

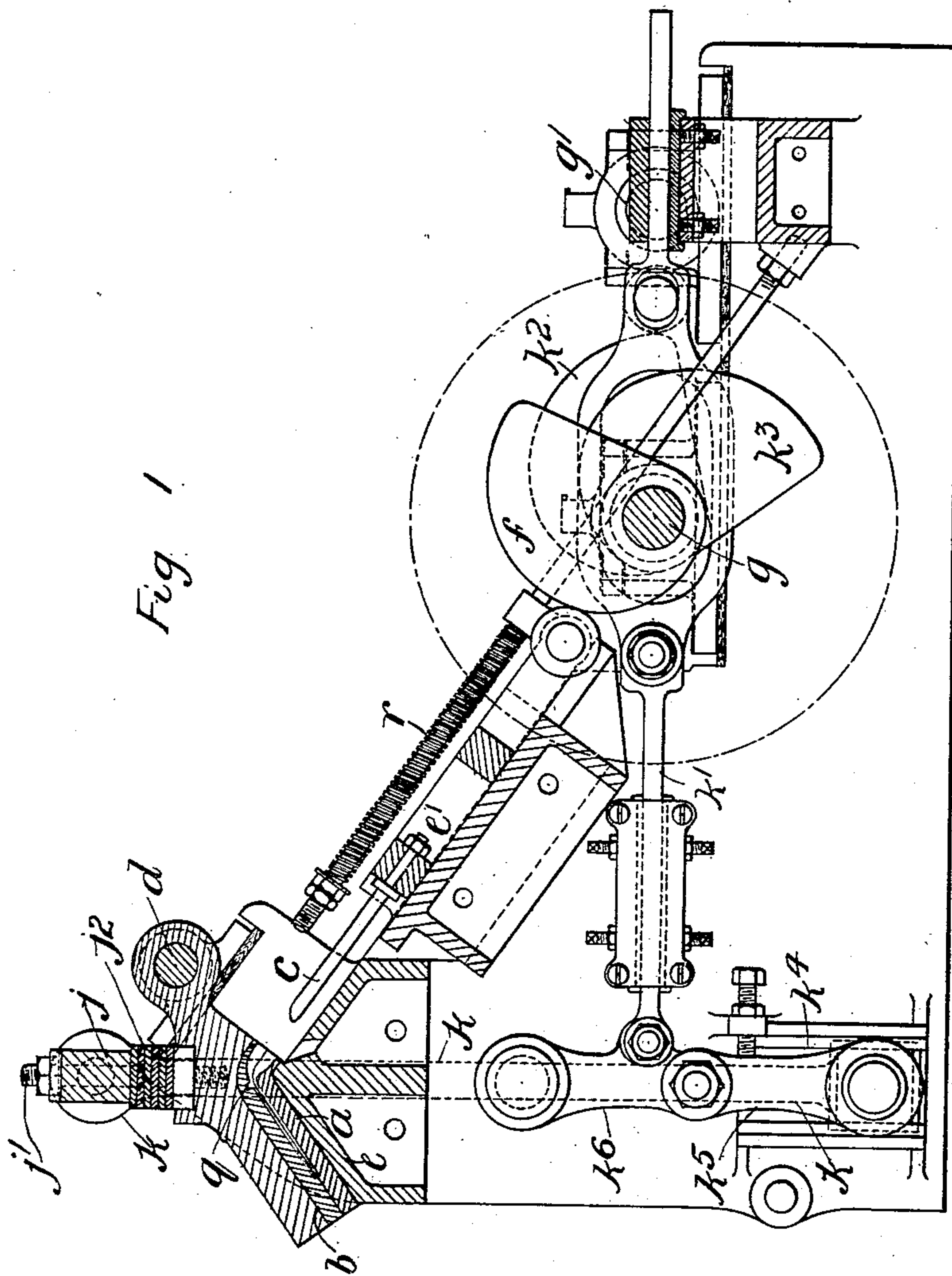
No. 733,529.

PATENTED JULY 14, 1903.

**T. D. YOUNG.**  
**PIPE MOLDING APPARATUS.**  
APPLICATION FILED JAN. 5, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses  
Mary E. L. Chandler  
 Ethel M. Colford.

Inventor  
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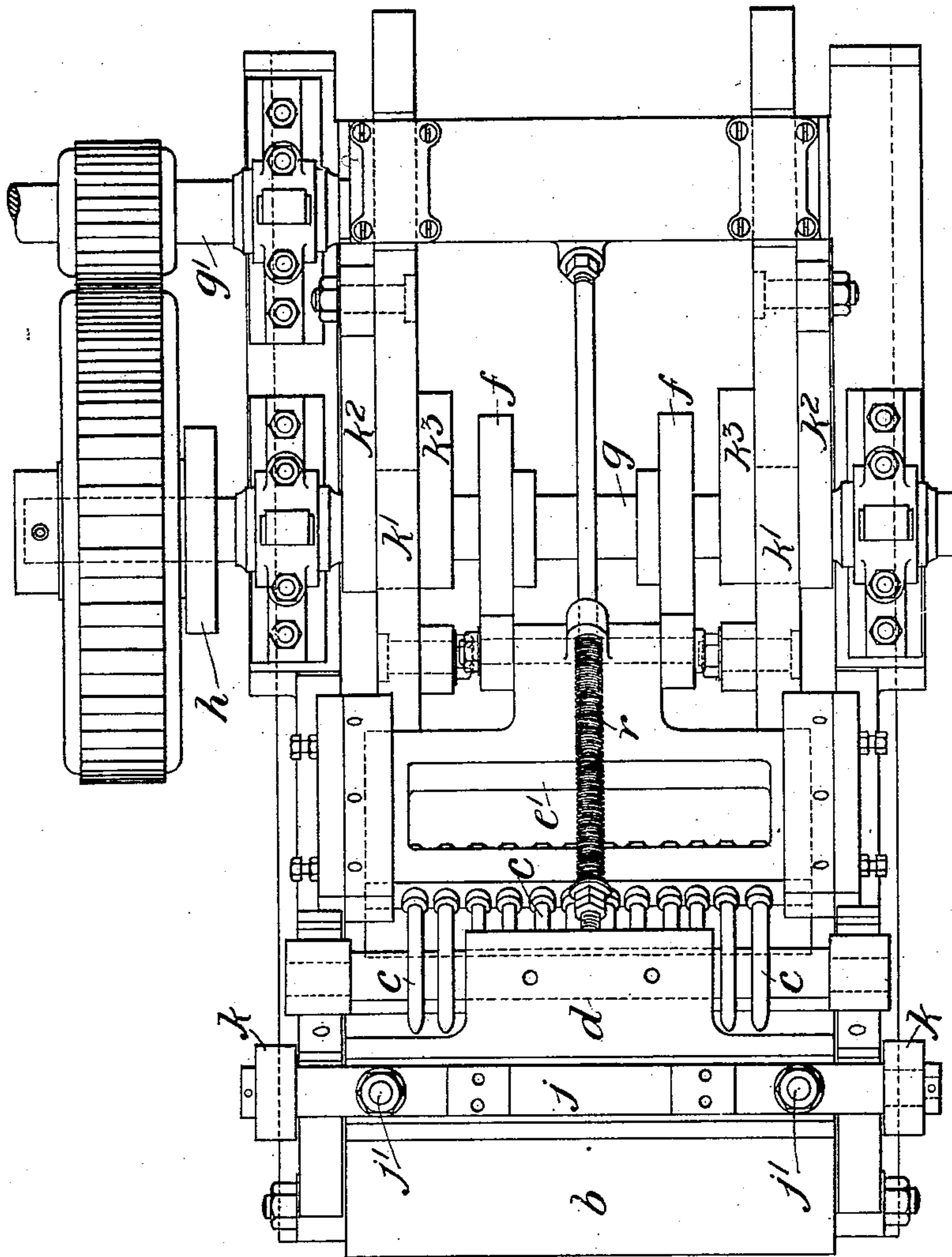
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 4.

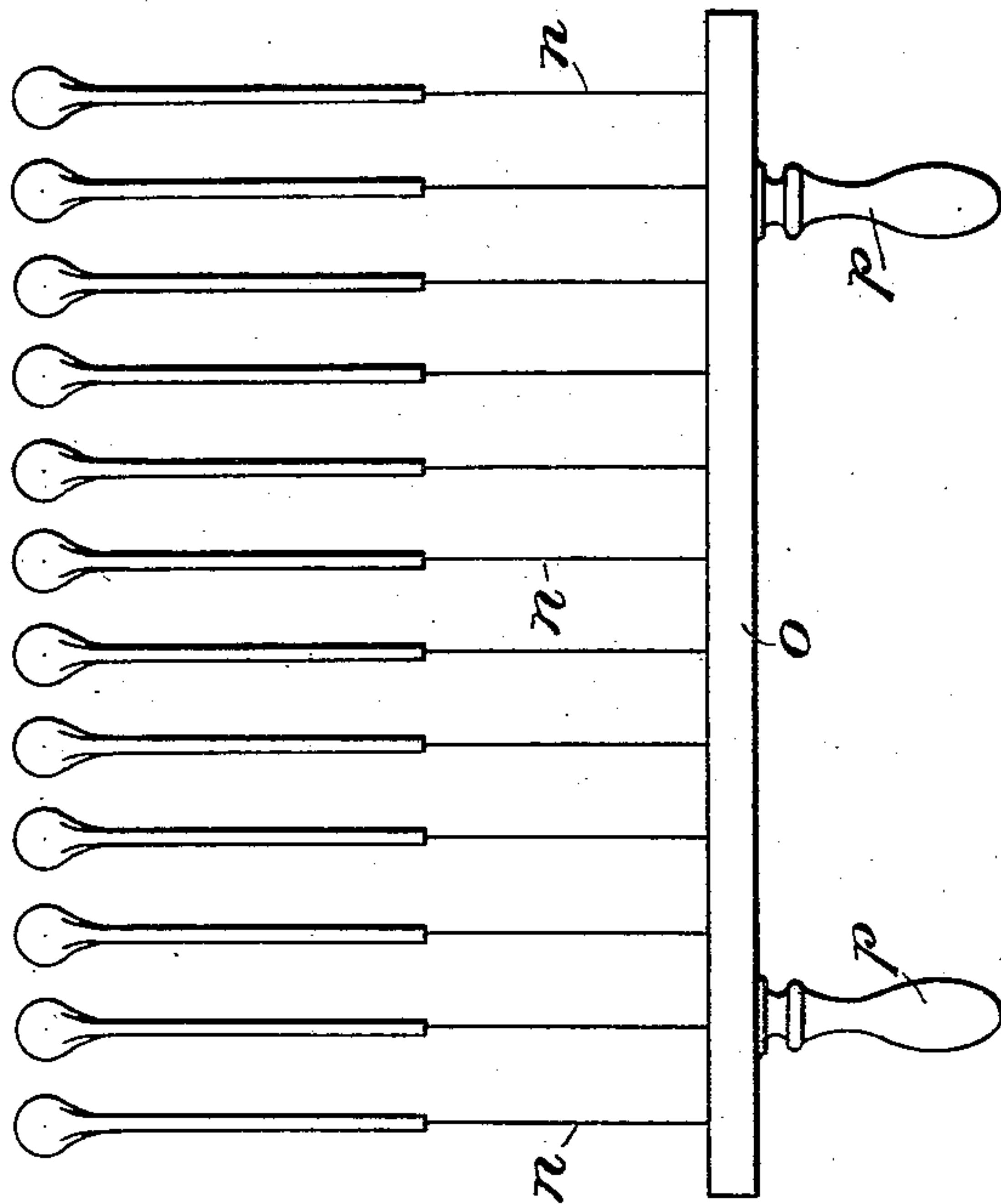
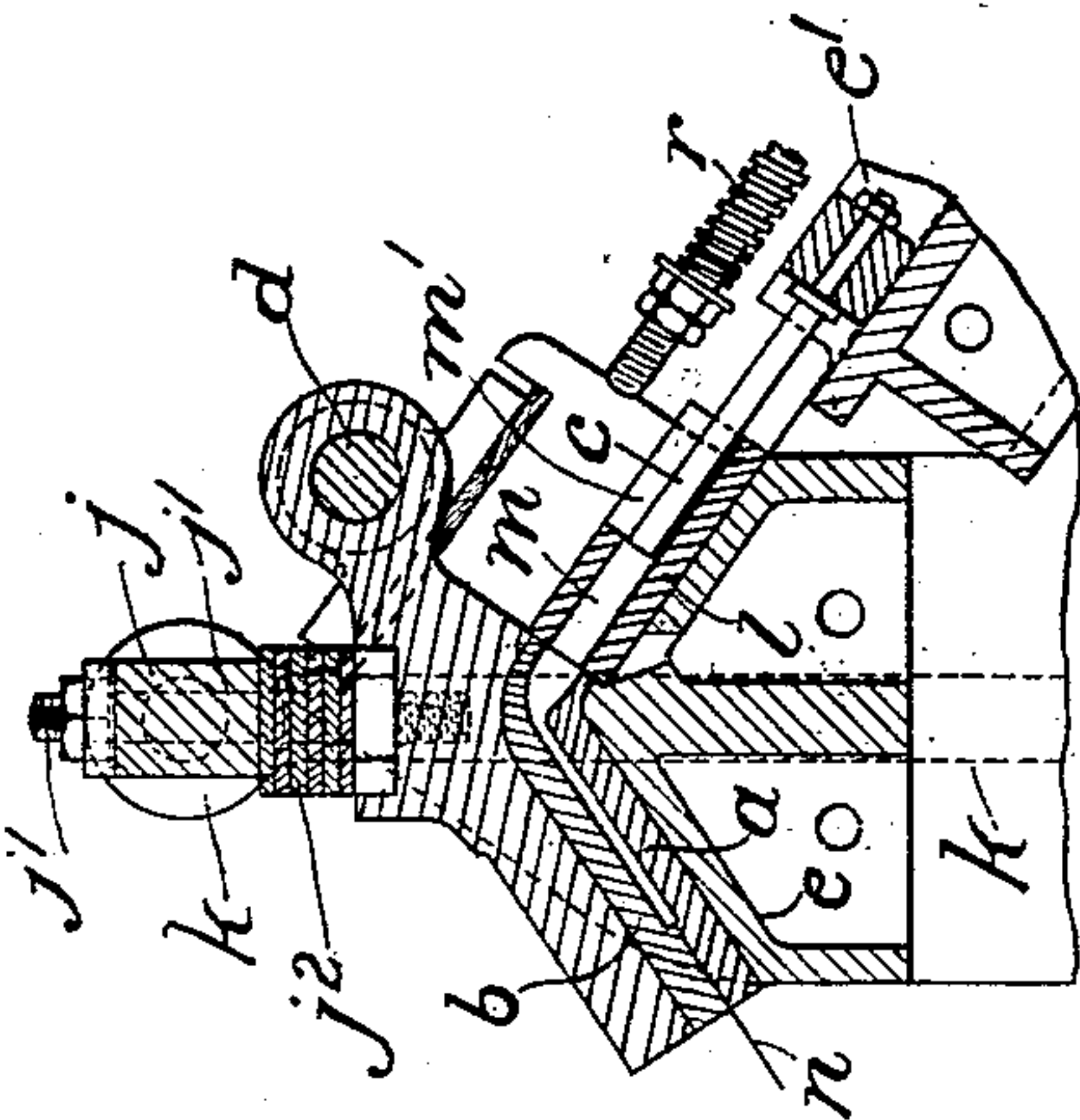


Fig. 3.



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# UNITED STATES PATENT OFFICE.

THOMAS DOW YOUNG, OF GLASGOW, SCOTLAND.

## PIPE-MOLDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 733,529, dated July 14, 1903.

Application filed January 5, 1903. Serial No. 137,874. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS DOW YOUNG, a subject of the King of the United Kingdom of Great Britain and Ireland, residing at Caledonian Tobacco Pipe Works, Millerfield road, Glasgow, Scotland, have invented certain new and useful Pipe-Molding Apparatus, (for which application for patent has been made in Great Britain, No. 12,911, dated June 6, 1902,) of which the following is a specification.

In machines for making tobacco-pipes from clay it has hitherto been the practice to so form the molds that the dividing-line of the halves of which it is made is along the top and bottom of the stem or shank and the front and rear parts of the bowl of the pipe, and as the rammer or plunger which is forced into the clay to form the bowl moves in a plane parallel with the division-line of the mold only a single pipe can be produced in each mold.

The object of my invention is to adapt the mold to produce a number of pipes by so constructing it that a plurality of rammers or plungers may operate on a corresponding number of rolls of clay.

In the accompanying drawings, which illustrate the invention, Figure 1 is a longitudinal vertical section, and Fig. 2 a plan, of the improved pipe-molding machine. Fig. 3 shows in vertical section a part of the machine employed for molding the roll; and Fig. 4 shows the wire frame used for transferring the molded clay to the pipe-molding machine, the wire being shown in Fig. 3 extending from the molded clay.

Under the invention the mold in both machines is divided to correspond with lines along each side of the stem and each side of the bowl, the lower or fixed part *a* of the mold or plate being made to contain one half of each of a number of pipes, which are preferably inverted, Figs. 1 and 3, the upper part *b* of which is hinged or otherwise connected thereto containing the other halves. The rammers or plungers *c* thus enter the mold approximately at right angles to the main dividing-line of the half-molds, though in line with the joint at the bowl portion of the pipe, and any number of pipes may be produced at one operation in a single mold having a plurality of matrices. The hinge or pivot *d*, upon

which the top part of the mold turns, is preferably forward of the bowl, so that it comes away freely from the molded pipes.

To avoid loss arising from wear and breakage, the mold instead of having formed on it a number of matrices may be composed of strong top and bottom plates or blocks fitted with detachable matrices.

The hinged mold-box *a b* is, as shown in Figs. 1 and 3, secured, preferably, at an inclination on a framing or table *e*, which carries the shafts and gearing for operating the rammers or plungers and other moving parts of the apparatus.

As shown in Fig. 1, the rammers are preferably fixed on a cross-head *e'*, reciprocated by cams *f* or by cranks or eccentrics on a shaft *g*, which is brought into gear with a main rotating shaft *g'* by a convenient clutching device, such as the clutch *h*, actuated by the attendant when the halves of the mold are open.

Closing pressure is applied during the ramming operation by a bar *j*, connected to studs *j'*, secured to the top of the mold and serving as guides when pressure is applied, while between the bar *j* and the mold are interposed springs *j''*. The bar *j* is operated by swinging levers *k* or by eccentrics or like devices, the swinging levers *k* being linked to the bar *j*, so as to open up the mold on moving back after applying the pressure. For this purpose the levers *k* are fitted with rectangular guiding-blocks, so as to engage guiding-bars *k'*, in which they are reciprocated by the action of the jointed levers *k<sup>5</sup> k<sup>6</sup>*, actuated by the rods *k'*, which are in turn reciprocated by the action of the cams *k<sup>2</sup> k<sup>3</sup>* on the shaft *g*.

It will be seen that two machines are employed, both of which may be identical, except in so far as concerns the arrangement of the rammers and the variations between the form of the matrices in the upper parts *b* of the roll and pipe-molds.

The molded clay instead of being prepared and wired by hand in the usual way is prepared, by means of the machine illustrated in part in Fig. 3, in a separate mold having a number of roll-molding matrices to agree with those in the pipe-mold. (Shown in Fig. 1.) The roll-mold has jointed to it a block *l*, having throughway-passages *m*, through which



the previously-cut plugs of clay dropped through slots *m'* in the block *l* are forced by the rams *c* into the matrices or molding-spaces of the roll-mold *a b*, in each of which a wire is  
 5 secured. The wires *n* extend out of the roll-mold and are operated by a stock *o*, provided with a handle or handles *p*, Fig. 4, on which the said wires are centered, so as to lie parallel and in the same plane, and by means of  
 10 which when the roll-mold is opened up the series of molded rolls on their respective wires may be lifted out and transferred direct into the pipe-mold.

The pipes are perfected in the pipe-mold  
 15 by the rammers *c*, whose ends are suitably formed, entering the bowl part of the rolls and forming thereby a recessed bowl in the pipes, while also forcing the clay into the recess *q* in the pipe-mold, so as to form a pap-like projection beneath the bowl of the pipe. The  
 20 rammers and cross-head after completion of their forward stroke are brought back to their normal position by the spring *r*. The pipe-mold may then be opened, the pipes simultaneously removed, and the wires then with-  
 25 drawn, so as to leave perfected pipes.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

30 1. Pipe-molding apparatus comprising the combination with a mold formed of two hinged segments as described, and having a plurality of matrices formed therein, divided to correspond with line along each side of the bowl  
 35 and stem, of rammers for pressing the clay in the mold, means for actuating said rammers and means for closing together and separating the hinged segments of the mold, as and for the purpose set forth.

40 2. In pipe-molding apparatus the combination with a mold formed of two hinged segments as shown and having a plurality of matrices divided to correspond with lines along each side of the bowl and stem, of  
 45 rammers for pressing the clay into the mold, a block connected with the mold, and having throughway-passages and slots in alignment therewith, into which the clay is dropped, means for actuating the rammers to force  
 50 clay into the mold and means for closing together and separating the segments of the mold substantially as described.

3. In pipe-molding apparatus the combina-

tion with a mold formed of two hinged segments as shown and having a plurality of  
 55 matrices divided to correspond with lines along each side of the bowl and stem, of rammers pressed into the molded clay to form the bowl, means for closing together and  
 60 separating the hinged segments of the mold and means for removing the pipes as and for the purpose set forth.

4. Pipe-molding apparatus comprising the combination with a mold formed of two hinged  
 65 segments as shown and having a plurality of matrices divided to correspond with lines along each side of the bowl and stem, of rammers for pressing the clay into the mold, means for actuating said rammers, means for  
 70 closing together and separating the hinged segments of the molds, and a wire frame for removing the molded articles from the mold and for forming the bore in the pipe-stem, substantially as described.

5. Pipe-molding apparatus comprising the  
 75 combination with a mold formed of two hinged segments as shown and having a plurality of matrices divided to correspond with lines along each side of the bowl and stem, of rammers for pressing the clay into the mold, a  
 80 cross-head carrying the rammers, a cam actuating said cross-head, a bar connected to the upper segment of the mold, swinging levers acting on said bar to close and open  
 85 the mold and means for actuating said swinging levers substantially as described.

6. As means for removing the molded articles from the molds described a stock having  
 90 attached thereto a plurality of wires entering the stem portion of the molds, and a handle for conveying the device from the roll-mold to the pipe-mold and from the pipe-mold substantially as described.

7. In pipe-molding apparatus a mold formed of two hinged segments as shown and hav-  
 95 ing a plurality of matrices divided to correspond with lines along each side of the bowl and stem for the purpose of simultaneously molding a number of pipes.

In witness whereof I have hereunto set my  
 100 hand in presence of two witnesses.

THOMAS DOW YOUNG.

Witnesses:

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 JNO. ARMSTRONG, Jr.