

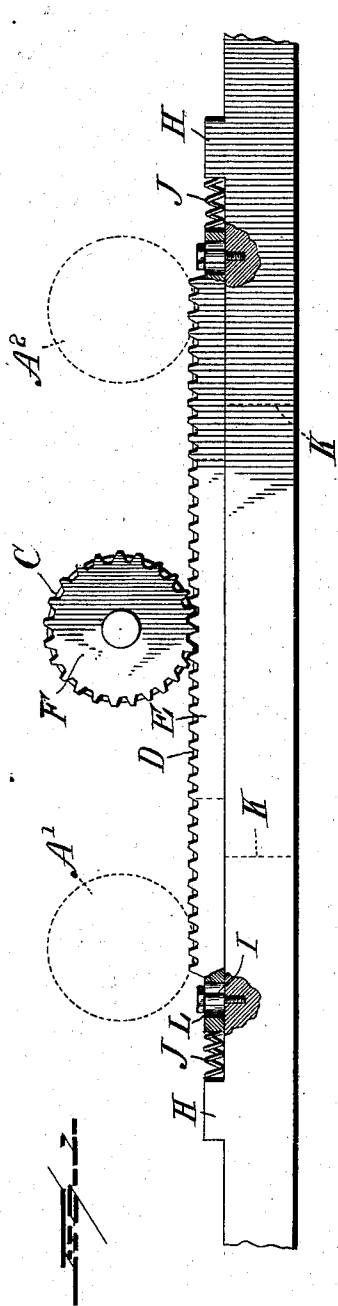
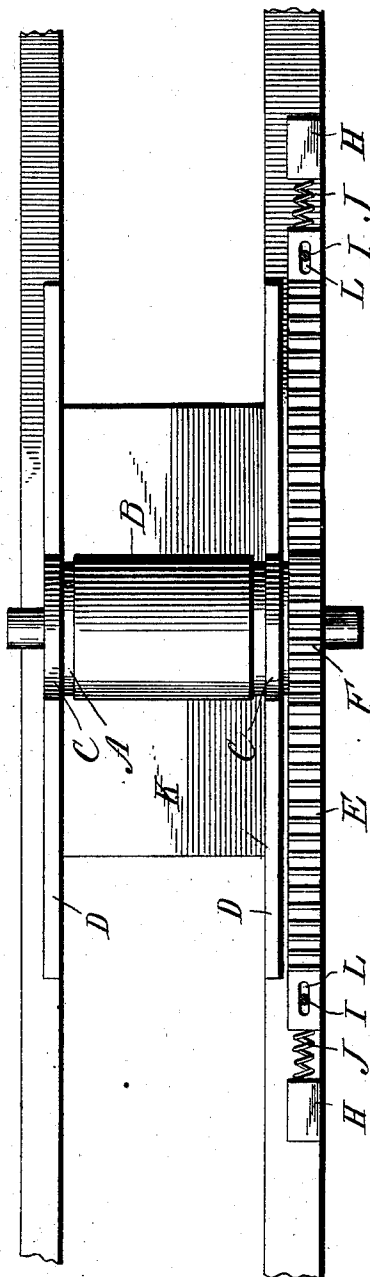
No. 698,344.

Patented Apr. 22, 1902.

A. P. WARNER.  
PRINTING PRESS.

(Application filed July 19, 1901.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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DUPLEX PRINTING PRESS COMPANY, OF BATTLECREEK, MICHIGAN.

## PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 698,344, dated April 22, 1902.

Application filed July 19, 1901. Serial No. 68,933. (No model.)

*To all whom it may concern:*

Be it known that I, AUSTIN P. WARNER, of Battlecreek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Printing-Presses; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in bed-and-cylinder presses, particularly web-presses, wherein movable impression-cylinders are reciprocated back and forth over type-beds to print webs, as in the well-known Cox duplex press, for example. It is important in this style of presses that the impression-cylinder shall be packed so that its periphery will correspond exactly with the pitch-line of the cylinder-gear by which the cylinder is kept in time with the bed. If the cylinder be packed too much, so as to increase its diameter even very slightly beyond the exact size, it would ordinarily result in the periphery of the cylinder moving slightly faster than it should do, thereby creating a tendency to grind the face of the type and to feed the web over the type while being impressed. On the other hand, if the cylinder be packed too little, so that it is slightly less than the proper diameter, it would ordinarily cause the periphery of the cylinder to lag or drag on the type and tend to pull back the paper during impression, which will crack or tear the web. This improper packing of the impression-cylinder with the incident damage resulting therefrom is a source of great annoyance in many press-rooms where the pressman is careless in packing the cylinders.

The object of this invention, therefore, is to reduce wear on the type and prevent breaking or cracking the webs during the printing operation when such wear and cracking would be caused by the improper packing of the surface of the impression-cylinder, and the invention consists in means for compensating for improper packing of the cylinder and permitting it to move only at the proper peripheral speed while on the type and to compensate the cylinder after each impression, so

that it will always begin its operation in the correct time and position.

The invention, in brief, resides in making one member of the bed and cylinder-gearing slightly movable, but holding it to its normal position by stiff springs, so that the cylinder will be kept in time and rolled properly over the bed as if each member of such gearing was absolutely fixed to its support, as in ordinary press constructions; but if the cylinder be packed too high or too low the spring-controlled member will yield sufficiently to prevent grinding of the type or cracking of web while the cylinder is on impression, and as soon as the cylinder passes off impression the spring will return the gear member to its original position, thereby slightly turning the cylinder forward or backward and bringing it to normal position. The actual corrective movement of the cylinder in either case will be very slight, possibly less than an eighth of an inch, but that this amount of drag or acceleration during impression would be sufficient to damage the type or web, as is obvious.

In the drawings I have shown the bed-rack member of the gearing as the spring-controlled member, as it is perhaps simpler to make the bed-rack spring-retained than the cylinder-gear, although the practical effect would be the same if the bed-rack was rigidly secured and the gear-spring secured on the cylinder.

I will now describe the invention as illustrated in the drawings, wherein—

Figure 1 is a detail side elevation of the bed and cylinder of a press, and Fig. 2 a top plan view of Fig. 1.

A represents the impression-cylinder, having packing B, bearers C, and gear F, as usual.

K is the type-bed, coacting with the cylinder.

DD are straight bearers coacting with cylinder-bearers C, and E is the bed-rack, meshing with cylinder-gear F. This rack E is usually rigidly bolted to the frame and its office, in connection with the cylinder-gear F, is to cause the periphery of the cylinder to move uniformly in relation to the bed. In the pres-

ent case, however, rack E is capable of a slight linear movement under stress, but is normally held in proper working position by stiff springs J, interposed between the ends of the rack F and lugs H, fixed on the frame, as shown, the rack being provided at its ends with guide-slots L, engaging bolts I on the frame.

The springs J are arranged to ordinarily keep rack E in exact position and not permit its displacement except under stress; but if the cylinder is underpacked, so that its periphery tends to drag on the type or web, the rack will yield sufficiently to prevent the cylinder damaging the type or web. In the same manner the rack will yield if the cylinder be overpacked. In either case as soon as the cylinder is off impression, as indicated at A' A<sup>2</sup> in the drawings, the springs return the rack E to proper central position, and this movement of the rack returns the cylinder also to true initial position after each impression.

Having thus described my invention, what I therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. The combination of a cylinder and bed, and the bed and cylinder-gearing, one member of such gearing being normally held to place by springs whereby a slight abnormal increase or decrease of speed of movement of the periphery of the cylinder is permitted during impressions by the bodily shifting of one of such members, said spring returning the gearing to proper normal position after impressions, substantially as described.

2. The combination of a cylinder and bed, a gear on the cylinder, and a rack on the bed or frame meshing with said cylinder-gear, said rack being capable of a slight bodily end-

wise motion to compensate for slight abnormal increase or decrease of speed of movement of the periphery of the cylinder during impression, and means for returning the rack to normal position thereby compensating for the abnormal movement of the cylinder, substantially as described.

3. The combination of a cylinder and bed, the cylinder-gear, and the one-piece bed-rack meshing continually therewith; with springs for holding said rack in normal position, but permitting a slight shifting thereof by the cylinder during impressions to compensate for slight overpacking or underpacking of the cylinder and prevent grind or drag on the type, substantially as described.

4. The combination of the cylinder and bed, the cylinder-gear, and a movable bed-rack continually in mesh with the cylinder-gear and springs at each end of the rack to hold the same in normal position but permit its shifting during impression, substantially as and for the purpose described.

5. The combination of the cylinder, its gear, the bed, and the one-piece bed-rack having slotted ends and continually in mesh with the cylinder, guide-pins on the bed or frame engaging the rack-slots, and stiff springs interposed between the opposite ends of the rack and lugs or stops on the frame for yieldingly holding said rack in position, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

AUSTIN P. WARNER.

In presence of—

JOS. H. JONES,  
H. P. KUNTZ.