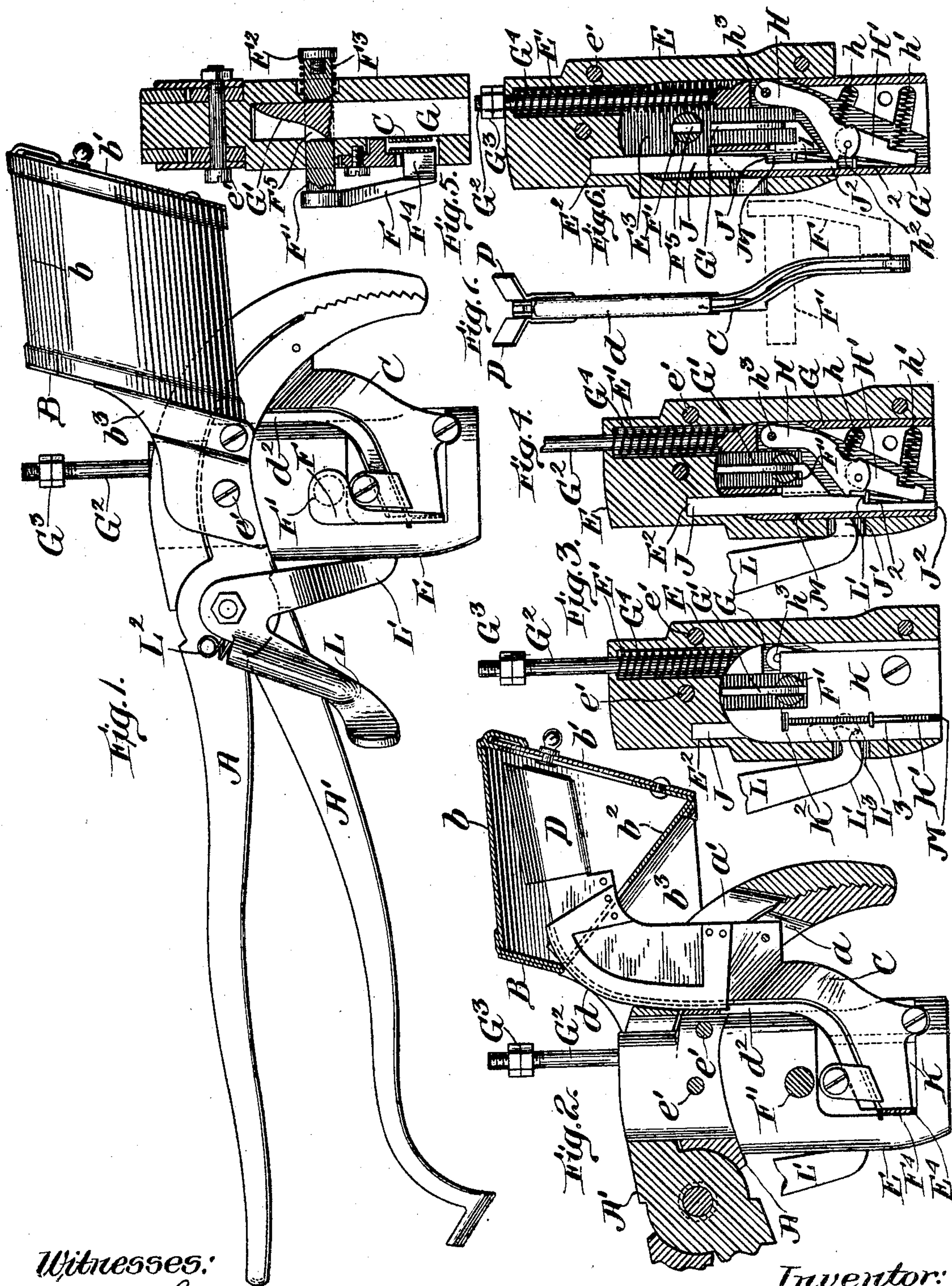


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A. STROMDAHL.
AUTOMATIC HAMMER.
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AUTOMATIC HAMMER.

No. 798,061.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANDREW STROMDAHL, a citizen of the United States, and a resident of Somerville, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Automatic Hammers, of which the following is a specification.

My invention relates to tack-driving mechanisms in general, but particularly to mechanisms of this class that are controlled and operated by hand—such, for example, as automatic hammers.

My invention has for its object to provide an improved tack-driving mechanism, and particularly one adapted for embodiment in an automatic hammer.

The heads of hammers of the class to which my invention may be applied usually comprise two main parts or members arranged to move relatively to a limited extent, one of said members being fixed to the hammer-handle. The fixed member is usually provided with a tack-driver in the shape of a plunger arranged to traverse a tack-passage provided on one or the other of said members, and when the two members are moved relatively in one direction by striking the hammer onto an object the plunger drives the tack out of the tack-passage into the object struck by the hammer-head. The relative movement of the two members occurring during the operation of the hammer is utilized also to feed the tacks successively from a supply carried by the handle into the tack-passage in position to be engaged by the plunger when the latter makes its driving stroke. The ordinary manner in which a hammer is handled and used makes it necessary to provide means to prevent the displacement of the tack after it has been fed into the tack-passage in front of the plunger and also to insure that but one tack be presented to the driver at a time. Various constructions have heretofore been employed for securing these results. In my improved mechanism the tack passage-way is provided with a pair of yielding constrictions, and a shoulder is provided on the same member with the tack-driver adapted to feed the tacks past the first yielding constriction into position to be engaged by the plunger, which drives the tacks past the sec-

ond constriction out of the passage-way and into the object struck by the hammer.

Herein I have shown my invention embodied in a hand-tacking tool the handle of which carries a hopper for holding a supply of tacks, and a novel feature of this embodiment of my invention consists in providing an arched tack-deflecting surface within the hopper arranged over the inner receiving end of the raceway, so that the boundings and reboundings of the tacks within the hopper, due to the impact of the hammer on the work or otherwise, will cause the tacks to strike on the arched surface and be deflected onto the end of the raceway.

In the accompanying drawings, which illustrate one form of my invention, Figure 1 is a side elevation of my improved hammer. Fig. 2 is a side elevation, partly in section, of the same. Fig. 3 is a vertical lateral cross-section of the fixed member of the hammer-head. Fig. 4 is a section similar to Fig. 3, showing also the movable member in cross-section. Fig. 5 is a vertical transverse cross-section of the hammer-head. Fig. 6 is a vertical lateral cross-section of the hammer-head and movable member, showing the latter extended; and Fig. 7 is a detail showing the tack-raceway.

I have shown my improvements as applied to a hand-lasting hammer or pincers, whereof A A' are the grasping members, pivoted and jointed, as usual. By means of cheek-pieces b^3 the tack-hopper B is secured to the pincer-handle A, the screws e' , which secure the fixed member E of the hammer-head to the handle A, serving for this purpose. The tack-raceway C, provided with gathering-blades D, is secured to the handle A, passing through slots a a' , provided for the purpose. A hood d and guard d^2 cover the raceway C and assist in guiding tacks properly to the feeder F. The raceway C is curved, so as to lie against the side of the movable member G of the hammer at the lower end of the raceway. The tack-hopper B is made cylindrical, so that the upper side b thereof forms an arched surface over the gathering-blades D, serving thus to deflect tacks the more readily upon the said blades.

The hammer-head consists in the main of a member E, fixed by screws e' to the handle

A, and a relatively movable member G, which is fitted to slide in the chamber E³, Fig. 6, provided for the purpose in the fixed member E. A piston-guide G², fast to the movable member or slide G, travels in the hole E', a spring G⁴ normally urges the slide G downward, and the stop G³ limits the movement thereof.

The slide G is chambered internally, the chamber being inclosed by the plate K, secured to the slide G. Within the chamber of the slide G are located the following parts: a pair of latches H H', the latch H pivoted on the slide G at h³ and the latch H' pivoted to the latch H at h², springs h and h' pressing against the latches H and H', respectively, a cam-blade G', which operates the tack-feeder F, presently to be described.

A plunger-passage M is formed in the slide G, which receives tacks as they are fed in successively and permits the relative movement of the plunger J therein.

The member E is transversely perforated to admit the shaft F' of the tack-feeder F, Fig. 5. This shaft is provided with a stop or head F², and a spring F³ constantly urges the feeder F toward the interior of the member E. The feeder-finger F⁴ stands opposite the aperture E⁴, Fig. 2, and the slot K' in the slide-plate K. This slot is wide enough to admit a tack-shank, but not a tack-head. The cross-slot K², Fig. 3, is of proper width to admit a tack-head. The cam-blade G' passes through the slot F⁵ in the feeder-shaft F'.

Fixed in the hole E² in the member E is the plunger J. This plunger is provided at its lower end with a shoulder J' and tack-driving end J². The latches H H' are pressed toward the plunger J, and when the latter is removed from the tack-passage M the latches form obstacles or constrictions in the passage-way.

A catch L, provided with a hook L', is pivoted on the hammer-handle and has a spring L², which holds the hook L in the hole L³ in the slide G. When by the finger of the operator this hook is removed from the hole L³, the spring G⁴ asserts itself, and the slide G is projected from the member E as far as the stop G³ will permit. When the slide G is in this position, Fig. 6, the cam-blade G' permits the feeder-spring F³ to draw the tack-feeder F inward, its finger F⁴ passing by the end of the raceway C and pushing the lowermost tack through the aperture E⁴ and through the slot K' in the slide-plate K, the cross-slot K² being at this juncture in line to admit the head of the tack. The tack is thus pushed into the slideway or passage M and lies in the position 1 above the detaining constriction of the latch H, Fig. 6. At this part of the tack-passage, the latch H being spring-pressed (h and h') toward the opposite wall of the passage constitutes the yielding tack-holding con-

striction or retarding part of the tack-passage, which will stop a tack falling through the passage, but allow the tack to pass when propelled by the driving-plunger. Now let the hammer be brought down upon the work in hand. The shoulder J' of the plunger J catches the tack-head and forces the latch H to yield for its passage. Then the tack is in position 2, Figs. 4 and 6. Again lift the hammer, keeping the hook L' released, as before. Another tack is fed in above the latch H and occupies position 1, Fig. 6. Now strike a blow with the hammer. The tack in position 2, previously detained by the constriction of latch H', is driven past this latch, out of the passage M, and into the substance struck by the hammer. The slide G is then in the position shown in Fig. 3, and a third tack (shown at 3) is in position waiting for the entrance to the passage M to be opened to it. As the slide G is forced into the member E the cam-blade G' moves the feeder F outward, so as to give the lowermost tack in the raceway a chance to emerge therefrom. Tacks introduced to the hopper B by way of the door or cover b' lie on the inclined bottom b², and as the hammer is agitated by the ordinary handling thereof shake about, are deflected by the arched top b onto the blades D, and run down the raceway C.

The arrangement of successive constrictions in the tack-passage M and the positive feeding of tacks by the plunger-shoulder J' insure the regular delivery of tacks to the plunger end J² and prevent clogging of tacks in the interior of the hammer. Experience has proved that this automatic tack-feeding hammer will deliver tacks with regularity and certainty as fast as a man can drive them.

What I claim is—

1. A tack-driving mechanism comprising a slide made with a tack-passage provided with a tack-entrance at one side of the slide and near the inner end thereof, a member to which the slide is connected with provision for limited relative movement, said member carrying a tack-driving plunger projecting into the tack-passage and movable back and forth past the tack-entrance to and from the tack-exit of said passage; a hopper carried by the member; and a raceway connected at its upper end with the hopper and having its lower end fixed in a position at one side of the slide to register with the tack-entrance when the slide is in its projected position and the plunger is above said entrance.

2. A tack-driving mechanism, comprising a slide made with a tack-passage provided with a tack-entrance at one side of the slide and near the inner end thereof, a handle member to which the slide is connected with provision for limited relative movement, said handle member carrying a tack-driving plunger projecting into the tack-passage and movable

back and forth past the tack-entrance to and from the tack-exit of said passage; a hopper carried by the handle member; a raceway connected at its upper end with the hopper and having its lower end fixed in a position at one side of the slide to register with the tack-entrance when the slide is in its projected position and the plunger is above said entrance, and means to control the discharge of the tacks from the lower end of the raceway through said entrance.

3. A tack-driving mechanism, comprising a slide made with a tack-passage provided with a yielding tack-holding constriction and with a tack-entrance at one side of the slide and above said constriction; a handle member to which the slide is connected with provision for limited relative movement, said handle member carrying a tack-driving plunger projecting into the tack-passage and movable back and forth past the tack-entrance to and from the tack-exit of said passage; a hopper carried by the handle member; a raceway connected at its upper end with the hopper and having its lower end fixed in a position at one side of the slide to register with the tack-entrance when the slide is in its projected position and the plunger is above said entrance.

4. A tack-driving mechanism, comprising a slide made with a tack-passage provided with a yielding tack-holding constriction and with a tack-entrance at one side of the slide and above said constriction; a handle member to which the slide is connected with provision for limited relative movement, said handle member carrying a tack-driving plunger projecting into the tack-passage and movable back and forth past the tack-entrance to and from the tack-exit of said passage; a hopper carried by the handle member; a raceway connected at its upper end with the hopper and having its lower end fixed in a position at one side of the slide to register with the tack-entrance when the slide is in its projected position and the plunger is above said entrance, and means to control the discharge of the tacks from the lower end of the raceway through said entrance.

5. A tack-driving mechanism, comprising a slide made with a tack-passage provided with a yielding tack-holding constriction and with a tack-entrance at one side of the slide and above said constriction; a handle member to which the slide is connected with provision for limited relative movement, said handle member carrying a tack-driving plunger projecting into the tack-passage and movable back and forth past the tack-entrance to and from the tack-exit of said passage; a hopper carried by the handle member; a raceway connected at its upper end with the hopper and having its lower end fixed in a position at one side of the slide to register with the tack-entrance when the slide is in its projected posi-

tion and the plunger is above said entrance; a feeder to control the discharge of tacks from the lower end of the raceway through said entrance, and means to operate the feeder.

6. A tack-driving mechanism comprising a slide made with a tack-passage provided with a yielding tack-holding constriction and with a tack-entrance at one side of the slide and above said constriction; a handle member to which the slide is connected with provision for limited relative movement, said handle member carrying a tack-driving plunger projecting into the tack-passage and movable back and forth past the tack-entrance to and from the tack-exit of said passage; a hopper carried by the handle member; a raceway connected at its upper end with the hopper and having its lower end fixed in a position at one side of the slide to register with the tack-entrance when the slide is in its projected position and the plunger is above said entrance; a feeder to control the discharge of tacks from the lower end of the raceway through said entrance, and means connecting the slide with the feeder to operate the latter.

7. A tack-driving mechanism, comprising a slide made with a tack-passage provided with a yielding tack-holding constriction and with a tack-entrance at one side of the slide and above said constriction; a handle member to which the slide is connected with provision for limited relative movement, said handle member carrying a tack-driving plunger projecting into the tack-passage and movable back and forth past the tack-entrance to and from the tack-exit of said passage; a hopper carried by the handle member; a raceway connected at its upper end with the hopper and having its lower end fixed in a position at one side of the slide to register with the tack-entrance when the slide is in its projected position and the plunger is above said entrance; a slotted feeder carried by the handle member for controlling the discharge of the tacks from the lower end of the raceway, and a cam-blade on the slide engaging the slot of the feeder to operate the latter.

8. A tack-driving mechanism, comprising a slide made with a tack-passage provided with a yielding tack-holding constriction and with a tack-entrance at one side of the slide and above said constriction; a handle member to which the slide is connected with provision for limited relative movement, said handle member carrying a tack-driving plunger projecting into the tack-passage and movable back and forth past the tack-entrance to and from the tack-exit of said passage; a hopper carried by the handle member; a raceway connected at its upper end with the hopper and having its lower end fixed in a position at one side of the slide to register with the tack-entrance when the slide is in its projected position and the plunger is above said entrance;

a slotted spring-pressed feeder carried by the handle member for controlling the discharge of tacks from the lower end of the raceway through said entrance, and a cam-blade on the slide engaging the slot of the feeder to operate the latter when the slide is reciprocated.

Signed by me at Boston, Suffolk county,
Massachusetts, this 3d day of April, 1903.

ANDREW STROMDAHL.

Witnesses:

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