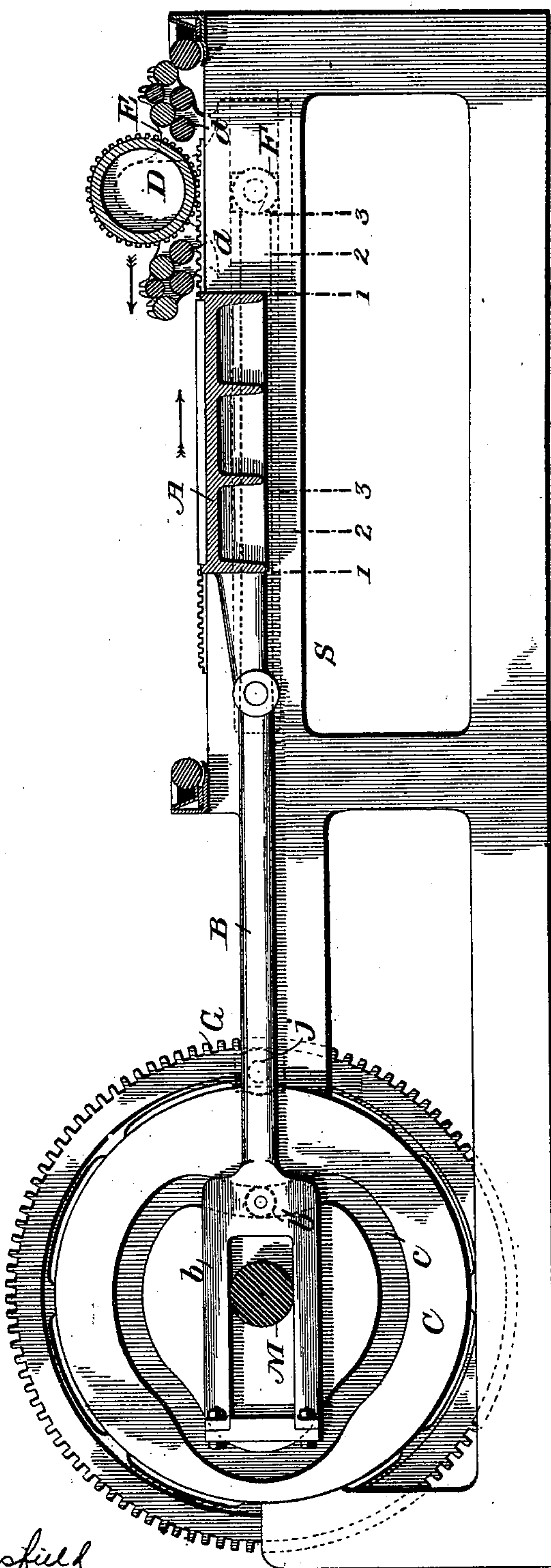


(No Model.)

H. F. BECHMAN.  
PRINTING PRESS.

No. 592,684.

Patented Oct. 26, 1897.



WITNESSES

*Jos. C. Stack.*  
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# UNITED STATES PATENT OFFICE.

HENRY F. BECHMAN, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO THE  
DUPLEX PRINTING PRESS COMPANY, OF SAME PLACE.

## PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 592,684, dated October 26, 1897.

Application filed April 9, 1896. Renewed April 22, 1897. Serial No. 633,375. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY F. BECHMAN, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain  
5 new and useful Improvements in Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of  
10 reference marked thereon, which forms part of this specification.

This invention is an improvement in printing-presses employing movable beds and reciprocating cylinders.

15 The object of this invention is to shorten the travel or stroke of the cylinder in that class of flat-bed printing-presses in which reciprocating cylinders are employed, and thus reduce the necessary length of the machine  
20 and increase its speed. I believe the non-synchronous reciprocations of bed and cylinder secured by my invention and the results thereby obtained are entirely novel.

This invention is particularly useful as applied to flat-bed web-presses such as is described in the patent to J. L. Cox, No. 478,503, dated July 5, 1892, inasmuch as the  
25 serious complications which arise in synchronously reciprocating the beds and cylinders in such presses are avoided by my invention. I do not wish to be understood,  
30 however, as limiting the application of my invention to such machines.

My movable bed makes two full reciprocations for each reciprocation of the cylinder, this relative movement being wholly novel and producing novel and useful results.

35 In the accompanying drawing I have illustrated a detail vertical longitudinal section through a portion of a printing-press sufficient to impart, in connection with the following description, a clear understanding of my invention.

40 I do not, however, consider my invention limited to the particular form of press indicated in drawing, as it is applicable to web or sheet presses, either single or perfecting.

Referring to said drawing, A is a longitudinally-movable type-bed suitably mounted  
50 in any of the well-known ways on the side frames S. This bed may be reciprocated by a

connecting-rod B, having a yoke *b*, surrounding the main shaft M, and a friction-roller *b'*, engaging a cam-groove *c* in a cam-disk C, affixed to shaft M, as shown.

55 D is the impression-cylinder, which, with inking-rollers *d d*, is suitably journaled in a reciprocating carriage E of any suitable construction, mounted in any well-known manner on the main frames S and reciprocated  
60 by means of a pitman F, attached to wrist-pin *j* on the main driving or crank wheels G.

The dotted lines 2 2 show the positions of the ends of the bed when the cam has shifted it to position ready for contact of impression-  
65 cylinder with the type-form.

The operation is as follows: The parts being in the position shown in full lines let the main driving-wheel G begin a revolution in the direction indicated by the arrow. The  
70 bed, driven by the cam, will be moved toward the impression-cylinder, which will simultaneously begin to move toward the bed. The cam is so formed as to cause the bed to advance from line 1 until its ends coincide,  
75 say, with the lines 2, where it comes to rest just as or before the impression-cylinder shall have reached the type-form. After the cylinder shall have cleared the forms and  
80 passed over, or nearly over, the bed the opposite or convex side of the cam comes into effect and propels the bed still farther in the same direction to the line 3, thus speedily carrying the forms clear of the inking-rollers  
85 and bringing all the parts into position for a corresponding series of reverse movements on the return stroke of the cylinder. The movements are so timed by properly shaping  
90 the cams as to cause the reciprocations of the bed to occur in the intervals between successive impressions. Uniform rate of motion of bed and periphery of cylinder may be secured by racks and gears on bed and ends of cylinder in the usual manner.

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

1. In a printing-press the combination of a locomotive-cylinder and a movable type-bed with mechanism whereby the bed is  
100 twice reciprocated during each reciprocation of the cylinder in a plane parallel with the

plane of reciprocation of the cylinder but over distances not exceeding one-half that of the travel of the cylinder, substantially as and for the purpose described.

5 2. In a printing-press the combination of a reciprocating cylinder, a movable bed, and means for moving said bed endwise after but not during impressions, substantially as and for the purpose described.

10 3. In a printing-press the combination of a locomotive-cylinder and a movable type-bed; with mechanism whereby the bed is twice reciprocated during each reciprocation of the cylinder, substantially as described.

4. In a printing-press the combination of 15 a locomotive-cylinder and a movable type-bed; with mechanism whereby the bed is twice reciprocated during each reciprocation of the cylinder and while the cylinder is not in contact with the type-forms, substantially 20 as described.

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

HENRY F. BECHMAN.

Witnesses:

I. L. STONE,

FRANK W. DUNNING.