

UNITED STATES PATENT OFFICE.

WILLIAM C. STIFF, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND.

MANUFACTURE OF BARS OF METAL.

SPECIFICATION forming part of Letters Patent No. 262,850, dated August 15, 1882.

Application filed March 23, 1882. (No specimens.) Patented in England November 28, 1881, No. 5,192.

To all whom it may concern:

Be it known that I, WILLIAM CHARLES STIFF, a subject of the Queen of Great Britain, residing at Birmingham, in the county of Warwick, England, gun-barrel manufacturer, have invented certain new and useful improvements in the manufacture of bars of metal applicable to the manufacture of gun-barrels, ordnance, tubes, shafts, axle-trees, spindles, bars, rods, plates, and sheets for various purposes, (for which I have received Letters Patent in Great Britain, No. 5,192, dated 28th November, 1881,) of which the following is a specification.

For this purpose I take an ingot, bloom, or billet of iron or steel, which, by preference, I make of approximately square section, with the corners slightly rounded and the sides bulged, or of any other required section, angular or otherwise, capable, when twisted, of forming a number of regular threads around the same. After carefully submitting it to the required heat from end to end, I then twist it until the exterior presents the appearance of a threaded screw, in which state the twisting will have been found to have extended into the metal. The bar will also be found to have increased in width, and when one of square section has been used the diameter will approach the diagonal of the original bar, while its length will have been diminished, this contraction solidifying the same, and the action of twisting at the same time, also causing an increase in temperature and consolidation of the metallic particles, which, when the bar is afterward rolled, hammered, or otherwise condensed, will produce greater solidity and superiority in surface and durability. This twisted bar for ornamental purposes I again roll, forge, or compress, so as to form it into an angular, fluted, indented, or other shaped bar, which is again twisted in either direction, as above described, and then rolled, forged, or compressed into the required shape, when it will be found to possess a beautiful figure, extending into the body of the metal produced by the distortion of the spirals.

If the rod or bar treated as above described

is required for gun-barrels, ordnance, or tubes, it may be drilled or punched from the solid before or after the first twist is put thereon; or it may be drilled or punched at any subsequent stage, and then formed into the requisite shape; or the shape may be formed before it is punched or drilled. When employing some qualities of metal the same may be twisted cold—that is to say, without previously heating. By these means I compress the metal and produce a weldless steel or iron barrel or tube in which the particles of the metal have been arranged in various directions, and by the operations herein described I also produce by means of the requisite rolling or other compressing operations figured tubes, bars, rods, shafts, plates, and sheets of a highly ornamental character, and in addition to the above the same process also makes the metal more dense, improves its surface, and thereby greatly adds to its durability, the same being applicable for a variety of purposes.

I am aware that it is not new to make gun-barrels by twisting a bar of metal while in a heated state, upsetting it endwise to compact the mass, and join or weld together the helices of the bar, then boring out the latter to the required caliber, and finally finishing the outside of the barrel by suitable means.

Having thus described the nature of my said invention and the mode in which I carry the same into effect, I would have it understood that what I claim is—

The method of producing an ornamental bar of metal herein described, consisting in twisting a bar of metal, then rolling or compressing it, then subjecting it to a second twisting operation, and finally finishing it by rolling or compressing it again, as and for the purpose herein set forth.

W. C. STIFF.

Witnesses:

GEO. GREEN,
27 Oliver St., Birmingham.

WILLIAM H. TYTHER,
51 Wordsworth Road, Small Heath, Birmingham.