

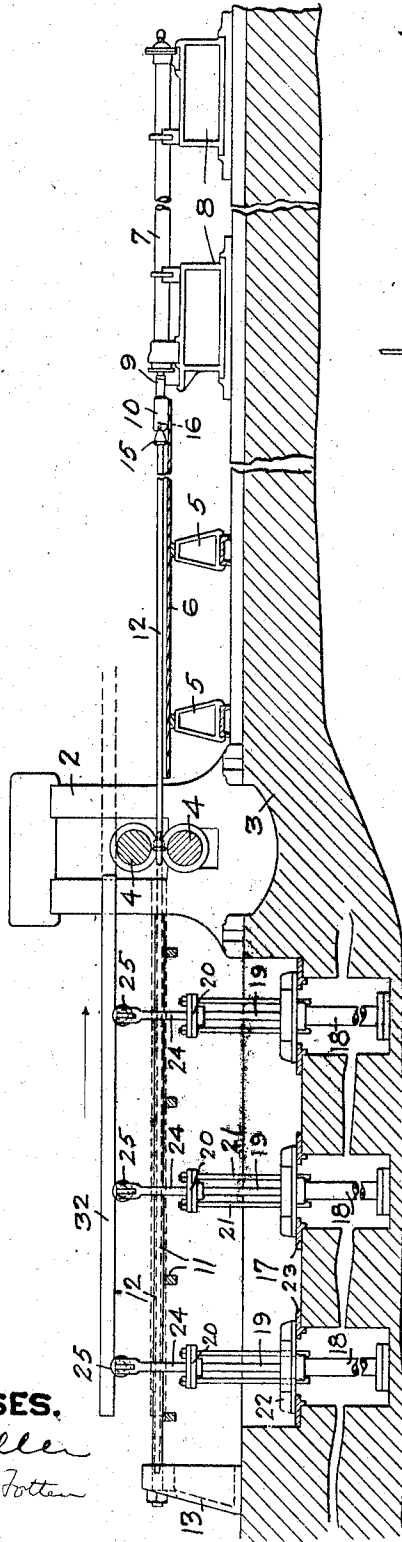
W. M. SELKIRK.
MECHANISM FOR ROLLING TUBING.
APPLICATION FILED APR. 18, 1911.

1,020,455.

Patented Mar. 19, 1912.

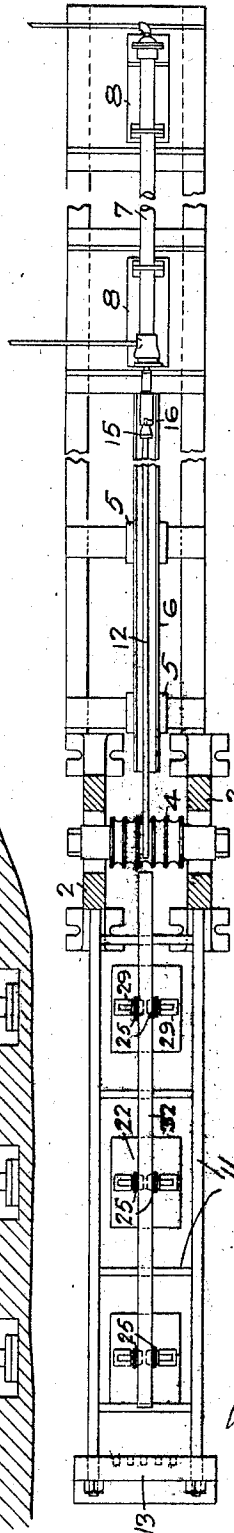
2 SHEETS—SHEET 1.

FIG. 1



WITNESSES.
J. R. Keller
Robert C. Fother

FIG. 2



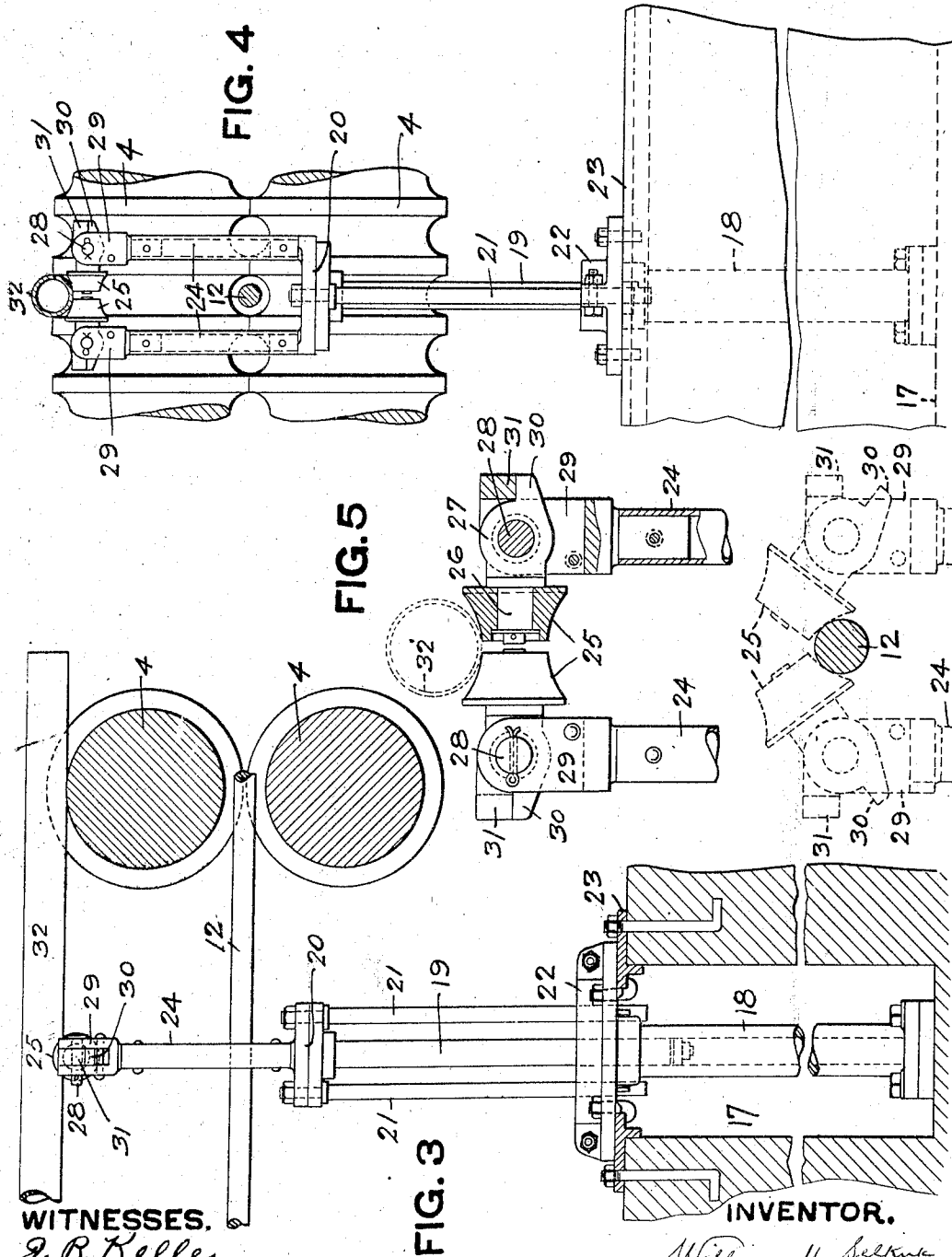
INVENTOR.
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FIG. 3

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UNITED STATES PATENT OFFICE.

WILLIAM M. SELKIRK, OF MONESSEN, PENNSYLVANIA, ASSIGNOR TO PITTSBURGH
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MECHANISM FOR ROLLING TUBING.

1,020,455.

Specification of Letters Patent. Patented Mar. 19, 1912.

Application filed April 18, 1911. Serial No. 621,948.

To all whom it may concern:

Be it known that I, WILLIAM M. SELKIRK, a citizen of the United States, and resident of Monessen, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Mechanism for Rolling Tubing; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to tube rolling apparatus.

The invention relates more particularly to that class of mills for rolling seamless tubing in which a two-high mill is employed and the pierced blank is forced through the rolls onto a mandrel supported at the opposite sides of the rolls. The mandrel is then withdrawn with the tube lying in the position in which it was delivered, the next step being to return the tube to the receiving side of the rolls, and it is to this particular step in this method of rolling tubing to which my invention pertains.

My invention comprises, generally stated, in combination with a two-high mill, a mandrel support at one side thereof, means for withdrawing the mandrel after the tube has been delivered thereto, mechanism for raising the tube so that it may be moved into contact with the top roll to be transferred to the receiving side of the rolls, and means for clearing the mandrel when the lifting means is lowered, all as fully hereinafter set forth and claimed.

In the drawings, Figure 1 is a side elevation of my improved apparatus in section; Fig. 2 is a plan view partly in section; Fig. 3 is an enlarged view of the lifting apparatus; Fig. 4 is a front view of same and Fig. 5 is an enlarged detail of the lifting rollers and their different positions.

In the drawing the numeral 2 designates suitable housings arranged in a foundation 3. The rolls 4 are journaled in the housings and are driven continuously in opposite directions by suitable mechanism. At the receiving side of the rolls are the standards 5 which support the trough or support 6. In line with the trough 6 is the cylinder 7 supported on the bed-plates 8. The piston-rod is connected up to the combined gripper and pusher 10. This combined gripper and pusher forms the subject of an application for Letters Patent of the United States filed

by Richard E. Brock and me on the 19th day of December, 1910, Serial No. 598,146. I have not deemed it necessary to illustrate this combined gripper and pusher in detail in my present application, as it forms no part of the invention therein.

At the delivery side of the rolls is the frame or support 11, which carries the mandrel-bar 12, the end of said mandrel-bar being supported in the back-stop 13. At the forward end of the mandrel-bar is the plug 15 which is adapted to engage the mandrel in the ordinary manner, said mandrel having the reduced projecting portion 16 extending beyond said plug.

The pit 17 is formed below the floor-level and within said pit are arranged the cylinders 18 at suitable intervals. Connected to the piston-rods 19 are the cross-heads 20. Guide rods 21 are connected to the cross-heads and said guide-rods extend down through guide-plates 22 which are bolted to the bed-plates 23. Secured to the cross-head 20 is the yoke 24 which carries at its upper end the rollers 25. These rollers 25 are mounted on the stub-shafts 26 forming part of the hubs 27. These hubs 27 are mounted to turn on the shafts 28, said shafts passing through the bifurcated ends 29 of the yoke 24. The hubs 27 have the projecting portions 30 which are adapted to engage the shoulders 31 on the yokes 24 to hold the rollers 25 in the proper position.

When my improved apparatus is in use the tubular blank 32 in the trough 6 is carried by the pusher 10 into the pass of the rolls and over the plug 15 onto the mandrel-bar 12. As soon as the pusher 10 has pushed the tube through the rolls, the gripper at the forward end of the pusher 10 seizes the reduced end portion 16 of the mandrel-bar and the cylinder 7 is operated to withdraw the pusher and the mandrel-bar to the position indicated in Fig. 1. Just as soon as the mandrel-bar has been withdrawn, the motive fluid is admitted to the cylinders 18 and the rollers 25 are lifted so as to lift the tube 32 from supporting frame 11, upon which it remains after the mandrel-bar has been withdrawn, and the tube is lifted by the rollers 25 to the position indicated in full lines Fig. 1, or on a level with the top-roll. The tube 32 is then pushed onto the top-roll which is moving in a direction to

carry the tube back to the receiving side of the rolls, where it is grasped by tongs or other suitable mechanism and is lowered down into position in the trough 6 for another pass through the rolls. In the meantime, however, the mandrel-bar 12 has been returned by the combined gripper and pusher 10 to its position at the receiving side of the rolls to again receive the tube as it is delivered to the mandrel-bar in the manner above described. The cylinders 18 are then operated to lower the rolls 25 and as a mandrel-bar is in the path of the descending rolls, said rolls, when they come in contact with the mandrel-bar, will swing into position to pass the mandrel-bar as indicated in dotted lines Fig. 6. Just as soon as the rolls have passed beyond the mandrel-bar, they will of their own weight assume a normal position with the stops 30 engaging the shoulders 31, as clearly shown in Fig. 5. In this way, the rolls 25 are brought into position to be again elevated when the mandrel-bar has been withdrawn to lift the tube 25 to its elevated position, as shown in Fig. 1. In this manner, I provide for the lifting of the tube without manual labor and bring it into position where it can be pushed onto the top-roll to be delivered by said roll to the receiving side of the mill. And furthermore the mandrel-bar can be returned before the lifting mechanism is lowered so that no delay in the operation occurs and all the parts work without interference.

35 What I claim is
1. In apparatus for rolling tubing, the combination of the rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar when the tube has been delivered to same, and mechanism for lifting the tube.

2. In apparatus for rolling tubes, the combination of the rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar, and mechanism for lifting the tube, said last-mentioned mechanism adapted to clear the mandrel-bar on its descent.

3. In apparatus for rolling tubing, the combination of the rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar when the tube has been delivered thereto, vertically movable supports adapted to engage the tube, said vertically movable supports adapted to clear the mandrel-bar on their descent.

4. An apparatus for rolling tubing, the combination of the rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar after the tube has been delivered thereto, and vertically movable yielding supports adapted to lift the tube,

said supports in their descent coming in contact with the mandrel-bar.

5. In an apparatus for rolling tubing, the combination of the rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar after the tube has been delivered thereto, and vertically movable yielding rollers adapted to lift said tube, said rollers in their descent coming in contact with said mandrel-bar.

6. In apparatus for rolling tubing, the combination of rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar after the tube has been delivered thereto, and vertically movable swinging supports adapted to lift said tube, said supports in their descent coming in contact with the mandrel-bar.

7. In apparatus for rolling tubing, the combination of the rolls, a mandrel-bar supported in the proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar when the tube has been delivered thereto, and vertically movable swinging rollers adapted to lift said tube, said rollers in their descent coming in contact with the mandrel-bar.

8. In apparatus for rolling tubing, the combination with the rolls, of a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing said mandrel-bar when the tube has been delivered thereto, and vertically movable gravity operated swinging supports to lift the tube, said supports in their descent coming in contact with the mandrel-bar.

9. In apparatus for rolling tubing, the combination of the rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar when the tube has been delivered thereto, a vertically movable frame swinging supports mounted in said frame adapted to lift the tube, and stops on said supports engaging said frame.

10. In apparatus for rolling tubing, the combination of the rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar when the tube has been delivered thereto, and vertically movable frame, gravity operated swinging rollers mounted in said frame adapted to lift the tube, and stops associated with said rolls engaging said frame.

11. In apparatus for rolling tubing, the combination of the rolls, means for supporting the mandrel-bar in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar when the tube has been delivered thereto, a fluid operated cylinder, a frame connected to the piston of said cylinder, and swinging supports carried

ried by said frame adapted to lift said tube.

12. In apparatus for rolling tubing, the combination of the rolls, a mandrel-bar supported in proper position with reference to the pass of the rolls, means for withdrawing the mandrel-bar when the tube has been delivered thereto, a vertically movable yoke, and swinging supports mounted on the up-

per end of said yoke adapted to lift the 10 tube.

In testimony whereof, I the said WILLIAM M. SELKIRK have hereunto set my hand.

WILLIAM M. SELKIRK.

Witnesses:

ROBERT C. TOTTEN,
JOHN F. WILL.