(No Model.)

C. E. HAUCK.

CANNON.

No. 301,233. Patented July 1, 1884.

Fig. 1.

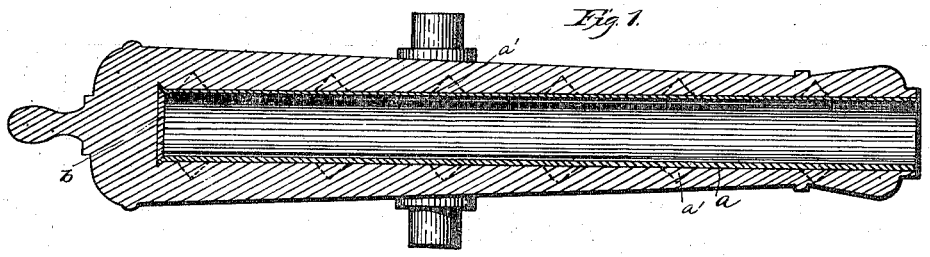


Fig. 2.

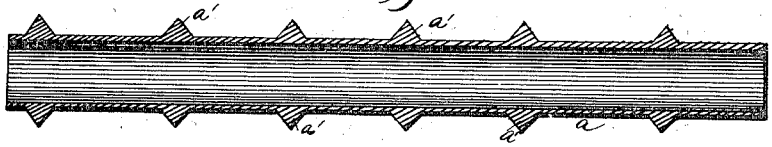


Fig. 3.

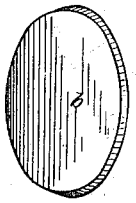
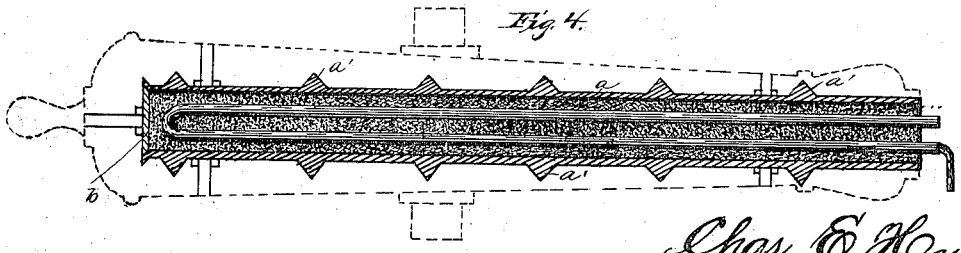


Fig. 4.



WITNESSES

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CHARLES EDWARD HAUCK, OF IDLEWOOD, PENNSYLVANIA.

CANNON.

SPECIFICATION forming part of Letters Patent No. 301,233, dated July 1, 1884.

Application filed March 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. HAUCK, a citizen of the United States, residing at Idlewood, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Cannon, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to the manufacture of cannons of large caliber with steel bores; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claim.

Figure 1 is a longitudinal sectional view of my improved cannon. Fig. 2 is a longitudinal sectional view of the steel bore as it appears before it is placed in the mold. Fig. 3 is a view in perspective of the steel breech-plate; and Fig. 4 is a longitudinal sectional view of the steel inside or bore section of the cannon anchored to have the molten metal cast around it, the outline of the cannon being also shown.

In casting large cannons—say from fifty to one-hundred ton cannons—if there is a flaw in the cannon after it is finished, the entire cannon is lost, together with the time and labor of the men required to cast so large a cannon. My aim is to prevent so great a loss as that of the entire cannon, and to proceed in such a way that the steel inside, in which the bore of the cannon is formed, will be all that is lost if there should be a flaw in it. I accomplish this by constructing the cannon in the following manner: I first cast a steel tube, *a*, of the proper length, and with walls of from two to four inches thick for a fifty or one-hundred ton gun, on the outside of which are left projections, as at *a'*. This steel tube *a* is then bored or planed out accurately, and if there should be a flaw or defect inside of the barrel thus formed this would be all of the gun that would be lost, together with the time spent upon it. If it should prove to be sound and accurate, it is packed into sand, and a tube inserted in the sand to run water through to prevent the inside from running while the molten metal is being poured around it. It is then anchored in the mold, the steel breech-plate *b* anchored in place to close the breech end of the tube, and the molten metal cast around it, thus completing the cannon. The outside of the cannon may be either of steel or cast-iron. Cast-iron will answer as well as steel, as all that wears is the steel tube, and a cast-iron outside will lessen the cost of the cannon. The projections *a'* melt as the iron or steel is poured into the mold and run with it, so that the union of the steel tube and the cast metal is complete, and the parts, when finished, are integral.

By this method of construction there is a very large saving of time, labor, and material in case a flaw should occur in making the cannon, and it is therefore the most economical cannon yet produced. The bore can be examined from both ends before the steel tube is placed in the mold, and it can be determined before the gun is made whether it be accurate or not.

The steel barrel can be made of any desired thickness, and may be used in light field-guns or in heavy guns for forts and ships.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a cannon or other piece of ordnance, the combination of the herein-described steel barrel, having external rough projections, *a'*, the steel breech-plate *b* at the rear thereof, and the main or outer portion of the cannon, of iron, cast about such parts and forming an integral structure therewith, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of witnesses.

CHARLES EDWARD HAUCK.

Witnesses:

GEORGE N. MONRO,

ANDREW PATTERSON,

JAS. L. WORTH.