

J. ROBERTSON.

Machines for Rolling Puddlers' Balls.

No. 149,066.

Patented March 31, 1874.

Fig. 1.

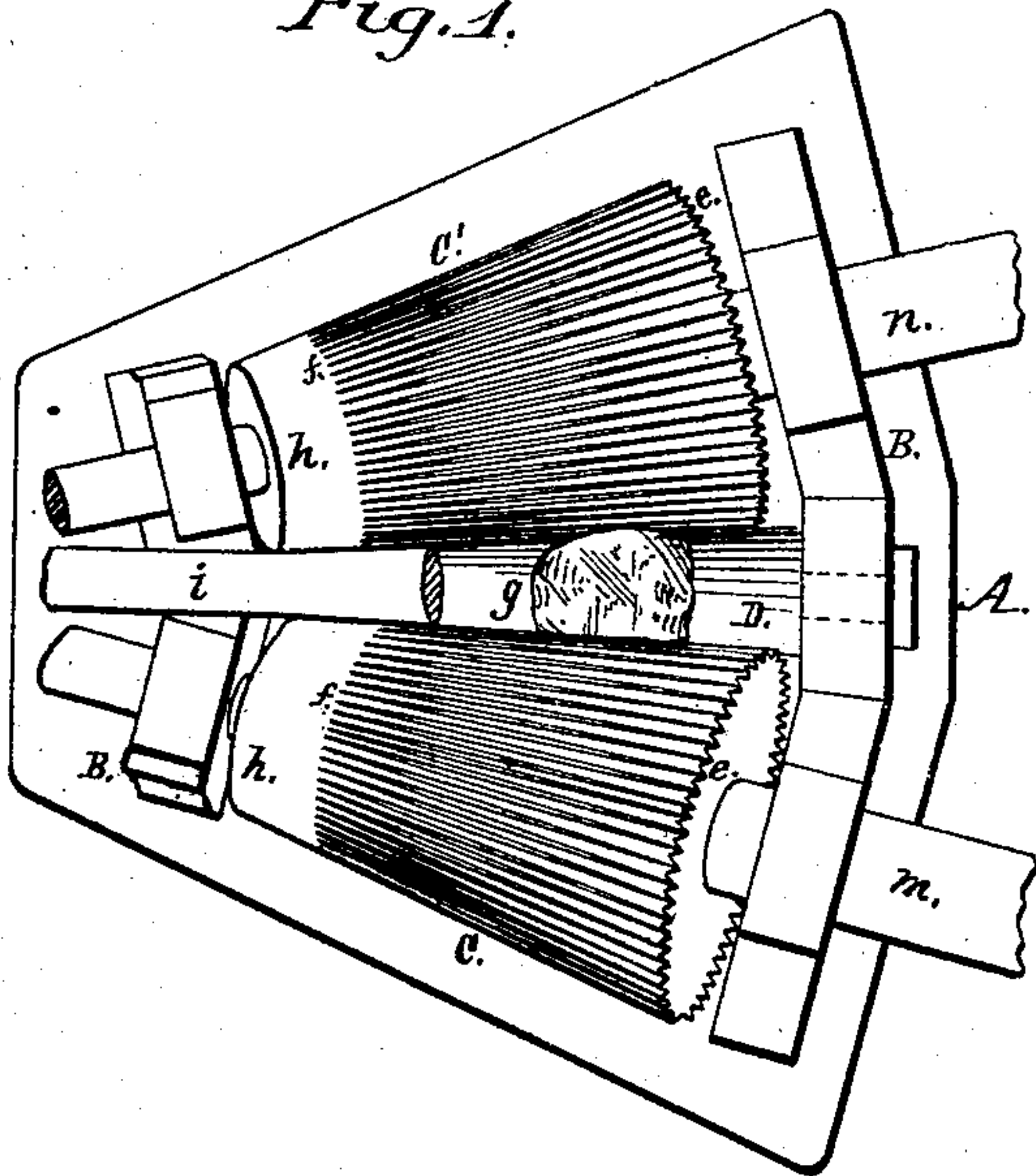


Fig. 2.

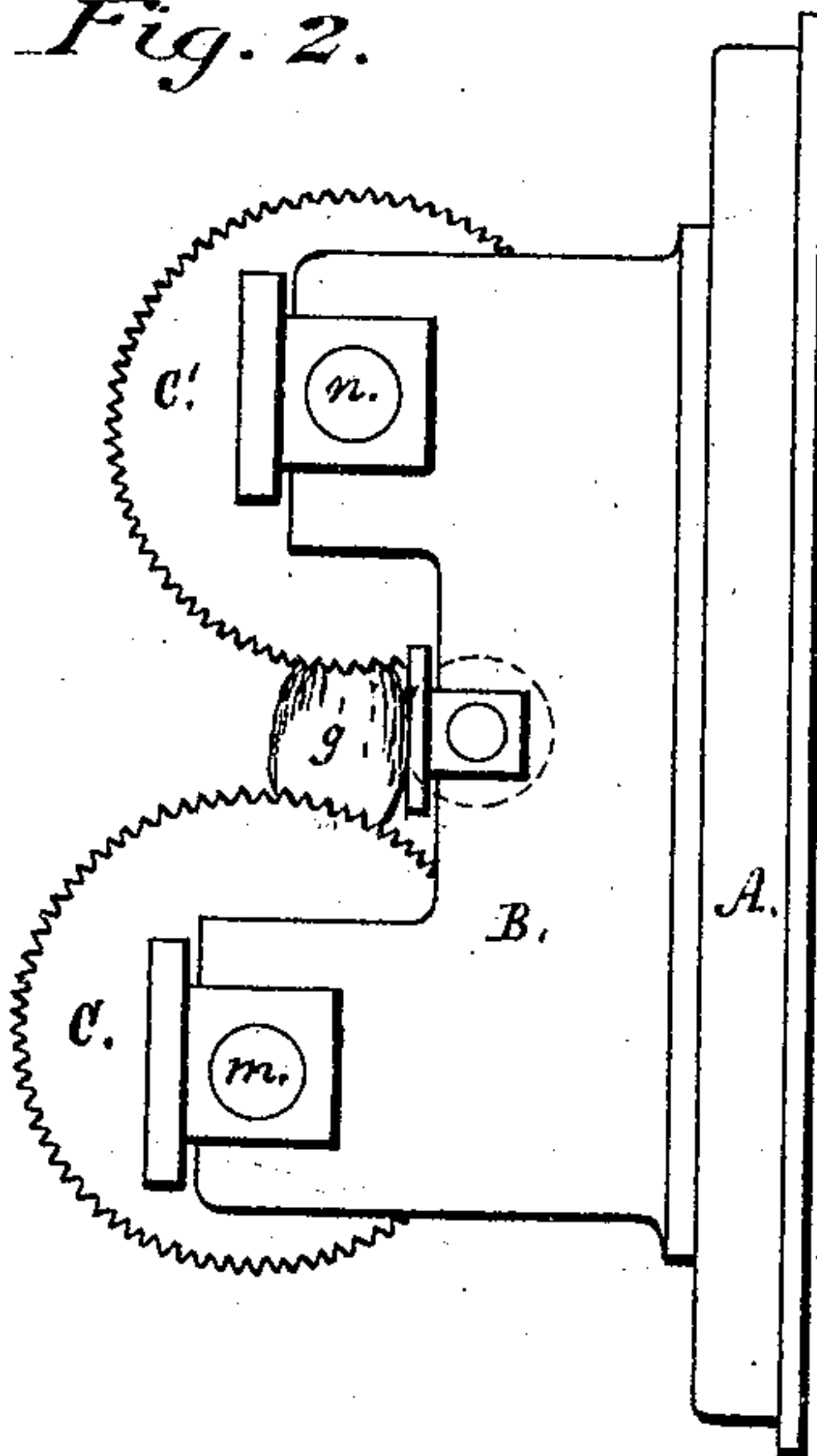


Fig. 4.

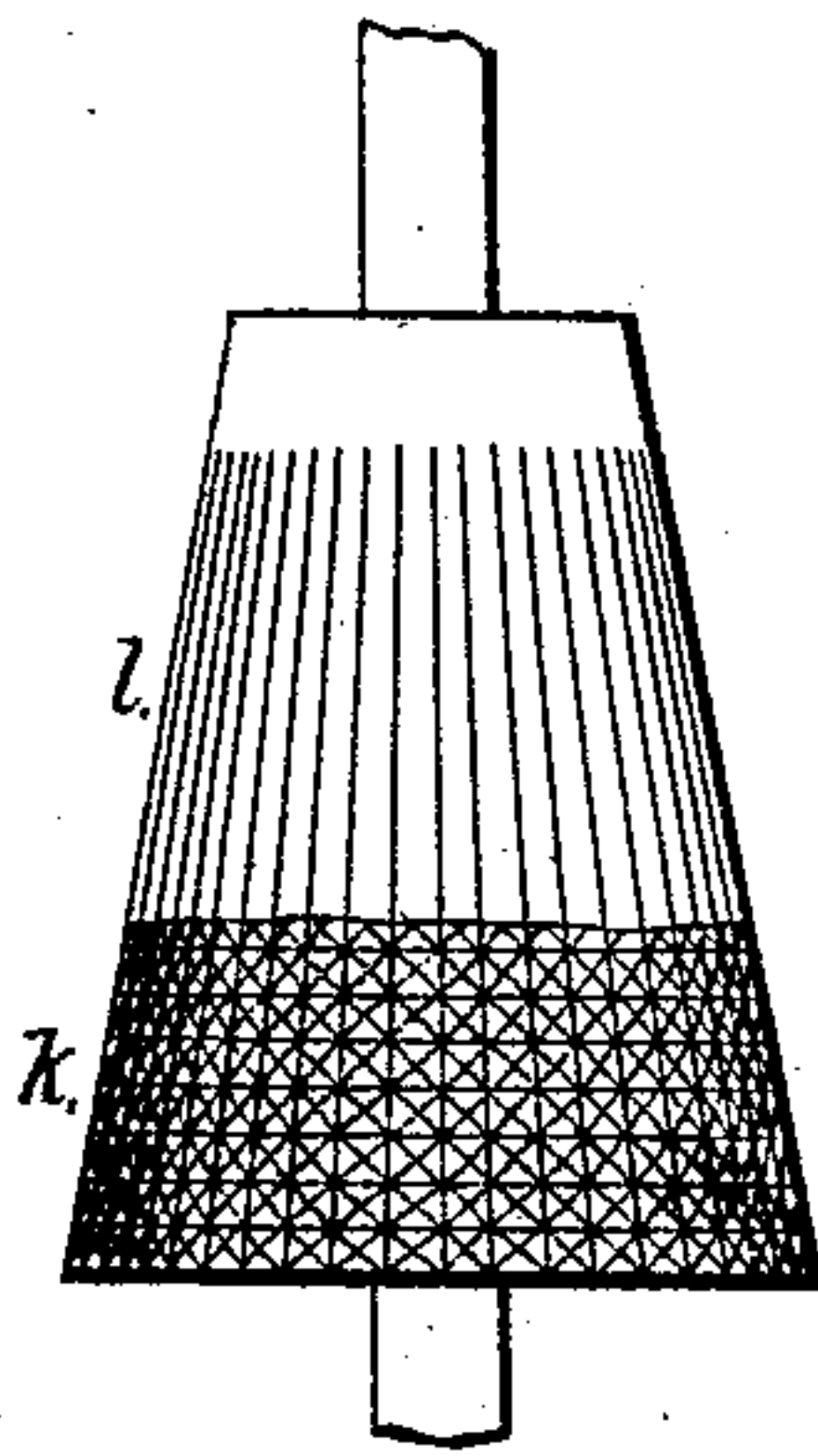
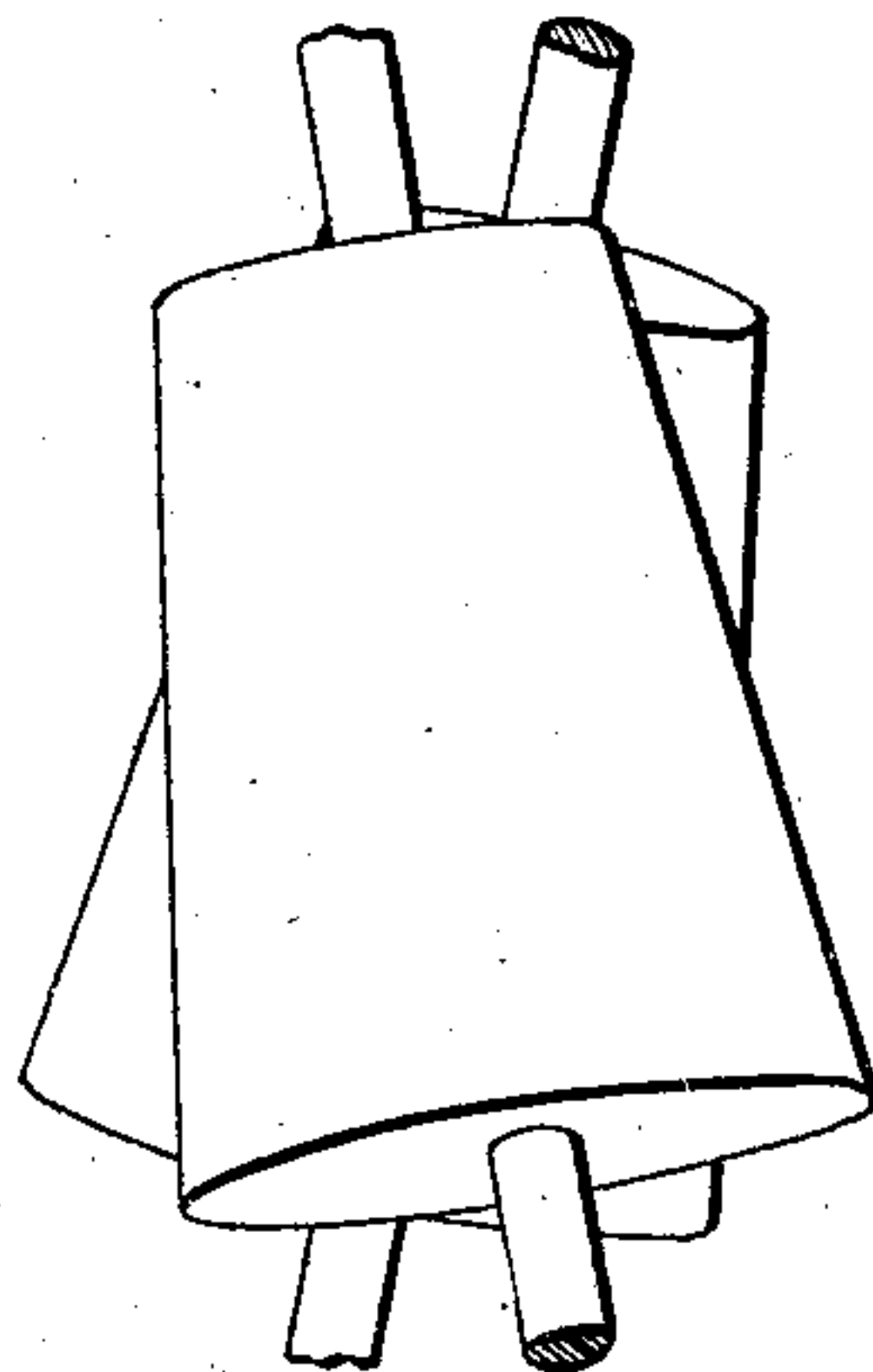


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES ROBERTSON, OF GLASGOW, SCOTLAND.

IMPROVEMENT IN MACHINES FOR ROLLING PUDDLERS' BALLS.

Specification forming part of Letters Patent No. **149,066**, dated March 31, 1874; application filed February 14, 1873.

To all whom it may concern:

Be it known that I, JAMES ROBERTSON, of Glasgow, in the county of Lanark, Scotland, have invented a certain new and useful Improvement in Machine for Blooming and partially forming Muck-Bar in the Manufacture of Iron; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to an improvement in a machine for blooming and partially forming muck-bar in the process of manufacturing iron, the said machine consisting of a carrying-roll and two coniform rolls; a portion of the periphery of the latter being furnished with corrugations of variable depth, which run longitudinally with the plane of their surface, and the other portion of their surface being smooth, and their axes arranged on planes at an acute angle to each other.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a top view or plan of my improvement in machine for blooming and partially forming muck-bar. Fig. 2 is an end elevation of the same. Fig. 3 represents the relative position of the two coniform rolls to each other. Fig. 4 is a top view of one of the coniform rolls, the periphery of which is furnished with pyramidal projections and corrugations.

A represents the base of the machine. B represents the housing or support for the bearings of the axes of the rolls. C C' represent the two coniform blooming and forming rolls, a portion of the periphery of which is furnished

with corrugations of variable depth, as indicated at *e* and *f*, the greatest depth being at *e*. D represents the carrying-roll, which is arranged between the rolls C C', as indicated in Figs. 1 and 2. The axes of the rolls C C' are arranged on different planes, and at an acute angle to each other, as shown in Fig. 3.

By this arrangement of the rolls C C' with relation to each other, the puddled ball will be carried along on the roll D toward the smaller diameter of the rolls C C' gradually forming the ball *g* into a bloom, which, at the plain part *h* of the rolls C C', is formed into a round bar of partially-formed muck-bar, as indicated at *i* in Fig. 1, all of which result is accomplished by a single "pass" and heat.

The periphery of the rolls C C' may be provided with pyramidal projections, as indicated at *k*, and corrugations as at *l*, in Fig. 4, and the same results be obtained.

The driving-power may be applied to either of the axes *m* or *n* of the rolls C or C'.

Having thus described my improvement, what I claim as of my invention is—

The rolls C and C', having their peripheries provided with corrugations of variable depth, and their axes arranged on different planes and at an acute angle to each other, in combination with the carrying-roll D, substantially as herein described, and for the purpose set forth.

In testimony whereof I have hereunto set my hand the twenty-eighth day of December, in the year of our Lord one thousand eight hundred and seventy-two.

JAMES ROBERTSON.

Witnesses:

J. T. KING,

THEODORE F. S. GUINE.