Feb. 19, 1952 B. MAILLARD 2,586,358

CARTRIDGE FEED DEVICE FOR AUTOMATIC FIREARMS

Filed Sept. 20, 1946

Fig. 1

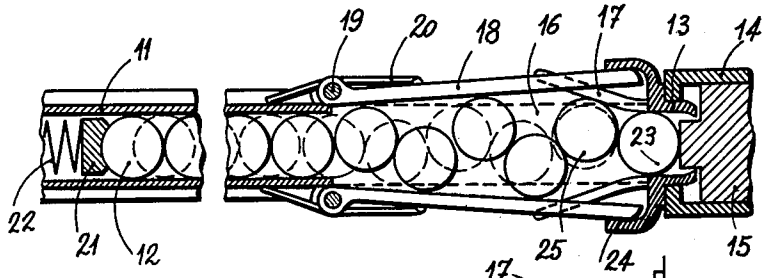


Fig. 2

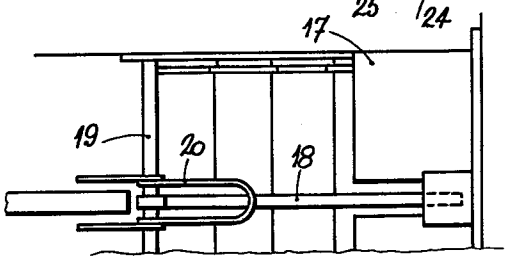


Fig. 3

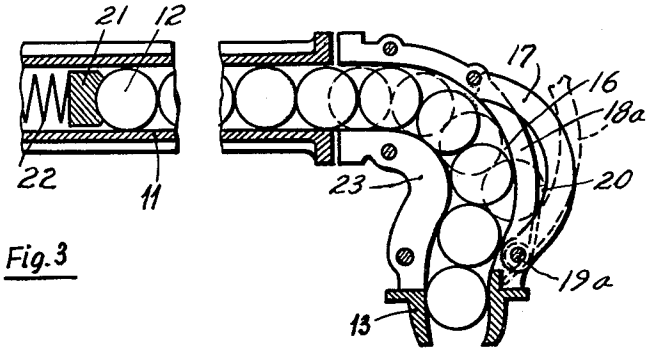
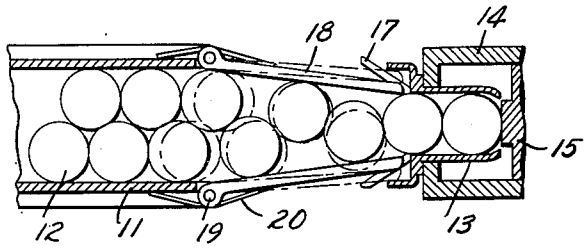


Fig. 4



INVENTOR
BERNARD MAILLARD
By: Young, Emery & Thompson
Attys.

Patented Feb. 19, 1952 2,586,358

UNITED STATES PATENT OFFICE

2,586,358

CARTRIDGE FEED DEVICE FOR AUTOMATIC FIREARMS

Bernard Maillard, Geneva, Switzerland, assignor to Brevets Aero-Mecaniques S. A., a corporation of Switzerland

Application September 20, 1946, Serial No. 698,190
In Switzerland September 29, 1945

4 Claims. (Cl. 42—50)

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The present invention relates to automatic firearms adapted to be supplied with cartridges which are not connected together, i. e. which are not mounted on a belt, a clip, etc. In such firearms, the cartridges are generally fed to the breech mechanism through a passage in which the cartridges are freely juxtaposed in direct contact with one another, in one or more rows. Suitable elastic means ensure the movement of the cartridges toward the firearm breech mechanism.

In existing constructions of this kind, when the first cartridge in the passage enters the breech box, the elastic means in question must accelerate all the cartridges contained in this passage in order to impart an acceleration to this first cartridge and to bring the second cartridge into the position of said cartridge. When the second cartridge has reached this position the movement of all the cartridges present in the passage must be stopped suddenly.

In view of the fact that automatic firearms are required to fire at a more and more rapid rate, which leads to the use of feed devices of larger and larger size, it is clear that this succession of positive and negative accelerations of all the cartridges contained in the passage has serious disadvantages. On the one hand it calls for very powerful elastic means and, on the other hand it subjects the distributing mechanism of the firearm to forces which are liable to compromise the regularity of its operation and limit the rate of fire.

The object of the present invention is to eliminate these disadvantages. Its essential feature consists in making the portion of the above mentioned passage adjacent to the breech mechanism elastically expansible so as to absorb the accelerations imparted to the first cartridges of the row and to permit a feed movement of the remainder of the row or rows of cartridges at substantially uniform velocity.

Some embodiments of the feed device according to the present invention are shown by way of example in the accompanying drawing, wherein:

Fig. 1 is a sectional elevation of a first embodiment.

Fig. 2 is a plan view corresponding to Fig. 1.

Figs. 3 and 4 are sectional elevations of two other embodiments.

The cartridge feed device illustrated by Figs. 1 and 2 is made as follows:

The passage for guiding cartridges 12 includes a rear portion 11 the opposite walls of which are at a distance from each other corresponding exactly to the thickness of the cartridges, and a front portion 17 the opposite walls of which converge toward an outlet 13 the dimensions of which correspond to those of portion 11. Between these portions 11 and 17 of the passage, there is a space 16 where there are no continuous walls for guiding the cartridges but levers 18, pivoted at 19 to portion 11 and engaging in slots 17a of walls 17, these levers being urged inwardly by springs 20 mounted on portion 11. Stops 24 carried by portion 17 limit outward displacements of levers 18.

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Outlet 13 leads to the breech mechanism essentially constituted by breech case 14, and breech block 15 moving therein. At the other end of the passage, pusher 21, subjected to the action of a spring 22, is applied against the last cartridge 12 of the row, to urge the whole row toward outlet 13.

The device operates in the following manner:

Pusher 21 acts to hold all the cartridges in contact with one another and to press the first cartridge 23 against breech block 15. In portion 16 of the passage, the cartridges assume a zigzag or staggered formation and tend to force levers 18 into contact with stops 24. When breech block 15 is retracted to admit the first cartridge 23 into the breech case, the introduction of this cartridge is facilitated by the action of levers 18 which, on pivoting inwardly, impart a sudden acceleration to the cartridges located between portion 16 of the passage and the breech case. During this time pusher 21 feeds all the cartridges contained in the passage toward the breech case. When the second cartridge 25 is stopped against breech block 15, the thrust exerted on the row of cartridges by pusher 21 expands levers 18 outwardly and allows the cartridges in portion 16 of the passage to assume a zig-zag formation. Springs 20 and 22 and portion 16 are so conditioned that all the cartridges located in portion 11 of the passage can move in the direction of the firearm at a practically constant speed. Only a few cartridges located in immediate proximity to the outlet of the loader, that is to say, those located between portion 16 and outlet 13, are subjected to a succession of positive and negative accelerations. Springs 20 act as shock absorbers and ensure the progressive stopping of the movement of these cartridges.

With this device, propulsion of the cartridges in the guiding passage absorbs much less energy because it is not necessary to accelerate all the cartridges in the guiding passage.

Furthermore the distributing mechanism of the

firearm whether it is constituted by the breech block itself or by any other escapement member, does not have to support repeated consecutive shocks on sudden stoppages of all the cartridges in the device.

In the form of construction above described it is not indispensible to arrange levers 18 on both sides of section 16. The same result can be obtained by providing levers on one side only of this section. Instead of actuating levers 18 by springs 20. I may also control the movement of these levers in synchronism with the distributing mechanism of the firearm through any suitable transmission device.

The embodiment of Fig. 3 differs from that of Figs. 1 and 2 in that one of the guiding members between the edge of passage portion 11 and the corresponding edge of outlet 13 is fixed, being constituted by curvilinear part 23. The opposite guiding wall includes arms 18a pivoted at 19a to a part 17a fixed with respect to parts 11 and 13. Springs 20 urge arms 18a toward their positions shown in solid lines on Fig. 3. In this construction, as in the preceding one, when the cartridge in outlet 13 is suddenly stopped, those located behind it can move transversely in staggered fashion, as shown in dotted lines, so as to enable the last cartridges located at the rear, to be pushed in a substantially continuous manner by member 21. But, whereas in the construction of Fig. 1, the space 16 in which took place this lateral movement of some cartridges was expanded owing to the movement of two sets of straight arms 18 away from each other, in the construction of Fig. 3, this expansion of space 16 is obtained by the movement of a single set of curvilinear arms 18a away from a fixed wall 23.

The third embodiment shown in Fig. 4, is practically identical with that of Fig. 1, with the only difference that portion 11 of the passage is dimensioned to accommodate two rows of cartridges arranged in staggered relation. Operation is identical with that of the first embodiment.

In these three embodiments the conversion of the sudden movement of the first cartridges to leave the device into a substantially continuous movement for the remainder of the cartridges in the device, is obtained by providing an expansible portion in proximity to the outlet thereof.

In a general manner, while I have, in the above description, disclosed what I deem to be practical and efficient embodiments of my invention, it should be well understood that I do not wish to be limited thereto as there might be changes made in the arrangement, disposition and form of the parts without departing from the principle of the present invention as comprehended within the scope of the accompanying claims.

I claim:

1. A cartridge feed device for automatic firearms to be supplied with cartridges which are not connected together, which comprises, in combination, means forming a guiding housing for at least one row of cartridges, said means including, an outlet end of said housing, two walls at said outlet end fixed with respect to each other at a distance from each other substantially equal to the diameter of said cartridges, two walls at the other end of said housing fixed with respect to the two first mentioned walls and extending in the direction of said row of cartridges to a distance from said first mentioned walls, these two pairs of guiding walls being parallel to the axes of the cartridges of said row, and two guiding members elastically urged relatively to each other against the row of cartridges transversely to the direction of said row and mounted to bridge the gap between the two first mentioned guiding walls and the two second mentioned guiding walls, and means in said second mentioned end of said housing for engaging the last cartridge of said roll and urging it toward the outlet end of said housing.

2. A cartridge feed device according to claim 1 in which said elastically movable guiding members are constituted by arms pivoted to the two second mentioned guiding walls respectively about axes parallel to the axes of the cartridges of said row, in combination with spring means for elastically opposing outward movements of said arms.

3. A cartridge feed device according to claim 1 in which said elastically movable guiding members are constituted by arms pivoted to the two second mentioned guiding walls respectively about axes parallel to the axes of the cartridges of said row, in combination with spring means for elastically opposing outward movements of said arms, said arms being rectilinear.

4. A cartridge feed device according to claim 1 in which said elastically movable guiding members are constituted by arms at least one of which is pivoted to the two second mentioned guiding walls respectively about axes parallel to the axes of the cartridges of said row, in combination with spring means for elastically opposing outward movements of said arms, said arms being curvilinear.

BERNARD MAILLARD.

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