

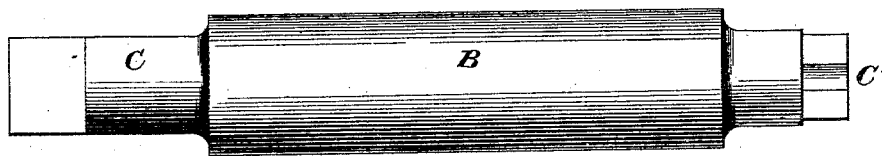
(No Model.)

A. W. H. COLLARD.  
ROLLS FOR IRON ROLLING MILLS.

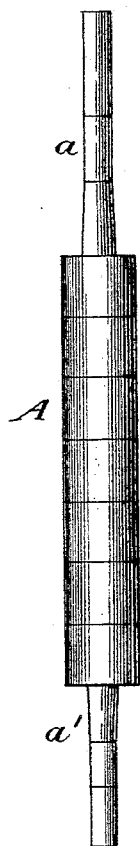
No. 384,308.

Patented June 12, 1888.

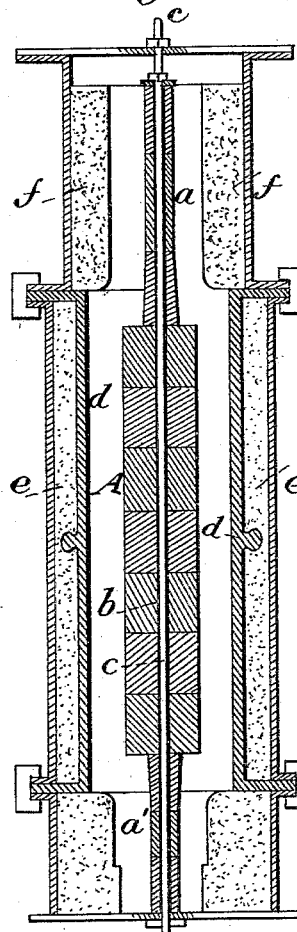
*Fig. 1.*



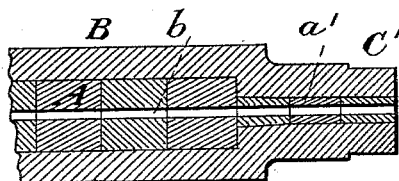
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses.  
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# UNITED STATES PATENT OFFICE.

ARTHUR WILLIAM HENRY COLLARD, OF PITTSBURG, PENNSYLVANIA.

## ROLLS FOR IRON-ROLLING MILLS.

SPECIFICATION forming part of Letters Patent No. 384,308, dated June 12, 1888.

Application filed April 7, 1888. Serial No. 269,961. (No model.)

### *To all whom it may concern:*

Be it known that I, ARTHUR WILLIAM HENRY COLLARD, a subject of the Queen of Great Britain, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Rolls for Iron-Rolling Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to rolls for iron-rolling mills; and it consists of an improved construction of chilled-iron roll, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a roll having my improvement. Fig. 2 is a side view of a center piece or core which forms the interior portion of the roll. Fig. 3 is a vertical central section showing the center piece secured in position within the mold for casting the roll. Fig. 4 is a central longitudinal section of roll.

A designates a center piece or core, constructed of brick, clay, or other suitable earthen material, and reduced at its extremities to form the necks *a* and *a'*, the journals or bearings of the roll being formed about the said necks. The center piece, A, is made in sections to conform to the size and shape of roll, preferably of fire-brick, and is formed with a central aperture or longitudinal opening, *b*, extending from end to end, in which is placed a bar, *c*, for securing the center piece in position in the center of the mold in which the roll is to be cast.

The mold which surrounds the core is usually provided with an iron lining, (indicated by *d*,) within which the body or main part of the roll is formed, dry sand, *e*, being placed about the lining. Sand mold *f* is formed to surround the necks *a a'*, where the bearing parts of the roll are formed. The metal being poured into the mold, the iron portion of the roll is formed on the center piece, entirely inclosing it to a suitable thickness, the body of the center piece being within the body B of the roll, and the necks *a* and *a'* being within the bearings C and C', the whole forming a durable chilled roll, which is light, but of ample strength. The roll thus constructed tends to equalize the contraction of the iron in the roll in its transition from a molten to a solid condition.

I claim--

1. In a roll for metal-rolling, an interior central portion formed of brick or earthen material, and the outer portion of metal, which incloses the central portion, substantially as and for the purposes described.

2. The roll formed of an outer portion of metal and a center piece of brick material, having necks *a* and *a'* formed at its extremities, substantially as and for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

ARTHUR WILLIAM HENRY COLLARD.

Witnesses:

JOHN H. THOMAS,  
REUBEN JENKINS.