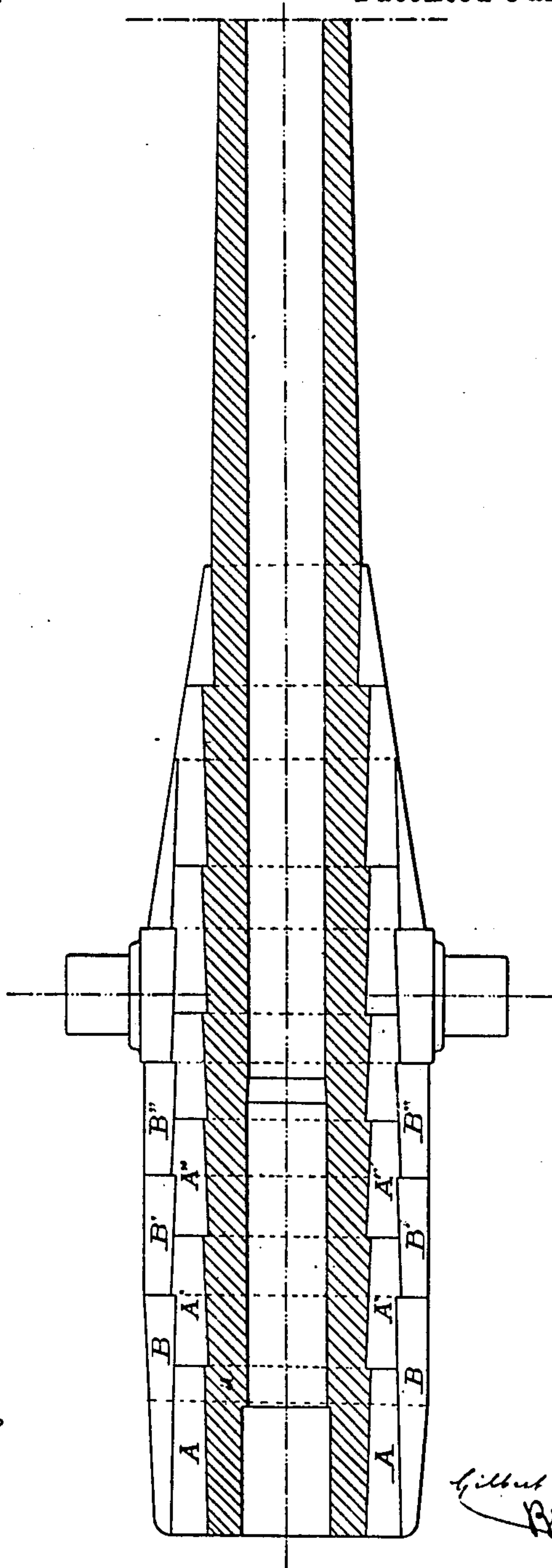


(No Model.)

G. A. CASSAGNES.  
ORDNANCE.

No. 279,636.

Patented June 19, 1883.



Witnesses

*A. Bligny*

*G. Lammont*

Inventor:

*Gilbert Alfred Cassagnès*  
*Bureau Steels*  
*attorneys*

# UNITED STATES PATENT OFFICE.

GILBERT ALFRED CASSAGNES, OF PARIS, FRANCE.

## ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 279,636, dated June 19, 1883.

Application filed March 16, 1883. (No model.) Patented in France February 12, 1883.

*To all whom it may concern:*

Be it known that I, GILBERT ALFRED CASSAGNES, a citizen of France, residing in the city of Paris, in the French Republic, have invented a new and useful Improvement in Ordnance, (for which I have obtained a patent in France, bearing date February 12, 1883, for fifteen years,) of which the following is a specification.

10 Ordnance as at present constructed are usually strengthened internally with cylindrical metal hoops heated and shrunk in position. These hoops of iron or steel offer considerable resistance in a transverse sense, but add nothing to the longitudinal resistance of the arm.

15 The object of this invention is to so form and apply the hoops that they are compelled to participate in the longitudinal resistance. With this view, and as represented by the accompanying drawing, which is a longitudinal section embodying my invention, I give a truncated form to the internal and external surfaces of the hoops when several layers are superposed, the inclination of the superposed  
25 cones being placed inversely, care being taken to cross or alternate the joints. Thus the inner or first layer of cones, formed of the hoops A A' A<sup>2</sup> A<sup>2</sup> A', have their bases facing toward the breech of the gun, while the exterior of these same conical hoops and the interior of  
30 the second or outer layer of cones, B B' B<sup>2</sup> B<sup>2</sup> B', have their bases turned to the mouth of the gun—that is to say, the inner summit of the conical hoops of the first layer, A A' A<sup>2</sup>  
35 A<sup>2</sup> A', faces the muzzle, while the external summit of each of these same cones, as well as the internal summit of each of the cones B B'

B<sup>2</sup> B' B' of the second layer, is placed toward the breech.

It should be mentioned that in the drawing 40 the truncation of the conical hoops is exaggerated, so as to render them more visible. The result of this arrangement is that any displacement of the metal tube which would have a tendency to unbreech the rear of the cannon 45 would have the effect of wedging the hoop immediately above A, which would cause the longitudinal pressure to bear on the hoop B of the second layer. This latter would transmit the pressure to the hoop A', which would communicate it to B', which again transmits it to  
50 B<sup>2</sup>, and so on successively to the trunnion-hoop B<sup>2</sup>. The rear ends of the hoops A A' A<sup>2</sup>, &c., bear against shoulders that are formed on the body of the gun. It follows that, the whole 55 being composed of detached parts, this novel mode of hooping constitutes an ensemble capable of resisting the breakage as well as the unbreeching of the cannon.

Having thus described my invention, I 60 claim—

The cannon constructed and combined with truncated metal hoops in several concentric layers, the inclination of the cones being reversed in each layer of cones, and each outer 65 layer breaking joints with the inner layer, the hoops of the innermost layer bearing with their rear ends against shoulders on the body of the cannon, substantially as described.

GILBERT ALFRED CASSAGNES.

Witnesses:

A. BRÉBERT.

ROBT. M. HOOPER.