(No Model.)

# J. R. RANKIN.

## PRINTING MACHINE.

No. 407,034. Patented July 16, 1889.

Fig. 3

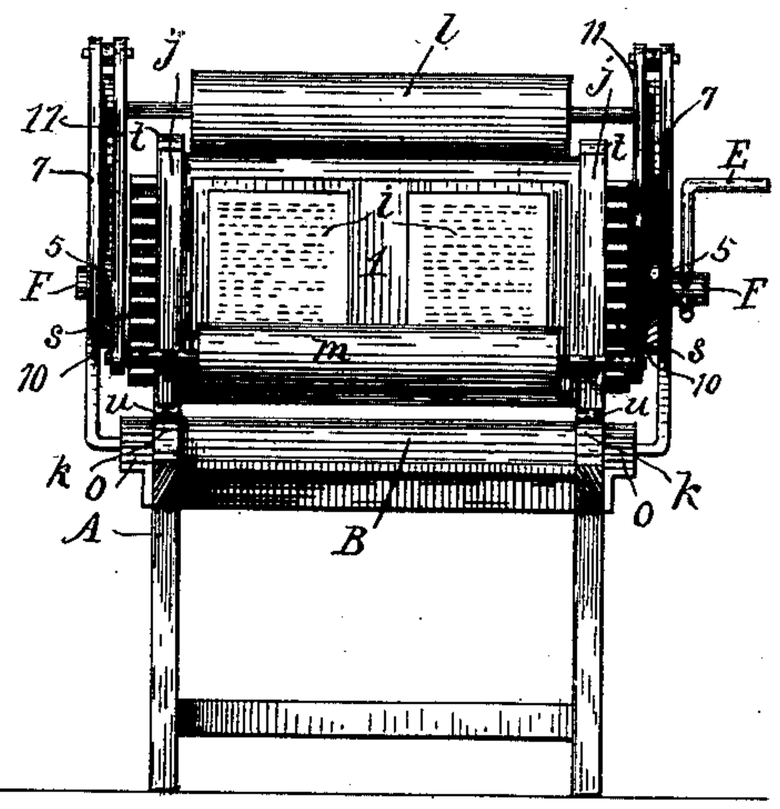


Fig. 2.

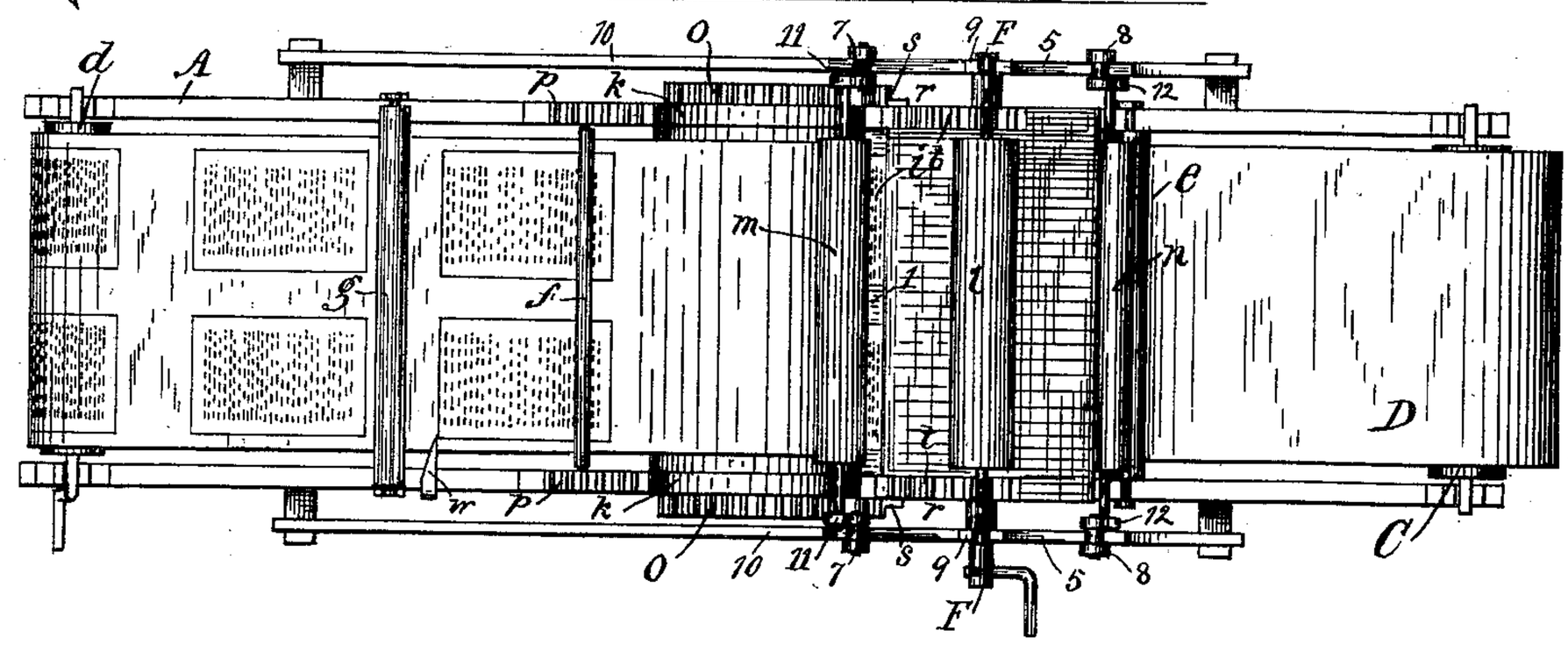
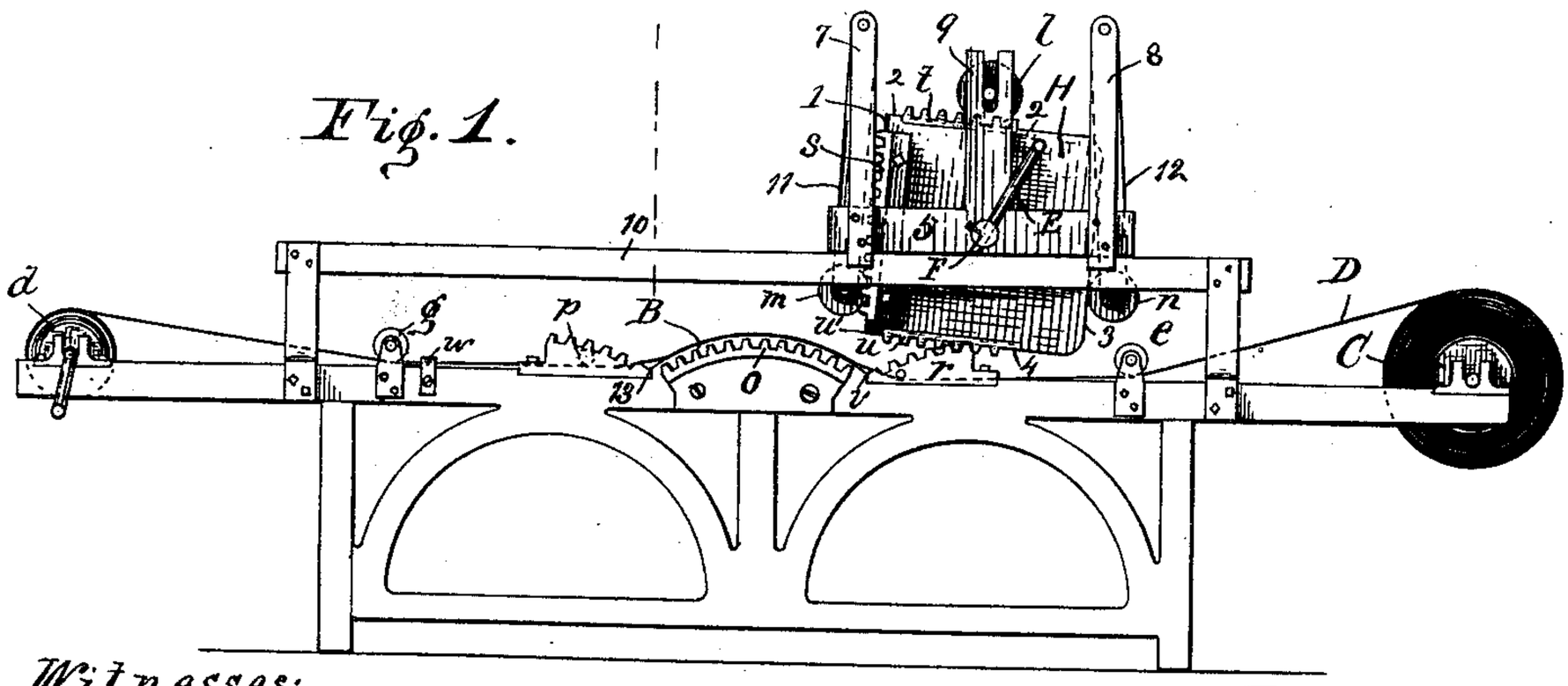


Fig. 1.



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# UNITED STATES PATENT OFFICE.

JOHN R. RANKIN, OF INDIANAPOLIS, INDIANA.

## PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 407,034, dated July 16, 1889.

Application filed May 5, 1888. Serial No. 272,879. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN R. RANKIN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in Printing-Machines, of which the following is a specification.

My invention relates to an improvement in that class of printing-presses in which the types are set in flat forms in a plane-surfaced substantially rectangular type-carrier, which is arranged to be revolved in contact with a convex platen, and in which impressions are made upon a continuous web of paper.

The object of my improvement is to provide a press of this class which will be simple in construction, may be operated by hand more rapidly than the ordinary platen-press, and which will cost less than the ordinary rotary press, all as hereinafter fully described.

The accompanying drawings illustrate my invention.

Figure 1 is a side elevation. Fig. 2 is a plan. Fig. 3 is a transverse vertical section at line *a*, Fig. 1.

A is a suitable bed-frame, having about midway of its length a raised convex platen B, which extends transversely across the bed-frame.

C is a roller mounted in open bearings on one end of the bed-frame and carrying a continuous web of paper D, which passes under suitable guide-rollers *e*, *f*, and *g* to a roller *d*, mounted on the opposite end of the bed-frame, the arrangement being such that the web of paper is drawn smoothly over the convex surface of the platen.

H is the type-carrier, having plane surfaces 1, 2, 3, and 4. Surface 1 of the type-carrier is of the same width as the convex surface of the platen, and is recessed to receive the tppes *i*, leaving, however, blank surfaces *j j* at each end of the carrier, which blank surfaces rest upon corresponding slightly-raised bearing-surfaces *k k* at each end of the platen when the type-carrier is revolved, thus preventing the crushing of the types. The surfaces 2, 3, and 4 of the type-carrier are simply flat surfaces, which serve as ink-carriers, the ink being distributed on the surfaces by the ink-roll *l*, and from thence to the types by means of the ink-rolls *m* and *n*, as hereinafter explained. For the purpose of controlling the rolling movement of the type-carrier, so that the type-surface 1 shall always register properly with the platen, I secure to the bed-frame at each end of the platen curved rack-bars *o o*, and to the bed-frame on each side of the platen at each end, in line with the bearing-surfaces *k k*, I secure the curved rack-bars *p p* and *r r*. The rack-bars *o o* intermesh with straight rack-bars *s s*, secured to the type-carrier at each end of and parallel to surface 1, and the rack-bars *p* and *r* intermesh, respectively, with corresponding straight rack-bars *t t* and *u u*, secured, respectively, to the surfaces 2 and 4 of the type-carrier. The arrangement is such that the type-carrier, when in the position shown in Fig. 1, rests on the rack-bars *r r*, surface 4 being downward and the type-surface 1 being toward the left. As the type-carrier is rotated toward the left by means of the crank E, which is secured to the shaft F, which passes lengthwise through the carrier, the angles *u'*, formed by surfaces 1 and 4, enter and rest in the angles *v*, formed by the bearing-surfaces *k* and the ends of rack-bars *r*, thus holding the type-carrier exactly in register with the platen while rack-bars *u* are passing out of engagement with rack-bars *r* and rack-bars *s* are passing into engagement with rack-bars *o*. As the type-carrier is further rotated, surface 1, carrying the types, is brought into contact with the paper, which rests on the platen, the impression is made, and the type-carrier is turned until it rests on rack-bars *p*, with surface 2 downward and surface 1 toward the right. The web of paper is now rolled on roller *d* until the impression formed registers with a pointer *w*, secured to the bed-frame, as shown in Fig. 2. The type-carrier is then turned toward the right to its former position, thus making a second impression. In turning toward the right the angle formed by surfaces 1 and 2 enters the angle 13 and insures the proper registration of the type-surfaces of the carrier with the platen.

The inking of the type may be accomplished

by hand ink-rollers; but for the purpose of automatically inking them I mount on opposite ends of the shaft F a pair of frames, each consisting of a horizontal bar 5 and three vertical standards 7, 8, and 9, the shaft passing through the horizontal bars. Said frames are arranged to rest upon and to slide along a pair of guide-bars 10 10, which are secured to standards projecting from the bed-frame. The ink-rolls *m* and *n* are mounted at each end in the lower ends of bars 11 and 12, which are pivoted at their upper ends to the upper ends of the standards 7 and 8, so that said ink-rolls *m* and *n* rest against the sides of the type-carrier as it revolves.

The ink-roll *l* is mounted in slotted bearings in the standards 9 and rests on the top of the type-carrier. Ink being spread on one of the flat surfaces of the type-carrier is taken up by the rolls, and as the carrier revolves and moves forward and back the frames which support the ink-rolls slide along the guide-bars, and the ink is distributed in an obvious manner.

I claim as my invention—

1. In a printing-press, the combination of the following elements, namely: a bed-frame, a convex platen secured to said bed-frame, and a type-carrier having a recessed plane surface in which types are set, all arranged to co-operate substantially as specified, whereby an impression from the types is obtained by rolling the type-carrier over the platen and along the bed-frame, as set forth.

2. In a printing-press, the bed-frame, the convex platen secured to said bed-frame, the type-carrier having a recessed plane surface in which types are set, the curved rack-bars secured to the bed-frame opposite the ends of the platen, the straight rack-bars secured to the type-carrier opposite the ends of the type-surface and arranged to intermesh with said curved rack-bars, and supports for the type-carrier arranged on each side of the platen to receive and support the carrier when off the platen, all combined and arranged to co-operate substantially as and for the purpose specified.

3. In a printing-press, the combination, with the bed-frame, the convex platen secured thereto, and the plane-surfaced type-carrier arranged to be rolled over and in contact with said convex platen, of a pair of rollers mounted on the bed-frame on opposite sides of the platen and carrying a web of paper which is attached to both rollers, and intermediate guide-rollers, all arranged substantially as shown and described, whereby the paper is drawn smoothly over the convex surface of the platen, and an impression of the type carried by the type-carrier is made on the paper by the rolling pressure of the type-carrier, as set forth.

4. In a printing-press, the combination of the bed-frame, the convex platen secured to the bed-frame, the curved rack-bars secured to the frame opposite the ends of the platen, the plane-surfaced rectangular type-carrier arranged to be rolled over and in contact with the platen, the rack-bars secured to the type-carrier opposite the type-surface and arranged to engage said curved rack-bars, the rack-bars secured to the bed-frame on each side of the platen at opposite ends and forming interior angles therewith, and forming also supports for the type-carrier when off the platen, and the rack-bars secured to opposite sides of the type-carrier and arranged to engage said rack-bars, all arranged to co-operate substantially as and for the purpose specified.

5. In a printing-press of the class described, the combination, with the bed-frame and the type-carrier arranged to be rolled thereon, of the guide-bars secured to opposite sides of the bed-frame above and parallel therewith, a shaft projecting from opposite ends of the type-carrier, two frames mounted on said shaft at opposite ends of the type-carrier resting on said bars and carrying ink-rolls which rest on the surface of the type-carrier, whereby the ink-rolls are carried with the type-carrier along the bed-frame and in contact with the surfaces of the type-carrier, substantially as and for the purpose specified.

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