

C. R. ALSOP.
Rifling Fire-Arms.

No. 37,193.

Patented Dec. 16, 1862.

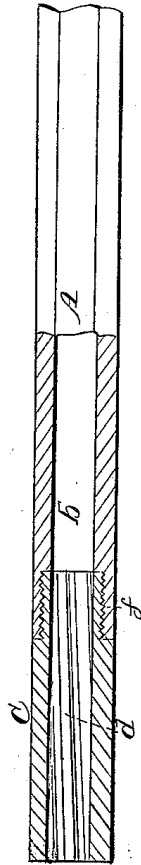


Fig. 2.

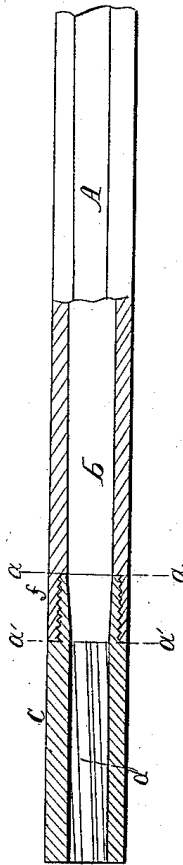


Fig. 4.

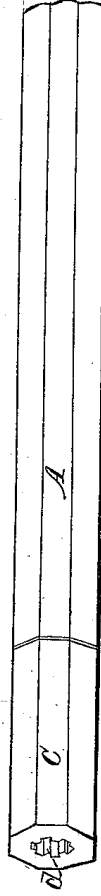


Fig. 1.

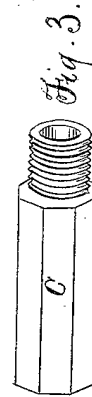


Fig. 3.

Witnesses
Gustavus D. Smith
C. R. Alsop

Inventor:
Charles R. Alsop
By Mason, Henshaw & Lammiman
Attys.

UNITED STATES PATENT OFFICE.

CHAS. R. ALSOP, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO JOSEPH W. ALSOP, OF NEW YORK, N. Y.

IMPROVEMENT IN RIFLED MUZZLES FOR SMOOTH-BORED GUNS.

Specification forming part of Letters Patent No. **37,193**, dated December 16, 1862.

To all whom it may concern:

Be it known that I, CHARLES R. ALSOP, of the city of Middletown, in the county of Middlesex, in the State of Connecticut, have invented a new and useful Improvement in Fire-Arms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which drawings like letters indicate the same or analogous parts, and in which—

Figure 1 is a perspective view of a smooth-bore rifle-barrel with my improvement attached; Fig. 2, a view showing a portion of a smooth-bore gun-barrel having a grooved or rifled muzzle attached, the muzzle and a portion of the smooth-bore being shown in section; Fig. 3, a perspective of a rifled muzzle of a gun-barrel, with a portion of its diameter cut away at one end and a screw-thread cut thereon; and Fig. 4, a view of the muzzle and barrel with differing diameters of bore.

My improvement consists in applying to the muzzle of an ordinary smooth-bore gun a rifled muzzle, or an additional length or section of barrel grooved or rifled in the usual manner, for the purpose of imparting rotary motion to the ball or projectile at the moment it leaves the gun, and in so applying such rifled section or muzzle that the impact of the ball upon the rifling in the act of its rotation shall cause the muzzle to have a tendency to retain its position upon the main or smooth-bore portion of the gun-barrel, and thus preserve a gas-tight joint.

In the drawings, A represents a portion of a rifle-barrel, having a smooth bore throughout, as at *b*, with a removable muzzle, C, rifled or grooved, as at *d*, in the ordinary manner. The muzzle C, for practical purposes, need not be more than two or three inches in length, and the "twist" of the groove or rifling must be such a variation from a right line as will be sufficient to give rotation to a ball or projectile at the moment of leaving the gun without "stripping" the ball. The muzzle at *e* is reduced in diameter and a screw-thread cut thereon and made to fit into a female screw cut in the end of the barrel A, as at *f* in Fig.

2, the said male and female screw being so formed in relation to the rotation of the ball caused by the grooves or rifling of the section or muzzle C that the said muzzle will, by the flight of the ball, have a tendency to be screwed upon the main barrel A, and thus always preserve a gas-tight joint between the muzzle and the main barrel. In other words, if the twist of the rifling is in the direction of right to left, then the construction of the male and female screws must be such that the same direction of movement will permit the muzzle to be screwed upon the barrel.

In Fig. 2 I have shown the diameter of the smooth-bore portion A and the rifled portion C the same; but for the purpose of giving greater impact of the projectile upon the rifled portion the diameter of the smooth-bore may be greater than that of the muzzle, say, by double the depth of the rifling, as in Fig. 4, so that the projectile, if inserted in the breech and closely fitting the smooth-bored portion, will be slightly compressed when it enters the muzzle C, and with certainty take into the rifling, and so insure a rotary motion as it leaves the gun. For this purpose the diameter of the bore *b* should be made to gradually diminish to the diameter of the bore *d*, as in Fig. 4, between the lines *a a* and *a' a'*. For muzzle-loading guns, however, it will be sufficient to have the muzzle-piece C and smooth-bore portion A of the same diameter throughout, and if a Minié ball be used the expansion of its base in the act of firing will cause the ball to take sufficiently into the grooves of the muzzle to insure its rotation.

It may here be observed that in firing an ordinary grooved rifle two motions are imparted to the projectile from the start—to wit, a longitudinal and a rotary motion. The consequence is a large amount of friction is engendered the entire length of the rifling, and which acts as a retarding power; but by my improvement the initial movement is horizontal only, and with but little friction through the smooth-bore, so that when the rifled muzzle is reached by the projectile a sufficient momentum has accumulated to in a great degree overcome the friction of the rifling. Thus, the projectile having attained a high degree

of velocity by the time it reaches the muzzle, a rotary motion is imparted to it by the mere expenditure of a minimum amount of power for such purposes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

A rifled muzzle, in combination with a smooth-bore gun-barrel, substantially in the manner and for the purpose set forth.

CHAS. R. ALSOP.

Witnesses:

E. W. N. STARR,
WALDO P. VINAL.