

UNITED STATES PATENT OFFICE.

THOMAS WARNER, OF CHICOPEE, MASSACHUSETTS.

IMPROVED PROCESS FOR MAKING TWISTED GUN-BARRELS.

Specification forming part of Letters Patent No. 9,999, dated September 6, 1853.

To all whom it may concern:

Be it known that I, THOMAS WARNER, of Chicopee, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Twisted Barrels for Guns and other Fire-Arms, and in the Process of Making the Same; and I do hereby declare that the following is a full, clear, and exact description thereof.

What are called "twisted barrels," as heretofore made, consist of a ribbon or ribbons, of iron or steel, or both, wound on a mandrel in a helix, and then welded at the seams. This mode of procedure is attended with great labor, and unless great care be observed to effect a thorough welding of the seam along the entire length of the helical line forming the lap the barrel is liable to burst. The fibers of the metal in such barrels must of necessity be parallel along the entire line of the helix.

The object of my invention is to produce a barrel which for a given weight of metal shall present greater strength to resist the explosive force of gunpowder, and which shall avoid the liability of imperfect seams along the entire length; and to this end the first part of my invention, which relates to a new manufacture, consists of twisted barrels for fire-arms with the fibers of the metal twisted from the inside to the outer circumference by a gradually-increased twist, the helices formed by all the fibers having the same pitch, and each successive fiber toward the outer circumference forming a greater angle with the axis, so that the successive layers of fibers cross each other, and thus tend to give tenacity to the mass; and the second part of my invention, which relates to the process of making twisted barrels in accordance with the first part of my invention, consists in twisting a bar of metal of the required size while in a heated state, and then boring out the caliber.

The mode of procedure which I have tried with success is to take a bar of iron of suitable quality and size, and after it has been sufficiently and equally heated twisting it in the manner of twisting a strand of rope until the

required twist has been given. I then upset it endwise to compact the mass. After being thus treated it is bored out to the required caliber, and the outside properly shaped and finished in any suitable manner.

I do not deem it necessary to describe any particular kind of machinery for giving the twist to the bar or for boring out the caliber or giving the required form and finish to the outside, as these are matters well known to those skilled in the art of working metals and making fire-arms, and these operations may be performed in any suitable manner at the discretion of the operator.

Barrels on my improved plan can be made of iron or steel, or of both mixed.

If desired, the barrel can be bored entirely through and a breech-pin then inserted in the usual manner; or the breech can be formed in the solid by simply boring the caliber to the required depth.

I do not wish to limit myself to any particular size of barrel, and my new manufacture and mode of procedure are applicable to any size of barrel which can be made out of a bar that will admit of being twisted when properly heated. In the making of large barrels the bar may be heated and twisted in successive portions of the length, or in sections and the sections afterward welded together.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A new manufacture of gun-barrels made out of a solid bar with the fibers of the metal having a gradually-increased twist from the inside to the outside, substantially as specified.

2. Making twisted barrels by twisting a bar of metal of the required size when in a heated state, and then boring out the caliber, substantially in the manner and for the purpose specified.

THOS. WARNER.

In presence of—

ALEX. PORTER BROWN,
CHAS. N. BAMBURGH.