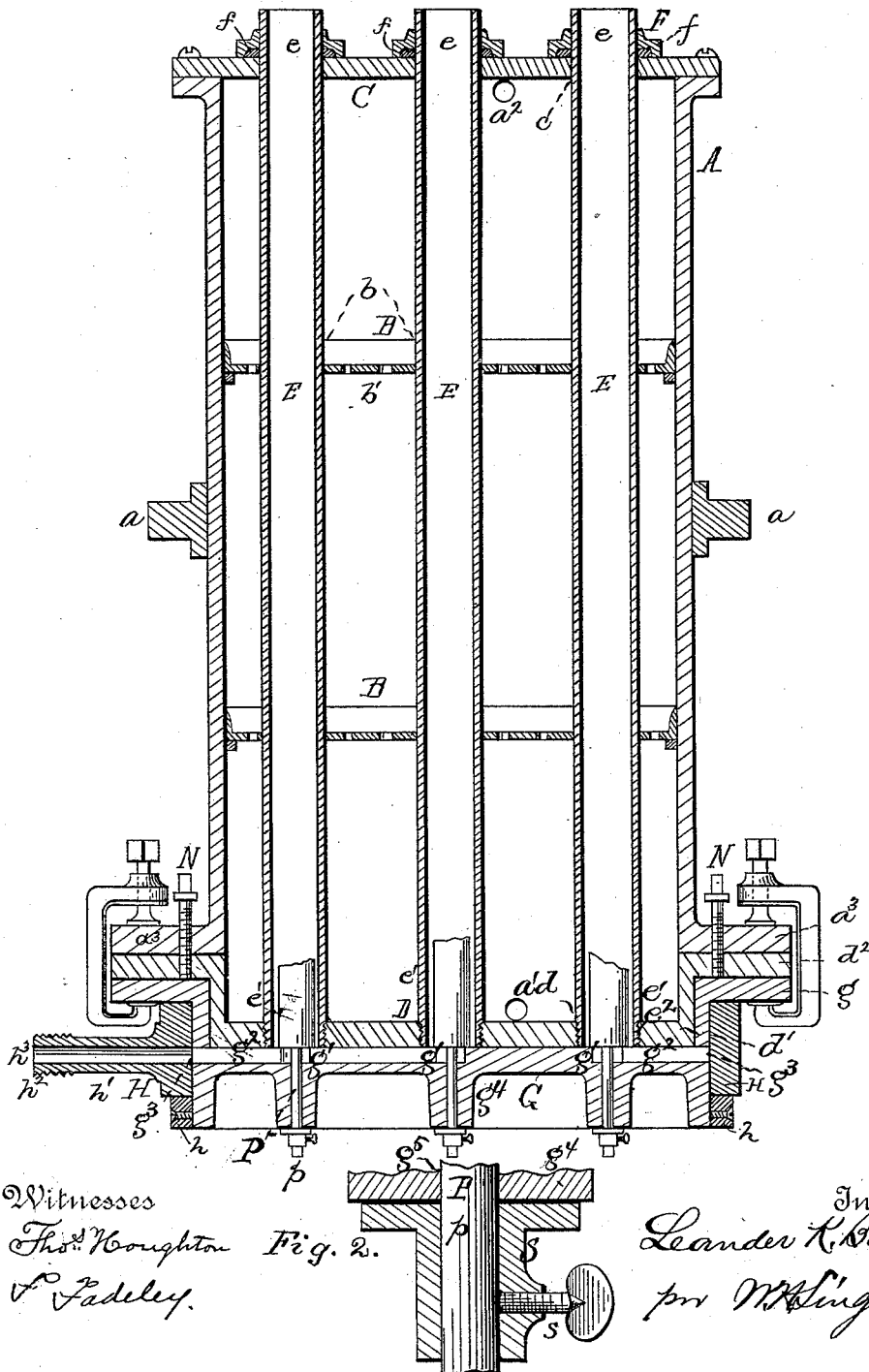


L. K. BINGHAM.
APPARATUS FOR MAKING PRINTERS' ROLLERS.

No. 419,913.

Patented Jan. 21, 1890.

Fig. 1



Witnesses

Thos. Wroughton Fig. 2.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

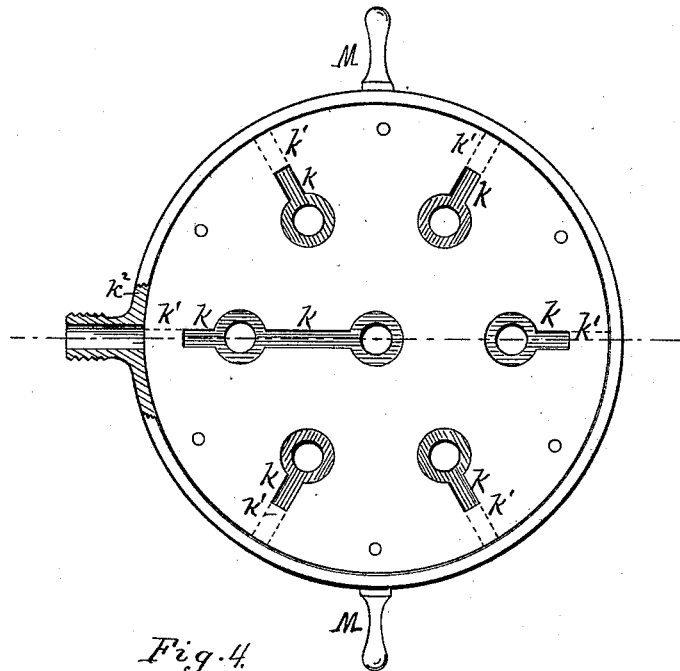
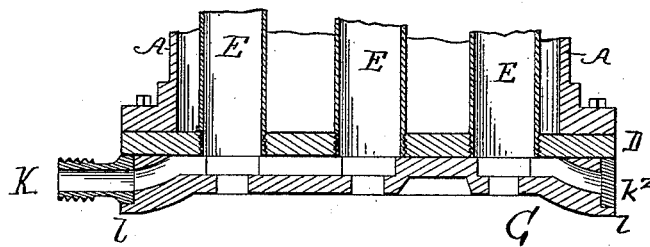


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

LEANDER K. BINGHAM, OF NEW YORK, N. Y.

APPARATUS FOR MAKING PRINTERS' ROLLERS.

SPECIFICATION forming part of Letters Patent No. 419,913, dated January 21, 1890.

Application filed February 15, 1889. Serial No. 299,950. (No model.)

To all whom it may concern:

Be it known that I, LEANDER K. BINGHAM, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Making Printers' Rollers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a vertical diametric section of the apparatus containing one form of the invention. Fig. 2 is an enlarged detail of the clamp. Fig. 3 is a top view of a modified form of bottom or base-plate. Fig. 4 is a diametric section of said plate and part of the cylinder.

This invention relates to improvements in apparatus for making printers' rollers, and has for its object the production of an apparatus which can be speedily and easily operated, as will be hereinafter pointed out; and the invention consists in the details of construction hereinafter set forth.

In the annexed drawings, the letter A indicates a cylinder or case having within it the diaphragms B, provided with large holes b and perforations b' , these diaphragms being thus foraminous. The holes b are of the same size and aligned with the holes c and d in the heads C and D, the mold-tubes E being placed in said holes c , b , and d . At the top the projections e of the mold-tubes have a steam and water tight joint made by the packing f and shouldered ring F. The holes d in the head D are threaded, and to correspond therewith the lower ends e' of the mold-tubes have the exterior threads e^2 . The cylinder A has the trunnions a , whereby it is to be supported in suitable bearings, so as to be oscillated, and it has the inlet a' and overflow a^2 for steam and water.

The bottom head D is dropped, as at d' , and has the circumferential flange d^2 , by which it is secured to the corresponding flange a^3 of the cylinder A. The base-plate or supplemental bottom G is made cup-shaped, so as to fit the bottom of the head D. This bottom G

has also a circumferential flange g , by which it is secured to the cylinder either by clamps, as shown, or otherwise. In the top of this bottom G is made a number of recesses g' , depending in number upon the number of mold-tubes E. From each recess a channel g^2 runs out to the edge of the bottom, having an opening g^3 . The central recess is connected with one of the others by a channel. If there are several circles of recesses, these within are connected to those without by channels, thus radiating to the edge of the bottom. Surrounding this supplemental bottom G, and secured thereto by the annulus h , which is fastened to the bottom G, is a traveling ring or slide H, provided with a nozzle h' , having the threaded end h^2 . The location of this ring is such that the bore h^3 of the nozzle is in the plane of the channels g^2 , as shown in Fig. 1. To give the requisite depth to the bottom G, it may be made hollowed underneath, having the projections g^4 , in which are the holes g^5 for the ends of the roller-stocks.

In Figs. 3 and 4 is shown a modification. Here the base-plate D is flat on the bottom and the supplemental bottom G is flat on top. The channels h dip at their outer ends, having the closed tops h' . This is done to allow them to communicate with the bore of the nozzle K. The ring k^2 , having the nozzle, is held in place by an annular flange l on the bottom G.

Handles MM may be made to the traveling rings to facilitate turning them.

In Fig. 1 are shown jacks N N, which pass through the flanges a^3 and d^2 and rest against the flange g of the supplemental bottom. When the bottom is to be removed, these jacks are turned downward, and, bearing against the flange g , forces the bottom off, thus overcoming the tendency of the composition or atmospheric pressure to hold the supplemental bottom on.

To the protruding ends p of the roller-stocks P are secured by screws or otherwise the clamps S. When the supplemental bottom G is removed, being thus connected to the rollers, the weight of this bottom assists in drawing the rollers from the molds.

In an apparatus thus constructed the roller-molds are held securely in the lower head

with a steam and water tight joint, and with a similar joint at the top and with full allowance for expansion and contraction, the upper ends of the mold-tubes not being secured, but being loose in the smooth holes of the upper head.

When the apparatus is to be used, the roller-stocks are put into the molds, their lower ends protruding through the supplemental bottom, and the clamps *s* are secured to such ends. The nozzle is secured to a suitable supply-pipe and the traveling ring is turned until the bore of the nozzle registers with the opening of one of the channels. Steam is admitted through the inlet *a'*, thoroughly heating up the entire apparatus, when the steam is cut off and that within the apparatus let out through the overflow *a*². Composition is then admitted into the channel and rises up into the mold tube or tubes connected therewith. As soon as they are filled the ring is turned, closing the channel and preventing the composition from running out. The nozzle is turned to another channel, composition is admitted, mold-tubes fitted, the ring turned, and so on for all the channels and molds. Any mold may be left unfilled by not turning the nozzle to the channel for that mold. After the molds are filled water is admitted through the inlet *a'* and allowed to flow out through the overflow *a*², thus keeping up a current of water through the apparatus, which quickly cools the composition and sets it. After the roller is made the clamps are released; the jacks operated, and the supplemental bottom removed, drawing with it the finished rollers.

I am aware of United States Patent No. 41,545, where is shown a boiler, the tubes of which are held by screw-threads at one end and are loose at the other. In the present device there are combined with the mold-tubes the foraminous diaphragms, which prevent the mold-tubes from buckling. The mold-tubes being thus held rigidly in a straight position, they have the due longitudinal movement at their loose ends without any liability of binding thereat.

In the present case I have illustrated the broad invention of an apparatus having the ring with a nozzle as applied to a group of mold-tubes. This broad invention is also applicable to single molds, and I have made an application of even date herewith, Serial No. 290,915, wherein the broad invention is displayed, but only a specific form claimed.

In another application of even date herewith, Serial No. 299,949, I have shown and described an apparatus having mold-tubes held fast at one end and loose at the other. In such device the fast ends of the mold-tubes are threaded into threaded glands, which are fastened in the lower head of the cylinder or receptacle. In the present device the lower head has holes the sides of which are threaded, and no ancillary device is used to hold the mold-tubes in the head, the lower

ends of the mold-tubes being simply screwed into the head itself.

Having described my invention, what I claim is—

1. In a molding apparatus, the combination of a group of mold-tubes opening at their lower ends into passages which extend to the side of the apparatus, and the ring or slide, whereby the composition-pipe may be connected with said passages one at a time, the remaining passage or passages being closed by the slide, as and for the purpose described.

2. A molding apparatus provided at its bottom with an inlet communicating with the lower end of the mold and having a ring or slide provided with a nozzle, whereby the composition may be admitted into the inlet or the latter may be closed, as desired.

3. The combination of the cylinder containing rows of mold-tubes, and the bottom provided with the grooves corresponding in number and position to the rows of mold-tubes in the cylinder and with the perforated slide, to which is attached the pipe that conveys the composition from the reservoir, as set forth.

4. In an apparatus for making printers' rollers, the bottom provided with a series of grooves and openings connected with said grooves, in combination with the slide, to which is attached the composition-pipe, as set forth.

5. An apparatus for making printers' rollers, consisting of a cylinder containing a number of mold-tubes and provided at the bottom with a channel for each tube, and a ring surrounding the apparatus at these channels and having a nozzle, as set forth.

6. The combination of the cylinder provided with the heads having the holes, the mold-tubes resting in said holes, the supplemental bottom having the recesses at the bottoms of the mold-tubes, and the channels leading from these recesses to the edge of the bottom, with a traveling ring secured around the said bottom and having a nozzle, as set forth.

7. The combination of the cylinder and the supplemental bottom with the jacks, as set forth.

8. The combination of the mold-tubes, the roller-stocks, and the supplemental bottom, the ends of the stocks protruding below the bottom, with the clamps secured to such protruding end, as set forth.

9. An apparatus for making printers' rollers, such as described, having at its bottom a channel leading to each mold-tube, and a ring provided with a nozzle, as set forth.

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

LEANDER K. BINGHAM.

Witnesses:

THOS. HOUGHTON,
M. DARIAN.