

No. 721,006.

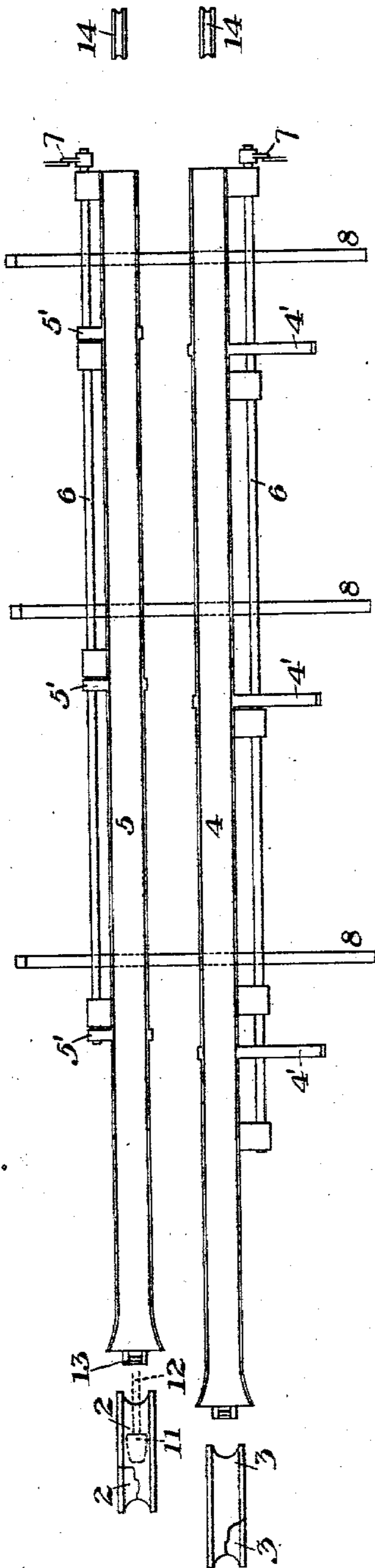
PATENTED FEB. 17, 1903.

T. J. BRAY, JR.  
TUBE HANDLING APPARATUS.  
APPLICATION FILED SEPT. 2, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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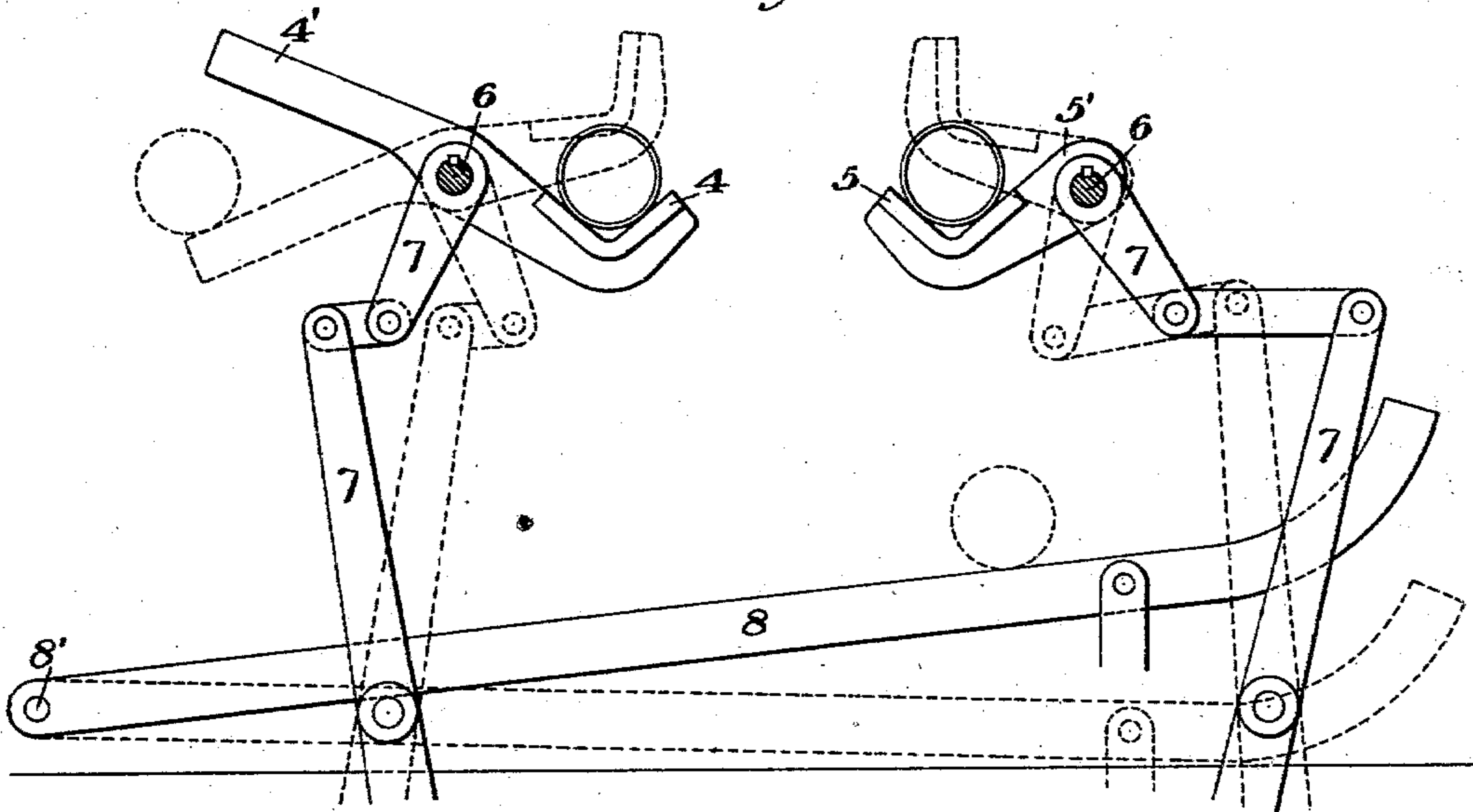
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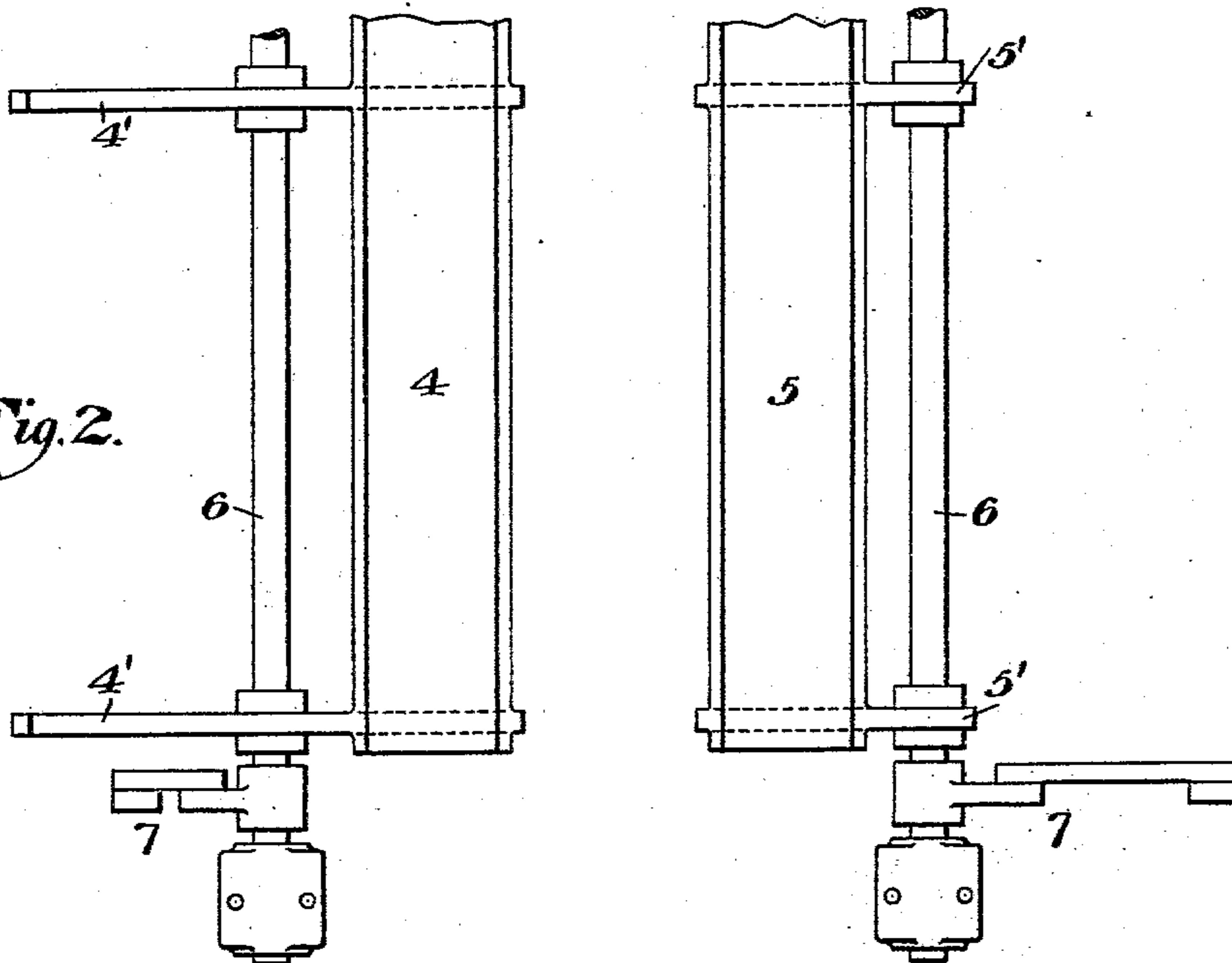
NO MODEL.

3 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 2.*



WITNESSES

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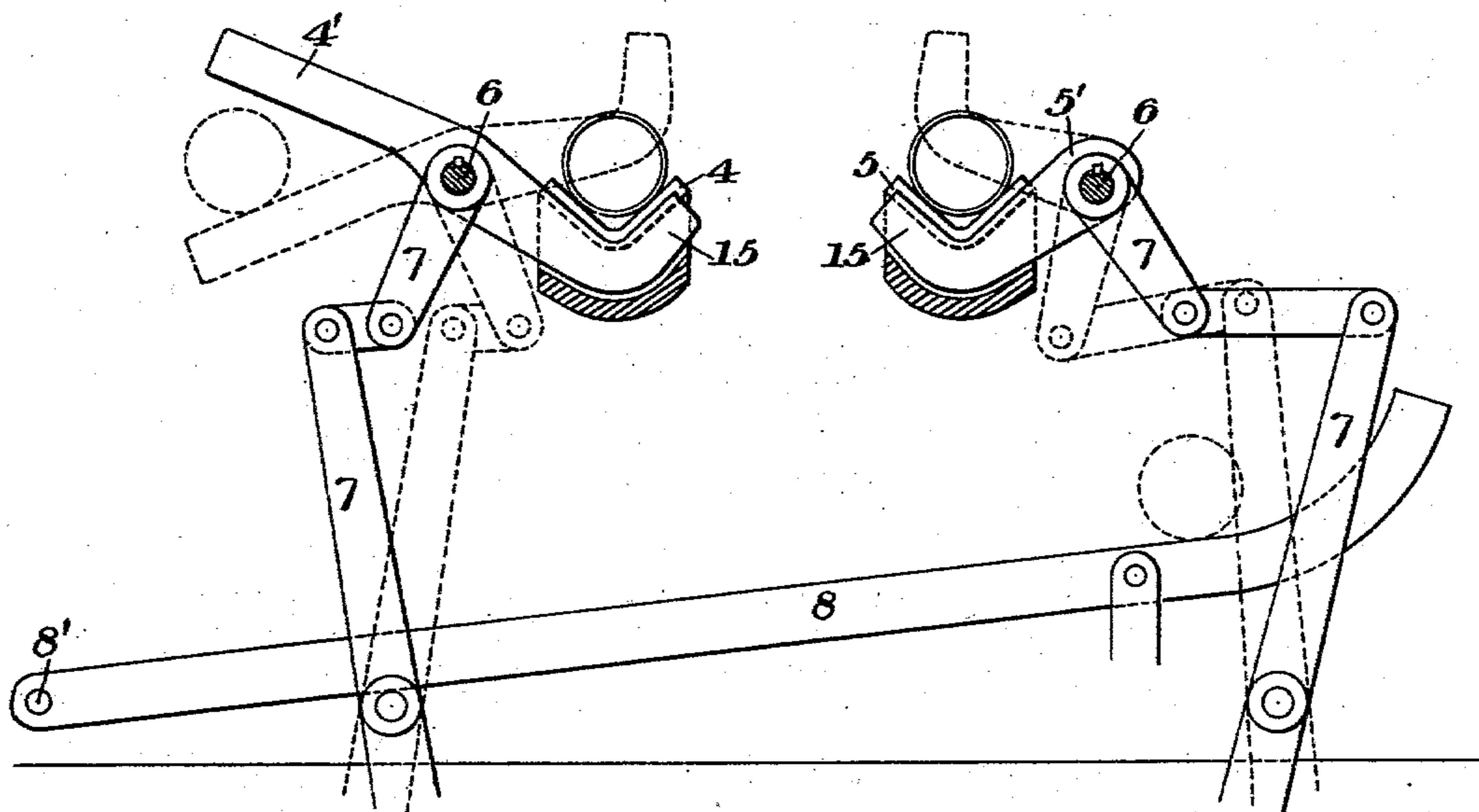
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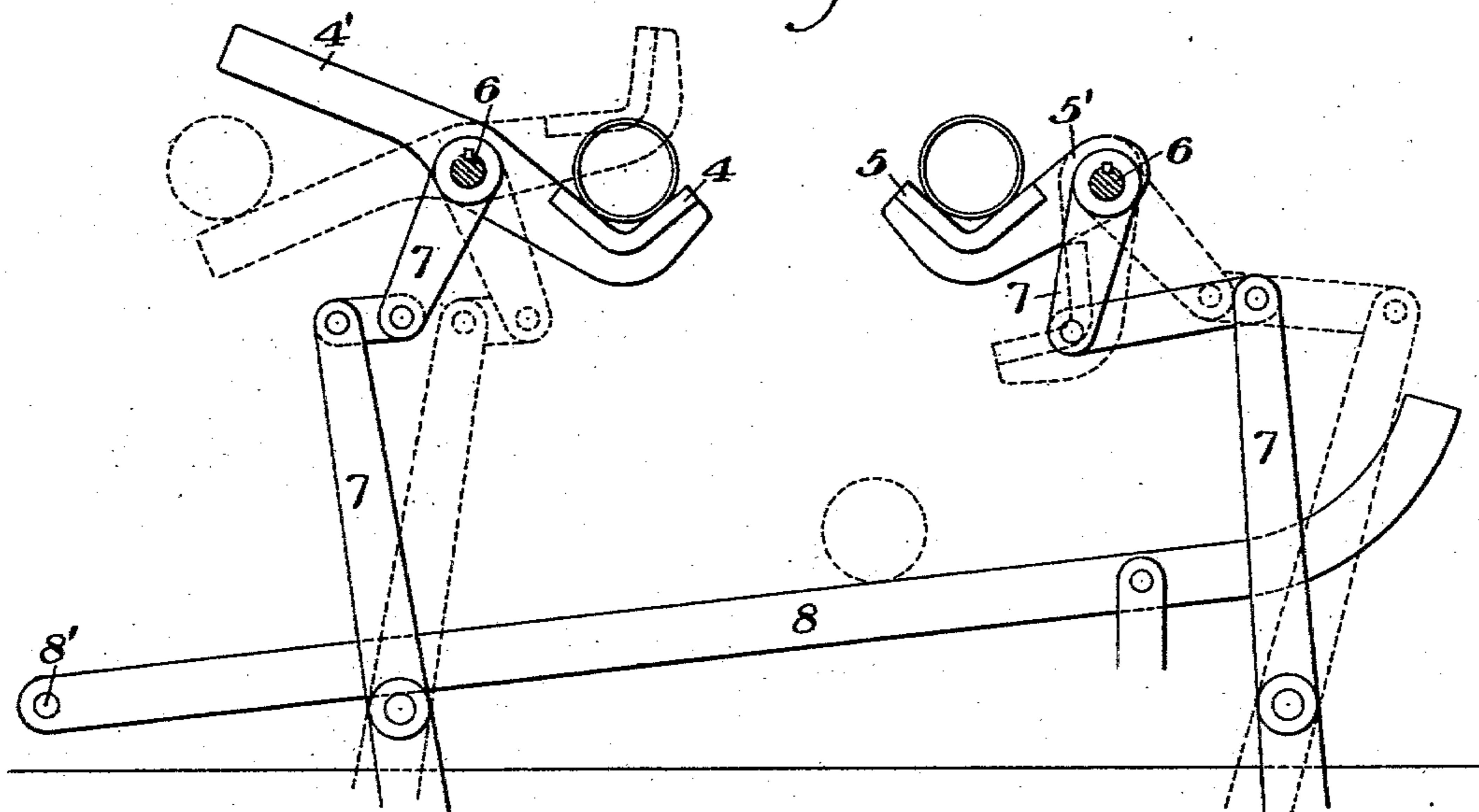
NO MODEL.

3 SHEETS—SHEET 3.

*Fig. 4.*



*Fig. 5.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

THOMAS J. BRAY, JR., OF PITTSBURG, PENNSYLVANIA.

## TUBE-HANDLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 721,006, dated February 17, 1903.

Application filed September 2, 1902. Serial No. 121,815. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. BRAY, JR., of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Tube-Handling 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 top plan view showing my improved transfer apparatus in the form shown in Fig. 4 in connection with a set of welding-rolls. Fig. 2 is a detail plan view showing one form of the troughs and transfer mechanism. Fig. 3 is an end elevation of Fig. 2. Figs. 4 and 5 are end elevations showing modifications of my invention.

My invention relates to the transferring of welded tubes or pipes to the rollers leading to the sizing-rolls or the returning of the same for reworking; and it is especially designed for use in connection with a furnace having two or more sets of welding-rolls.

The object of the invention is to provide an improved transfer mechanism by which a welded tube may be transferred to the sizing-rolls without interfering with the rod carrying the welding-ball for the other set of welding-rolls or the operation of the other set of rolls, and, further, to provide means for returning second runs by passing them beneath the transfer mechanism.

In the drawings, 2 2 and 3 3 represent two pairs of welding-rolls located side by side and staggered relatively to each other in front of the furnace-opening. In front of these welding-rolls I provide a transfer apparatus, comprising, as shown in Fig. 3, troughs 4 5 for receiving the welded tube from the welding-rolls. These troughs have arms 4' 5' keyed to rock-shafts 6 6, which are adapted to be rocked by suitable systems of levers 7 7, actuated by hand or any suitable motor, so as to raise the troughs from their normal receiving position (shown in full lines in Fig. 3) to their discharging position. (Shown by dotted lines.) An inclined skid 8 or any other suitable transfer device extends from beneath the trough 4 5 to a roller-table 9 in line with the sizing-rolls 10.

In using the apparatus the tubes are passed

through the rolls 2 2 and 3 3 over welding balls and rods. In Fig. 1 I show such welding-ball 11 and rod 12 in connection with the rolls 2 2, the rod 12 being supported at the front end by a usual swinging catch 13. The rods are drawn from the tubes by suitable means—for example, by frictional rolls 14—and to transfer the tube from the trough the rock-shaft is operated by the levers 7 and carries the trough to the elevated position, (shown in Fig. 3,) whereupon the tube rolls from the trough down upon the skid or table 8 and is delivered thereby to the table of the sizing-rolls. The skid 8, which acts as a transfer device, may be pivoted at 8', and if the tube dropped thereon is found to be defective the skid may be reversed by tilting it into the position shown by dotted lines in Fig. 3 and the pipe delivered to the right to be reworked.

The tubes delivered from the trough 5 pass under the companion trough 4. It will be seen that the transfer mechanism does not extend over the troughs, and both transfer mechanisms can be moved at once, as neither can interfere with the operation of the other. The welding-rolls may therefore be used simultaneously, if desired, and this important advantage results from the fact that the tubes are delivered from one transfer-trough beneath and not above the other trough.

In Fig. 4 I show a modification of my invention in which the troughs 4 5 are stationary, but are slotted or interrupted transversely at intervals in their length, and in the spaces or pockets so formed there are transfer-arms 15 15, which are keyed to the rock-shafts 6 6 and are operated by a lever mechanism 7, as above explained. In this case the tubes are delivered by raising the transfer-arms 15, with the same result as in Figs. 2 and 3, where the troughs themselves are raised.

In Fig. 5 I show another modification which operates in the same way as shown in Figs. 2 and 3, except that the trough 5 moves downwardly in delivering the tubes to the skid, and it thus delivers the tube to the left of the shaft 6 instead of the right, as in Figs. 2 and 3.

Other modifications of my invention may be made by the skilled mechanic, the essen-

tial being that the transfer mechanism be constructed to deliver the tubes from one multiple trough under the other trough or troughs for the purpose of preventing interference of one tube with the other.

I claim—

1. Tube-welding apparatus, comprising sets of welding-rolls, receiving-troughs therefor, and transfer mechanism constructed to deliver the tubes from one of the troughs laterally under an adjacent trough; substantially as described.

2. Tube-welding apparatus, comprising sets of welding-rolls, receiving-troughs therefor, and transfer mechanism constructed to deliver the tubes from one of the troughs laterally under an adjacent trough, and a transfer

device leading transversely under the said adjacent trough; substantially as described.

3. Tube-welding apparatus, comprising sets of welding-rolls, receiving-troughs therefor, and transfer mechanism constructed to deliver the tubes from one of the troughs laterally under an adjacent trough, and a transfer device leading transversely under the said adjacent trough, said transfer device being reversible to deliver defective tubes in the opposite direction; substantially as described.

In testimony whereof I have hereunto set my hand.

THOS. J. BRAY, JR.

Witnesses:

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GEO. B. BLEMING.