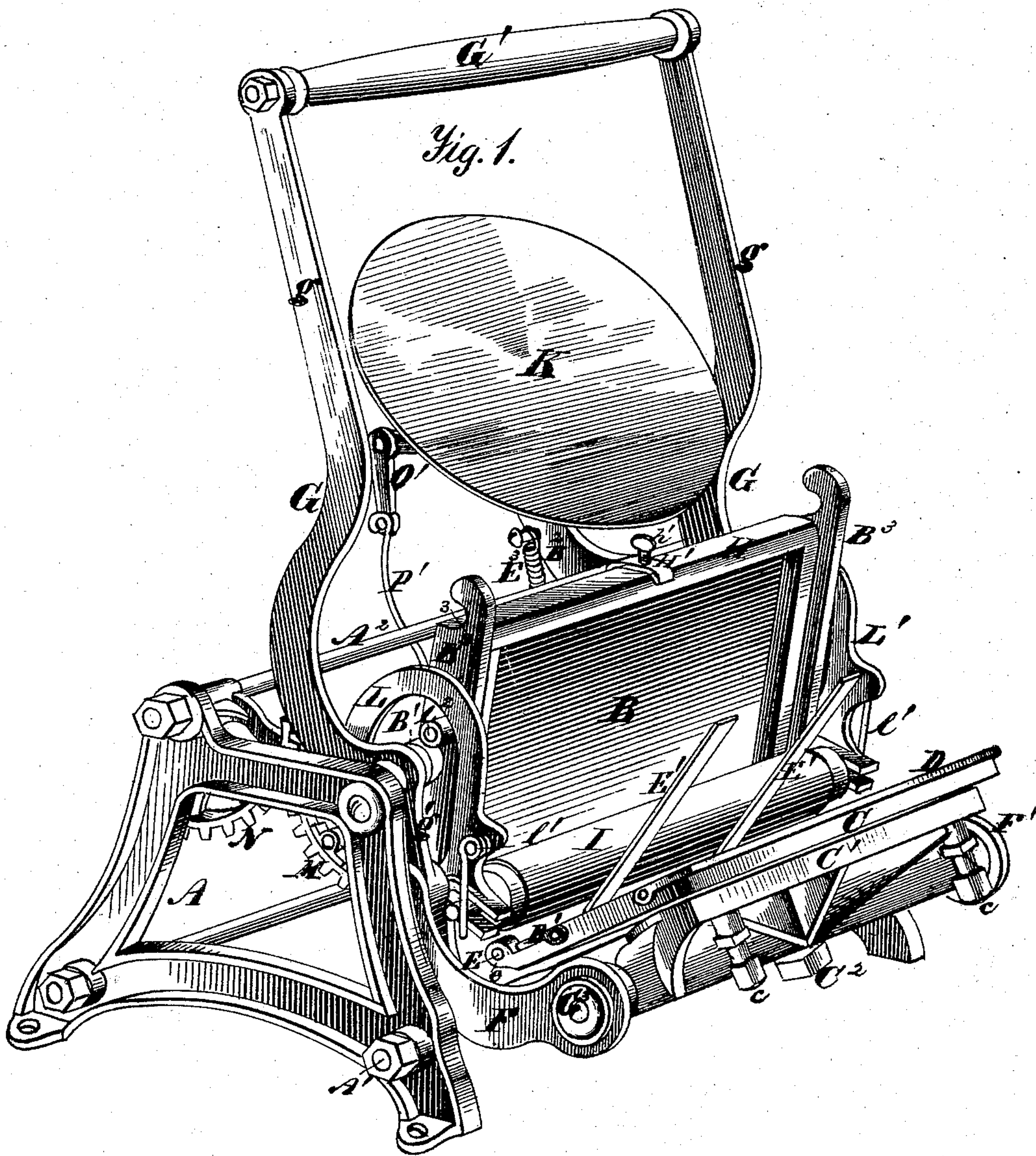


J. W. HILL.  
Printing-Presses.

No. 156,665.

Patented Nov. 10, 1874.



Witnesses.

A. Ruppert.  
H. Quincy

John W. Hill  
Inventor.  
by P. B. F. C. C.  
his Att'y

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Fig. 2.

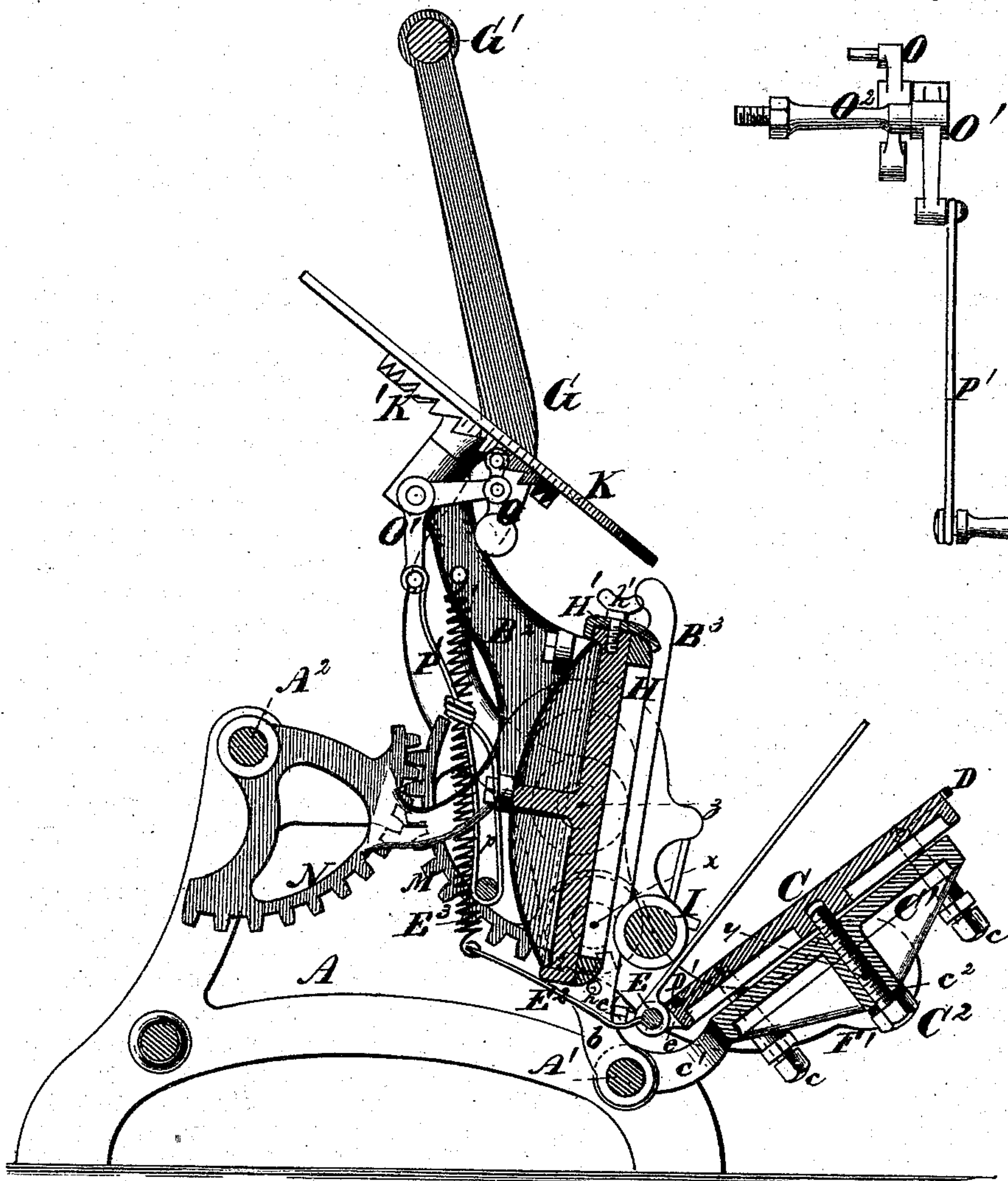
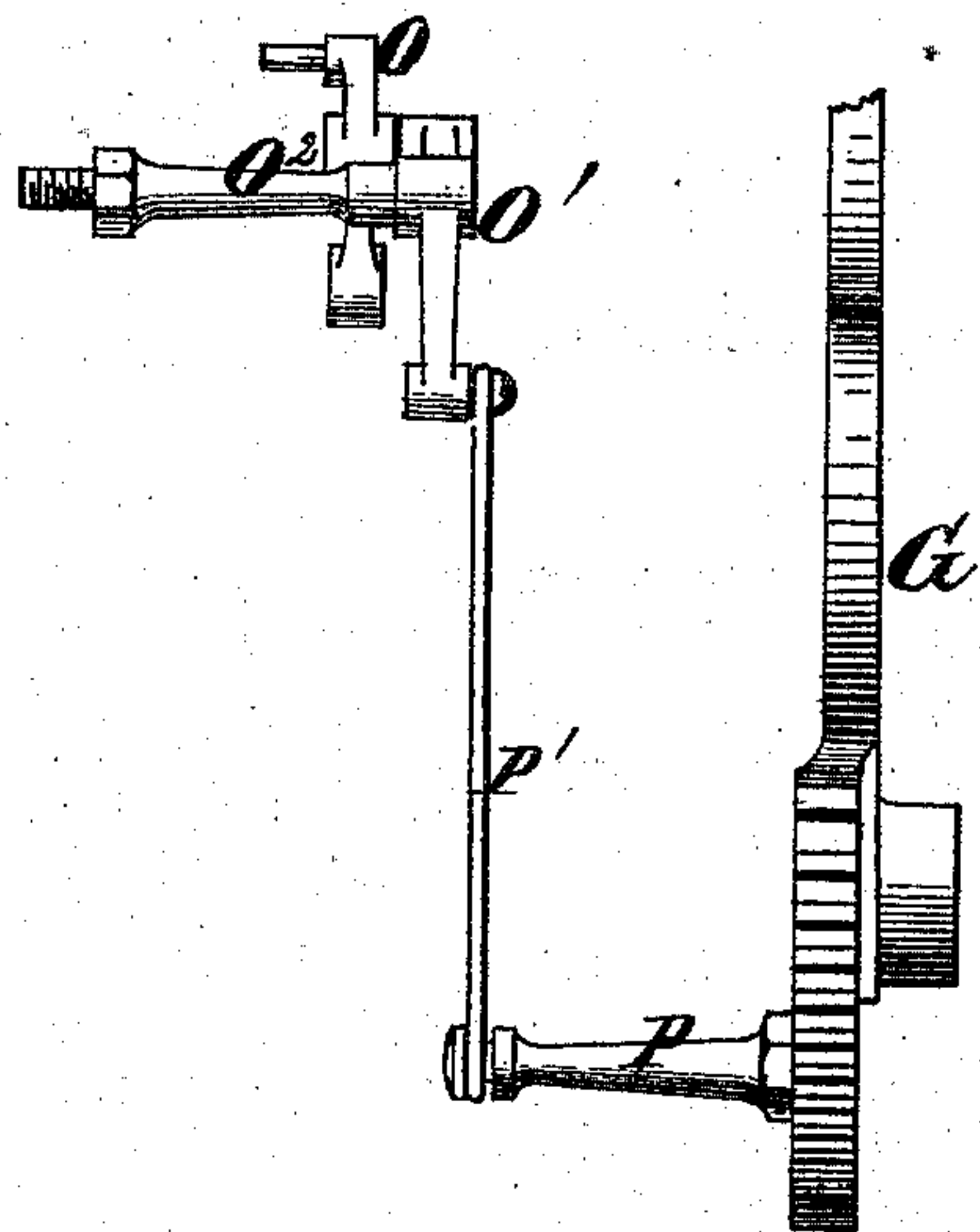


Fig. 3.



Witnesses.  
H. E. Quinn  
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John W. Hill  
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# UNITED STATES PATENT OFFICE.

JOHN W. HILL, OF DAYTON, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO  
CHRISTIAN HERCHELRODE, OF SAME PLACE.

## IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **156,665**, dated November 10, 1874; application filed  
July 18, 1874.

*To all whom it may concern:*

Be it known that I, JOHN W. HILL, of Dayton, in the county of Montgomery and State of Ohio, have invented certain Improvements in Printing-Presses, of which the following is a specification:

This invention relates to what are termed oscillating printing-presses; and is more especially designed to furnish a small hand-press of simple construction, adapted for use as an amateur printing-press, and for office use for printing cards, labels, small circulars, and the like. My improvement consists of novel combinations in the mechanisms for operating the oscillating platen, the inking-roller frame, and the ink-distributing disk, all of which will be so fully explained in the ensuing general description, and so specifically pointed out in the claims, that a more detailed preliminary statement is not necessary.

In the annexed drawings, Figure 1 is a perspective view of my improved printing-press, showing the platen thrown back ready to receive the blank to be printed. Fig. 2 is a transverse sectional elevation thereof. Fig. 3 is a rear elevation of the mechanism for intermittently rotating the ink-distributing disk.

The same letters of reference are used in all the figures in the designation of identical parts.

The various operative parts of the press are mounted on a suitable frame-work, A, capable of being firmly secured to a fixed base. The bed B is arranged at the front of the frame-work in a slightly forwardly-inclined position. At midheight it is provided at either end with a stout wrist or trunnion, B<sup>1</sup>, projecting into and snugly fitting apertures formed in the respective end standards of the frame-work, and from its lower edge project short arms b through eyes in which the bolt A<sup>1</sup> of the frame-work passes. The bed is thus held rigidly in position. The platen C is carried on the oscillating plate or leaf C<sup>1</sup>, which, by means of its arms c<sup>1</sup>, is pivoted on the bolt A<sup>1</sup> between the arms b of the bed and the end standards. The platen is centrally connected to its supporting-leaf by a bolt, C<sup>2</sup>, screwing into a tap in the back of

the platen, but having slight play in the hub of the leaf, an elastic or yielding washer, c<sup>2</sup>, being also interposed between the hub and the head of the bolt. The platen does not come in direct contact with the supporting-leaf, but rests on the points of four set-screws, marked c, which screw through the leaf near the corners of the platen, and are provided with jam-nuts for locking them when once adjusted. By proper adjustment of these set-screws the yielding-connected platen can be readily and accurately adjusted so as to be in exact parallelism with the bed and form at the time of the impression, and the distance between them at that time can also be adjusted by the additional adjustment of bolt C<sup>2</sup>. The tympan-sheet is stretched directly over the platen, and secured by clamps D and D', which, resembling a bail in form, are pivoted to the edge at either end of the platen, at the top and bottom, respectively, the former just fitting over the top edge, while the latter enters a groove along the lower edge when pressed down to confine the sheet previously introduced under them. The frisket consists of a shaft, E, revolving loosely in lugs e at the lower corners of the platen, and grippers E<sup>1</sup> E<sup>1</sup>, mounted on said shaft and adjustably secured thereto by set-screws e', so as to face the platen. The shaft E is provided with a rearwardly-projecting arm, E<sup>2</sup>, connected to the lower end of a spiral spring, E<sup>3</sup>, suspended from the bracket B<sup>2</sup> of the bed B. The normal position of these parts is that shown in the drawings, the grippers standing off from the platen to permit the placing of the blank thereon under them. On oscillating the platen toward the bed, the platen turns on the frisket-shaft until it comes in contact with the grippers. The frisket then partakes of the movement of the platen, and the consequent oscillation of arm E<sup>2</sup> stretches spring E<sup>3</sup>, by the stress of which the grippers E<sup>1</sup> are now forcibly pressed toward the platen to firmly confine the blank until the impression has been made. The grippers can be laterally adjusted on the shaft to suit circumstances. At midheight the supporting-leaf C<sup>1</sup> of the platen has a stout gudgeon, C<sup>3</sup>, at either end, which are connected by means of links F and



F' to the short arms  $g'$  of the levers G, the long arms  $g$  of which are coupled together by the handle G', by which they are operated. These levers are fulcrumed on the trunnions B<sup>1</sup> of the bed, and are thrown forward in the act of oscillating the platen toward the bed, assuming a nearly horizontal position at the time of the impression, so that the operator can bring the requisite pressure to bear with comparative ease. The length of the lever-arms  $g'$  is so proportioned with reference to the arc of oscillation of the platen that at the time of the impression the centers  $x$   $y$  of the links F and F' will be about in line with the fulcrums  $z$  of the levers, and in a plane at right angles to the plane of the form. This has the twofold advantage that, the pressure being square against the bed, a clear, sharp impression will result, even after the bearings have worn some, and that the forces are so balanced as to cause the least possible strain on the machine. The links F and F' are suitably curved as shown, so that they can pass around the fulcrums of the levers. The form is held in the chase H—an iron frame—which is inserted between the guide-rails B<sup>3</sup> B<sup>3</sup> of the bed, resting with the convex side of its lower bar on studs  $h$ , projecting from the guide-rails B<sup>3</sup>, and standing a sufficient distance from the face of the bed to allow this bar of the chase to enter a little distance between them, the convexity of the bar causing the chase to be firmly pressed against the bed. The chase is secured by a clamp, H', hooking over its top bar, as shown, and tightened by a thumb-screw,  $h'$ .

The form is inked by one or more inking-rollers, I, which take ink from the distributing-disk K, mounted by means of a central spindle projecting from its under side in a bearing on the bracket B<sup>2</sup>. The inking-roller (one only being shown) is moved back and forth over the ink-distributing disk K and the form by the oscillating arms L and L' in elongated slots  $l$ , in the outer ends of which its journals turn, the latter being retained therein by the springs  $l'$ , which also exert the necessary pressure on the roller for receiving and giving off ink. The arms L and L' are pivoted on the bolt A<sup>2</sup> of the frame-work, and a return curve is formed in each, so that they may pass, with the inking-roller, below the plane of the trunnions of the bed. Pins  $l''$  project from either end of the bed, encircled by rubber sleeves, and so arranged that the curve of the arms L

and L' will bring up against them when the inking-roller has descended to its lower limit. These oscillating arms derive their motions from the levers G, through the medium of the segmental gears M on the levers, and corresponding segmental gears N on the arms. These gears are eccentric to their axes of rotation in such a manner that, during a uniform movement of the levers G, the inking-roller will have a retarded motion over the ink-distributing disk, and a proportionately accelerated motion over the form, the object being to secure thorough distribution. The inking-roller has a collar at either end, registering with and traveling on the guide-rails B<sup>3</sup> in passing over the form. The ink-distributing disk is, as usual, partially rotated during the travel of the inking-roller over it. This I accomplish by means of a gravitating pawl, O, operating on a circular series of ratchet-teeth, K', on the under side of the disk. The pawl is pivoted to a bell-crank, O<sup>1</sup>, fulcrumed on a fixed stud, O<sup>2</sup>, projecting from the supporting-bracket, B<sup>2</sup>. The pendent arm of the bell-crank is connected by a slotted bar, P', to a stud, P, fixed to the segmental gear M of one of the levers G. The slot  $p$  in the arm or bar P', in which the stud plays, is so formed that the motion of the stud P will impart the required intermittent partial rotations to the ink-distributing disk.

This press may be operated by a treadle, the manner of applying which will be obvious to any skilled mechanic.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the levers G, eccentric gears M N, arms L L', and inking-roller I, substantially as specified.
2. The combination of the ink-distributing disk K K', gravitating pawl O, bell-crank O<sup>1</sup>, link P', and stud P, connected to one of the levers G, substantially as specified.
3. The combination of the bed, oscillating platen, links F F', levers G, eccentric gears M N, arms L L', and inking-roller I, substantially as and for the purpose specified.

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

JOHN W. HILL.

Witnesses:

H. C. HERCHELRODE,  
O. M. GOTTSCHALL.