United States Patent [19]

Jampy et al.

[11] **3,745,878**

[45] **July 17, 1973**

[54] **INFANTRY WEAPON ADAPTED TO FIRE A PLURALITY OF CARTRIDGES SIMULTANEOUSLY**

[76] Inventors: **Pierre Jampy**, 5 rue Pauphile; **Henri Bouix**, Cote du Monteil; **Rene Armand**, 22, rue Georges Thyvent, all of 19 Tulle, France

[22] Filed: **Jan. 7, 1972**

[21] Appl. No.: **216,117**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 67,096, Aug. 26, 1970, Pat. No. 3,720,133.

[52] **U.S. Cl.** ..... **89/33 B**, 89/11, 89/41 A, 89/126, 42/15

[51] **Int. Cl.** **F41c 9/22**, F41c 25/00

[58] **Field of Search** ..... 89/33 B, 41 A, 9, 89/11, 1 L, 126, 127; 42/15

[56] **References Cited**

UNITED STATES PATENTS

2,231,879	2/1941	Brightman	89/1 L
2,359,517	10/1944	Gebeau	42/15

FOREIGN PATENTS OR APPLICATIONS

491	1882	Great Britain	89/1 L

Primary Examiner—Benjamin A. Borchelt
Assistant Examiner—J. V. Doramus
Attorney—Eric H. Waters, John G. Schwartz, et al.

[57] **ABSTRACT**

An infantry weapon comprises a carrier block with a plurality of firing chambers and barrels carried by the block in extension of the chambers. A clip with a plurality of cartridges equal to the number of barrels is fed from a stack in the weapon and a breech block carrier pushes the cartridges from the clip into the firing chambers. After percussion of the cartridges, the breech block carrier and carrier block retract to enable insertion of a new clip into the weapon and expulsion of the old clip after the spent cartridges have been reintroduced therein.

6 Claims, 10 Drawing Figures

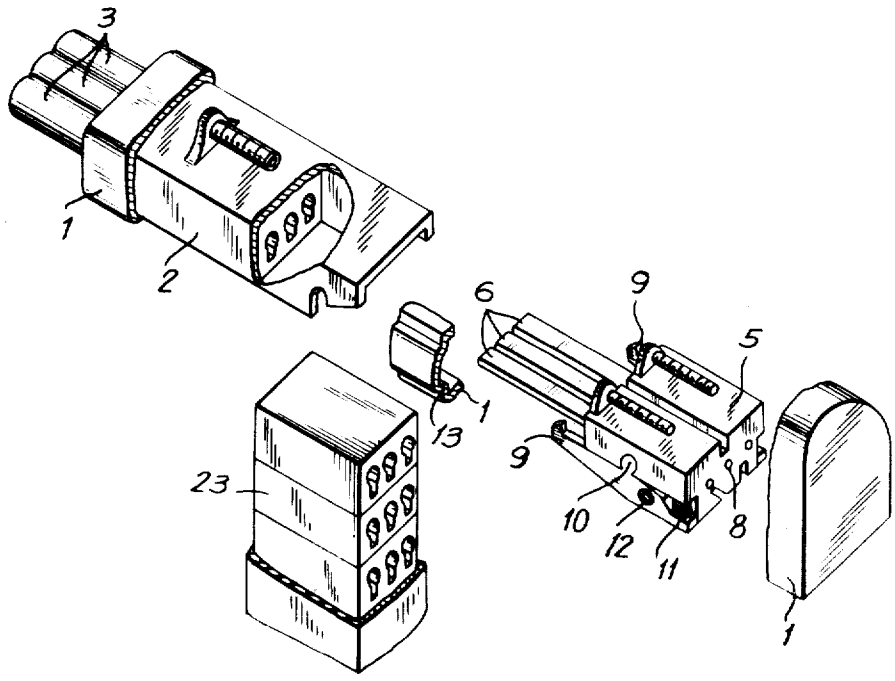


FIG. 1

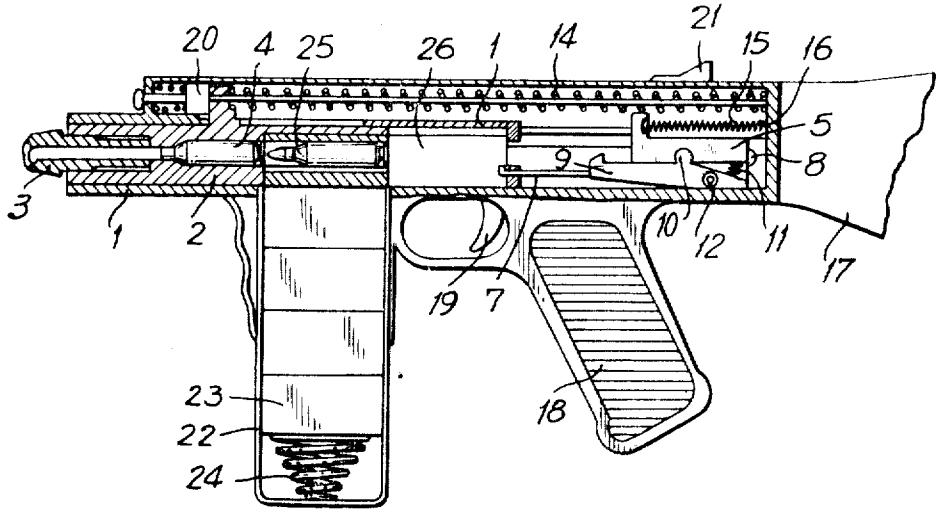
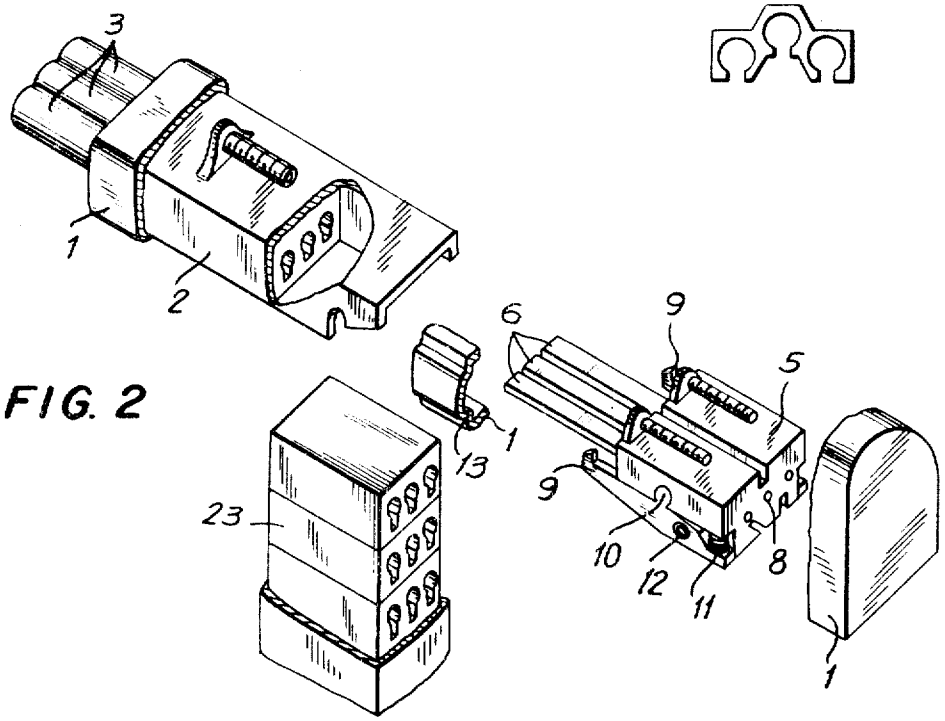


FIG. 3

FIG. 2



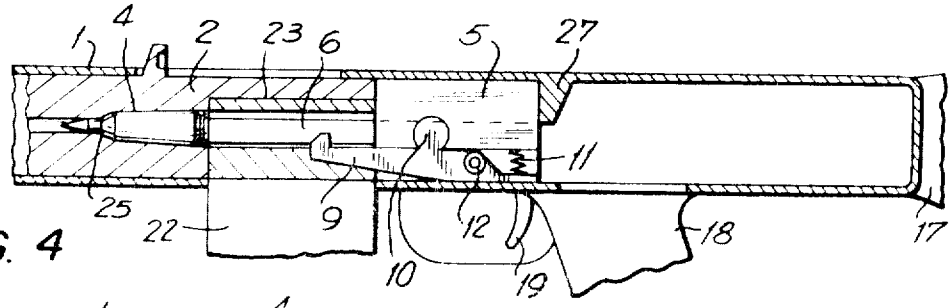


FIG. 4

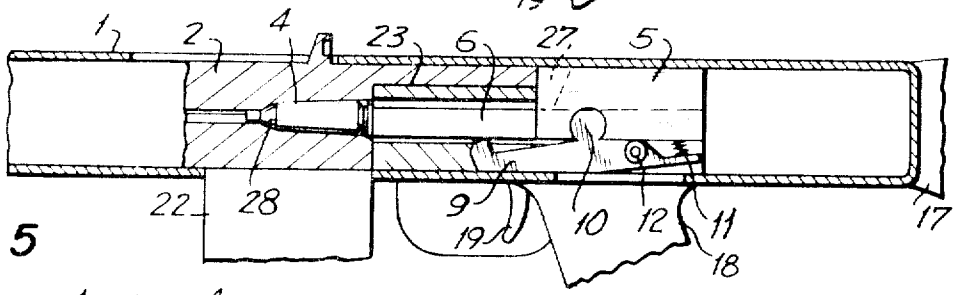


FIG. 5

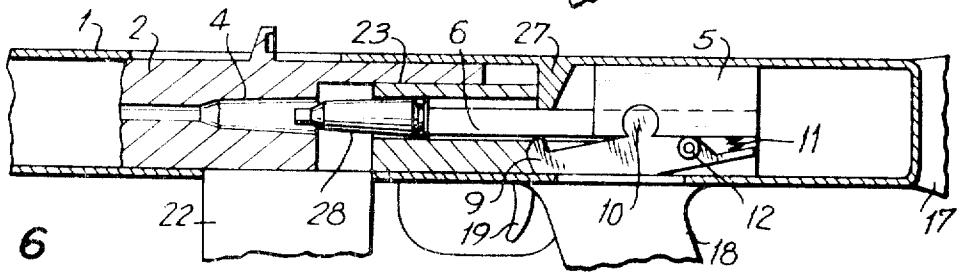


FIG. 6

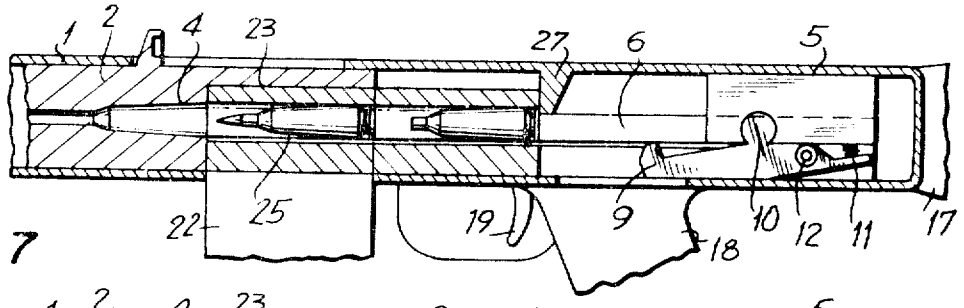


FIG. 7

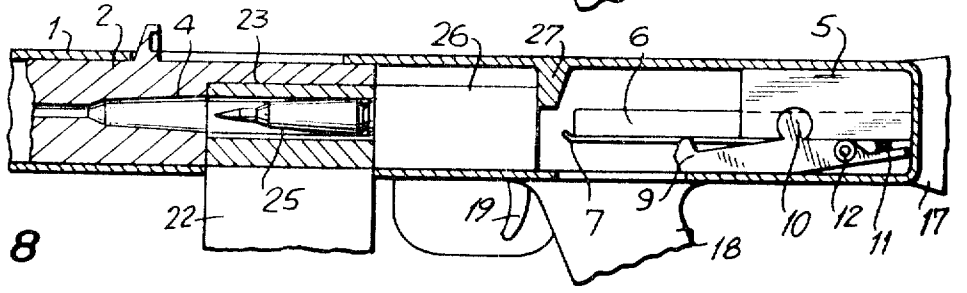


FIG. 8

FIG. 9

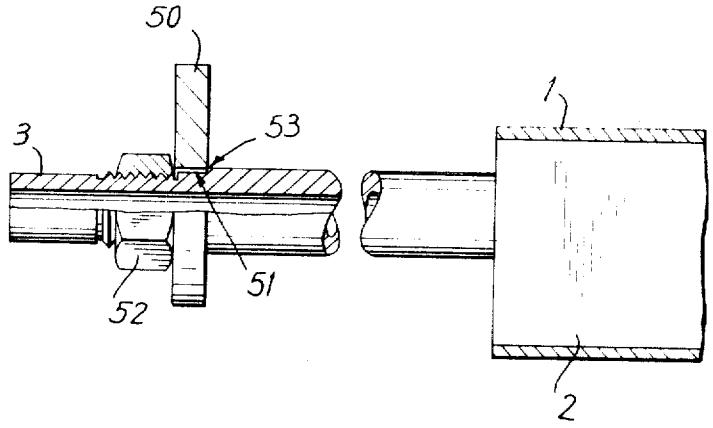
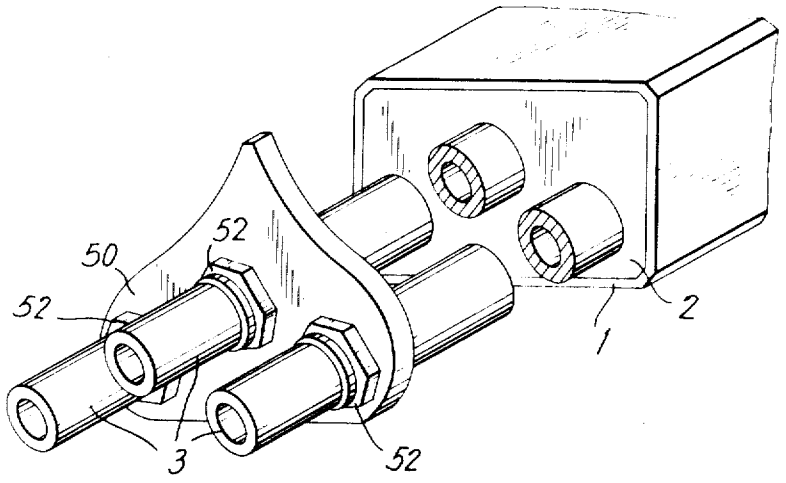


FIG. 10



INFANTRY WEAPON ADAPTED TO FIRE A PLURALITY OF CARTRIDGES SIMULTANEOUSLY

CROSS RELATED APPLICATION

This is a continuation-in-part application of our earlier application Ser. No. 67,096, filed Aug. 26, 1970, now U.S. Pat. No. 3,720,133.

BRIEF SUMMARY OF THE INVENTION

The invention relates to a semi-automatic or fully automatic adjustable-spread volley-firing infantry weapon.

Such weapon can be an automatic piston, rifle, an automatic rifle or machine gun.

Contemporary weapons of this type can be adjusted for single shot or burst firing. If it is required to increase the probability of hits over a limited period of action, it is advisable to fire small bursts (of three shots, for example) or to use cartridges each containing several projectiles e.g. multiple bullets. In the case of burst firing, however high the firing rate, the spread of the hits obtained is not adaptable to the gunner. The same holds true in the use of cartridges with several projectiles. It can be provided mathematically and experimentally that the hit probability becomes maximum for an n-shot burst e.g. $n = 3$, when the cone of dispersion for said n shots has a particular value dependent on the gunner's skill and the characteristics of the target. Thus, for a given target, the cone of dispersion of the n shots does not have to be the same for a marksman as for a novice.

An object of the invention is to provide a weapon which is adapted to simultaneously fire n shots and wherein the cone of dispersion of the n shots can be adjustable. The particular value $n = 3$ has been chosen for reasons of space, weight and cartridge consumption.

To achieve this object, the weapon according to the present invention has three simultaneously fed barrels with percussion of three cartridges all at the same time so that the bearing of the weapon has no effect on the dispersion. The relative bearing of the three barrels is adjusted to obtain a particular, optimal dispersion for the individual gunner.

The weapon according to this invention comprises a block in which three barrels are fitted, and a triple-head breech block carrier. The cartridges are packed in threes in clips stacked in a loader. A feeding device enables the three cartridges of a clip to be inserted into the three chambers of the three barrels. After simultaneous percussion, the three cartridge cases are reintroduced into their clip which is subsequently ejected. A simple mechanical device located at the end of the three barrels, allows their relative angle to be adjusted by slight flexion, so as to obtain the required angle of dispersion.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevational view partly in section of a weapon according to the invention;

FIG. 2 is an exploded view of a portion of the weapon;

FIG. 3 is a front elevational view of a modified form of clip used in the weapon;

FIGS. 4–8 are sectional views through a portion of the weapon showing different stages of operation thereof;

FIG. 9 is a side elevational view of the front portion of the weapon showing the means for adjusting the cone angle of dispersion; and

FIG. 10 is a front perspective view of the portion of FIG. 9.

DETAILED DESCRIPTION

As seen in FIGS. 1 and 2, the weapon essentially comprises a breech casing 1 in which is slidably mounted a gun-tube carrier block 2 with three barrels 3 fitted thereon. For purposes of lightness in weight, the barrels 3 terminate at the location where the grooves are effective, the firing chambers 4 being machined in the gun-tube carrier block 1. Breech block carrier 5 also slides in the breech block carrier casing 1. The breech carries three heads 6, each with an extractor 7 and a firing pin 8, and two trace hooks 9 pivotal around a pin 10 fixed to the breech block carrier and constantly pulled upward by a spring 11. The hooks 9 allow the breech block carrier 5 to be coupled to the gun-tube carrier block 2. A roller 12 projects laterally on each coupler hook 9 and rolls in a guide groove 13 in the breech casing 1. The gun-tube carrier block is urged forward by a spring 14 while the breech block carrier is urged forward by two springs 15. The springs 14 and 15 abut against the rear edge 16 of breech casing 1. The breech casing 1 carries the remaining conventional mechanisms which include a butt stock 17, a percussion mechanism 18 with a trigger 19, a buffer device 20 for the gun-tube carrier block 2, and a sighting system 21. A rectangular loader 22 contains a plurality of cartridge clips 23 pushed upward by a spring 24. Each clip, of rectangular shape holds three cartridges 25. At one side of the weapon is a clip ejection port 26, while an ejection lever (not shown) is housed on the other side.

The operation of the weapon is as follows:

As seen in FIG. 4, at the instant when percussion is about to take place, breech block carrier 5 is coupled to gun-tube carrier block 2 and the three breech heads 6 completely traverse the chambers of clips 23 to expel the three cartridges into the chambers 4 and to act as a support for the base of the cartridges. Then the cartridges are fired by pulling trigger 19. The recoil impulse due to the simultaneous firing of the three cartridges has the effect in a first phase as shown in FIG. 5 of pushing breech block carrier 5 and gun-tube carrier block 2 back for a length equal to that of the clip 23. At the end of this first movement, the two rollers 12 are compelled to move upward, by a rise of the guide grooves 13 in which they roll, causing unlocking of breech block carrier 5 from block 2 at the instant when the gun-tube carrier block 2 and clip 23 strike against a stop 27 integral with the breech casing 1.

Referring next to FIG. 6, the gun-tube carrier block 2 under the action of its draw-back spring 14 starts moving forwardly, while the breech block carrier 5 through inertia continues its rearward motion, the clip 23 remaining against the stop 27. The three cartridge cases 28 are gradually reinserted into their original clip by the engagement of extractors 7 of breech heads 6 with the cartridge.

FIG. 7 shows the next phase of operation wherein breech block carrier 5 continues its rearward travel until the base of the three cartridge cases likewise abuts against stop 27. Another clip is then introduced into the gun-tube carrier block with its three cartridges 25.

FIG. 8 shows the breech block carrier 5 at the end of its backward stroke. The extractors 7 disengage leaving the three cartridge cases against stop 27, and the breech block carriers acts on the ejection rod (not shown) which expels the clip 23 and the three cartridge cases through the slot 26 in the breech casing 1.

Breech block carrier 5 uncer the thrust of its springs 15 advances forwardly and inserts the three new cartridges 25 into the chambers of the gun-tube carrier block and the cycle starts again.

To limit space and weight, the clips 23 are made of plastic, and their shape is advantageously as shown in FIG. 3.

For adjustment of the spread of dispersion of the cartridges, an adjustment device is provided to adjust the bearing or angular positions of the barrels by slight bending thereof.

FIGS. 9 and 10 show such an adjustment device as comprising a plate 50 having three holes 51 in which the barrels 3 are accommodated. Nuts 52 are threaded on barrels 3 at the front of plate 50 as shown. The holes 51 are of a diameter slightly greater than the diameter of barrels 3.

By inserting the barrels in the holes 51 and threading the barrels into the block, the barrels are caused to assume particular axial positions relative to one another by slight bending of the free ends of the barrels. The relative axial positions of the barrels determine the angle of cone dispersion of the cartridges. The nuts 52 secure the plate to the barrels by abutment of the plate 50 against shoulders 53 on barrels 3.

In order to adjust the angle of cone dispersion, a different plate 50 with different relative positions of holes 51 is utilized in replacement of the first mentioned plate. Generally, about three or four plates are provided from which to select for each marksman.

The construction of the weapon as just described in given solely by way of example and conventional features of internal construction can of course be devised, to allow the simultaneous firing of the three cartridges and the adjustment of their dispersion or spread.

What is claimed is:

1. An infantry weapon comprising a plurality of gun barrels, a displacable carrier block with firing chambers therein in a number equal to the number of barrels, means for simultaneously feeding cartridges to respective firing chambers, means for producing simultaneous percussion of the cartridges in said chambers and discharge of projectiles from the barrels, a loading device containing a plurality of stacked clips each having as many cartridges as there are barrels, means for feeding successive clips towards the carrier block for percussion of the cartridges therein, means for expelling each clip after percussion of the cartridges therein, means for removing the cartridges from each clip and inserting the cartridges into the firing chambers in preparation for percussion, means for reinserting the cartridges after percussion into their original clip before the clip is expelled whereby the clip and spent cartridges are ejected together, and means to adjust the bearing of the barrels for regulation of the dispersal of the projectiles expelled from the cartridges.

2. A weapon as claimed in claim 1 wherein said means for removing the cartridges from each clip comprises a displaceable breech block carrier releasably coupled to said carrier block and including breech heads positioned to engage the cartridges in a clip to push the cartridges into the firing chambers.

3. A weapon as claimed in claim 2 wherein the means for reinserting the cartridges into their original clip comprises stop means to engage the carrier block after rearward movement thereof upon percussion of the cartridges, said stop means being positioned to limit the movement of the carrier block while permitting continued rearward travel of the breech block carrier so that the breech heads are withdrawn from the clip.

4. A weapon as claimed in claim 3 comprising, an extractor on each breech head for engaging a cartridge to withdraw the same from the firing chamber of the carrier block.

5. A weapon as claimed in claim 4 comprising means pivotably connected to said breech block carrier for coupling the breech block carrier and the carrier block when the cartridges are inserted into the firing chambers and for releasing the breech block carrier and carrier block when the carrier block abuts the stop means.

6. A weapon as claimed in claim 1 wherein said means to adjust the bearing of the barrels comprises a plate with apertures in which the barrels are received and their bearing adjusted thereby, and means releasably attaching the plate to the barrels for enabling replacement of said plate with another plate having different aperture positions to adjust the bearing of the barrels by flexion

* * * * *