

C. P. HIGGINS.
 MACHINE FOR FORMING SEAMLESS TUBES.
 APPLICATION FILED SEPT. 21, 1906.

961,130.

Patented June 14, 1910.

Fig. 1.

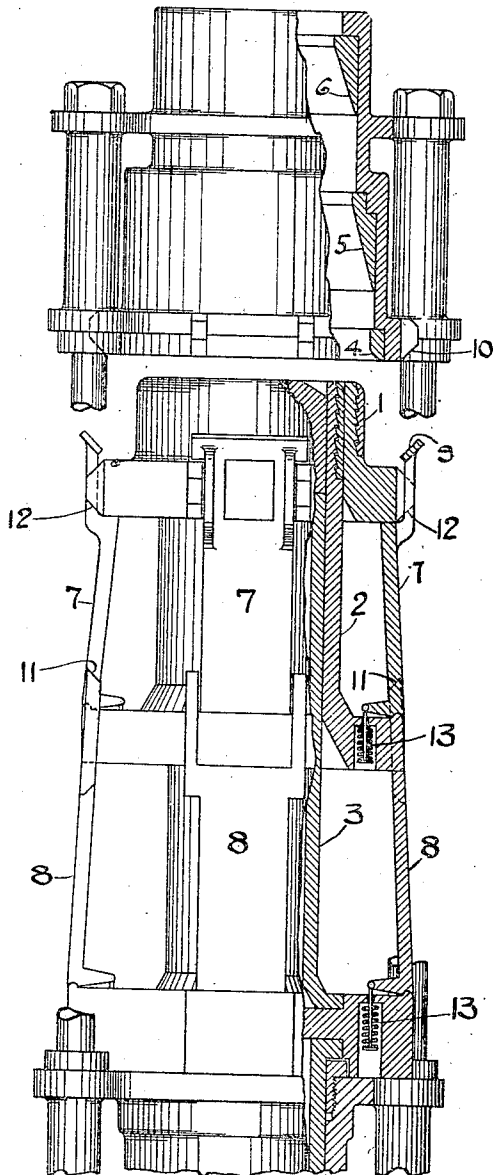
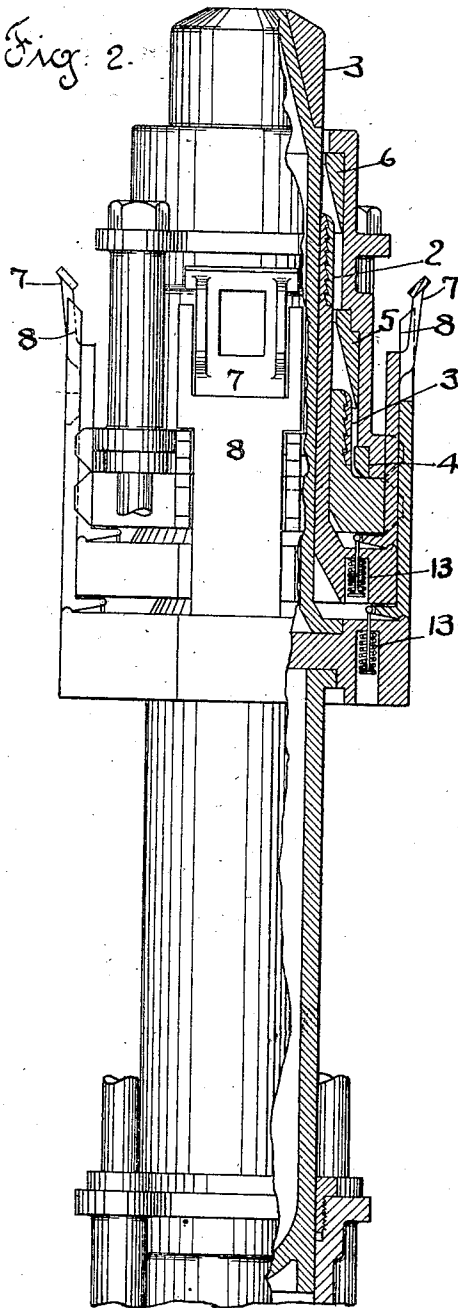


Fig. 2.



WITNESSES:

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CAMPBELL P. HIGGINS, OF ROSELLE, NEW JERSEY, ASSIGNOR TO THE BABCOCK & WILCOX COMPANY, OF BAYONNE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR FORMING SEAMLESS TUBES.

961,130.

Specification of Letters Patent. Patented June 14, 1910.

Application filed September 21, 1906. Serial No. 335,670.

To all whom it may concern:

Be it known that I, CAMPBELL P. HIGGINS, a citizen of the United States, residing at Roselle, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Machines for Forming Seamless Tubes, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a means of supporting the annular male dies in a multiple drawing press substantially of the type referred to in my application filed September 21, 1906, Serial Number 335,669.

In the accompanying drawing forming a part of this specification a machine is illustrated which includes a series of male and female dies and other parts that make up the machine in relative arrangement similar to the machine shown in my separate application referred to.

The present invention comprises means for controlling the operation of the successive male dies as hereinafter described and claimed.

In Figure 1, the machine is shown in the position to begin the drawing process on a plate which would be introduced into the space between the end of the male die 1 and the female die 4, as shown in Fig. 1. The dies 1 and 2 being supported on the pawls 7 and 8 are held in one plane at their upper or working ends with die 3 and all are compelled to advance together until the die 1 has passed through the die 4 and drawn the plate onto said die 1. After this first drawing has been accomplished the inclined face 9 on the pawl 7 engages with the projection 10 on the female die case and swings the said pawl 7 outward, thus depriving the die 1 of the support, and permits die 2 to advance after die 1 has been stopped by the lower edge of the female die case. Die 2 advances, carrying the piece which was drawn on die 1, through the female die 5, thus reducing

its diameter and lengthening its flange until the inclined upper end 11 of pawl 8 has come in contact with the projection 12 on the lower end of die 1, when pawl 8 is swung out diametrically, thus depriving the male die 2 of the support afforded by said pawl 8 and permitting die 3 to pass on after the base flange of die 2 has been stopped by the base flange of die 1, until the said die 3 has passed on up through the female die 6, thus drawing the piece being operated upon to the size established by dies 3 and 6. The pawls are brought into action and held by spiral springs 13 which are shown pocketed in the bases of the dies 2 and 3 so that said pawls return to their position automatically on the recovery to the original position of dies 1, 2 and 3.

Fig. 2 shows the relative position of the various parts after the operation described.

What I claim and desire to secure by Letters-Patent is:

1. A press of the class described, comprising a series of female dies, a series of telescoping male dies, means for successively advancing said male dies and for supporting them during their operation, and means for automatically releasing a given supporting means after the operation of the corresponding male die.

2. A press of the class described, comprising a series of female dies, a series of male dies, supporting pawls between said male dies and supporting each male die during its operation, and trips on the female die case and on the male dies for tripping said pawls after the operation of the corresponding male die.

In testimony whereof I affix my signature in presence of two witnesses.

CAMPBELL P. HIGGINS.

Witnesses:

AUGUSTE G. PRATT,
H. S. CHINNOCK, Jr.