

F. Adams,

Casting Copper Cylinders.

No 24,915.

Patented Aug. 2, 1859.

Fig. 2.

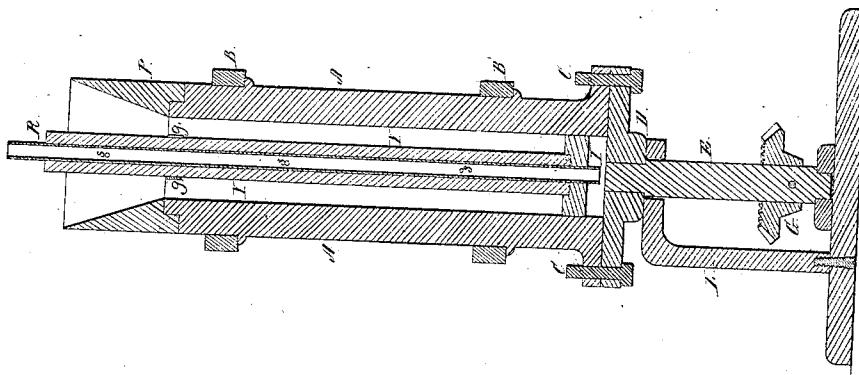


Fig. 3.

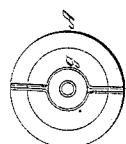
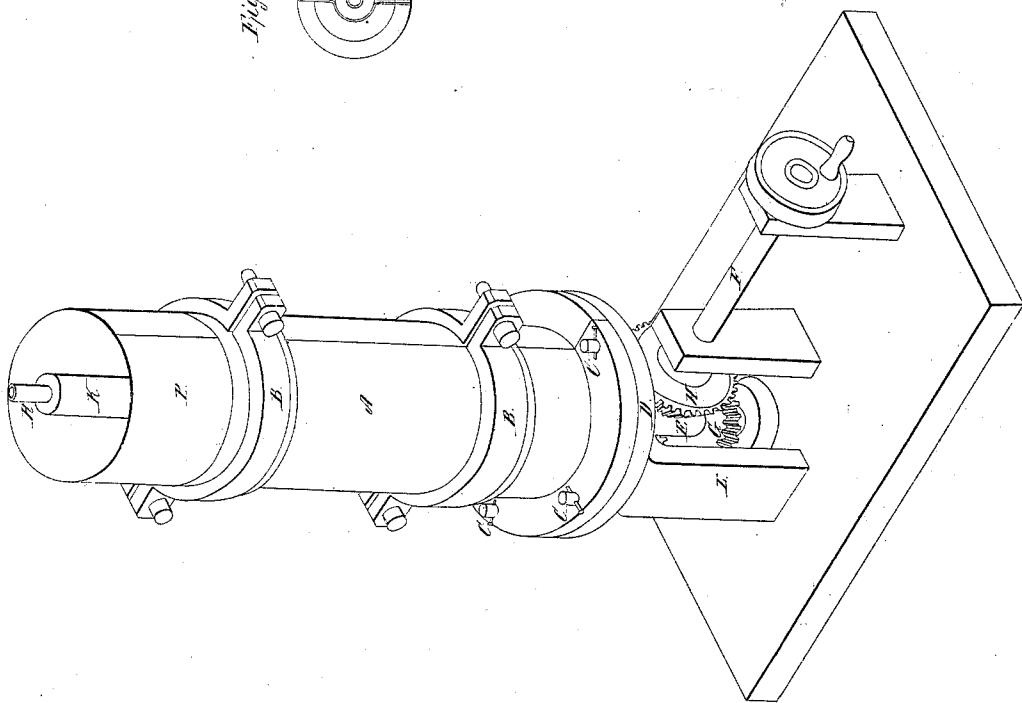


Fig. 1.



Witnesses:

Sam'l Cooper

Thos' H. Glouc.

Inventor:

Frederick Adams

UNITED STATES PATENT OFFICE.

FREEBORN ADAMS, OF SOMERVILLE, MASSACHUSETTS.

IMPROVEMENT IN CASTING COPPER CYLINDERS.

Specification forming part of Letters Patent No. 24,915, dated August 2, 1859.

To all whom it may concern:

Be it known that I, FREEBORN ADAMS, of Somerville, in the county of Middlesex and State of Massachusetts, have invented an Improvement in the Art of Casting Copper Cylinders and Tubes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this description, in which—

Figure 1 is a perspective view of the mold which I employ; Fig. 2, a vertical section through the same; Fig. 3, detail to be referred to hereinafter.

Great difficulty is experienced by workers in copper in making castings of this metal, such castings being liable to be filled with imperfections and "blow-holes," and the efforts heretofore made to remedy this evil have not been attended with success. These imperfections, which appear to result from the disturbance caused by pouring in hot metal upon that which is partially cooled and crystallized, are particularly manifest in articles of considerable length, and in such as require a core through the center—as in cylinders or tubes—and it is with especial reference to this branch of the art that I have originated my present invention, which consists in the production of a new article of manufacture—viz., a cast copper tube or cylinder without blow-holes, made by rotating the mold in which it is cast, and using a core, as herein stated.

It is proper to state that molds have been rotated heretofore in casting articles from iron—as pipes and car wheels—and that motion has been given to the metal in the molds while being poured into them. I lay no claim whatever to either of these things.

My invention consists in the production of an article of manufacture hitherto unknown, and one which has been deemed so impracticable that workers in copper have turned their attention to forming copper cylinders by the electro-galvanic process, which is very tedious and expensive. By a simple mode of casting I can produce, and do produce, a perfect cast copper cylinder, which has always heretofore been deemed an impossibility, and for years not even attempted, or at least with any degree of final success.

To enable others skilled in the art to understand my invention, I will proceed to describe the manner in which I have carried it out.

In the accompanying drawings my invention is represented as applied to a mold for casting cylinders. The mold A, the two halves of which are held together by the clamps B, is secured to a bed, D, by pins C. The bed D is secured to the top of a shaft, E, which is supported by a standard, L, and is connected with the horizontal shaft F by bevel-gears G and H in such a manner that as the shaft F is rotated the mold A will be turned upon its axis.

I is a movable bottom, which may be raised or lowered according to the length of tube or cylinder required, and upon this bottom rests the core K, the upper end of which is steadied and held in place by metallic straps g, made so thin as not to break the stream of metal as it descends into the mold, or to interrupt its regular distribution around all sides of it. The core-bar R is made hollow, and is perforated with holes s. When used, it is to be covered with a coating of molding-sand, Y, through which the gas and steam pass to the interior of the bar. A mouth-piece, P, is placed upon the top of the mold to assist the workmen in pouring in the metal.

The velocity with which the mold is rotated is not rapid. I have found one hundred and twenty-five turns per minute to answer the purpose in casting cylinders four inches in diameter. This, however, will vary somewhat with the rapidity with which the metal is poured into the mold.

I am aware that rotating molds have been used. I make no claim whatever to them; but

What I do claim as a new article of manufacture is—

A tube or cylinder cast out of copper and free from blow-holes and other similar defects, when produced as herein stated.

FREEBORN ADAMS.

Witnesses:

SAM. COOPER,
THOS. L. GLOVER.