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[21] Appl. No. **822,514**
[22] Filed **May 7, 1969**
[45] Patented **Oct. 12, 1971**
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[32] Priority **May 10, 1968**
[33] **Germany**
[31] **P 17 03 379.3**

[50] **Field of Search**..... 89/33, 33
SF, 33.14, 33.2

[56] **References Cited**
UNITED STATES PATENTS
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[54] **AUTOMATIC FIREARM WITH TWO
SELECTIVELY EMPLOYABLE CARTRIDGE FEED
DEVICES**
4 Claims, 3 Drawing Figs.
[52] U.S. Cl..... **89/33 SF,**
89/33 C
[51] Int. Cl..... **F41d 9/02**

ABSTRACT: An automatic firearm, such as a rifle, is provided with a forwardly and rearwardly movable breech block and an upper and a lower employable cartridge feed device for selectively firing different types of cartridges, such as blasting cartridges and armor-piercing cartridges. The cartridges in both feed devices are fed in the directional sense and the drive and changeover elements of the two cartridge feed devices are arranged between the two feed housings.

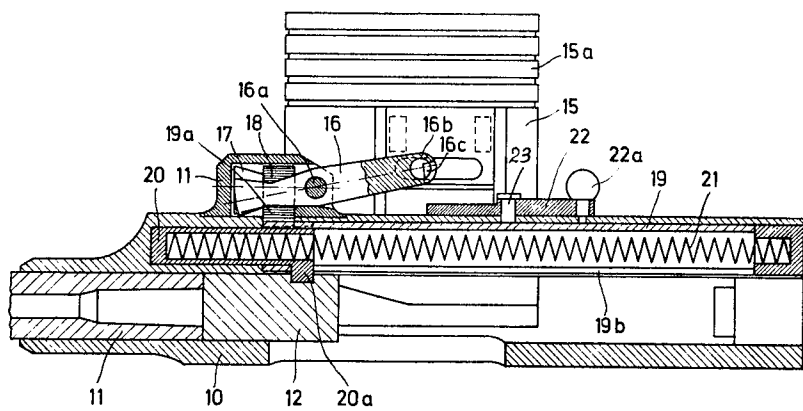
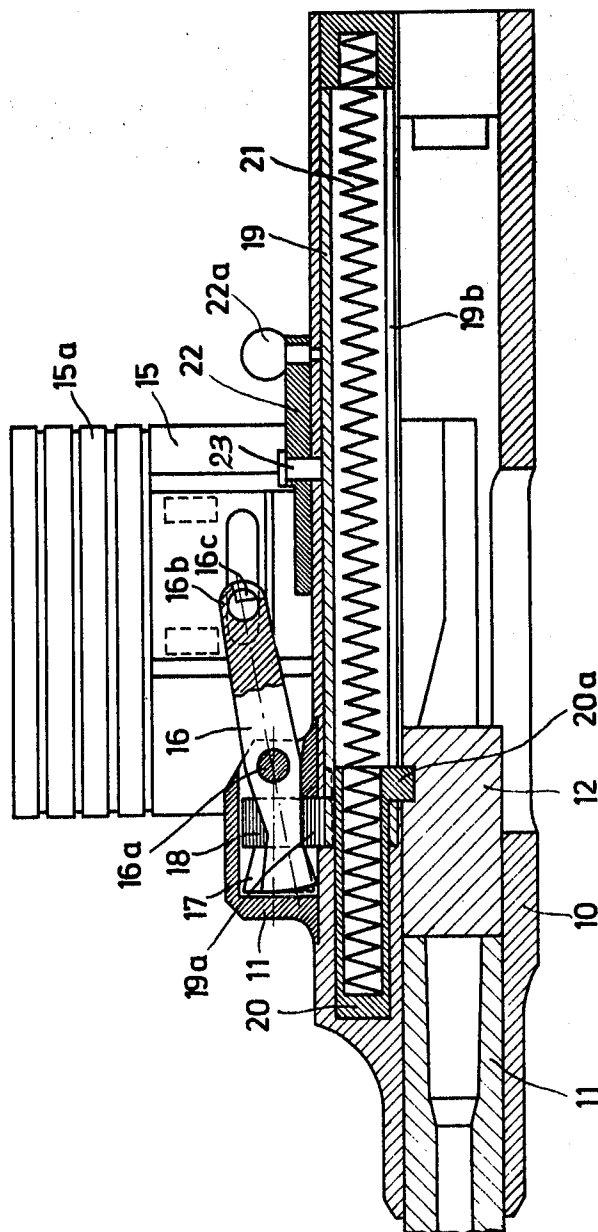


FIG. 1



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FIG. 2

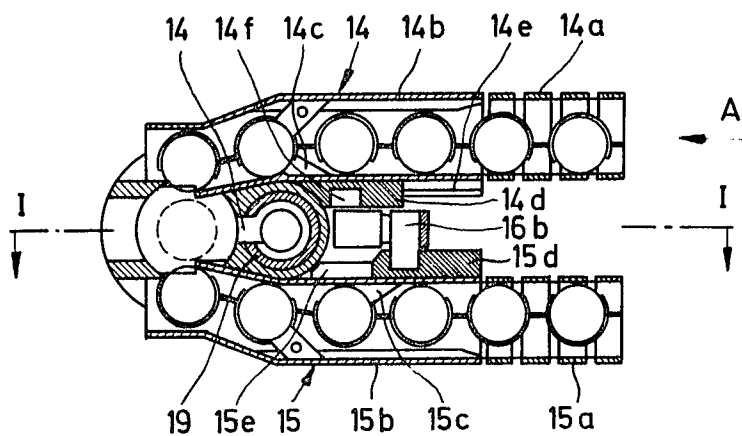
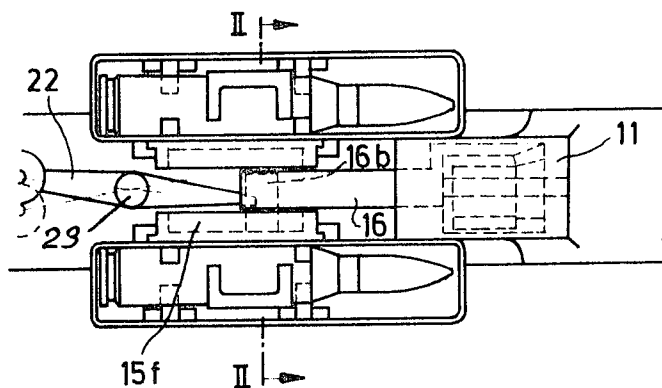


FIG. 3



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AUTOMATIC FIREARM WITH TWO SELECTIVELY EMPLOYABLE CARTRIDGE FEED DEVICES

The invention relates to an automatic firearm provided with a breech block movable forward and rearward in the axial direction of the weapon and with two changeover cartridge feed devices, particularly belt feed devices, for selectively feeding different types of cartridges, for instance, blasting cartridges and armor-piercing cartridges. These cartridge feed devices are arranged on opposite sides of the housing of the weapon and the cartridges are fed to the same in the same directional sense.

Conventional firearms of this type require much space in the region where the cartridge feed device is arranged and are structurally complicated.

It is an object of the invention to provide a firearm of the mentioned type in which the dimensions of the weapon in the region of the cartridge feed device are reduced to a minimum. In order to attain this object the present invention provides that the driving and shifting elements of the cartridge devices are disposed between the feed housings for the cartridges.

Another object of the invention is to arrange the cartridge feed devices one above the other. When this is done, a very flat constructed weapon is produced, which is of importance when the space conditions are limited, as is usually the case in airplanes and armed vehicles.

Still another object of the invention is to arrange the closure spring of the weapon outside of the path of movement of the breech block between the belt housings whereby this spring extends over a closure spring sleeve at the breech block, said sleeve forming the drive member for the cartridge feed.

According to a further object of the invention a projection, for instance, a projection on the closure spring sleeve engaging the breech block enters a shift slot arranged in a shift sleeve rotatably mounted in the housing. This shift sleeve is arranged concentrically to the closure spring sleeve and drives by means of gear teeth a shift lever for the cartridge feed slide.

The drive of the shift lever for the cartridge feed slide may be effected by spur teeth arranged on the shifting sleeve which mesh with a spur gear coaxially arranged on a bevel gear, which in turn engages corresponding gear teeth on the shifting lever.

It is another object of the invention to provide the shift lever with a shift bolt which is slidable parallel to its pivot axis, whereby this shift bolt is controlled by a munition selector lever in such a manner that it engages in one of the shift grooves of the two cartridge feed slides, which in the locked position of the breech block are arranged one above the other.

In accordance with still another object of the invention the shift bolt is provided with a recess into which enters the forward end of the munition selector lever when the breech block enters its locked position.

Additional objects of the invention will be apparent from the following detailed description of an example of the invention, the description referring to the accompanying drawings.

In the drawings:

FIG. 1 illustrates a partial horizontal longitudinal sectional view of a weapon constructed in accordance with the invention;

FIG. 2 is a cross-sectional view along the line II—II of FIG. 1, and

FIG. 3 is a partial view of the weapon viewed from the munition feed side (in the direction of the arrow "A" in FIG. 2.).

Referring to the drawings, the housing 10 of the weapon has inserted therein a barrel 11. The breech block 12 of the weapon is movably mounted along the axial direction of the weapon.

At the upper side and at the lower side of the housing of the weapon are arranged each a cartridge feed device 14 and 15 which, preferably, as illustrated in the drawings, are constructed as belt feed devices. These cartridge feed devices are kept so flat that their height corresponds to the thickness of the tubular belts 14a and 15a containing the cartridges.

In order to obtain a very flat construction of the weapon, all parts for the belt feed are disposed between the cartridge feed housings 14b and 15b. The feed slide 14d provided with shift pawls 14c is arranged in guides 14e disposed at the lower wall of the feed housing 14b, while the other feed slide 15d provided with shift pawls 15c is guided in guide 15e provided at the upper wall of the feed housing 15b. The feed slides 14d and 15d are provided with shift grooves 14f and 15f with which a shiftable element of a shift lever 16 may be brought into engagement. The shift lever 16 is pivotally mounted about a pin 16a.

The shift lever 16 is provided with gear teeth, which engage a bevel gear 17 attached coaxially to a spur gear 18. The spur gear 18 engages gear teeth 19a on a shift sleeve 19, which is rotatively mounted in the housing 10 of the weapon. This shift sleeve 19 is provided with a curved shift slot 19b into which extends a projection 20a of a closure spring sleeve 20, which is arranged laterally of the breech block 12 and is movable in longitudinal direction of the weapon. The projection 20a engages the breech block 12, and the closure spring sleeve 20 is subject to the action of the closure spring 21.

The shiftable member of the shift lever 16 consists of a shift bolt 16b, which is slidable parallel to the pivot axis of the lever 16. This shift bolt 16b is provided with a recess 16c in which engages a munition selector lever 22 in the rear locked position of the breech block 12. This munition selector lever 22 is rotatably mounted on a pin 23 and is provided with operating knob 22a.

The operation of the cartridge feed device is as follows:

It is assumed that the munition selector lever 22 is so adjusted that the shift bolt 16b of the lever 16 engages the groove 15f of the feed slide 15d of the lower cartridge feed device. When the trigger of the weapon is operated, the cartridges from the lower feed device 15 are being fired.

When the locking member of the trigger (not shown in the drawing) reaches its locked position, the breech block 12 is locked in its rear position. In this position, the shift grooves 14f and 15f of the feed slides 14d and 15d are disposed one above the other.

If it is desired to fire the cartridges in the upper feed device 14 then the rear end of the munition selector lever 22 is pivotally moved downwardly. This has the result that the shift bolt 16b is lifted from the groove 15f of the lower feed slide 15d and is inserted into the groove 14f of the upper feed slide 14d so that now the upper cartridge feed device 14 becomes operative.

What I claim is:

1. In an automatic firearm, a housing, an axially reciprocable breech block in said housing, two cartridge feed devices for selectively feeding different types of cartridges arranged on opposite sides of said housings, a closure spring acting on a closure sleeve which is operatively connected with said breech block, which forms the drive member for the cartridge feed, said closure spring being disposed outside of the path of movement of said breech block between said feed housing, a shift sleeve arranged rotatably in said housing and concentrically to said closure sleeve and provided with a shift slot, a projection on said closure sleeve extending through said shift slot, and gear teeth on said shift sleeve which engage gear teeth on a shift lever which operates cartridge feed slides of said cartridge feed devices.

2. A firearm according to claim 1, in which said shift sleeve is provided with spur teeth which engage a spur gear having coaxially formed thereon a bevel gear which meshes with corresponding gear teeth on a shift lever for the cartridge feed slides.

3. A firearm according to claim 1 including a munition selector lever and a pivotally mounted shift lever for said cartridge feed slides, said shift lever being provided with a shift bolt which is slidable parallel to the pivot axis of said shift lever, said shift bolt being controlled by said munition selector member in such a manner that it engages one of two shift grooves provided in each of said cartridge feed slides which in

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the locked end position of said breech block are arranged one above the other.

4. A firearm according to claim 1 including a munition selector lever and a pivotally mounted shift lever for said cartridge feed slides, said shift lever being provided with a shift bolt which is slidable parallel to the pivot axis of said shift lever, said shift bolt being controlled by said munition selector

member in such a manner that it engages one of two shift grooves provided in each of said cartridge feed slides which in the locked end position of said breech block are arranged one above the other, said shift bolt being provided with a recess in which engages the front end of said munition selector lever when the breech block reaches its locked end position.

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