(No Model.) 2 Sheets—Sheet 1.

M. F. BINGHAM.

APPARATUS FOR CASTING PRINTERS' ROLLERS.

No. 448,629. Patented Mar. 24, 1891.

Fig. 1.

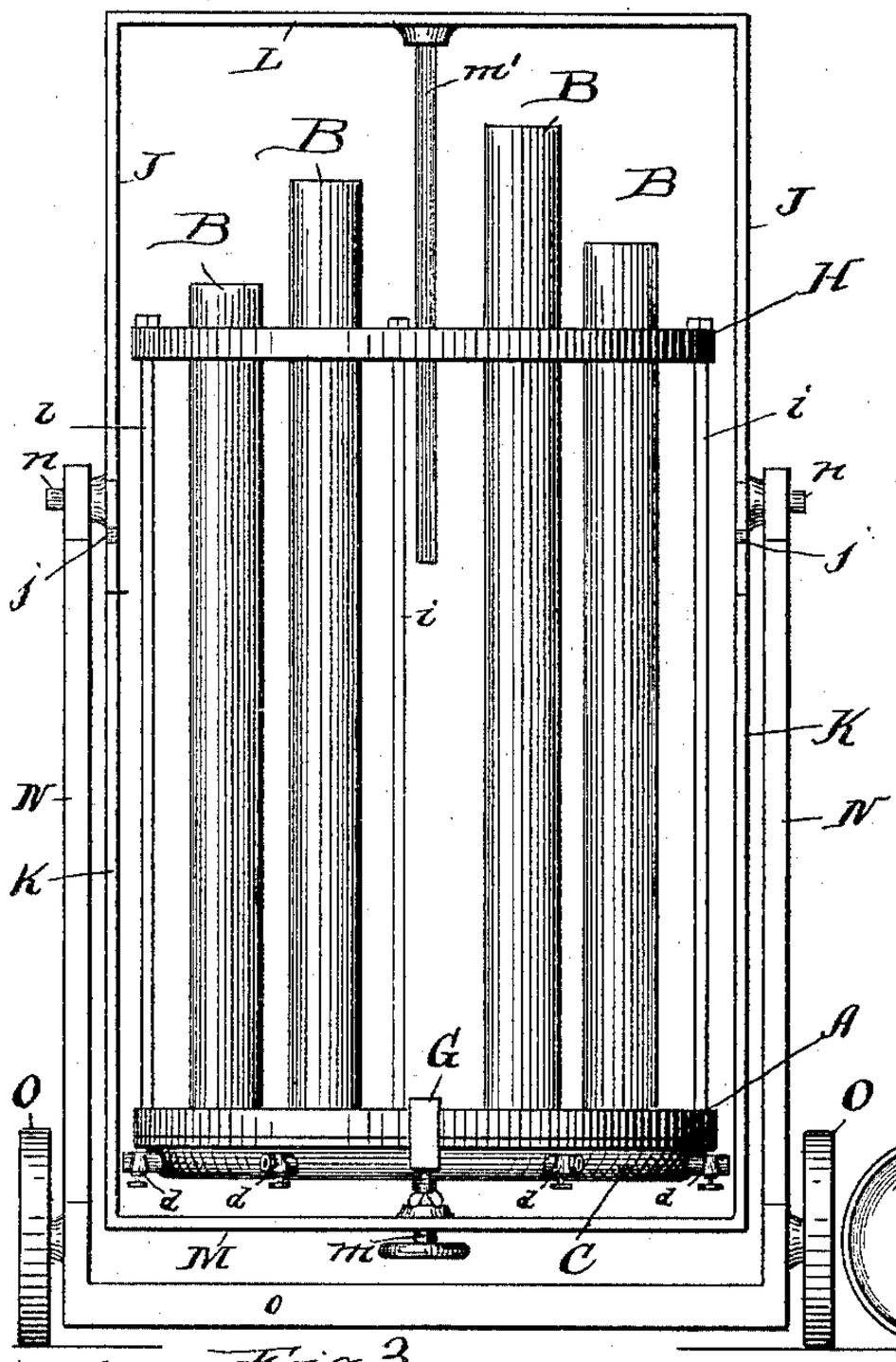


Fig. 2.

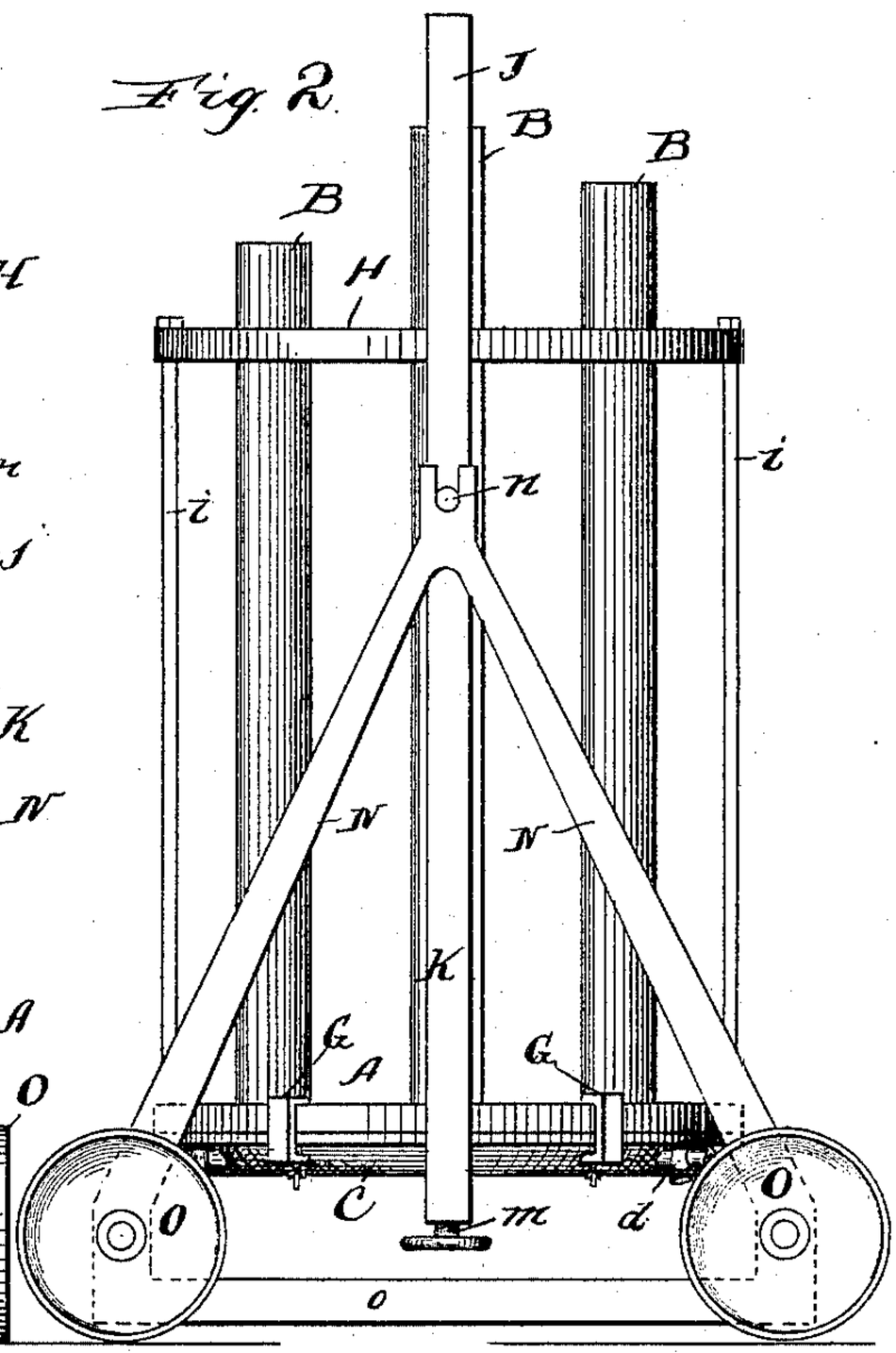


Fig. 3.

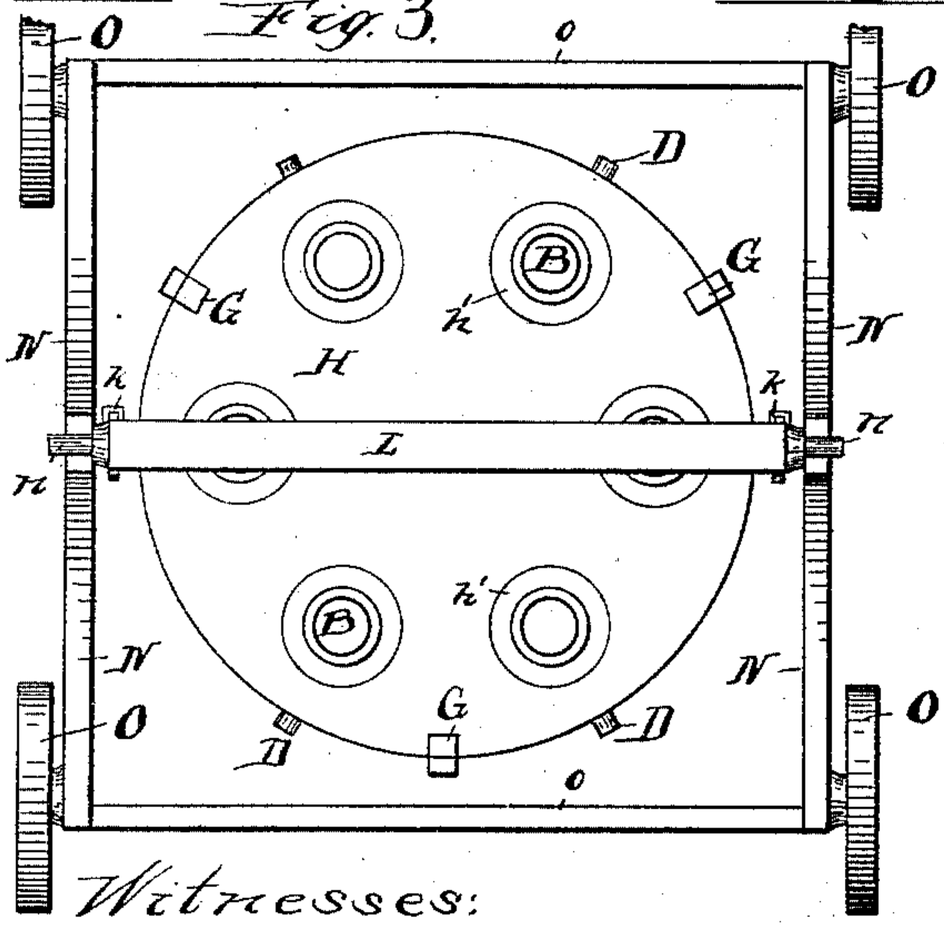
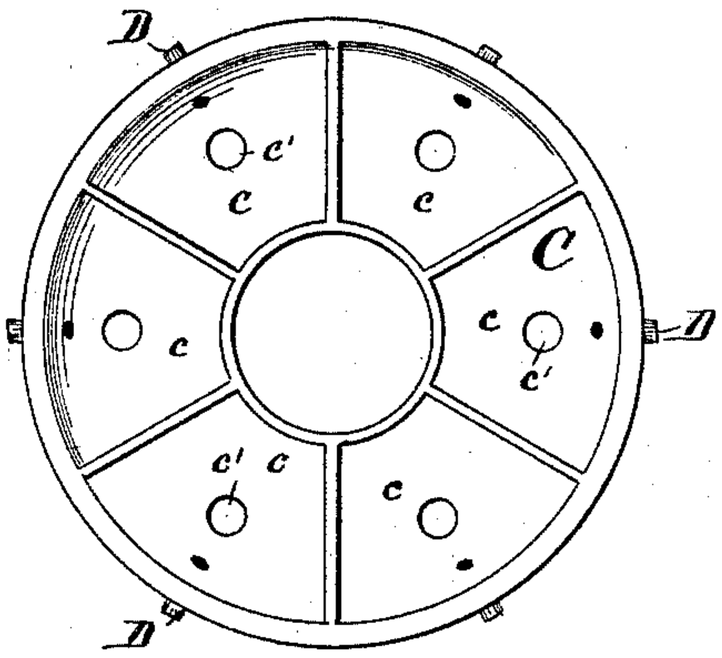


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

M. F. BINGHAM.

APPARATUS FOR CASTING PRINTERS' ROLLERS.

No. 448,629. Patented Mar. 24, 1891.

Fig. 4.

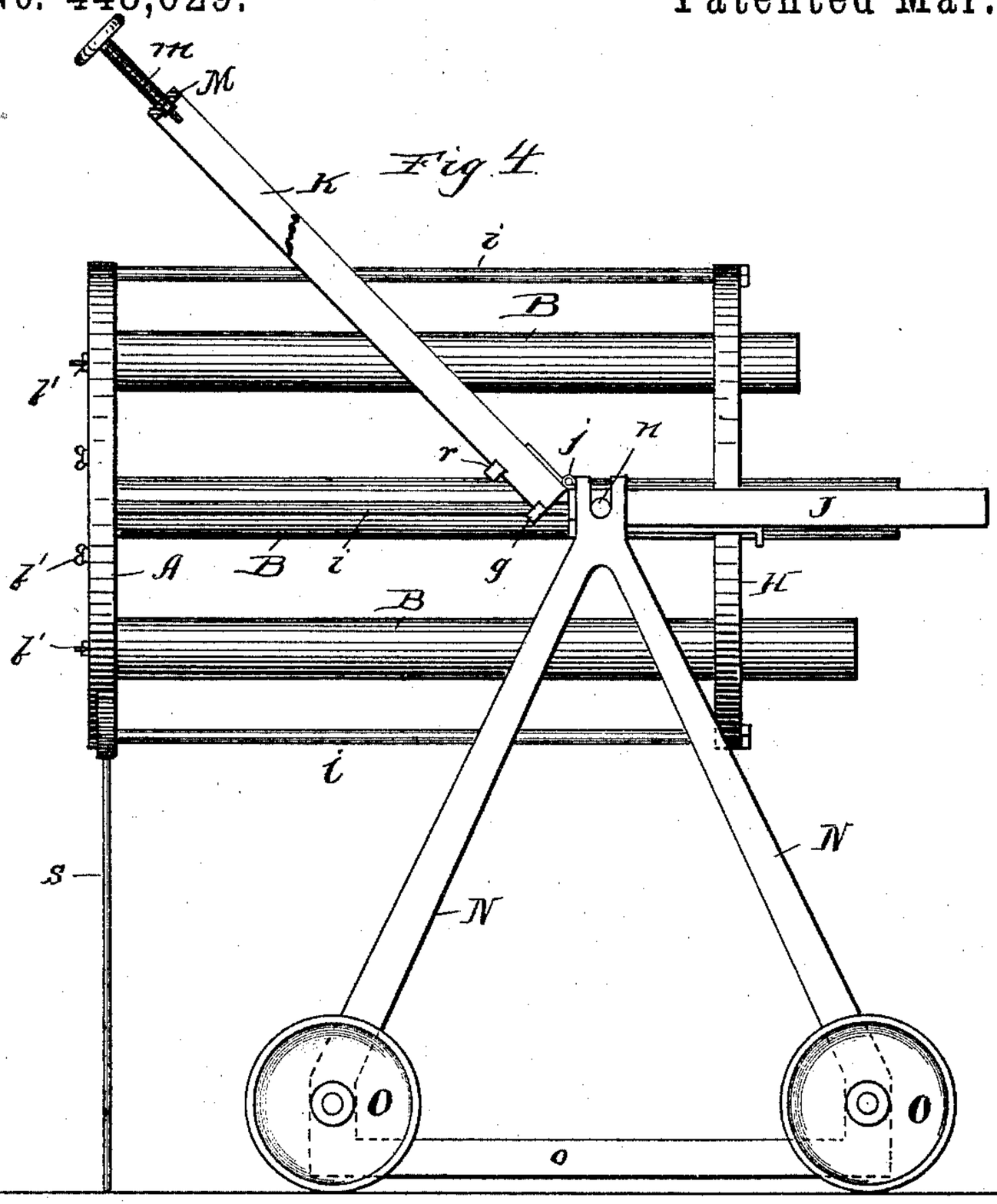


Fig. 6.

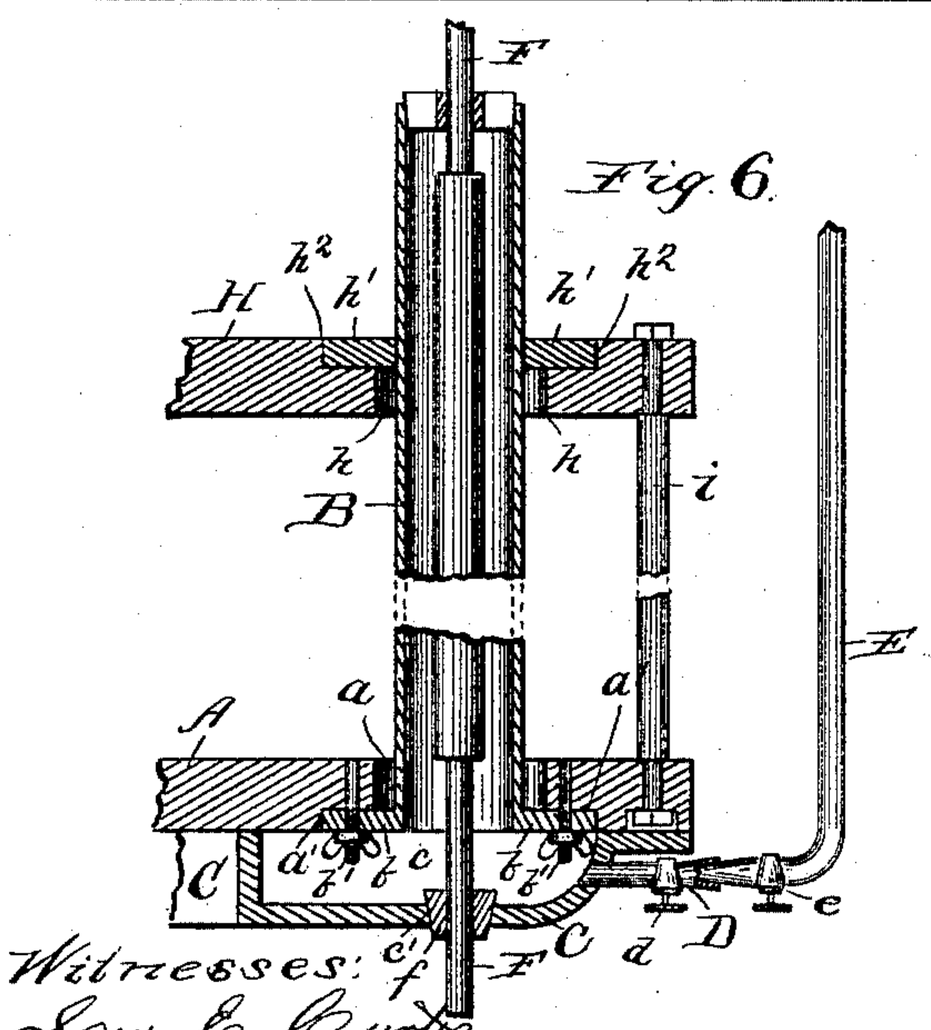


Fig. 7.

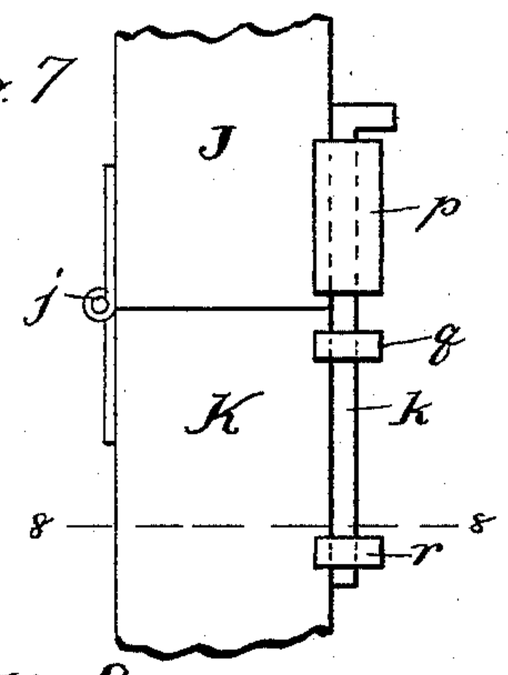
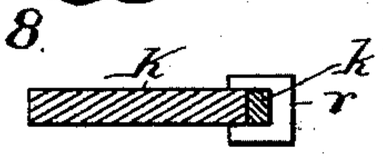


Fig. 8.



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UNITED STATES PATENT OFFICE.

MILLARD F. BINGHAM, OF CHICAGO, ILLINOIS.

APPARATUS FOR CASTING PRINTERS' ROLLERS.

SPECIFICATION forming part of Letters Patent No. 448,629, dated March 24, 1891.

Application filed February 11, 1890. Serial No. 339,970. (No model.)

To all whom it may concern:

Be it known that I, MILLARD F. BINGHAM, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Casting Printers' Rollers, of which the following is a specification.

This invention relates to certain improvements in apparatus for making printers' rollers, whereby the apparatus is simplified and cheapened and rendered capable of use in the casting of various-sized rollers, and the casting of each roller is rendered an independent operation perfectly under the control of the attendant.

The apparatus consists of the parts and combinations of parts herein fully described.

In the drawings, Figure 1 is a front elevation, and Fig. 2 a side elevation, of the apparatus. Fig. 3 is a plan. Fig. 4 is a side elevation showing the apparatus in position for the insertion of the molds or roller-stocks. Fig. 5 is a plan of the supplemental bottom, through the passages of which the molds are filled with the composition. Fig. 6 is an enlarged partial section through one of the molds. Figs. 7 and 8 are details of the joint in the side standards or supports.

In the drawings, A represents a mold-supporting plate provided with a series of openings *a*, which are sufficiently large to receive the largest molds commonly used. Surrounding each opening *a* upon the under side of the plate is the annular offset *a'*, which is adapted to receive an outstanding flange with which the bottoms of the molds are provided. The molds are indicated at B, and the flanges referred to are shown at *b*. It is intended that these flanges shall be of uniform size, whatever may be the size of the molds to which they are attached, and that the offsets *a'* shall agree in size with the flanges. The molds are removably secured to the plate A by screws and thumb-nuts, as shown at *b'*. The plate A is intended to support any convenient number of molds, and I place below it a supplemental bottom or plate C, which is provided with channels or open spaces *c*, through which the composition may be forced into the bottom of the molds. These spaces or channels are each provided with a nozzle D, having a valve *d* and adapted to receive the end of the composition-supply pipe E. Through the supply-pipe the composition may be forced in either by gravity or artificial pressure in any of the ordinary ways of casting these rollers. The plate C is provided with a series of tapering openings *c'*, adapted to receive the spindles F of the roller-stocks and the bushings *f*, said bushings being calculated to make a tight joint at the openings *c'*. A valve *e* should be inserted in the pipe E, so that the flow of composition may be stopped whenever the pipe E is to be disconnected from any of the nozzles D. The plate C is supported from plate A by means of clips G.

The upper portion of the casting apparatus is made as open and light as possible and may be said to consist simply of a skeleton frame-work. Its main function is the holding of the upper ends of the molds in proper alignment with the supporting-plate, and I find that a head H, having openings *h* to receive the molds and united to the plate A by rods *i*, answers this purpose very well. The openings in the head H are, like those in the supporting-plate, large enough to admit the largest molds, and the molds are centered therein by means of removable bushings *h'*, such bushings fitting the annular recesses or offsets h^2 surrounding the openings in the head. To permit the use of short molds for short rollers, I position the head H at such a remove from the plate A as will bring the top of the shortest molds a short distance above the head, so that I am enabled not only to cast rollers of varying diameters, but also of varying lengths, and as each mold is provided with a separate valve for shutting off the flow of the composition I avoid admitting to any mold any excess of the fluid material.

The parts I have thus far described are adapted to hold the molds during the casting operation; but it is desirable that the molds be permitted a tipping movement, so that they may be brought to a horizontal position for convenience in oiling, inserting or removing the stocks, and to facilitate the changing of the molds themselves. Hence I surround them by a frame composed of side pieces J K, top piece L, and bottom piece M, the bot-

tom piece M carrying a set-screw adapted to be forced against the center of the bottom surface of plate A (or C) and to serve as a means upon which the parts may be sustained, and the top bar L carrying a pivot m', which passes down and through the center of head H. In this manner the apparatus is sustained in the frame; but said side pieces are provided with trunnions n upon standards N, and through these trunnions the apparatus is permitted the tipping movement referred to and which is particularly illustrated at Fig. 4. The standards N are preferably mounted upon a carriage consisting of rollers O and a suitable frame o, so that the apparatus may be conveniently moved from place to place.

When the apparatus is tipped, as in Fig. 4, liberty to remove the plate C and perform the other operations referred to is obtained by means of a hinged joint between the parts J and K of the swinging frame. This joint is particularly illustrated at Figs. 4, 7, and 8. It consists of a hinge j, secured at one side of said side pieces, and a releasable bolt k at the other side thereof, said bolt being provided with a keeper p upon the part J and with staples q and r upon the part K. It will be noticed that by withdrawing the bolt from the staples the lower part of the frame embracing the parts K and M may be raised out of the way, as in Fig. 4, the pivot m being withdrawn from its engagement with the bottom plate. When the apparatus is tipped to the horizontal position, a temporary support s may be inserted under the bottom plate, as shown.

It will be noticed that when the apparatus is in the vertical position the molds may be rotated upon the pivots m and m', so that the molds may be brought successively to the point where they can be conveniently connected to the supply-pipe E. The entire apparatus may be heated by placing it in an oven or heated chamber, and may be cooled after the molds have been filled by placing it in a cooling-chamber, and being readily movable these operations are rendered very convenient and easy; or, instead of heating and cooling by placing the apparatus in hot and cold chambers, it may be done by immersion in hot and cold water.

I claim—

1. The roller-casting apparatus adapted to be heated in hot chambers or by immersion in hot water, consisting of a series of molds, an apertured plate for supporting the molds, suitable skeleton frame-work for holding the upper ends of the molds in position, and a supplemental bottom plate through which the molds may be filled, in combination with pivots upon which the apparatus may be rotated, and trunnioned supports permitting its being tipped.

2. In a roller-casting apparatus, a mold-supporting plate and a mold-positioning head, both adapted to receive molds of various sizes, substantially as set forth.

3. The combination, with the casting apparatus, of the surrounding vertical frame having pivots m m', and trunnion-supports for said frame, substantially as set forth.

4. The combination, with the casting apparatus, of the surrounding frame having pivots m and m', and the supports upon which said frame is mounted, said frame having one part hinged to the other part and one of said pivots being movable, substantially as set forth.

5. The roller-casting apparatus adapted to be heated in hot chambers or by immersion in hot water, consisting of a series of molds, an apertured plate for supporting the molds, suitable skeleton frame-work for holding the upper ends of the molds in position, and a supplemental bottom plate through which the molds may be filled, in combination with trunnioned supports upon which the apparatus may be tipped, substantially as set forth.

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