

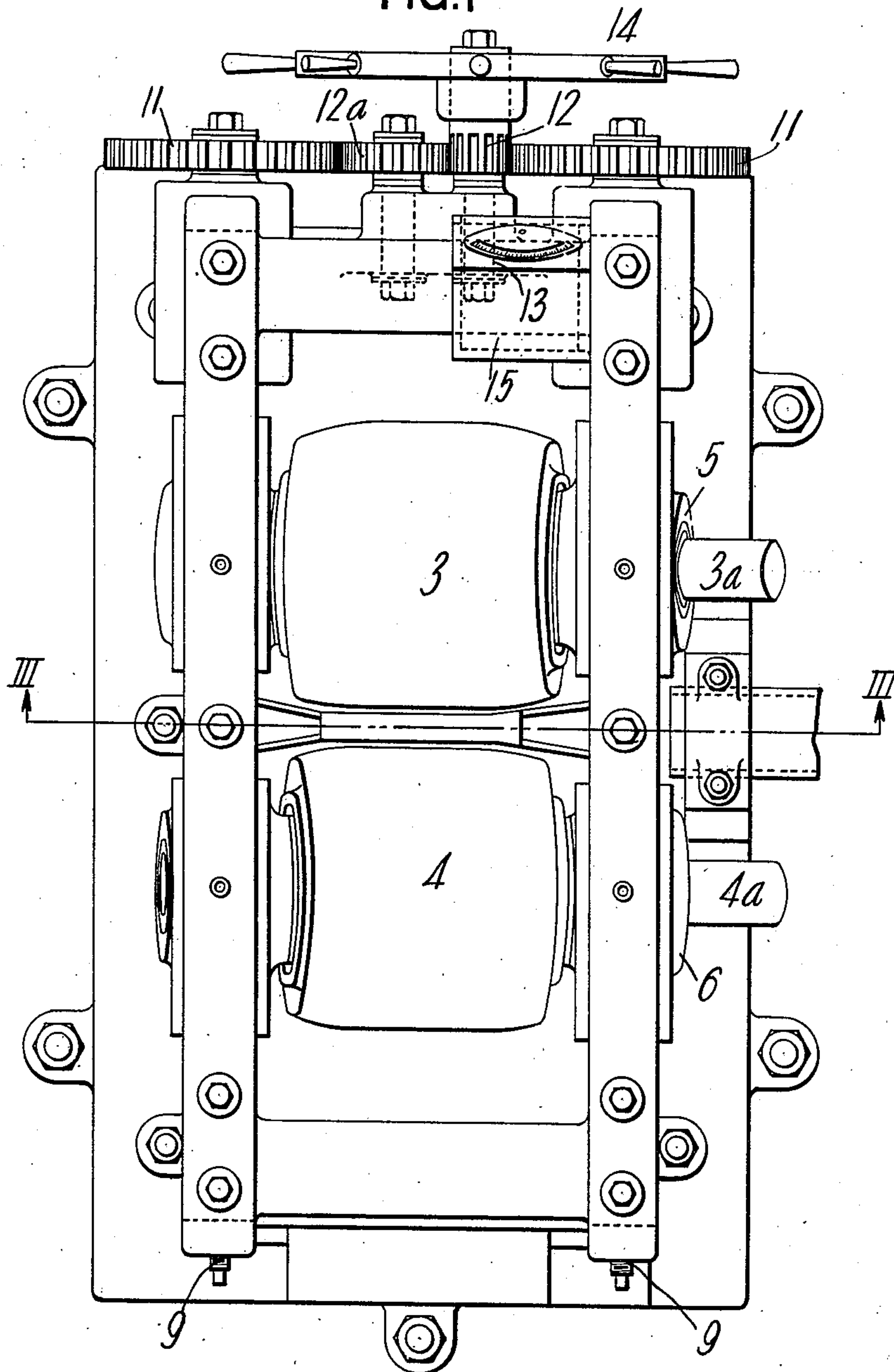
J. J. DUNN.  
METHOD OF REELING TUBES.  
APPLICATION FILED MAR. 31, 1910.

999,635.

Patented Aug. 1, 1911.

2 SHEETS—SHEET 1.

FIG. 1



WITNESSES.

*Chas. Soderman*

*M. P. Alexander*

INVENTOR

*J. J. Dunn*  
*By Luthicum, Belt & Fuller*  
*his Attorneys*

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2 SHEETS—SHEET 2.

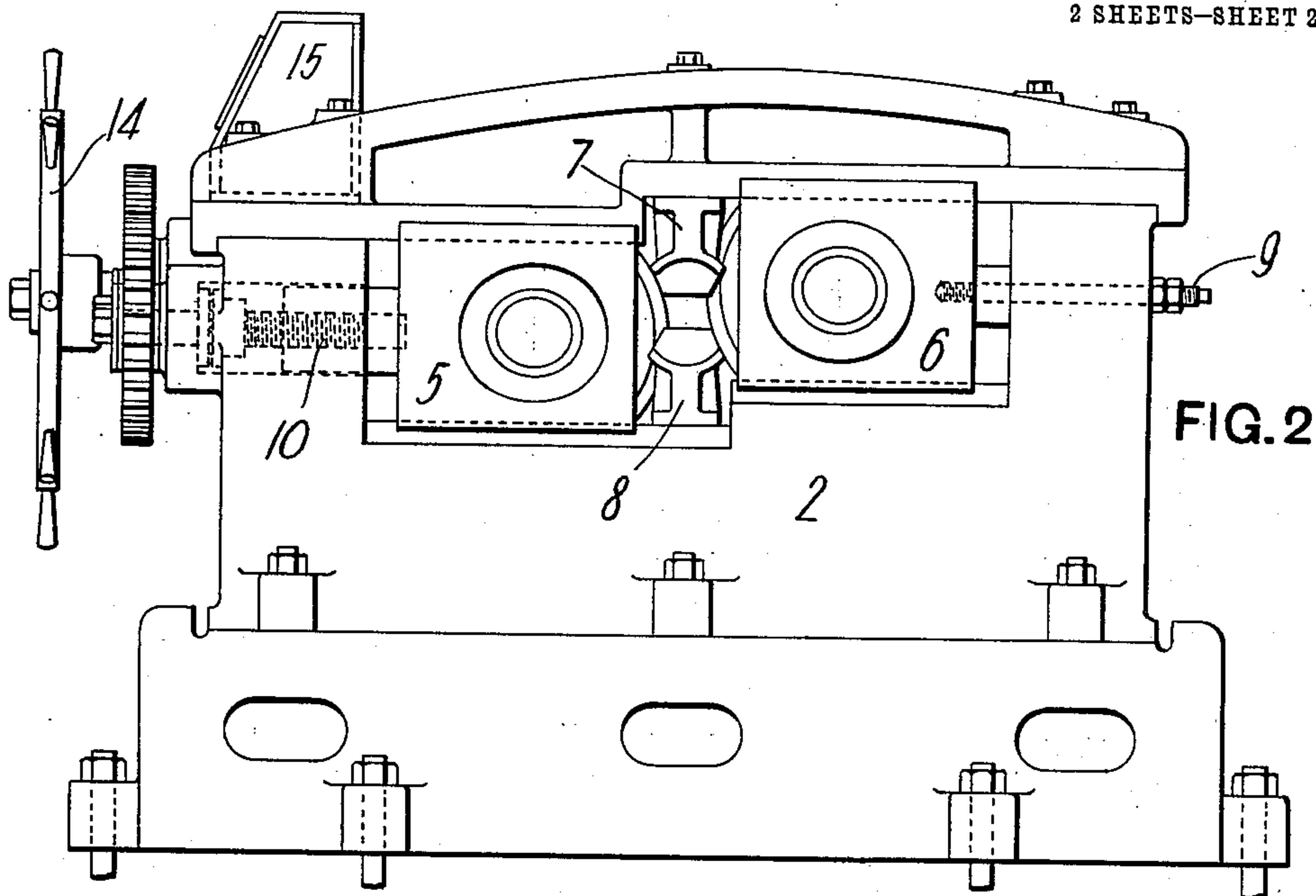


FIG. 2

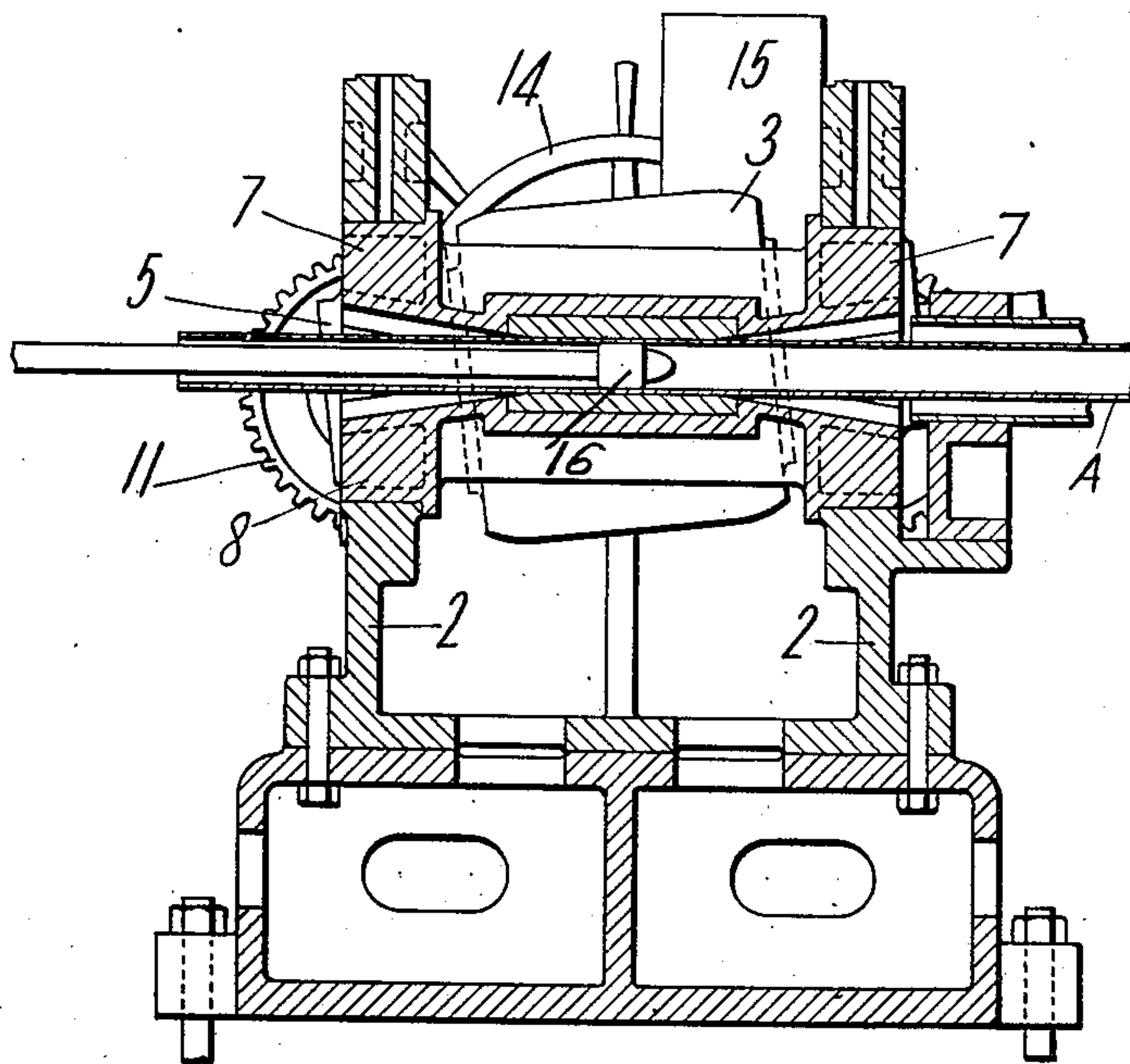


FIG. 3

WITNESSES.

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# UNITED STATES PATENT OFFICE.

JERRY JAY DUNN, OF ELLWOOD CITY, PENNSYLVANIA, ASSIGNOR TO THE SHELBY STEEL TUBE COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

## METHOD OF REELING TUBES.

999,635.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed March 31, 1910. Serial No. 552,638.

*To all whom it may concern:*

Be it known that I, JERRY JAY DUNN, of Ellwood City, in the county of Lawrence and State of Pennsylvania, have invented a new and useful Method of Reeling Tubes, of which the following is a full, clear, and exact description.

My invention relates to the manufacture of seamless tubes and similar annular bodies. Heretofore in the reeling or cross rolling of tubes which have been formed by piercing a billet and subsequently reducing the wall thickness or diameter or both and increasing the length by means of a rolling mill or other suitable mechanism, the reeled tube will vary greatly in diameter after the reeling operation owing to variations in the diameter and wall thickness of the partly finished tube or hollow billet prior to the reeling operation and to wear of the guides and mandrels in the reeling machine. The hollow billets after being pierced or rolled or otherwise reduced in cross section, are more or less rough on both the inner and outer surfaces by reason of the action of the rolls and plug and the oxidation caused by heating which scales the tube on its outer surface.

The object of the invention is to provide an improved method of reeling the tubes by which the inequalities in the inner and outer surfaces are removed, the desired finished surfaces are produced on the tubes while increase or decrease in diameter due to variations in the thickness of the walls of the successive tubes before being reeled is avoided and overcome and a tube of uniform diameter and the desired smoothness of surface is obtained.

Referring to the accompanying drawings forming part of this specification, Figure 1 is a plan showing cross rolls constructed and arranged in accordance with my invention and adapted for use in carrying out my improved method. Fig. 2 is an end elevation of the apparatus shown in Fig. 1. Fig. 3 is a longitudinal section on the line III—III of Fig. 1 showing the plug employed in reeling in place between the rolls, with a tube surrounding the plug and between the rolls.

In the drawings, 2 represents the housings of a cross rolling mill having cross rolls 3 and 4 arranged at opposite angles to the longitudinal axis of the tube. The rolls 3

and 4 are mounted in suitable bearings 5 and 6 which are adjustably secured in the windows of the housings.

Top and bottom guides 7 and 8 are provided to maintain the tube A in proper position between the cross rolls 3 and 4 during the reeling operation.

The roll 4 and its bearings 6 are adjustable longitudinally in the windows of the housings and are held in their adjusted position by means of the set screws 9. The roll 3 and its bearings 5 also are longitudinally movable in the windows of the housings, this roll and its bearings being adjusted toward and away from the roll 4 through the adjusting screws 10, the gears 11 and the pinions 12 and 12<sup>a</sup>, one of which pinions 12, being mounted on the stub shaft 13 and being operatively connected to the hand wheel 14, by which the rolls are adjusted toward and away from each other.

The ends 3<sup>a</sup> and 4<sup>a</sup> of the rolls 3 and 4 are connected by any desired flexible coupling means to a suitable electric motor by which the rolls are positively rotated, the usual coupling box and spindle construction preferably being the type of connection employed for this purpose.

Connected to the feed wires leading to the motor is an ammeter 15 by which variations in the amount of current being consumed in driving the apparatus are constantly indicated. Heretofore, in reeling the tubes, the rolls have been adjusted to suit the size of the tube being cross rolled and the tubes were then successively fed through the adjusted cross rolls. Owing to the scaling of the outside of the tube and inequalities due to scratching of the tube on its inner surface by the plug during the piercing or rolling operation, as well as the wear on the plug, the wall thickness of successive tubes will vary and when such tubes of varying thicknesses are passed through the cross rolls, the outside diameter of the tubes will vary also owing to the varying amounts of reduction caused by different thicknesses in the walls of the successive tubes.

As it is desirable in cross rolling the tubes to make them of uniform, smooth surface and as nearly the same outside diameter as possible, I have provided the connected adjusting means for the rolls with a hand operated wheel and the apparatus is provided with an ammeter or other indicator



located so as to be observable by an attendant which in indicating changes in the amount of power consumed in reeling shows the attendant whether the rolls should be adjusted toward or away from each other in order to prevent an excessive amount of work on the wall of the tube, and in this way prevent its being varied in diameter and being finished by successive periods of excessive and insufficient work on the tube. The plug used on the inside of these tubes during the reeling operation becomes worn, which tends to vary the diameter and the finish or smoothness of the surface unless a corresponding adjustment is made in the rolls.

By adjusting the rolls when found necessary for the tubes, so as to vary the amount of work put upon the walls of the tube, I am enabled to produce tubes having a uniform diameter and finish and in this way overcome the difficulties met with in the apparatus as used heretofore and reduce the number of pieces of hot finished tubes which are over and under size.

Modifications in the construction and arrangement of the parts may be made with-

out departing from my invention as defined in the appended claims.

I claim:—

1. The method of reeling tubes consisting in indicating the power consumed by the reeling operations and adjusting the relative position of the rolls with successive tube sections to equalize the power consumed in successive reeling operations, the necessary amount of adjustment being determined by the amount of power indicated; substantially as described.

2. The method of reeling tubes consisting in indicating the power consumed by the reeling operations and adjusting the relative position of the rolls with successive tubes to equalize the power consumed in successive reeling operations, the necessary amount of adjustment being determined by the amount of power indicated; substantially as described.

In testimony whereof, I have hereunto set my hand.

J. JAY DUNN.

Witnesses:

GEO. L. SCHREIBER,  
M. E. NOLAN.