No. 738,933. PATENTED SEPT. 15, 1903.

J. H. O'DONNELL.

WIRE DRAWING MACHINE.

APPLICATION FILED OCT. 6, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

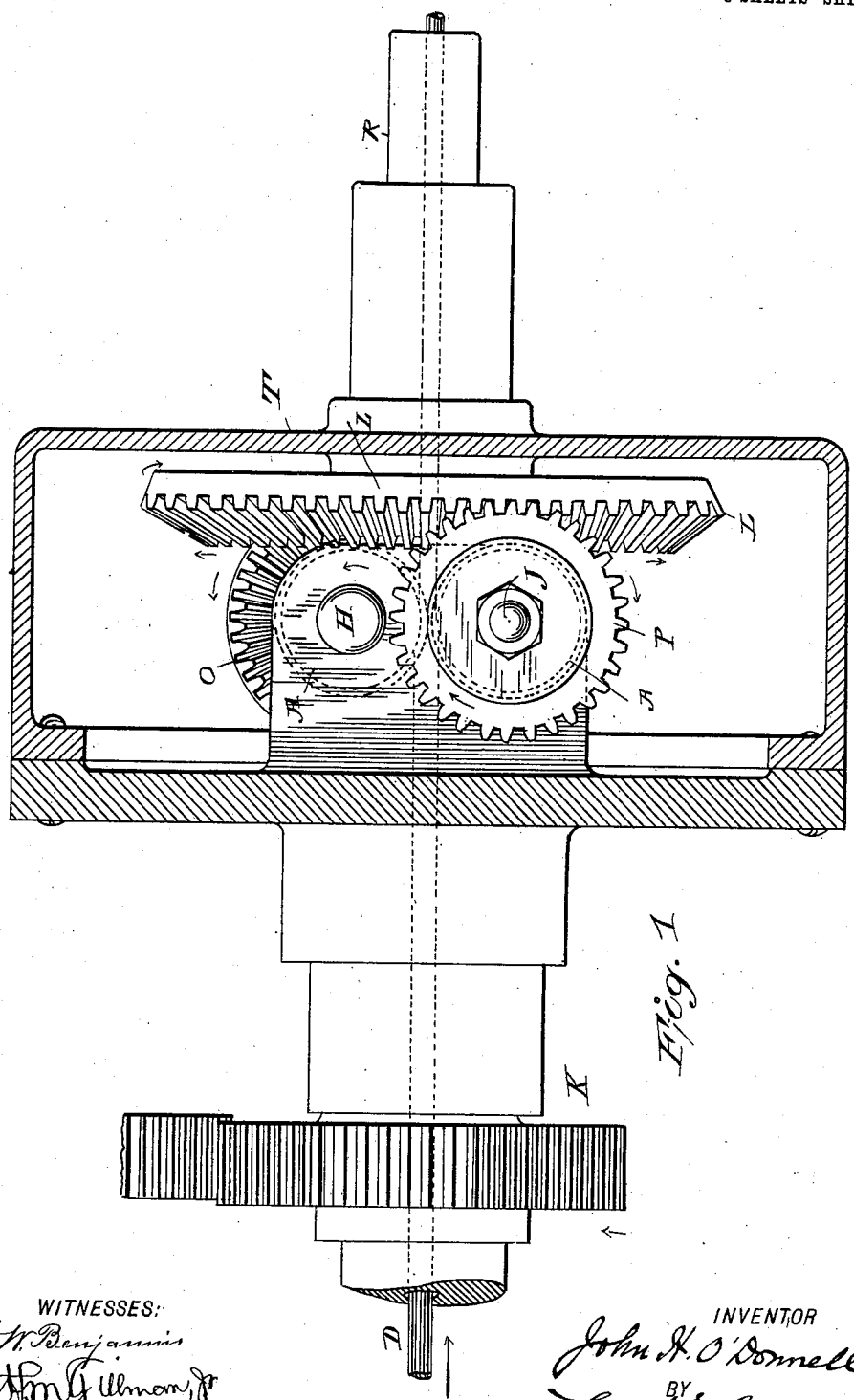


Fig. 1

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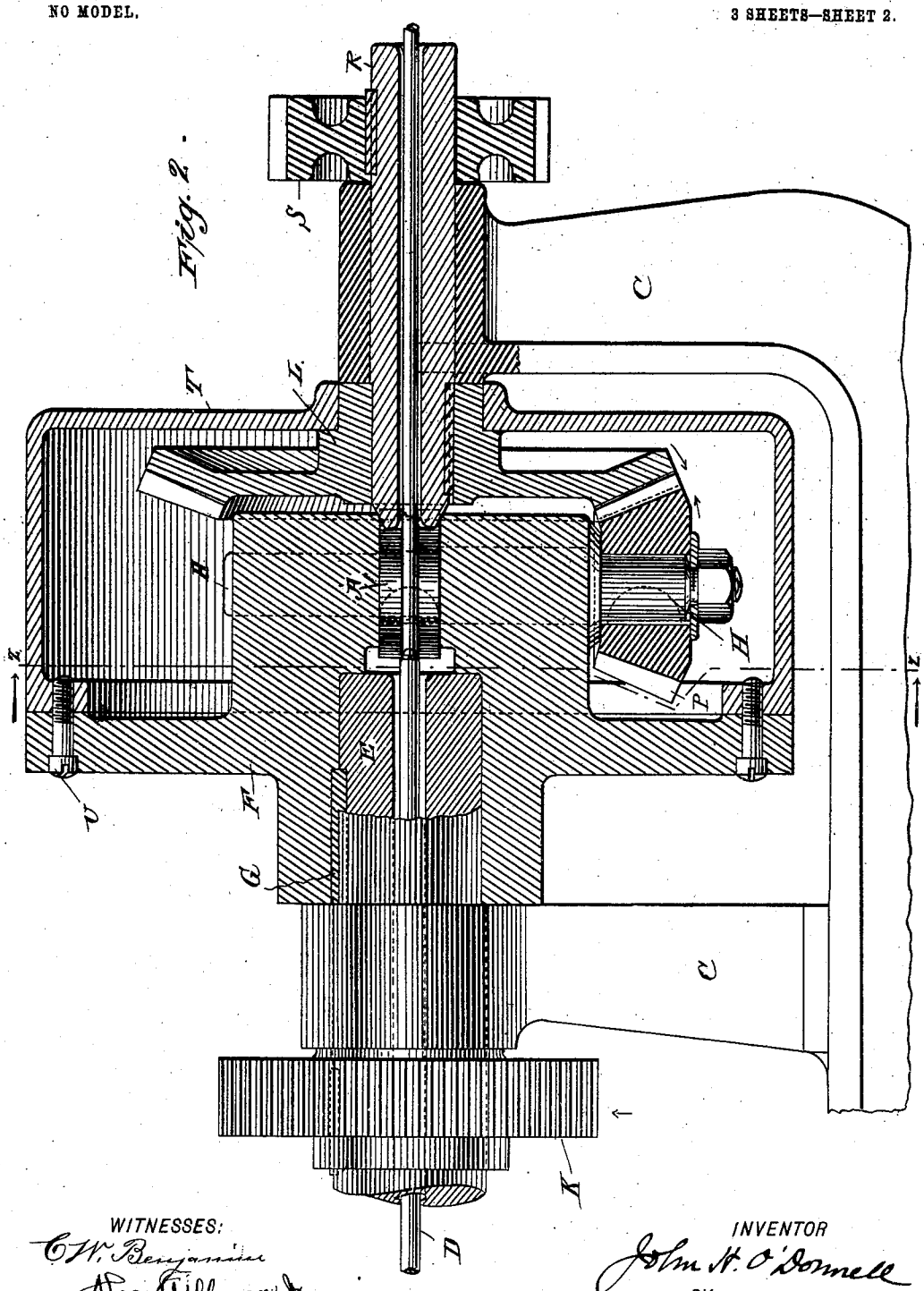
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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.



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NO MODEL. 3 SHEETS—SHEET 3.

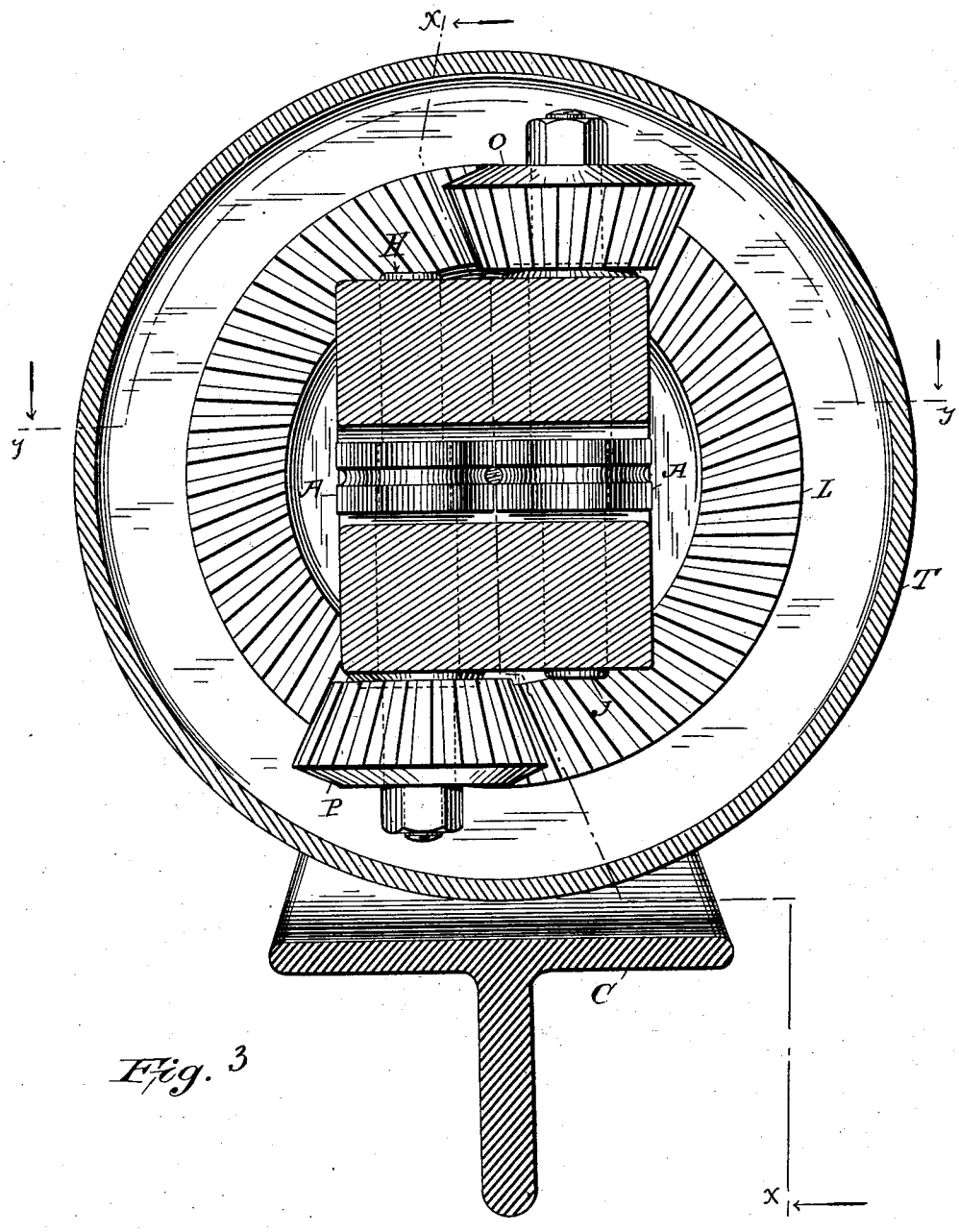


Fig. 3

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No. 738,933. Patented September 15, 1903.

UNITED STATES PATENT OFFICE.

JOHN H. O'DONNELL, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE WATERBURY MACHINE COMPANY, OF WATERBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT.

WIRE-DRAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 738,933, dated September 15, 1903.

Application filed October 6, 1902. Serial No. 126,206. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. O'DONNELL, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Wire-Drawing Machines, of which the following is a specification, accompanied by drawings.

My invention relates to wire-drawing machines; and its objects are to improve upon the construction of such machines and increase their efficiency.

Another object of my invention is to enable the rotating rolls through which the stock is passed to be rotated about the axis coincident with the longitudinal axis of the metal to be drawn.

Further objects of my invention will hereinafter appear; and to these ends my invention consists of a general construction, combinations of elements, and arrangements of parts having a general mode of operation, substantially as hereinafter fully described in this specification and shown in the accompanying drawings, in which—

Figure 1 is a top plan view of a machine embodying my invention, partly in section, on the line *y y* of Fig. 3. Fig 2 is a partial longitudinal sectional elevation of the machine on the line *x x* of Fig. 3, and Fig. 3 is a transverse sectional elevation on the line *z z* of Fig. 2 looking in the direction of the arrows.

According to my invention the rotating rolls A B, which both feed and draw the stock, are adapted to be bodily rotated about an axis coincident with the longitudinal axis of the stock or metal to be drawn. In other words, the rolls A B are rotated about one pair of axes for feeding and drawing metal, while at the same time both rolls are bodily rotated about an axis perpendicular to said pair of axes, and rotary movement is therefore obtained between the stock to be drawn and the rolls.

Any suitable means may be provided for carrying out the above objects, and I have illustrated one form of the machine which has been found to operate satisfactorily and is well adapted for the ends in view.

Referring more particularly to the drawings, the bed C supports the parts of the machine, and the stock D is shown as being passed through the rolls A B, which are provided with the usual grooves. The hollow shaft E is rotatably supported in a bearing in the bed C and carries a suitable frame F, secured thereto, as by means of the key G. The rolls A and B, shown in this instance as placed horizontally, are carried upon the shafts H and J, rotatably supported in the frame F, which is of any desired shape to support the rolls A B opposite the central portion of the shaft E, so that the stock D may be fed through the hollow shaft E to said rolls.

Suitable means are provided for rotating the shaft E, shown in this instance as a gear K, and means are provided for simultaneously rotating the rolls A B about axes coincident with the shafts H and J, while at the same time rotating said rolls with the frame F about the longitudinal axis of the machine. The bevel-gear L may be fixed or rotatable relatively to the bed C, and skew-gears O and P are shown fast to the shafts H and J and meshing with the bevel-gear L. If the bevel-gear L is stationary, as it may be, the rotation of the shaft E and frame F in the proper direction will cause rotation of the skew-gears O and P and rotate the rolls A B in the proper direction for feeding and drawing the stock. At the same time the rolls A B will be bodily revolved with the frame F. The bevel-gear L, if desired, may be revolved in either direction to increase or diminish the speed of the rolls, as required, and, as shown in this instance, said bevel-gear is carried upon a hollow rotating shaft R, revoluble in the bed C and provided with means for rotating the same, as the pinion S. The end of the shaft R adjacent the rolls A B extends into close proximity with the same, as shown more particularly in Fig. 2, for guiding and supporting the stock as it comes from the rolls. The machine may be incased in a housing T, shown in this instance as secured to the frame F, as by means of the screws U, in such manner that the housing rotates with the said frame.

According to my invention a combined feeding, drawing, polishing, and smoothing action

is obtained by means of one pair of grooved rolls, and my construction is simple and efficient in operation and not liable to get out of order.

Obviously some features of my invention may be used without others, and my invention may be embodied in widely-varying forms.

Therefore, without limiting myself to the construction shown and described nor enumerating equivalents, I claim, and desire to obtain by Letters Patent, the following:

1. In a wire-drawing machine, the combination of a shaft, a frame carried thereby, a pair of revoluble feeding and drawing rolls supported in said frame on axes perpendicular to the axis of the shaft, skew-gears connected to said rolls, a bevel-gear supported independently of said shaft or frame and meshing with said skew-gears, means for controlling the movement of the bevel-gear, and means for revolving the shaft and frame, substantially as and for the purposes set forth.

2. In a wire-drawing machine, the combination of a shaft, a frame carried thereby, a pair of revoluble feeding and drawing rolls supported in said frame on axes perpendicular to the axis of the shaft and each having a skew-gear connected rigidly thereto, a bevel-gear supported independently of said shaft and frame and meshing with said skew-gears, means for revolving the shaft and frame, and means independent of the shaft and frame for controlling the movement of the bevel-gear, substantially as and for the purposes set forth.

3. In a wire-drawing machine, the combination with the bed, of hollow shafts revolubly supported therein, a frame carried by one of said shafts, and a bevel-gear carried by the other, rotating rolls supported in said frame, shafts for said rolls, and skew-gears on said shafts and meshing with said bevel-gear, and means for rotating said hollow shafts, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN H. O'DONNELL.

Witnesses:
E. VAN ZANDT,
H. G. OGDEN, Jr.