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W. LASTING

3,191,802

AUTOMATIC NAIL DISPENSER

Filed May 22, 1963

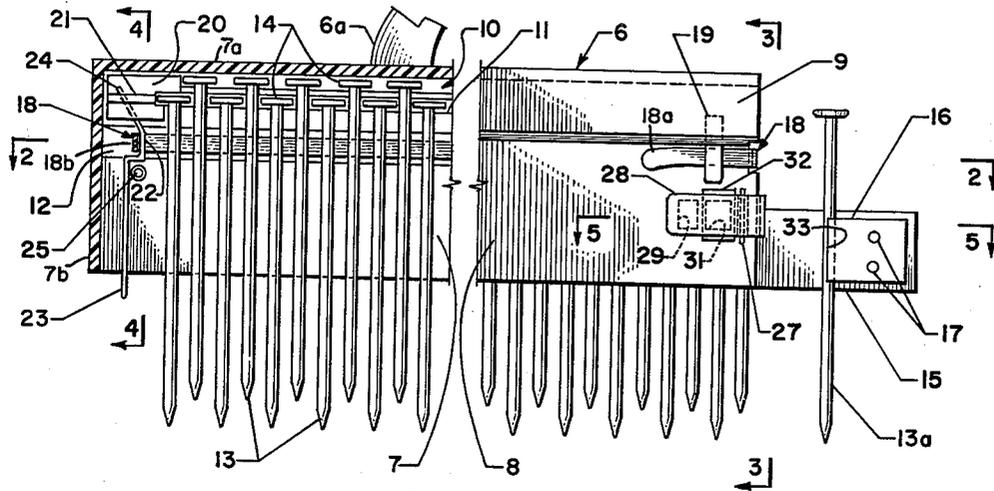


FIG. 1

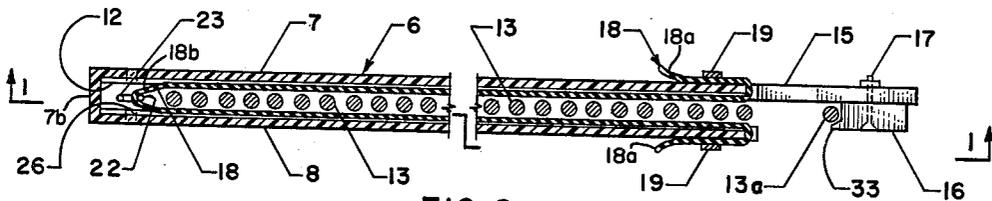


FIG. 2

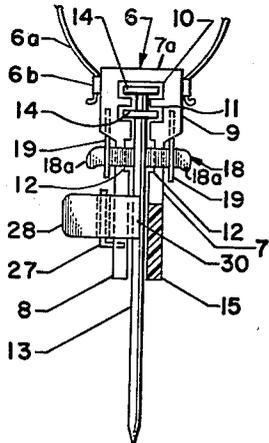


FIG. 3

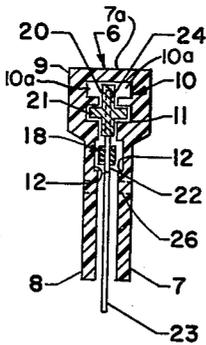


FIG. 4

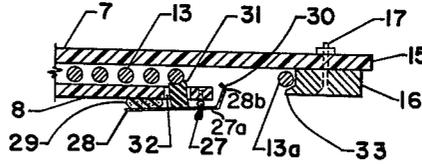


FIG. 5

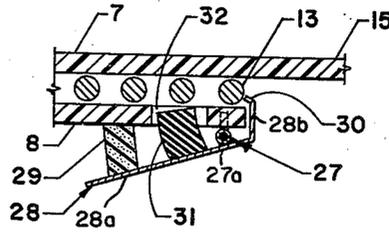


FIG. 6

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**AUTOMATIC NAIL DISPENSER**

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1 Claim. (Cl. 221—191)

The present invention relates to hand tools in general and more particularly to an implement of this character comprising an automatic nail dispenser.

A main object of the invention is the provision of a nail dispensing hand tool in which both an elastic feeding means and a magnetic force are employed in its operation, the magnetic force being a permanent magnet similarly mounted and performing a like function as that shown and claimed in my copending application Serial No. 257,128, now Patent No. 3,156,376.

Another object of the invention is the provision, in a tool of the character described, of a novel type of nail dispenser which is loaded from its forward, ejection end with the nails freely suspended in a longitudinal row.

Another object of the invention is to employ a length of rubber, doubled upon itself and having its free ends anchored in the manner of a sling-shot, as the aforesaid elastic feeding means, and a further object is to make this elastic member adjustable in length so that substantially equal elasticity will be maintained as the quantity of nails in the dispenser decreases.

Another object of the invention is the provision of a unique and novel method of supporting and arranging the nails in such manner that a maximum number of nails will occupy but a minimum of space.

Another object of the invention is the provision of a simple and effective manually controlled nail release mechanism.

A further object of the invention is to provide a dispenser for the common type of headed nail whereby the nails, as intermittently ejected from the holder portion, will be in position to be tapped with a hammer to stabilize them and then, with the dispensing tool removed, firmly set by further use of the hammer, all of which is accomplished without the nails being touched by hand and, consequently, without injury to the fingers.

And, a still further object of the invention is the provision of a nail dispenser which is of simple construction, easy to handle, of practical value as a time saver to craftsmen and laymen alike, and a convenient and valuable household implement.

The accompanying drawings illustrating a preferred embodiment of the invention and forming a part of the specification are as follows:

FIG. 1 is a view showing the forward portion of the dispenser in side elevation and its rear portion in longitudinal vertical section on line 1—1 of FIG. 2.

FIG. 2 is a longitudinal horizontal section on line 2—2 of FIG. 1, the nail release mechanism not being shown.

FIG. 3 is a transverse vertical section on line 3—3 of FIG. 1.

FIG. 4 is a vertical section on line 4—4 of FIG. 1.

FIG. 5 is a sectional detail on line 5—5 of FIG. 1, with the nail releasing means in open position; and,

FIG. 6 is an enlarged sectional detail of parts seen in FIG. 5 but with the nail releasing means in its closed or operative position.

It is to be understood that the drawings are for the purpose of illustration only and that such changes in construction and operation of the device may be made as to not depart from the spirit and scope of the invention as set forth in the following detailed description and particularly defined in the appended claim.

In the drawings similar parts are designated by similar reference numerals throughout the different views.

The type of nail for which the instant invention provides a dispenser is the common wire nail having a head of considerably greater diameter than that of its shank portion although other varieties of headed nails may be accommodated with but little if any change in the tool's structure and/or operation.

The tool includes an elongated nail holder indicated generally by numeral 6. This holder 6 is of inverted U-shape in cross section and for lightness and purposes of economy is preferably made of plastic. Its structure includes sidewalls 7 and 8 connected by top and rear end portions 7a and 7b, respectively, the bottom and forward end of the holder being open. A wrist band, fragmentary portions of which are seen at 6a, is secured to the holder 6 by clamps 6b.

A border 9 along the top of holder 6 is somewhat thicker than the remaining lower portion. Within this border portion 9 are opposing longitudinal slots 10a, 10a in the sidewalls 7 and 8 which together provide a channel 10 extending from the open end of the holder to its closed rear end. And, slightly below this channel 10 a second channel 11 is similarly provided. Also in the sidewalls 7 and 8 are opposing grooves 12, 12 of like extent as the channels 10 and 11 but for a different purpose as will be described.

The holder 6 constitutes a magazine within which a quantity of nails 13 are suspended in a single row in the manner shown, that is, by the channels 10 and 11 providing surfaces along which the nail heads 14 are slidably supported. The nails 13 hang between the sidewalls 7 and 8, sufficient clearance being allowed to permit their free movement along this passage.

In the plane of sidewall 7 and projecting forward from such wall at the open end of the housing 6 is an extension 15 to the inner face of which, adjacent its forward end, a block 16 is removably secured by screws 17. This block 16 is a permanent magnet.

Between the walls 7 and 8 is the nail feeding means which, in this instance, is a strip 18 of elastic material, as rubber, doubled upon itself with its free ends 18a, 18a turned around the walls 7 and 8 at the open end of the housing and removably attached by spring clips 19, 19 to the outer faces of such walls. The reaches of this member 18, when under tension, normally lie in the grooves 12, 12.

In rear of the row of nails 13 and lying in the open space between side walls 7 and 8 is a follower plate 20, having lateral flanges 21 which are slidably supported in the lower channel 11, see FIGS. 1 and 4. The loop end 18b of the elastic member 18 engages an offset intermediate portion 22 of a rod 23 in the plane of and depending from the plate 20, the angularly turned dotted upper portion 24 of the rod 23 being embedded in, see FIGS. 1 and 4, or otherwise suitably fixed to the plate 20.

Prior to loading the holder 6, the follower plate 20 is drawn to the rear manually by finger engagement with the rod 23. This action expands the elastic member 18 to the extent shown in FIGS. 1 and 2 and in which condition it is temporarily held by the insertion of a removable nail or other suitable pin 25 through opposed holes 26 in the sidewalls 7 and 8 to prevent forward movement of the rod 23 and plate 20, the pin 25 being withdrawn when loading has been completed.

Anchored in the forward end of the wall 8 is the short leg of an L-shaped member 27 the upstanding longer leg 27a of which provides a bearing on which a spring loaded two arm lever 28 is fulcrumed. The normal position of the lever 28 is that shown in FIG. 6 in which spring means, as a block 29 of sponge rubber interposed between the sidewall 8 and the longer arm 28a of lever 28, holds an inwardly turned lip 30 on the laterally turned forward arm 28b of the lever 28 in such a position as to obstruct

passage of a nail through the open end of the housing 6.

A second block 31, illustrated as being of a harder rubber, is carried on the inner face of lever 28. This block 31, as the lever 28 is finger actuated to the position shown in FIG. 5, passes through an opening 32 in the wall 8 to resiliently engage the second nail from the front, thus preventing forward movement of all nails 13 except the first one which lies in sidewise engagement with the closure lip 30. Practically simultaneously with this action of the lever 28 the closure member 30 moves to open position, thus permitting the foremost nail in the housing to be drawn by magnetic force to and held in upright against the flanged side edge 33 of the magnet 16, as seen at 13a in FIGS. 1, 2 and 5. The dispenser is then removed after first stabilizing the nail 13a by a few taps of a hammer and without the operator having to use his fingers to hold the nail.

In operation it will be observed that the follower block, 20, under influence of the elastic member 18 will engage the heads 14 of the rearmost nail in each channel 10 and 11 and thus intermittently push the entire row of nails forward as the nails are successively released by finger actuation of lever 28. As the nails, as shown, project below the bottom edge of the holder, any jam or snagging of the nails can readily be broken by manipulating them by the fingers or by agitation of the rod 23.

As the number of nails in the holder decreases the degree of elasticity in the member 18 may be substantially maintained at a predetermined amount by shortening its side reaches, this being permitted by the spring holding clips 19. And, should the elastic member 18 break, a substitution may readily be made.

From the foregoing it is believed that the construction and operation of the nail dispenser has been made sufficiently clear as to call for no further explanation.

What I claim is:

A nail dispenser comprising a nail holder having a common loading and discharge opening at its forward end, the said holder including side walls spaced apart to form a passage for nails in single file, the said side walls having opposing slots providing two longitudinal channels in proximity to each other, each channel slidably receiving the nails and providing supporting surfaces from which the nails are freely suspended, a follower engaging the rearmost nail in said file and guided for sliding movement in one of said channels, such follower including a depending rod formed with an offset portion intermediate its ends, an elastic strip doubled upon itself with its bend engaging the said rod offset portion and with the free ends of its two folds attached to the outer faces of said side walls in rear of said discharge opening, the inner faces of said side walls also being slotted to receive the folds of said elastic strip, means carried by one of said side walls of the holder for releasing the nails at said discharge opening and automatically restraining all but the foremost nail during each individual release, an arm extending forward from the other of said holder side walls, and a permanent magnet attached to said arm in advance of said discharge opening.

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