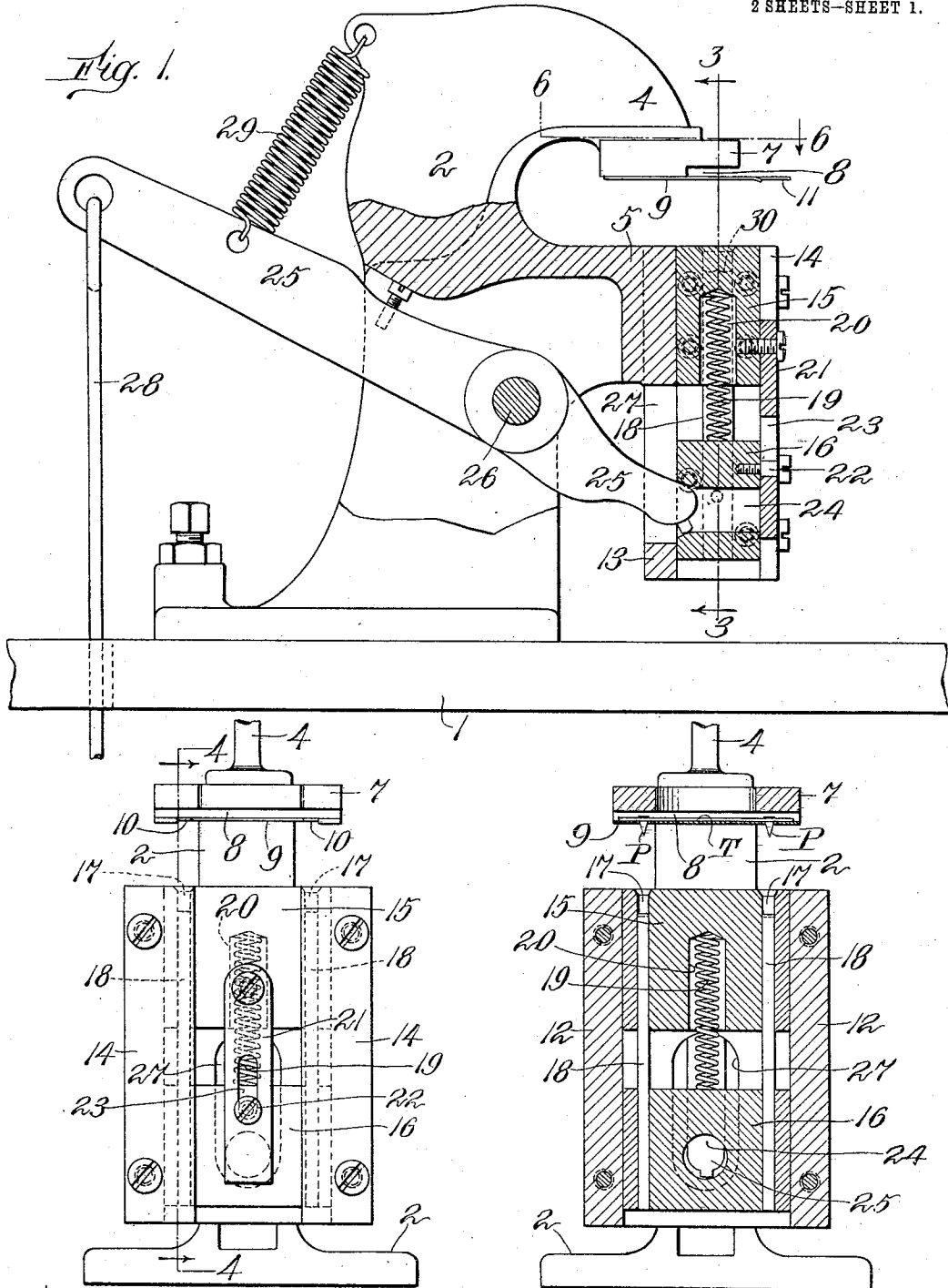


W. E. BENNETT.
MACHINE FOR SETTING FASTENERS.
APPLICATION FILED DEC. 30, 1907.

939,200.

Patented Nov. 9, 1909.
2 SHEETS—SHEET 1.



Witnesses: *Fig. 2.*
Charles D. Wootery
Josephine H. Ryan

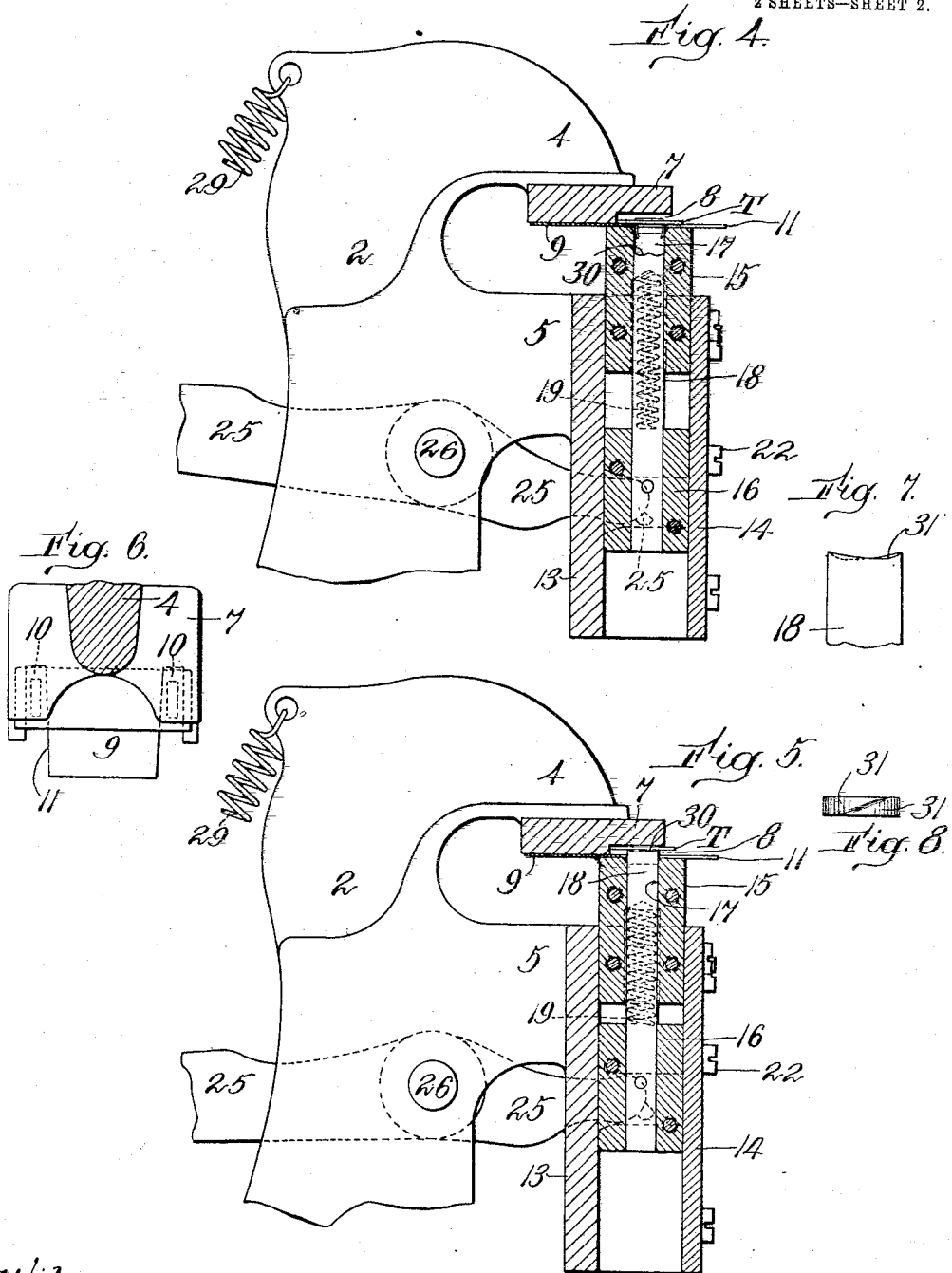
Fig. 3. Inventor: Walter E. Bennett,
by Robertushman,
Attorney.

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Witnesses:
Charles J. Woodberry
Joseph M. Ryan

Inventor:
Walter E. Bennett,
by Robert Cushman,
Attorney.

UNITED STATES PATENT OFFICE.

WALTER ELLIS BENNETT, OF PORTSMOUTH, NEW HAMPSHIRE, ASSIGNOR TO MORLEY
BUTTON MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

MACHINE FOR SETTING FASTENERS.

939,200.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed December 30, 1907. Serial No. 408,561.

To all whom it may concern:

Be it known that I, WALTER E. BENNETT, a citizen of the United States, and resident of Portsmouth, in the county of Rockingham and State of New Hampshire, have invented new and useful Improvements in Machines for Setting Fasteners, of which the following is a specification.

My invention relates to a machine for setting fasteners, and particularly to a machine especially adapted for attaching a laundry tag, consisting of a flexible strip for receiving a mark provided at each end with a fastener, to a garment or the material of some similar articles. Such tags are made with fasteners of different forms, but all, so far as I am aware, comprise prongs projecting from the tag near its ends, intended to pierce the material to which the tag is to be attached, and to be bent or clenched thereunder. Hitherto it has been the practice to attach such tags to a garment by hand and to bend or clench the prongs with the fingers. Where the tags have to be attached in large numbers and with great rapidity, as in a laundry, the hand method is too slow and is also too hard on the hands of the operator to be satisfactory.

The object of my invention is to provide a machine for doing this work, which will save time, avoid injury to the hands, and at the same time set the fasteners with as little damage to the garment as though it were done by hand.

In the accompanying drawings which illustrate one embodiment of my invention,—Figure 1 is a vertical longitudinal section, partly in elevation, through the center of a machine containing my invention showing the fastener clenching means in normal or inoperative position; Fig. 2 is a front elevation of the machine in the position shown in Fig. 1; Fig. 3 is a vertical cross section on line 3—3 of Fig. 1; Fig. 4 is a vertical longitudinal section, partly in elevation, through line 4—4 of Fig. 2 showing the fastener setting means in the position it assumes after the first step in its operation; Fig. 5 is a similar view to that shown in Fig. 4, showing the fastener setting means in its final position adapted to clench the fastener; Fig. 6 is a detail view, partly in plan and partly in section, on line 6—6 of Fig. 1, of the fastener supporting member;

and Figs. 7 and 8 are respectively side and plan views of my preferred form of plunger, or fastener clenching tool.

The machine comprises a pair of opposed, relatively movable members or jaws, one to support the tag and its fasteners in position to be set, and the other to support the work and clench the fasteners. In the machine herein illustrated the fastener-supporting member is stationary, and the work-supporting member is movable, but obviously this condition could be reversed without departing from the invention.

Referring to the drawings, 1 represents a bench or table on which the machine is mounted, and 2 represents a standard or frame for supporting the operative parts. The standard 2 is provided with jaws 4 and 5 which carry respectively the fastener-supporting means and the work-supporting and fastener-setting means. At the end of jaw 4 is an abutment or plate 7 having an inset on its under face to provide the slot 8 between it and the thin plate 9, which is made of thin sheet metal and secured to plate 7. The plate 9 is provided with a pair of slots 10, 10, spaced apart a distance corresponding with the distance between the prongs of the fasteners at either end of the tags to be set. The plate between the slots is tapered from the bases of the slots toward their openings, as shown at 11 (Fig. 6) thus making the slots nearer together at their openings than at their bases to facilitate the easier insertion of the tags into the machine. The slot 8 between the plate 9 and the abutment 7 is narrow, being of only sufficient depth to admit of the easy insertion of the body of the tag.

A pair of guideways or grooves are provided on jaw 5, comprising the side members 12, 12, the rear member 13, and front plates 14, 14, attached to the side members. A pair of blocks 15 and 16 are mounted to slide in said guideway, the upper block 15 constituting the work-supporting member and the lower block 16 constituting the plunger-carrying member. The upper block 15 is provided with a pair of apertures or recesses 17, 17, extending completely therethrough and registering with the slots 10, 10, in the fastener-supporting member. Secured to block 16 are a pair of plungers 18, 18, sliding in apertures 17, 17. The plungers ter-

minate short of the end of said apertures or recesses when the machine is in normal or inoperative position, as shown in Figs. 1 to 3, but are adapted to pass completely through said recesses when in their final operative position, as shown in Fig. 5. A coil spring 19 between blocks 15 and 16 tends to urge said blocks apart; the spring is shown as held at one end within a socket 20 in block 15, and abutting at its other end against the top of block 16. To limit the extent of the separation of said block under the influence of spring 19, a slotted plate or link 21 is screwed or otherwise secured to one of the blocks, as block 15, and a stud or screw 22 projects from the other block 16, through slot 23 of the plate 21. A recess or socket 24 is provided in the lower block 16 into which projects the end of lever 25, journaled at 26 to the standard 2. A slot 27 is provided in the rear member 13 of the guideway for the lever 25 to pass through. At the outer end of lever 25, a link 28 is provided which may be operated by a pedal (not shown) to actuate the blocks; or instead of a foot operating device, a handle may be provided at the end of lever 25 if desired. A spring 29 may be provided normally to hold the parts in inoperative position. The ends of the plungers 18 are concaved as shown at 30 to upset and clench the prongs of the fastener.

The operation of the machine is as follows: A tag comprising a body portion T, (see especially Figs. 3 and 4) made of a strip of flexible material, such as tape, and pronged fasteners P secured at each end, is inserted in the fastener or tag-supporting member by passing the flexible body into slot 8 between plate 9 and abutment 7, with the prongs P, depending through slots 10, 10, of the plate 9. The breadth of plate 9 between the slots 10 being less at the entrance of the slots than at their bases, the rapid insertion of the tag is facilitated. As the tag is pushed back into slot 8, the prongs are slightly spread apart and the body of the tag straightened out so that it lies flat and is supported in that condition between the slots by the plate. When pushed back against the bases of the slots 10, 10, the prongs are in position to register with the recesses 17, 17, in block 15. The edge of the material to which the tag is to be applied is then inserted between the jaws 4 and 5 and power is applied to lever 25. The first movement of the lever 25 slides the blocks 15 and 16 together in the guideway to the position shown in Fig. 4 until block 15 is arrested by plate 7, the spring 19 holding the blocks apart in their original relation, and the plungers 18, 18, not being moved at all within block 15. This movement causes the prongs of fasteners P to pierce the work and to enter the recesses 17, 17, without being

bent. The continued movement of lever 25 next causes the block 16 to move independently, overcoming the resistance of spring 19, and sliding the plungers 18, 18, within the apertures 17, 17, (see Fig. 5) and clenching the prongs or shanks of the fastener underneath the material of the garment or the like, the plate 7 serving as an abutment or anvil member. Such relative movement between the two blocks is permitted by the slot and stud connection of the link 21. Pressure on lever 25 is then relaxed, the work-carrying and prong-clenching members return to their initial, inoperative position under the influence of the springs 29 and 19, and the work with the tag fastened thereto is withdrawn.

The operative face of the plunger 18 may be formed with a double curved surface as shown at 30 in Figs. 4 and 5, to direct the prongs of the fastener toward one another and bend the points slightly into the fabric when the fastener is finally clenched; or the operative face of the plunger may be formed with two oppositely beveled surfaces, one on either side of a diagonal line, as shown at 31, 31, in Figs. 7 and 8. This construction which is my preferred form, bends the prongs each a little to one side of the line of the central axis of the fastener so that the points of the prongs may extend beyond each other and lie side by side instead of lying one on top of the other as would be the case were they sufficiently long and bent directly toward each other.

I claim:

1. A machine for setting a flexible tag of the character described, comprising a frame having a pair of opposed rigid jaws, one jaw having means to hold the tag with the shanks in vertical position, and the other jaw having a vertical guideway, a work-engaging block mounted to slide in the guideway having a pair of apertures extending therethrough adapted to register with the shanks of the tag, a plunger carrying block mounted in said guideway on the side of the work-engaging block opposite the tag holding means, said plunger carrying block having a pair of plungers extending into and movable within said apertures, a spring normally urging said blocks apart, means to limit the extent or the separation of said blocks, and a lever mounted on said frame and connected with the plunger carrying block adapted first to move it together with the work-engaging block toward the tag holding jaw, and thereafter to move said plungers in said apertures independently of the work-engaging block.

2. A machine for setting a flexible tag of the character described, comprising a frame having a pair of opposed rigid jaws, the upper jaw having means to hold the tag, shanks downward, and the other jaw hav-

ing a vertical guideway, a work-supporting block mounted to slide in the guideway having a pair of apertures extending there- through adapted to register with the down- wardly pointing shanks of the tag, a plunger carrying block mounted to slide in said guideway below said work-supporting block and carrying a pair of plungers extending into and movable within said apertures, a spring normally urging said blocks apart, means carried by said blocks to limit the extent of their movement of separation, and a lever mounted on said frame and connected with the plunger carrying block first to move it together with the work-supporting block toward the upper jaw and thereafter to move said plungers in said apertures independently of the work-supporting block.

3. In a machine for setting a flexible tag of the character above described, a tag-supporting member provided with a pair of slots adapted to receive the shanks of the fasteners provided on either end of the tag and to hold the flexible body of the tag flat at each side of the slots, and a relatively movable member for clenching the shanks of said fasteners.

4. In a machine for setting a flexible tag of the character above described, a tag-supporting member having a pair of slots adapted to receive the shanks of the fasteners provided on either end of the tag and to hold the flexible body of the tag flat at each side of the slots, a plate between said slots to support the center of the flexible body of the tag, and a relatively movable member for clenching the shanks of said fasteners.

5. In a machine for setting a flexible tag of the character above described, a tag-supporting member having a pair of slots adapted to receive the shanks of the fasteners provided on either end of the tag and to hold the flexible body of the tag flat at each side of the slots, a plate between said slots to support the center of the flexible body of the tag, said plate being narrower between the openings of said slots than between the bases of said slots, and a relatively movable member for clenching the shanks of said fasteners.

6. In a machine for setting a flexible tag of the character above described, a stationary member having an anvil surface and a thin plate close to said surface but spaced therefrom sufficiently to admit the body of the tag between it and said surface, said plate having a pair of slots to receive the shanks of the fasteners provided at each end of the tag, said slotted plate being adapted to hold the flexible body of the tag flat, to support the same at each side of the slots, and to hold the shanks of the fasteners in

position to be clenched, and a movable clenching member adapted to cooperate with said anvil surface to set the fasteners.

7. In a machine for setting a flexible tag of the character above described, a stationary member having an anvil surface and a thin plate close to said surface but spaced therefrom sufficiently to admit the body of the tag between it and said surface, said plate having a pair of slots to receive the shanks of the fasteners provided at each end of the tag, said slotted plate being adapted to hold the flexible body of the tag flat, to support the same at each side of the slots, and to hold the shanks of the fasteners in position to be clenched, a relatively movable work-supporting block having a pair of recesses registering with said slots, a pair of plungers movable in said recesses, a plunger-carrying block on which said plungers are mounted, a spring normally urging said blocks apart, and means connected with the plunger block first to move it together with the work-supporting block toward the anvil member, and thereafter to operate the plungers independently.

8. A machine for setting a flexible tag of the character described comprising a frame having a pair of opposed rigid jaws, the upper jaw having an anvil surface and a thin plate close to said surface but spaced therefrom sufficiently to admit the body of the tag between it and said surface, said plate having a pair of slots to receive the shanks of the fasteners provided at each end of the tag, said slotted plate being adapted to hold the flexible body of the tag flat and to hold the shanks of the fasteners pointed downward in position to be clenched, and the lower jaw having a vertical guide-way, a work-supporting block mounted to slide in said guide-way having a pair of apertures extending therethrough and registering with said slots, a plunger carrying block mounted in said guide-way below said work-supporting block, carrying a pair of plungers extending into and movable within said apertures, a spring normally urging said blocks apart, means carried by said blocks to limit the extent of their movement of separation, and a lever mounted on said frame and connected with the plunger carrying block adapted first to move it together with the work-supporting block toward the upper jaw and thereafter to move said plungers in said apertures independently of the work-supporting block.

Signed by me at Portsmouth, New Hampshire, this twentieth day of December, 1907.

WALTER ELLIS BENNETT.

Witnesses:

GERTRUDE J. COUSINS,
WM. GERRY KEENE.