

No. 819,375.

PATENTED MAY 1, 1906.

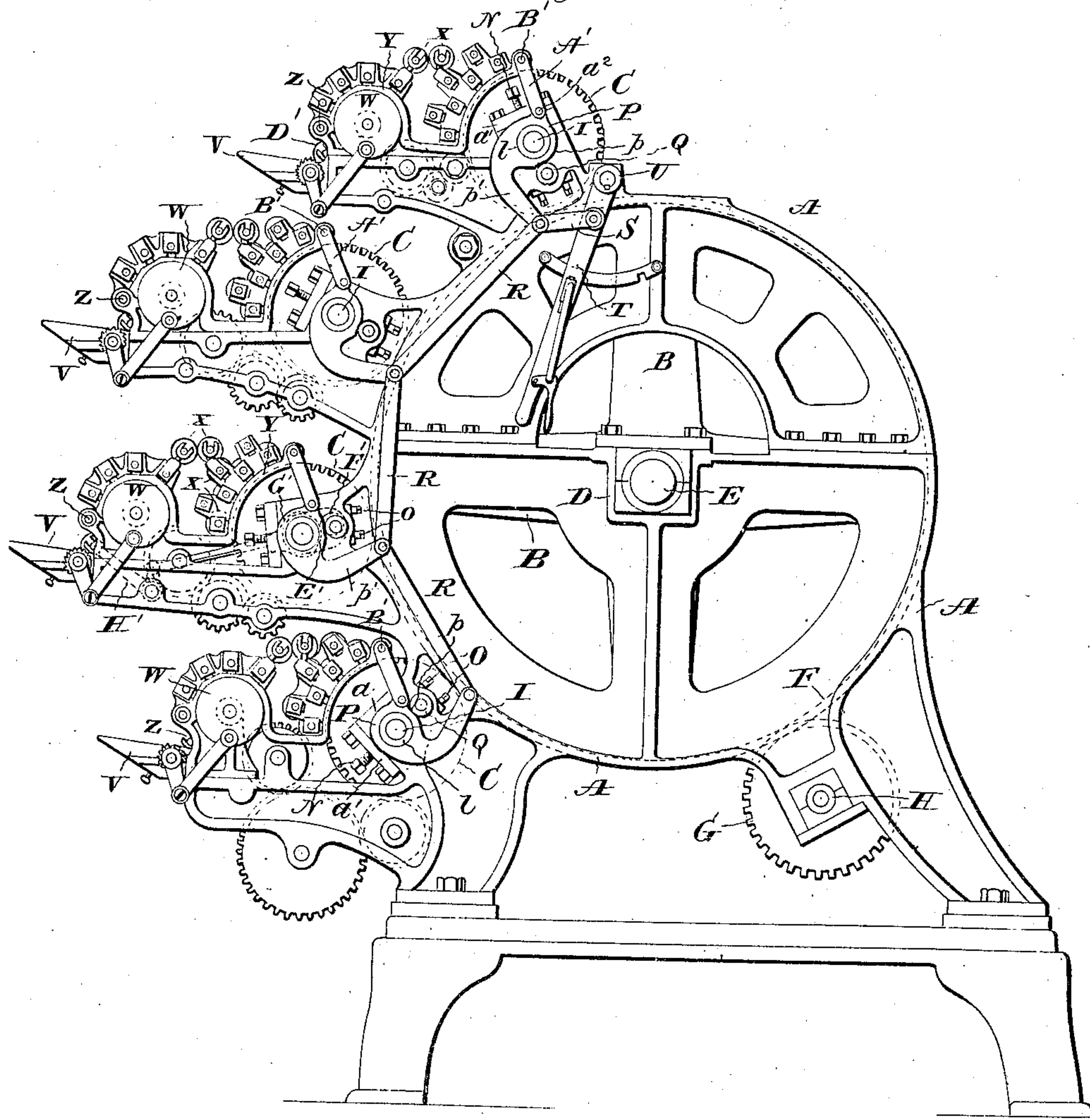
C. H. PALMER & J. W. DENMEAD.

PRINTING PRESS.

APPLICATION FILED OCT. 30, 1900.

3 SHEETS—SHEET 1.

Fig. 1.



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Inventors.
Chas. H. Palmer & J. W. Denmead, by
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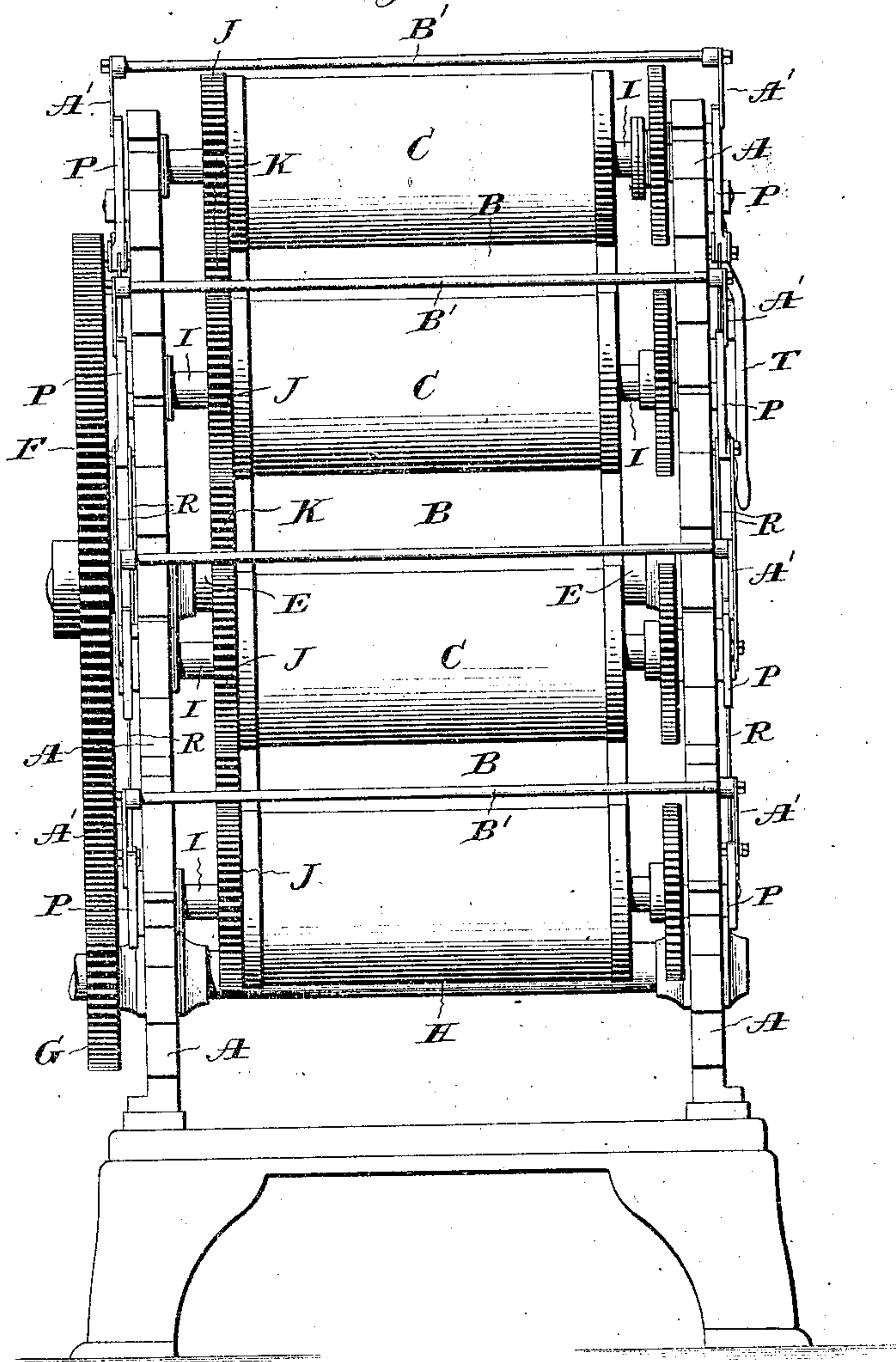
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

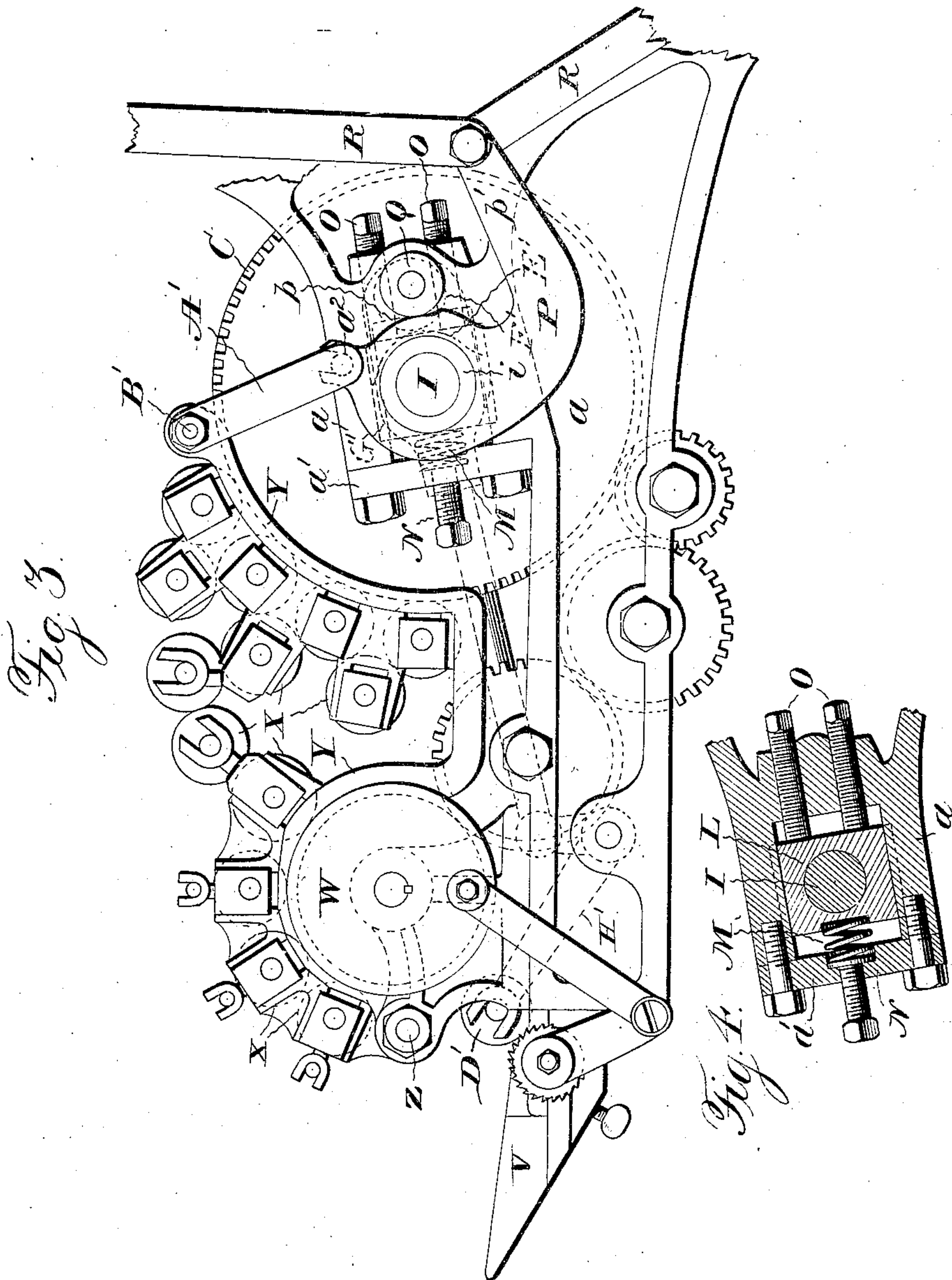


Fig. 3.

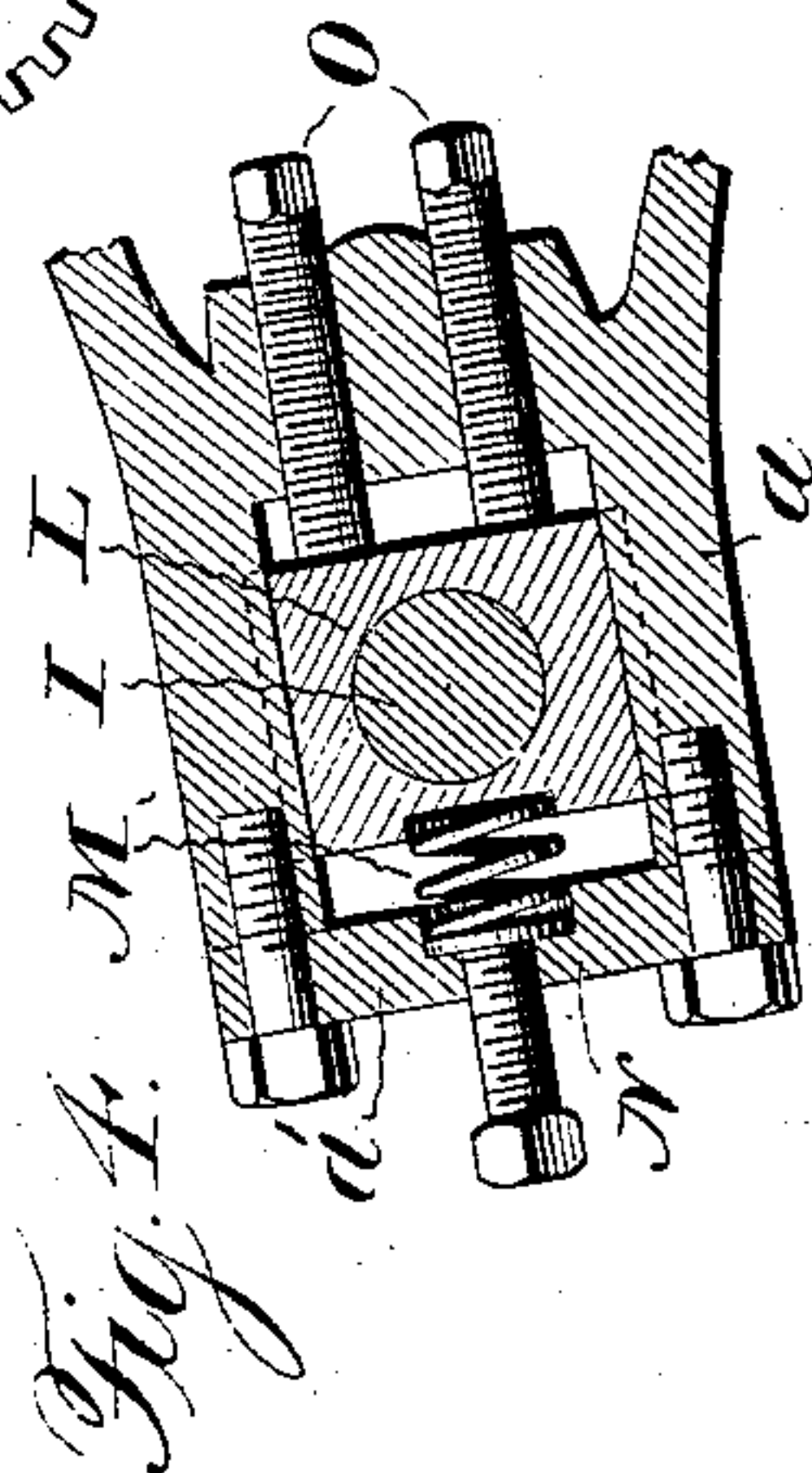


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES H. PALMER AND JOHN W. DENMEAD, OF AKRON, OHIO,
ASSIGNORS TO THE DIAMOND MATCH COMPANY, OF NEW YORK,
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PRINTING-PRESS.

No. 819,375.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed October 30, 1900. Serial No. 34,931.

To all whom it may concern:

Be it known that we, CHARLES H. PALMER and JOHN W. DENMEAD, of Akron, in the county of Summit, and in the State of Ohio, have invented certain new and useful Improvements in Printing-Presses; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a multicolor-printing press embodying our invention. Fig. 2 is an end elevation thereof. Fig. 3 is a detail view, in side elevation, on a larger scale, of one of the form-cylinder mechanisms; and Fig. 4 is a detail view in section of one of the form-cylinder bearings.

Letters of like name and kind refer to like parts in each of the figures.

The object of our invention is to provide a printing-press of such construction as to greatly facilitate the work of assembling its parts, to enable the forms to be moved relative to the impression-cylinder for both avoiding printing on the blankets and permitting adjustment for accurate register, and to enable the inking-rolls to be lifted from the forms to avoid injury to the inking-rolls when they are not in use; and to these ends our invention consists in the printing-press having the features of construction substantially as hereinafter set forth.

We illustrate our invention as embodied in a color-printing press of usual general construction—that is, it comprises a frame A, an impression-cylinder B, and a series of form-cylinders C and C, grouped around said cylinder. The frame A comprises a base and two side pieces that are bolted to the base, and in each side piece is a box or bearing D for the shaft E, on which the impression-cylinder B is mounted. Each frame side is formed of two parts that are joined on a horizontal plane passing just above the bearings of the shaft E, each shaft-bearing D being placed in a cavity in the upper part of the lower section of the frame side, which is covered by the bottom of the upper section of the frame side. It will be apparent that with this construction of frame the work of assembling is rendered very convenient and easy, because the work of mounting the large impression-cylinder can be done with-

out the hindrance that would be occasioned by the necessary presence of the upper side section were it an integral part of the lower section. To give as complete access as possible to the parts inside the frame, the frame sides are, as shown, of open-work construction.

For driving the impression-cylinder it has a large gear F, that meshes with a gear G on a driving-shaft H.

For each form-cylinder there is a shaft I, and upon the latter is a gear J, that meshes with and receives motion from the impression-cylinder gear K. Said shaft I is journaled at opposite ends in boxes L and L, that are respectively mounted in openings in arms or brackets *a* and *a* on the two frame sides, which openings in a direction radial to the impression-cylinder axis are longer than the boxes, so that there may be bodily movement of the form-cylinder to and from the impression-cylinder. The form-cylinder is held yieldingly at the inner limit of its motion by means of a spring M, interposed between the outer end of each box and a screw N, engaging a threaded opening in a cap-plate *a'* on the outer end of the box-bracket *a*. At its inner end the box is engaged by the ends of two screws O and O, that fix its inward movement. Two screws O and O are provided for each box, so that should it be necessary to move the cylinder outward—as, for example, to disengage the cylinder-gear from the gear F to free that cylinder for adjustment for securing perfect register—such can be done without its being required to again adjust it, one screw in such case being used to force the box outward and the other being undisturbed, so that on the return of the cylinder to its inward position the undisturbed screw will arrest it at the same place it previously occupied.

Journaled on a round projection *l* on each box L concentric with the cylinder-shaft is a rocking plate P, that has a peripheral cam-surface *p*, which engages a projection or roller Q on the side of the box-bracket *a* and which when moved in one direction acts to move the box and cylinder outward against the pressure of the spring and when moved in the opposite direction permits the spring to act to restore the former position of the parts. The outward movement of the cylinder by

the action of the cam is not sufficient to disengage the gears J and K, but is only sufficient to prevent printing by the cylinder, and is provided to obviate printing on the blankets when no paper is run through the press.

For rocking the cam-plate P it has an arm p' , and to enable all of the groups of form-cylinders to be simultaneously operated the series of arms on the same side of the press are connected together by links R and R and the end one of the series on one side is connected by a link S to an operating-lever T, that is secured to a shaft U, mounted in bearings on the frame sides and extending across the press from side to side. The familiar device of a notched segment and dog is provided for locking the lever at each limit of its swing to secure the form-cylinders in one or the other of their positions. It will be understood that the cam-plates and the link connections are on both sides of the press and that the series of cams on the side that does not have the operating-lever is connected to the shaft U, so that both series may be operated by the one lever.

For each form-cylinder there is an ink-fountain V of common construction, from which ink is taken and transferred to the form by a series of rolls. The main distributing-roll W of each inking apparatus is fixedly mounted in bearings on extensions or brackets on the frame sides; but the other rolls X and X are journaled in a frame Y, that is hinged at one extremity by a pivot Z, so that the frame, with said rolls, may be swung outward on the pivot away from the main distributing-roll and the form-cylinder. Attached pivotally to the free extremity of the frame Y is one end of a bar or link A', whose other end has a pin or stud a^2 , which engages a notch or open-ended slot in the cam-plate P, so that by the rocking of the latter the roll-carrying frame may be moved. When the cam is rocked to shift the cylinder from contact with the impression-cylinder, the inking-rolls are simultaneously lifted from the form-cylinder, and on the return of the form-cylinder to printing position the inking-rolls are restored to contact with the form-cylinder. It will thus be seen, too, that the single operating-lever controls the movements of both all of the form-cylinders and all of the movable inking-rolls. Should it be desired to move the inking-rolls independently of the movement of the form-cylinders, this can be done by reason of the pin-and-slot form of connection between the bars A' and A' and the cam-plates P and P. A rod B' connects the two frames Y and Y of the same mechanism.

By mounting the inking-rolls X and X in movable frames the rolls which have contact with the form-cylinders can be lifted out of such contact when the form-cylinders are not at work, and thus injury to said cylinders

from resting on the irregular type-surfaces obviated. The supply of ink to the main distributing and the form cylinders is stopped when the latter are not printing, and access to said cylinders for cleaning or other purposes can be readily had without disturbance of the working position of the inking-rolls in their bearings.

The doctor-roll D' is vibrated by a cam E' on the form-cylinder shaft, which acts on a roll F' on a yoke G', that is connected with the doctor-roll-carrying frame H'.

Having thus described our invention, what we claim is—

1. In a printing-press, the combination of the impression-cylinder, a form-cylinder, a movable bearing for the latter, a plurality of independently-adjustable stops for said bearing, and yielding means for automatically pressing said bearing against said stops.

2. In a printing-press, the combination of the impression-cylinder, a form-cylinder, movable bearings for the latter at the respective ends thereof, a plurality of independently-adjustable stops for each of said bearings, and yielding means for automatically pressing the bearings against said stops.

3. In a printing-press, the combination of the impression-cylinder, a form-cylinder, movable bearings for the latter at the respective ends thereof, a plurality of independently-adjustable screws for each of the said bearings, and yielding means for automatically pressing the bearings against said screws.

4. In a printing-press, the combination of the impression-cylinder, a form-cylinder, movable bearings for the latter at the respective ends thereof, a plurality of adjustable stops for each of said bearings engaging the same on the same side, and spring-pressure means acting upon the opposite sides of the bearings.

5. In a printing-press, the combination of the impression-cylinder, a form-cylinder, movable bearings for the latter at the respective ends thereof, a plurality of adjusting-screws for each of said bearings engaging the same on the same side, said screws being movable independently of each other, and spring-pressure means acting upon the opposite side of said bearings.

6. In a printing-press, the combination of the impression-cylinder, a form-cylinder, movable bearings for the latter, and a cam mechanism for moving said bearings, consisting of a pivoted cam acting on a laterally-projecting part on the bearing-box, substantially as and for the purpose described.

7. In a printing-press, the combination of the impression-cylinder, a form-roll, movable bearings for the latter, and a cam mechanism for moving said bearings, consisting of a pivoted cam acting on a roller mounted on the bearing-box, substantially as and for the purpose described.

8. In a printing-press, the combination of the impression-cylinder, a form-cylinder, movable bearings therefor, inking-rolls, a movable frame therefor, a cam for each bearing for moving the same, and a link connecting each cam and a frame.

9. In a printing-press, the combination of the impression-cylinder, a form-cylinder, movable bearings therefor, inking-rolls, a movable frame therefor, a cam for each bearing, a link connecting each cam and a frame,

a single operating mechanism and connections between the latter and each of the cams.

In testimony that we claim the foregoing we have hereunto set our hands this 6th day of August, 1900.

CHARLES H. PALMER.
JOHN W. DENMEAD.

Witnesses:

TOM A. PALMER,
B. C. ROSS.