Sept. 11, 1945. F. M. HARVEY 2,384,738

RIVET MAGAZINE

Filed Aug. 5, 1943

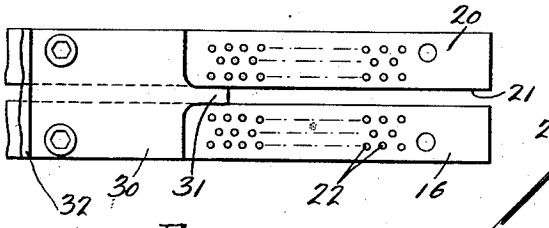


Fig. 5.

Fig. 1.

Fig. 3.

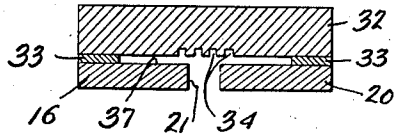


Fig. 4.

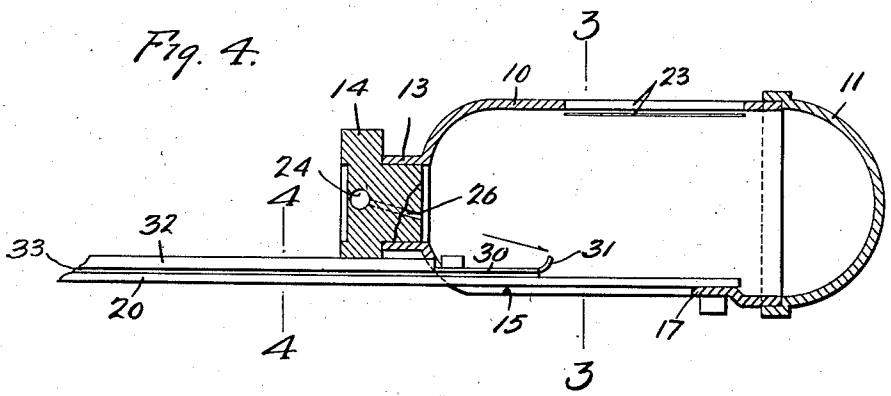


Fig. 2.

INVENTOR
FRANK M. HARVEY
BY
Beau, Brooks, Buckley & Beau.
ATTORNEYS

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RIVET MAGAZINE

Frank M. Harvey, Buffalo, N. Y., assignor, by mesne assignments, to Thomas H. Speller, Buffalo, N. Y.

Application August 5, 1943, Serial No. 497,520

10 Claims. (Cl. 78—46)

My invention relates in general to rivet magazines, and in particular to magazines adapted for feeding rivets to riveting machines. As is well known to those skilled in the art, it is difficult to feed rivets one by one by gravity, from a magazine to a discharge track or guide, the tendency being for the rivets to accumulate in a jumble at the outlet of the magazine thereby obstructing the outlet and stopping the passage of rivets therethrough.

The principal object of my invention has been to provide a gravity feed magazine having means for intermittently scattering the rivets and forcing them toward the upper end of the magazine whereby some of them may be received by the track or guides of the magazine.

Another object has been to provide a magazine having air jets so positioned as to cause the rivets to be blown upwardly toward the upper end of the magazine.

Another object has been to provide means for preventing the rivets already positioned within the guide, or those ready to be received thereby, from being displaced by the force of the air jets.

Moreover, my magazine is provided with suitable vent means for preventing the building up of air pressure therein, and thereby hindering the free passage of the rivets along and through the guides of the magazine.

Furthermore, my invention is so designed that the rivet track or guides thereof may form a part of the rivet discharge chute of the riveting machine with which it is used.

The above objects and advantages have been accomplished by the device shown in the accompanying drawing of which:

Fig. 1 is a side elevation of my magazine;

Fig. 2 is a longitudinal sectional elevation thereof;

Fig. 3 is an enlarged transverse sectional elevation taken on line 3—3 of Fig. 2;

Fig. 4 is an enlarged sectional elevation of the guide and track and is taken on line 4—4 of Fig. 2; and,

Fig. 5 is an enlarged fragmentary plan view of the guides arranged at the bottom of the magazine.

My device comprises a shell 10 preferably cylindrical in form and open at its upper end for the insertion of the rivets. A magazine cap 11 is provided at the upper end of the shell and is fastened thereto preferably by means of a bayonet joint 12. The lower end of the magazine is provided with a neck portion 13 of reduced size which is secured to a magazine head 14.

The bottom portion of the shell 10 is preferably cut away longitudinally to form a space 15, as shown in Fig. 3. Two guides 16 and 20 forming the bottom of the magazine are arranged immediately above the space 15 and are preferably secured to a bottom tab 17 formed on the magazine near its upper end. These guides are separated along their adjacent edges thereby providing a space 21 of a width suitable for the reception of the body of the rivets being handled. That portion of the guides which is exposed within the shell 10, as shown in Fig. 5, is preferably provided with perforations 22 for the escape of the air entering the shell by means to be hereinafter described. The shell is likewise provided along its upper longitudinal center with slots 23 to further relieve the pressure within the shell.

The magazine head 14 is provided preferably with a lateral passageway 24 which receives a source of air under pressure from a supply pipe 25. Communicating with the lateral passageway 24 are two obliquely positioned nozzles 26, which are projected downwardly toward the guides and thereby direct the two streams of air coming therefrom downwardly toward the bottom of the magazine and into the rivets accumulated at the bottom and in the lower end thereof. A single rivet guide 30 is secured to the guides 16 and 20 in spaced relation therewith and positioned with its lower end near the neck 13 of the magazine. This single rivet guide is provided at its upper end with a curve shaped tab 31 of substantially the same width as the space 21. This tab is curved upwardly and any air from the jets 26 tending to strike the rivets about to be received within the space 21 or those rivets already positioned between the guides will be deflected, thus leaving such rivets undisturbed.

Extending outwardly from the plate of the single guide is a rivet track 32 which is preferably co-extensive with the combined width of the guides 16 and 20 and which spans the space 21 therebetween. A space 37 is provided between the track and the adjacent surfaces of the guides 16 and 20 for the accommodation of the heads of the rivets. This space may be provided by forming a longitudinal recess in the underside of the track or by placing track spacers 33 between the track and guides. The width of the space 37 is preferably somewhat greater than the thickness of the rivet heads so that they will be permitted to slide freely between the guides and the track. So as to reduce frictional contact of the head with the track and the resulting hindrance to the free passage of the rivets, the area

of the surface exposed to the rivet head is reduced preferably by forming a plurality of longitudinal grooves 34 in the face of the track opposite the space 21. The magazine head 14 is preferably attached to a flange 35 which may form a part of the riveting machine to which my magazine is attached. This flange is preferably provided with means in the form of a lug 36 for attachment to the track and guides, and the track and guides may be extended downward, thus forming the discharge chute of the riveting machine.

When my device is put into use, and particularly when it is applied to a riveting machine operated by pneumatic pressure, the supply pipe 25 is connected to the power unit of the riveting machine (not shown) so that it receives intermittent impulses of air. This connection is preferably to the return side of the power cylinder so that each time the riveting anvils of the machine (not shown) are separated, jets of air will be forced into and against the rivets accumulated in the lower end of the magazine. As hereinbefore indicated, the rivets normally lie at the bottom and in the lower end of the shell in a jumble and when air is projected into them by means of the nozzles 26, the mass is agitated and the rivets are thereby separated and scattered, moving in a general upward direction toward the upper end of the magazine, thereby giving the opportunity for some of them to be received in the space 21 between the guides 16 and 20. When the air is shut off from the nozzles by the completion of the return stroke of the power unit of the riveting machine, some of the rivets falling back by gravity toward the lower end of the magazine will also engage the space 21 between the guides. Those rivets already positioned within the space 21 in front of the single rivet guide 30 will not be disturbed from their position by the air jets because of the baffling action of the tab 31.

From the foregoing it will be seen that my invention provides a very simple and effective magazine with no working parts and nothing likely to get out of order.

Having thus described my invention, what I claim is:

1. A rivet magazine, comprising a stationary shell positioned to have its axis inclined, spaced rivet guides arranged longitudinally of the axis of the shell and exposed at the bottom thereof, and intermittently operated pneumatic jet means operable within said shell for scattering the rivets within the shell, whereby some of the rivets will be deposited at the bottom of the shell and received within the space between the guides.

2. A rivet magazine, comprising a shell positioned to have its axis inclined, spaced rivet guides longitudinally exposed at the bottom of the shell, and nozzle means carried near the lower end of the shell for projecting an airstream into the accumulated rivets in this end of the shell whereby the rivets will be scattered within the shell and some of them received within the space between the guides.

3. A rivet magazine, comprising a stationary shell positioned to have its axis inclined, spaced rivet guides arranged longitudinally of the axis of the shell and exposed at the bottom thereof, intermittently operated pneumatic jet means operable within said shell for scattering the rivets within the shell, whereby some of the rivets will be deposited at the bottom of the shell and received within the space between the guides, and baffle means located over and in front of the space between the guides to prevent positioned rivets from being dislodged by said jet means.

4. A rivet magazine, comprising a stationary shell positioned to have its axis inclined, spaced rivet guides arranged longitudinally of the axis of the shell and exposed at the bottom thereof, intermittently operated pneumatic jet means operable within said shell for scattering the rives within the shell, whereby some of the rivets will be deposited at the bottom of the shell and received within the space between the guides, and said magazine shell being formed with vent openings to prevent pressure being built within said shell by said jet means.

5. A rivet magazine, comprising a stationary shell positioned to have its axis inclined, spaced rivet guides arranged longitudinally of the axis of the shell and exposed at the bottom thereof, a track spanning that portion of the guides beyond the magazine shell and having a portion thereof spaced from the guides to form a recess for the rivet heads, and intermittently operated pneumatic jet means operable within said shell for scattering the rivets within the shell, whereby some of the rivets will be deposited at the bottom of the shell and received within the space between the guides.

6. A rivet magazine, comprising a stationary shell positioned to have its axis inclined, spaced rivet guides arranged longitudinally of the axis of the shell and exposed at the bottom thereof, a track spanning that portion of the guides beyond the magazine shell, spacers arranged between the track and the guides, and intermittently operated pneumatic jet means operable within said shell for scattering the rivets within the shell, whereby some of the rivets will be deposited at the bottom of the shell and received within the space between the guides.

7. A rivet magazine, comprising a stationary shell positioned to have its axis inclined, spaced rivet guides longitudinally exposed at the bottom of the shell, a track spanning that portion of the guides beyond the magazine shell and having a portion thereof spaced from the guides to form a recess for the rivet heads, said track being formed on its face opposite the space between the guides with grooves, and intermittently operated pneumatic means for scattering the rivets within the shell, whereby some of them will be received within the space between the guides.

8. A rivet magazine, comprising a stationary shell positioned to have its axis inclined, a rivet track member carried by said shell and formed with a longitudinal guideway for sildably holding a plurality of rivets, a portion of said member being exposed at the bottom of said shell, intermittently operated pneumatic jet means operable within said shell for scattering the rivets within the shell, and a single rivet guide disposed within said shell and having a baffle disposed between the pneumatic means and the guideway.

9. A rivet magazine, comprising a shell positioned to have its axis inclined, a rivet track member barried by said shell and formed with a longitudinal guideway for slidably holding a plurality of rivets, a portion of said member being exposed at the bottom of said shell, intermittently operated pneumatic means for scattering the rivets within the shell, and a single rivet guide disposed within said shell, said guide having a base secured to said track member in spaced relation therewith and a tab arranged in front of said guideway, whereby a baffle is provided to pre-

vent rivets received in said guideway from being dislodged.

10. A rivet magazine, comprising a shell positioned to have its axis inclined, a rivet track member carried by said shell and formed with a longitudinal guideway for slidably holding a plurality of rivets, a portion of said member being exposed at the bottom of said shell, nozzle means carried at the lower end of said shell for projecting an airstream into the accumulated rivets in the magazine, and a single rivet guide disposed within said shell, said guide having a base secured to said track member in spaced relation therewith and a tab arranged in front of said guideway, whereby a baffle is provided to prevent rivets received in said guideway from being dislodged.

FRANK M. HARVEY.

CERTIFICATE OF CORRECTION.

Patent No. 2,384,738. September 11, 1945.

FRANK M. HARVEY.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 8, for "rives" read --rivets--; line 40, strike out the word "stationary"; line 65, for "barried" read --carried--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 18th day of December, A. D. 1945.

Leslie Frazer

First Assistant Commissioner of Patents.

(Seal)