A. GILETTA.

FIREARM.

APPLICATION FILED MAY 14, 1910.

1,066,487.

Patented July 8, 1913.

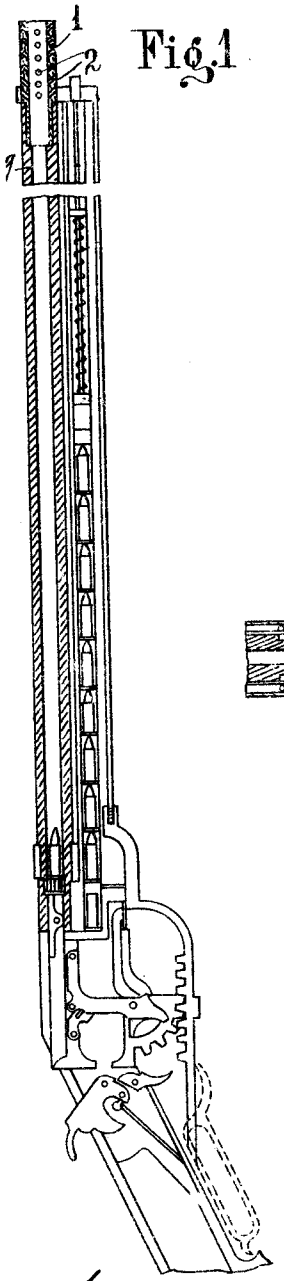

Fig. 1

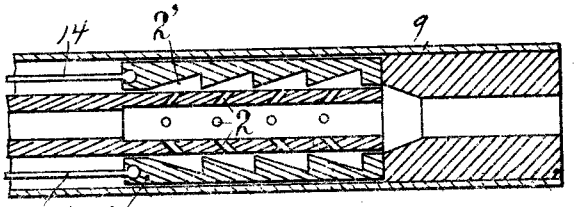

Fig. 2.

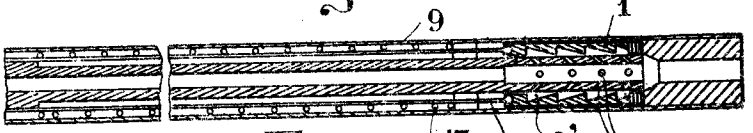

Fig. 3.

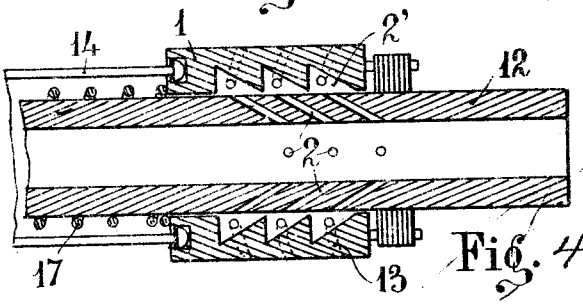

Fig. 4.

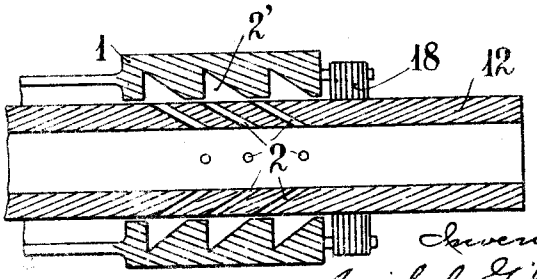

Fig. 5

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UNITED STATES PATENT OFFICE.

ANNIBALE GILETTA, OF TURIN, ITALY.

FIREARM.

1,065,487. Specification of Letters Patent. Patented July 8, 1913.

Application filed May 14, 1910. Serial No. 561,482.

To all whom it may concern:

Be it known that I, ANNIBALE GILETTA, a subject of the King of Italy, and residing at Turin, in Italy, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

This invention relates to fire arms in which the action of the gases at their escape from the muzzle is utilized to bring about automatic operation and relates chiefly to an arrangement owing to which the gases escaping from the muzzle operate driving means in a gradual and regular manner, imparting to said means simple rectilinear or helical movement. The said driving means are provided, if desired, with brushes or other fitting adapted to clean the surfaces on which deposit has been left by the gases, and which are also submitted to friction during the travel of the driving part.

In the annexed drawings, Figure 1 is a general view showing the invention applied to a Winchester rifle, Figs. 2 and 3 show the arrangement of the driving means in the form of a sleeve placed on an unrifled fixed extension of the barrel; Fig. 4 is a detail view on an enlarged scale of the driving means shown in Fig. 3, and Fig. 5 shows a modified construction.

The sleeve 1 mounted in a movable manner on the barrel operates, as usual, the breech by means of rods 14. A helical spring 17 inclosed in a fixed cylinder 9 covering also the movable sleeve serves to return the movable parts to their initial position after each discharge.

According to this invention the sleeve 1 is provided with several annular inner recesses 2′ each having a surface adapted to receive the pressure of the gases and the barrel 12 or a sleeve rigid with the barrel is provided with several rows of holes 2 each ending in the recesses 2′ of the movable sleeve. These holes are inclined in the direction of movement of projectile or in the contrary direction, according to the direction in which the driving means operated by the gases is required to move. The movable sleeve 1 can also be provided with holes 13 establishing communication between the chambers or recesses 2′ and the outside, and inclined relatively to the planes passing through the axis of the barrel, so that the gases, escaping through the holes in question produce by reaction a rotary movement of the driving part. Outside the sleeve 1 is mounted a flexible part 18 constituted for instance by metal plates or by a ring of suitable material for the purpose of cleaning the surfaces on which deposit has been left by the gases and which are submitted to friction.

In the construction shown in Fig. 5 the annular chambers 2′ of the driving part are arranged so as not to be all at the same time opposite the holes 2 provided in the barrel, so that the gases act first in one chamber and successively in the following chambers, when the movement of the sleeve has already started. This arrangement has for its object to increase the progress of the movement of the driving means in order to overcome the greatest resistance offered by the spring when partly compressed.

It will be understood from the above that the gases reach the normal walls of the chambers 2′ successively through the holes 2 and produce in that manner a movement of the driving part, which is not a sudden one, for the gases reach the operative pressure surfaces only as the projectile, in advancing toward its outlet, opens a gradually increasing outlet to the gases.

In the arrangement shown in Fig. 3, the driving means, under the action of the gases, moves in the direction contrary to that of the projectile. The gases escape from the different series of holes 2 arranged in the sleeve solid with the barrel 12, as their openings are uncovered by the projectile, and strike the inner walls of the sleeve 1 as already stated. If the sleeve 1 has holes 13 for the escape of the gases, its movement will be helical, and could consequently be utilized directly for driving rotating parts. As the surfaces on which the gases exercise their action are arranged symmetrically to the driving means the action itself is regular and balanced in every direction. The elastic part 18 for cleaning the surfaces submitted to friction during the working of the system and covered with residue by the gases, is mounted outside the driving means and acts as a packing for the sleeve itself. As the latter must not fit perfectly either the barrel or the tubular sheath, the automatic working of the fire arm will not be interfered with, even

when one or other are covered heavily with deposit owing to continuous firing.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a fire arm, the combination with a barrel of a sleeve movably mounted at the end of said barrel, coaxial with the axis of the barrel and provided with a plurality of annular inner recesses, several series of circumferential holes in the barrel ending in the said recesses of the movable sleeve and giving passage to the gases and means for transmitting the movement of the movable sleeve to the parts to be controlled.

2. In a fire arm, the combination with a barrel of a sleeve movably mounted at the end of said barrel, coaxial with the axis of the barrel and provided with a plurality of annular inner recesses, each having a surface to receive the pressure of the gases, several series of circumferential holes in the barrel ending in the said recesses of the movable sleeve and giving passage to the gases and means for transmitting the movement of the movable sleeve to the parts to be controlled.

3. In a fire arm, the combination with a barrel of a sleeve movably mounted at the end of said barrel, coaxial with the axis of the barrel and provided with a plurality of annular inner recesses each having a surface to receive the pressure of the gases and holes for the discharge of the gases to the outside, several series of circumferential holes in the barrel ending in the said recesses of the movable sleeve and giving passage to the gases, and means for transmitting the movement of the movably mounted sleeve to the parts to be controlled.

4. In a fire arm, the combination with a barrel of a sleeve movably mounted at the end of said barrel, coaxial with the axis of the barrel and provided with a plurality of annular inner recesses which are adapted to receive the pressure of the gases, several rows of circumferential holes in the barrel for giving passage to the gases, these various rows of holes being arranged so as not to be all opposite to the recesses of the movable sleeve, and means for transmitting the movement of the movable sleeve to the parts to be controlled.

5. In a fire arm, the combination with a barrel of a sleeve movably mounted at the end of said barrel, coaxial with the axis of the barrel and provided with a plurality of annular inner recesses which are adapted to receive the pressure of the gases, several rows of circumferential holes in the barrel for giving passage to the gases, annular resilient means provided on the movable sleeve which means are adapted to clean the surfaces soiled by the gases and means for transmitting the movement of the movable sleeve to the parts to be controlled.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANNIBALE GILETTA.

Witnesses:
JOCELYN GOUBEYRAN,
CARLO TORTAY.