

No. 728,666.

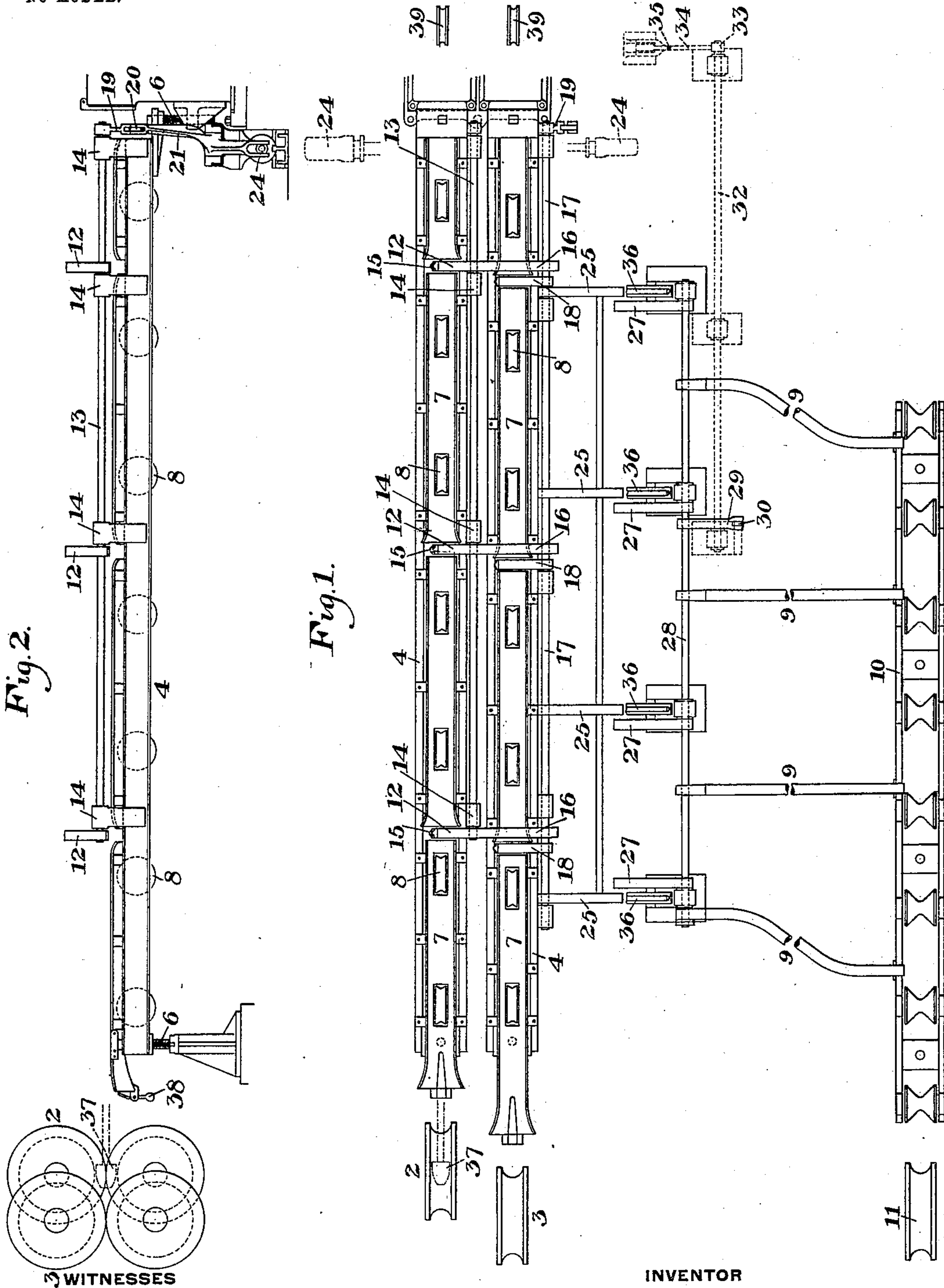
PATENTED MAY 19, 1903.

T. J. BRAY, JR.
TUBE HANDLING APPARATUS.

APPLICATION FILED MAR. 12, 1902.

NO MODEL.

2 SHEETS—SHEET 1



WITNESSES
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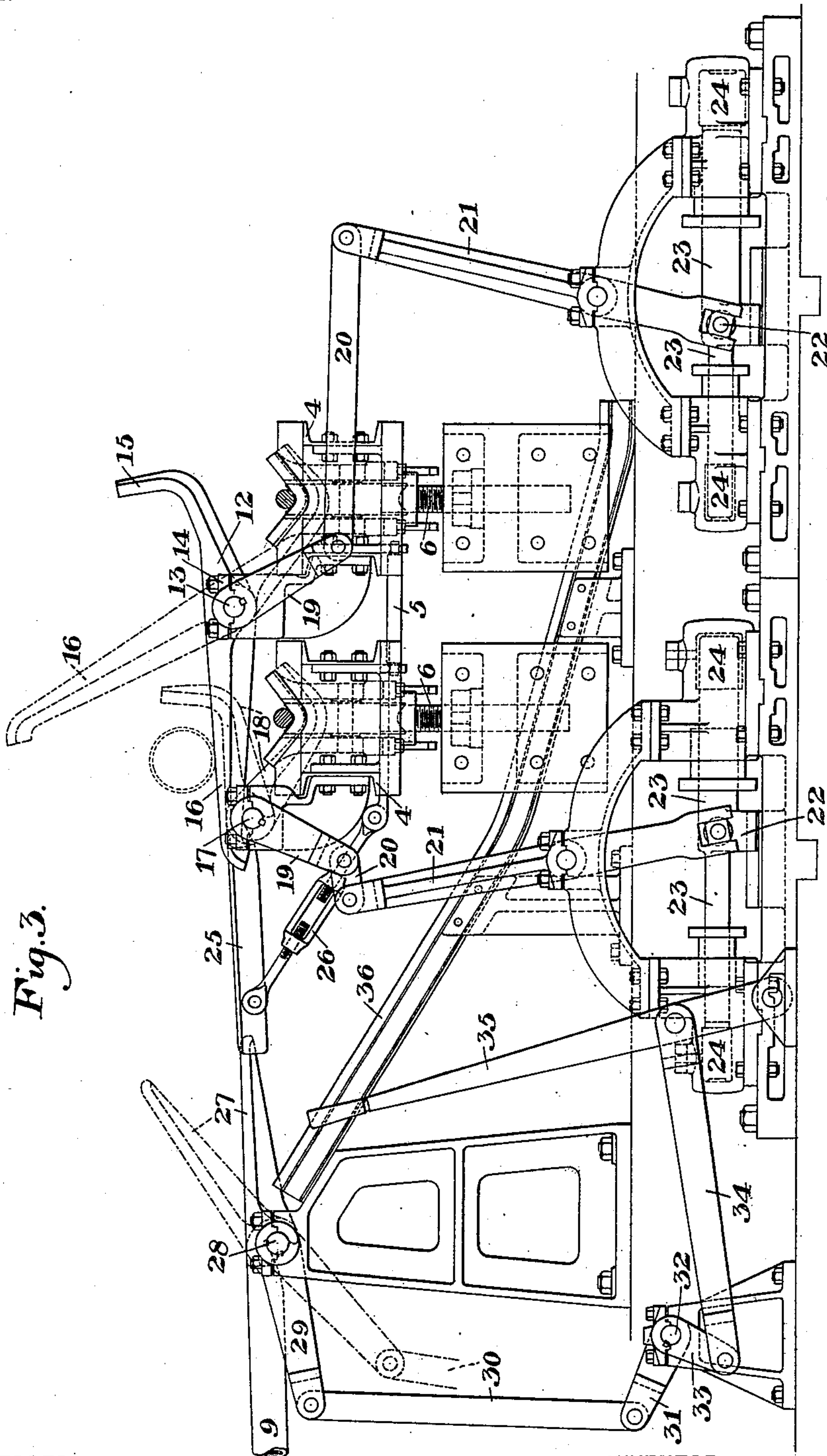


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS J. BRAY, JR., OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO UNITED ENGINEERING AND FOUNDRY COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TUBE-HANDLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 728,666, dated May 19, 1903.

Application filed March 12, 1902. Serial No. 97,866. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. BRAY, Jr., of Pittsburg, Allegheny county, 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 connection with two sets of welding-rolls. Fig. 2 is a side elevation of the same, and Fig. 3 is an enlarged end elevation of the transfer mechanism.

My invention relates to the transferring of welded tubes or pipes to the rollers leading to the sizing-rolls, and the returning of the second for reworking; and it is especially designed for use in connection with a furnace having two 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, 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 a stationary framework having side bars 4 4 with suitable transverse members 5, the frame being carried upon adjustable end supports 6 6. This frame carries two troughs 7 7, each containing frictionally-driven rollers 8. Each trough is provided at suitable intervals with transverse slots, the front end of each succeeding trough-section being preferably flared, as shown in Fig. 1. These transverse slots receive lifter-arms, which raise and transfer the pipes sidewise to inclined skids 9, leading to roller-table 10, in alinement with the sizing-rolls 11. The arrangement of the lifter-arms is shown in Fig. 3. The arms 12 for the trough which is farther away from the skids

are keyed to a shaft 13, mounted in bearings 14 between the two troughs. The arms 12 have hooked or bent front ends 15 and are provided with long tail portions 16, which extend over the nearer trough and rest upon the shaft 17, carrying the shorter arms 18 for the nearer trough. The receiving position of the arms 12 is shown in dotted lines, while the other arms 18 are shown in full lines in receiving position. Each of the shafts 13 and 17 is rocked by a lever-arm 19, having link connection 20 with a rocking lever 21, having a loose connection with a cross-head 22, secured at the meeting ends of plungers 23, moving in motive cylinders 24. The valves for these cylinders may be of any desirable form, enabling the operator to control the movements of the lifter-arms. The lifter-arms 12 are staggered relatively to the arms 18 and both when in the inclined discharging position allow the pipe to roll sidewise over adjustable guides 25, loosely surrounding the shaft 17 and supported by adjustable braces 26. From these stationary inclines the tube rolls over arms 27, secured to a rock-shaft 28; these arms being staggered relatively to the support 25, their ends overlapping, as shown in Fig. 1. The arms 27 form part of the skids and guide the tubes directly upon the skids, down which they roll to the roller-table 10. The rock-shaft 28 may be rocked by lever-arm 29, having link connection 30 with a lever-arm 31, mounted on rock-shaft 32, at whose end is an arm 33, having link connection 34 with a hand-lever 35. In case the tube being removed is defective the operator through handle 35 rocks the shaft 28, and thus swings down the arms 27, causing the pipe to drop upon inclined ways 36, which extend backwardly beneath the table, as shown in Fig. 3.

The welding-ball for use in lap-welding is diagrammatically shown at 37, its rod resting upon the friction-rollers, the front end being supported by the usual swinging catches 38. The tube is drawn over the ball by any suitable welding-roll apparatus commonly used, a pair of the welding-rolls for each trough being indicated at 39.

In using the apparatus the rod, with the

ball or mandrel, is supported in each trough, and the tube is drawn out between the welding-rolls and over the ball. The ball is then removed from the end of the rod, the rod is
 5 pulled out by the friction-rolls 39, and one of the rock-shafts carrying the lifter-arms is then rocked by actuating suitable valves. The pipe is thus lifted from the trough and rolls over the lifter-arms and stationary
 10 guides and, if properly welded, over arms 27 and skidways to the sizing-roll table. If defective, it is directed back beneath the table to be reworked.

The advantages of my invention result from
 15 the transfer mechanism, which enables the operation to go on in either trough without interfering with that in the other. The lifter-arms in the near trough must of course be depressed in receiving position when the tube
 20 is removed from the farther trough. The use of the backwardly-inclined skidways to direct the seconds beneath the table is of advantage and may be used with or without the remainder of the mechanism. The arrangement of
 25 the parts is simple and compact, the movements are positive, the handling is reduced, and the mechanism is specially advantageous when used with a plurality of welding-rolls.

Many variations may be made in the form
 30 and arrangement of the receiving-troughs, lifter-arms, return-skids, &c., without departing from my invention.

I claim—

1. In welding apparatus, a receiving-trough,
 35 mechanism for raising the pipe from the trough, removing it laterally, and inclined return-ways leading back beneath the trough; substantially as described.

2. In welding apparatus, a receiving-trough,
 40 lifter-arms arranged to lift the tube, and roll it laterally, swinging arms arranged to receive

the rolling tube, inclined return-ways leading backwardly beneath the trough, and mechanism for tilting the receiving-arms to allow the pipe to drop on the return-ways; substantially as described. 45

3. In welding apparatus, a plurality of receiving-troughs, swinging lifter-arms for each trough, one set of arms extending across one of the troughs and being staggered relatively
 50 to the other set; substantially as described.

4. In welding apparatus, a plurality of sets of welding-rolls, a plurality of receiving-troughs, skidways leading from the troughs to feed mechanism of the sizing-rolls at one
 55 side of the troughs, and lifter-arms arranged to lift and roll laterally a tube from any of the troughs to said feed mechanism; substantially as described.

5. In welding apparatus, a plurality of receiving-troughs, swinging lifter-arms arranged to lift and roll sidewise a tube from any trough, inclined skidways arranged to receive the tube, and drop-sections in the skidway arranged to deposit seconds; substan-
 65 tially as described.

6. In welding apparatus, a plurality of pairs of welding-rolls, a plurality of troughs arranged to receive the tubes, lifter-arms for the troughs, the arms of one trough extending
 70 across those of another and being staggered relatively to them, supports leading from the troughs to the feed mechanism of the sizing-rolls, and drop-sections in the supports arranged to deposit seconds upon the turn-
 75 ways; substantially as described.

In testimony whereof I have hereunto set my hand.

T. J. BRAY, JR.

Witnesses:

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 GEO. B. BLEMING.