I. EPSTEIN.

FASTENER SETTING MACHINE.

APPLICATION FILED JULY 8, 1913.

1,152,719.

Patented Sept. 7, 1915.

2 SHEETS—SHEET 1.

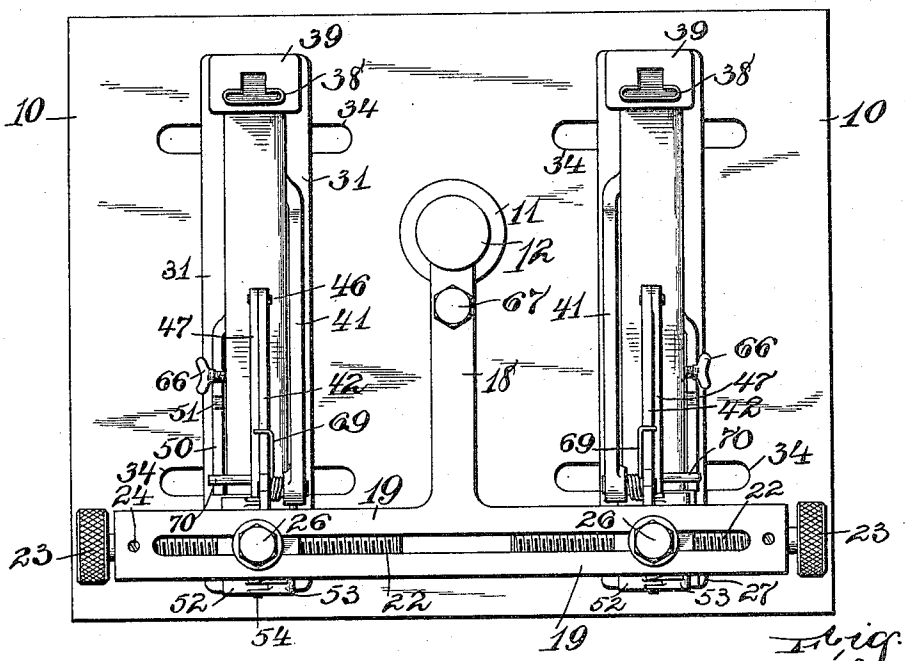


Fig. 1

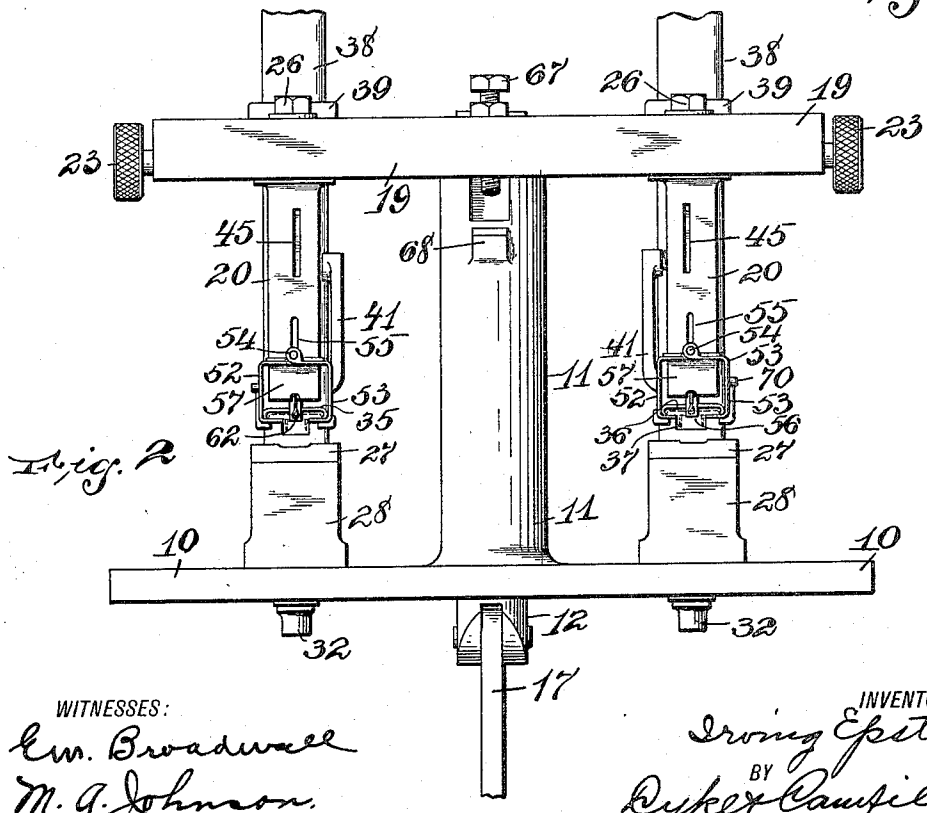


Fig. 2

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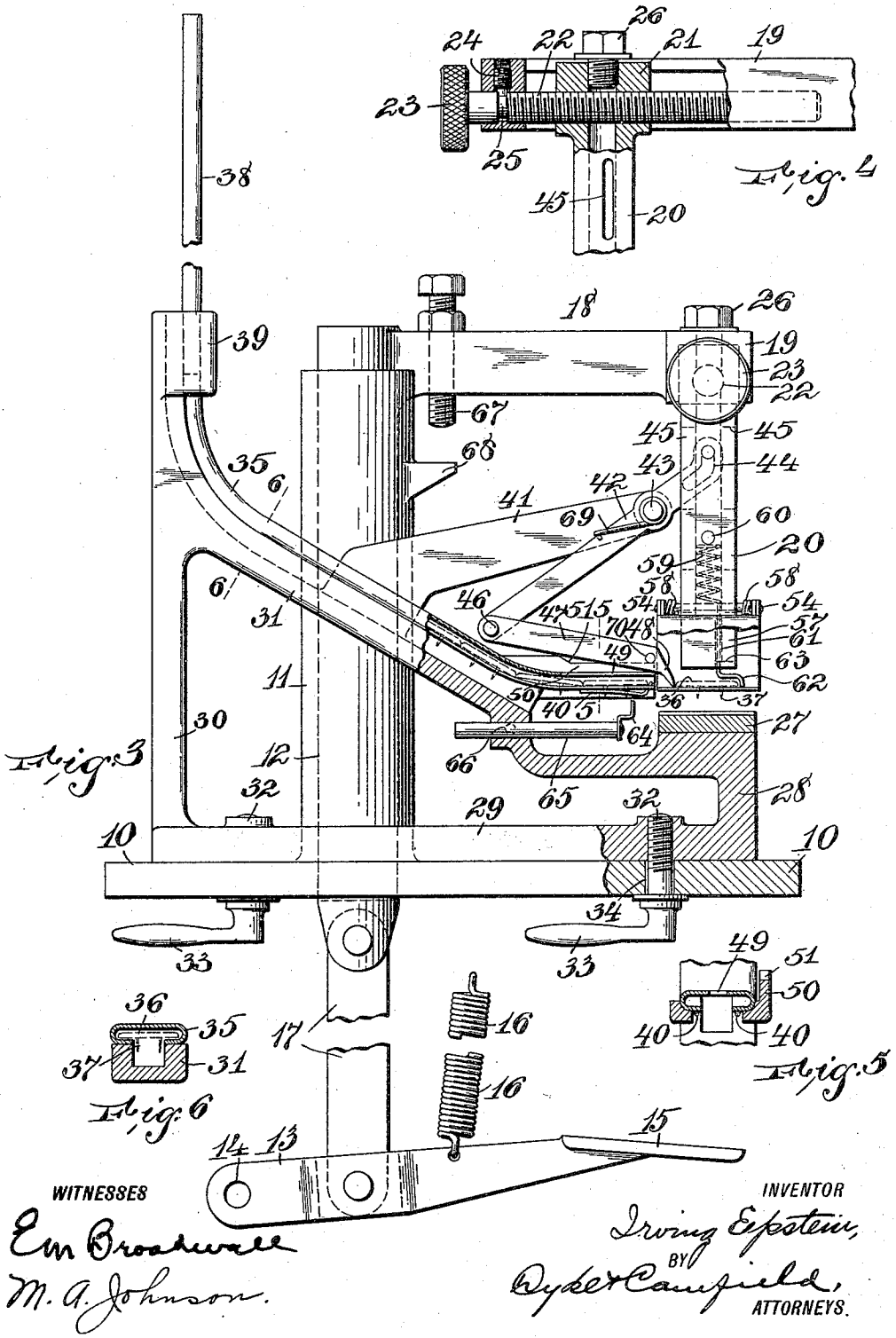
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WITNESSES

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UNITED STATES PATENT OFFICE.

IRVING EPSTEIN, OF NEW YORK, N. Y.

FASTENER-SETTING MACHINE.

1,152,719. Specification of Letters Patent. Patented Sept. 7, 1915.

Application filed July 8, 1913. Serial No. 777,864.

To all whom it may concern:

Be it known that I, IRVING EPSTEIN, a citizen of the United States, and a resident of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Fastener-Setting Machines, of which the following is a specification.

This invention relates to machines which are adapted to employ a die and a plunger which coöperate to fasten materials together or to distort an object acted upon by them, the machine embodied herein comprising a plunger and die which permit a transverse, or, in the case of a vertically operating machine, a horizontal insertion and removal of objects operated on by the plunger.

The invention further resides in a holder on the plunger which permits of the insertion and removal of said objects from the plunger, the holder acting to hold the object except when undue pressure, as in removal, is applied to the object.

A further object of the invention is to so mount the plungers and dies on a suitable support that they are laterally adjustable and can be moved toward and from each other and also kept in proper alinement with each other, this being desired when affixing more than one object at a time, for instance, in placing the buttons on the bottom of traveling bags, or in affixing the buckles to the bands at the knee seam in knickerbockers, and in numerous other situations, in some cases the adjustment being frequent and in other cases the adjustment being very seldom utilized, it being, however, present for utilization when necessary.

The invention is also designed to provide a feeding means to automatically project objects from a suitable source of supply, said objects being placed in the holder of the plunger, and in the case of the use of two plungers in the holders, with their corresponding dies, to provide for the adjustment of the feeding means with the dies and plungers, and insure its operation in all adjustments.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a top view of an improved form of machine illustrating my invention, and Fig. 2 is a face view of the machine illustrated in Fig. 1. Fig. 3 is a side view on an enlarged scale of the machine illustrated in Figs. 1 and 2, a portion thereof being shown in section. Fig. 4 is a detail showing one method of adjusting the plungers. Fig. 5 is a section on line 5, 5, in Fig. 3, and Fig. 6 is a section on line 6, 6, in Fig. 3.

The illustration shows one embodiment of my invention, and it will be understood that changes in detail and the arrangement of parts can be made in view of the illustration showing but one form of carrying out my idea.

In the form shown in the drawing I illustrate a table 10 which can be suitably supported on legs or in any other manner, the table 10 in turn forming a support for the remainder of the machine in so far as it applies to this invention, the support or table 10 being provided with a sleeve or cylinder 11, the sleeve or cylinder acting to slidably support a post 12 which can be suitably operated, the form shown consisting of a foot-lever 13 swinging at 14 and having a foot-plate 15 thereon and being normally held in position by a spring 16, the resistance of the spring being overcome by the pressure of the foot. The foot-lever is connected to the post 12 by a link 17. The post 12 is provided with a T-shaped frame consisting of the extension 18 and the arms 19, the arms 19 forming the head of the T and being arranged transversely of the machine, for purposes to be described hereinafter.

On each arm 19 is arranged a plunger 20, each plunger having a head 21 through which a screw 22 passes, the screw having a handle 23 and being held against movement in the head 21 by suitable securing means, the form shown consisting of a locking-screw 24 which fits into a groove 25 in the screw 22. A suitable locking-bolt 26 assists in holding the head, consequently its plunger, in the desired position, it being customary to unloosen the locking-bolt 26 before the screw 22 is operated to shift the position of the plunger. A suitable die 27 is arranged so that it coöperates with the plunger 20 for the desired pressing operation, the die 27 being suitably mounted, the form illustrated embodying a bracket which consists of an upright 28, a bottom-plate 29, a rear upright 30 and an inclined chute support 31. The bottom-plate 29 is provided with locking-screws 32 having suitable handles 33 for their operation, the screws passing through slots 34 in the table, thus pro-

viding for the lateral movement and adjustment of the die.

On the chute support 31 is mounted a chute 35 which is of the proper cross-section to conduct objects to the action of the die and the plunger, the drawing showing a machine which is adapted for fastening buckles 36, the type of buckle shown being of the kind that is fastened to the knee straps of knickerbockers having the prongs 37 which are adapted to be bent into the material to which the buckle is attached, and the chute is made of the proper cross-section to conduct such buckles. If, however, rivets or any other suitable objects were to be conducted, the chute would be changed to permit the passage of such objects through the chute. Suitable removable chutes 38 can be used and can conduct objects from a suitable reservoir, or they can be filled by hand and then removably placed in the block 39, as will be evident. Light springs 40 at the bottom end of the chute act to limit the downward movement of the objects, such as the buckles, and are so light that they do not interfere with the positive feeding of the buckles when such a step is due.

Suitably arranged on the bracket is an arm 41 on which swings a lever 42 pivoted at 43 and having a slot 44 therein, the slotted end of the lever, which is arranged on the extension of the lever which passes through the slots 45 into the plunger 20, permitting the operation of the lever from the plunger. At the inner end of the lever there is a pivotal connection 46 with a pawl 47, the pawl having a nose 48, the nose being adapted to engage the objects in turn and feed them forward to a suitable holder. The top surface of the lower end of the chute 35 is slotted as at 49 to permit the passage of the nose of the pawl, and to one side of the end of the chute is a fender-plate 50 with a step 51 which raises the pawl at the end of its backward stroke, for purposes to be described hereinafter.

A suitable holder for objects fed from the chute consists of two members 52 and 53 which swing on a pin 54 which is arranged in a slot 55 of the plunger 20. The members of the holder do not come together at the bottom, thus forming a space 56 for the depending portion of the object to be acted upon, in this case the slot being wide enough to permit the passage of the prongs 37 of the buckle.

The plunger 20 has an end 57 which extends down into the holder, and the pin 54, on which the members swing, is movable on the plunger by reason of the slot 55. Springs 58 tend to normally swing the members toward each other the required distance. A spring 59 abuts against the plunger, this abutment being usually provided by means of the pin 60, the other end of the spring 59 abutting on the pin 54, the spring having an end 61 which extends downward and has an end 62 which forms a spring-finger for stopping the entrance of an object, such as the buckle 36, into the holder, the spring, however, being light so that after the buckle is affixed to goods it can be removed, carrying the buckle or the like with it, the retreat of the spring being facilitated by a cut-away portion 63 in the plunger.

A gage 64 is arranged on a stem 65 and is fastened by a screw 66, this gage being used to limit the entrance of material to which objects are to be attached.

The operation of the device is as follows: After a proper adjustment of the dies and the plungers so as to separate them by the proper interval, in case the device is to be used for simultaneously fastening objects at separated places, or for the purpose of acting in any other way on material at separated places, the foot-lever 15 is pressed, or in the case of a power-driven machine, the proper starting device is manipulated so as to force the plungers down, the downward movement being regulated and limited by the stop-screw 67 and the step 68. The holder going down with the plunger carries with it the object, such as the buckle 36, the holder having two open sides for the admission and removal of the object to be affixed, the plunger and the holder going down far enough to permit the end of the plunger 57 to press the object acted upon, and in the case of a buckle, pressing it hard enough to turn over the prongs 37. The plunger is permitted to move farther than the holder on account of the yielding of the spring 59. During the downward movement of the plunger the lever 42 is swung against the pressure of the spring 69 which normally forces the lever downward, the swinging of the lever pulling back on the pawl 47. The pawl has a pin 70 which rests on the fender 50, and the pawl is usually light enough to pass over the next object which is held in the end of the chute against the spring-fingers 40 so as to get in the rear of the next succeeding object to feed it forward. In case, however, the objects are very light, or if very few objects are following the one in place and the objects retreat up the chute 35, the pawl, by reason of its pin 70 engaging the step 51, is lifted long enough to permit the objects again to slide forward in their places. When the plungers move upward, the article operated on, or the apparel or the like which has had objects affixed to it, is pulled out from the machine, the object accompanying it by reason of the resiliency of the end 62 of the spring 59. As the plunger and its holder move upward, the holder being carried by reason of the

pin 54 being in the bottom of the slot 55, the lever 42 is swung to push the pawl 47 forward, and the nose 48 forces the object beyond the very light springs 40 and onto the bottom of the holder, and the next object is in place ready for a succeeding operation of the plungers.

It will be evident from this description that a wide adjustment laterally is permissible to adapt this press to a multiplicity of uses and to permit the affixing of objects simultaneously to apparel, leather goods, and other material, and insure their separation by proper distances, or making it possible to vary the distance between the objects affixed or operated on.

I have described this machine primarily as a machine for affixing buckles and rivets or the like, but it will be evident that it is applicable to uses other than these, and I wish to be understood as not limiting myself to the particular uses which are embodied in this specification, since slight changes might be made in the details of the construction to make it applicable to many different uses.

Having thus described my invention, what I claim is:—

1. A fastener setting machine consisting of a reciprocating post having a substantially T-shaped frame thereon, plungers arranged on the cross-piece of the frame, means on the cross-piece for adjusting the plungers along the cross-piece, a table, brackets mounted on the table, means for adjusting the brackets on the table, a die on each bracket, a chute supported on each bracket to conduct objects to a position to be operated on by the plunger and die aforesaid, feeding means mounted on each bracket and adjustable therewith, and an operative connection between the feeding means and the plunger.

2. In a fastener setting machine, a plunger, a holder suspended on the plunger and slidable thereon, the holder being slotted at the bottom, yielding means for holding the holder in its normal position, the holder being open at its ends to permit the passage of objects through the slot, a die toward which the plunger is arranged to be moved and means for projecting objects into the holder through one of the open ends, said yielding means aforesaid consisting of a spring bearing on the plunger and bearing on the holder, said spring having a projecting end arranged to form a yielding stop for objects in the holder.

In testimony that I claim the foregoing, I have hereunto set my hand, this 2nd day of July, 1913.

IRVING EPSTEIN.

Witnesses:
WM. H. CAMFIELD,
M. A. JOHNSON.

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