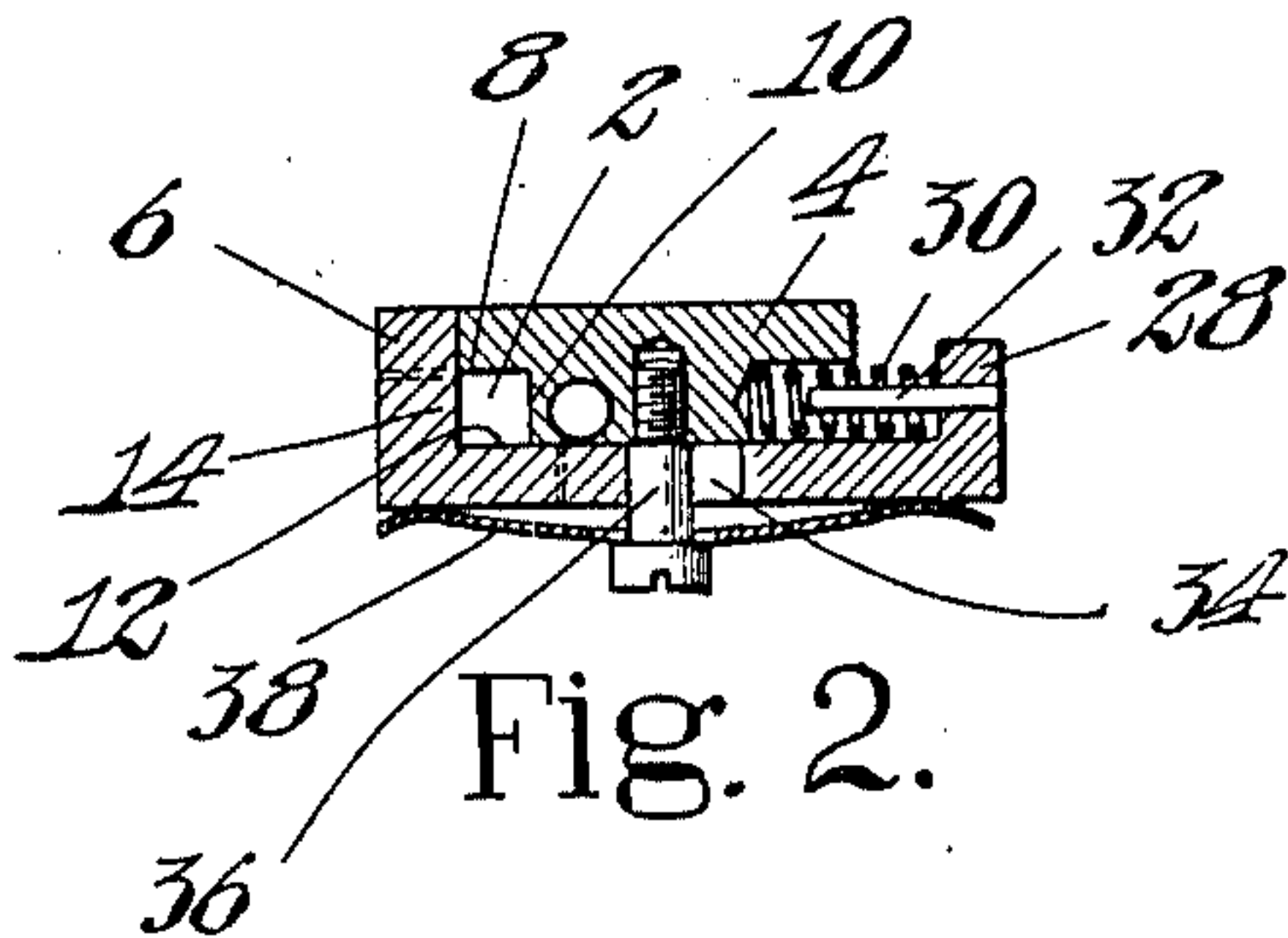
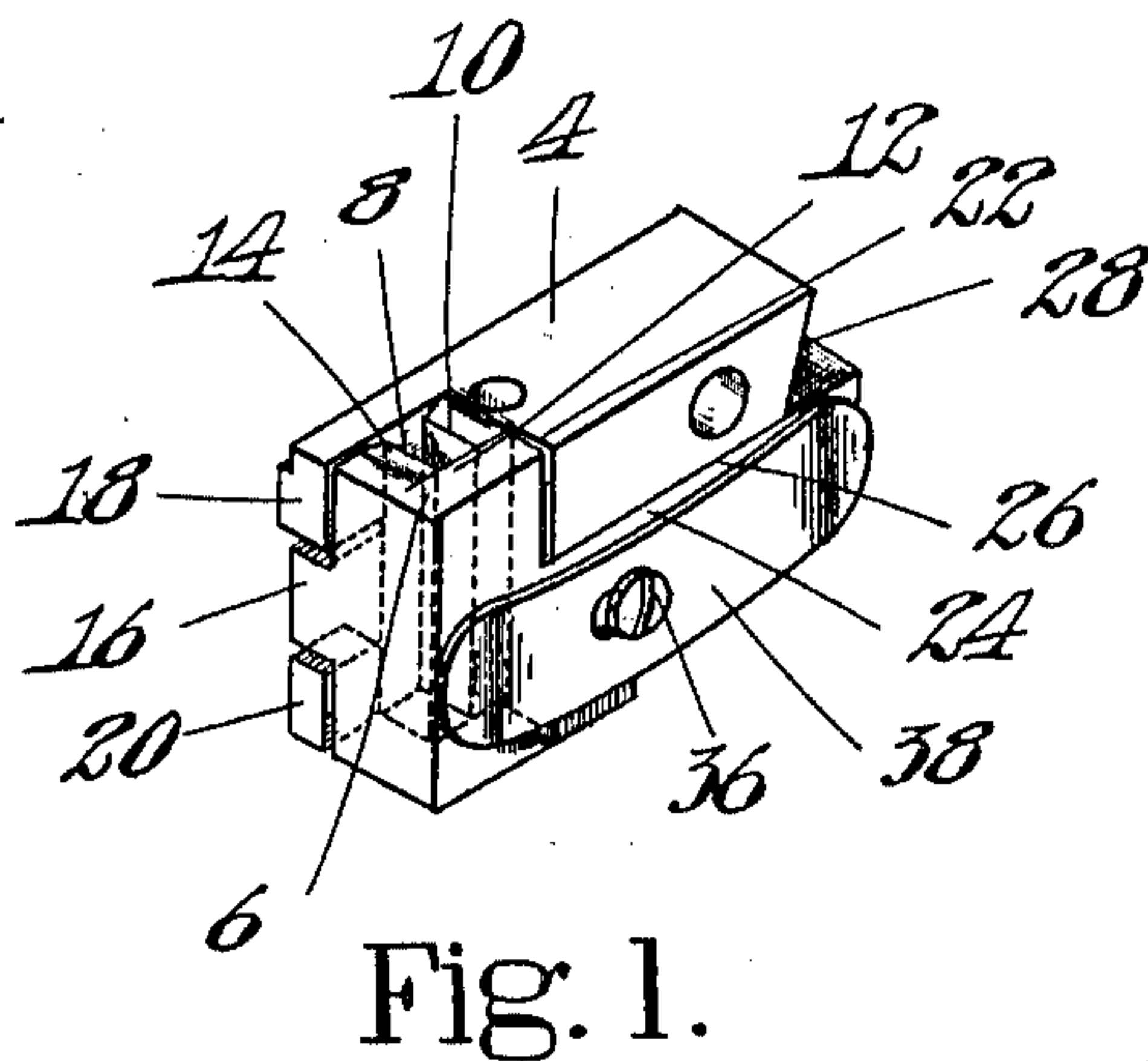


G. BRYANT & W. UNDERWOOD.
MACHINE FOR INSERTING FASTENINGS.
APPLICATION FILED NOV. 19, 1910.

999,203.

Patented Aug. 1, 1911.



WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE BRYANT AND WILLIAM UNDERWOOD, OF LEICESTER, ENGLAND, ASSIGNORS
TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR INSERTING FASTENINGS.

999,203.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed November 19, 1910. Serial No. 593,243.

To all whom it may concern:

Be it known that we, GEORGE BRYANT and WILLIAM UNDERWOOD, subjects of the King of England, residing at Leicester, Leicestershire, England, have invented certain Improvements in Machines for Inserting Fastenings, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for inserting nails or other fastenings, and particularly to the boxes or throats employed with such machines to guide the nails or other fastenings while being driven.

It will be understood that the term "nail", as used in the specification and claims, is intended to comprise not only nails proper, but also other articles which may be handled by machines of this general type, whether these articles are delivered to the machine in a previously formed condition or are formed in the machine, and without regard to the particular functions of the articles.

An object of the invention is to provide an improved nail box or throat which is particularly adapted for handling nails or other fastenings of polygonal cross-section, or having polygonal heads.

A particular object of the invention is to provide an improved nail box or throat which will not only prevent the fastenings from turning about their longitudinal axes while being inserted, but will also tend to prevent turning about transverse axes.

Other objects and features of the invention will be apparent from a consideration of the following description and claims in connection with the accompanying drawings, in which,—

Figure 1 is a perspective view of a nail box or throat embodying the invention; Fig. 2 is a transverse section through the nail box or throat shown in Fig. 1.

The nail box or throat herein shown is especially adapted for handling nails of the type known as "loose bill" nails. These nails are short, relatively thick nails, of rectangular cross-section, and have heads which project beyond the shanks upon two sides only. The nail guiding opening or passage 2 in the throat is preferably somewhat

smaller than the head of the nail and to permit the opening to be enlarged to receive the head, as the nail is being driven, the throat is preferably formed of two parts 4 and 6, which are relatively movable, the part 4 being preferably a stationary part attached to the machine head and the part 6 being movably mounted upon and guided in the part 4.

In the preferred embodiment of the invention herein illustrated, the stationary part 4 has formed upon it the side wall 8 and the back wall 10 of the nail guiding opening, and the movable part has formed upon it the other side wall 12 and the front wall 14. The front of the movable part 6 has a lateral projection 16 which fits between forward projections 18 and 20 upon the stationary part 4. The side of the movable part extends bodily into a recess 22 in the stationary part 4 and is provided with an extension 24 which is guided in a guide opening 26 extending along the side of the stationary part 4.

At the rear end of the extension 24 is an offset portion 28 which overhangs the rear end of the part 4 and abuts against a spiral spring 30 socketed in the part 4 and surrounding a pin 32 in the overhanging part 28. The extension 24 has formed in it a slot 34 through which passes a screw 36 screwed into the part 4, a leaf spring 38 being confined under the head of said screw and serving to press the extension 24 against the part 4.

It will be noted from the foregoing description that the spring 30 serves to press the front end of the movable part 6 toward the stationary part 4 in a direction normal to the wall 14 of the nail guiding opening, and that the spring 38 serves to press the movable part toward the stationary part in a direction substantially normal to the wall 12 of the nail guiding opening. The movable part is held from vertical movement by the projections 18 and 20 of the stationary part, which are arranged above and below the lateral projection 16 of the movable part, and by the upper and lower walls in the guide opening 6 in the side of said stationary part.

The amount of relative movement of the movable part and the stationary part is

limited by the head of the screw 36 and by engagement of the pin 32 with the bottom of the socket of the stationary part. The length of the projections 18 and 20 and the depth of the guide opening 26 are so proportioned to the extent of movement of said movable part that said part cannot move out of coöperative relation to the stationary part so far as constraint from vertical movement is concerned. The construction is such, therefore, that the two parts of the throat are held rigidly from movement in a vertical direction by the projections 18 and 20 and by the guiding groove 26, and yet can yield easily in directions substantially normal to the walls of the nail guiding opening in order to allow the head of the nail to pass through the throat, whereby the liability of damage to the throat by a nail which is turned around the wrong way or by a nail having a larger head than usual is substantially eliminated.

Conveniently the entrance of the nail guiding opening or passage in the throat may be slightly flared or tapered to enable the head of the nail to be moved easily into the contracted passage when the driver commences to operate.

In the operation of the machine, when the driver starts to drive the nail or other fastening, the head of the latter, if the nail be a loose bill nail having the projecting portions of the head arranged in a line from front to back of the throat, forces out the movable part of the throat against the reaction of the spiral spring 30. If the head of the nail be of ordinary size and if the nail be in its proper position the movable part will also be forced out slightly against the reaction of the leaf spring, there being just sufficient pressure to keep the two sides of the throat in contact with the two ends of the nail head. Should the nail head, however, be larger than usual along one of its transverse dimensions, the movable part will yield in the corresponding direction against the reaction of the spring which controls its movement in said direction and the nail will be permitted to pass through the throat while being at all times maintained under the control of the throat. After the nail has passed through the throat, the springs press the movable part inward to contract the passage, the amount of contraction being limited by the depth of the slot between the projections 18 and 20 and by the depth of the guiding groove 26.

Having described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:—

1. A nail box or throat having a polygonal nail guiding opening and comprising, in combination, a stationary part, a movable part having formed thereon a plurality of walls of said opening, and means for main-

taining said movable part yieldingly in coöperative relation to said stationary part constructed to permit said movable part to move in directions substantially normal to the walls formed thereon.

2. A nail box or throat having a polygonal nail guiding opening and comprising, in combination, a stationary part, a movable part having formed thereon a plurality of walls of said opening, and means for maintaining said movable part yieldingly in coöperative relation to said stationary part constructed to permit said movable part to move bodily in directions normal to the walls formed thereon.

3. A nail box or throat having a rectangular nail guiding opening and comprising, in combination, a stationary part having formed thereon two walls of said opening, a movable part having formed thereon the other two walls of said opening, and means for maintaining said movable part yieldingly in coöperative relation to said stationary part constructed to permit said movable part to move either in directions substantially normal to the walls formed thereon or in a direction of which said first-mentioned directions are components.

4. A nail box or throat having a rectangular nail guiding opening and comprising, in combination, a stationary part having formed thereon an end wall and a side wall of said opening, a movable part having formed thereon the other walls of said opening, said movable part being guided in said stationary part for movement in directions substantially normal to the walls formed thereon, and means for maintaining said movable part yieldingly in coöperative relation to said stationary part.

5. A nail box or throat having a rectangular nail guiding opening and comprising, in combination, a stationary part having formed thereon an end wall and a side wall of said opening, a movable part having formed thereon the other walls of said opening, said movable part being so guided in said stationary part that it is constrained from movement along the axis of said opening, but is movable in a direction substantially normal to the walls of said opening which are formed on said part, and means for maintaining said movable part yieldingly in coöperative relation to said stationary part.

6. A nail box or throat having a rectangular nail guiding opening and comprising, in combination, a stationary part having formed thereon an end wall and a side wall of said opening, a movable part having formed thereon the other walls of said opening, said movable part being guided in said stationary part for movement in directions substantially normal to the walls formed thereon, a spring for resisting the movement

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of said movable part in one direction, and a second spring for resisting the movement of said movable part in the other direction.

5 7. A nail box or throat having a rectangular nail guiding opening and comprising, in combination, two relatively movable parts, each having formed thereon an end wall and a side wall of said opening, said parts having cooperating guiding portions so constructed and arranged that said parts may
10 move relatively to each other in directions substantially normal to the walls of said opening, and means for maintaining said parts yieldingly in cooperative relation to
15 each other.

8. A nail box or throat having a rectangular nail guiding opening and comprising, in combination, relatively movable parts, each having formed thereon an end wall and a
20 side wall of said opening, said parts having cooperating guiding portions so constructed that said parts are constrained from relative movement along the axis of said opening while being permitted to move relatively to

each other in directions substantially normal to said walls, means for maintaining said parts yieldingly in cooperative relation to each other and means for positively preventing relative movement of said parts entirely out of cooperative relation to each
30 other.

9. A nail box or throat having a rectangular nail guiding opening and comprising, in combination, two relatively movable parts, each having formed thereon an end wall and
35 a side wall of said opening, and means for maintaining said parts yieldingly in cooperative relation to each other constructed to permit relative movement of said parts in directions at right angles to each other.
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In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE BRYANT.

WILLIAM UNDERWOOD.

Witnesses:

ARTHUR ERNEST JERRAM,

ELEANOR PYWELL.

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