2 Sheets—Sheet 1.

C. B. COTTRELL.

INKING APPARATUS FOR PRINTING-PRESSES.

No. 172,975. Patented Feb. 1, 1876.

Fig. 1.

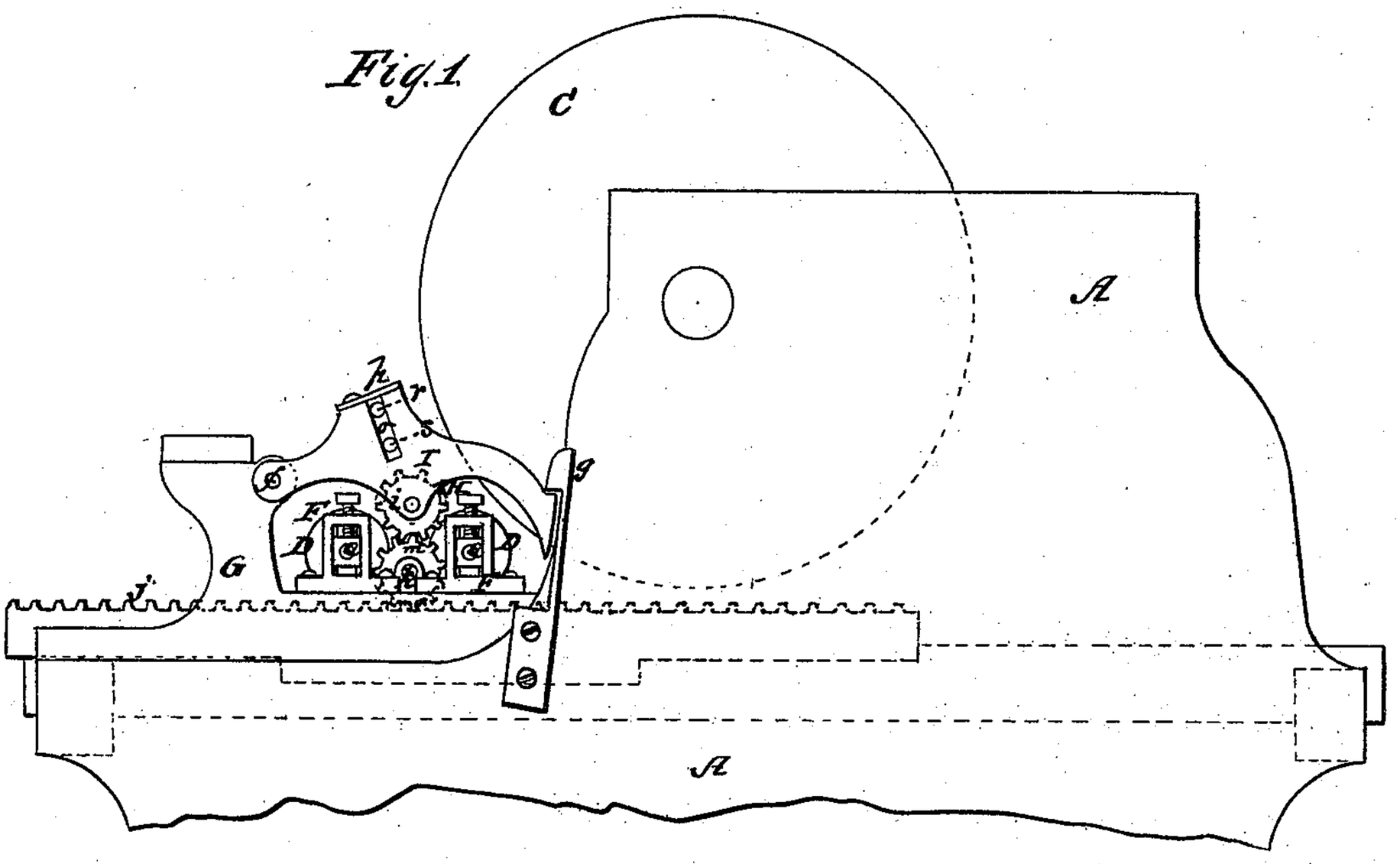
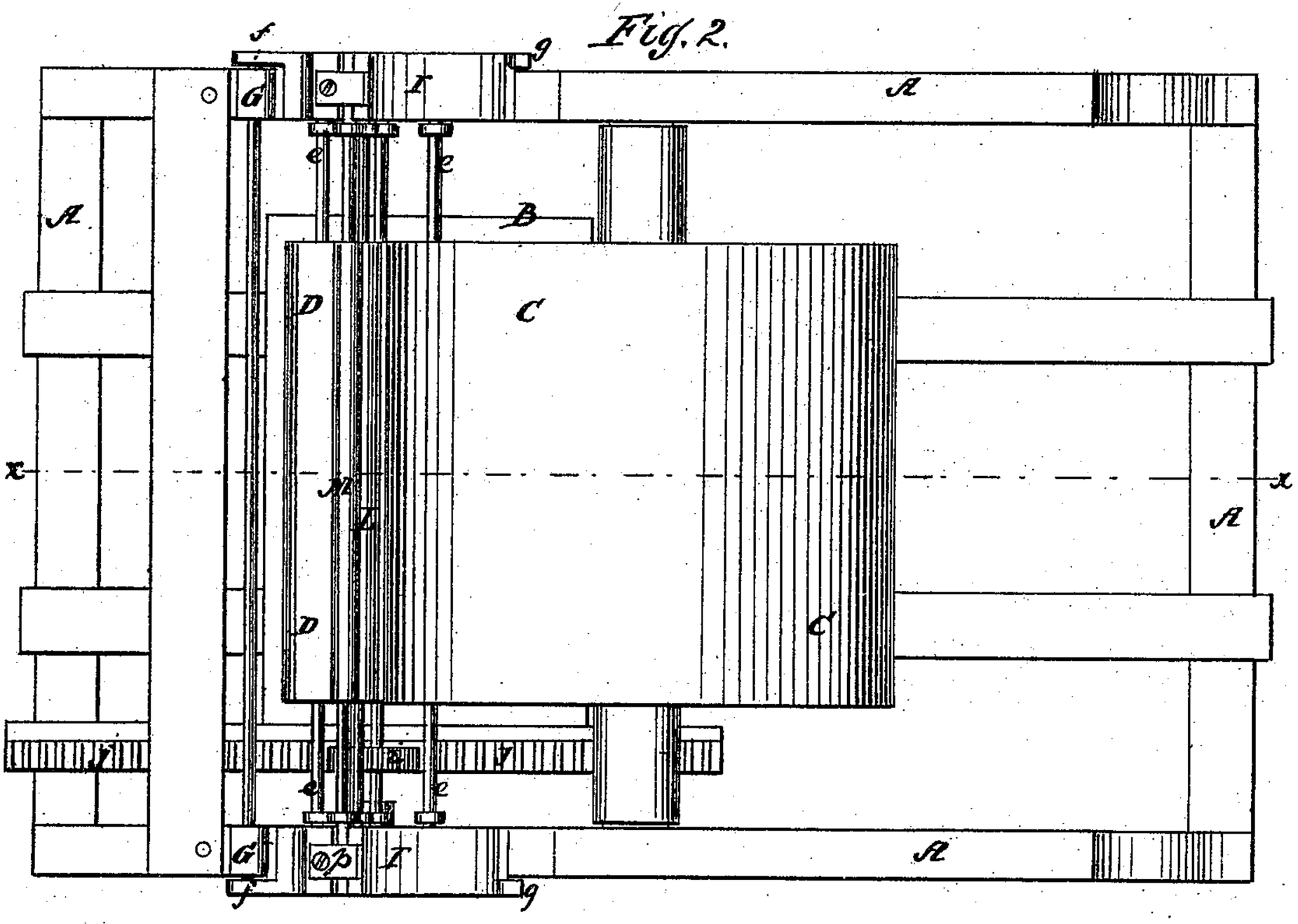


Fig. 2.



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2 Sheets—Sheet 2.

C. B. COTTRELL.

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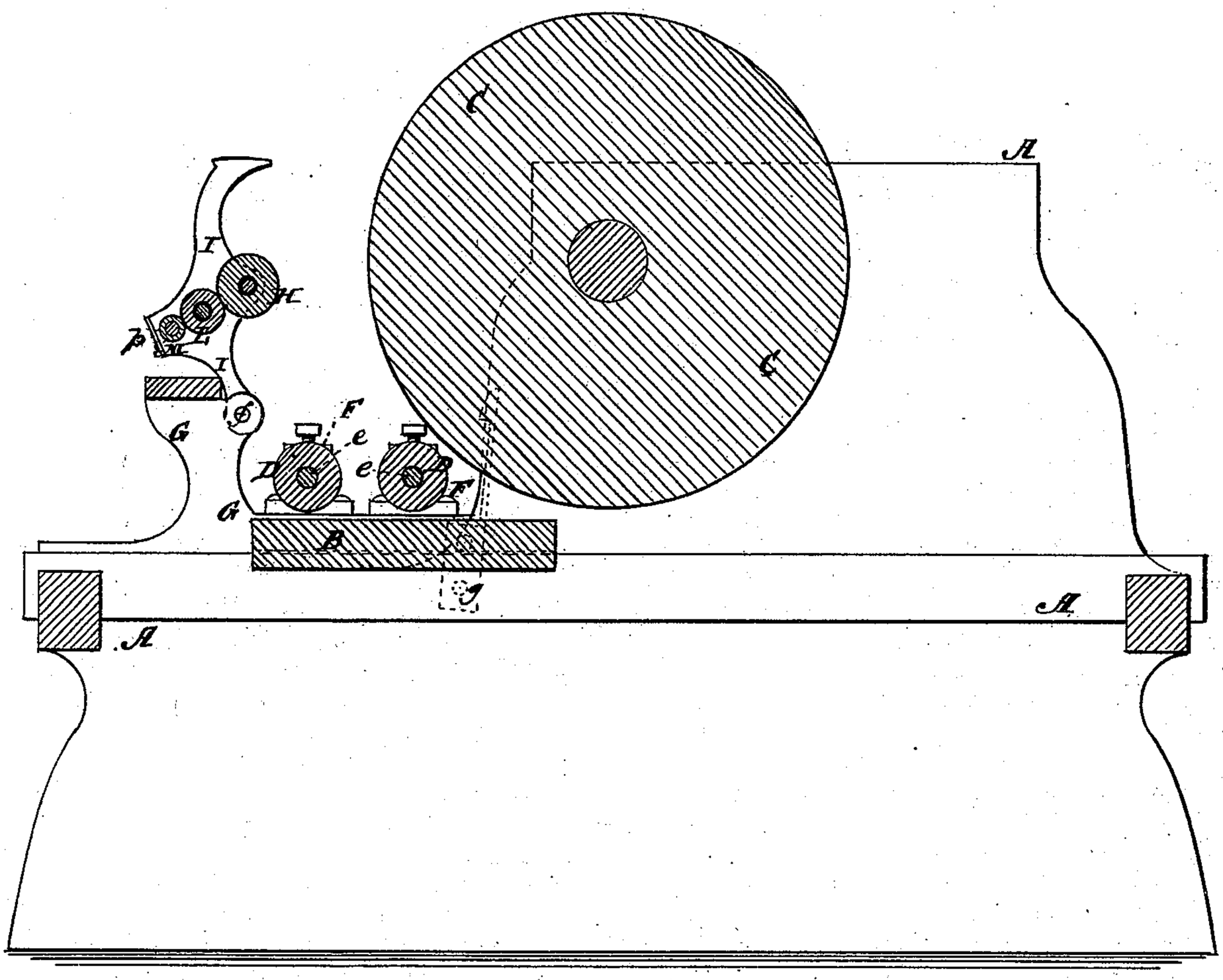
Fig. 3.



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UNITED STATES PATENT OFFICE.

CALVERT B. COTTRELL, OF WESTERLY, RHODE ISLAND.

IMPROVEMENT IN INKING APPARATUS FOR PRINTING-PRESSES.

Specification forming part of Letters Patent No. **172,975**, dated February 1, 1876; application filed December 7, 1875.

To all whom it may concern:

Be it known that I, CALVERT B. COTTRELL, of Westerly, in the county of Washington, in the State of Rhode Island, have invented new and useful Improvements in Inking Apparatus for Printing-Presses; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to certain new and useful improvements in the inking apparatus or mechanism in printing-presses, and particularly to that kind in which the vibrator, or vibrating distributer, is rotated by a positive motion, derived primarily from the reciprocatory bed of the press.

Previous to my invention, in the construction of printing-presses having the kind of inking apparatus referred to, it has been customary to mount the axes of the inking-rollers, or type-rollers, in boxes possessing the capacity of adjustment, both vertically and laterally, and to have the vibrating distributer arranged with its periphery in contact with the surfaces of the inking-rollers, so as to drive them, and with a pinion or gear-wheel on its axis or journal meshing with another pinion driven by a rack on the bed of the press.

The importance and advantages of this arrangement or construction, by which the vibrator is rotated on its axis by a positive-motion mechanism, and so that its periphery shall move at the same velocity with the type-bed or surface of the form, and by which the inking-rollers may be kept in such adjustment at all times with the type-bed and the vibrating distributer that their peripheries shall be in perfect contact with the surface of said distributer and the surface of the form, are well known to, and understood by, the skilled workman upon and manufacturer of printing-presses.

It is equally well known to those skilled in the art that the inking-rolls have frequently to be taken out, not only for washing and cleaning, but for the removal of sheets accidentally caught onto and wound upon them, and the great trouble and inconvenience experienced in this necessary frequent removal of the inking-rolls, and in their replacement and readjustment each time, are proverbial.

My invention has for its object principally the avoidance of the objectionable trouble and of the inconvenience heretofore experienced in the use of presses having the kind of inking apparatus alluded to; and to this end consists in having the vibrating distributer-roll hung or mounted in a swinging or movable frame, in such a manner that, by simply moving the said frame or swinging it upward out of the way, all obstacles to the lifting upward out of their bearings of the inking-rolls shall be removed, and by this means the ready and convenient removal and replacement of the inking-rolls bodily, be rendered possible.

To enable those skilled in the art to make and use my invention, I will proceed to more fully describe it, referring by letters to the accompanying drawings, in which—

Figure 1 is a side view, Fig. 2 is a top view, and Fig. 3 is a vertical section, (at *x x*, Fig. 2,) of so much of a printing-press as it is necessary to show in the drawings for the purpose of clearly illustrating my invention.

In the several figures I have designated the same part by the same letter, and in Fig. 1 I have shown the parts in their operative condition or positions while at Fig. 3. I have illustrated the swinging frame and the vibrating distributer lifted up or thrown over out of the way to permit the ready removal of the inking-rollers.

A is the main frame, B the reciprocating bed, and C the drum or impression-cylinder, of an ordinary printing-press, in which is employed that kind of inking apparatus to which I have hereinbefore alluded, and which embraces my improvements. D D are the inking-rollers, which are, as usual, made of glue and molasses, and which, by preference, have their journals or axes *e e* mounted in boxes F F, that are adjustable, both vertically and laterally, on the stand or frame G by means of set-screws, in order that the said rollers may, as their diameters change, (from shrinkage,) be set and kept in perfect contact and adjustment with the surfaces of the distributer-roll and type-form. H is the vibrating distributer-roll, which is mounted in suitable bearing-boxes in an auxiliary stand or frame, I, which

is hinged at *f* to the stand G, and which may be locked or held in working position by means of spring-catches *g*, as shown, or in some other suitable manner.

The vibrating distributer has its journals, as usual, so arranged in their bearing-boxes that while the roll is obliged to occupy a fixed position axially it can move endwise, as well as rotate on its axis, and said roll receives its endwise motion from any suitable vibrating mechanism.

I have not shown the mechanism for vibrating the distributer, as this forms no part of my invention.

The rotatory motion of the distributer-roll H is effected in the usual manner, by a spur-gear, *i*, which meshes into, or engages with, another gear, *m*, which, in turn, engages with a rack, *j*, on the bed B of the machine.

The gear *m* is mounted on a stud-journal supported by a stand, *k*, and the pitch circles of both gears are such that the face or periphery of the roll H will travel at the same speed as the surface of the form or type, for the well-known purpose of inducing to a perfect unison in the movements of the latter and the surfaces of the inking-rolls D D that are rotated by frictional contact with the roll H.

In the movable frame I are mounted or hung in slots *o* a cloth-covered roll, L, the office of which is to receive the ink from the ordinary "duck roller," that brings the ink from the fountain, and transfer or deliver it onto the vibrating distributer H, and also an auxiliary small vibrating roll, M, which may be employed with advantage to work the ink even over the surface of the cloth-roll L. Both of these rolls L and M are driven by frictional contact at their peripheries, one from the roll H and the other from roll L; and they are prevented from getting out of place accidentally by button-like caps *p*, which may be set to close up the upper ends of the slots *o*, in which the journals *r s* of the said rolls are free to move.

By an observation of Figs. 3 it will be seen that when the auxiliary stand or movable frame I is unlocked and turned up, it, with the vibrating distributer-roll H and other attachments, are so entirely out of the way that either or both of the inking-rollers D D may be most conveniently lifted bodily by the pressmen or attendants out of their journal-boxes, and be replaced therein without hinderance or obstruction by any other parts of the machine, and without any shifting or displacement of the adjustable boxes in which the journals or axes of said inking-rolls run when the machine is working; and it will be understood that, in giving to the machine this capacity for this ready and convenient removal and replacement of the inking-roll by the employment of means for shifting the location in the machine of the vibratory distributer-roll H, (and other roll overhanging the rolls D D, if any such be employed,) rests the gist of my invention. I therefore wish it to be understood that the particular form and arrangement of the vibratory or swinging frame I shown are not indispensably necessary to my invention, and that the means shown for locking such frame in place, or any device for effecting its retention, is not important, since an equally efficient displacement of the rolls over the inking-rolls for the described object might result from the use of some other form of auxiliary frame, arranged to move differently from that shown; and some other locking device might be used to hold the removable frame in place; or said frame might be so arranged, and of such weight, that no retaining device would be necessary to insure a maintenance of it in the proper position during the working of the machine.

Having so fully described my invention that those skilled in the arts can make and use it, what I claim as new, and desire to secure by Letters Patent, is—

An inking mechanism or apparatus in which the vibrating distributer and such other rolls as may be located over the inking-rolls are mounted in a movable frame, substantially as described, so that it may be displaced to permit the ready removal from the machine of the inking-rolls, as set forth.

In testimony whereof I have hereunto set my hand and seal this 2d day of December, 1875.

C. B. COTTRELL. [L. S.]

In presence of—
J. N. McINTIRE,
JACOB FELBEL.