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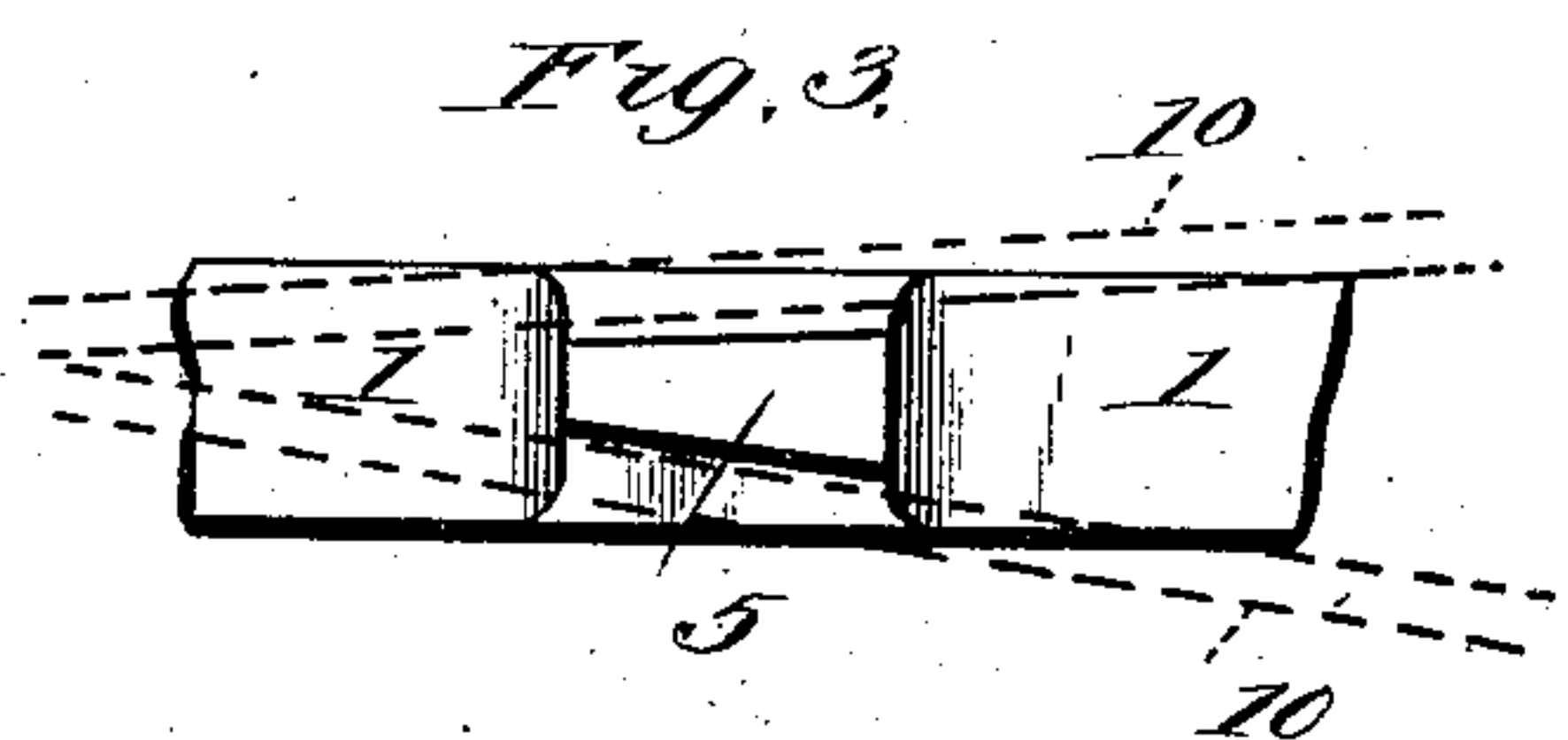
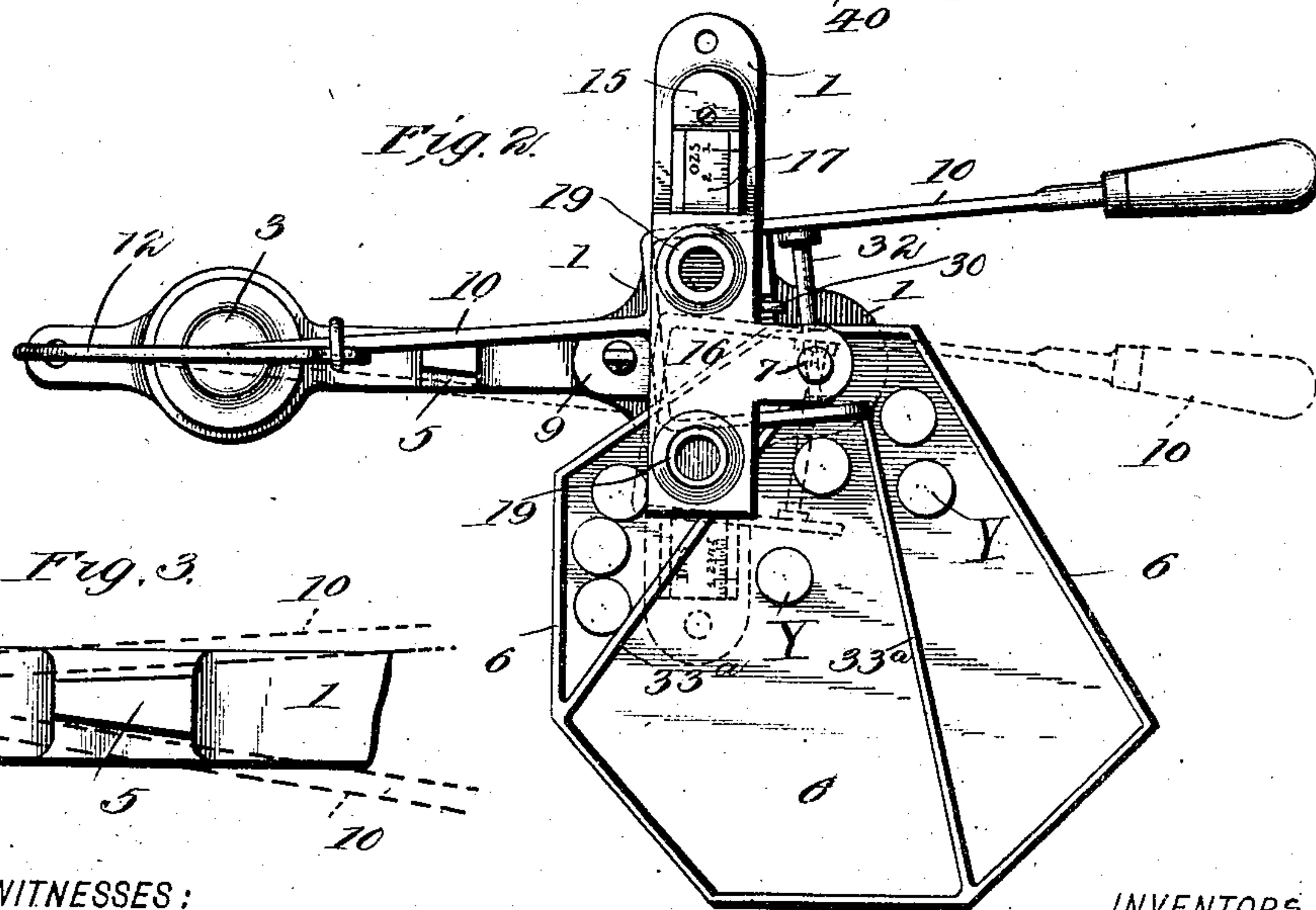
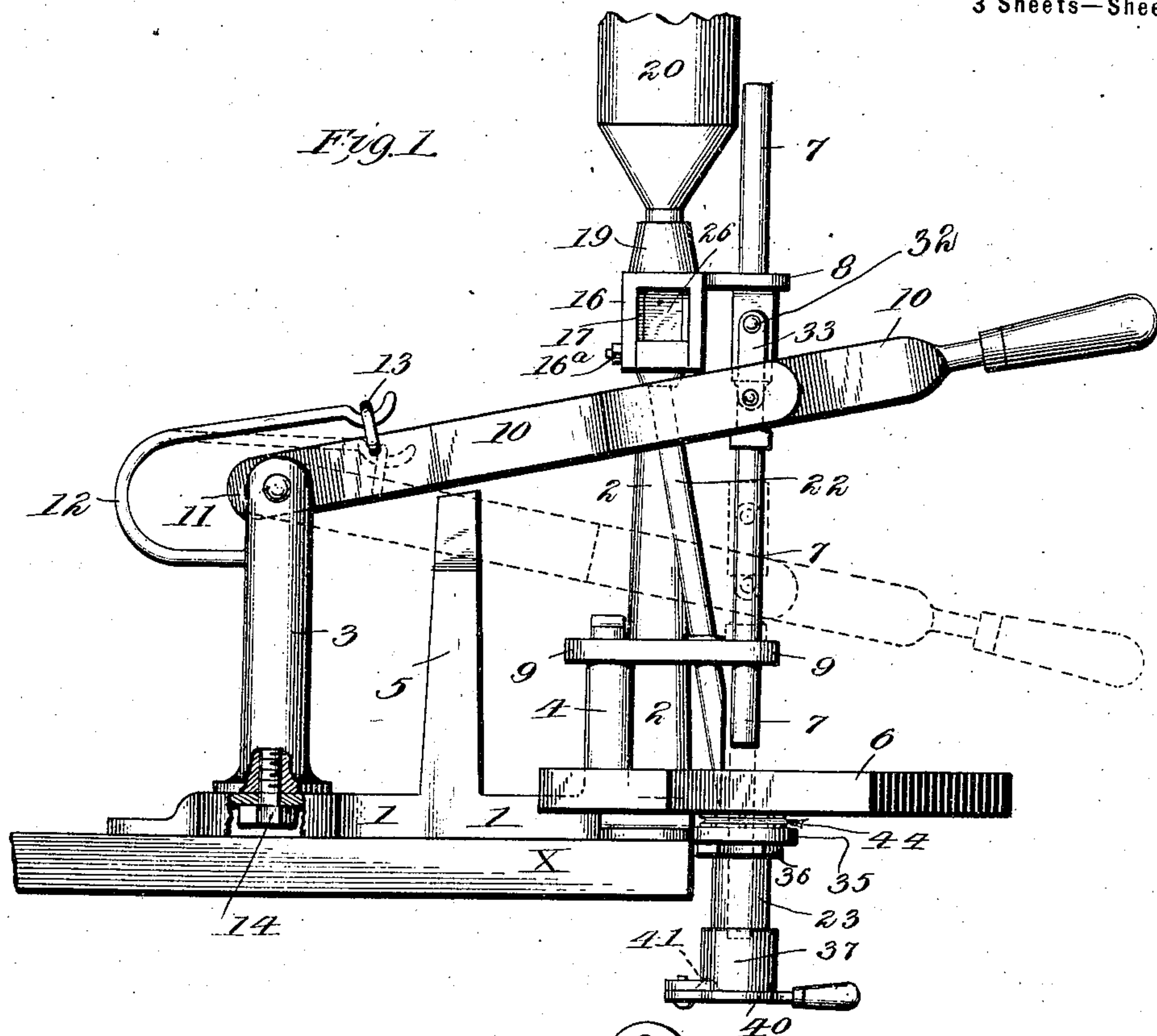
Patented Nov. 4, 1902.

E. L. WETZIG & G. W. REUST.  
CARTRIDGE SHELL LOADER.

(Application filed Apr. 1, 1902.)

(No Model.)

3 Sheets—Sheet 1.



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Fig. 4.

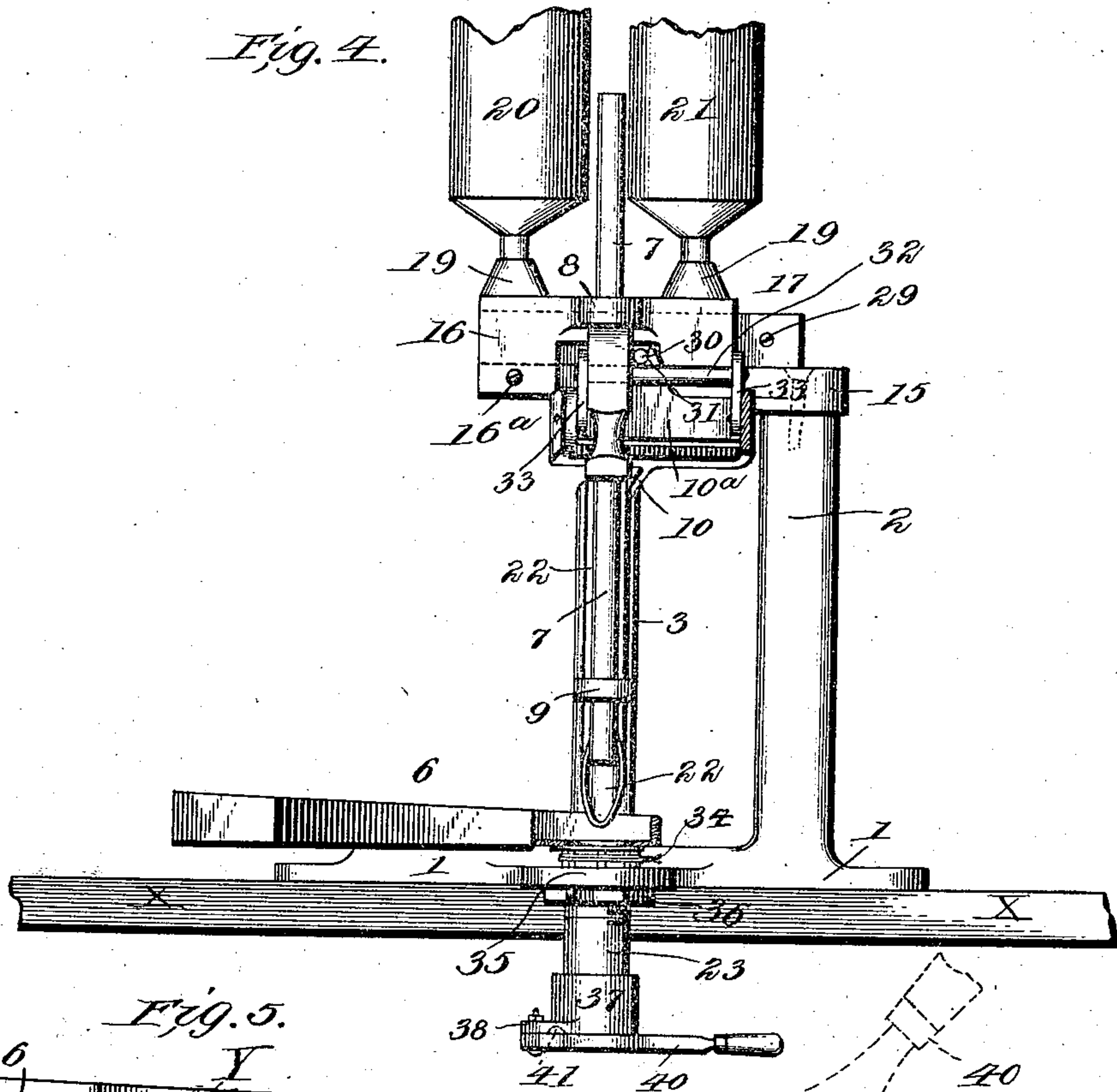


Fig. 5.

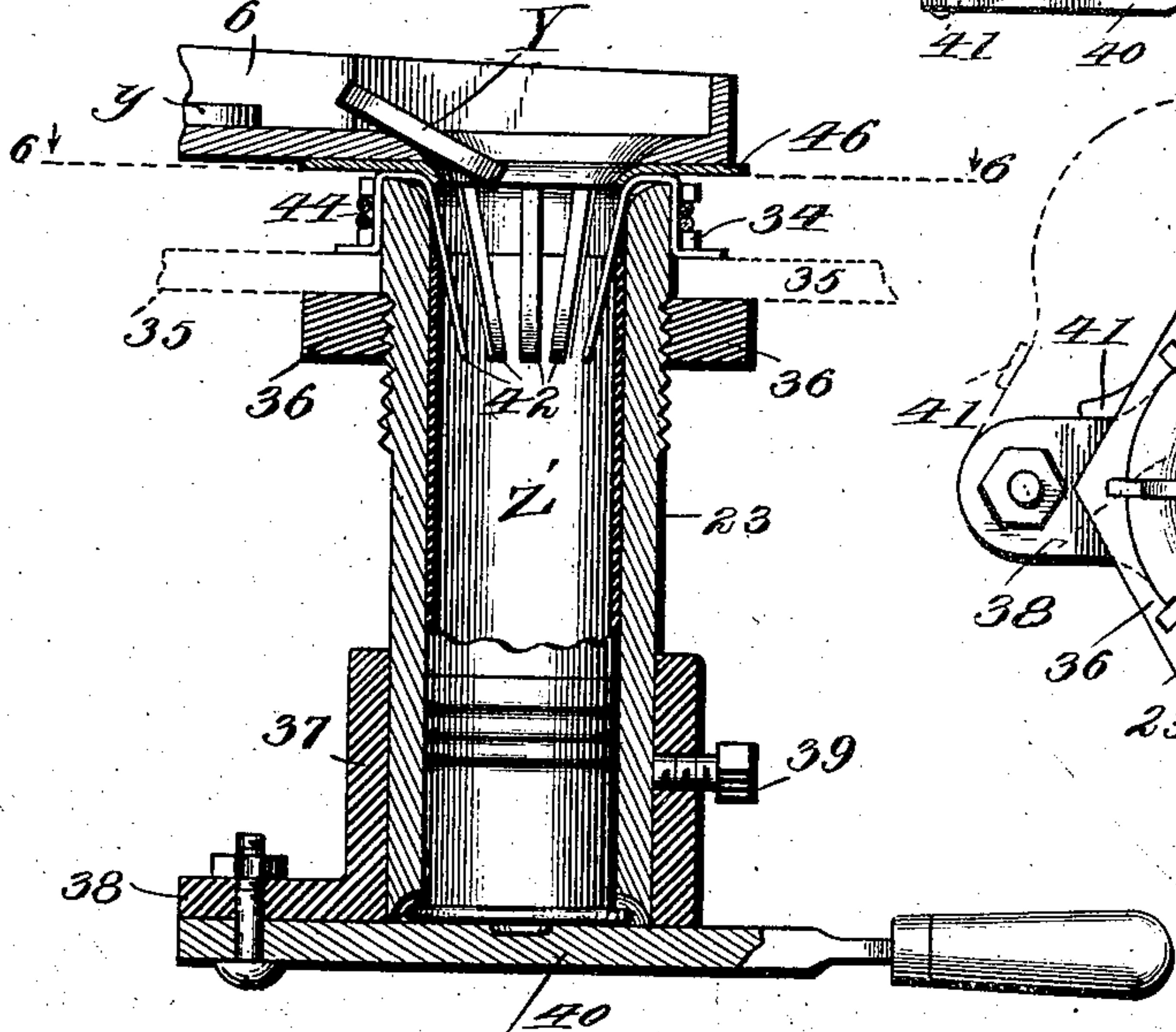


Fig. 6.

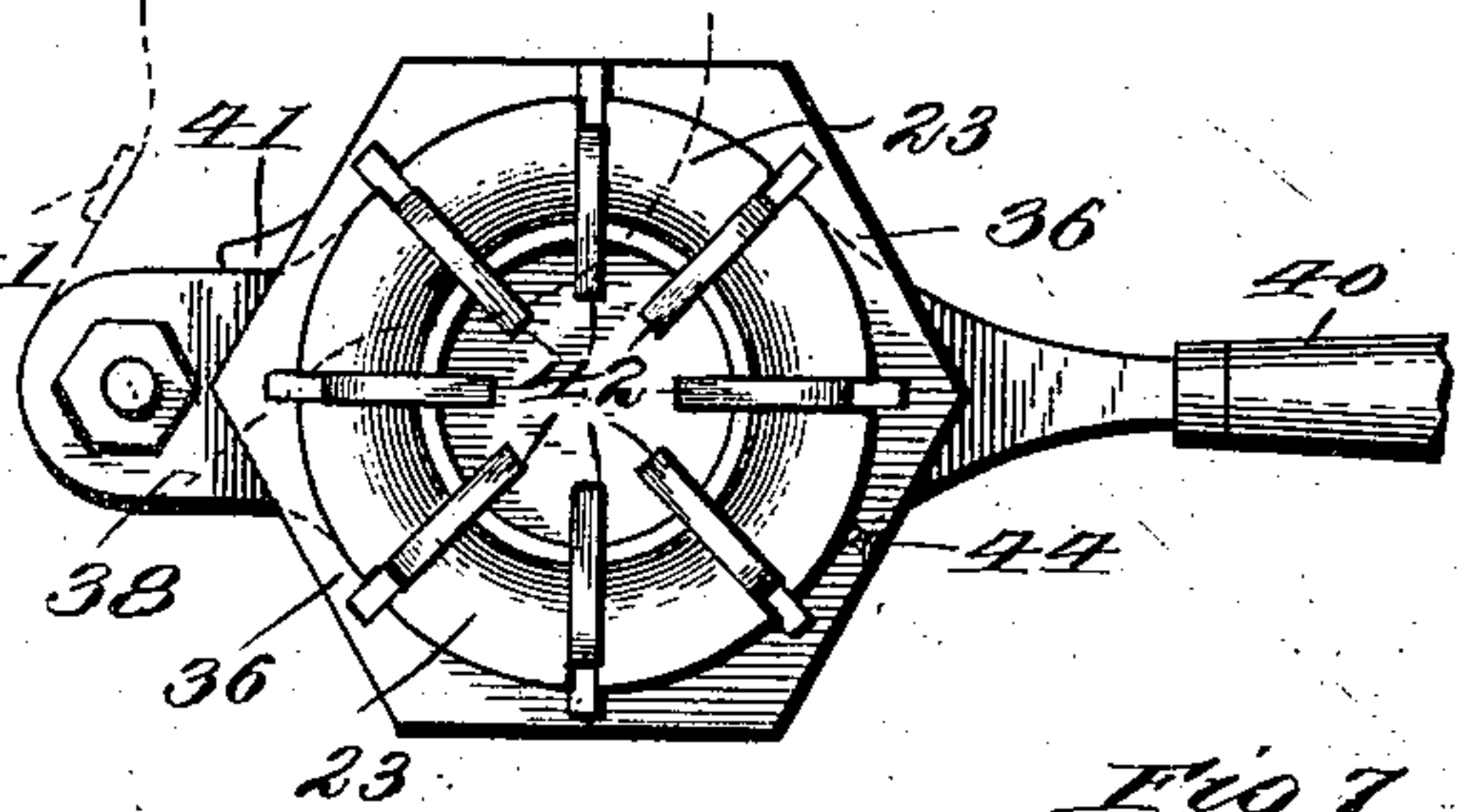
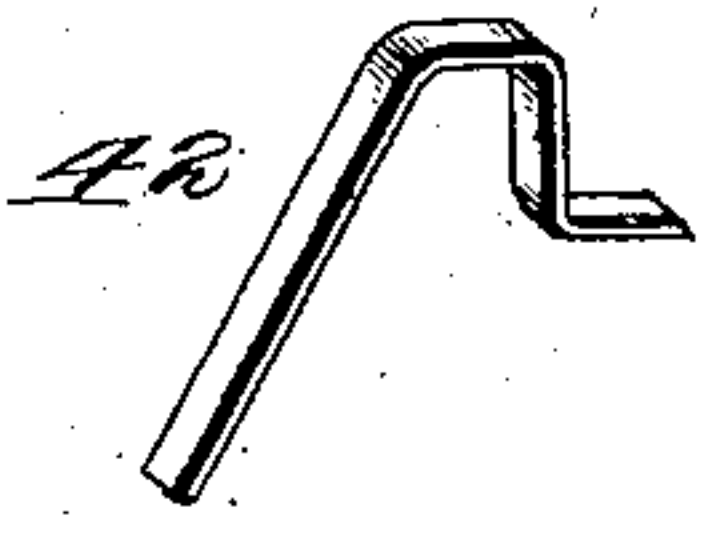


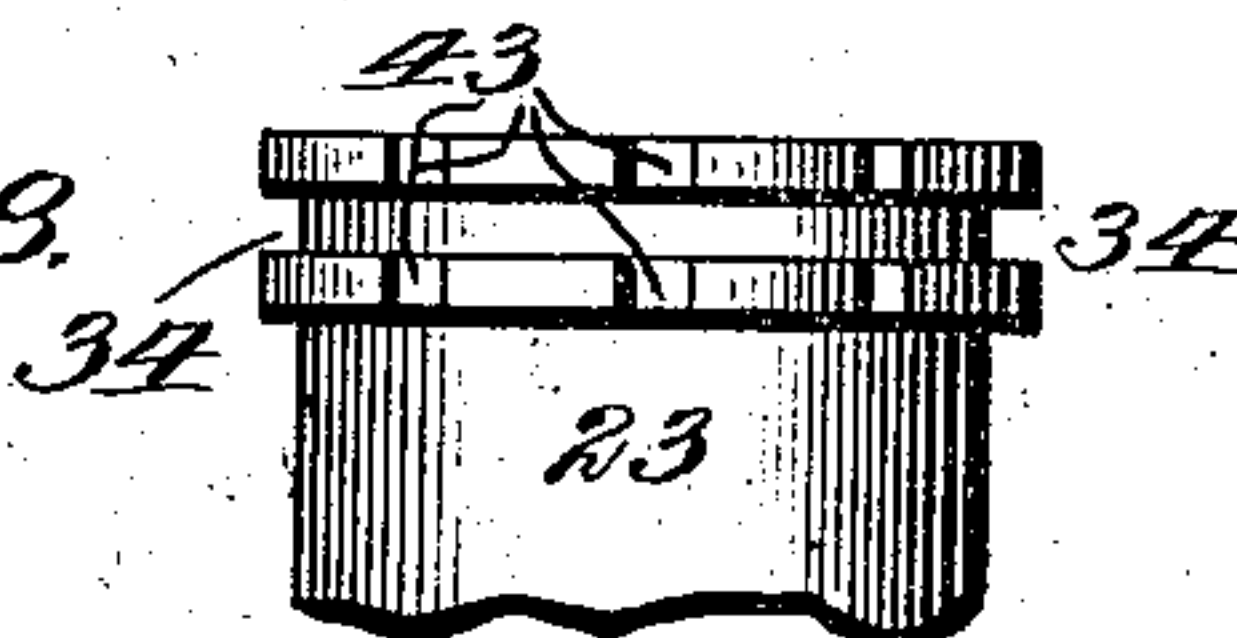
Fig. 7.



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Fig. 8.



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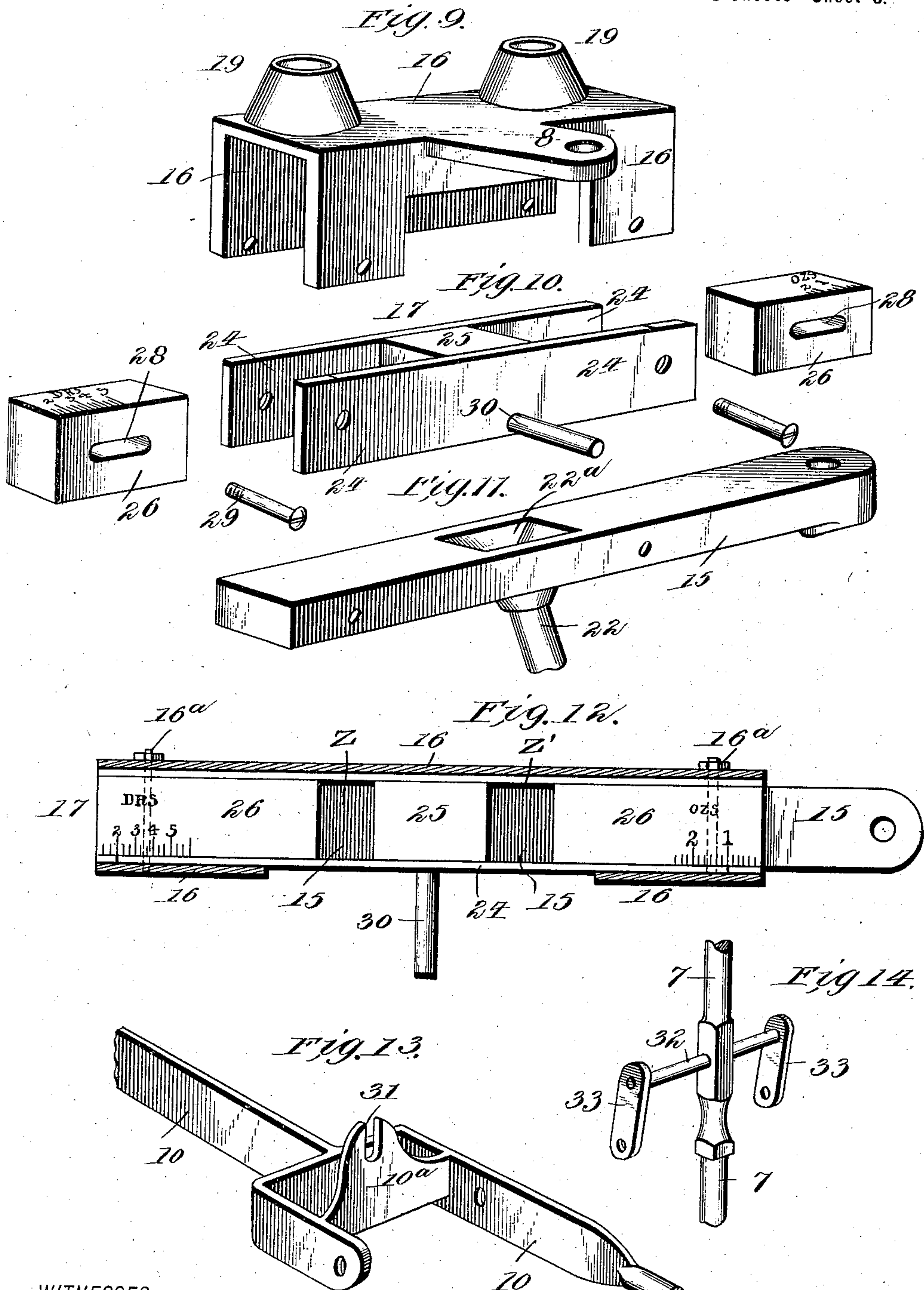
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# UNITED STATES PATENT OFFICE.

ERNEST L. WETZIG AND GEORGE W. REUST. OF JUNCTION CITY, KANSAS.

## CARTRIDGE-SHELL LOADER.

SPECIFICATION forming part of Letters Patent No. 713,032, dated November 4, 1902.

Application filed April 1, 1902. Serial No. 100,996. (No model.)

*To all whom it may concern:*

Be it known that we, ERNEST L. WETZIG and GEORGE W. REUST, citizens of the United States, and residents of Junction City, in the county of Geary and State of Kansas, have made certain new and useful Improvements in Cartridge-Shell Loaders, of which the following is a specification.

Our invention relates to several improvements in the construction of shell-loaders, and the details of construction, arrangement, and operation of parts are as hereinafter described, and shown in accompanying drawings, (three sheets,) in which—

Figure 1 is a side view of the main portion of our improved machine. Fig. 2 is a plan view of the same. Fig. 3 is a top plan view of the stop or guard post for the plunger-lever. Fig. 4 is a front view of the main portion of the machine. Fig. 5 is an enlarged vertical section of the portion of the wad table or tray and the tubular shell-receiver arranged beneath the same. Fig. 6 is a plan view of said shell-receiver. Fig. 7 is a perspective view of one of the spring-fingers forming an attachment of the shell-receiver proper. Fig. 8 is a side view of the upper portion of the shell-receiver. Fig. 9 is a perspective view of the box or hollow guide in which the charge-receiver is adapted to slide horizontally. Fig. 10 is a perspective view of the parts of the charge-receiver separated from each other. Fig. 11 is a perspective view of the horizontal bar or support upon which the charge-receiver is adapted to slide. Fig. 12 is a horizontal section showing the charge-receiver, its guide, and the horizontal support for the same. Fig. 13 is a perspective view of the portion of the pivot-lever by which the charge-receiver and wad-plunger are operated. Fig. 14 is a perspective view of the portion of the wad-plunger which is connected with the lever shown in Fig. 13.

Referring in the first instance to Figs. 1, 2, 3, X indicates the edge of the table or shelf or analogous fixture upon which the machine is secured. The frame of the machine includes a T-shape horizontal base-piece 1, which is provided with four vertical posts 2 3 4 5, whose functions will be hereinafter described. A horizontal wad table or tray 6 is

horizontally secured upon a projecting flange or lug of the base-piece 1. (See Fig. 4.) As shown in Fig. 5, the table 6 is provided with an opening at its inner end into which wads Y may be slid from the table 6. This opening is also arranged in vertical alinement with the vertically-reciprocating plunger 7, which works in suitable fixed guides 8 and 9, and is connected with the hand-lever 10 by means that will be presently described. The said lever 10 is pivoted at its rear end 11 to the top of the post or standard 3 and is held normally supported in the inclined position shown in Fig. 1 by means of a U-spring 12. The latter is rigidly attached to the post 3, and its free end is flexibly connected with the lever in advance of its pivot by a link 13. The post or standard 3 may be connected with the base-piece 1 in any preferred manner, so that easy rotation is permitted. In this instance (see Fig. 1) a screw-bolt is inserted in the base of the post 3 and provided with a head on the end that passes through the base-piece. It will be understood that the latter is provided with an exterior flange, which rests directly upon the fixed support X.

As shown in Fig. 4, the post or standard 2 carries at its upper end a horizontal bar 15, (see also Figs. 11 and 12,) which is secured thereto by means of a screw. This bar 15 is attached to the box or hollow guide 16 by screw-bolts 16<sup>a</sup>, (see Figs. 1, 4, and 9,) in which the charge-receiver 17 (see Figs. 4, 10, and 12) is adapted to slide. The said guide or box 16 is open at its bottom and also at a portion of its front side. The upper side of the box 16 is provided with two hollow conical sockets 19 for reception and support of the powder and shot holders 20 and 21. (See Fig. 4.) The upper guide 8 for the wad-plunger 7, before referred to, projects from and is formed integrally with the box 16, and the lower guide 9, corresponding and arranged horizontally parallel to the guide 8, is secured to the short post 4. (See Fig. 1.) A tube 22 (see especially Figs. 1 and 11) is attached to the under side of the support 15, upon which the charge-receiver 17 is adapted to slide, such part 15 being provided (see Fig. 11) with an opening 22<sup>a</sup>, that registers with the tube. The lower portion of the latter



passes through and is held rigidly in the lower plunger-guide 9, and its scarfed or beveled lower end projects into suitable proximity to the hole in the wad-table 6, so that powder and shot received alternately by said tube may be conducted into the shell-receiver 23. (See Figs. 1, 4, 5.)

The details of construction of the charge-receiver 17 are as follows: The body of the same (see Fig. 10) consists of two parallel rectangular plates 24, which are suitably secured to a central connecting-piece or bridge 25, which serves as a division between the powder and shot received, as will presently appear. In each end of the frame thus formed of the parts 24 and 25 is secured a rectangular block 26. The latter is provided with a slot or elongated transverse opening 28, through which passes the cylindrical screw 29, that serves to secure the block adjustably in the ends of the body of the charge-receiver. It will be apparent that by loosening or tightening the said screw 29 the blocks 26 may be adjusted toward or from the central bridge 25, as may be required to diminish or enlarge the openings Z Z', (see Fig. 12,) into which the powder and shot are respectively received. As shown in said Figs. 10 and 12, the blocks 26 are graduated in drams and ounces, as required, in order to regulate their adjustment for any required charge of powder and shot. It will now be understood that if the charge-receiver 17 be reciprocated in the box or hollow guide 16 powder and shot will be successively received in the cavities Z and Z', Fig. 12, which exist between the adjustable blocks 26 and the bridge 25—that is to say, when the charge-receiver is adjusted to the right the opening Z' (see Fig. 12) will be filled with shot. Then upon shifting the charge-receiver 17 to the left the right-hand block 26 will pass beneath the mouth of the shot-holder 21 and cut off discharge therefrom, while the opening Z will be brought in registration with the mouth of the powder-holder 20, and thus be filled with powder. At each reciprocation or sliding movement of the charge-receiver 17 either powder or shot will be discharged into the opening 22<sup>a</sup> in the supporting-bar 15, and thus pass through the tube 22 into the shell-receiver 23. It will be understood that the blocks 26 thus serve not only as means for regulating the size of the charges of powder and shot, but also as cut-offs for the powder and shot holders, and that the openings Z and Z' of the charge-receiver are alternately brought into registration with the mouth of the tube 22.

The means for connecting the charge-receiver 17 with the lever are as follows: The charge-receiver 17 is provided on its front side with a central lateral pin 30, and the lever 10 is provided (see Fig. 13) with a cross-piece 10<sup>a</sup>, having a notch 31 adapted to receive the said pin 30. When the lever 10 is raised to the inclined position shown in Fig. 1, the pin 30 enters the notch 31, and if the

lever while held so inclined be moved to the right or left it is manifest that the charge-receiver will be moved correspondingly.

The means for connecting the wad-plunger with the lever 10, so as to allow the latter to be shifted laterally, are as follows: As shown in Figs. 1 and 14, a rod or shaft 32 passes through the plunger 7, and its ends are connected by pivot-links 33 with the bifurcated portion of the lever between which the notched piece 10<sup>a</sup>, before referred to, is arranged. It will now be seen that the links 33 allow the plunger 7 to reciprocate vertically in fixed guides, while the lever passes from the upper inclined position (shown in full lines, Fig. 1) to the lower inclined position, (shown by dotted lines in the same figure,) and, further, that the lever may be shifted right or left by reason of the rod 32 sliding through the plunger. The lateral shifting of the lever 10 is illustrated in Fig. 2 by dotted and full lines. It will be understood that when the lever 10 is shifted to the right, as shown in full lines, Fig. 2, a charge of powder will be delivered into the tube 22 and pass into the cartridge Z' in the receiver 23. Then a wad Y being pushed into the receiver 23 (see Fig. 5) the lever 10 is forced down and the plunger 7 carries the wad into place upon the powder charge. During this time the shot-opening Z' in the charge-receiver is filled, and when the latter is again raised to the upper inclined position (shown in Figs. 1 and 2) the notched bridge-piece 10<sup>a</sup> again engages the pin 30, and the lever being then shifted to the left, as indicated by dotted lines, Fig. 2, the charge-receiver is shifted to the left, so that a shot charge is delivered through the tube 22 upon the powder wad previously inserted, as before described. Then the lever is again forced down, so that the plunger 7 may carry another wad Y into the receiver 23 upon the shot charge. This completes filling of the cartridge-shell Z'.

From the foregoing description it is apparent that the lever is shifted laterally after each vertical movement. In order to insure that its vertical movement, whereby the plunger 7 is reciprocated, shall be made at the right time—that is to say, when the lever is in the position required to completely shift the charge-receiver 17—we provide the stop or guard 5. (See Figs. 1, 2, 3.) The same has a post rigidly connected with the base-piece 1, its upper end being so formed and so located that the lever 10 cannot pass downward except at the extreme limit of its lateral throw or movement. In other words, the post 5 will arrest the downward movement of the lever 10 at any point intermediate of the limits indicated by full and dotted lines, Fig. 2.

As shown in Fig. 2, a wad table or tray 6 is provided with a series of compartments or divisions which converge at the opening shown in Fig. 5. In other words, the table 6 has oppositely-inclined sides and ribs 33<sup>a</sup>, which are



arranged convergently and at an angle to each other, whereby the said compartments are formed. It will be seen that this form of the compartments enables wads Y to be easily and quickly guided to the aforesaid opening for delivery in the receiver 23. As shown in Fig. 5, the body of the latter is cylindrical and provided at its upper end with a flange 34, which rests upon the flange 35 and forms an integral part of the base-piece 1. A nut 36 (see also Fig. 4) is screwed up against the said flange 35, the body of the receiver 23 being suitably threaded for the purpose. By this means the receiver is held rigidly in place; yet by detaching the tray or wad table 6, which is secured to the base-piece by a screw, the receiver 23 may be drawn upward through the opening in the flange 35 when the nut 36 has been screwed off the same. To the lower end of the body of the receiver 23 is attached a sleeve 37, having a lateral lug or ear 38. It is held in place by a clamp-screw 39, which permits it to be adjusted higher or lower, as may be required to accommodate shells Z' of different lengths. A flat or broad lever 40 is pivoted to the lug 38 and adapted to swing horizontally. (See dotted lines, Fig. 6.) When in the position shown by full lines, Figs. 1, 4, 5, 6, the said lever supports a cartridge-shell Z' in the position required to enable it to be filled with powder and shot, and when the lever is swung laterally the loaded shell is allowed to drop down and another is inserted. The lever 40 is provided with a lug 41, (see Figs. 1, 4, and 6,) which serves as a stop that insures its arrest when swung back to proper position beneath the body 23 of the shell-receiver. The upper end of the receiver proper, 23, is provided with a series of spring-fingers 42, which are rigidly secured in place. The form of said fingers is shown in Figs. 5 and 7, their upper ends being bent to adapt them to pass over the top of the receiver proper, 23, where they are secured in notches 43, formed in the flanges 34 by means of wires 44. The fingers are formed of spring material and converge toward the middle of the receiver 23. If now a shell Z' be inserted from below into the receiver 23, its upper end will encircle the convergent ends of the spring 42, as shown in Fig. 5, and if the mouth of the shell be contracted or crumpled or distorted, as is commonly the case when shells have been once used, the fingers will force the shell to assume the original cylindrical shape. Thus the fingers 42 serve to distend and reshape the upper edges of deformed paper shot-shells. We desire to be understood that we do not restrict ourselves to the precise means here described for securing the spring-fingers to the body of the shell-receiver, since we propose to employ any suitable means for effecting it.

Between the wad-table 6 and the mouth of the shell-receiver 23 is interposed a wad-guide 46. (See Fig. 5.) The same consists of a thin metal plate having an opening nearly as large

as that of the receiver, it being practically just large enough to allow the easy passage of the wads. The edge of the said guide around the opening is turned downward upon the springs 42. The said guide is an aid in starting wads properly into the receiver.

While we have described our invention for the specific purpose of loading cartridge-shells, we desire it to be understood that we do not restrict our claims to that extent, since it is adapted and we propose to use it for other analogous purposes.

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

1. In a cartridge-shell loader, the combination, with powder and shot holders, and a charge-receiver, arranged to slide beneath them, of a lever which is so pivoted that it may swing in both vertical and horizontal planes and engage with the said charge-receiver, and a wad-plunger mounted to reciprocate vertically, and suitably connected with the said lever whereby it is forced down with the latter, substantially as shown and described.

2. In a shell-loader the combination with powder and shot holders and a charge-receiver arranged so as to slide horizontally beneath them of a lever pivoted to swing vertically and having a fulcrum which is rotatable horizontally and means for effecting detachable engagement of said lever with the charge-receiver, and a spring holding the lever normally elevated and engaged with the charge-receiver substantially as shown and described.

3. In a shell-loader the combination with a charge-receiver arranged to reciprocate horizontally and a fixed box or guide for the same having a base or bottom portion provided with a central discharge-opening, of a conductor or tube which registers with the said opening and a lever pivoted upon a suitable support so that it may be shifted vertically and horizontally and so constructed as to engage the charge-receiver when in the raised position, and a vertically-slidable wad-plunger and means for connecting it with said lever in the manner described, whereby it moves with the lever vertically while the latter is adapted to shift laterally as required for engagement with the charge-receiver, substantially as shown and described.

4. In a shell-loader the combination with a box or fixed horizontal guide having two inlet-openings and one discharge-opening for powder and shot, of a charge-receiver which is mounted to reciprocate in said guide and is provided with a lateral projection and a lever pivoted so as to oscillate vertically and horizontally and having a notched piece so constructed as to engage the projection of the charge-receiver when the lever is raised substantially as shown and described.

5. In a shell-loader the combination with a box or horizontal guide having inlet-openings



and a discharge-opening as specified, and a charge-receiver mounted to reciprocate in said guide, of the lever which is pivoted so as to oscillate in vertical and horizontal planes 5 and having means to engage with means on the said charge-receiver, and a stop or guard arranged beneath said lever and having such width and located as described whereby it is adapted to prevent the downward movement 10 of the lever save when shifted to its lateral limit, substantially as shown and described.

6. In a shell-loader the combination with a charge-receiver mounted to reciprocate, and its box-guide having inlet-openings and a discharge-opening and a lever having means to engage with means on said charge-receiver and to oscillate in vertical and horizontal planes, of a stop and guard for the lever, the same being a post connected with the base-frame and having its top portion arranged in the plane which is intermediate of the lateral limits of the vertical movement of the lever as shown and described, whereby the lever is prevented from descending save when thrown 25 to the right or left of the central position, substantially as and for the purpose specified.

7. In a shell-loader, the combination, with a vertically-reciprocating wad-plunger of the pivoted lever so pivoted that it may oscillate 30 vertically and horizontally, and means for connecting the lever and plunger consisting of a rod which is slidable through the plunger transversely and having pivoted links attached to its ends, substantially as shown and described. 35

8. In a shell-loader the combination with a charge-receiver and a box or guide for the same having inlet and discharge openings and a wad-plunger which is slidable vertically in fixed guides of a pivoted lever so pivoted as to oscillate vertically and horizontally, and means for connecting the lever and plunger which permit the lever to move laterally and independently of the plunger to swing to compensate for the arc in which the lever moves 45 vertically, substantially as shown and described.

9. In a shell-loader the combination with a slidable charge-receiver and a horizontal box 50 or guide for the same having inlet and discharge openings of a vertically-slidable wad-plunger and a pivoted lever mounted to move vertically and horizontally, a means of connection between the said lever and plunger,

which permits the lever to shift horizontally, 55 substantially as shown and described.

10. In a shell-loader the combination with a charge-receiver having a lateral projection and a horizontal box or guide therefor having inlet and discharge openings of a lever 60 pivoted so as to swing vertically and horizontally and having a notched bridge-piece so constructed as to engage the said projection, a plunger mounted to slide vertically and suitably connected with the lever, and a stop or guard for the lever whereby the latter is guided in its ascending vertical movement so that its notched bridge-piece engages the projection of the charge-receiver in the manner described. 70

11. In a shell-loader the combination with a box or guide having two inlet-openings on the upper side and a single discharge-opening on the lower side of a charge-receiver mounted to reciprocate therein and comprising 75 a body portion having a central bridge-piece and parallel sides extended as shown, of blocks which are slotted horizontally lengthwise and arranged between such sides, and screws passing through the sides and the slots of the blocks whereby the latter may be adjusted toward or from the bridge-piece and clamped in any adjustment, substantially as shown and described. 80

12. The combination, with a cartridge-shell receiver, of the cylindrical clamp applied to the same so as to slide vertically and rotate therein, and having a clamp-screw for fastening it in the manner described, a lever supported horizontally on said pivot so as to 90 swing horizontally, and provided with a lug adapted to engage the body of the clamp and constituting a stop, as and for the purpose specified.

13. The combination with a cartridge-shell receiver having notched flanges at its upper end of a series of spring-fingers that project into the receiver and have bent shanks which lie in the notches of said flanges, and a fastening device applied around said shanks 100 whereby the springs are held in place and yet adapted for individual detachment, substantially as shown and described.

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