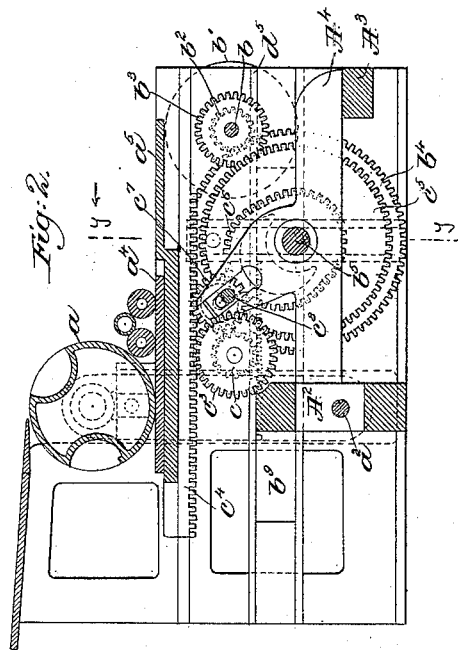
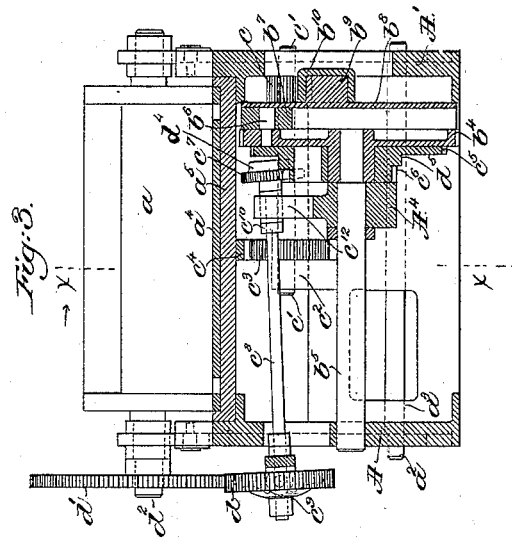
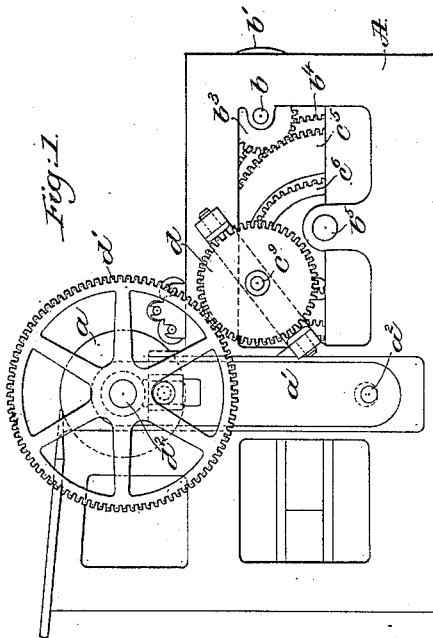


B. HUBER.
CYLINDER PRINTING PRESS.

No. 417,826.

Patented Dec. 24, 1889.



Witnesses.
Howard V. Eaton,
Frederick L. Emery.

Inventor.
Berthold Huber,
by Henry Gregory

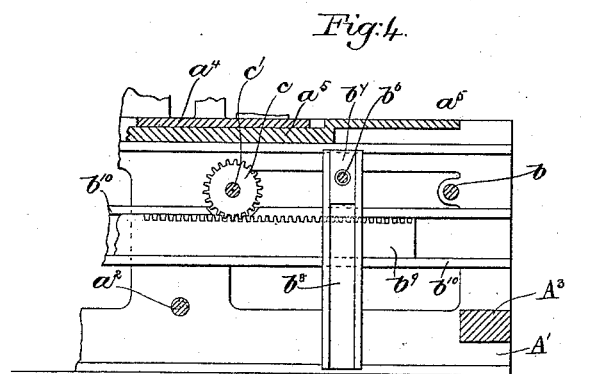
(No Model.)

2 Sheets—Sheet 2.

B. HUBER.
CYLINDER PRINTING PRESS.

No. 417,826.

Patented Dec. 24, 1889.



Witnesses:

Edgar A. Godkin
Frederick L. Emery

Inventor:

Berthold Huber,
by Crosby Morgan
Att'y

UNITED STATES PATENT OFFICE.

BERTHOLD HUBER, OF TAUNTON, MASSACHUSETTS, ASSIGNOR TO THE
HUBER PRINTING PRESS COMPANY, OF SAME PLACE.

CYLINDER PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 417,826, dated December 24, 1889.

Application filed January 15, 1889. Serial No. 296,383. (No model.)

To all whom it may concern:

Be it known that I, BERTHOLD HUBER, of Taunton, county of Bristol, State of Massachusetts, have invented an Improvement in Cylinder Printing-Presses, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to that class of printing-press known as the "two-revolution bed-and-cylinder printing-press," in which the cylinder is driven in a constant direction and makes two turns or complete revolutions to each complete stroke of the bed, one turn during the forward or printing stroke and another during the backward or non-printing stroke of the bed.

This invention has for its object to construct printing-presses of the class referred to, whereby the bed of the press is reciprocated by a crank, and the cylinder of the press driven constantly in one direction at a proper speed to correspond with the varying speed of the bed, substantially as will be described.

The particular features in which my invention consists will be hereinafter described, and pointed out in the claims at the end of this specification.

Figure 1 is a side elevation of a printing press or machine embodying my invention; Fig. 2, a longitudinal section of the machine, taken on the line $x x$, Fig. 3; Fig. 3, a cross-section of the machine on line $y y$, Fig. 2, and Fig. 4 a sectional detail to be referred to.

The frame-work of the machine, consisting, as herein shown, of the side frames $A A'$, cross-stays $A^2 A^3$, and girder A^4 , is of sufficient strength to sustain the working parts. The frame-work has, as shown, guides for the reception of the posts or standards a' , having bearings for the journals of the cylinder a . (See Fig. 1.) The lower ends of the said standards rest upon the eccentric ends a^2 of a rock-shaft a^3 . The rock-shaft a^3 is operated by mechanism, (not shown, but common to this class of printing-presses,) so as to keep the said cylinder in contact with the form a^4 , supported by the bed a^5 during the forward stroke of the said bed, and so as to raise the said cylinder out of contact with the said form dur-

ing the return or backward stroke of the said bed.

The side frames $A A'$ support in suitable journals the driving-shaft b , provided with the usual driving-pulley b' . (See Fig. 2.)

The driving-shaft b , within the side frame A' , has mounted on it, as herein shown, the small pinion b^2 and large pinion b^3 . The pinion b^2 meshes with and rotates a gear b^4 , mounted between the girder A^4 and the side frame A' on a shaft b^5 , having its journals supported by the said girder and side frame A .

The gear b^4 , constituting the crank-gear of the machine, is provided with a crank-pin b^6 , (see Figs. 3 and 4,) having secured to or fitted upon it the block b^7 , sliding vertically in a slotted cross-head or guide b^8 , fastened to a rack-bar b^9 , which is movable, as shown, in a horizontal guide or slide b^{10} . The rack-bar b^9 is reciprocated by the rotation of the main shaft b , through the pinion b^2 , crank-gear b^4 , crank-pin b^6 , block b^7 , and cross-head b^8 . The rack-bar b^9 meshes with and drives the pinion c on an oscillating shaft c' , having its journals supported, as shown, in the side frame A' , and a box c^2 on the stay A^2 .

The shaft c' has mounted on it a gear c^3 , in mesh with a rack-bar c^4 , secured to the under side of the bed a^5 , (see Fig. 3,) so that as the rack-bar b^9 is reciprocated, as above described, the bed a^5 is reciprocated through the pinions c and rack-bar c^4 .

The cylinder a is revolved twice during each reciprocation of the bed in the following manner: The pinion b^3 on the driving-shaft b meshes with and rotates a spur-gear c^5 , mounted loosely on the hub of the crank-gear b^4 , (see Fig. 3,) the pinion b^3 being twice the size of the pinion b^2 in mesh with the crank-gear b^4 . The spur-gear c^5 has secured to or forming part of it, as herein shown, a cam-shaped gear c^6 , which meshes with and rotates a pinion c^7 on a shaft c^8 , having its journals supported in an oscillating hanger c^9 , outside of the frame A , and in a block c^{10} , sliding in a slotted hanger c^{11} on the girder A^4 . The shaft c^8 has mounted on it outside the frame a gear d , which meshes with and drives a gear d' on the shaft d^2 of the cylinder. The pinion c^7 is prevented from meshing too deeply into the cam-shaped gear c^6 , as herein shown,

by a roller d^4 on the end of the shaft c^8 , (see Fig. 3,) the said roller running on a cam-shaped flange d^5 on the gear c^5 , and the said roller is retained in place in any usual or well-known manner.

I have herein shown my invention as applied to a two-revolution bed-and-cylinder press; but I do not desire to limit myself to that particular construction, as I am aware the principle of my invention can be applied to a single-revolution bed-and-cylinder press.

I claim—

1. In a printing-press, the combination, with the bed, of a main shaft provided with a pinion, a gear driven by said pinion and provided with a crank, a cross-head and rack-bar, and intermediate gearing between the said rack-bar and bed, whereby the said bed is reciprocated, substantially as described.

2. In a bed-and-cylinder printing-press, the combination, with the bed and a crank to reciprocate it, of a cylinder, its shaft, and a gear thereon, an oscillating shaft, a gear mounted

thereon in mesh with the gear on the cylinder-shaft, a cam-shaped gear driven from the main shaft, and a concentric gear on the oscillating shaft driven by the said cam-shaped gear, substantially as and for the purpose specified.

3. In a bed-and-cylinder printing-press, a main shaft provided with a pinion, a cylinder, its shaft, and a gear on said shaft, and intermediate gearing, substantially as described, between the said gear and pinion, combined with a bed provided with a rack-bar, a second pinion on the main shaft, a crank-gear in mesh with said second pinion, and intermediate gearing, substantially as described, between said crank-gear and rack-bar, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BERTHOLD HUBER.

Witnesses:

W. K. HODGMAN,
E. L. CROSSMAN.