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AUTOMATIC TACK DISPENSER

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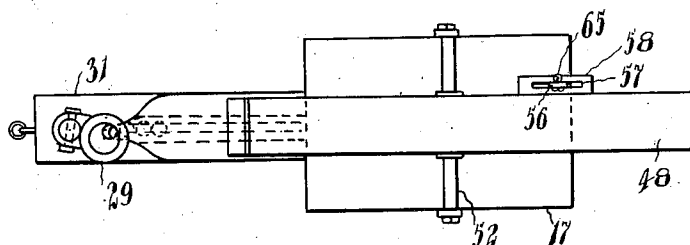


Fig. 1.

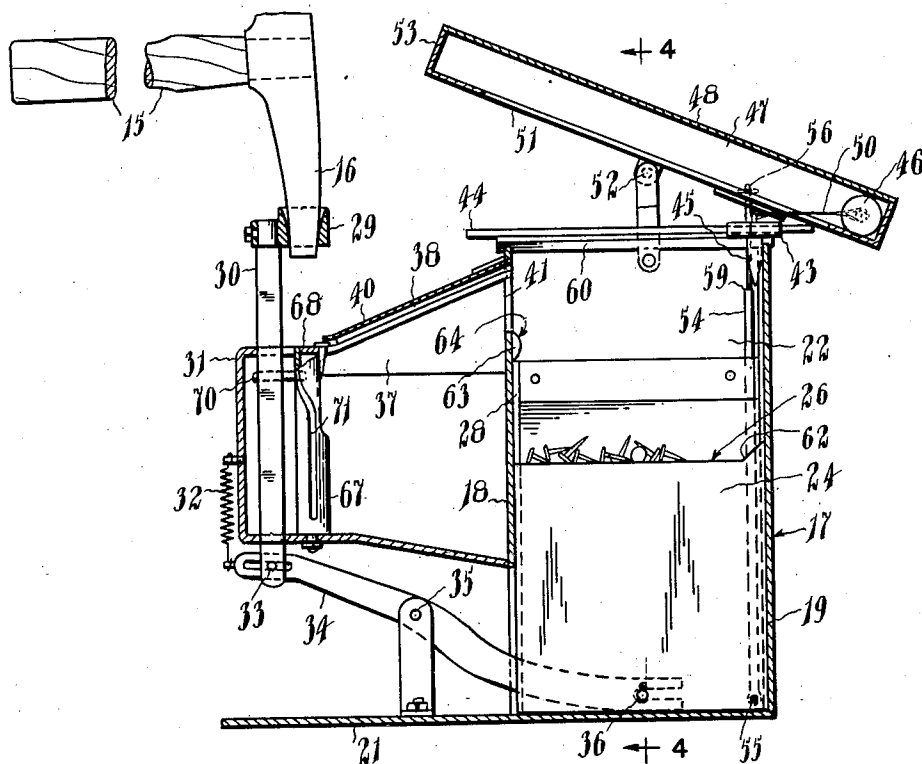


Fig. 2.

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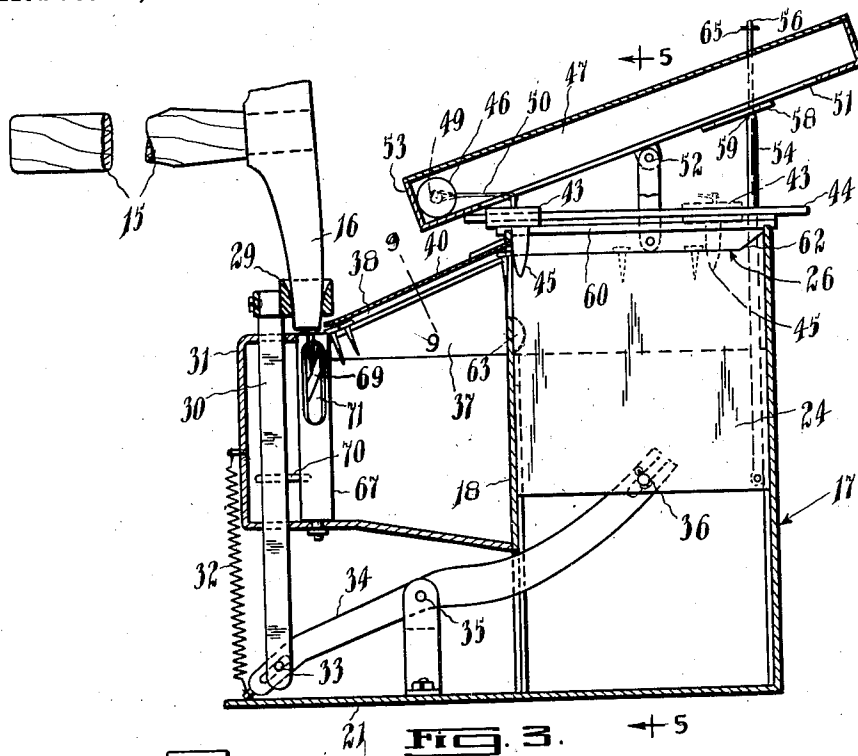
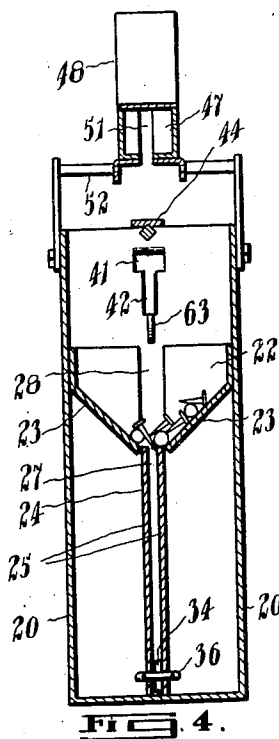
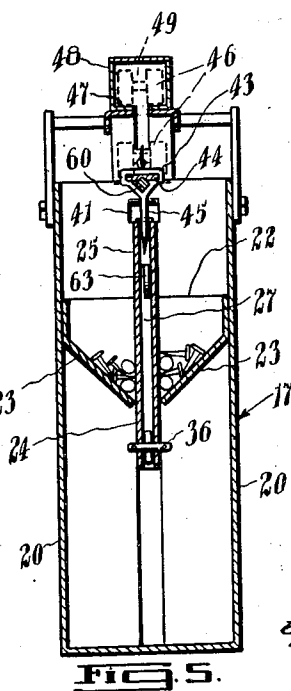
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3 Sheets-Sheet 2



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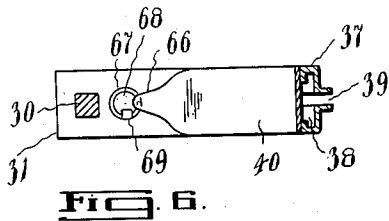
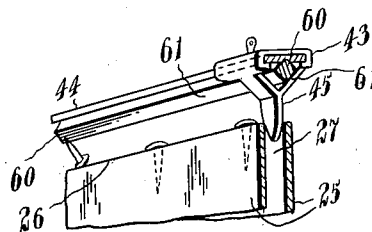
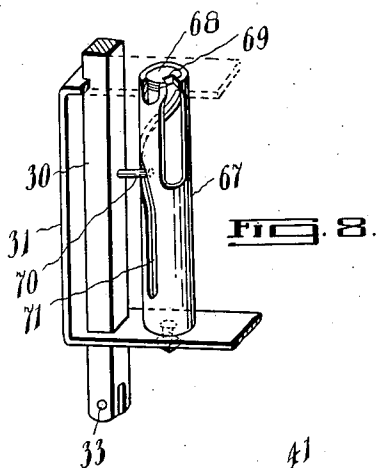
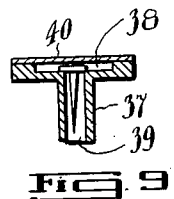
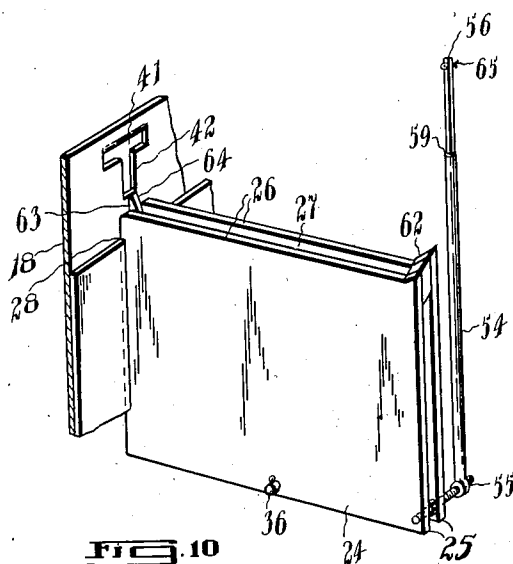
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AUTOMATIC TACK DISPENSER

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3 Sheets-Sheet 3



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AUTOMATIC TACK DISPENSER

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13 Claims. (Cl. 1—49.6)

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My invention concerns an apparatus for dispensing tacks or the like and enabling them to be picked up singly by a magnetic hammer so that the user does not have to handle the tacks nor use his mouth for holding a supply, as is the customary practice with an upholsterer for example.

My invention has for its object the provision of a dispenser of this kind which will automatically feed tacks from a source of supply to a pick-up device adapted to be depressed by a magnetic strike end of a hammer in order to place a tack thereon.

The invention consists in the novel combination and arrangement of parts as described in the present specification and shown in the accompanying drawings, which form a part thereof. The construction of the present dispenser provides a highly efficient and serviceable mechanism for delivery of a continuous supply of tacks from a container to a pick-up station and for enabling the tacks to be magnetically applied individually to a magnetic strike face of a hammer so that all the workman has to do is to drive the tacks in a workpiece. The machine is a labor saving apparatus and one which can be manufactured at low cost.

The advantages and utility of the apparatus are more clearly brought out in the ensuing specification of which the accompanying drawings illustrate a practical embodiment of the invention.

In the drawings;

Fig. 1 is a top plan view of the dispenser;

Fig. 2 is an elevation in section of the dispenser showing the parts in normal position;

Fig. 3 is a similar sectional view but showing the operating parts in actuated position, in which the pick-up device is depressed by a hammer for attaching a tack to the magnetic strike face thereof;

Fig. 4 is a vertical cross section taken on line 4—4 of Fig. 2 showing a feeder device in its normal position;

Fig. 5 is a similar sectional view but showing the feeder device in raised position;

Fig. 6 is a plan view of a gravity chute which leads to the pick-up device;

Fig. 7 is a perspective detail showing how tacks are advanced along the top of the feeder device by a pusher mechanism;

Fig. 8 is a perspective detail of the pick-up device;

Fig. 9 is a cross section of the gravity chute taken on line 9—9 of Fig. 3.

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Fig. 10 is a perspective detail showing more clearly the arrangement of the feeder device.

The invention particularly concerns a dispenser for use with a hammer having a head including a strike end which is magnetized for retaining a tack while it is being applied to a workpiece. Such a hammer is represented at 15 in the drawings and the magnetic strike end is denoted at 16 which tapers as usual to the strike face. The dispenser comprehends a hollow body 17 shown as of an upright box shape providing a front wall 18, a rear wall 19 and side walls 20. A base 21 enables the body to firmly rest upon a supporting surface. The body, however, may be supplied with a suitable strap harness (not shown) by which it may be supported on a workman if so desired.

The upper part of said body is formed into a container 22 for holding a supply of tacks by means of floor plates 23 which slope downwardly from the opposite side walls 20 and have their inner ends spaced apart to provide an intervening gap. The gap enables a feeder device 24 to be projected upwardly into the container. The feeder device is shown as made up of a pair of vertical plates 25 united in spaced relation, whose upper edges 26 form a lift surface for tacks. The spacing of these plates is such as to loosely accommodate the body of a tack but not the head so that, when the body is admitted, the head portion will rest on said upper edges. The plates 25 thus form a longitudinal slot 27 into which a number of tacks may depend in a single row. Said upper edges 26 are disposed at the bottom of the container in the normal position of the feeder device, as shown in Figs. 2 and 4. In placing a quantity of tacks in the container one or more of them may lodge in the slot 27 with their heads seated on the edges 26, others will rest promiscuously on these edges. Therefore when the feeder device is raised—as will be described later—a plurality of the tacks will be lifted. The feeder device is fitted in grooves 28 for vertical movement and is operated by the pick-up device.

The pick-up device comprises a ring 29 of non-magnetic material carried by the upper end of a vertical bar 30 slidably mounted in a frame 31 for endwise movement. The bore of the ring is flared upwardly and is of such a diameter that the strike end 16 of the hammer will engage therein by reason of its tapers. The strike face projects a short distance below the ring, as shown in Figs. 2 and 3. The bar 30 is yieldably held to a raised position by means of the spring 32, and

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is depressed by manually urging the hammer downwardly. The bar has limited travel and is non-rotatable. Its lower end is pivoted at 33, as by a slot and pin connection, to an end of a rocker 34 fulcrumed at 35 on the base 21, and the other end of the rocker is pivoted at 36 to the lower end of the feeder device 24. The rocker operates to raise the feeder device upon depression of the pick-up device. The frame 31 is mounted on the body 17 to project forwardly of the front wall thereof.

Said frame 31 is integrated with a gravity chute 37 which has formed in it a T slot 38 sloping downwardly from said front wall 18 toward the pick-up device. The vertical portion 39 of this slot is of a width to enable the body portions of tacks to slide along the same when the heads of the tacks are ledged in the horizontal portion—as best shown in Fig. 9. The chute has a top plate 40 disposed over the slot 38 and extended throughout the length thereof. The top plate prevents the tacks from becoming displaced as they gravitate along the slot 38. The upper end of this slot communicates with the container 22 by means of a T-shaped aperture 41 formed in the upper part of the front wall 18. When the feeder device is elevated the slot 27 therein registers with the vertical part 42 of the aperture 41. This registration enables tacks to be fed into the chute-slot by a pushing action derived from a pusher mechanism.

The pusher mechanism is an overhead arrangement mounted on the body 17 and comprising a slide 43 reciprocally disposed on a guide plate 44 horizontally arranged parallel to the feeder device. The slide 43 carries a depending finger 45 which projects into the slot 27 when the feeder device is in a raised position. The lower end of the finger is tapered on a curvature for engaging the head of a tack in a manner such that the tack may be pushed along the top surface of the feeder device without causing it to tilt.

The slide 43 is movable along the guide plate for causing the finger 45 to push tacks into the aperture 41 when the feeder device is raised. Said slide is actuated by a weight device comprising a roller 46 which is free to roll in a runway 47 formed in a housing 48. The roller is supplied with an annular groove 49 about which a flexible element such as a cord 50 is loosely fastened in a loop. The cord extends through a slot 51 in the bottom of the runway and is fastened to the slide 43. The housing is pivotally mounted medially of its length as at 52 to enable the runway to tilt from either end. The housing 52 extends parallel to the slide and normally is tilted with its front end 53 raised, in which condition the roller is disposed at the rear end of the runway to retain the slide 43 in a retracted position—see Fig. 2.

A trip device is used to effect a reverse tilting of the housing as the feeder device comes to a fully raised position in its operative movement. The trip device consists of a vertical rod 54 slidable endwise and disposed to the rear of the pivot axis of the housing 48. The lower end of this rod is connected at 55 to the feeder device and the upper end 56 is freely engaged in a slot 57 of a plate 58 which is rigid with said housing. A portion of the length of the rod is reduced in cross section to form a lower shoulder 59 near its upper end, which shoulder comes into contact with the plate 58 as the feeder device approaches a fully raised position. In the final upward movement of the feeder device the rod

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raises the rear end of the housing and reverses the directional slope of the runway with the result that the roller slides to the front end thereof and in doing so pulls the slide with it. In this movement of the slide the finger 45 moves through the length of the slot 27 and pushes tacks through the aperture 41 into the chute 37. Any tacks not ledged by their heads in the slot 27 will be either pushed off the lift surface of the feeder device by the finger or will drop into this slot and be fed into the chute. To avoid the possibility of a tack remaining in an upside down position on the lift surface of the feeder device and thus blocking the entrance aperture to the chute there is provided a biased deflector bar 60 located over the feeder device and having laterally inclined faces 61 for contacting the pointed end of an inverted tack in order to cause the tack to be toppled when the feeder device is fully raised. The rear end of the lift surface may be upwardly inclined as at 62 for the purpose of keeping tacks away from the finger when it is in a retracted position. Projecting inwardly of the front wall 18 directly below the aperture 41 there is provided a nodule 63 which is disposed in the path of the slot 27 and has an inclined or curved outer face 64 suited to push tacks away from the front end of the lift surface in the elevational movement of the feeder device in order to prevent the possibility of the tacks jamming the mechanism.

In the lowering movement of the feeder device the rod 54 has an initial lost motion action and then acts, by means of a shoulder in the form of a pin 65 at its upper end, to engage the plate 58 and thus pull the rear end of the housing downwardly so as to revert the runway to its original tilted position. This causes the roller to glide to the rear end of the runway. The slide 43 is pulled by the roller and retracts the finger 45 ready for a subsequent operation.

Adverting to the chute, it will be noted that the top plate 40 is reduced in width at the discharge end as at 66 and at this end there is provided a receiver 67 in the form of a hollow cylindrical member. The receiver is vertically arranged and rotatably mounted in the frame 37 alongside of the bar 30 on an axis eccentric of the ring 29. The upper end of the receiver is fitted with a plug 68 of a non-magnetic material and is supplied with a slot 69 extending inwardly from the periphery. The slot 69 is normally in register with the discharge opening in the chute for receiving the body portion of a tack in order that the head portion thereof may rest upon the top face of the receiver which is formed by the plug 68. Means are provided to turn the receiver in order to swing the slot 69 away from the discharge opening of the chute and to bring it into concentric registration with the ring 29. This angular rotation of the receiver places the tack directly below the strike face of the hammer and at the same time blocks the discharge opening against escape of tacks in the chute. The receiver is rotated by depression of the ring 29, and the means employed comprise a follower pin 70 projecting from a side of the bar 30 and engaged in a cam groove 71 in the receiver. The cam groove is curved helically through a part of its length. The tack in the receiver is magnetically attached to the strike face of the hammer when the ring 29 is fully depressed and is removed with the hammer when it is lifted from the dispenser at the end of the return travel of the ring. In the upstroke of the bar 30 the cam

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mechanism turns the receiver back to its initial position so that the slot 69 therein will again register with the discharge passage of the chute for receiving the next tack.

Now, from what has been recounted it will be understood that there is provided a machine which is loaded by placing a supply of tacks in the container and which is operated by depressing the ring 29 by means of an inserted strike face of a hammer and applying pressure thereon to depress the ring so that the feeder device will be actuated for raising tacks in order that some of them will be fed to the chute by the pusher mechanism. This assures of a supply of tacks being delivered to the receiver so that one of them will be picked up by the magnetic strike face each time the machine is operated.

Although the machine has been described for use in dispensing tacks it will be apparent that its use might be extended to small nails and other metallic fasteners or like objects, and that such changes and modifications may be resorted to as come within the scope of the subjoined claims.

What I claim is:

1. A tack dispenser for use with a hammer having a magnetic strike end, comprising a container for tacks having front and rear walls and a gapped bottom wall, a feeder device disposed beneath the container for movement between raised and lowered positions, said feeder device having an upper end in the gap of said bottom wall forming a lift surface for tacks which is provided with a vertical slot receptive to the body portion of tacks so that the heads thereof may ledge on said lift surface, a chute extending outwardly of the upper part of said container and having a slot passage for tacks for receiving and containing them in substantially upright position, a pusher device having a finger for pushing tacks along said lift surface into said slot passage of the chute when the feeder device is in a raised position, means for actuating said pusher device, a depressible device adapted to be actuated by the strike end of a hammer, a receiver for receiving tacks singly from the chute and enabling them to be attached magnetically to the strike face of the hammer by depressive movement of said depressible device, and means by which such depressive movement raises said feeder device.

2. A structure as set forth in claim 1, in which the said feeder device is made up of a pair of spaced vertical plates rigidly united and mounted in grooves provided on the front and rear walls of the container for vertical movement.

3. A structure as defined in claim 1, in which a deflector is provided to deflect inverted tacks on said lift surface to cause them to topple as the feeder device comes to a fully raised position.

4. A structure as defined in claim 1, in which said finger is slidably mounted for reciprocal movement, and in which it is actuated by means motivated by the force of gravity.

5. A structure as defined in claim 1, in which said finger is carried by a slide, and in which said slide is connected to a roller housed in a tilted runway having a connection with the said feeder device by which it is subjected to a reverse tilting operation for effecting operative movement of said finger.

6. A structure as defined in claim 1, in which said finger is carried by a slide, and in which the means for actuating the finger comprises a tilted housing pivotally mounted medially of its length and provided with a runway, a roller in said runway, a flexible element connecting the roller to

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said slide, and a reciprocal bar connected to the feeder device and having spaced elements for reversely tilting said housing.

7. A structure as defined in claim 1, in which the said depressible device comprises a ring over said receiver having an upwardly flared bore suited to be engaged by the strike end of the hammer, a bar carrying said ring and vertically supported for limited endwise movement, and resilient means upwardly biasing said bar.

8. A structure as defined in claim 1, in which the receiver is a hollow cylindrical member mounted for turning about a vertical axis and disposed at the discharge end of said chute, said receiver having a stripper end and having a slot in its periphery at its stripper end for receiving a tack from the chute by its body portion with the head portion thereof ledged on the top of the receiver, said receiver further having a cam groove, and in which the depressible device includes a follower pin and a ring, said follower pin being engaged in said cam groove to turn said receiver for swinging said slot away from said chute when said depressible device is depressed, and said ring being disposed above said receiver and in alignment with the position to which said slot is turned whereby the strike end of a hammer can be engaged in said ring to depress said depressible device and contact the tack in said slot.

9. A tack dispenser for use with a hammer having a magnetic strike end, comprising a container for tacks having front and rear walls and a gapped bottom wall, a feeder device disposed beneath the container for movement between raised and lowered positions, said feeder device having an upper end in the gap of said bottom wall forming a lift surface for tacks which is provided with a vertical slot receptive to the body portion of tacks so that the heads thereof may ledge on said lift surface, a chute forwardly extending from the upper part of said container and having a T-slot therein for tacks, said slot communicating with said front wall by means of a T-shaped aperture therein whose vertical part registers with said vertical slot of the feeder device when the feeder device is in raised position, a nodule projecting from said front wall subjacent said T-shaped aperture therein, said nodule being aligned to enter said slot in the feeder device as the feeder device is raised whereby to keep tacks on the lifting surface thereof clear of said front wall, a pusher device having a finger for pushing tacks along said lift surface into said slot passage of the chute when the feeder device is in a raised position, means for actuating said pusher device, a depressible device adapted to be actuated by the strike end of a hammer, a receiver for receiving tacks singly from the chute and enabling them to be attached magnetically to the strike face of the hammer by depressive movement of said depressible device, and means by which said depressive movement raises said feeder device.

10. A tack dispenser for use with a hammer having a magnetic strike end, comprising a container for tacks having front and rear walls and a gapped bottom wall, a feeder device disposed beneath the container for movement between raised and lowered positions, said feeder device having an upper end in the gap of said bottom wall forming a lift surface for tacks which is provided with a vertical slot receptive to the body portion of tacks so that the heads thereof may ledge on said lift surface, a chute extending outwardly of the upper part of said container and having a slot passage for tacks for receiving and contain-

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ing them in substantially upright position, a pusher device disposed over said container parallel to said feeder device and having a depending finger which sweeps along said lifting surface in the raised position of the feeder device for pushing tacks into said chute, said finger being received in said vertical slot of said lift device when the feeder device is raised, a depressible device adapted to be actuated by the strike end of a hammer, a receiver for receiving tacks singly from the chute and enabling them to be attached magnetically to the strike face of the hammer by depressive movement of said depressible device, and means by which such depressive movement raises said feeder device.

11. A structure as defined in claim 10, in which said finger is located at the rear wall of the container when in a normal position, and in which means are provided to prevent tacks from resting on the lift surface of the feeder device directly below said normal position of said finger.

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12. A structure as defined in claim 10, in which said pusher device comprises means by which said finger is slidably mounted for reciprocal movement, and means by which the finger is actuated by impositive means.

13. A structure as defined in claim 10, in which said pusher device comprises a guide plate, and a slide thereon of which the finger is a part thereof.

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