

C. E. Bailey.

Altering the Calibre of Muskets &c.

N<sup>o</sup> 72777

Patented Dec. 31, 1867

Fig. 1.

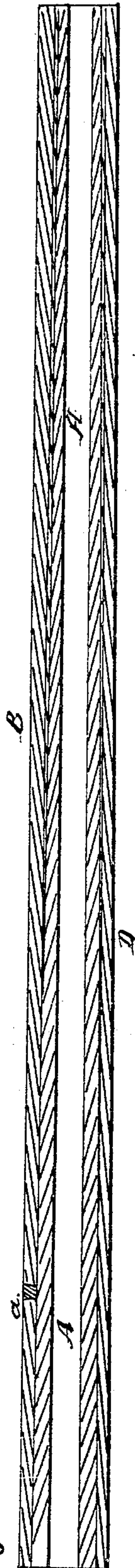


Fig. 2.



Fig. 3.



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# United States Patent Office.

CHARLES E. BAILEY, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO ALLEN PATENT FIRE-ARMS MANUFACTURING COMPANY, OF NEW YORK CITY.

*Letters Patent No. 72,777, dated December 31, 1867.*

## IMPROVED METHOD OF ALTERING THE CALIBRE OF MUSKET AND OTHER GUN-BARRELS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES E. BAILEY, of Springfield, Hampden county, Commonwealth of Massachusetts, have invented a new, useful, and improved "Method of Fitting and Securing a Steel Tube in Gun-Barrels;" 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 the drawings—

Figure 1 is a longitudinal section of a gun-barrel, having an internal tube fitted and secured therein in accordance with my invention.

Figure 2 is an end view of the same, and

Figure 3 a sectional cross-cut through the barrel and tube.

This invention consists in inserting an inner tube in a seat formed for it in a gun-barrel, and fastening it there securely, this tube being afterwards bored or rifled to the desired calibre.

The manner of inserting this tube is as follows: The barrel of the gun is first turned out so as to have a slight taper from breech to muzzle, removing, in the operation of so turning it out, the lands if it be a rifled barrel.

In the drawings, A is a tube, formed with a tapered exterior surface, and corresponding with the seat formed for it in the barrel B.

In order to fasten this tube in place securely, it is brazed in at the muzzle, and between the breech and muzzle at other points, as may be necessary, the brass being melted in the imperceptible space between the outside surface of the inner tube and the seat formed in the barrel by heating the barrel and tube together, after the latter has been fitted in place. In order to braze the tube in at intermediate points between the muzzle and breech, it is necessary to introduce the brass through a slot cut into the outside shell or barrel, and when the latter and inside tube are heated together, the brass permeates as it is melted in the space between the two. In figs. 1 and 3 this slot, *a*, is shown as filled with brass, which is kept in it to fill it up after the process of brazing.

Simply brazing a straight tube of uniform exterior diameter into the barrel bored to receive it, is not sufficient for the purpose of this invention, as in this case, from the action of the ball upon the spiral grooves of the inserted tube, it (the tube) becomes twisted, and in some cases may be blown or forced out of the gun by the force of the charge when a large ball is passing through the tube. The "twisting," however slight, injures the effect of the rifle, and can be seen in guns which have been constructed in this manner, the rays of light through the interior of the tube having a wavy appearance caused by the unevenness of the bore after having been twisted. It is necessary, therefore, that the inside tube should be formed tapered, as already described, and brazed in the tapered seat formed for it in the barrel, this preventing the ball from driving it forward and twisting it, or from doing either.

By this means also the diameter of the new calibre formed in the inserted tube may be regulated to the established principle of proportion between the length of barrels and their calibre, in order to give the greatest amount of propulsion to the quantity of powder used for the weight of ball; and thus a new barrel is formed as perfect as a solid one, and enabling a great many arms to be restored to the proper calibre for metallic cartridges, which would otherwise be useless.

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

The insertion of an inside tapered tube, A, in a seat formed for it by boring out the barrel B of a gun or rifle in such a manner that it tapers inside from breech to muzzle, and corresponds with the outside tapered surface of the tube A, and firmly securing the latter in place by brazing at the muzzle and other parts, substantially as and for the purpose described.

CHAS. E. BAILEY.

Witnesses:

R. F. HYDE,

EDWARD H. HYDE.