

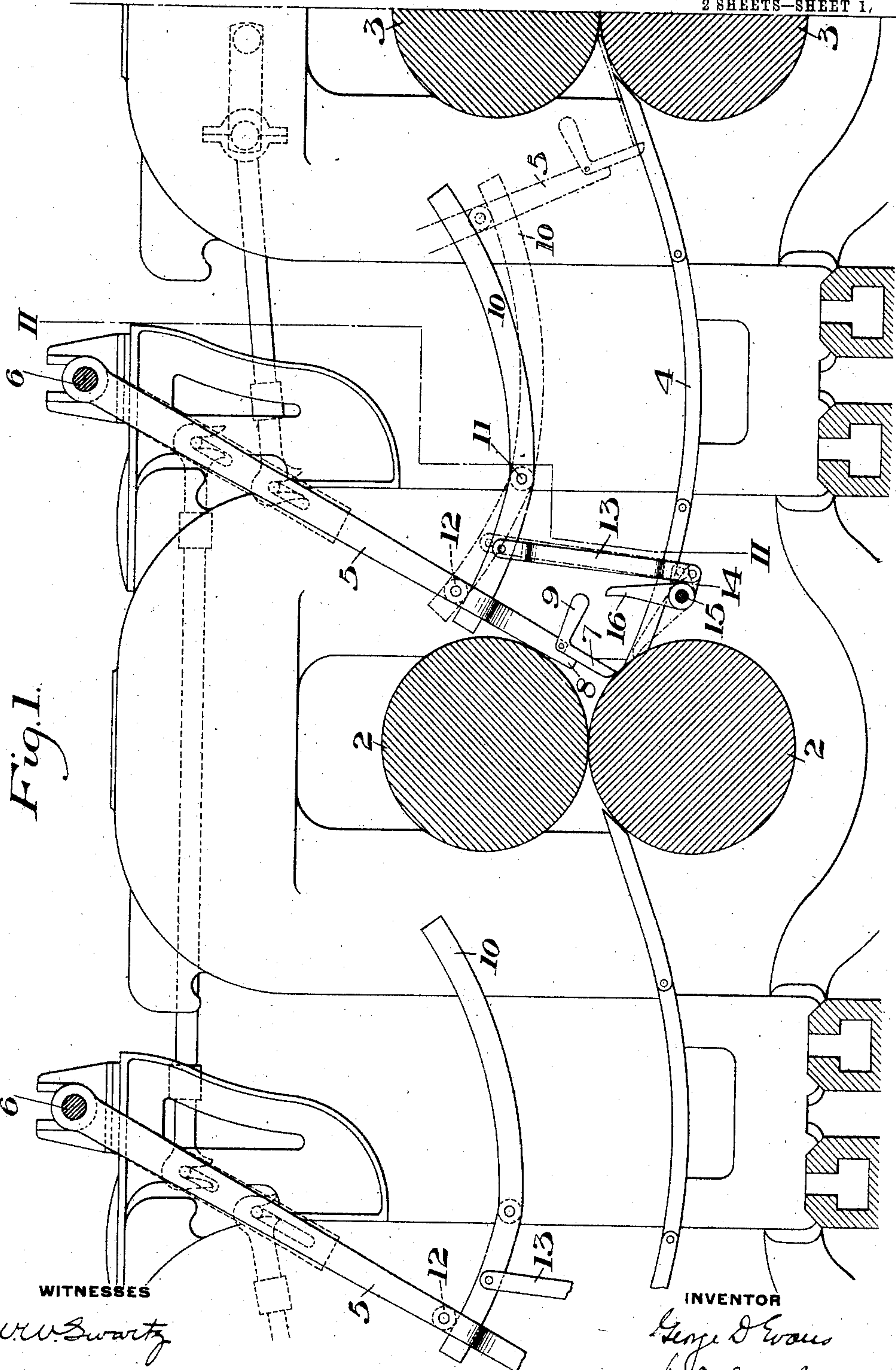
No. 864,727.

PATENTED AUG. 27, 1907.

G. D. EVANS.
FEED MECHANISM FOR TANDEM MILLS.

APPLICATION FILED FEB. 21, 1907.

2 SHEETS—SHEET 1.



WITNESSES

W. W. Swartz
R. A. Balderson

INVENTOR

George D. Evans
by R. A. Balderson
his atty.

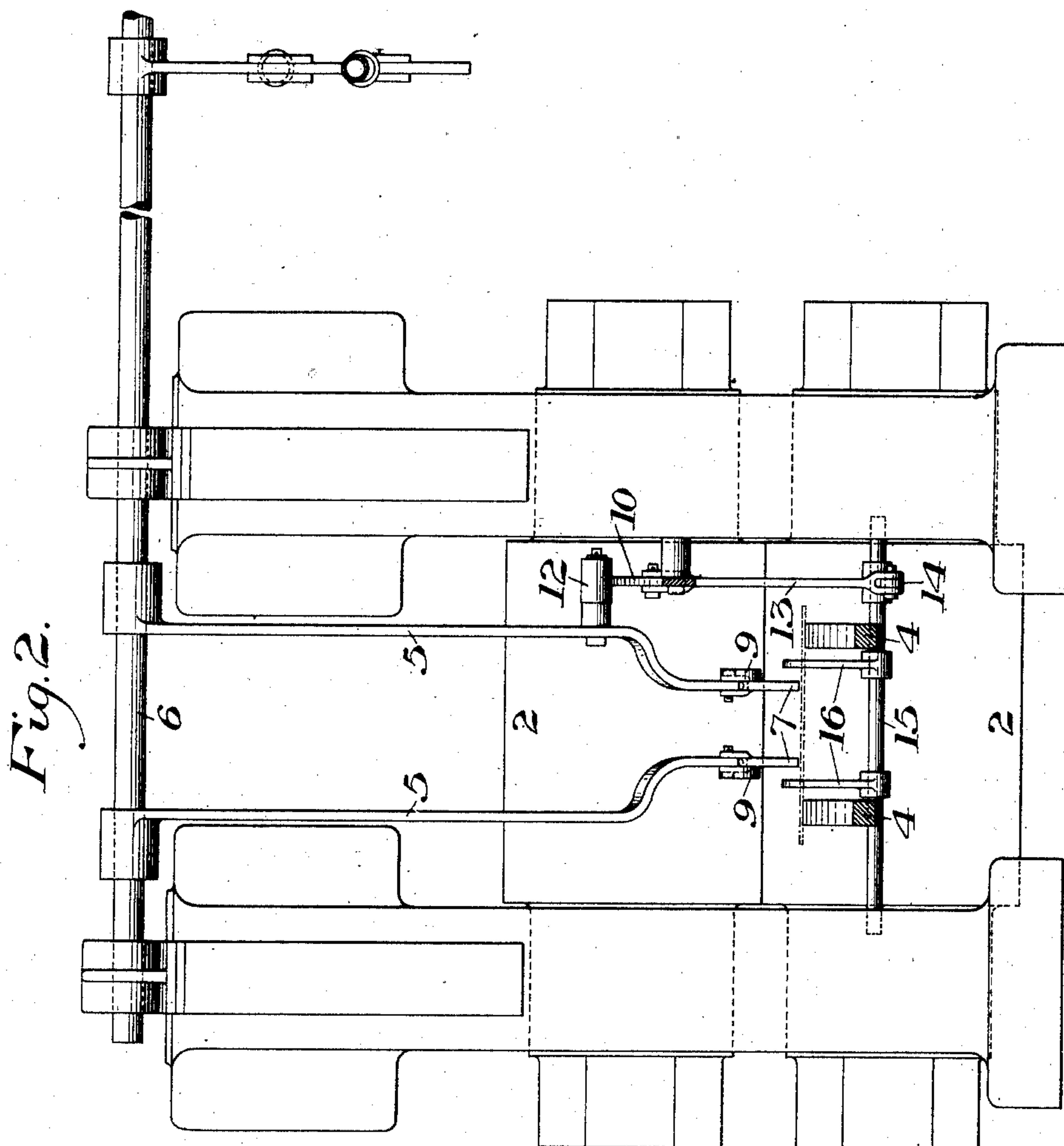
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W. W. Swartz
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UNITED STATES PATENT OFFICE.

GEORGE D. EVANS, OF SHARON, PENNSYLVANIA, ASSIGNOR TO AMERICAN SHEET & TIN PLATE COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

FEED MECHANISM FOR TANDEM MILLS.

No. 864,727.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed February 21, 1907. Serial No. 358,734.

To all whom it may concern:

Be it known that I, GEORGE D. EVANS, of Sharon, Mercer county, Pennsylvania, have invented a new and useful Feed Mechanism for Tandem Mills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a partial longitudinal section showing a preferred form of my invention; and Fig. 2 is a cross-section on the line II—II of Fig. 1 looking toward the left.

My invention relates to the feeding of metal bars, plates or sheets between successive sets of rolls arranged in tandem. Difficulty has been experienced in feeding material between such sets of rolls, especially in the case of rolling singles which are to be formed into sheets, as in the case of sheet bars. These bars are fed in sidewise and singly, and as they emerge from the one set of rolls their movement stops at a point so near the rolls that difficulty has been experienced in providing any practical form of feed mechanism for carrying them into the next set of rolls.

My invention is designed to overcome this difficulty, and it consists in providing a throw-out which will act to move the metal forward to a sufficient distance to allow the pusher dogs or positive feed or push mechanism to be brought into position back of the material and thus push it forward for the next set of rolls.

In the drawings, 2, 2 represent one set of rolls, and 3, 3 another set arranged in tandem therewith. Between the sets of rolls extend the curved guides 4 upon which the metal is moved from one set to the next. The principal feed mechanism in the form shown consists of oscillating arms 5 connected to a rock shaft 6 and arranged to move between the positions shown in the full and dotted lines respectively in Fig. 1. These arms are provided at their lower ends with pivoted gravity dogs 7 having stops 8 which prevent their tilting back beyond a certain position. The weighted portion 9 throws the dog into operative position after it has moved back over the bar or other piece of metal. The difficulty with this feed mechanism is that in many cases it cannot be moved back to the rear of the metal emerging from the pass. In many cases these dogs will lie on the bar and the next forward movement of the dogs will fail to push the bar forward. Another bar will then come through and drop on the first, and both bars may be fed forwardly and break or injure the next mill. To overcome this difficulty, I provide the rocking arc-shaped lever 10, which is fulcrumed to the housing at 11 and is actuated by a roller 12 projecting from one of the arms 5 and arranged to roll along the top of the lever. This lever 10 is connected by pivotal link 13 with a rock arm 14 secured to a cross-shaft 15 having two throw-outs 16 rigidly secured thereto. The link and lever mechanism is so

arranged that as the arms 5 moves back it shifts the lever 10 from the position shown in dotted lines to that shown in full lines. During this movement of the lever 10 the throw-outs 16 are raised from the position shown in dotted lines to that shown in full lines. This movement will carry the metal forwardly and drop it on the bars 4 in a position where the dogs 7 will ride back over it and reach a position in the rear thereof. On the next forward movement of the arms 5 the pivoted dogs will push this piece of metal forwardly into the next pass, and the arms 16 will reach their lower dotted line position ready to act upon the next bar or piece of metal coming through the set of rolls 2.

The advantages of my invention will be apparent to those skilled in the art. The difficulty in getting a positive feed device into the rear of the bar or metal to be fed is overcome, and the bar is moved forwardly to a position where ordinary pusher mechanism can carry it into the next pass.

Any positive feed mechanism may be used instead of the oscillating pusher arm shown, or the pusher arms may be used in connection with chain tables; and many other variations may be made in the form and arrangement of the main feed mechanism and the throw-outs without departing from my invention.

I claim:—

1. In a tandem mill, a throw-out device, a positive feed mechanism between two of the sets of rolls, a supporting member, and connections arranged to actuate the throw-out to bring the metal into position to be actuated by the positive feed mechanism; substantially as described.

2. The combination with a tandem mill, of feed mechanism between two of the sets of rolls, said feed mechanism consisting of a positive feed mechanism and throw-out device, a supporting member, and connections arranged to actuate the throw-out to move the metal forwardly as the positive feed mechanism is moved back to its rear position; substantially as described.

3. The combination with a tandem mill, of feed mechanism between two of the sets of rolls, said feed mechanism consisting of back and forth moving arms carrying pushers, a throw-out between the said two sets of rolls, a supporting member, and mechanism for actuating the throw-out as the pusher arms move backwardly; substantially as described.

4. The combination with a tandem mill, of feed mechanism between two of the sets of rolls, said feed mechanism comprising a positive feed device and a throw-out having connections actuated by the positive feed device and a supporting member for the material engaged by the positive feed device; substantially as described.

5. In a tandem mill feed apparatus, reciprocating arms having pusher devices, a throw-out, a supporting member and an actuating connection for the throw-out operated by the reciprocating pusher device; substantially as described.

In testimony whereof, I have hereunto set my hand.

GEO. D. EVANS.

Witnesses:

H. M. GIAVER,
J. V. HAGUE.