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GUN BARREL

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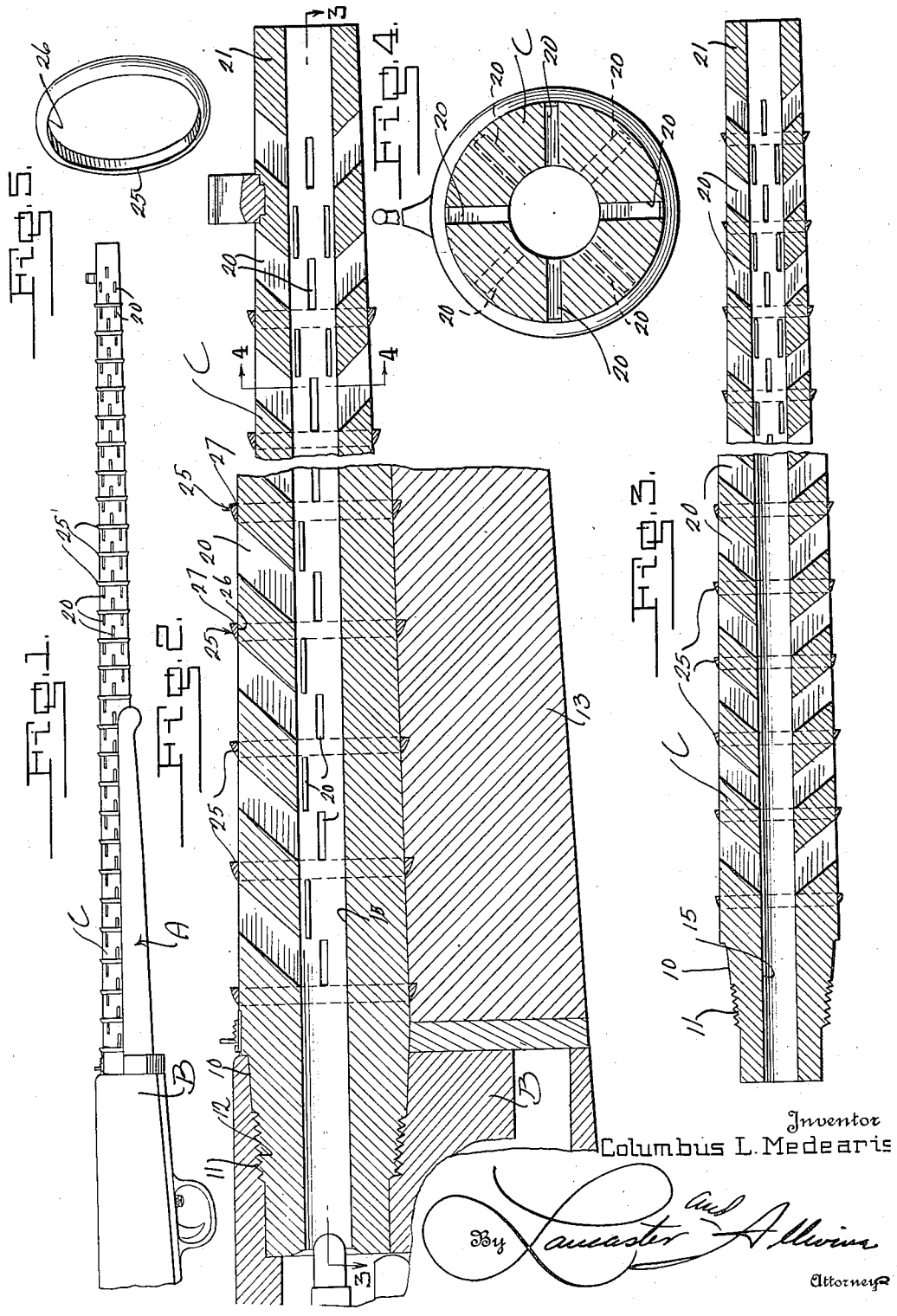

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GUN BARREL.

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This invention relates to improvements in guns, and has particular reference to a novel gun barrel construction.

The primary object of this invention is the provision of an improved gun barrel which is adaptable for use in connection with small fire-arms and guns and large ordnance, including a plurality of ports thru which gas and air may escape from the barrel chamber so as to not interfere with the progress of the projectile.

A further object of the invention is the provision of an improved gunbarrel which may be detachable with respect to the stock and breech end of the gun, having a novel port slotted arrangement transversely therethrough for relieving the projectile passageway of the projectile impeding pressures; the improved gun barrel having a novel reinforcing arrangement and formation of ports in a cooperative relation.

Other objects and advantages of this invention will be apparent during the course of the following detailed description.

In the accompanying drawing, forming a part of this specification, and wherein similar reference characters designate corresponding parts throughout the several views,

Figure 1 is a side elevation of a gun showing the improved gun barrel constructed as a part thereof.

Figure 2 is a fragmentary longitudinal sectional view taken thru the gun barrel and adjacent gun supporting construction.

Figures 3 and 4 are sectional views taken substantially on their respective lines in Figure 2 of the drawings.

Figure 5 is a perspective view of a novel type of reinforcing ring adapted to be peripherally shrunk upon the gun barrel as a reinforcing feature to compensate for weakness caused by porting the gun barrel.

In the drawing, wherein for the purpose of illustration is shown only a preferred embodiment of this invention, the letter A may generally designate the improved gun, which may be of small arm type, or which may take the form of large ordnance, having a supporting stock construction B, upon which the improved gun barrel C is detachably mounted in any approved manner, according to the type of gun with which the improved gun barrel is to be used.

The gun barrel C may be constructed in the manner best suitable for the character of use of the gun A. At its rear end the same is preferably reduced at 10, and extennally screw threaded at 11 for detachable connection in a screw threaded socket 12 provided in the stock or supporting portion B of the gun A. In the case of rifles and fire-arms the stock will be continued at 13 below the gun barrel, for a distance along the gun barrel, to provide a hand support for steadying the rifle while being aimed. In the case of larger guns such as large ordnance and cannons, other construction may be provided for mounting the gun barrel C than those shown in the drawing. Longitudinally thru the gun barrel C is disposed the smooth bore 15, which is preferably not rifled.

It is well known that the projectile is given its impelling force instantly upon explosion of the powder in the firing chamber, and after the expanding gases have sent the projectile traveling along the bore of the gun barrel the gases are more or less of an obstruction, especially in the case of a magazine rifle where other projectiles are to immediately follow in automatic succession. Also it is well known that the air in the projectile chamber 15 in advance of the projectile acts as a resistance, unless some means is provided to instantly release the pressure of the same as the projectile speeds along the bore. To obviate the drawback incident to the ordinary gun barrel, where the gases and air act as resistance to the travel of the projectile, I prefer to provide annular series of slots 20 longitudinally along the barrel C from immediately adjacent the screw threaded connecting end to the muzzle end 21. These slots 20 are very narrow and elongated longitudinally of the barrel, in longitudinal cross section presenting a rectangular appearance. The slots 20 are inclined from the passageway of the barrel forwardly towards the muzzle end, so that they outlet on the external circumference of the barrel in advance of the location where they communicate with the projectile chamber 15 in the barrel, as is readily apparent from the drawings.

The slots 20 are arranged in novel relation upon the barrel, to provide a maximum number of the same, without weakening the construction of the barrel, and to this end it is preferred to arrange the narrow slots 20 in annular series. That is, as is illustrated in Figure 4 of the drawings, one annular series

may comprise four slots 20, and the annular series immediately forwardly and rearwardly of the annular series have the slots thereof in staggered relation, so that the slots of one annular series alternate as to the peripheral placing on the gun barrel with the slots of the annular series at each side thereof. This is more particularly shown in Figure 1 of the drawing, and in Figure 4 where the slots 20 which are shown in full lines are in a staggered or alternated relation with the slots 20 shown in dotted lines, which designate an annular series of slots immediately adjacent the slots shown in full sectional lines.

In the type of rifle illustrated in the drawings the slots 20 cannot be provided in annular series along the stock support 13, but they are provided in the relation above described on all exposed surfaces of the gun barrel, which the supporting stock 13 does not cover. That is, in the conventional rifle construction the slots 20 will be provided on the upper portion of the gun barrel C from side to side of the stock portion 13.

Referring to the means of reinforcing the gun barrel which may be weakened to some extent by the provision of the narrow slots 20, it is preferred to provide hoops or rings 25, of the endless type, which as illustrated in Figure 5 of the drawing, have the internally smooth passageways 26 therethrough formed to abut upon the outer periphery of the barrel C; the rings or hoops 25 being preferably shrunk on the gun barrel during the process of manufacture, although these rings 25 may be annularly formed integral with the gun barrel during the forging and fabrication thereof. It is to be noted that the facing ends of the slots, of adjacent annular series on the gun barrel, are spaced longitudinally of the barrel a distance equal to the width of one of the reinforcing bands or rings 25, and these rings or bands 25 are adapted to be annularly placed about the gun barrel in the spaces between these facing ends of the slots, as is illustrated in the drawing, so that no part of the reinforcing bands overlap the exits of any slots, yet the slots are placed endwise as close together as possible without overlapping with each other and without overlapping upon the area occupied by the reinforcing bands 25. In addition to the function as a reinforcing band the closed bands 25 provide radiating surfaces which add to the cooling efficiency of the gun barrel. Furthermore, the bands 25 are exteriorly formed in a novel relation to facilitate the forward discharge of the gases and prevent the rearward passage thereof to the face or vision of the operator of the gun. To this end the front face or edge 27 of each band 25 is formed at right angles with respect to the axis of the gun barrel, in a projecting relation beyond the outer periphery of the gun barrel, to form an abutment which will prevent the rear flow of the discharge gases along the gun barrel, as is obvious. On the other hand the outer surface of the band 25 slopes from the right angled face or edge 27 to a chisel edge at the opposite side of the band; this outer surface of the band thus forwardly diverging at an increasing diameter from the discharge end of the slots 20, to facilitate the flow of the discharge gases thru the slots 20 and along the outward forward sloping surface of the band 25, as can readily be understood from Figure 2 of the drawing.

From the foregoing description of this invention it is apparent that a novel type of gun barrel has been provided which may find a general use in connection with fire-arms of light or heavy ordnance type, in that the gases and air are permitted to exhaust from the barrel passageway without difficulty, to obviate the resistance which is offered to the flight of the projectile thru the bore of the barrel.

Various changes in the shape, size, and arrangement of parts may be made to the form of invention herein shown and described, without departing from the spirit of this invention or the scope of the claims.

I claim:

1. In a gun barrel the combination of a gun barrel body having a bore therethrough, said body having transverse exit ports therethru from the bore to the outer periphery thereof sloping forwardly from said bore towards the muzzle of the barrel.

2. In a gun barrel construction the combination of a gun barrel body having a bore longitudinally therethrough from end to end and opening at opposite ends of the body, said body having transverse ports therein from adjacent one end of the body to the opposite muzzle end thereof along substantially the entire length of said body, the transverse ports extending from the bore transversely to the exterior of the gun barrel body, said ports being sloped forwardly from the bore towards the front of the gun.

3. In a gun barrel construction the combination of a gun barrel body having a bore longitudinally therethrough from end to end and opening at opposite ends of the body, said body having transverse ports therein from adjacent one end of the body to the opposite muzzle end thereof along substantially the entire length of said body, the transverse ports extending from the bore transversely to the exterior of the gun barrel body, said ports being sloped forwardly from the bore towards the front of the gun, said ports being very narrow and elongated longitudinally of the gun and placed in closely spaced series longitudinally of the gun barrel.

4. In a gun barrel the combination of a

gun barrel body having a bore longitudinally therethrough and transverse ports communicating with the bore and outletting exteriorly about the gun barrel body, said ports being spaced longitudinally of the gun barrel body, annular reinforcing bands about the gun barrel body adjacent to said ports, said reinforcing bands being projected beyond the outer periphery of the gun barrel body and forming forward abrupt faces to prevent the rear flow of gases along the gun barrel body from the ports, said bands circumferentially providing a rearwardly sloping surface on a diminishing diameter to facilitate the forward flow of gases from the ports at the rear of the band forwardly along the gun barrel body.

5. In a gun barrel construction the combination of a gun barrel body having a bore longitudinally therethrough, endless reinforcing bands peripherally placed in reinforcing relation about the gun barrel body in spaced relation longitudinally of said body, and transverse ports formed in the gun barrel body from the bore to the outer surface of said gun barrel body in the space between said annular bands, said ports being sloped from the bore forwardly towards the muzzle end of the gun barrel body so that the outer ends of said ports outlet immediately to the rear edge of a band.

6. As an article of manufacture a gun barrel having a longitudinal bore therethrough and being formed at its rear end with means to attach the same to a support, said gun barrel longitudinally thereof from said means to the muzzle end thereof being provided with transverse ports in spaced relation longitudinally of the gun barrel, said ports being relatively narrow and elongated longitudinally of the gun barrel and sloping from the bore towards the muzzle end to incline the same in an acute angular relation with respect to the axis of the bore of the gun barrel.

7. As an article of manufacture a gun barrel having a longitudinal bore therethrough and being formed at its rear end with means to attach the same to a support, said gun barrel longitudinally thereof from said means to the muzzle end thereof being provided with transverse ports in spaced relation longitudinally of the gun barrel, said ports being relatively narrow and elongated longitudinally of the gun barrel and sloping from the bore towards the muzzle end to incline the same in an acute angular relation with respect to the axis of the bore of the gun barrel, and annular reinforcing bands shrunk on the gun barrel in the spaces between adjacent transverse ports.

8. As an article of manufacture a gun barrel having a bore longitudinally formed therethrough, the gun barrel at its rear end having an attaching construction, the gun barrel from said attaching construction to the muzzle end thereof being provided with longitudinally spaced annular series of ports, the ports of one annular series being staggered circumferentially of the gun barrel with respect to the ports of an adjacent series.

9. As an article of manufacture a gun barrel having a bore longitudinally formed therethrough, the gun barrel at its rear end having an attaching construction, the gun barrel from said attaching construction to the muzzle end thereof being provided with longitudinally spaced annular series of ports, the ports of one annular series being staggered circumferentially of the gun barrel with respect to the ports of an adjacent series, and reinforcing bands peripherally about the gun barrel in the space between said annular series.

10. In a gun barrel the combination of a supporting stock, a gun barrel having an attaching end supported in said stock, the gun barrel having a bore longitudinally therethrough and being provided with transverse forwardly sloping ports from the stock end of the gun for the entire length of the barrel to the muzzle end thereof.

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