

J. C. GATES.
NAIL SETTER.
APPLICATION FILED AUG. 26, 1907.

970,809.

Patented Sept. 20, 1910.

2 SHEETS—SHEET 1.

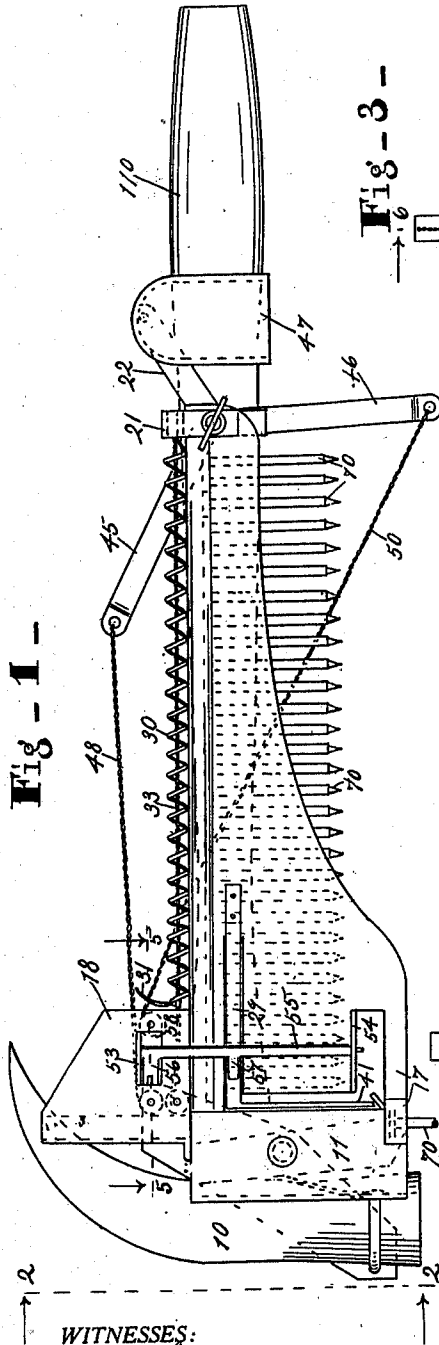


Fig. 1 -

Fig. 3 -

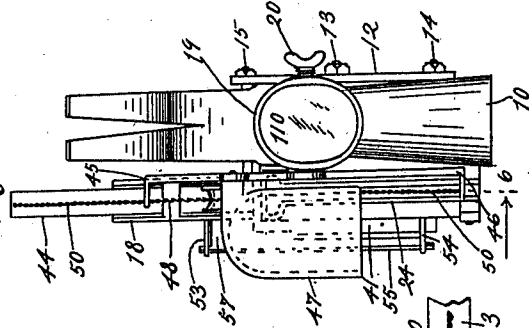


Fig. 4 -

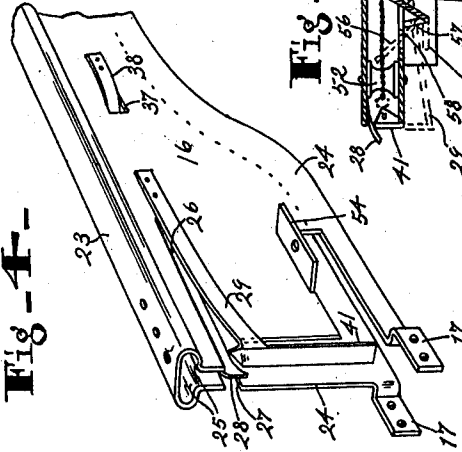


Fig. 5 -

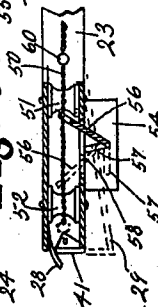
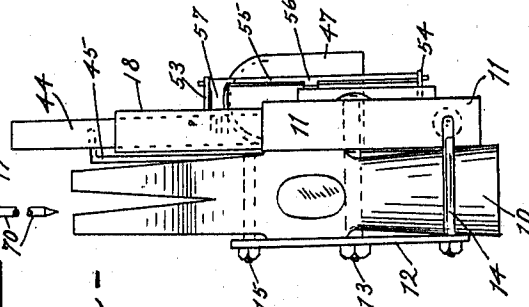


Fig. 2 -



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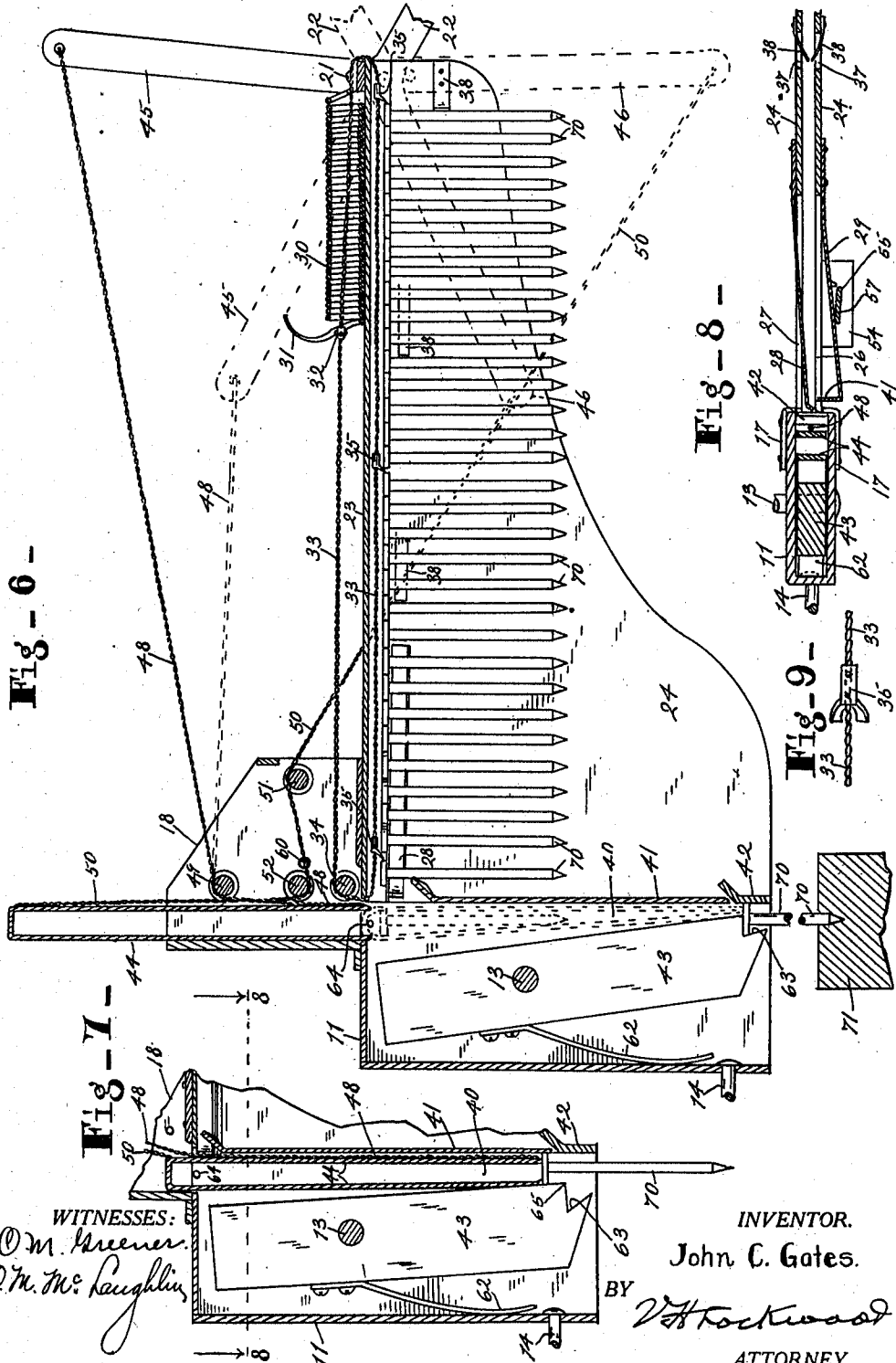
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JOHN CHANDLER GATES, OF TIPTON, INDIANA.

NAIL-SETTER.

970,809.

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To all whom it may concern:

Be it known that I, JOHN CHANDLER GATES, a citizen of the United States, residing at Tipton, in the county of Tipton and State of Indiana, have invented a new and useful Nail-Setter, a machine of which the following is a specification.

The object of this invention is to provide a suitable attachment for an ordinary tack and nail driving hammer so that a series of nails can be carried by the hammer and so fed consecutively to a driving position.

One feature of the invention consists in the device being so constructed that it in no way interferes with the ordinary use of the hammer.

Another feature consists in the device containing an auxiliary or secondary hammer.

The details of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings Figure 1 is a side elevation of the device attached to a claw hammer. Fig. 2 is an end elevation looking from the line 2—2 of Fig. 1. Fig. 3 is an end elevation looking in the opposite direction from that shown in Fig. 2. Fig. 4 is a perspective view of the discharge end of the magazine shell. Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a section on the line 6—6 of Fig. 3. Fig. 7 is an altered position of the mechanism shown in the lower left hand corner of Fig. 6. Fig. 8 is a section on the line 8—8 of Fig. 7. Fig. 9 is a plan view of the nail claw.

In detail there is a hammer 10 to which a shell 11 is secured by the plates 12 and the bolts 13 and 14. The shell 11 has an integral bolt 15 that crosses the hammer handle at right angles and is secured in the upper end of the plate 12. Abutting the shell 11 at the rearward edge is a magazine chamber 16 that has forwardly extending flanges 17 that are riveted to the bottom of the shell 11. The top of the shell 11 and the magazine 16 are held together by a secondary shell 18 that is riveted in place. The other end of the magazine 16 has riveted to it a band 19 that surrounds the handle 110 of the hammer. The handle is held securely within the band 19 by the set screw 20.

Overlapping the upper part of the magazine 16, directly above the union of the magazine to the band 19 there is securely

fastened a frame 21 that carries a triangular lever 22, the function of which will be hereafter explained.

The magazine consists of a single piece of metal stamped out in suitable shape and turned to form a chamber substantially the shape of the upper part of a nail 70. In other words, the magazine consists of the turned top 23 having downwardly extending sides 24. The sides 24 are in the same plane and are just wide enough apart to permit the body of a common nail to pass between them. The upper part 23 is extended beyond the line of the sides 24 so that a shoulder 25 is formed at the upper line of the sides 24. This construction forms a suitable chamber substantially the shape of a nail—the nail head resting upon the shoulders 25 and the body part hanging loosely between the sides 24. Cut out on each side of the magazine at the discharge end thereof are two openings 26 and 27, and overlying these openings, and riveted to the sides 24, are two springs 28 and 29, the function of which will be hereafter explained. A spiral spring 30 is mounted upon the magazine 16, one end thereof being securely attached to the frame 21. The other end of the spring 30 is turned upward to form a finger piece 31 and to it is attached a clamp 32 that engages and holds an endless cord 33. The cord passes through the lower part of the shell 18 over the pulley 34 and down into the upper part of the discharge end of the magazine 16. It passes through the magazine just above the nail heads and up over the frame 21 and through the spring 30 to the clamp 32, the place of starting.

On the endless cord 33 there are fastened a plurality of nail claws 35 that are adapted to engage the heads of the nails in the magazine 16, and, through the tension of the spring 30, draw them toward the discharge opening. When the spring 30 is moved from the position shown in Fig. 6 to the position shown in Fig. 1, the nail claws 35 are actuated through the endless cord 33 whereby they move up over the nail heads and do not engage them till the cord is actuated in the other direction by the collapsing of the spring 30.

There are located in the magazine walls 24 a series of slots 37 in which small leaf

springs 38 are mounted which are adapted to engage the body of the nails in the magazine and prevent them from being drawn backward as the small claws 35 are actuated in the direction opposite the discharge opening of the magazine. The discharge opening of the magazine is controlled by the two springs 28 and 29. The spring 28 has a turned end that is normally adapted to stop the forward movement of the nails in the magazine 16. The spring 29 has two functions. First, by a mechanism hereinafter described it cuts out one nail and substitutes as a stop in place of the turned end of the spring 28. Second, it constitutes a movable wall of a nail chute that will now be described.

Within the shell 11 and adjoining the magazine 16 there is provided a nail chute 40 that is adapted to be opened or closed by the action of the spring 29. The nail chute 40 consists of the two walls of the shell 11, a plate 41 extending downward from the spring 29, a cross-plate 42 shown in Figs. 6 and 7, and a fourth wall formed by an auxiliary hammer 43 that is pivotally mounted within the shell 11. As seen in the drawing, the shell 11 is open on the side adjoining the magazine. This enables the nails from the magazine to be fed directly into the nail chute 40 by a means hereinafter described.

Mounted directly above the nail chute 40 and within the shell 18 there is mounted a sliding push spring 44 adapted to reciprocate therein. The spring 44 is a flat strip turned near the center so that the elongated sides will be parallel and the ends will be near enough together to engage or rest upon the nail head during the downward movement of said spring through the nail chute 40.

The spring 44 is actuated by the triangular lever 22, as will now be described. The lever 22 has two elongated arms 45 and 46 and a short arm to which is pivoted a finger piece 47, by which means the lever is moved upon its fulcrum. As shown in Figs. 1 and 6 the arm 45 is connected to the lower end of the spring 44 by the cable 48. The cable 48 passes through the shell 18 and over the pulley 49.

The lower arm 46 of the lever 22 is connected to the upper part of the spring 44 by the cable 50. The cable 50 passes from the arm 46 up through the shell 18, over the pulley 51 and under the pulley 52, up to the upper part of the spring 44. By this mounting a movement of the lever 22 through the finger piece 47 will cause the spring 44 to reciprocate in the nail chute 40 either upward or downward as desired by the operator.

Pivoted on the side of the device on the upward turned flanges 53 and 54 is an ec-

centric bar 55 that has two arms 56 and 57 which extend at an angle of about 45 degrees from one another.

The upper arm 56 is longer than the lower arm 57 and extends into the shell 18 through the slot 58. The end of the arm 56 is slotted as shown in Figs. 1 and 5 and is located directly in line with the center of the pulleys 51 and 52 so that the cable 50 will run through the slotted end. On the cable 50 there is secured a ball 60 that will not pass through the slotted end of the arm 56 but will engage the arm and move it from the position shown by dotted line in Fig. 5 to that shown by full line. The full line position shows the ball pulled out of the arm and beyond it. The movement of the ball back to its first position will move the arm 56 back to its former position. This movement of the upper arm 56 actuates the lower arm 57. This arm is shorter than the upper arm and its outer end rests against the spring 29, so that when the upper arm 56 is in the dotted position shown in Fig. 5 the arm 57 will allow the spring 29 to stand open as shown by dotted line in this figure, but when the upper arm 56 is moved to the full line position the lower arm 57 pushes against the spring 29 and moves it into the closed position. This action of the arm 57 on the spring 29 causes the plate 41 to move inwardly. The upper part of the plate is turned back and down as shown in Fig. 4, so that as it moves inwardly by the action of the arm 57 it will pass between the outer nails, throwing the outmost nail beyond the curved end of the spring 28 and blocking the passageway of the others. The release of the outer nail causes it to fall into the nail chute 40, where it lodges between the movable wall 41 and the auxiliary hammer 43. The hammer 43 is normally held against the fixed wall 42 by a spring 62. It has a recessed portion 63 into which the nail head pits while receiving its primary driving stroke. The nail is forced on downward by the spring 44, it being actuated by the lever 22, the arm 46 and the cable 50. A stop 64 limits the downward movement of the spring 44. As the spring 44 reaches the downward limit the nail head is pushed beyond the edge 65 of the hammer head 43, the spring 62 is much stronger than the spring 44 so that at the moment the nail head passes below the edge 65 the spring 44 is collapsed by the action of the spring 62, thereby the nail head is snapped into the recess 63 and held securely against the wall 42, as shown in Fig. 6, until it can be driven into the desired place by what has been termed the primary driving stroke. This clutching means is shown in Figs. 6 and 7. As shown in Fig. 6, the point of the nail has been driven by the primary stroke into the block of wood 71. This stroke is sufficient

to embed the nail point so securely in the wood that as the hammer is lifted from the primary stroke the nail head will be drawn from the recessed part 63 and the nail will be left standing in the block of wood in an upright position ready to be driven by strokes of the hammer head 10.

In operation the magazine chamber 16 is filled with nails. The spring 30 is moved from the position shown in Fig. 6 to the position shown in Fig. 1. The operator grasps the hammer handle as he would in ordinary nailing, except that the index finger would be inserted in the finger stall 47. Through the finger stall 47 the lever 22 would be lifted, thereby depressing the arm 46. The actuation of the arm 46, as heretofore described, would cause the discharge of a nail into the nail chute 40 and its subsequent discharge into the clutching means of the auxiliary hammer. A single stroke is sufficient to imbed the nail point deep enough in the wood for the nail to hold securely in place and draw the head thereof from the clutch as the hammer is lifted upward. This action just described leaves the spring 44 down in the nail chute 40, the spring 44 is lifted upward by the depressing of the lever 22 which actuates the arm 45 and the cable 48. As the arms 45, 46 and 22 are integral the actions here described are simultaneous, the one coöperating with the other. By this means a series of nails can be driven consecutively and continuously by the operator. What I claim as my invention and desire to secure by Letters Patent is:

1. The combination with a hammer having a handle, of means for holding and feeding the nails and the like extending alongside the hammer, means at one end thereof

surrounding the head of the hammer, and means at the other end thereof surrounding the handle of the hammer for securing the nail holding and feeding means thereto.

2. Means for driving nails and the like including a magazine for holding the nails and the like, a casing into which the nails successively enter from said magazine, a hammer-like member fulcrumed within said casing so that one side thereof coöperating with the walls of the casing will furnish a guide for the nails and the like, there being a shoulder at the lower end of said hammer-like member, a spring tending to force the lower end of said hammer-like member toward the wall of the casing, and means for forcing the nails and the like successively down below the shoulder in said hammer-like member.

3. Means for driving nails and the like including a magazine in the form of a slotted chute for holding the heads of the nails and the like, an endless chain extending from said magazine with claws secured thereto adapted to engage the heads of the nails and the like, a spring secured to the chute at one end and connected with said chain at the other end whereby the spring may be stretched into set position and as it contracts will actuate said chain, a casing into which the nails and the like are successively discharged, a hammer-like member in said casing, and means for forcing the nails in said casing to the driving position in connection with said hammer-like member.

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Witnesses:

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