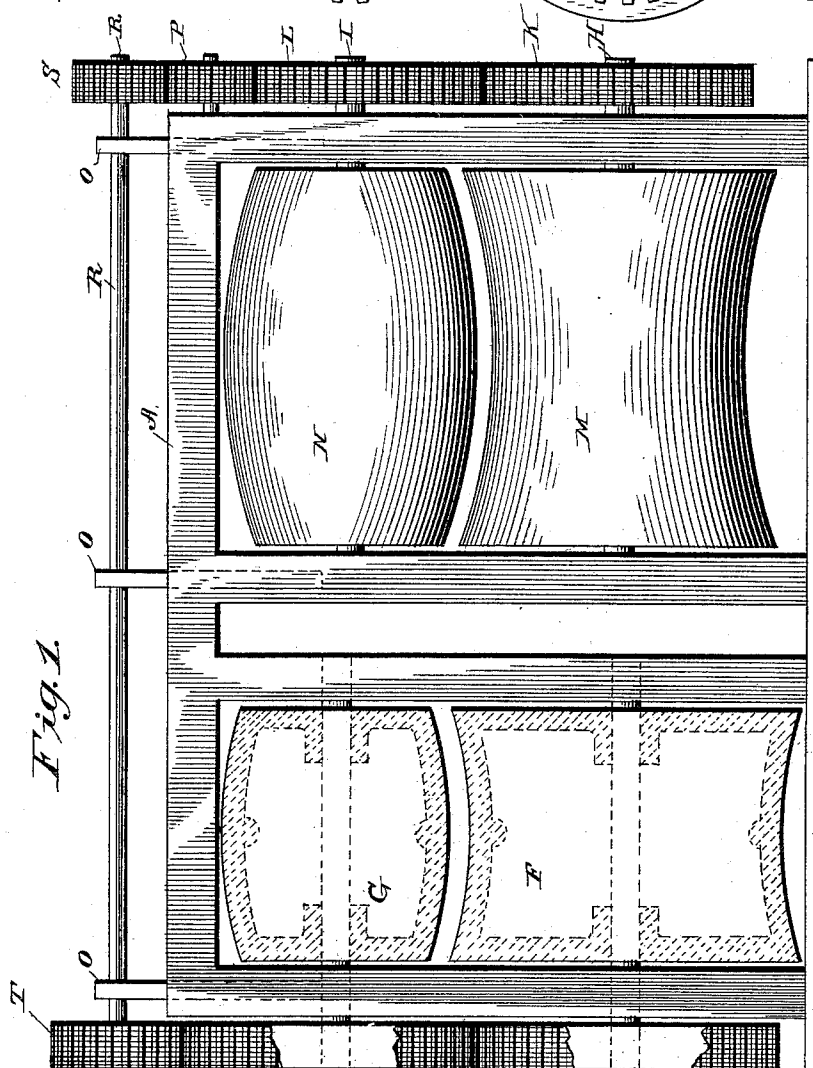
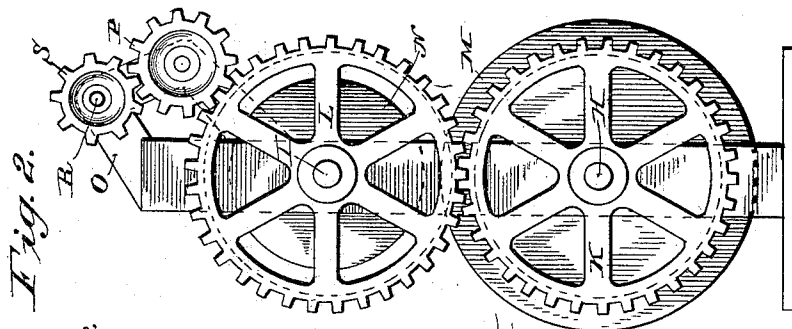


(No Model.)

C. J. CURTIN.
ROLLS.

No. 408,219.

Patented Aug. 6, 1889.



Witnesses

Harry S. Rohrer
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Inventor
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UNITED STATES PATENT OFFICE.

CORNELIUS J. CURTIN, OF HIGH FALLS, NEW YORK.

ROLLS.

SPECIFICATION forming part of Letters Patent No. 408,219, dated August 6, 1889.

Application filed January 30, 1889. Serial No. 298,157. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS J. CURTIN, a resident of High Falls, in the county of Ulster and State of New York, have invented certain new and useful Improvements in Rolls; 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 pertains to make and use the same.

My invention relates to an improvement in rolls for rolling ingots of metal into concavo-convex sheets or plates adapted to be used for making metallic barrels, such as described in my application for Letters Patent of the United States, filed January 24, 1889; and it consists in the peculiar construction and combination of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of two pairs of geared rolls embodying my improvements. Fig. 2 is an end elevation of the same.

A represents a frame or housing, of the usual or any suitable form. In one end of the same are journaled a pair of shafts B C, which are provided, respectively, with gear-wheels D E, which engage each other, the said gear-wheels being of the same diameter.

To the shaft B is secured a primary roll F, which has its peripheral surface concave in form, as shown, and to the shaft C is secured another primary roll G, the peripheral surface of which is swelled or convex in form, with its lower side concentric with and at a suitable distance from the upper side of the roll F.

In the opposite end of the frame or housing are journaled a pair of shafts H I, the outer ends of which are provided with gear-wheels K L, respectively, that engage each other, and are of the same size as the gear-wheels D E.

To the shaft H is secured a finishing-roll M, having its peripheral surface concave in form, and to the shaft I is secured a finish-

ing-roll N, having its peripheral surface swelled or convex in form.

To the upper side of the frame or housing, at the ends and center thereof, are secured brackets O, of the form shown in Fig. 2. On one of said brackets is journaled an idle gear-wheel P, that engages the gear-wheel L; also journaled in said bracket is a shaft R, to one end of which is secured a gear-wheel S, that engages the wheel P, and to the other end of said shaft is secured a gear-wheel T, (somewhat larger than the gear-wheel S,) that engages the gear-wheel E. The said shaft is also provided with a driving-pulley (not shown) to receive power from an engine or motor, and it will be understood that the rotation of the said shaft will be communicated to the pairs of primary and finishing rolls by the gear-wheels, so that each pair of rolls will revolve in opposite directions, but the opposing faces will travel in the same direction.

The heated ingot of metal, on being taken from the furnace, will be introduced between the pair of primary or roughing rolls, and converted thereby into a sheet or plate of approximately the correct thickness and of the correct concavo-convex form. When the said ingot has passed through the primary rolls, the partly-finished sheet or plate of metal will then be passed between the finishing-rolls, which will reduce it to the required size, shape, and thickness.

Having thus described my invention, I claim—

1. The rolls having the concave peripheral surfaces, in combination with the proximate rolls having the convex peripheral surfaces, for the purpose set forth, substantially as described.

2. The pairs of rolls geared together and adapted to rotate in unison, and the driving-shaft R, geared to said rolls, all in combination, substantially as described.

3. The combination of the frame or housing, the two pairs of rolls mounted in opposite ends thereof, each pair of rolls hav-

ing meshed gear-wheels of the same diameter, and the driving-shaft journaled on the housing or frame and having the gears or pinions engaging the roll-gears, substantially as described.
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4. The combination of the two pairs of rolls having the gear-wheels engaging each other, the idle gear-wheels engaging the roll-gears, and the driving-shaft having the gears

engaging said idle-gears, substantially as described.

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

CORNELIUS J. CURTIN.

Witnesses:

RUFUS KEATOR,
RUFUS SNYDER.