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(54) Loader for small-arms magazines.

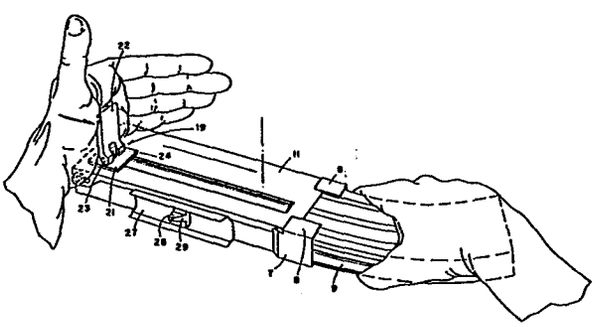
(57) A mechanical loader for loading ammunition into a small-arm magazine. The loader comprises:

a casing having a lateral delivery opening adapted for engagement with the magazine mouth, which casing is adapted to accomodate a plurality of ammunition rounds in juxtaposition in such a fashion that the rounds are transferable into an engaging magazine via said delivery opening;

a lid mounted on said casing and swingable between an open position in which ammunition rounds can be charged into the casing and a closed position; and

a manually operated pusher member reciprocable along said lid and adapted, in the closed position of the lid, to push ammunition rounds from inside the casing into an engaging magazine.

There are also provided ready packed ammunition packages for use with such loaders.



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Loader for small-arms magazines

The present invention concerns a mechanical device for loading ammunition into a small-arm magazine.

Small arms, such as rifles, semi-automatic and automatic rifles and carbines, sub-machine guns and light machine guns use magazines for holding the ammunition and feeding it into the breech for firing. For combat, infantry men are usually issued more than one magazine so that when one magazine is exhausted it can swiftly be replaced by a ready loaded new one. It happens, however, quite frequently that all ready loaded magazines are exhausted during combat and the soldier is faced with the need to reload his magazines using for the purpose either ammunition which he carries in his belt pouches or, when he is firing from a protected position such as a stronghold or an armoured vehicle, bulk ammunition kept, for example, in a crate.

A magazine of a small-arm comprises a spring loaded follower and during loading of the magazine the follower has to be forcibly depressed by the operator's thumb against the action of its spring with the required force increasing gradually with each loaded round. As the amount of force that can be applied by the thumb is limited, it is easily understood that loading a small-arm magazine by manually positioning the individual rounds therein is a tedious operation.

In order to facilitate the manual loading, ammunition is often issued in clipped form, each clip holding a certain number of rounds - say 5 to 10 - and for loading the clip there is provided a so-called loader which is a guide member adapted to be affixed to the mouth of the magazine and to engage a clip in such a fashion that the ammunition rounds are smoothly guided from the clip via the loader into the magazine. By applying pressure by means of the thumb all the ammunition rounds of one clip are transferred in one go into the magazine. Here again the amount of force applicable by the operator's thumb is limited and accordingly this limitation and drawback is not overcome.

Thus, while the clip loading technique constitutes a certain improvement over the individual loading of each round of ammunition into a small-arm magazine, it is still far from satisfactory since in the end result it also requires the user to exert direct pressure with his thumb with all ensuing limitations. Furthermore, loaders are as a rule small size accessories which tend to get lost which may create considerable confusion where a magazine has to be reloaded under combat conditions.

It is the object of the present invention to provide a mechanical loader device for loading magazines of small arms that is reliable and easy to operate.

In accordance with the present invention there is provided a mechanical loader for loading ammunition into a small-arm magazine comprising:

a casing having a lateral delivery opening adapted for engagement with the magazine mouth, which casing is adapted to accommodate a plurality of ammunition rounds in juxtaposition in such a fashion that the rounds are transferable into an engaging magazine via said delivery opening;

a lid mounted on said casing and swingable between an open position in which ammunition rounds can be charged into the casing and a closed position; and

a manually operated pusher member reciprocable along said lid and adapted, in the closed position of the lid, to push ammunition rounds from inside the casing into an engaging magazine.

For operating the manual pusher member in a loader according to the invention, the operator can utilize all his arm muscles, e.g. by gripping an associated handle, rather than only his thumb and in this way much more force can be exerted with much less effort and the entire amount of ammunition rounds contained in the loader device which may correspond to the capacity of the magazine, may be transferred into the magazine in one swift motion lasting a second or even less.

The ammunition round may be placed into the casing of the loader either individually or in readily prearranged clusters, e.g. in clips or in special packages.

Thus within the scope of the present invention there may be provided a ready packed ammuniation package fitting into the casing of a loader according to the invention and adapted for the penetration of the pusher member therein. With such a package all that the operator has to do is to place it inside the loader, shut the lid of the latter, mount the loader on the magazine and operate the pusher member, the duration of this sequence of manipulations being not more than several seconds.

Preferably, the bottom of the casing of a loader according to the invention is fitted with guide means such as ribs which ensure that at the time of transfer of an ammunition round from the loader to the magazine, the round is flush with a lip of the latter, whereby an unobstructed and smooth transfer is ensured.

Where a magazine has to be put away it is as a rule unloaded. Conventionally, where a magazine is unloaded under field conditions the operator pushes out each round individually, either with his thumb or with the aid of an improvised tool such as another round of ammunition, a screw driver or the like. If desired, this problem may also be solved in accordance with the present invention by providing on the outer face of the

loader a guide member fitted at its bottom with ejector means so adapted that when a loaded magazine is reciprocated therein with the mouth facing said ejector means, one round is ejected from the magazine in each back-and-forth cycle. By rapidly reciprocating the magazine in the guide member the entire ammunition contents of the magazine may be unloaded in a few seconds.

The invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Fig. 1 is a perspective, exploded view of an assembly comprising a magazine, a prior art loader and a clip with several rounds of ammunition;

Fig. 2 is a perspective view showing a loader device according to the invention with the lid open and a magazine for association therewith;

Fig. 3 is a perspective view of an ammunition clip that can be placed into the loader as is;

Fig. 4 is a perspective view of a box with ammunition rounds adapted for being placed into the loader according to the invention;

Fig. 5 is a perspective view of a loader according to Fig. 2 engaging a magazine and showing the operator's hand at the beginning of a loading operation;

Fig. 6 is a perspective view of a detail of the loader of Fig. 5;

Fig. 7 is an elevation, partly in section and with parts broken away of the loader according to Figs. 2 and 5 in two operative positions; and

Fig. 8 is a plan view corresponding to Fig. 7.

In the prior art arrangement shown in Fig. 1 a loader 1 is adapted for mounting on the mouth region of a magazine 2 and to receive a clip 3 holding a plurality of ammunition rounds 4. Once clip 3 is firmly held by loader 1 the operator depresses the ammunition rounds with his thumb until clip 3 is entirely stripped and all rounds are received by magazine 2. Where magazine 2 is adapted to hold more rounds than clip 3, another clip is mounted and the operation is repeated.

The loader according to the invention shown in Fig. 2 comprises a casing 5 having a delivery opening 6. The terminal portion of casing 5 near delivery opening 6 is slightly broader than the main body and side walls 7 thereof are provided with overhanging flanges 8 thus forming a gripper assembly 7, 8 adapted to engage the mouth portion of the magazine.

At the bottom casing 5 comprises guide means in form of two ribs 10 whose ends near the gripping assembly 7, 8 serve as stop for the magazine 9 and

which furthermore ensure that any round arriving at the mouth of magazine 9 will be flush with the lips thereof.

A lid 11 is hinged near the end of casing 5 opposite delivery opening 6 on a hinge 12 retained by means of two flat head portions 13 and engaging lid 11 in slots 14 provided in lugs 15. In this way when the lid is closed it can be pushed forward by an extent corresponding to the length of slots 14.

At its front part lid 11 comprises a tongue 16 which when the lid is closed and pushed forward as specified, becomes positioned underneath gripper 7,8 whereby the lid 11 is secured in its closed position.

Lid 11 comprises a longitudinal slot 17 holding a pusher assembly 19. Pusher assembly 19 comprises a pusher member 20 located on the inner side of lid 11 and depending from a retainer plate 21 located on the outer side of lid 11 (see also Fig. 6). The pusher assembly further comprises a handle 22 whose lower, rounded portion 23 is eccentrically hinged to a vertical pin 24 so as to be swingable between a folded, horizontal and an upright position and to be arrested in the latter. A helical spring 25 positioned between retainer plate 21 and head 26 of pin 24 biases the pin into the depressed position, the arrangement being such that spring 25 is in its normal compressed state in which the pin is depressed in both the horizontal and vertical positions of handle 22, and becomes extended

in an intermediary transitional position of the handle. Accordingly, once the handle has passed the transitional position it snaps into vertical or horizontal position, as the case may be.

Pin 24 is freely turnable about its longitudinal axis and in this way the folded handle 22 can be turned from a rest position in which it is directed outwards as shown in Fig. 5.

On one of its side walls casing 5 comprises an integral, trough-shaped guide member 27 having at its bottom an ejector 28 comprising a slanted gliding surface 29. Guide member 27 is adapted to receive the mouth portion of a magazine 9 and by reciprocating the magazine in the guide member the loaded rounds of ammunition are ejected: when moving the magazine from right to left the slanted surface 29 portion of ejector 28 glides over the foremost round of ammunition causing a slight depression thereof and when subsequently the magazine is moved back from left to right the vertical portion of ejector 28 catches the rear of the cartridge of the foremost round and prevents it from following the motion of the magazine whereupon at the end of the back motion the foremost round is ejected.

The clip 30 shown in Fig. 3 is a conventional one and it holds in a manner known per se, a plurality of ammunition rounds.

The package 31 shown in Fig. 4 is specially

designed for the purposes of the present invention. As shown it comprises a box of prismatic, rectangular shape and is adapted to fit into the part of casing 5 between hinge 12 and gripper assembly 7, 8. At its upper side the box 31 comprises a strip 32, having similar dimensions as slot 17 of lid 11. When the lid 11 is shut slot 17 overlies strip 32. Strip 32 of box 31 is connected to the flanking portions of the upper side by weakness lines such that it can easily be torn away by means of pusher member 20.

The first end wall 33 of box 31 is connected to the neighbouring four walls by three weak connections and one strong connection so that when the ammunition rounds inside the box are pushed forward the weak connections yield and end wall 33 is folded over the fourth connection, thereby clearing the way for the passage of the ammunition rounds from package 31 into magazine 9. The opposite end wall of the box is so designed as to enable the penetration of the pusher member 20.

If desired, the box may be made without strip 32 and have at its upper side a window-like opening of similar size as slot 17 of lid 11 and so located that when the box is positioned inside the loader, slot 17 overlies said window-like opening.

In either case, during operation pusher member 20 can move essentially unobstructed from the

second end wall of box 33 to near the first end wall thereof.

The operation of a loader device according to the invention is as follows:

In the open state of the loader a suitable number of ammunition rounds is placed inside. This may be done either by placing each round individually, or by placing a clip such as shown in Fig. 3 or else by placing a box of the kind shown in Fig. 4. The lid is now shut and pushed forward so that tongue 16 is caught underneath flanges 8. The folded handle 22 is now turned around axis 24 from the position shown in Fig. 7 in which it is directed inwards into the diametrically opposed position shown in Fig. 6. From this position the handle 22 is swung into the upright state shown in Fig. 5 and the righthand side of Fig. 7. Magazine 9 is now inserted into gripper assembly 7, 8 as shown in Figs. 5, 7 and 8 and the entire loader/magazine assembly is gripped in the manner shown in Fig. 5. By now pushing handle 22 forward in one swift motion the entire content of the loader is smoothly transferred into magazine 9.

Where the ammunition rounds are packed inside a box 31, the pusher member 20 tears away strip 32 and the end wall 33 is forced open and folded over one of its connections to the body of the box.

When the loading operation is completed,

magazine 9 is withdrawn and the loader is ready for another operation.

Where a loaded magazine has to be unloaded, this is done with the aid of the guide member 27 in the manner specified hereinbefore.

When the loader is no longer required, handle 22 is folded back into the position shown in Fig. 6 and is then turned by 180° about axis 24 so as to come back into the rest position shown in the lefthand side of Fig. 7.

"The features disclosed in the foregoing description, in the claims and/or in the accompanying drawings may, both separately and in any combination thereof, be material for realising the invention in diverse forms thereof."

CLAIMS

1. A mechanical loader for loading ammunition into a small-arm magazine comprising:

a casing having a lateral delivery opening adapted for engagement with the magazine mouth, which casing is adapted to accommodate a plurality of ammunition rounds in juxtaposition in such a fashion that the rounds are transferable into an engaging magazine via said delivery opening;

a lid mounted on said casing and moveable between an open position in which ammunition rounds can be charged into the casing and a closed position; and

a manually operated pusher member reciprocable along said lid and adapted, in the closed position of the lid, to push ammunition rounds from inside the casing into an engaging magazine.

2. A loader according to Claim 1 wherein the pusher member is associated with an outside handle.

3. A loader according to Claim 2 wherein said handle is turnable about a vertical axis and swingable between a folded and upright position.

4. A loader according to any one of Claims 1-3 comprising inner guide means so adapted that an ammunition round about to be transferred to an engaging magazine is flush with a lip of the latter.

5. A loader according to any one of the preceding claims comprising exterior guide means fitted at

their bottom with ejector means so adapted that when a loaded magazine is reciprocated in said guide means with the mouth facing said ejector means, one round is ejected from the magazine in each back and forth cycle.

6. For use with a loader according to any one of the preceding claims, a ready packed ammunition package fitting into the casing of the loader and adapted for cooperation with the pusher member thereof.

7. For use in a package according to Claim 6 a box adapted to fit into a loader according to Claim 1 and further characterised by a first end wall being designed for facing a delivery opening of the loader and to yield to pressure so as to enable the ejection of packed ammunition rounds; a second end wall being adapted to admit said pressure member; and a top wall adapted to enable the essentially unobstructed passage of said pusher member from said second end wall to near said first end wall.

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FOUR SHEETS
SHEET No. 1

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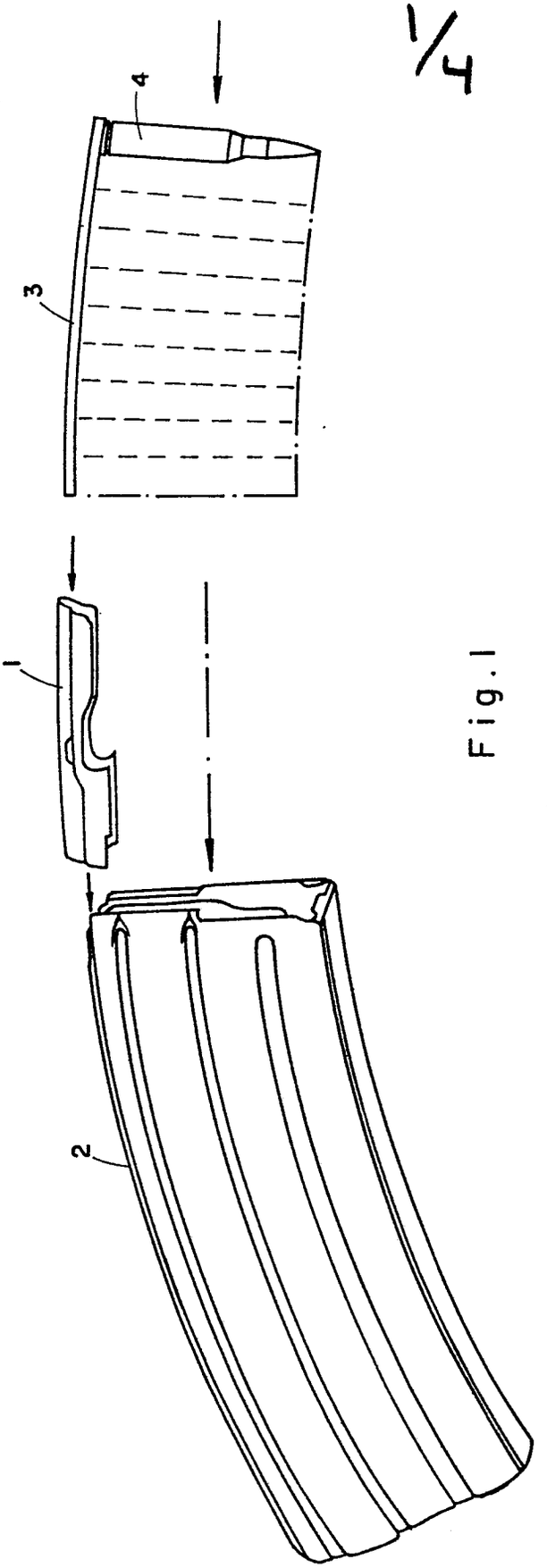

Fig.1

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Fig.3

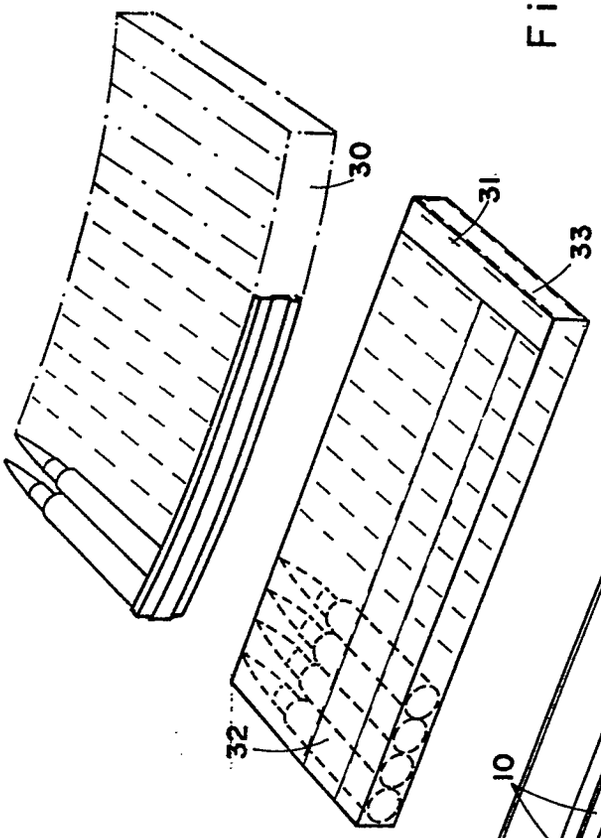

Fig.4

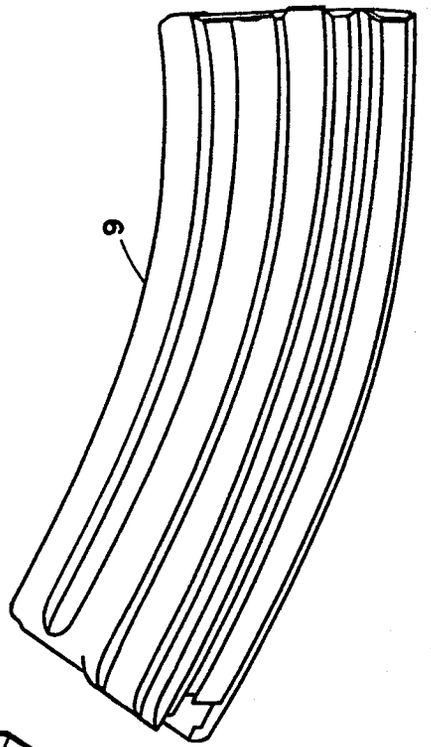

Fig.2

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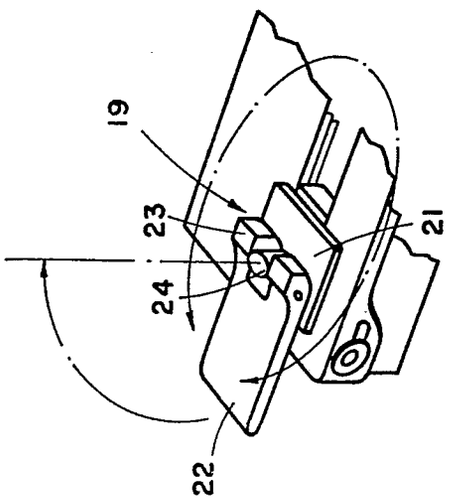

Fig.6

Fig.5

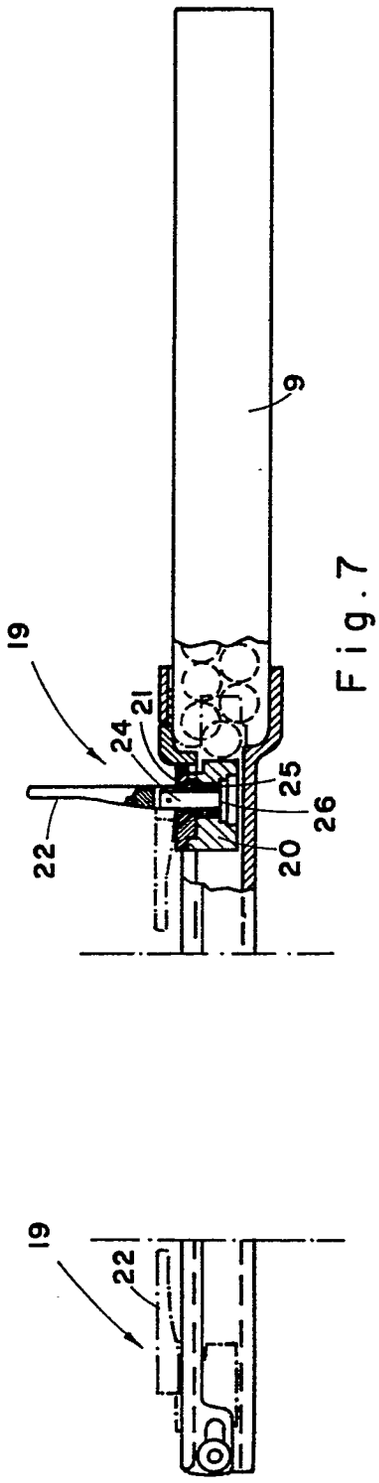

Fig.7

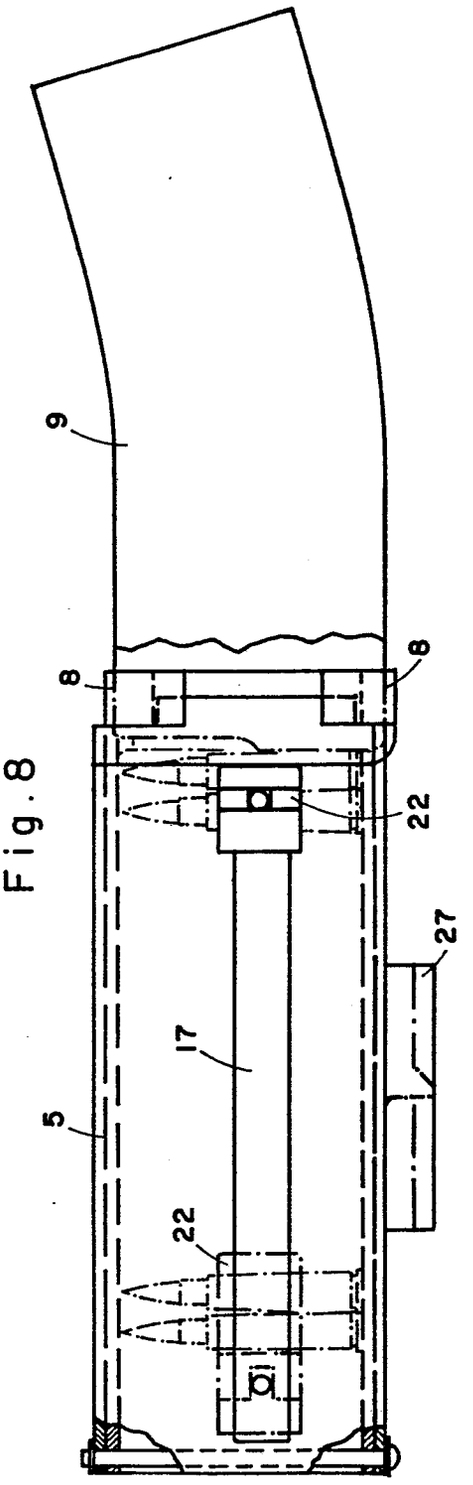

Fig.8