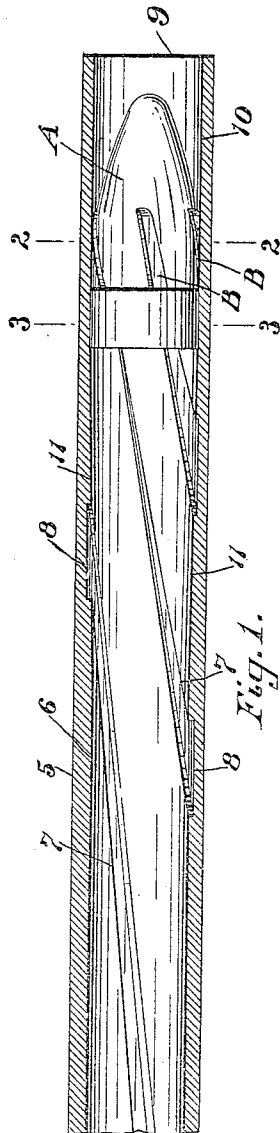
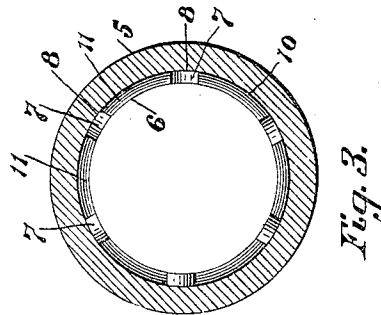
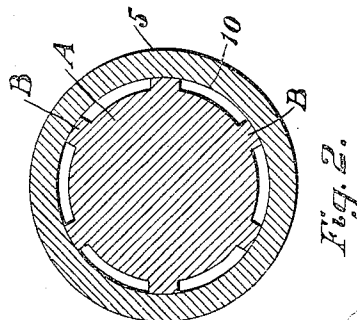


No. 804,483.

PATENTED NOV. 14, 1905.

L. LINCOLN.
RIFLE GUN BARREL.
APPLICATION FILED FEB. 27, 1905.



Witnesses:

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UNITED STATES PATENT OFFICE.

LUTHER LINCOLN, OF BOSTON, MASSACHUSETTS.

RIFLE GUN-BARREL.

No. 804,483.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed February 27, 1905. Serial No. 247,445.

To all whom it may concern:

Be it known that I, LUTHER LINCOLN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Rifle Gun-Barrels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This improvement has reference to improvements in rifle gun-barrels and in rifled tubes for ordnance or other purposes.

15 One object of the invention is to so construct a rifle-tube that the frictional resistance to the movement of the projectile may be diminished as the projectile approaches the muzzle end of the tube.

20 Another object of the invention is to so construct a rifle-tube that greater velocity of the projectile is secured, resulting in a flatter trajectory and greater accuracy.

Another object of the invention is to so construct a rifle tube or barrel that less recoil is produced from the explosion.

25 Other objects of the invention will appear from the following description.

30 The invention consists in a rifle tube or barrel having a bore which gradually increases in diameter toward the muzzle end and rifle-scorings formed in the wall of the bore.

35 The invention also consists in a rifle tube or barrel having rifle-scorings formed in the wall of its bore and a chamber located at the muzzle end and having parallel walls, the bore of the tube being gradually increased in diameter from the main diameter of the bore to the diameter of said chamber.

40 The invention also consists in such other novel features of construction as shall hereinafter be more fully described, and pointed out in the claims.

45 Figure 1 represents a longitudinal sectional view of the improved rifle-barrel or rifle-tube for ordnance, a projectile being shown in the expansion-chamber. Fig. 2 represents a cross-sectional view of the same, taken on line 2 2, Fig. 1. Fig. 3 represents a similar view taken on line 3 3, Fig. 1.

50 Similar characters of reference designate corresponding parts throughout.

55 In carrying this invention into practice my object has been to reduce the friction of the projectile at the muzzle end, thereby securing greater velocity for the projectile, a flatter trajectory, and greater accuracy, the recoil of the rifle when fired being also lessened,

it being also found in practice that this invention results in less fouling of the barrel and that the muzzle end only need be cleaned from time to time, while when the clearing of the entire length of the barrel is desired it is found that the tapering enlargement of the barrel at the muzzle end facilitates the insertion therein of a clearing-swab.

As shown in the drawings, 5 represents a tube, which may be a portion of the barrel of a rifle or of a rifle-tube for ordnance and which has a bore, the main diameter (which is the distance between the lands) of which is represented by the line 6, having spiral grooves 7 7 formed therein to any usual depth, as indicated by the line 8. At the muzzle end 9 of the tube is formed a cylindrical chamber 10, having parallel walls, preferably of a diameter equal to the extreme diameter of the bore, including the depth of the grooves 7 7, and preferably coinciding with the radius of the bottom 8 of said grooves, as is shown in Fig. 3. From the main diameter 6 of the bore the diameter of the bore is gradually increased toward the muzzle end until the diameter of the grooved portion preferably equals that of the muzzle-chamber 10, this gradual increase of diameter being indicated in the drawings by the line 11 in Fig. 1, which corresponds to the shaded surfaces bearing the same reference-number in Fig. 3.

It is of course to be understood that when the gradual enlargement of the bore in the preferred form merges into the diameter of the muzzle-chamber 10 the grooves 7 7 will gradually decrease in depth from the line of the main bore until said grooves are entirely obliterated.

The projectile A, shown herein to more fully illustrate the invention, preferably represents one formed of comparatively soft material, the peripheral portions of which have been crowded into the grooves by the pressure of the gases exerted on the projectile in the grooved portion of the bore, forming wings B B, which increase the extreme diameter of the projectile to approximately the diameter indicated by the lines 8 8 of the grooves 7 7, and consequently to a size and shape adapted to freely rotate in the chamber 10, while such wings are guided by the cylindrical surface of the chamber.

When under pressure of the gases the projectile A leaves the main diameter 6 of the tube, its surface is gradually relieved from frictional contact with the inner surface of the

bore while it continues its rotative motion, as its wings B B follow the course of the grooves 7 7 until the projectile enters the chamber 10, when the projectile is free from resistance to its rotative and forward movement, while it is inaccurately guided in both of said movements and is free to acquire increased speed at this time.

While the preferred form of the tube is shown herein, there is no intention to limit the invention thereby, for it is evident that the conical enlargement of the bore may be greater or less than that shown. It is also evident that the diameter of the muzzle-chamber 10 may be greater or less than that shown without necessarily departing from the spirit of this invention.

It is to be understood that the wings B B or their equivalents may be formed on the projectile prior to its use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A rifle tube or barrel having a bore furnished with a series of spiral grooves, the main diameter of the bore being gradually enlarged toward the muzzle end.

2. A rifle tube or barrel having a bore fur-

nished with rifle-grooves and a muzzle-chamber larger than said bore, the diameter of the grooved portion of the bore being enlarged toward said muzzle-chamber.

3. A rifle tube or barrel having a bore furnished with a series of spiral grooves and a muzzle-chamber having parallel sides and a smooth inner surface, the diameter between the lands being gradually enlarged until the main diameter of the bore equals that of said chamber.

4. A rifle tube or barrel having a bore furnished with a muzzle-chamber having parallel sides and a series of spiral grooves communicating with said chamber the bottoms of said grooves being in line with the inner surface of said chamber, said grooved portion of the bore being gradually enlarged in diameter between the lands toward said chamber until the diameter between the lands equals that of said chamber.

In testimony whereof I affix my signature in presence of two witnesses.

LUTHER LINCOLN.

Witnesses:

HENRY J. MILLER,
S. GOOSTRAY.