A. TRAUTH.

Rifling Fire-Arms.

No 50,433. Patented Oct. 10, 1865.

Fig. 1.

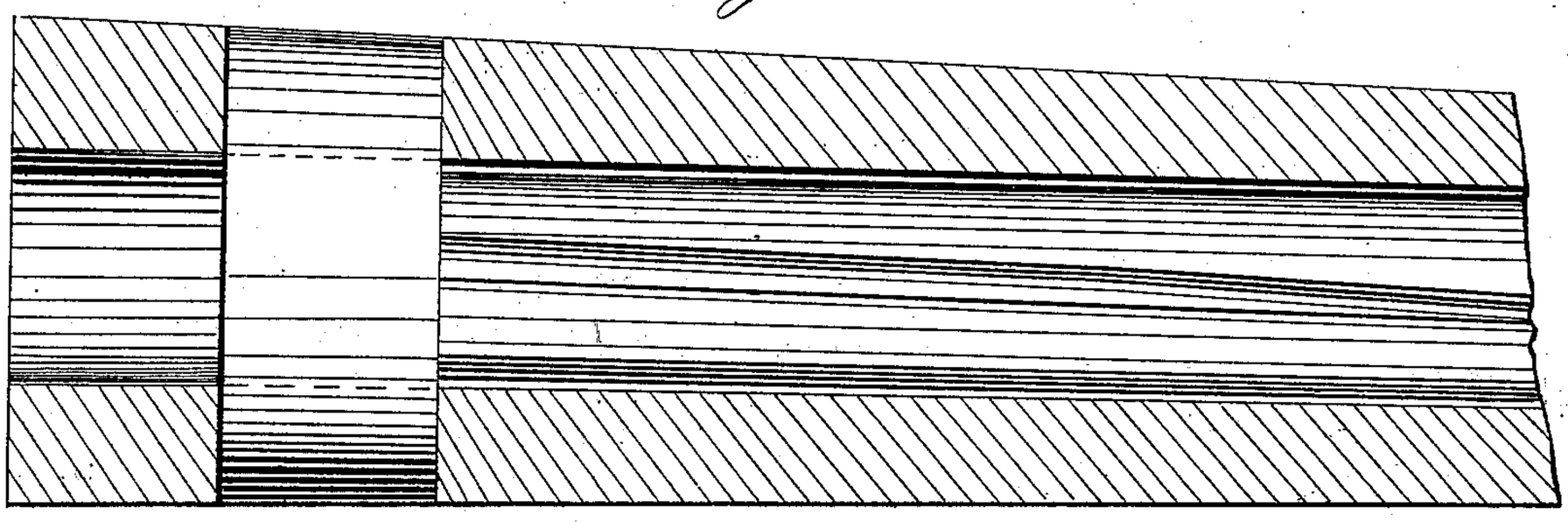


Fig. 2.

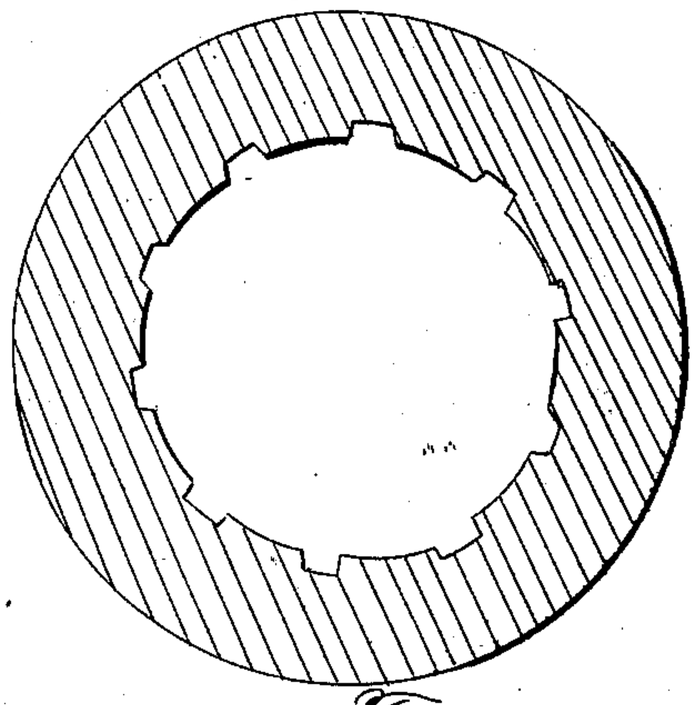
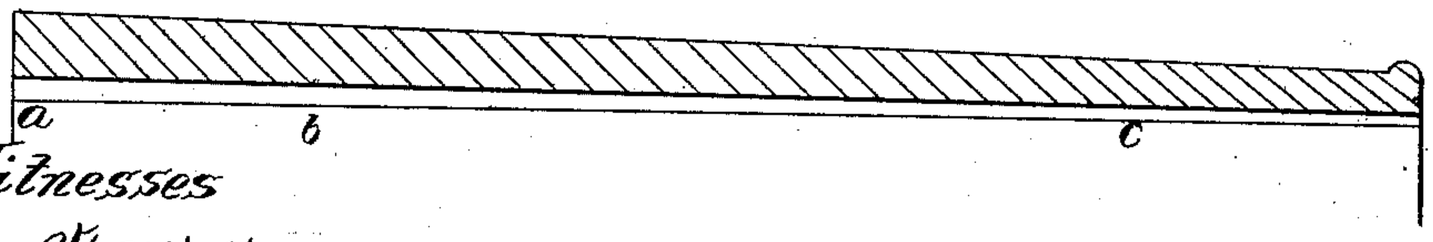


Fig. 3.



Witnesses
Frm Shearn
Thos Tusch

Inventor
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Attys

UNITED STATES PATENT OFFICE.

A. TRAUTH, OF CHEMNITZ, SAXONY.

IMPROVEMENT IN RIFLING FIRE-ARMS.

Specification forming part of Letters Patent No. **50,433**, dated October 10, 1865.

To all whom it may concern:

Be it known that I, A. TRAUTH, of Chemnitz, Saxony, have invented a new and useful Improvement in Rifling Barrels of Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical central section of this invention. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a diagram representing the shape of my rifle-grooves from one end of the barrel to the other.

Similar letters of reference indicate like parts.

This invention relates to rifle-grooves the transverse section of which is not rectangular, but getting gradually smaller toward the outside, their form being dependent upon the kind and size of the fire-arm. The depth of these grooves decreases for a certain distance, and, together with the depth, the width decreases, so that the advantages of the wedge-shaped grooves are obtained, and, where the depth does not alter, the width remains unchanged. The production of these grooves is much simpler and more correct than that of the wedge-shaped grooves, because the cutters used for cutting the same have to be moved only in a radial direction in the proper proportion in order to produce the desired result. In the same manner the operation of polishing the improved grooves, which is difficult with wedge-shaped grooves, is easily accomplished, and can be effected simply by radially-expanding polishing-jaws. As previously remarked, the depth and length of these grooves gradually decrease up from the chamber up to a certain part, and then they continue to the muzzle without diminution.

In order to render the principle of breech-loading without windage practicable also for heavy ordnance with a powerful charge, where, if the rifle-grooves are made in the usual manner, the lead ring would be stripped off, I continue the grooves to the rear end of the chamber; and my system of rifling is applicable to most all the devices for closing the breech. In using this method of rifling the lead ring cannot have a plain cylindrical surface; but it must be made with ribs to correspond to the grooves, which consequently are not cut out, but simply compressed as the projectile passes out of the barrel. The grooves extend through the chamber with uniform width and depth, and then they decrease for a certain distance, when they continue to the muzzle with uniform depth. The ribs, having play in the grooves in the chamber, allow of pushing the projectile forward to the inner end of said chamber, and for this reason, and also because the motion of the projectile takes place according to the grooves, and must not be converted from a rectilinear to the rotary motion, and because the power ordinarily required for cutting into the lead ring is not needed, the effect of a fire-arm rifled according to my invention is superior, and the lead ring is less liable to be destroyed than in ordinary rifled barrels. As soon as the projectile has commenced its motion the rifle-grooves begin to diminish and the lead ribs are compressed, so as to prevent windage.

This kind of rifle-grooves is applicable to all stationary cannons; but it cannot be used in field-ordnance, where the lead ribs of the projectiles would be liable to be deformed by the jars to which they are subjected in being transported over rugged ground, and on account of the deformation of said ribs the operation of loading could not be effected with the desired rapidity. With heavy charges, however, the simple lead ribs might not be found of sufficient strength to sustain the strain to which they will be subjected, and in this case I construct the projectile with iron ribs, which are so low that they do not touch the bottom of the grooves, and act simply as guides, whereas the lead ring, with its ribs, produces the requisite gas-tight joint.

If desired, the bore of the barrel may be made to conform to the shape of the grooves, being bored of uniform diameter to the end of the chamber, thence decreasing for a certain distance, and again of uniform diameter to the muzzle.

The shape of my rifle-grooves will be best understood from Fig. 2 of the drawings, which shows a transverse section of the same, and

from Fig. 3, which shows a diagram thereof in a longitudinal section. Fig. 2 shows the tapering sides of the grooves, and by examining Fig. 3 it will be seen the grooves run parallel from *a* to *b*, thence they decrease in depth to *c*, and thence their depth is uniform up to the muzzle of the barrel.

I claim as new and desire to secure by Letters Patent—

The production of rifle-grooves with a trapezoidal cross-section, and extending through the chamber of the barrel in a parallel direction, thence diminishing in depth and width to about the middle of the length of the barrel, (more or less,) and finally passing on with uniform depth and width to the muzzle, substantially as and for the purpose described.

A. TRAUTH.

Witnesses:
THEODOR MARBACH,
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