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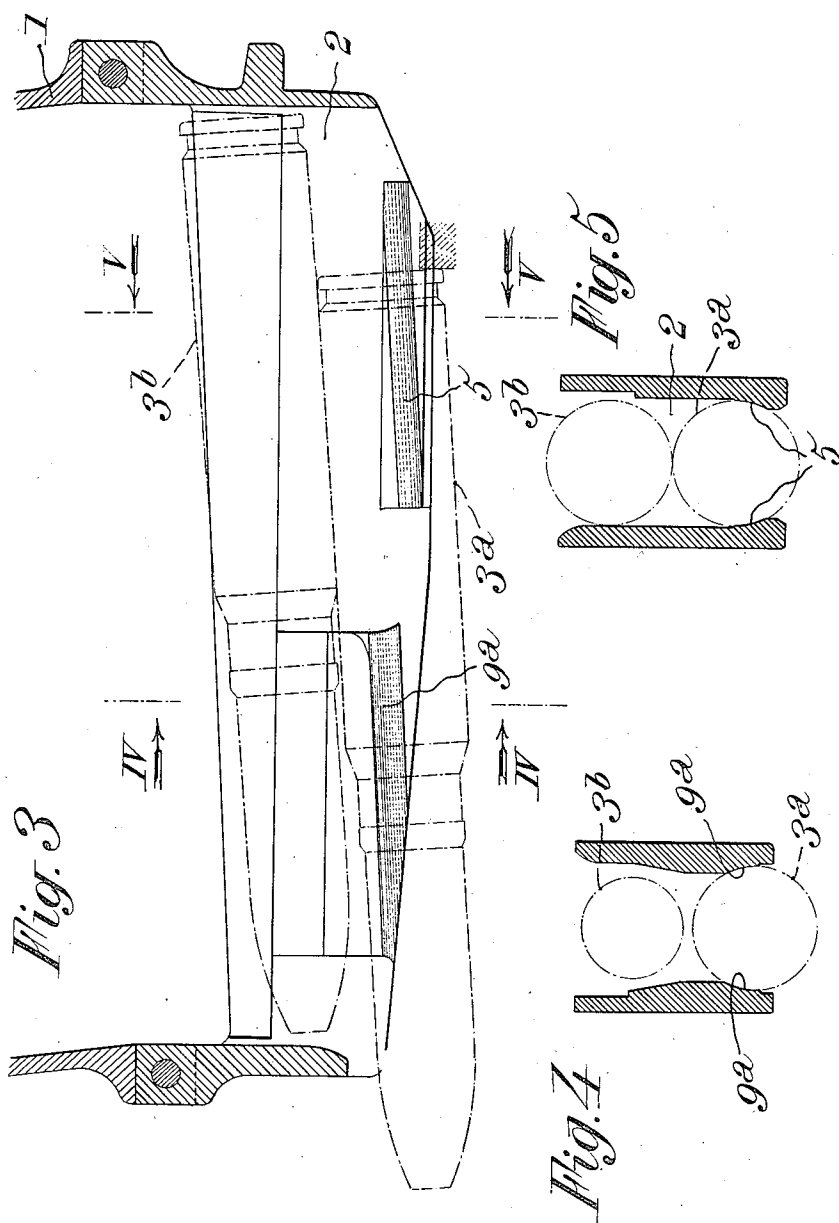
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1 Claim. (Cl. 42—50)

The present invention relates to feed mechanisms and magazines for firearms and in particular automatic firearms. The invention is more especially, although not exclusively, concerned with small bore automatic guns.

The chief object of the present invention is to provide a device of the type above mentioned which is better adapted to meet the requirements of practice than those used for the same purpose up to this time.

According to an important feature of the invention, the firearm includes, in combination with the magazine, means, adapted to permit free movement of the cartridges toward the outlet of the magazine, for imperatively guiding said cartridges for at least a part of the substantially axial displacement they are given for engaging them into the arm with which the magazine is coacting.

In an embodiment of the invention, the means above mentioned include a guiding member provided with at least one surface adapted to bear on one of the cartridges in the magazine, said member being movable and spring mounted so that it can be retracted out of the path of movement of the cartridges on their way toward the outlet of the magazine.

In another embodiment of the invention, the means above mentioned include guiding surfaces carried in fixed position by the magazine and arranged in such manner as to permit the free passage of the front portions of the cartridges, which are of smaller diameter than the rear portions, toward the outlet of the magazine, and to guide the cartridges, after they have been moved forward along the axis of the gun bore, by coacting with said rear portions of the cartridges, successively.

Other features of the present invention will result from the following detailed description of some specific embodiments thereof.

Preferred embodiments of the present invention will be hereinafter described, with reference to the accompanying drawings, given merely by way of example, and in which:

Fig. 1 is an axial sectional view of a feed device for an automatic firearm, said device being made according to the first embodiment of the present invention;

Fig. 2 is a transverse sectional view on the line II—II of Fig. 1;

Fig. 3 is an axial sectional view of a feed device for an automatic firearm, said device being made according to another embodiment of the present invention;

Fig. 4 is a transverse sectional view on the line IV—IV of Fig. 3;

Fig. 5 is a transverse sectional view on the line V—V of Fig. 3.

In the following description, it will be supposed that it is desired to provide an improved cartridge feed mechanism for a quick firing gun of small bore.

The general structure of the device is of any suitable conventional type. For instance, it comprises a magazine 1, at the lower part of which there is provided an outlet passage 2 consisting, for instance, of two flanges adapted to engage in the breech box of the automatic gun to be fed, means, such for instance as a magazine spring not visible on the drawings, being provided for causing the cartridges 3 to move, when possible, toward the outlet of passage 2.

It is known that, in feed devices of this kind, the insertion of a cartridge into the gun is ensured by the displacement of some movable pieces of the breech mechanism, a projection 4, actuated by said pieces, catching the rear edge of the cartridge which has been brought opposite the outlet of the feed passage 2.

Now, there is a substantial distance between the point of application of the thrust exerted by projection 4, on the one hand, and the axis of the cartridge passing through its center of gravity G. Therefore, under the effect of this thrust, the cartridge tends to rock and, due to rebounding, to move on the inside of the cartridge chamber of the gun with a swinging motion which involves many serious disadvantages.

According to the essential feature of the present invention, this defect is obviated by providing the magazine device with means, adapted to permit free movement of the cartridges toward the outlet of the magazine, for imperatively guiding said cartridges during at least a part of the substantially axial displacement they are given for their insertion into the gun cartridge chamber.

In the case of a feeding device made as above described, that is to say including an outlet passage 2, the means in question are advantageously constituted by guiding surfaces projecting to the inside of said passage so as to ensure a linear guiding of the first cartridge 3a to be introduced into the arm.

As this cartridge is generally introduced into the cartridge chamber in a slightly oblique direction, the guiding surfaces in question are arranged in such manner as to produce a positive guiding of the cartridge only as far as the posi-

tion thereof in which the case thereof (which happens to be the portion of the whole which is of maximum diameter) just engages the cartridge chamber of the gun, the latter ensuring, from this time on, the proper guiding of said case.

For this purpose, according to the present invention, I provide the following elements:

a. On the one hand, two lower guiding surfaces of cylindrical shape, constituting a kind of cradle adapted to support the case of cartridge 3a at the beginning of the introduction movement, that is to say during the portion of this movement preceding the engagement of the case of the cartridge into the cartridge chamber of the gun;

b. On the other hand, at least one upper guiding surface, also of cylindrical shape, arranged in such manner, with respect to the above mentioned guiding surfaces, that the case of the cartridge is positively held, during the greatest part of the beginning of its introduction movement, between the lower guiding surfaces and the upper guiding surface.

The upper guiding surface may act either directly on the upper part of the case of cartridge 3a (case illustrated by Fig. 3) or on the upper part of the case of a cartridge located above, for instance cartridge 3b located immediately above cartridge 3a (as illustrated by Fig. 1).

But care must be taken that the upper guiding surface should not oppose the free displacement of the cartridges through passage 2 in the downward direction, from magazine 1, as cartridges are being fed to the gun.

For this purpose, according to an embodiment of the invention, the upper guiding surface is formed on a member adapted to be retracted, against the action of elastic means, so as to permit the free passage of the cartridges in a downward direction through passage 2.

According to another embodiment, when the upper guiding surface is to cooperate directly with the first cartridge 3a, advantage is taken of the fact that the front portion of each cartridge is of smaller diameter than the body of the case of the cartridge. Accordingly, this upper guiding surface is located, in this embodiment, in the portion of passage 2 through which passes the front portion of the cartridges during the downward movement thereof, and this guiding surface projects inside the passage to a distance such as to afford, between the opposite walls of the passage, an interval greater than the diameter of the front portion of the cartridge but smaller than the diameter of the case of the cartridge, whereby, in the course of the forward axial movement of said cartridge, the case thereof engages under the upper guiding surface of the passage and is guided by it.

The first of the two above mentioned embodiments is illustrated by Figs. 1 and 2.

In this embodiment, the retractable member is constituted by a rocking element 6 pivoted about an axis 7 and provided with a nose 6¹ adapted to project on the inside of the passage through an aperture 8 provided for this purpose in one of the walls of passage 2. Member 6 is provided with a shoulder 6² adapted to bear against the outer face of the wall of the passage so as to limit the inward displacement of member 6 in the passage.

The lower edge of nose 6¹ forms a cylindrical groove 9 which constitutes the upper guiding surface.

I further provide elastic means, such for instance as a spring 10 adapted to urge rocking member 6 toward the position (shown in solid lines) in which it projects on the inside of passage 2 and guiding surface 9 bears against the case of cartridge 3b, said elastic means enabling, on the contrary, member 6 to occupy the position (shown in dotted lines) when the downward movement of the cartridges through passage 2 compels nose 6¹ to move outwardly.

Such a device works in the following manner: In the position shown by the drawings, cartridge 3a is longitudinally guided, at the lower part by guiding surfaces 5 carried by the walls of passage 2, and, at the upper part, by the lower part of the cartridge 3b located immediately above it, said cartridge 3b being securely held in position by member 6, which is then in the position shown by the solid lines.

Thus guided, cartridge 3a is pushed toward the front by projection 4, carried by the movable breech mechanism. When this cartridge has been pushed forward out of the magazine, the cartridges present in the passage move down one step. In the course of this movement, cartridge 3b comes into the position previously occupied by cartridge 3a, and the cartridge 3 located immediately above cartridge 3b causes member 6 temporarily to retract outwardly, after which said member 6 comes back into its original position in which it holds cartridge 3, which has passed below it.

In the second embodiment, illustrated by Figs. 3 to 5 inclusive, the device does not include any piece movably mounted with respect to the magazine or the feed passage.

According to this embodiment, I provide, on the inner walls of passage 2, two upper guiding surfaces 9a located, as above explained, in the zone of said passage where the front portions of the cartridges (cartridge 3b, Fig. 4) pass in the course of their downward movement through passage 2. Therefore, these guiding surfaces coact with the case of the cartridge that is being moved axially toward the front for introduction into the gun bore only when said cartridge has already undergone a certain displacement, sufficient for bringing its case under the guiding surfaces in question (cartridge 3a of Figs. 3 and 4), said case being then guided both by the upper and the lower guiding surfaces, respectively designated by reference characters 9a and 5.

Thus, the cartridge that is being pushed into the gun bore is correctly guided by the cooperation of surfaces 9a and 5. Once this cartridge has been fired and expelled, the next cartridge, 3b, is pushed downwardly. Owing to the fact that the front part of said cartridge is of smaller diameter than the minimum distance between projections 9a, said cartridge can freely move down between the walls of passage 2. Then, when the cartridge is pushed frontwardly by the breech mechanism, the case thereof comes under projections 9a and as said case is of a diameter greater than the distance between said projections, the cartridge is now guided both by surfaces 9a and by surfaces 5.

Whatever be the particular embodiment that is chosen, the advantages thereof result sufficiently clearly from the preceding description for making it unnecessary to enter into further explanations.

In a general manner, while I have, in the above description, disclosed what I deem to be practical and efficient embodiments, it should be well

understood that I do not wish to be limited there-
to as there might be changes made in the ar-
rangement, disposition and form of the parts
without departing from the principle of the pres-
ent invention as comprehended within the scope
of the accompanying claim.

What I claim is:

In a magazine adapted to be detachably con-
nected to a gun, said magazine having space for
a plurality of cartridges to be fed to the gun
by movement thereof in a direction transverse to
their axial direction, said magazine being pro-
vided with an elongated generally rectangular
structure constituting a passageway terminating
in an outlet through which each cartridge passes
from the magazine toward the gun, the cartridge
nearest to the outlet being disposed to be moved
from said outlet toward the gun with an axial
displacement by mechanism carried by the gun,
the inner surfaces of the side walls of said pas-
sageway being formed with fixed front and rear
guiding means cooperating with each other for
positively guiding each cartridge in the course

of said axial displacement, said guiding means at
the rear portion of said passageway comprising
elongated parallel portions on opposite side walls
of said passageway adjacent the outlet and ex-
tending inwardly in said passageway to confine
said passageway at said rear portion to a width
less than the diameter of the main body of a car-
tridge, said elongated parallel portions having
arcuate surfaces for engaging the under side sur-
faces of the cartridge nearest the outlet, said
guiding means at the front portion of said pas-
sageway comprising elongated parallel portions
on opposite side walls of said passageway adjacent
the outlet and extending inwardly in said pas-
sageway to confine said passageway at said front
portion to a width less than the diameter of the
main body of a cartridge but greater than the
diameter of the shell portion of a cartridge, said
last-named parallel portions having arcuate sur-
faces for engaging the upper side surfaces of the
cartridge nearest the outlet as said cartridge is
moved by axial displacement into the gun.

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