

(No Model.)

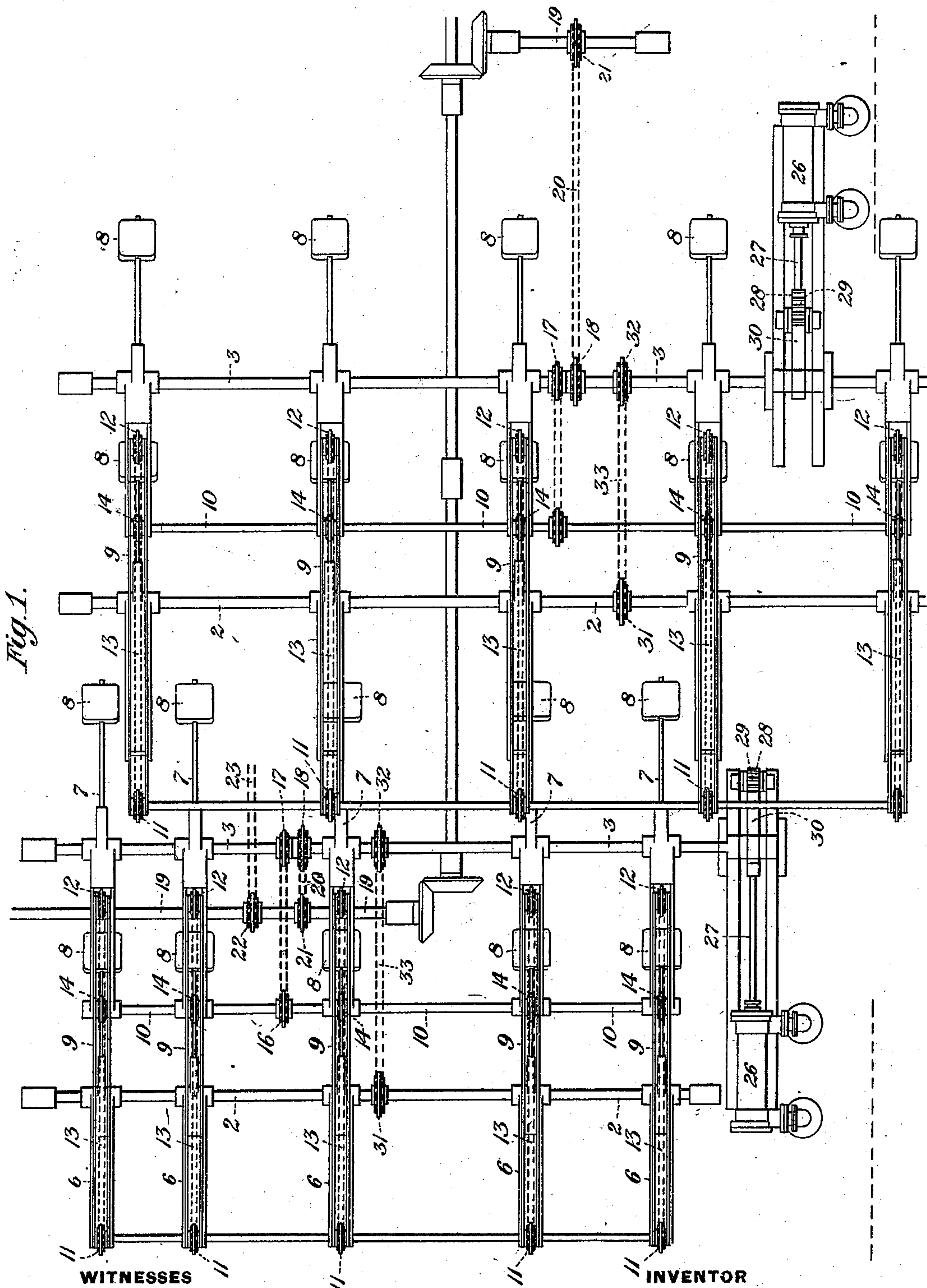
2 Sheets—Sheet 1.

W. H. MADDOCK.

TRANSFER MECHANISM FOR ROLLING MILLS.

No. 504,394.

Patented Sept. 5, 1893.



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A. M. Clarke

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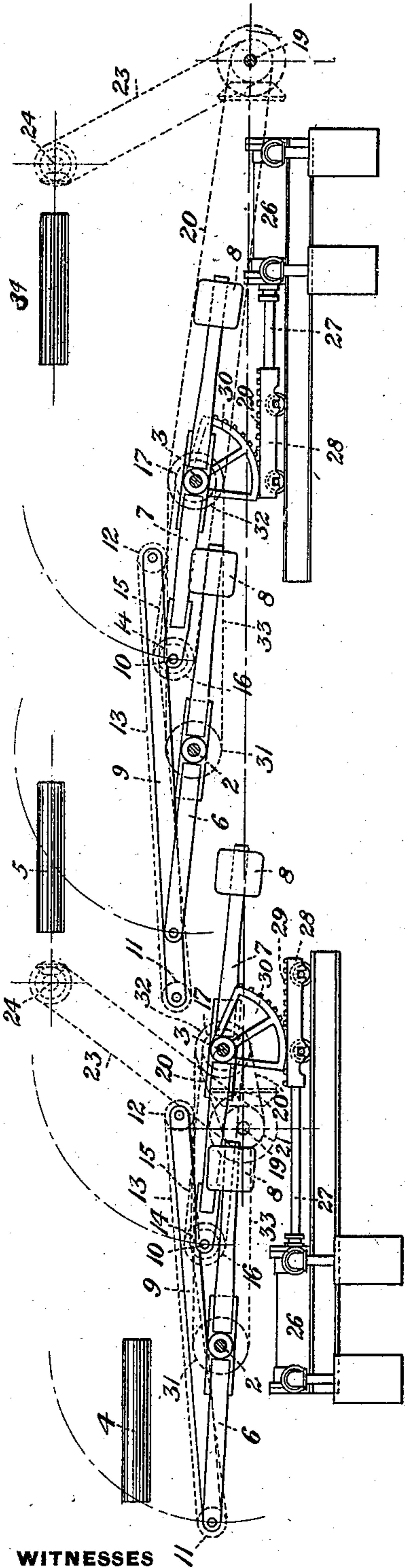
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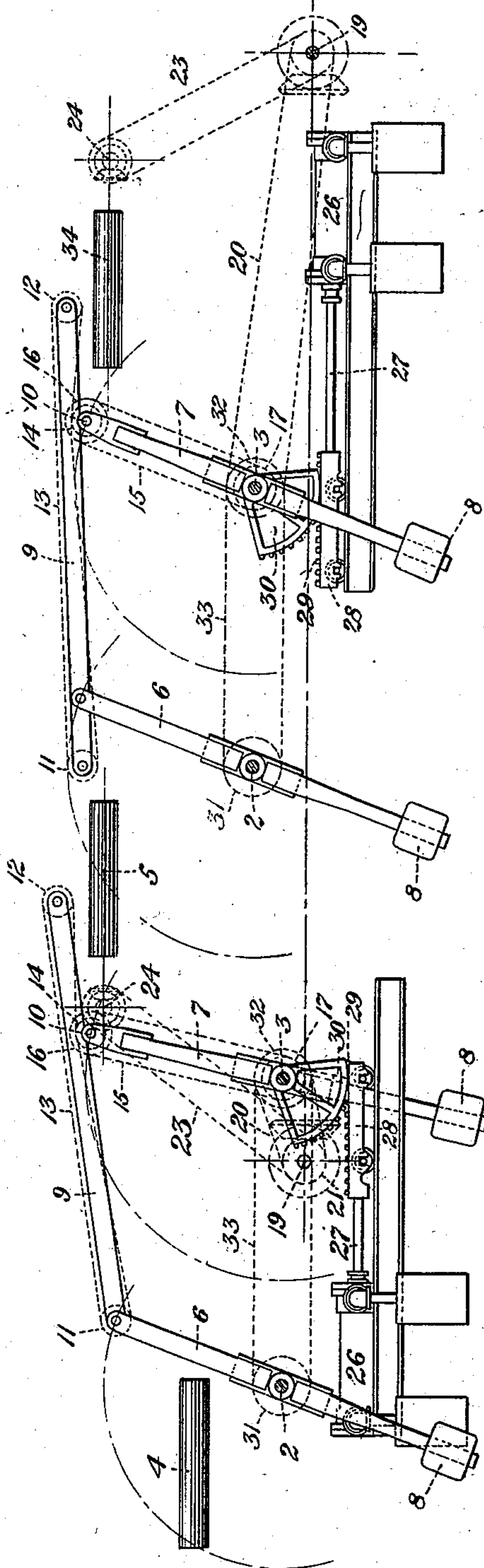
Fig. 2.



WITNESSES

W. B. Corwin
O. M. Clark

Fig. 3.



INVENTOR

William H. Maddock
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UNITED STATES PATENT OFFICE.

WILLIAM H. MADDOCK, OF PITTSBURG, PENNSYLVANIA.

TRANSFER MECHANISM FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 504,394, dated September 5, 1893.

Application filed August 3, 1892. Serial No. 442,016. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. MADDOCK, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Transfer Mechanism for Rolling-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 plan view of my improved transfer mechanism; and Figs. 2 and 3 are end elevations of the same, showing the parts in different positions.

My invention relates to the devices employed in rolling mills for transferring metal laterally from one set of feed-rollers to another set at the side thereof, these feed-rollers being located in front of the sets of rolls.

It consists in a transfer device consisting of two pivoted levers carrying a link at their upper ends, the link having means for moving the metal along the same, in combination with means for rocking the levers which in their path pass between the feed-rollers, as well as in the construction and arrangement of the parts as hereinafter more fully described and set forth in the claims.

In the drawings, in which like numerals indicate like parts, 2 and 3 represent a pair of rock-shafts pivoted below and between the two sets of feed-rollers 4 and 5. Upon the shafts are mounted the levers 6 and 7, having the counter-weights 8 at their lower ends, the lever 6 having a link 9 pivoted to its upper end, which link extends over and rests upon a shaft 10 in the upper end of the lever 7. Around the wheels 11 and 12, pivoted in the ends of the link, passes the sprocket-chain 13, which passes over the sprocket-wheel 14 upon the shaft 10, motion being imparted to this shaft through the chain 15 and sprocket-wheel 16. This chain 15 passes over the sprocket-wheel 17, which is loose upon the shaft 3, but fastened to a similar wheel 18 which connects with the power-driven shaft 19 by a chain 20 passing over the sprocket wheel 21 thereon. From a similar wheel 22 upon the shaft 19 (shown in Fig. 1), a sprocket-chain 23 passes to the shaft 24, which carries bevel gears arranged to drive the second set of rollers 5. By this construction it is evident that a constant

power is communicated to the chain 13 in all positions of the levers 6 and 7. To oscillate the levers I provide the motive cylinder 26, whose piston-rod 27 is secured to the truck 28 carrying the rack 29. This rack engages with a segmental pinion 30, keyed to the shaft 3, and as the shafts 2 and 3 are connected by the wheels 31 and 32 around which passes the chain 33, it is evident that, upon moving the rack in either direction, an oscillatory motion will be imparted to the shafts 2 and 3, and the levers swung to any position desired. As these levers swing upwardly, they pass between the feed-rollers 4 and receive the metal upon the sprocket-chains 13. As the levers move into the position of Fig. 3, the metal is carried over and dropped upon the second set of rollers 5. The levers are then swung back to their original position and are ready to repeat the operation.

I show at the right hand of the figures similar mechanism arranged to carry the metal from the rollers 5 and transfer it to a third set 34. This mechanism is the same as the first except that the link 9 extends beyond the lever 6 and the chain 20 leads in the opposite direction, and I therefore will not describe the same further, the same reference numerals being applied thereto.

The operation of the device is apparent from the foregoing description. The advantages lie in the simplicity and lightness of the mechanism, and the perfect control which the operator has over the metal.

What I claim is—

1. A transfer device comprising pivoted levers arranged to swing upon transverse trunnions and carrying links at their upper ends, means for moving the metal along the links, and means for swinging the levers; substantially as and for the purposes described.

2. A transfer device comprising pivoted levers, a link pivoted to one lever and resting upon the other lever, a flexible belt or chain arranged to carry the metal along the link, and means for oscillating the levers; substantially as and for the purposes described.

3. A transfer device comprising pivoted levers, having their shafts rotatably connected, a link pivoted to one lever and resting upon a shaft in the other lever, a sprocket-

chain passing over wheels in the link, means for imparting motion to the chain in all positions of the levers, and means for oscillating the levers; substantially as and for the purposes described.

4. A transfer device comprising pivoted levers, links carried thereon, means for moving the metal along the links, actuating connections between the lever-shafts, and a rack and pinion mechanism arranged to oscillate said shafts; substantially as and for the purposes described.

5. The combination with a set of feed-rollers, of pivoted levers carrying links arranged to pass between said rollers, and means for oscillating the levers; substantially as and for the purposes described.

6. The combination with two sets of feed-rollers, of pivoted levers between the same carrying links arranged to move between one set of rollers, flexible chains or belts arranged to carry the metal along the links, and means for oscillating the levers; substantially as and for the purposes described.

7. The combination with two sets of feed-rollers, of pivotal levers between the same, links pivoted to one set of levers and resting upon the other set, sprocket-chains passing over wheels in the links, wheels mounted upon one set of levers and arranged to drive the chains, and means for oscillating the levers; substantially as and for the purposes described.

8. The combination with two sets of feed-rollers, of pivotal levers between the same, links pivoted to one set of levers and resting upon the other set, sprocket chains 9 passing

over wheels in the links, wheels mounted upon one set of levers and having sprocket-chains passing over wheels pivoted loosely upon the lever-shafts, and means for oscillating the levers; substantially as and for the purposes described.

9. The combination with two sets of feed-rollers, of pivotal levers between the same, links pivoted to one set of levers and resting upon the other set, sprocket-chains passing over wheels in the links, wheels mounted upon one set of levers and having sprocket-chains passing over wheels pivoted loosely upon the lever-shafts, flexible connections between the lever shafts, and a rack and pinion arranged to oscillate one shaft; substantially as and for the purposes described.

10. The combination with two sets of feed-rollers, of pivotal levers between the same, links pivoted to one set of levers and resting upon the other set, sprocket-chains passing over wheels in the links, wheels mounted upon one set of levers and having sprocket-chains passing over wheels pivoted loosely upon the lever-shafts, flexible connections between the lever-shafts, a segmental rack upon one lever-shaft, and a motive cylinder having a piston-rod provided with a rack engaging said pinion; substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 14th day of July, A. D. 1892.

WILLIAM H. MADDOCK.

Witnesses:

W. B. CORWIN,
C. BYRNES.