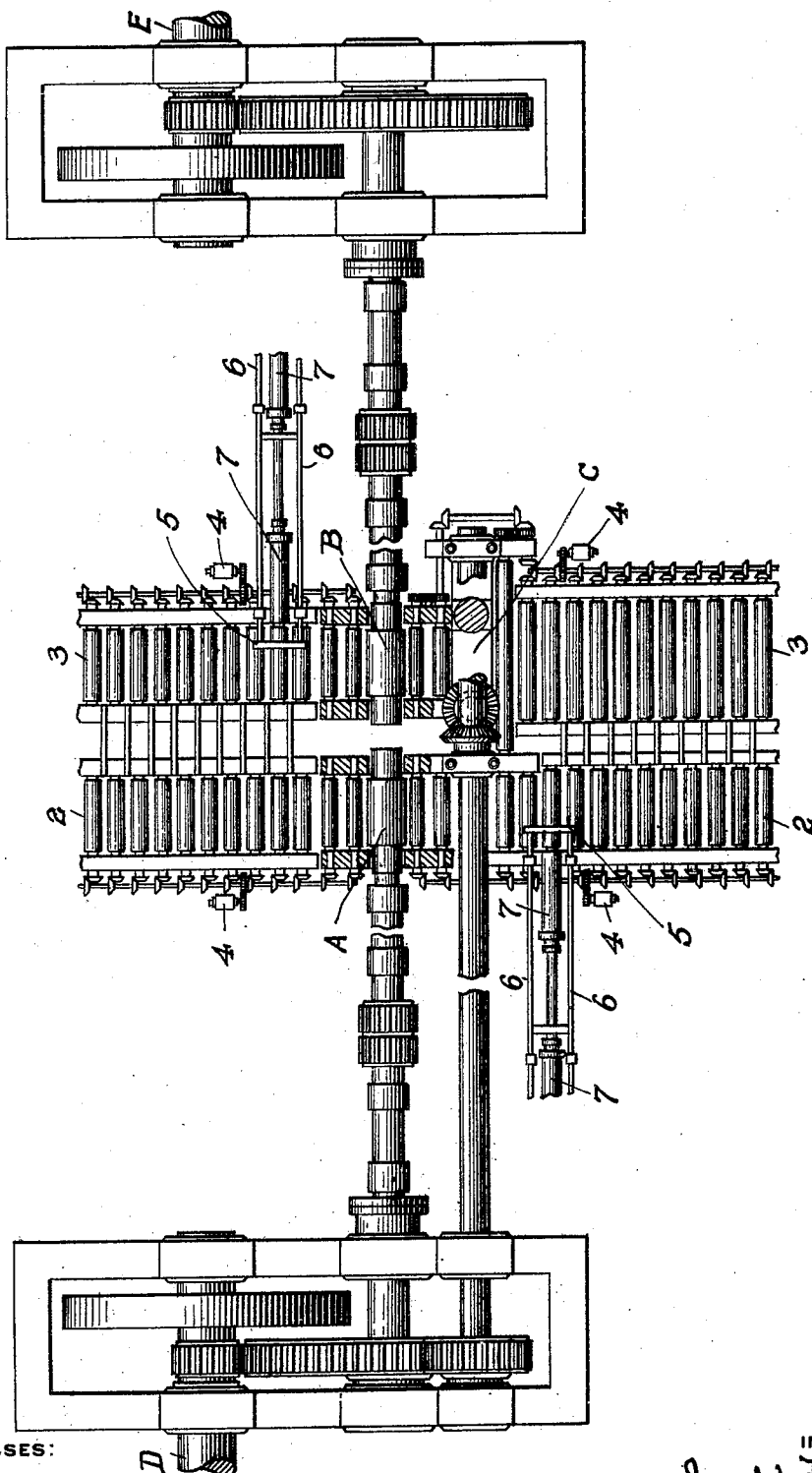


J. FAWELL.
ROLLING MILL.
APPLICATION FILED JULY 12, 1909.

933,701.

Patented Sept. 7, 1909.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH FAWELL, OF PITTSBURG, PENNSYLVANIA.

ROLLING-MILL.

933,701.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Original application filed July 1, 1908, Serial No. 441,375. Divided and this application filed July 12, 1909.
Serial No. 507,106.

To all whom it may concern:

Be it known that I, JOSEPH FAWELL, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Rolling-Mills, of which improvement the following is a specification.

In an application Ser. No. 441,375 filed July 1, 1908, I have described and claimed certain improvements in rolling mills embodying generally stated two stands of horizontal rolls arranged in different lines of feed and driven respectively in opposite directions, one or more stands of vertical rolls and two series of driven feed rollers, arranged to feed to the respective stands of horizontal rolls and means for transferring the article being rolled from one series of feed rollers to the other.

The invention set forth in this application which is a division of the application above referred to, consists in a combination including two stands of independently driven horizontal rolls, a stand of vertical rolls in line of feed with one of the stands of horizontal rolls and driven by the motor employed for operating the other stand of horizontal rolls.

The invention is hereinafter more fully described and claimed.

The accompanying drawing forming a part of this specification is a plan view of a mill embodying my improvement.

In the practice of my invention two stands of horizontal rolls A and B are arranged in different lines of feed and preferably with their axes in line, as shown. A stand of vertical rolls C is arranged in the line of feed of one of the stands of horizontal rolls as B and preferably on the receiving side of said rolls to facilitate the operation of the mill. Two series of feed rollers 2 and 3 are employed, portions of one series as 2, being arranged on opposite sides of the stand of rolls A, so as to feed and to receive from said rolls while portions of the other series of rollers are arranged to feed and to receive from the stands of rolls B and C. The feed rollers of both series are positively driven by suitable motors 4, or in any suitable manner. The article being rollers is transferred by any suitable means, such as that shown consisting of a head 5 carried by guide arms 6

and operated by fluid pressure cylinders 7, from the receiving portion of one series of rollers to the feeding portion of the other series of rollers.

The horizontal rolls A and B are driven by independent motor mechanisms as D E in opposite directions, and the vertical rolls which as stated are arranged in tandem with the rolls B, are driven by the motor mechanism D by which the stand of rolls A is driven.

In operating this mill the article will be placed on the feed portion of the series of rollers 2 and be fed into the rolls A. The article is then transferred from the receiving rollers 2, to the feed portion of the series of rollers 3 by which the article is fed to the rolls C and B, and passes thence into the receiving rollers 3 and is transferred to the feed rollers 2. It will be observed that when the article is being reduced by rolls A, the vertical rolls driven by the same motor mechanism as A will be running idle, and when the article is passing through the vertical rolls, and horizontal rolls will be running idle. Hence although employing only two motors for operating the three stands of rolls, the motors need not have an operating capacity materially greater than that necessary to operate one stand of rolls.

I claim herein as my invention:

1. In a rolling mill the combination of three stands of rolls two stands being arranged in tandem, a motor mechanism having a driving connection to one of the stands in tandem, and to the third stand and a motor mechanism having a driving connection with the second stand in tandem.

2. In a rolling mill the combination of two stands of horizontal rolls arranged in different lines of feed, motors for rotating the rolls of said stands in opposite directions respectively, vertical rolls arranged in line with one of the stands of horizontal rolls, and connections from the motor of the other stand for driving the vertical rolls in the same direction as the horizontal rolls with which they are in line.

In testimony whereof, I have hereunto set by hand.

JOSEPH FAWELL.

Witnesses:

CHARLES BARNETT,
FRIEDA E. WOLFF.