

(No Model.)

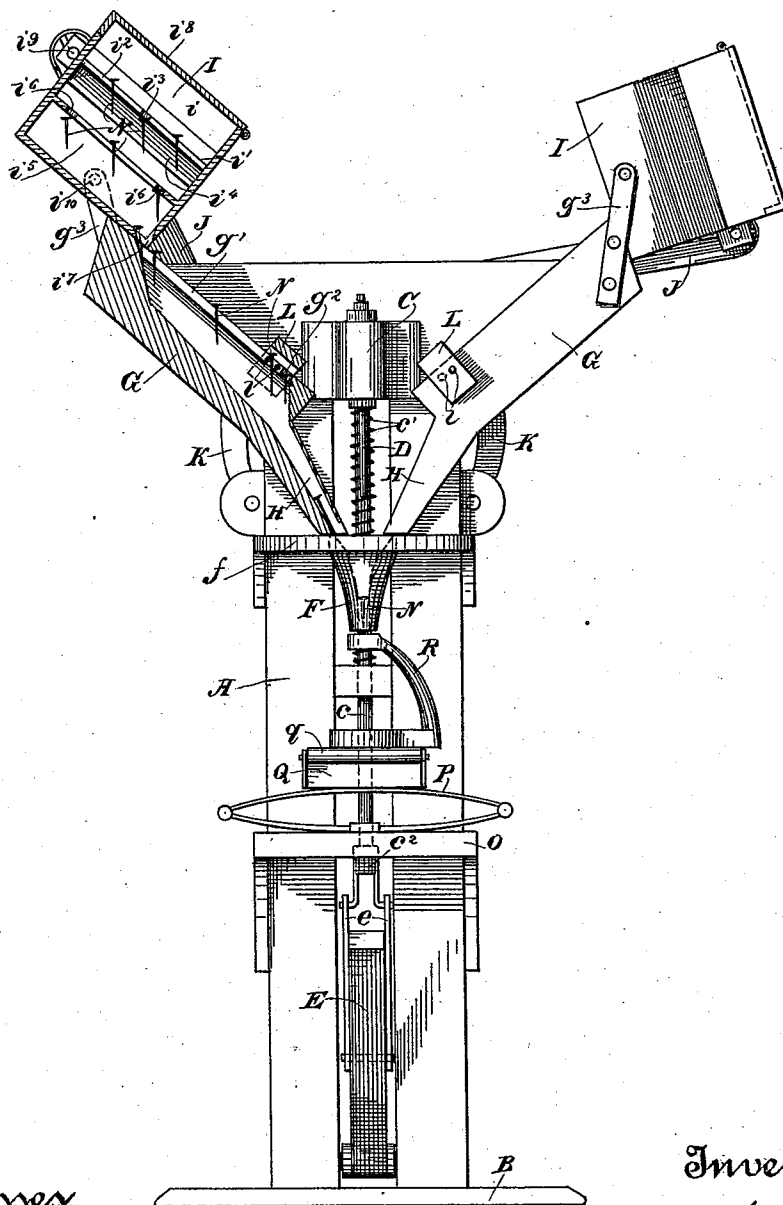
2 Sheets—Sheet 1.

S. WILDE.
NAILING MACHINE.

No. 549,301.

Patented Nov. 5, 1895.

Fig. 1.



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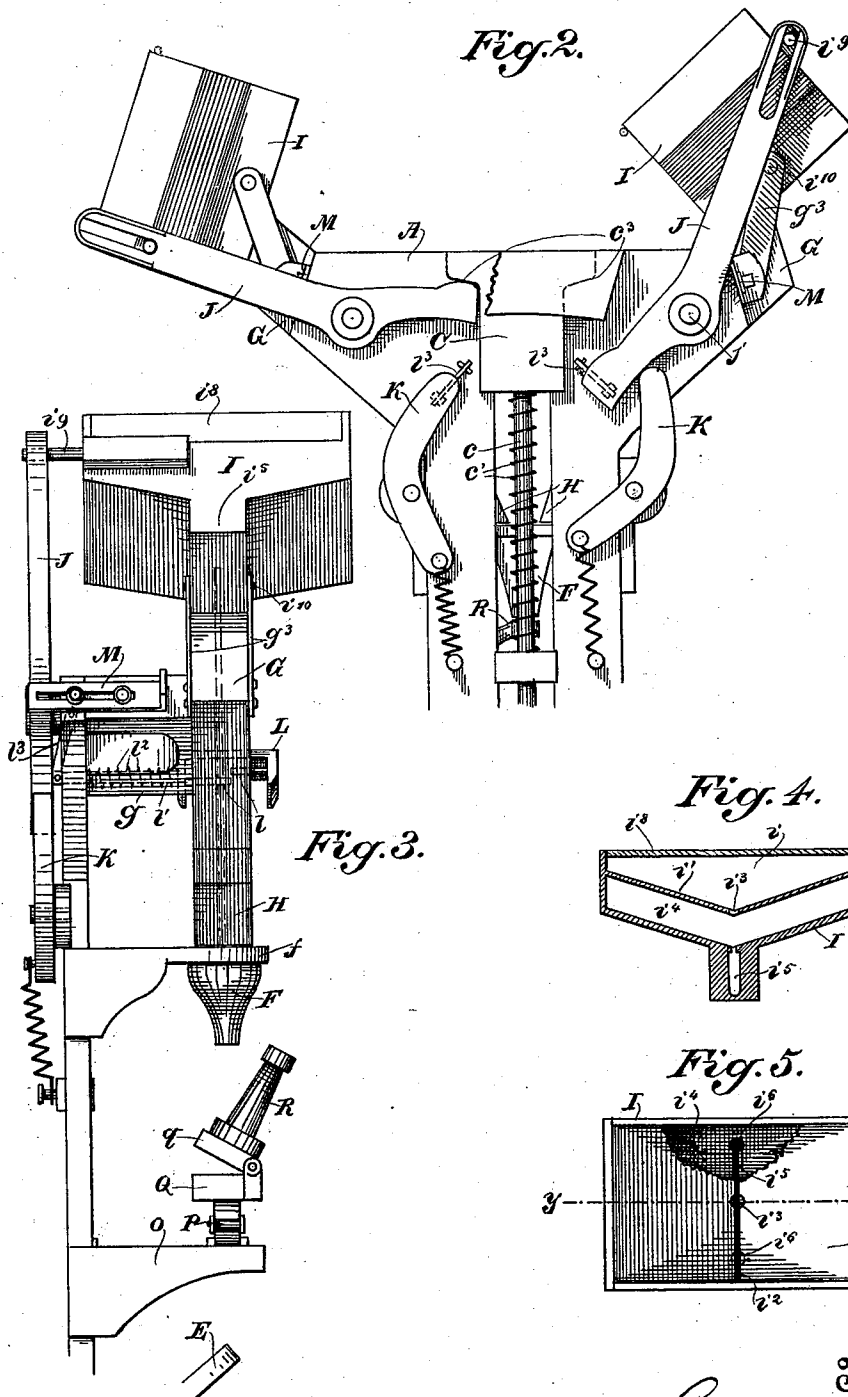
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2 Sheets—Sheet 2.

S. WILDE.
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Witnesses,
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UNITED STATES PATENT OFFICE.

SAMUEL WILDE, OF WOODLAND, ASSIGNOR OF ONE-HALF TO R. A. BOURNE,
OF SAN FRANCISCO, CALIFORNIA.

NAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 549,301, dated November 5, 1895.

Application filed March 21, 1895. Serial No. 542,700. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL WILDE, a citizen of the United States, residing at Woodland, Yolo county, State of California, have invented an Improvement in Nailing-Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of nailing-machines in which the nails are fed from a suitable source of supply through directing-channels to a holder lying immediately above the work, and into which a plunger descends, whereby the nail is driven through the holder into the work.

My invention, though applicable in most of its features to the general class of nailing-machines, is especially intended as a shoe-nailing machine, by reason of the peculiar support for the work and the provision of independent supply-hoppers for different-sized nails.

My invention consists in the novel construction, arrangement, and combination of parts which I shall hereinafter fully describe and specifically claim; and its object is to provide a simple and effective nailing-machine especially adapted for the driving of nails into shoes.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a front elevation partially in section. Fig. 2 is a rear view. Fig. 3 is a side view. Fig. 4 is a sectional view of the hopper. Fig. 5 is a plan view of the same partially broken away.

A is an upright frame upon a base B. In this frame is mounted and adapted to slide vertically a plunger-head C, carrying in its outer end a plunger D. Said head has also extending downwardly from it a stem *c*, encircled and controlled by a spring *c'*, and its lower end has threaded upon it a nut *c''*, by which it is adjustably connected with links *e* of the treadle E.

By pressing down upon this treadle the plunger is forced downwardly, and by relieving the treadle the spring *c'* returns said plunger.

Secured to the upright frame A is a suitable

bracket *f*, to the outer end of which is secured or formed a funnel-shaped nail-holder F, into which the plunger descends.

Secured by a suitable bracket or arm *g*, extending from the upper portion of one side of the frame A, is an inclined directing-chute G, the channel *g'* of which consists of a deeply grooved or slotted runway, which is less in width than the diameter of the heads of the nails N, so that said nails are adapted to be suspended or to hang by their heads in said groove and on account of its inclination to descend by gravity to its lower end. At its lower end said groove is enlarged at *g''*, adapting the nail to drop through and into a closed passage H, through which the nail passes lengthwise and point foremost into the nail-holder F, with the top of which the passage H directly communicates.

Upon the top of the chute G is secured the supply-hopper I. This is pivoted at *i''* to arms *g''* of the chute G, whereby it is adapted to be vibrated or swung by means of mechanism and for a purpose to be presently described. This supply-hopper I is constructed with an upper compartment *i*, the floor *i'* of which inclines from the sides downwardly to a central transverse plane, in which is made a slot *i''*, the width of which is less than the diameter of the head of the nails, except at the central portion, where it is enlarged at *i'''* sufficiently to allow the nails to drop completely through it. Under the compartment *i* is a second compartment *i''*, the floor of which is also inclined to the center, in which plane is made a deep groove *i''''*, the bottom of which is entirely closed, and its top is less in width than the diameter of the nail-heads, except at two points *i'''''*, one near each end of it, where it is enlarged sufficiently to allow the nail-heads to pass through into said groove. The forward end of the groove *i''''*, into which the nails drop from the enlargements *i'''''*, has an opening *i''''''*, which when the hopper is thrown upwardly to a plane parallel with the chute G is in direct communication with the groove of said chute, so that the nails are enabled to pass out from the opening *i''''''* into the groove *g'*. A lid *i''''''* is hinged to the top of the hop-

per and is adapted to be opened to afford access thereto to put in the nails and to be closed again to confine them therein.

The means for vibrating or swinging the supply-hopper I are as follows: Its normal position, which may be due to a spring, or preferably to gravity on account of its pivotal point or by reason of suitable weights, is at right angles to the plane of the chute G and at the end thereof. From this position it is swung upwardly to a plane parallel with and on top of said chute by means of a lever J, pivoted to the frame A at j and having its outer end suitably connected with a pin i^9 of the hopper I and its inner end lying in the path of movement of a cross-bar c^3 of the plunger-head C, whereby as said cross-bar descends it bears down upon the lever J and thus swings the hopper over. As before stated, the hopper returns by gravity; but in case it be found necessary to not depend wholly upon gravity for the return of the hopper there may be a spring-controlled trigger-arm K, with which the end of the lever J is adapted to come in contact, so that when the parts are relieved of the cross-bar of the plunger-head the trigger-arm will positively throw the lever J back again. It is necessary in the groove of chute G to provide for feeding but one nail at a time through the passage H, and for this purpose there is a frame L fitting over the lower end of the chute G and having stop-pins l extending from opposite sides into the channel or groove g' , but at different points, one being in advance of the other, the separation being sufficient to permit one nail between them. This frame L has a stem l' controlled by a spring l^2 , said stem passing backwardly through the frame A and connected with a pivoted inclined plane l^3 in contact with which the inner end of the lever J is adapted to move as said lever is forced down by the cross-bar of the plunger-head C. The normal position of the stop-frame L is with its foremost pin traversing the groove g' , and thereby holding back the entire column of nails, or as many nails as there may be suspended by their heads in said groove; but when the lever J descends in throwing the hopper to a position to discharge another nail the end of said lever, working down upon the incline plane l^3 , forces the stop-frame L over, so that it withdraws its foremost pin from in front of the column of nails, and in doing so projects its other pin from the opposite side, just behind said foremost nail, so that only said nail is allowed to pass down into the passage H, and the rest are held back. Upon the return of the stop-frame the pins assume their normal position and the column of nails moves down one place.

For ordinary nailing-machines a single source of supply is sufficient, but for a shoe-nailing machine it is best to have two supply-hoppers, so that two different sizes of nails may be used. Accordingly, I have on the other side a grooved chute similar to the chute

G and similarly lettered, likewise a passage H, also a pivoted swinging hopper I, made throughout in the same manner as the other hopper I, except that its grooves and passages and enlargements are adapted to supply nails of a different size, either larger or smaller, as the case may be, and similar operating mechanism, also similarly lettered, to the parts I have heretofore described, and, finally, a similar cut-off device consisting of the stop-frame L with its oppositely-arranged stop-pins; but as only one hopper is to be used at one time I have a means for throwing one or the other out of operation, as may be desired. These means may be of any suitable character, and I have here shown them as consisting of a slidable stop-arm M, one for each side, adapted to be projected behind their respective levers J to hold either up out of engagement with the descending cross-bar of the plunger-head.

For a nailing-machine adapted to nail boxes or other classes of work the support to secure said work while being nailed is to be of suitable character; but for the shoe-nailing machine, such as I have herein described and illustrated, I have the following support: A fixed platform O projects from the frame A, and has near its outer edge a stout spring P, on which is secured a plate Q, said plate having hinged to it a swinging plate q , to which is secured the bent arm R, over which the shoe is fitted, and which forms a rest therefor to hold the shoe directly under the nail-holder F. The spring is sufficiently strong to permit of the nailing action, and yet to yield, as may be required, to permit the swinging plate q to be thrown over and allow the shoe to be removed from the bent arm R.

The operation of my machine is as follows: Nails are supplied without arrangement by the handful to the hoppers I. One size is placed in one hopper and another size in the other hopper, and that hopper, the nails of which are not at present to be used, is thrown out of action by holding up its actuating-lever J by the slide-arm M. The shoe is placed upon the bent arm R and is held up directly under the nail-holder F by the spring P. The treadle is now pressed down upon, by which movement and through the lever J the hopper I is vibrated, so as to throw it over on top of and parallel with the chute G, and upon relieving it the hopper returns. By vibrations of this kind the nails fall down into the cross-slot i^2 of the hopper, and one of the nails finding its way to the central enlargement i^3 therein drops through into the underlying compartment i^4 , and finding the central depression therein will slide down point first into the groove i^5 of said compartment and be suspended by their heads therein; then, according to which limit of vibration the hopper may be at, the nail will drop through one or other of the enlarged openings i^6 of said groove point first and will fall into the bottom of the groove i^5 and by the vibra-

tion of the hopper will descend through said groove point first, and in this position will be discharged from the opening *v'* into the groove *g'* when said hopper is in position on top of the chute *G* and parallel therewith. Its discharge into this groove is point first, so that it hangs therein by its head and descends by gravity to the stop-pins *l*. The operation of these stops, as before described, permits but one nail only to pass at a time, and said nail is fed point first through the passage *H* and falls point first into the nail-holder *F*. The descending plunger working down into the nail-holder drives said nail into the underlying work. When it is necessary to use a nail of a different size, the first hopper is thrown out of action and the other is thrown into action.

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

1. In a nailing machine, a supply hopper having an upper and a lower compartment, each having inclined bottoms, the upper compartment having a slot in its depressed portion narrower than the diameter of the nail head, and an enlargement therein through which said head can pass, and the bottom of the lower compartment having a central groove, the top of which is narrower than the diameter of the nail head, and is provided with an enlargement through which said heads can pass, and the end of the groove having an opening through which the nail is discharged, and suitable means for shaking or swinging said hopper whereby the nails are caused to seek and to hang in the slot and groove successively and to pass through their enlargements.

2. In a nailing machine, a supply hopper having an upper and a lower compartment, each having inclined bottoms, the upper compartment having a slot in its depressed portion narrower than the diameter of the nail head, and an enlargement therein through which said head can pass, and the bottom of the lower compartment having a central groove, the top of which is narrower than the diameter of the nail head, and is provided with an enlargement through which said heads can pass, and the end of the groove having an opening through which the nail is discharged, suitable means for shaking or swinging said hopper whereby the nails are caused to seek and to hang in the slot and groove successively, and to pass through their enlargements, an inclined chute in communication with the discharge of the groove of the hopper and adapted to receive the nail therefrom when said hopper is thrown over, said chute having a groove with a width less than the diameter of the nail head whereby the nail hangs therein point downward, and with an enlargement at its lower end to allow the nail to fall through.

3. In a nailing machine, a supply hopper having an upper and a lower compartment,

each having inclined bottoms, the upper compartment having a slot in its depressed portion narrower than the diameter of the nail head, and an enlargement therein through which said head can pass, and the bottom of the lower compartment having a central groove, the top of which is narrower than the diameter of the nail head, and is provided with an enlargement through which said heads can pass, and the end of the groove having an opening through which the nail is discharged, suitable means for shaking or swinging said hopper whereby the nails are caused to seek and to hang in the slot and groove successively and to pass through their enlargements, an inclined chute in communication with the discharge of the groove of the hopper and adapted to receive the nail therefrom when said hopper is thrown over, said chute having a groove with a width less than the diameter of the nail head whereby the nail hangs therein point downward, and with an enlargement at its lower end, to allow the nail to fall through, a passage to receive the nail from said enlargement, a nail holder with which said passage communicates, and a plunger operating into said holder to drive the nail into the hook.

4. In a nailing machine, the combination of a pivoted swinging supply hopper having an inclined bottom with a groove or slot of a width less than the diameter of the nail head and an enlargement to permit said nail head to pass through, and a discharge from said hopper, an inclined chute with a groove in communication with said discharge to receive the nail, as the hopper is swung and to suspend it by its head, a nail holder to which the nail is delivered, a reciprocating plunger working therein, and the means for swinging the supply hopper consisting of a vertically movable cross bar, and a pivoted lever connected with the hopper and with which said cross bar comes in contact.

5. In a nailing machine, the combination of a pivoted swinging supply hopper having an inclined bottom with a groove or slot of a width less than the diameter of the nail head and an enlargement to permit said nail head to pass through, and a discharge from said hopper, an inclined chute with a groove in communication with said discharge to receive the nail as the hopper is swung and to suspend it by its head, a nail holder to which the nail is delivered, a reciprocating plunger working therein, and the means for operating the plunger and swinging the supply hopper consisting of the vertically movable plunger head having a cross bar, the lever connected with the hopper and with which said cross bar comes in contact, the spring-controlled stem of the plunger head and the treadle connected with said stem.

6. In a nailing machine, the combination of a pivoted supply hopper having means for directing and discharging the nails therefrom, an inclined grooved chute adapted to

receive the nails from the hopper and to suspend them by their heads and direct them on their course, a slidable frame having the oppositely located stop pins adapted to traverse the groove of the chute to control the delivery and discharge of a single nail at a time, the vertically movable cross bar, the lever actuated thereby and connected with the supply hopper whereby it is vibrated, and the pivoted inclined plane adapted to be operated by the lever, and connected with the stop frame whereby the latter is operated.

7. A nailing machine consisting of a frame, a vertically moving plunger, having a head provided with a spring-controlled stem and treadle connection whereby it is operated, a pivoted or swinging hopper having means dependent upon the swinging of said hopper for delivering the nails, suitable channels by which the nails are directed on their course, a nail holder to which they are delivered, and in which the plunger operates, a lever operated by the plunger connection for swinging the supply hopper to effect the discharge of its nails, oppositely moving stops in the nail channel for regulating the supply of the nails, and connections operated by the hopper actuating lever for operating said stops.

8. In a nailing machine, the combination, with a supply hopper, a directing chute and channels, a plunger and a nail holder, of

means for holding the work consisting of a platform projecting from the main frame, a spring on said platform, carrying a plate, a swinging plate hinged to the first named plate, and a bent arm on the swinging plate over which the shoe is fitted, and which forms a rest therefor to hold the shoe directly under the nail holder.

9. In a nailing machine, the combination of a plurality of swinging supply hoppers each having an upper and lower compartment with inclined bottoms, and each bottom having a slotted depressed portion narrower than the nail head said slotted portion communicating with an enlarged opening through which the said nail head can pass, means dependent upon the movement of the hopper for discharging the nails, and independent mechanisms for vibrating said hoppers, means for throwing either of said mechanisms into and out of action, whereby but one of said hoppers may be used at a time, suitable channels communicating with the hoppers for directing the nails on their course, a nail holder to receive the nails and an operating plunger.

In witness whereof I have hereunto set my hand.

SAMUEL WILDE.

Witnesses:

J. P. WELCH,
C. M. HEAD.