

No. 756,054.

PATENTED MAR. 29, 1904.

J. M. B. REIS & J. H. GILL.

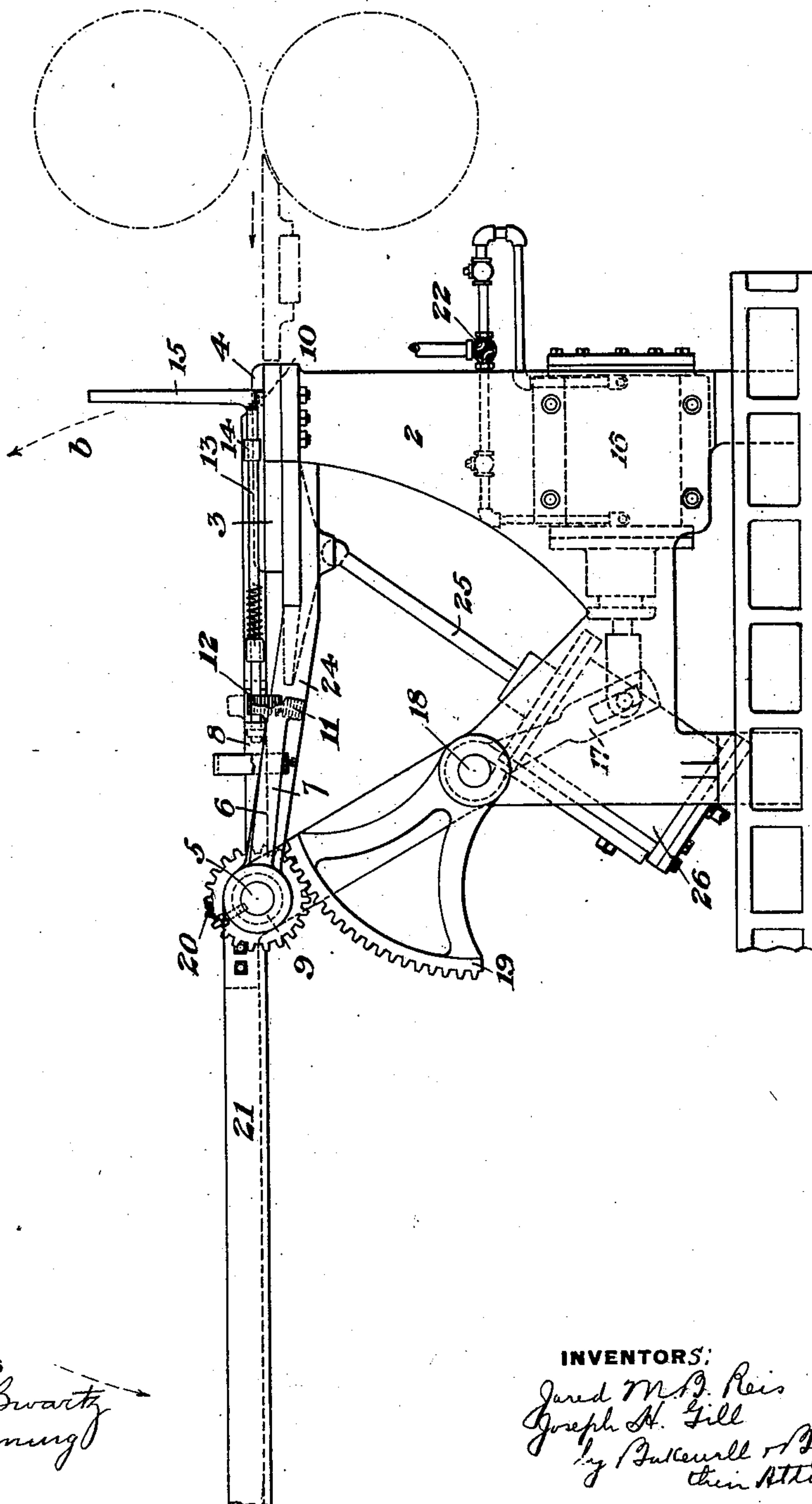
DOUBLING APPARATUS.

APPLICATION FILED JAN. 16, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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Geo. B. Blumung

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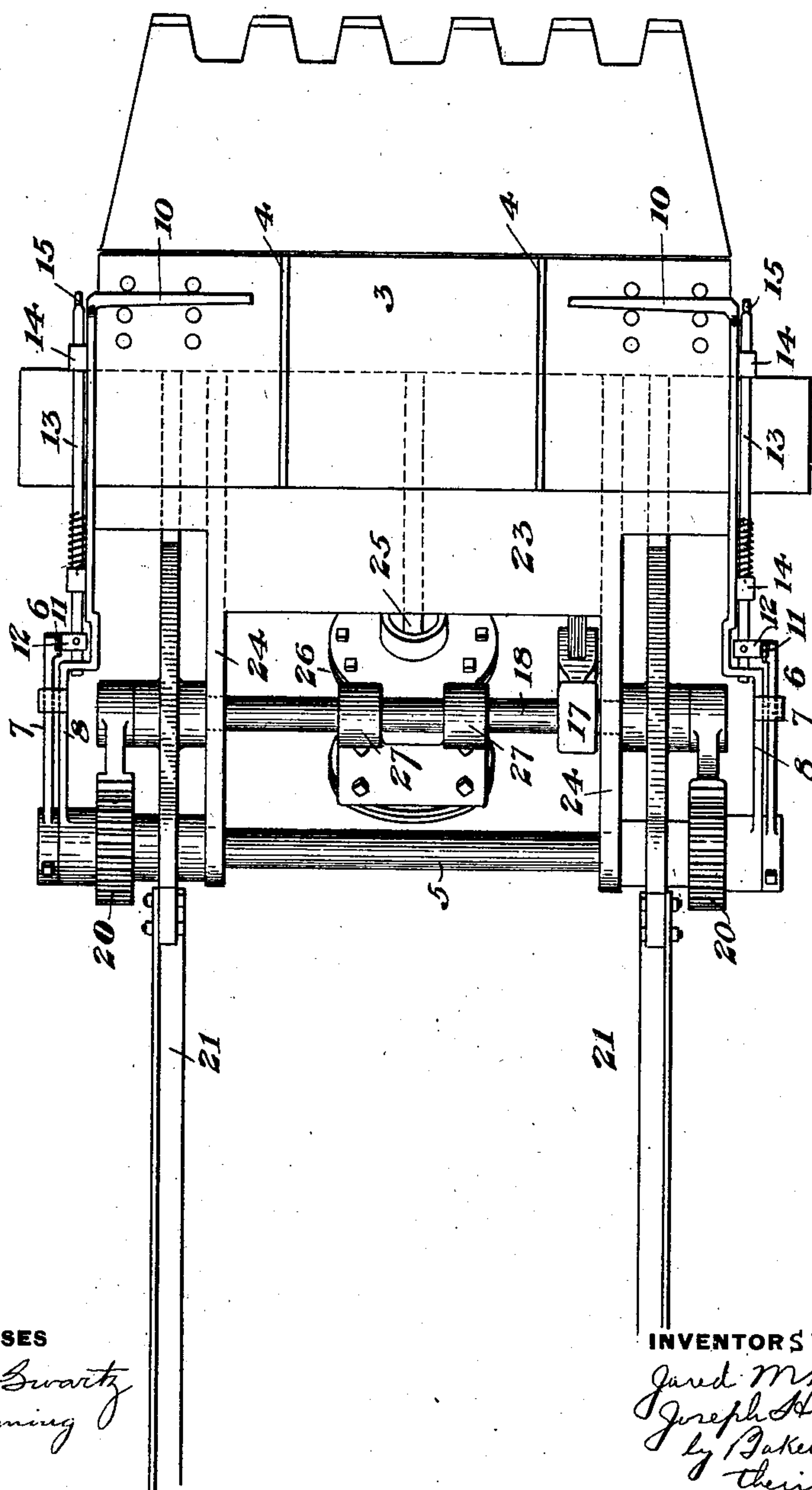
DOUBLING APPARATUS.

APPLICATION FILED JAN. 16, 1903.

NO MODEL.

3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

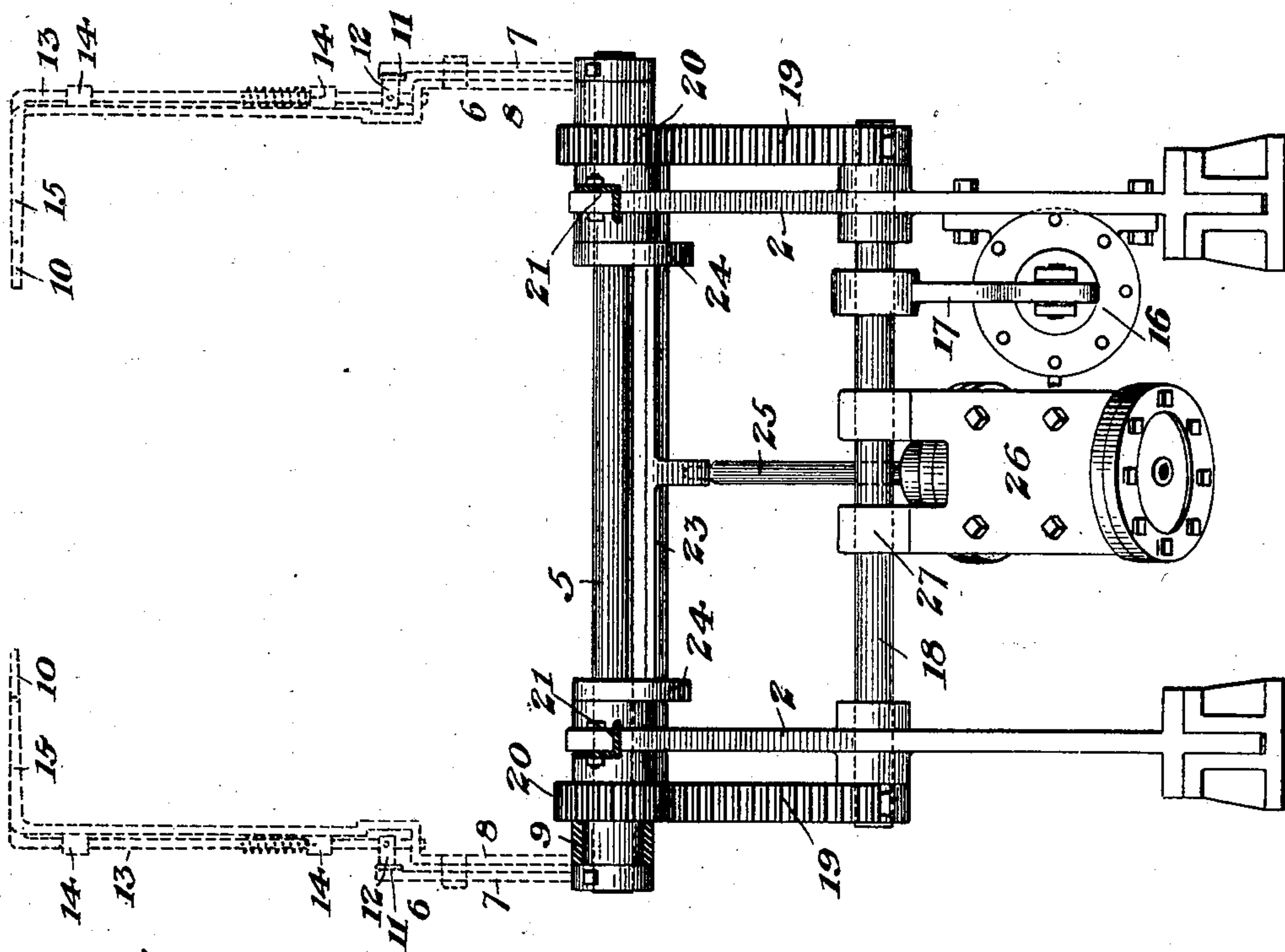


Fig. 3.

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UNITED STATES PATENT OFFICE.

JARED M. B. REIS, OF TUG RIVER, WEST VIRGINIA, AND JOSEPH H. GILL,
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DOUBLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 756,054, dated March 29, 1904.

Application filed January 16, 1903. Serial No. 139,272. (No model.)

To all whom it may concern:

Be it known that we, JARED M. B. REIS, of Tug River, McDowell county, West Virginia, and JOSEPH H. GILL, of Newcastle, Lawrence county, Pennsylvania, have invented a new and useful Doubling Apparatus, 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 side elevation of our improved doubler. Fig. 2 is a top plan view of the same, and Fig. 3 is an end view at the outer end.

Our invention relates to doublers for doubling sheets or plates, and is designed to provide a simple and effective machine which can be set close to the rolls and operated rapidly, so that the doubled sheet may be rerolled without reheating.

In the drawings we show a frame consisting of side frames 2 2, connected at the front end by a table 3, having longitudinal raised ribs 4 4. Through the rear ends of the side members extends shaft 5, to which the tongs 6 6 are connected at opposite ends. Each of these tongs consists of the arm 7, which is rigidly secured to the shaft, and another arm 8, having a hub which loosely surrounds a sleeve 9 around the projecting end of the shaft. The form of these arms is shown in Figs. 1 and 2, the arm 8 having laterally-projecting finger 10. The arm 7 is a short rock-arm provided with a segmental gear 11, intermeshing with a segmental pinion 12 on a shaft 13, mounted in bearings 14, secured to the arm 8. The shaft 13 is provided at its front end with a projecting finger 15, which is normally vertical and which coacts with the finger 10 to grip the sheet. The fingers 10 normally lie on the table, and the sheet is drawn by the operator forwardly in the direction of the arrow over these fingers, the sheet resting on the ribs. The rear end of the sheet is thus brought over the fingers 10, and the operator then admits motive fluid to a cylinder 16, which operates through loose connection with the rock-arm 17 to rock a shaft 18 and segmental gears 19, secured thereto. These segmental gears intermesh with pinions 20 upon shaft 5,

and as the shaft 5 is rotated it operates to first turn the fingers 15 inwardly and downwardly to grip the end of the sheet against the fingers 10. The further rotation of the shaft carries the tongs in the direction of the arrow *b*, Fig. 1, thus carrying the rear part of the sheet bodily through a curved path to the other end of the sheet. This other end of the sheet rests upon the support and side guides 21, between which the operator stands. As the sheet is thus doubled the operator with his tongs shifts the free end of the sheet so that it registers with the end carried over by the tongs. The operator then releases the tongs and seizes both ends of the doubled sheet and then shifts the valve 22 for the cylinder 16 to exhaust. The fluid-pressure then returns the piston to its normal position and carrying the tongs and operating connections back to the position shown. In the backward movement of the tongs the shaft acts first to turn the fingers 15 back to their vertical position, thus releasing the sheets before the return movement of the tongs.

To squeeze the doubled sheet, we provide an oscillating platen 23, which is secured to arms 24, pivoted around the shaft 5. A piston-rod 25 of a pivoted motive cylinder 26 has a loose connection with the platen, and the platen when forced upwardly squeezes the doubled portion against the under side of the table, the parts then assuming the position of Fig. 1. The operator after seizing the two ends of the doubled sheet pulls it rearwardly and drops it on the platen and then actuates the valve for cylinder 26, thus forcing the platen and doubled portion upwardly against the bottom face of the table. The cylinder 26 is hung by straps 27 on the shaft 18.

After squeezing the doubled sheet the operator passes it back to the rolls, where it is preferably given two passes without reheating.

The advantages of our invention result from the simplicity and compactness of the apparatus, which may be set close to the rolls and operated rapidly. When using this doubler, the doubles are preferably drawn twelve inches longer than usual, the extra length

adding from one to two lengths to the pack, according to the gage. In light gages this will save one part, and in heavy gages it will save two parts, and these heavy gages can be
5 turned over in the doubler and finished in fours at one heat. The free end of the sheet can be easily moved by the operator to aline it with the end which is gripped and swung over, thus giving a minimum amount of scrap
10 at the irregular end.

Variations may be made in the form and arrangement of the device without departing from our invention.

We claim—

15 1. In doubling apparatus, a pair of jaws, mechanism for swinging the jaws as a whole, one of the jaws being arranged to swing toward and from the other at an angle to the movement of the jaws as a whole, and mechanism for turning the movable jaws; substan-
20 tially as described.

2. In doubling apparatus, a pair of jaws one of which is pivoted in bearings mounted upon the other, mechanism for swinging the
25 jaws as a whole, and mechanism for rocking the movable jaw in a plane at an angle to the movement of the jaws as a whole; substantially as described.

3. In doubling apparatus, a pair of jaws,
30 mechanism for swinging the jaws as a whole, a rock-shaft to which one of the jaws is secured, the other jaw loosely surrounding the

said shaft, and mechanism for rocking one of the jaws at an angle to the movement of the jaws as a whole, at the ends of said movement; 35 substantially as described.

4. In doubling apparatus a receiving-doubler having projections, doubler-jaws below the projections, movable doubler-jaws arranged to swing down and clamp the sheet 40 upon the lower jaws, and means for swinging the jaws as a whole to double the sheet; substantially as described.

5. A table, a doubling apparatus coacting therewith and arranged to double a sheet, and 45 a squeezing device arranged to be forced upwardly to squeeze the doubled sheet against the lower face under the table; substantially as described.

6. A table, tongs having gripping-jaws, 50 mechanism for swinging the jaws as a whole to double a metal sheet, and a squeezer arranged to squeeze the doubled sheet upwardly below the table; substantially as described.

In testimony whereof we have hereunto set 55 our hands.

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