CONTROL MECHANISM FOR AUTOMATIC FIREARMS WITH REVOLVER DRUM

Fritz Herlach and Erwin Hepperle, Zurich, Switzerland, assignors to Machine Tool Works, Oerlikon, Administration Company, Zurich-Oerlikon, Switzerland, a company of Switzerland

Filed Mar. 22, 1951, Ser. No. 216,881

Claims priority, application Switzerland Aug. 23, 1950
1 Claim. (Cl. 89—155)

The present invention relates to a control mechanism for automatic firearms with revolver drum in which, for each shot, a gas-operated, longitudinally movable slide fitted with two curved grooves is provided, one of the grooves engaging one of several rollers arranged at the circumference of the drum, during the forward run and the other one engaging one of the rollers during the rearward run of the slide thus effecting rotation of the drum.

The control mechanism in accordance with the invention is characterized in that the curved groove which is first passed by the rollers during rotation of the drum is fitted with a stop piece which prevents the rollers from re-entering the curved groove once they have left it.

In the enclosed drawing two constructional examples of the present invention are shown. In the drawing:

FIG. 1 is a diagrammatic longitudinal section of the gun;

FIG. 2 is a diagrammatic longitudinal section of the gun, immediately after firing of a round;

FIG. 3 is a section through the drum along the line III—III in FIG. 1;

FIG. 4 is a section through the star wheel along the line IV—IV in FIG. 2;

FIG. 5 is a plan view of the slide;

FIG. 6 is a section along the line VI—VI in FIG. 5;

FIG. 7 is a similar section in a second example;

Fig. 8 is similar to FIG. 3 and relates to the second example.

As can be seen from FIG. 1 the barrel 1 is fastened by means of a bayonet to the casing 2 in which the drum 3 is rotatably disposed. The drum 3 is fitted with a number of cartridge chambers which, during firing, are successively moved in front of the barrel 1. Rotation of the drum 3 is effected by means of the slide 4 fitted with curved grooves 5, 6 engaging with the rollers 7 of the drum 3. The slide 4 is actuated by the powder gases via the piston 8. For returning the piston 8 to its initial position a spring 8a is provided.

The slide shown in FIG. 5 is fitted with two curved grooves 5 and 6 which are successively engaged by the rollers 7. During rotation of the drum the roller enters the curved groove 6, is led to the central part 12 and leaves the slide after firing of the round via the curved groove 5. To prevent the drum from rotating backwards, a stop piece 9 is arranged in the curved groove 6. The roller 7 rests against spring 10 and is lifted by the stop piece 9 on entering the curved groove 6. When the roller 7 has reached the central part 12 it can be restored to its initial position by the spring 10. During the rearward movement of the slide 4 the roller rests against the lateral face 11 of the stop piece 9 and is thus prevented from re-entering the curved groove 6.

The slide 4 is subjected to the pressure of two recuperation springs 13 which return it to its initial position after each shot. Connected to the slide 4 is a part 14 which serves for feeding the cartridges into the drum. The cartridges are pulled into the gun in belts by means of the star wheel 15. The axis of the star wheel 15 is connected to the axis of the drum 3 by the coupling 16 in such a way that the cartridges seized by the star wheel 15 are aligned with the cartridge chambers of the drum 3 during the forward movement of slide 4 and part 14. During each forward movement one cartridge is pushed halfway into the drum by the lug 17 of the part 14 (cf. FIG. 4). During the next forward movement of the slide 4 the lug 18 of the part 14 engages the same cartridge moving it fully into the chamber of the drum. Simultaneously another cartridge is engaged by the lug 17 and pushed halfway into the next chamber. Due to the rotation of the drum the cartridges are moved successively into firing position in front of the barrel and are fired by means of a firing device which is not shown. The empty cartridge cases are ejected when the drum has moved on by an ejector lever controlled by the slide 4. The ejector lever is not shown in the drawings.

In the constructional example shown in FIGS. 7 and 8 the curved groove 6 of the slide 4 is fitted with a movable stop piece 22. The stop piece 22 is rotatable about the pin 19 and is subjected to the action of the spring 21 (cf. FIG. 7). The rollers 20 are not fitted with springs. On entering of a roller into the curved groove 6 the stop piece 22 is depressed. As soon as the roller 20 has left the curved groove 6 the stop piece 22 is returned to its initial position by the spring 21. Therefore the roller 20 in the central part of the groove cannot re-enter the curved groove 6.

We claim:

In a large caliber gun, a casing, a drum rotatably mounted in said casing and having a plurality of cartridge chambers formed therein, a gas-operated slide mounted in said casing for longitudinal movement transverse to the direction of rotation of said drum, said slide having two grooves formed therein and having two overlapping ends and two curved ends extending in opposite directions, whereby said two grooves form substantially a V, a plurality of rollers mounted circularly upon said drum, springs engaging said rollers, each of said rollers having a portion projecting radially beyond the periphery of said drum and fitting into any one of said grooves, and a stop piece fixed upon said slide in one of said grooves adjacent to the overlapping ends of the two grooves and having a gradually inclined side portion facing the curved end of said one groove and an abruptly inclined side portion facing the other one of the two grooves to facilitate the movement of a roller projecting into the curved end of said one groove to said overlapping ends and into the other one of said grooves and to prevent the reentry of that roller into said one groove.

References Cited in the file of this patent

UNITED STATES PATENTS

688,217 Whiting 3,583,727 Whitson
749,214 McClean 3,588,852 Clarke
794,852 4,946,531 Haeghen
1,342,358 Storlie 1,399,119 Hodges
2,587,672

660,055 1905 1920 1921

Dec. 3, 1901
Jan. 11, 1910
June 1, 1920
Dec. 6, 1921
Aug. 18, 1945