The present invention relates to firearms and in particular relates to firearms of the type embracing the so-called movable or split chamber unit as shown and described in U.S. Patent No. 2,476,232 issued to D. M. Williams on July 12, 1949.

As is disclosed in said Williams patent, firearms of the above general class embrace a movable chamber unit operative to move through a limited stroke of the order of 100 hundredths of an inch in a rearward direction to render where the motion of the chamber unit is utilized to power the action of the firearm.

Because of the movable or split nature of the chamber in the above class of firearms, it is difficult to maintain a gas seal between the interior diameter of the barrel and the exterior diameter of the chamber portion of the chamber unit.

Failure to maintain a relatively tight gas seal results in the escape of hot powder gases along the interfaces of the barrel and the chamber with the ultimate discharge of these gases from the ejection port of the gun.

This occurrence is undesirable in that it may result in unpleasantness for the shooter.

A number of constructions and arrangements have been devised for precluding the emission of powder gases through an ejection port, such as arranging ring type bands about the periphery of the chamber per se or by undercutting the interior of the barrel unit at spaced intervals in the region thereof in which the movable chamber is received; however, these devices have not fully solved the problem.

Accordingly, it is a primary purpose of the present invention to provide a seal means embracing structure which prevents a tortuous path blocking the escape of powder gases in the direction of the shooter.

A further feature of the invention is the provision of a novel seal means between a movable chamber unit and the junction of the barrel and the receiver.

A further feature of the invention is the provision of a telescopically constructed seal means operable to provide an overlapping joint between the chamber end of the barrel and the chamber unit.

A firearm embracing certain features of the present invention may comprise a split chamber assembly including a chamber unit and a barrel threadedly connected to a receiver, said chamber unit being slidably disposed within the firearm in the region of the junction of the barrel and the receiver, said unit being movable from a normal position to a fired position, means for maintaining a seal between the chamber unit and the receiver to preclude the emission of hot gases into a shooter's face comprising an annular skirt formed on the chamber unit and a mating cylinder formed on the chamber portion of the barrel, said annular skirt defining an annular recess into which said cylinder is telescopically received, said skirt and said cylinder remaining so received while the chamber unit moves from said normal position to the fired position.

Other features and advantages of the present invention will become more apparent from a study of the succeeding specification when read in conjunction with the appended drawings in which:

FIG. 1 is a side view of a shotgun embracing the principles of the present invention with certain portions thereof broken away for clarity;

FIG. 2 is a view of the chamber unit;

FIG. 3 is an illustration of a portion of FIG. 1 showing the chamber unit in the fired position, and,

FIG. 4 is a side view of the rear end of the barrel showing the cylinder portion which cooperates with the chamber unit in the fashion shown in FIG. 3.

Referring now to the drawings, there is shown a receiver 10 having an ejection port 11 connected at the right end to a barrel 12 by means of interrupted threads 13 as shown in FIG. 4.

The rear end of the barrel, hereinafter referred to as the chamber portion of the barrel, is formed with a bore 14 operative to slidably receive a chamber unit, indicated generally by reference numeral 16. The right end of the chamber unit, hereinafter referred to as the chamber portion 17, is snugly received in the bore 14 and is movable therein through a limited stroke, as shown and described in said Williams patent.

A shotgun 18 is chambered within a bore 19 of the chamber portion 17 in well-known fashion and upon the occurrence of firing the shotgun the attendant recoil and the relative inertia of the chamber unit and the main body of the firearm operate to cause the chamber unit to move from the normal position, shown in FIG. 1 to a fired position shown in FIG. 3.

The kinetic energy associated with the above described relative motion is utilized to operate the action of the gun.

As the chamber unit 16, including the chamber portion 17 and the chamber extension 21, move relative to the receiver 10 and barrel 12, there is a tendency for powder gases generated upon firing to bleed to the rear of the gun along the interfaces of the interior diameter of the bore 14 and the exterior diameter of the chamber portion 17 with the ultimate ejection or emission of a portion of the gases to the atmosphere through the ejection port 11.

To provide a seal means and to introduce a tortuous path tending to cut off or substantially reduce the energy or jet effect of these gases, the left end of the barrel, as shown in FIGS. 1, 3 and 4 is formed with an undercut portion defining cylinder 23 which is received in an undercut or recess 23 formed in the chamber unit at the junction of the chamber portion 17 and the chamber extension 21.

The formation of the undercut 23 provides an annular skirt 24 which projects forwardly to overlap and receive the cylinder 22.

The undercut also provides an annular recess 26 which receives the cylinder 22. By appropriately adjusting the length of the cylinder 22 and the depth of the undercut 23 a telescoping structure is devised which develops an overlapping relationship between the skirt 24 and the cylinder 22.

By virtue of the telescoping arrangement the chamber unit 16 is free to move from the normal position shown in FIG. 1 to the fired position shown in FIG. 3 without breaking the overlapping relationship between the skirt 24 and the cylinder 22.

In this way a return bend portion is formed in the path ordinarily traveled by the powder gases so that it is necessary for the gases to travel a path which is reversed 180°.

This occurrence is effective to substantially reduce the energy of the gases and the impingement of the gases upon the undercut 23 and thereafter upon the wall 27 reduces the energy level thereof to the extent that the discharge of gas through ejection port 11 is virtually unnoticed by the shooter.

It is anticipated that a wide variety of embodiments of the present invention may be devised without departing from the spirit and scope thereof.

What is claimed is:

1. In a firearm of the type having a split chamber assembly including a chamber unit, a receiver, and a barrel threadedly connected to said receiver, said chamber unit being slidably disposed within the firearm in the region of
3. the junction of the barrel and the receiver, said unit being movable from a normal position to a fired position, means for maintaining a seal between the chamber unit and the receiver to preclude the emission of hot gases into a shooter's face comprising an annular skirt formed on the chamber unit and a mating cylinder formed on the chamber portion of the barrel, said annular skirt defining an annular recess into which said cylinder is telescopically received, said skirt and said cylinder remaining in continuous sliding contact while the chamber unit moves from said normal position to the fired position and returns to normal position.

2. In a firearm of the type having a split chamber assembly including a chamber unit, a receiver having an ejection port, a barrel threadedly connected said receiver, said chamber unit being slidably disposed within the firearm in the region of the junction of the barrel and the receiver, said unit being movable from a normal position to a fired position, means for maintaining a seal between the chamber unit and the receiver to preclude the emission of hot gases into a shooter's face through said ejection port comprising an annular skirt formed on the chamber unit at the junction of the chamber extension and a mating cylinder formed on the chamber end of the barrel, said annular skirt defining an annular recess into which said cylinder is telescopically received, said skirt and said cylinder remaining in continuous sliding contact while the chamber unit moves from said normal position to the fired position and returns to normal position.

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