

No. 721,569.

PATENTED FEB. 24, 1903.

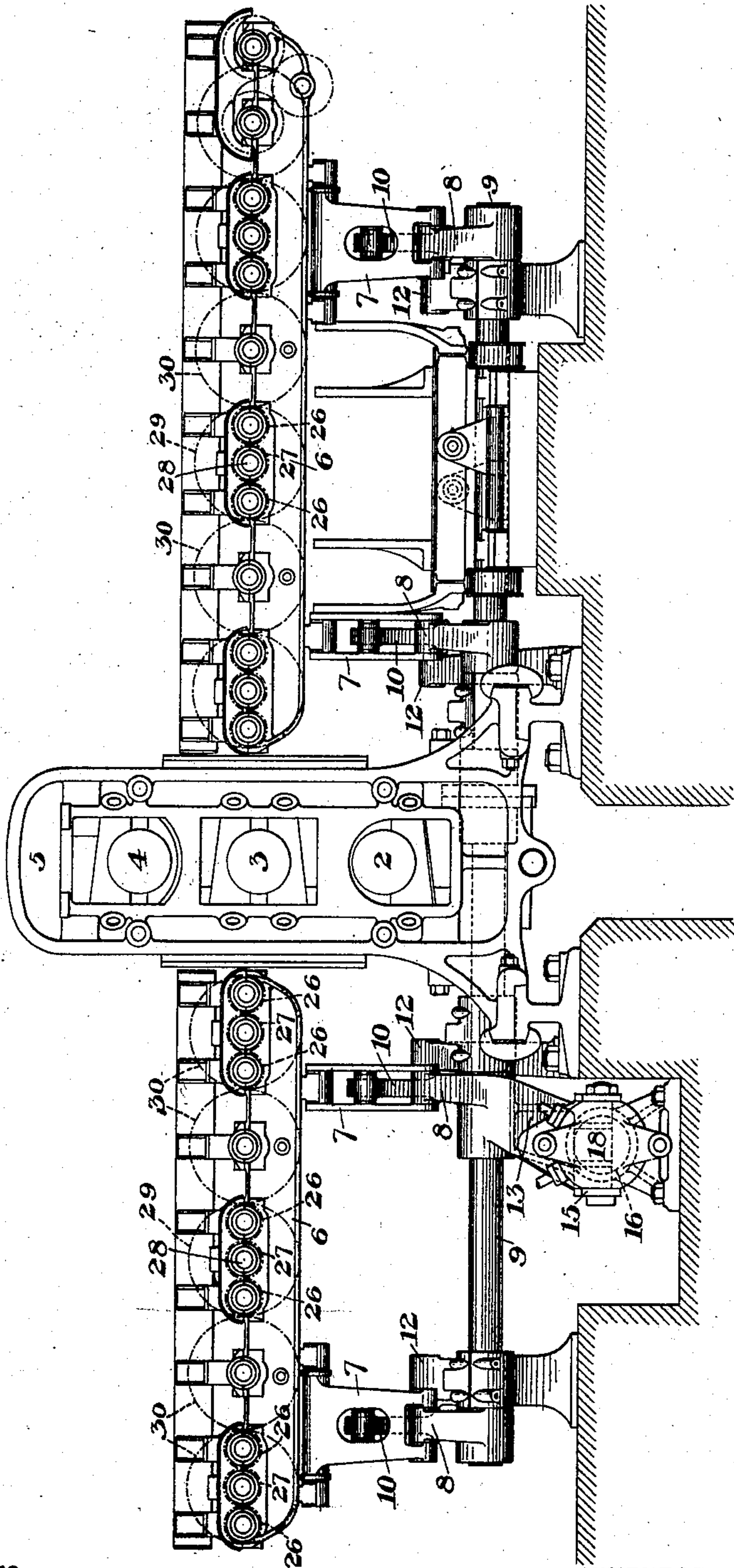
J. KENNEDY.  
ROLLING MILL FEED TABLE.

APPLICATION FILED SEPT. 30, 1901.

NO MODEL.

3 SHEETS—SHEET 1

Fig. 1.



WITNESSES

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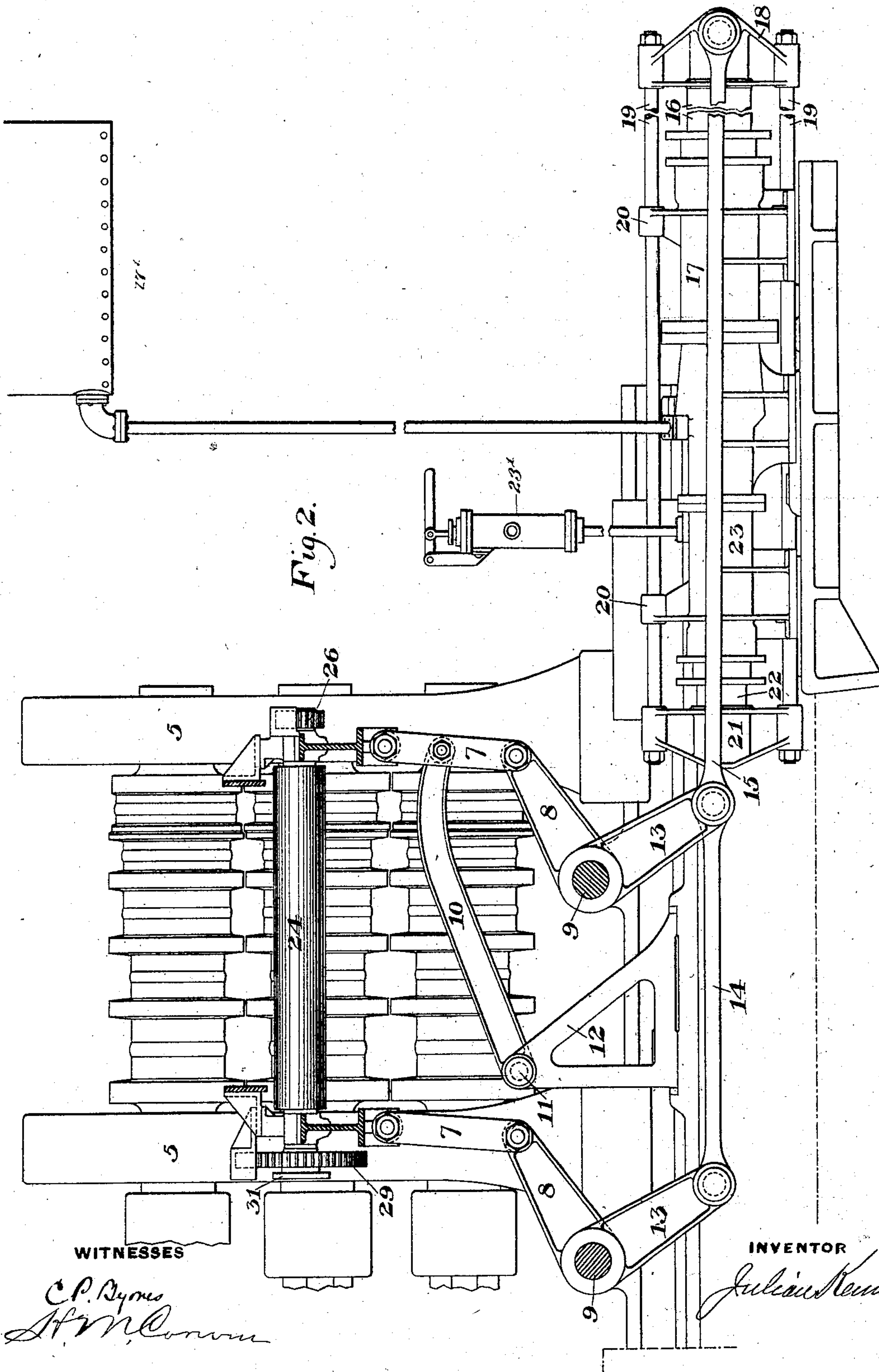
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3 SHEETS—SHEET 2.





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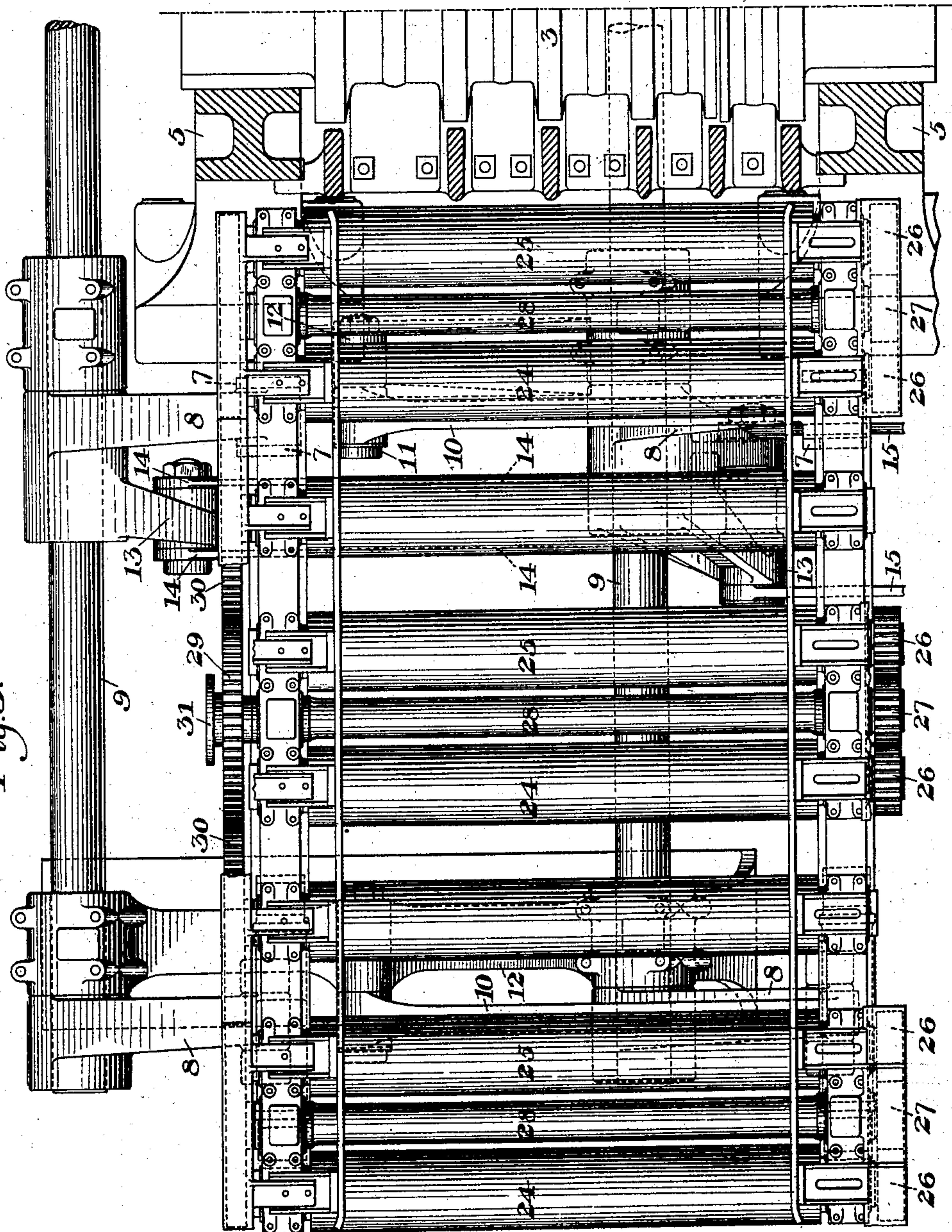
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NO MODEL.

3 SHEETS—SHEET 3.

Fig. 3.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JULIAN KENNEDY, OF PITTSBURG, PENNSYLVANIA.

## ROLLING-MILL FEED-TABLE.

SPECIFICATION forming part of Letters Patent No. 721,569, dated February 24, 1903.

Application filed September 30, 1901. Serial No. 76,984. (No model.)

*To all whom it may concern:*

Be it known that I, JULIAN KENNEDY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Rolling-Mill Feed-Table, 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—

10 Figure 1 is a side elevation showing a three-high rolling-mill provided with my improved tables. Fig. 2 is a vertical cross-section on a larger scale, and Fig. 3 is a partial top plan view.

15 My invention relates to rolling-mill feed-tables, and particularly to those employed for three-high mills, though certain features of my invention may be applied to driving the rolls of any feed-table.

20 The object of the invention is to simplify and improve the means for raising and lowering and guiding the vertically-movable table and also to provide improved spur-gearing driving mechanism for the rollers of the 25 feed-table.

In the drawings, 2, 3, and 4 represent the rolls of a three-high mill, mounted in suitable housings 5 5. On each side of the mill are provided vertically-movable feed-tables 30 6 6, which are similar to each other and are raised and lowered simultaneously to each other in parallel lines.

Each table is given its parallel vertical movement through pivotal links 7 7, connecting the side frames of the table to lever-arms 8 8, projecting from parallel shafts 9 9. These two shafts 9 extend beneath both feed-tables, so that the tables are actuated simultaneously, and to one of each pair of links 7 40 is pivoted a radius-link 10, the other end of which is pivoted at a fixed point 11 on the bracket 12. A parallel movement is thus imparted to both feed-tables in the raising and lowering thereof, and to rock the shaft 9 I provide them with downwardly-extending levers 13, which are connected by link 14, one of the levers 13 being connected by links 15 to the plunger 16 of a large motive cylinder 17. This single-acting cylinder 17 is connected with an accumulator 17', which exerts 50 a constant pressure upon the plunger, and thus normally holds the tables and metal

thereon in elevated position, acting as a liquid counterbalance therefor. The plunger 16 is provided with a cross-head 18, having connecting-rods 19, which extend through guides 20 to a similar cross-head 21, secured to the ram 22 of a smaller hydraulic cylinder 23. The supply of fluid to the smaller cylinder is controlled by suitable valve mechanism 23', 60 and on admitting fluid to this smaller cylinder the pressure therein, combined with the weight of the tables and metal, overcomes the pressure in the larger cylinder and lowers the tables. 65

The mechanism for driving the feed-rollers without the use of beveled gearing is shown in Figs. 2 and 3 and may be applied to any table having positively-driven rollers. I have shown each table as having eight rollers, which 70 are arranged in pairs alternating with single rollers. The rollers 24 and 25 are provided at one end with small pinions 26, which engage an intermediate pinion 27 upon a small transverse shaft extending through the hollow sleeve or bolt 28 and carrying at its other 75 end a large toothed wheel 29. This toothed wheel 29 engages toothed wheels 30, secured to the projecting shafts of the adjacent single rollers on each side of the pair at this side of 80 the table. Power is applied to drive the rollers by any suitable connections, such as a swinging rotary shaft or belting, which may be connected to the shaft of any of the rollers. I have shown the shaft between the central 85 pair of rollers on each table as having a connection 31, through which power may be applied. This peculiar arrangement of the gearing causes the rotation of the rollers of the table in the same direction without the use of 90 beveled gearing.

The advantages of my invention result from the peculiar mechanism for giving parallel vertical movement to the tables from the hydraulic system for raising and lowering the 95 tables, which gives economy in operation, and from the arrangement of the spur-gearing for driving the rollers. As a result of the latter arrangement the table-rollers may be easily 100 driven even when there has been considerable wear of the rollers near the mill for the consequent lowering of the axes of these rollers. The table is therefore longer lived than in the case of the beveled-gearing tables ordi-



narily used and gives economy in the amount of power used for driving it.

Many variations may be made in the form of the mill and the tables and the actuating mechanism without departing from my invention.

I claim—

1. A feed-table having link-and-lever connections with parallel rock-shafts extending parallel with the table, a link arranged to give parallel up-and-down movement to the table, and connections for rocking the shafts; substantially as described.

2. A rolling-mill having vertically-movable tables on each side thereof, said tables having link-and-lever connections with a pair of rock-shafts extending longitudinally beneath both tables, link connections for giving parallel movements to the tables, and mechanism for rocking the shafts; substantially as described.

3. A vertically-movable feed-table, a power-cylinder connected thereto, connections for exerting a constant pressure on the cylinder to counterbalance and hold the table in elevated position, and a second cylinder ar-

ranged to act in opposition to the first and lower the table; substantially as described.

4. A rolling-mill feed-table having a transverse shaft geared directly to an adjacent roller at one end and to a non-adjacent roller at the other end; substantially as described.

5. A rolling-mill feed-table having the rollers arranged in pairs alternating with single rollers, and a driving-shaft between each pair of rollers, said shaft having gear connections at one end with its pair of rollers, and at the other end with the nearest single roller; substantially as described.

6. A rolling-mill feed-table having at one side a gear-wheel intermeshing on either side with a gear-wheel mounted on a roller-shaft, the first-named gear-wheel being mounted on a transverse shaft having at the other end gear connections with other rollers of the table; substantially as described.

In testimony whereof I have hereunto set my hand.

JULIAN KENNEDY.

Witnesses:

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GEO. B. BLEMING.