(No Model.)

W. H. GRIFFITHS.

APPARATUS FOR ROLLING METAL BANDS.

No. 303,001. Patented Aug. 5, 1884.

Fig. 1.

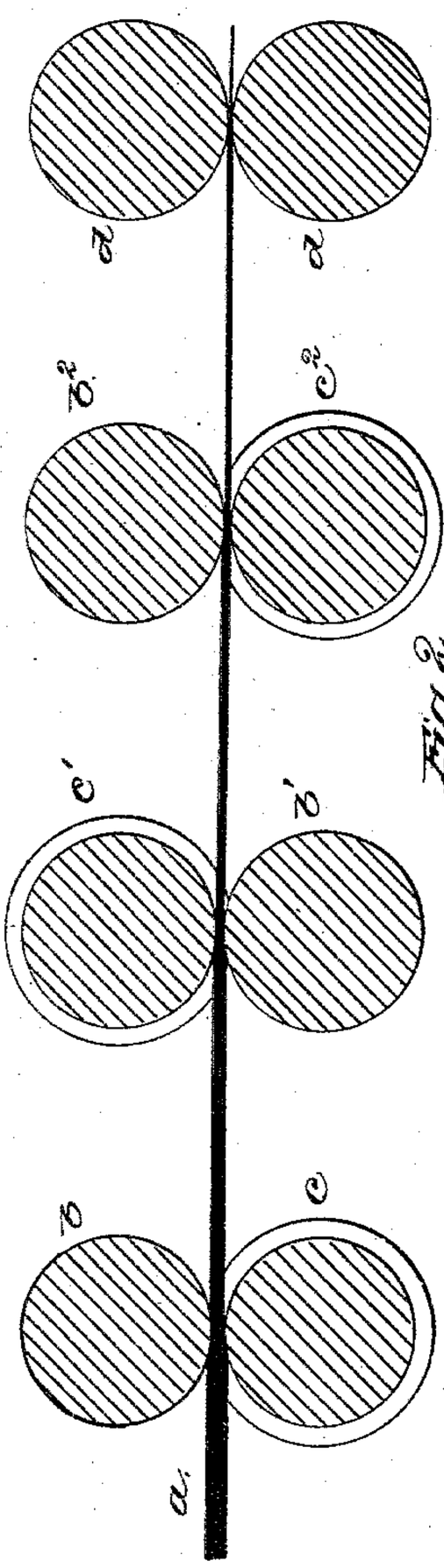


Fig. 2.

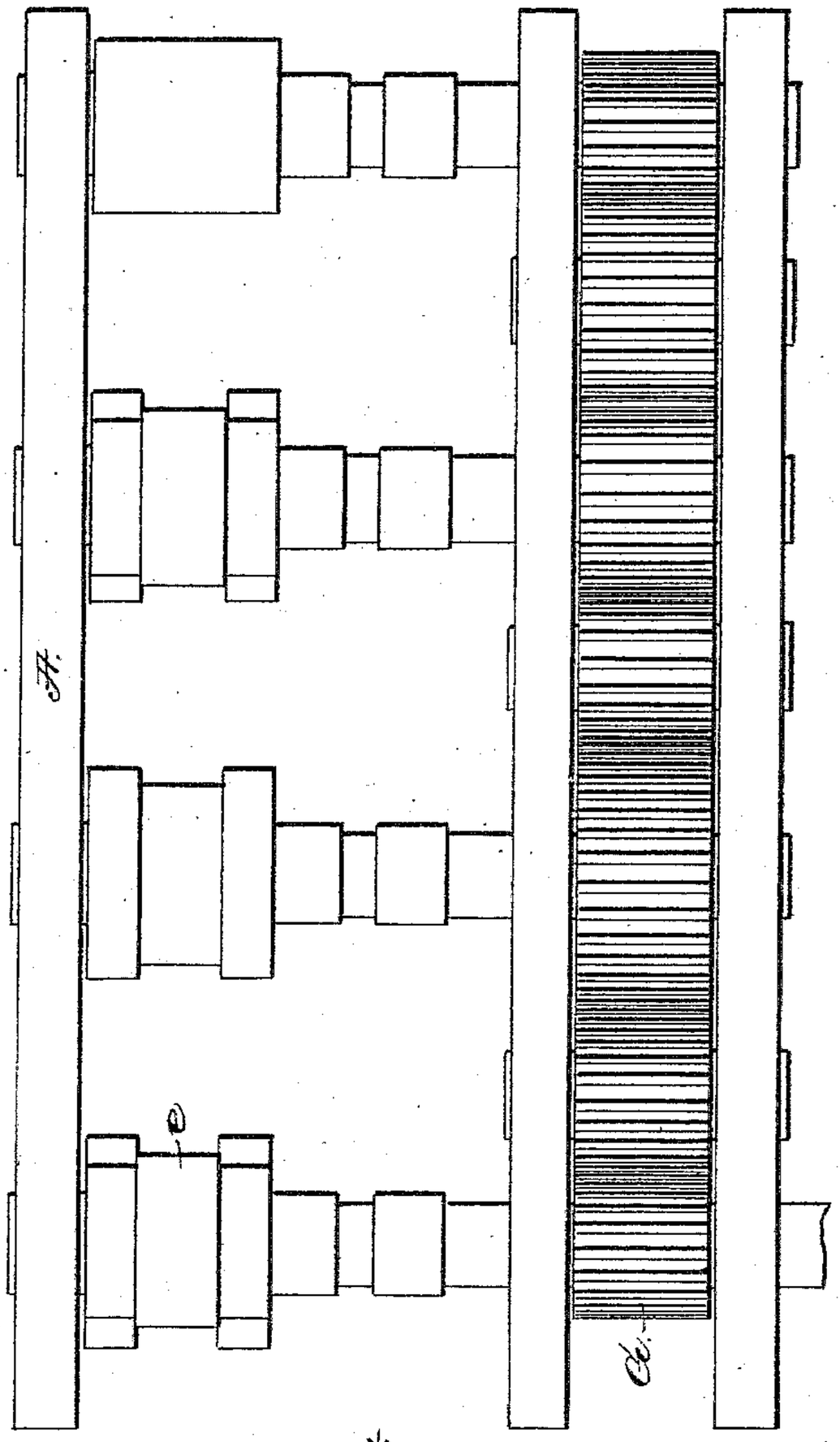


Fig. 5.

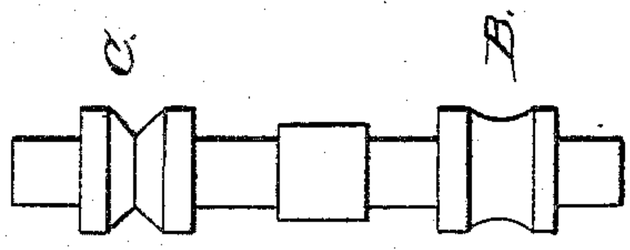


Fig. 3.

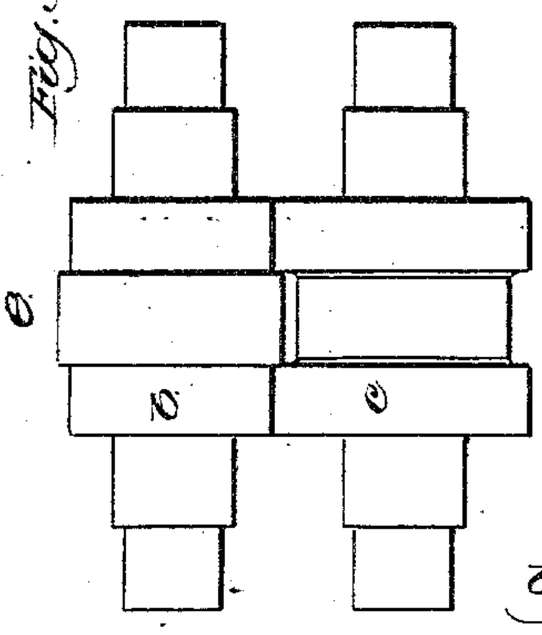
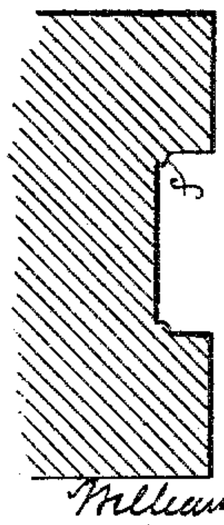


Fig. 4.



Witnesses.
John F. C. Pasmkerk
Fred A. Powell

Inventor.
William H. Griffiths
by Crosby & Gregory
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM H. GRIFFITHS, OF WORCESTER, ASSIGNOR OF ONE-HALF TO THOMAS PRAY, JR., OF BOSTON, MASSACHUSETTS.

APPARATUS FOR ROLLING METAL BANDS.

SPECIFICATION forming part of Letters Patent No. 303,001, dated August 5, 1884.

Application filed July 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. GRIFFITHS, of the city and county of Worcester, State of Massachusetts, have invented an Improvement in Apparatus for Rolling Metal Bands, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In rolling metal bands as heretofore commonly practiced the heated billet has been passed back and forth through different grooves in a pair of rollers until reduced to the proper size. It has also been attempted to roll metal bands by passing the billet continuously through a series of rollers, by which it is reduced to a proper size; but this method, as heretofore generally practiced, has not produced a good article, on account of the fin formed at the edges of the band. I have discovered that this objection can be overcome by passing the billet through successive pairs of rollers, one roller of each pair having a groove, the other an annular projection entering the said groove, the sides of which limit the lateral expansion of the billet or band, and by placing the successive pairs of rollers in opposite position with relation to the band passing through them, so that the grooved or female roller of each pair acts upon the side of the band that was in contact with the male roller, or one having the projection, of the preceding pair, the fins or slight projecting ridges along the edges of the band produced by the metal flowing between the sides of the male and female portions of one set of rollers are compressed and reduced in the groove of the female roller of the next pair. The angles of the grooves of the female rollers are preferably also provided with slight projecting fillets, which thus compress the corner or edge of the band passing through.

My invention consists of a train of rolls containing these features of construction, as hereinafter particularly set forth and claimed.

Figure 1 is a longitudinal section of a series of rolls for making metal bands in accordance with this invention; Fig. 2, a plan view thereof; Fig. 3, an end view of a pair of rolls; Fig. 4, an enlarged section of a portion of one of the female rolls, and Fig. 5 a plan of the usual rollers through which the billet is first passed.

The billet *a*, after being first reduced by the usual rolls, B C, Fig. 5, is passed through several consecutive sets of rolls, b, c, b', c', b^2, c^2, and d. The said rolls c c' c^2 are each provided with a groove, through which the billet passes, they constituting the female rollers, and being placed alternately at opposite sides of the billet or band being rolled, as shown, and the rollers b b' b^2 are provided with annular projections e, which consecutively run more closely to the bottoms of the grooves of the rollers c^2, as shown, so as to reduce the thickness of the band as it passes through each consecutive pair of rollers. As it is impossible for the projections e to accurately fit the grooves c, the metal being rolled will flow up the sides of the said grooves between them and the sides of the projections e, and if all the female or grooved rollers should act consecutively upon the same side or surface of the billet, the tendency of the metal to flow or form fins would be increased at each consecutive pair of rolls, and the product would be unsatisfactory. By reversing the position of the male and female rolls in relation to the band being rolled, as shown, the fins formed at the sides of the projection of the male roller of one pair will enter the bottom of the groove of the female roller of the next pair, and will be removed or compressed into the body of the band. By providing one or more of the female rollers with slight fillets or projections, as shown at *f*, Fig. 4, they will tend to depress the corners of the band, so that it will not form any fin on passing through the next pair of rollers. The last pair of rollers, *d*, are plain or have no groove or projection, they being intended to finish the band formed in the preceding rollers. The rollers will be mounted in any suitable or usual frame-work, A, and operated by gearing G, rotating them at a proper relative speed in the usual manner.

I claim—

The train of male and female rolls b c b' c' b^2 c^2 and the plain rolls d d, constructed and arranged to operate as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. GRIFFITHS.

Witnesses:

DAVID C. WILLIAMSON,

JAMES LEECH.