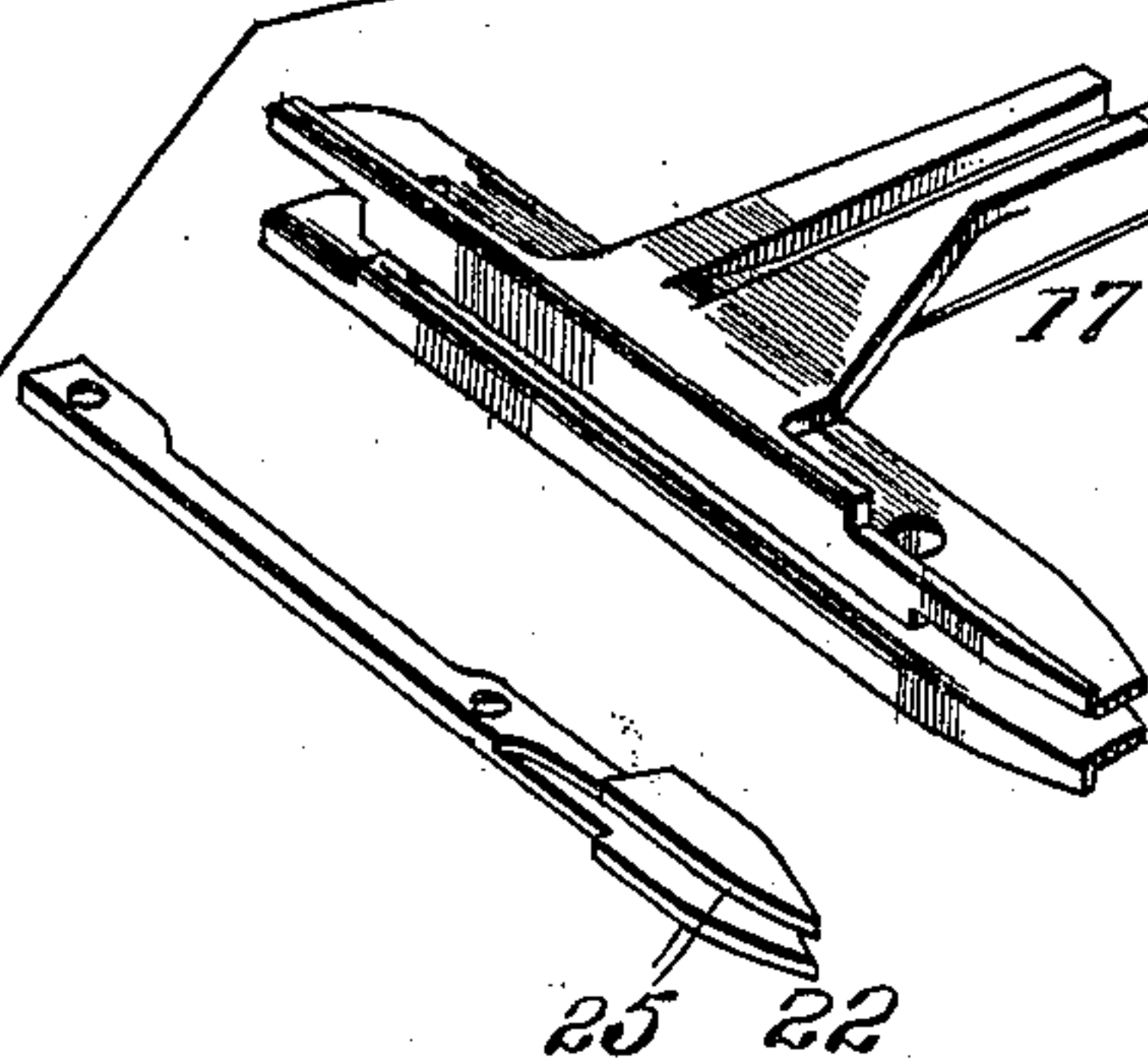
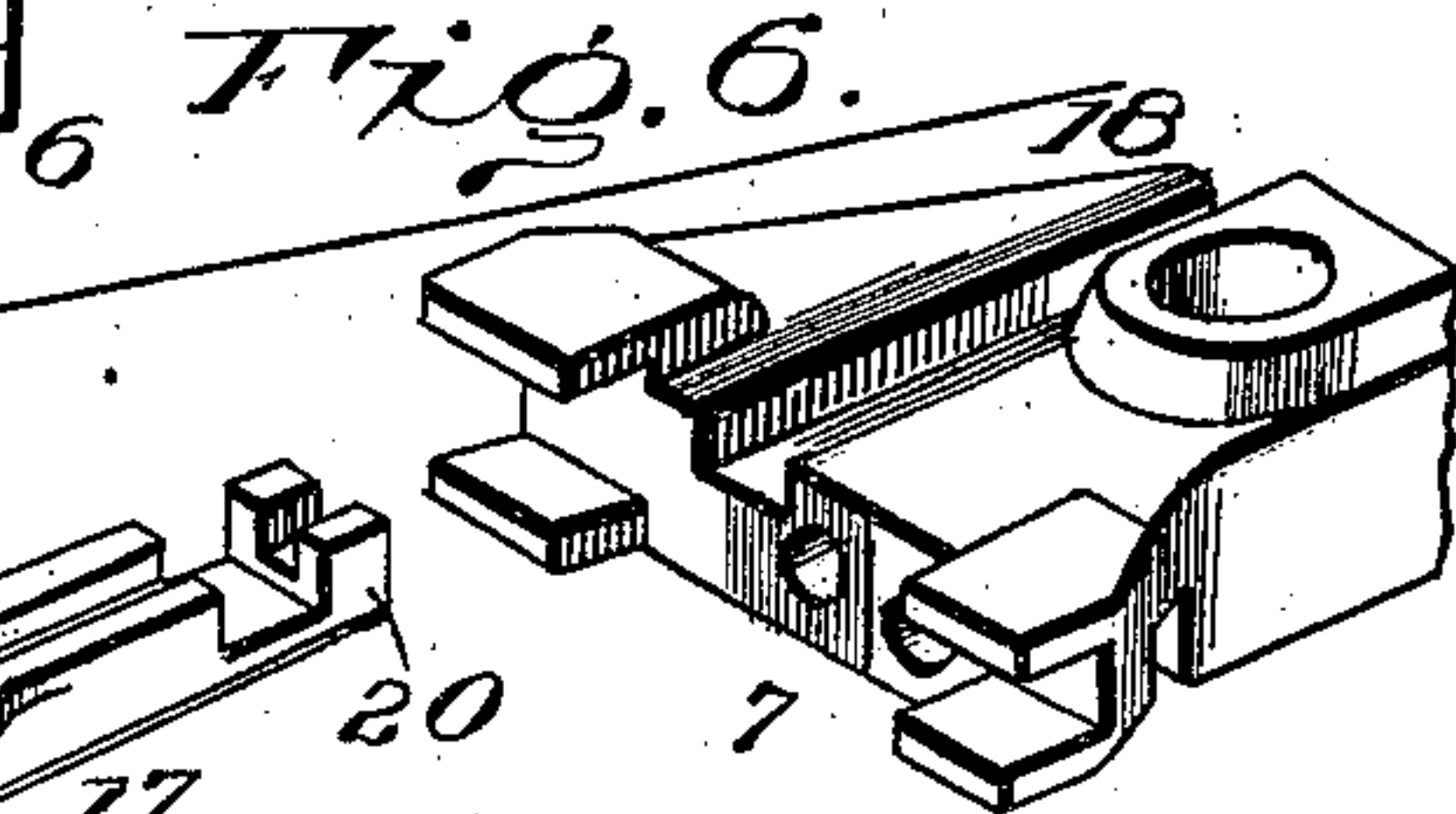
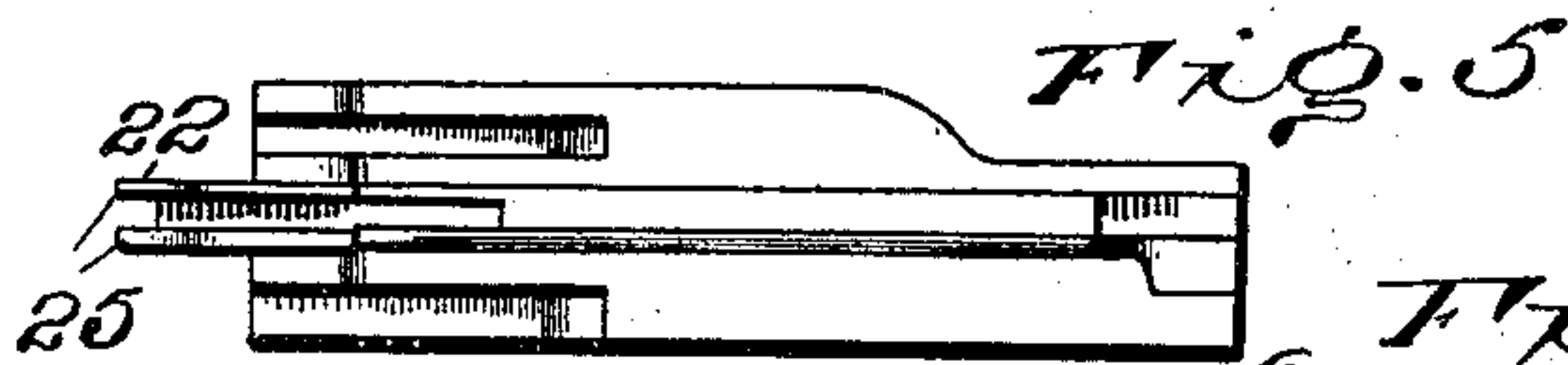
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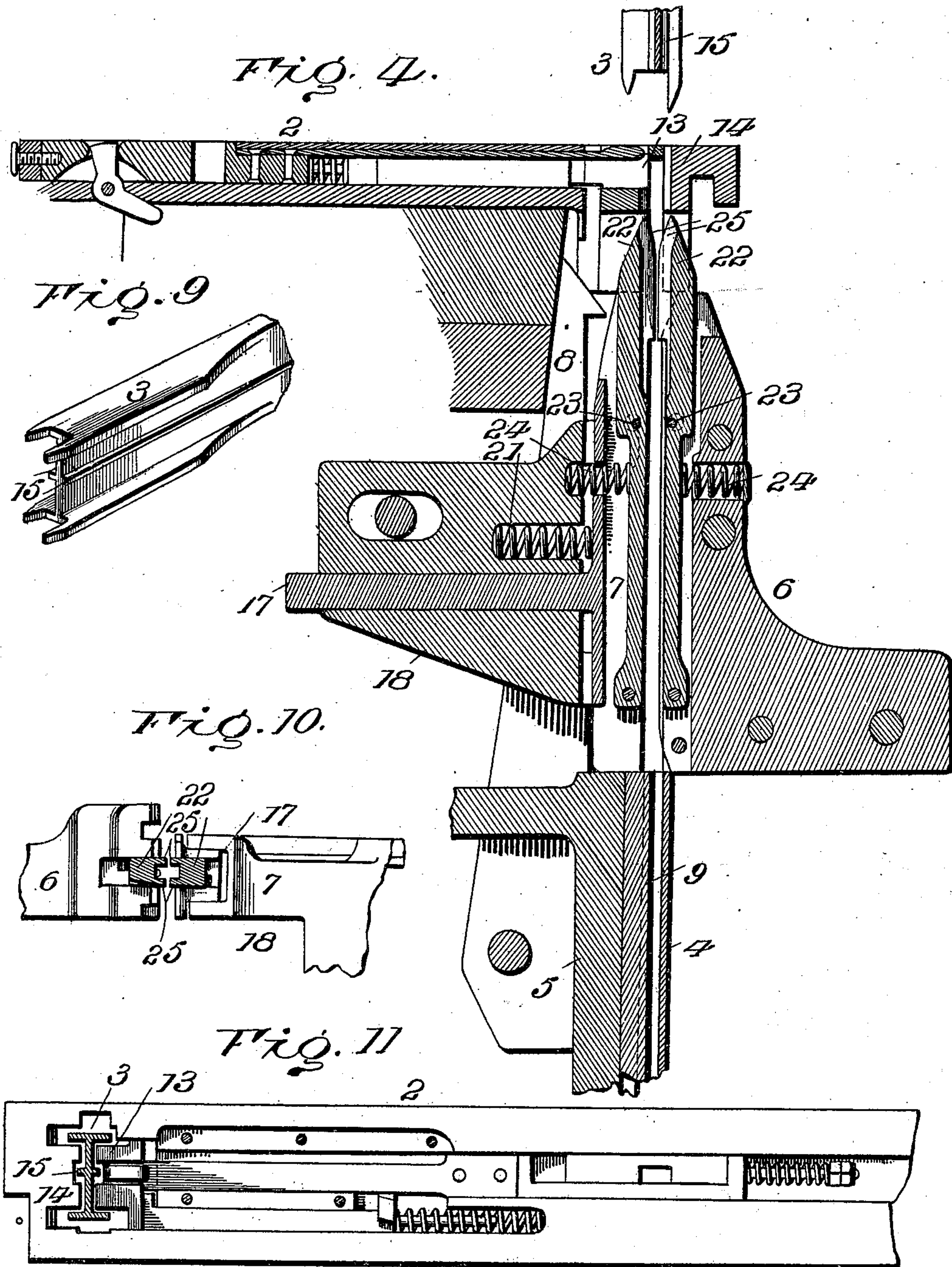
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4 Sheets--Sheet 4.



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GALLEY MECHANISM FOR TYPE-CASTING AND COMPOSING MACHINES.

SPECIFICATION forming part of Letters Patent No. 674,375, dated May 21, 1901.

Application filed September 25, 1900. Serial No. 31,013. (No model.)

To all whom it may concern:

Be it known that I, JOHN SELLERS BANCROFT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Galley Mechanism for Type-Casting and Composing Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures of reference marked thereon.

This invention relates to improvements in or upon the galley mechanism of Patent No. 625,998, and has for its object to increase its efficiency and to enlarge the range of adjustment, so as to accommodate longer lines.

With these ends in view the invention consists in the employment of devices for interposing resistance to the motion of the type-carrier at or near the opposite extremes of its motion to overcome inertia and prevent overthrow; the provision of additional means for preventing the turning of the type as they are transmitted from the type-carrier to the line-channel by the type-ejector; the introduction of novel type-supports at the entrance of the line-channel for sustaining the assembled type and preventing displacement; the addition of means for readily disconnecting or throwing out of action the device or devices by which the line-supporting blade is advanced positively, so that said blade can be removed or withdrawn at will; the provision of means for retracting or taking pressure off the movable member of the trip device, so as to permit the ready removal of one or more types in case a long line is formed, and in minor features of construction and arrangements of parts, all as hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of the improved galley mechanism, a portion of the mechanism being broken away. Fig. 2 is a top plan view. Fig. 3 is a sectional view on the line X X, Fig. 2. Fig. 4 is a horizontal sectional view through the type-carrier, ejector, and parts

constituting the entrance to the line-channel. Fig. 5 is a detail view showing one side of the line-channel entrance. Fig. 6 is a perspective view showing the parts detached which constitute the opposite side of the entrance to the line-channel. Fig. 7 is a partial sectional view in the plane of the pivot of the trip-lever. Fig. 8 is a view of the uncoupling devices for the arm engaging the type-support, the parts being shown detached and separate. Fig. 9 is a perspective view of the type-ejector. Fig. 10 is an end view looking toward the entrance to the line-channel, the type guiding and retaining jaws being shown in section. Fig. 11 is a side elevation of the type-carrier, the ejector being shown in section. Fig. 12 is a detail showing the shouldered arm of belt-shifting lever and the lever contacting therewith. Fig. 13 is a detail view showing the connection intermediate the trip and belt shipping levers.

Like numerals of reference in the several figures indicate the same parts.

In so far as its principal elements are concerned the galley mechanism illustrated in the drawings is the same as that of the prior patent referred to and includes the cross-blade 1, the type-carrier 2, the ejector-blade 3, the vertically-movable blade 4, the line-channel extending between vertically-movable blade 4 and line-transferring device or lever 5, together with the blocks 6 and 7, with their attachments forming the entrance to said line-channel, the line-carrier 8, the line-supporting-blade 9, the galley 10, the trip 11, the belt-shipping lever 12, and the actuating mechanism for effecting and controlling the movements of the parts named, all of which are similar to those of the prior patent and do not require specific description herein.

The machine being designed to accommodate types of different widths, it is desirable that the galley mechanism should automatically adapt itself to such variation—that is to say, should possess the capacity to deal with all widths and at the same time maintain the individual types in proper position while being transferred from one position to another and assembled in line. Some diffi-

culty was experienced in the operation of the prior machine owing to the fact that the vertical web of the ejector was necessarily made thin enough to accommodate both narrow and wide types. Owing to its necessarily rapid movement, together with the frictional pressure upon the sides of the type, it was found that the thin and wider types would at times be buckled or turned during their passage through the type-carrier, where they were subjected to friction on the edges, and thereby be improperly presented in the line-channel. To overcome this defect, two things have been done, each contributing in a degree to correct the errors and both together serving to completely eradicate them. The first relates to the ejector-blade 3. It may here be remarked that the body portion of the ejector-blade is necessarily made considerably narrower than the narrowest font of type to be dealt with in order that it may pass between the opposing type-holding surfaces or jaws 13 and 14 of the type-carrier, Figs. 4 and 11, without separating said jaws, and as but one of these jaws is independently movable the ejector-blade is necessarily close to the immovable jaw or surface. Hence when the wide type of a larger font is to be dealt with it engages the type nearer one edge than the other. To overcome the defective action resulting from this arrangement, the ejector-blade is formed or provided with two intermediate lateral extensions or ribs 15, Fig. 9, and the jaws 13 and 14 are grooved horizontally for the reception and passage of these projections, as shown in Fig. 11. The flanges 15 furnish lateral support for the type midway of its length and effectually prevent its turning while being expelled from between the opposing clamping-surfaces 13 and 14. The second feature pertains to the entrance to the line-channel into which the type is delivered by the ejector-blade. One side of the entrance—that nearest the mold—is formed by a detachable block 6 and the opposite side by a laterally-movable frame or block 7, Figs. 4 and 6, furnished with a stem or guide 17, supported in ways on the main frame or in a detachable block 18, applied thereto. The frame 7 is provided with a limiting-stop 20 and a spring 21, whereby it is held with its inner face parallel with the proximate face of block 6 and at a fixed distance therefrom, although capable of yielding without disturbing its parallelism. The contiguous faces of frame 7 and block 6 are grooved longitudinally for the reception of a pair of guiding and retaining jaws 22. Each of these jaws is pivotally mounted at its rear end in its supporting block or frame and extends beyond the end of its support, which latter is slightly beveled to facilitate the passage of the type. Each jaw is also provided with a pin 23, movable between shoulders on its support, and a spring 24, arranged to hold the jaws pressed inward or toward each other under elastic tension. When in normal position, these

jaws stand with their body portions substantially in line with the inner surfaces of their respective supports; but from a point slightly within the maximum movement of the ejector-blade each is provided with one or more (preferably two) inwardly-projecting flanges 25. The outer or free ends of jaws 22 project beyond their supports and enter the slots formed in the lateral extensions of the jaws of the type-carrier, so that when the latter is brought to the position indicated in Fig. 4—that is, in position for the ejector-blade to force the type into the line-channel—the said jaws will be forced apart as the type is pushed through the type-carrier and will guide it between block 6 and frame 7, constituting the entrance or mouth of the line-channel, and when the ejector-blade is retracted shoulders 25 on jaws 22 will engage the type and prevent it from either turning or falling back toward the type-carrier.

To effect the proper delivery of the type, it is of course desirable that the type-carrier should be properly presented in position between the ejector-blade and the type-channel; but when running at high speeds there is a tendency for the type-carrier to be thrown slightly beyond its proper position. This tendency is of course manifested at both extremes of the movement of the type-carrier, and in order the better to control its position, without, however, adding materially to the resistance of the driving mechanism, buffer-springs are introduced between the type-carrier and its actuating-lever, on the one hand, and the frame, on the other, for counteracting the effects of inertia and reducing the momentum at or near each extreme of the movement. With this end in view a spring 26, Fig. 1, is interposed between the head of the actuating-rod 27 and a bearing on the main frame, and a similar spring 28 is interposed between a rod 29, connected to the type-carrier, and a bearing 30 on the frame. These springs are of such dimensions relative to the stroke of the type-carrier (which latter, it may be mentioned, also carries the cross-blade of the mold) that they are inoperative during a portion of the stroke in each direction and are engaged only as the type-carrier approaches the limit of its stroke, thereby interposing a resistance sufficient to partially or wholly overcome inertia, and by virtue of the added resistance cause the die-carrier to be arrested in proper position.

The type-casting machine is organized to produce separate type in the order of composition and to set them up in justified lines, the type-carrier receiving each type from the mold, advancing it to a position in front of the line-channel, into which it is delivered by the ejector-blade. Successive types are thus set up in line form in the line-channel, being supported between movable frame 7 and fixed frame 6, the accumulated type being forced back each time the ejector-blade adds a new type to the line, until finally the

end of the line emerges from between frame 7 and block 6 and enters the space between the vertically-movable blade 4 and the line-transferring lever 5. As the line emerges from between blocks 6 and frame 7 it encounters the line-supporting blade 9, mounted to reciprocate longitudinally on the upper horizontal bar of the line-transferring lever, the type during their passage resting upon a plate 31, forming the floor of the line-channel. When all the types for the line have been delivered, the line-carrier 8 is brought into action to shift the line bodily along the line-channel and present it opposite the galley-opening, and if through inadvertence the line thus transferred happens to be too long the type at the beginning of the line as formed will be interposed between the trip 11 and lever 5, so that on the forward motion of the latter to force the line into the galley the trip will be actuated to release the belt-shifting lever 12, thereby stopping the machine. The hooks on the line-carrier operate above and below frame 7 at the entrance of the line-channel and the bar of lever 5. It follows from this arrangement that while the sides of the type next the galley are subjected to a rubbing action by contact with the surface of block 6 the same is only partially true of the opposite faces of the type-bodies, and to compensate in a measure for this deficiency a cutter 32 is arranged upon the adjustable support of frame 7 in position to trim the type and remove any slight burs or projections.

It frequently becomes desirable to remove a portion or the whole of a line of types contained in the line-channel before their transfer to the galley. To facilitate this, the arm 33, which engages the line-supporting blade 9 to advance the latter, is pivotally mounted upon its actuating block or slide 34 and provided with a notch 35, into which fits the beveled end of a spring-actuated retaining-pin 36. A link or connection 37 is also attached to this arm 33 in position to serve as a convenient means for turning said arm upon its pivot, thereby forcing back the bolt 36 and withdrawing the engaging end of said arm 33 from the line-channel, so that the line-supporting blade may be readily drawn out from said channel, permitting the type to be withdrawn by means of tweezers or other convenient implement. When the line-supporting blade is returned to position, the connection 37 is operated to restore arm 33, the bolt 36 reengaging its notch and holding said arm securely in position; but if through any cause an obstruction should be encountered by the line-supporting blade as it is returned toward the entrance of the line-channel bolt 36 would yield and permit the arm to swing back, thus preventing breakage.

To accommodate the galley mechanism to lines of different lengths, provision has to be made for shifting the position of the trip 11 toward or from the opposite wall of the gal-

ley. In order that this may be conveniently effected, the block 40, Figs. 2 and 7, containing the trip-actuating devices is provided with an arm 41, fitted to a supporting-block 42, the latter fast on the frame of the machine and provided with a dovetail groove for the reception of a nut 43, into which is screwed the bolt 44, forming the axis of lever 45, through which motion is communicated from the tripping devices to the lever 46, carrying the arm 47 for engagement with the shoulder 48 of belt-shipping lever 12. By loosening bolt 44 the tripping devices can quickly be adjusted to suit the desired width of column and as quickly be fastened or secured in position by tightening up the bolt.

When the line presented to the galley by the line carrying and transferring devices is too long, it will operate through the trip to stop the machine. This stoppage can only be prevented by the removal of one or more type preliminary to the advance of the line-transferrer, and even when the machine has been stopped in the manner explained its operation can only be resumed by the removal of the one or more type clamped between the line-transferring lever and the trip-block. If the operator in charge of the machine observes that the line about to be transferred to the galley is too long, he can, by means of a pair of tweezers, remove one or more type, so that the line may enter the galley, thereby avoiding the delays incident to a stoppage of the machine. To facilitate this, the engaging arm of the belt-shipping lever 12 is furnished with an inclined projection 50 in position to act upon and force back arm 47 of lever 46 when the shipping-lever is pressed back or in a direction the reverse of the unshipping movement. Thus by pressing upon belt-shipping lever 12 in a direction to prevent the stoppage of the machine the tension of spring 51, operating on lever 46 in a direction to hold the trip-block 11 to up position, is relieved or counteracted, so that said trip-block 11 and its connections will be free to yield, and thus allow the type to be removed. This temporary suspension of the action of the trip through the holding back of the shipping-lever does not interfere with the action of the machine, which is at the time building up the next succeeding line to that containing the error which it is designed to rectify.

By reference to Fig. 7 it will be seen that the plate 31 constituting the floor of the line-channel where it extends beneath the horizontal engaging bar of the line-transferring lever is beveled, as at 52. This is done to facilitate the discharge of type which may fall down in the line-channel when the line-supporting blade is withdrawn, as they can then be pushed out laterally beneath the bar of the line-transfer lever.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a galley mechanism such as described, the combination with the type-carrier and its actuating devices, of the resistance devices, such as springs, engaging the type-carrier 5 during the latter part of its movement in opposite directions to overcome momentum and insure the stoppage of the type-carrier at the proper points, as set forth.

2. In a galley mechanism such as described, 10 the combination with the reciprocating type-carrier and its actuating devices, of the spring interposed between the head of the connecting-rod and the frame, and a second spring interposed between the type-carrier and the 15 frame, said springs being of less length in the aggregate than the traverse of the type-carrier, whereby the duration of their resistance to the motion of the type-carrier is less than the maximum movement of the latter; substantially as described. 20

3. In a galley mechanism such as described, the combination with the reciprocating type-carrier furnished with opposing clamping-surfaces, of the ejector-blade provided with 25 lateral extensions or flanges on the sides of its body intermediate the head and foot of its engaging face; substantially as described.

4. In a galley mechanism such as described, the combination with the reciprocating type-carrier with its grooved opposing clamping-faces, of the ejector-blade provided with lateral wings or extensions on the sides of its vertical web, substantially as and for the purpose specified. 30

5. In a galley mechanism such as described, the combination with the type-carrier and ejector-blade, of a line-channel whose mouth or entrance is formed by parallel walls, the one fixed and the other sustained under elastic tension, each of said walls being grooved 40 longitudinally and provided with one member of a pair of pivoted levers extending beyond the said parallel walls into the type-carrier; substantially as and for the purpose set forth. 45

6. In a galley mechanism such as described, the combination with the type-carrier and ejector-blade of a line-receiving channel, the

entrance to which is furnished with parallel guiding and retaining walls of which one is 50 yielding supported, and a pair of yielding jaws extending longitudinally of said retaining-walls and provided with beveled ends and type-retaining shoulders; substantially as described. 55

7. In a galley mechanism such as described, the combination with the line-channel, of the two parallel guiding and sustaining walls, of which one is yielding supported, the levers 60 pivotally mounted in grooves extending longitudinally of said sustaining-walls and provided with limiting-stops and compression-springs, said levers being extended beyond the supporting-walls and provided with laterally-projecting flanges or webs terminating 65 in type-retaining shoulders; as and for the purpose set forth.

8. In a galley mechanism such as described, the combination with a line-channel composed in part by a movable line-transferring 70 device or lever, of the bottom or floor of said channel beveled along one edge for the escape of prostrate type; as set forth.

9. In a galley mechanism such as described, the combination with the line-supporting 75 blade, of the actuating-arm therefor pivotally attached to a reciprocating block and furnished with a beveled notch and spring-actuated locking-bolt, as and for the purpose set forth. 80

10. In a galley mechanism such as described, the combination with the trip device located at one side of the galley-entrance, of the block or frame carrying said trip adjustably attached to its support by the pivot-bolt of 85 the trip-lever; substantially as described.

11. In a galley mechanism such as described, the combination with the belt-shipping lever, the trip and the actuating devices intermediate said lever and trip, of the beveled projection on said belt-shipping lever for relieving the trip, as and for the purpose set forth. 90

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