

(No Model.)

T. T. S. LAIDLEY.
Heavy Rifled Gun.

No. 240,319.

Patented April 19, 1881.

Fig. 1

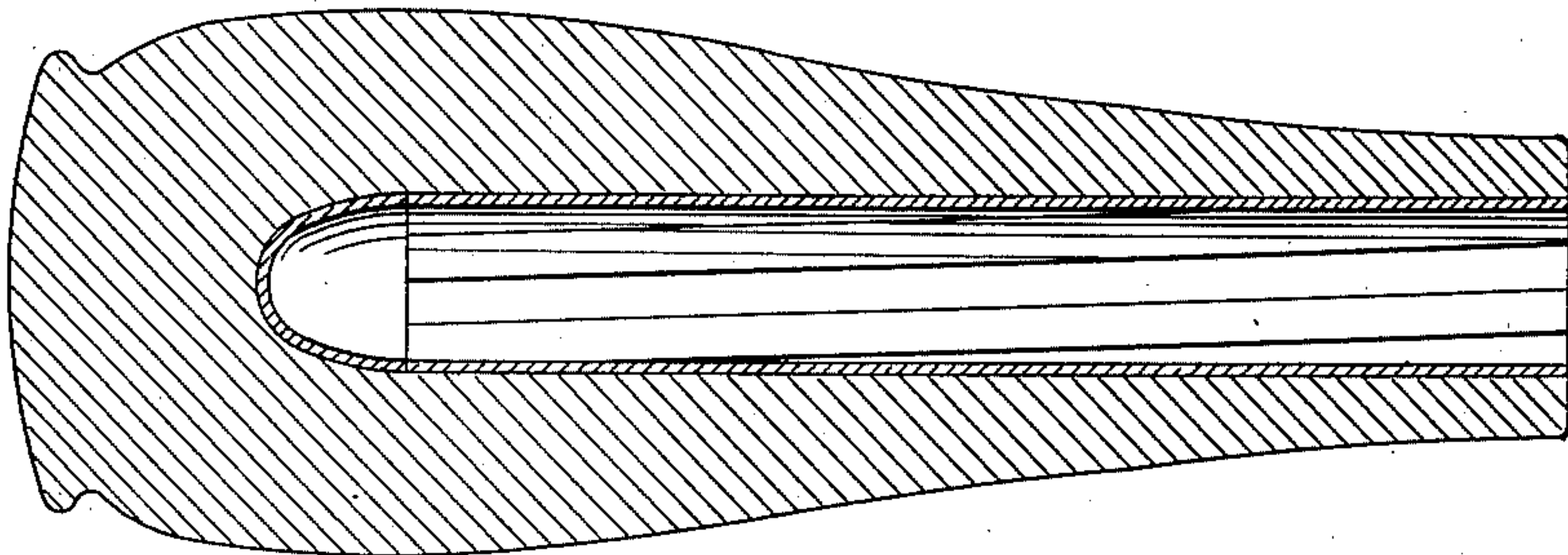


Fig. 2.

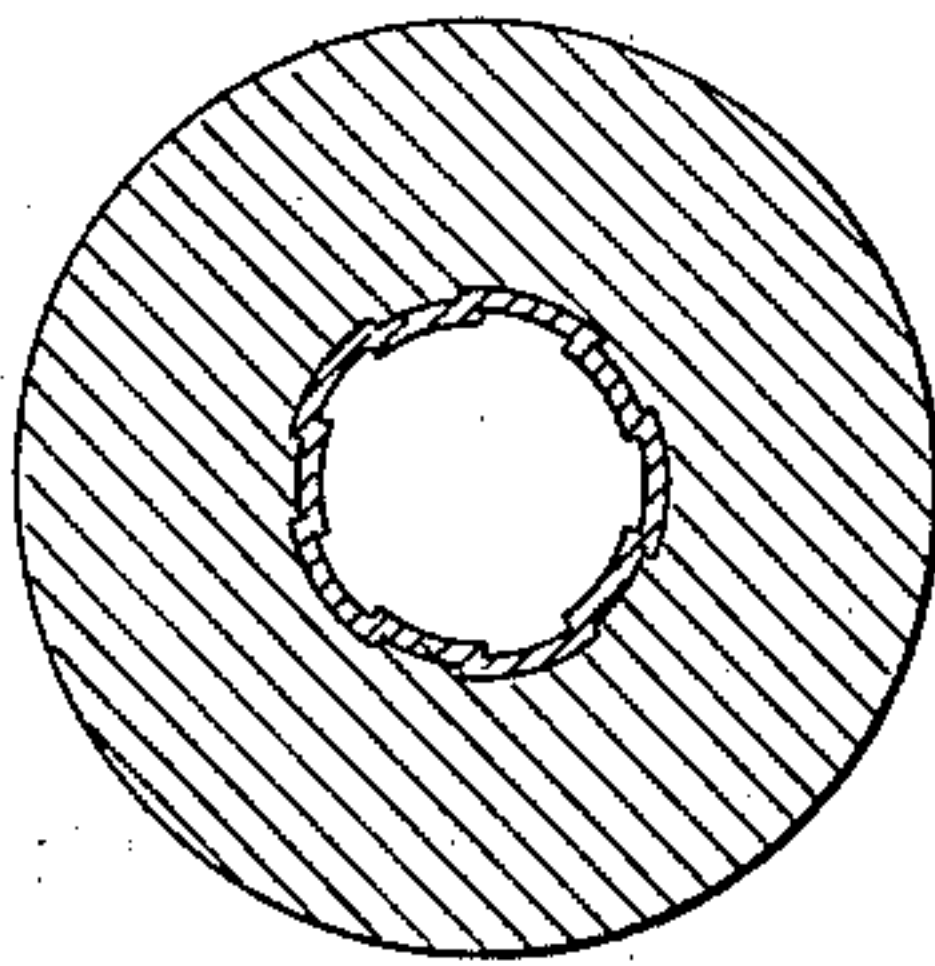
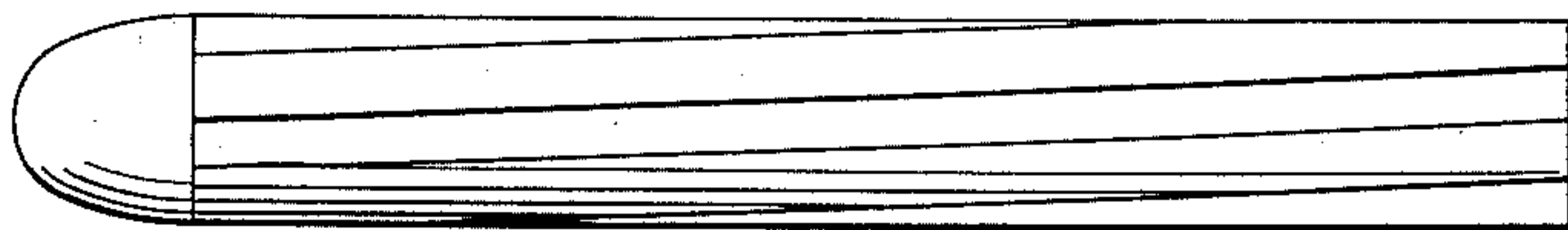


Fig. 3.



Witnesses;
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UNITED STATES PATENT OFFICE.

THEODORE T. S. LAIDLEY, OF THE UNITED STATES ARMY, WATERTOWN ARSENAL, MASSACHUSETTS.

HEAVY RIFLED GUN.

SPECIFICATION forming part of Letters Patent No. 240,319, dated April 19, 1881.

Application filed September 18, 1880. (No model.)

To all whom it may concern:

Be it known that I, THEODORE T. S. LAIDLEY, of the Army, residing at Watertown Arsenal, Middlesex county, Massachusetts, have invented a new and useful Improvement in Heavy Rifled Guns, of which the following is a specification.

It is well known that in repeated firings of cast-iron guns cracks are formed in the bore at the seat of the charge. The gases formed in the explosion of the powder enter these cracks, and develop them to such an extent as to finally, acting on an enlarged surface, prove too great for the strength of the gun and rupture it. If, then, a casing of some proper material be inserted in the bore, so as to exclude the gas from entering the cracks formed, the endurance of the gun will be increased.

I am aware that wrought-iron and steel tubes have been for many years inserted in the bores of guns; but it has been always done for the purpose of increasing their strength, and not merely to act as a gas-check and exclude the gas from the cracks. Consequently the tubes were made thick, and, as a matter of course, were expensive. Recent experiments, however, show that the strength of cast-iron guns lined with wrought-iron tubes is not thereby increased over what it would be if they were made entirely of cast-iron, but is actually diminished. It is therefore doubly important that the lining should be as thin as possible, and at the same time serve the required purpose.

In the accompanying drawings, which show my improvement, Figure 1 represents a longi-

tudinal section of a large gun lined with a tube of bronze. Fig. 3 is a thin tube rifled on its exterior surface. Fig. 2 is a cross-section of the muzzle of the gun.

The gun having been bored out and rifled in the ordinary way, the tube of bronze, brass, or other suitable metal, rifled on its exterior surface, is inserted in the bore and pushed into place, having been made with an easy fit to allow of this being done without trouble. It is then expanded from within by hydraulic or powder pressure, or first with hydraulic pressure and afterward with powder, bored out to the required size, leaving the tube of sufficient thickness to prevent it from rupture, and rifled, the grooves corresponding with the grooves already cut in the bore.

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

1. A gun rifled and lined with a tube of suitable material which is made externally to fit the rifling of the gun, substantially as described.

2. A gun rifled and lined with a tube which is made externally to fit the rifling of the gun, and is internally rifled, as set forth.

3. A cast-iron gun rifled and lined with a tube of brass or similar material, which is made to fit the rifling of the gun, substantially as described.

T. T. S. LAIDLEY.

Witnesses:

CHAS. A. GREGG,
GEO. MILLS.