

G. P. GORDON.
Printing-Presses.

No. 151,966.

Patented June 16, 1874.

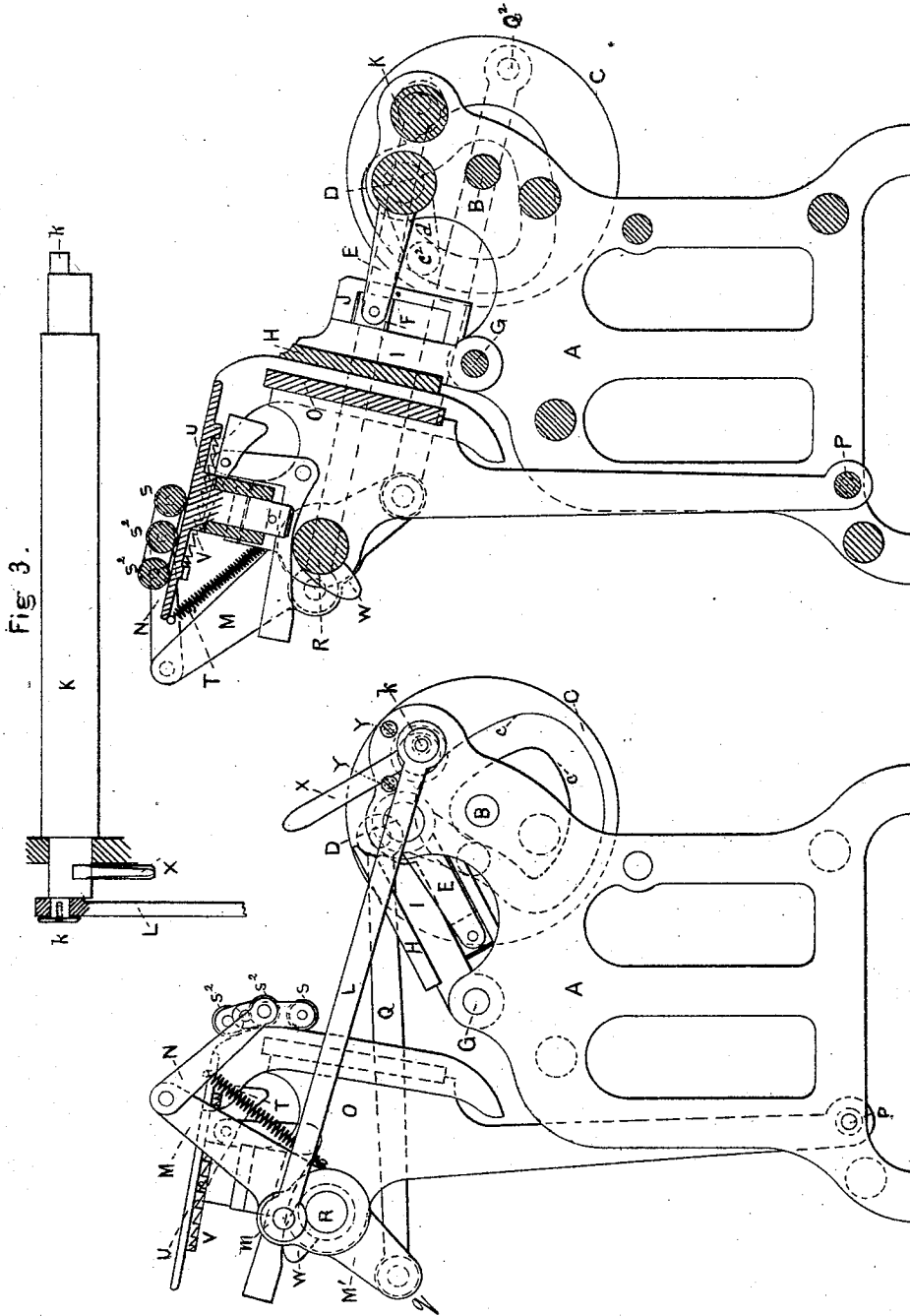


Fig. 2.

Fig. 1.

WITNESSES.

Wm. Spear, Jr.
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G. P. Gordon

INVENTOR.

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Fig. 4.

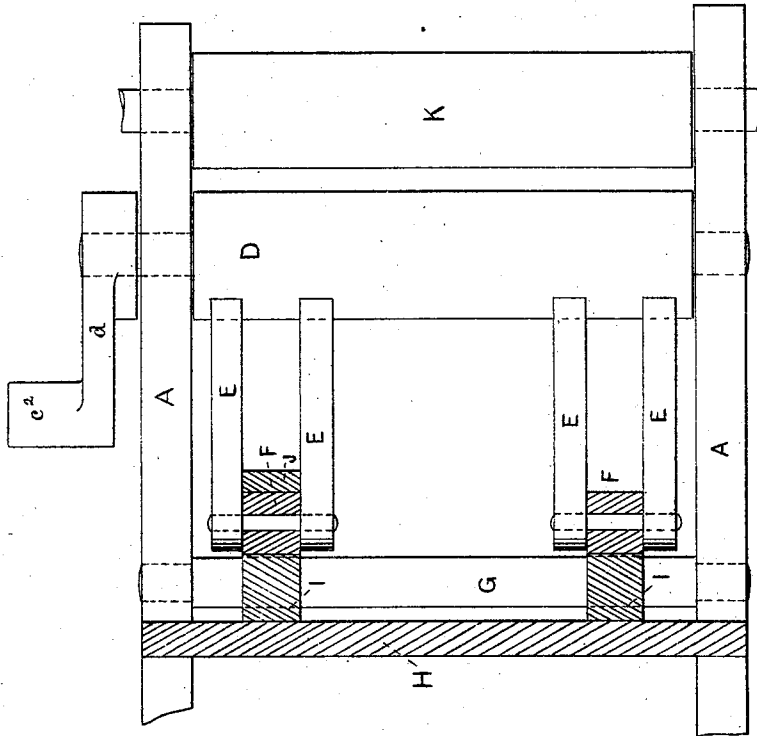


Fig. 5.

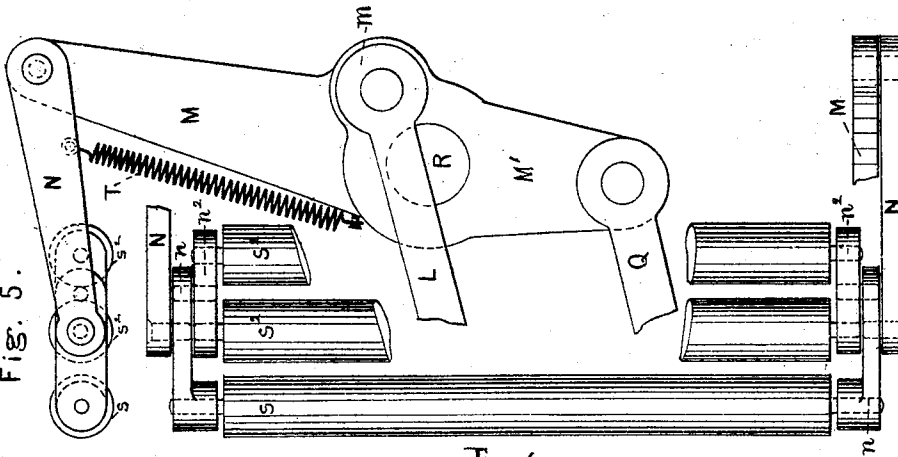


Fig 6

WITNESSES.

Wm. Spear, Jr.
A. Liberty Brown

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INVENTOR.

UNITED STATES PATENT OFFICE.

GEORGE P. GORDON, OF WOODBRIDGE, NEW JERSEY.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **151,966**, dated June 16, 1874; application filed June 20, 1873.

To all whom it may concern:

Be it known that I, GEORGE P. GORDON, of Woodbridge, Middlesex county, New Jersey, have invented, made, and applied to use Improvements in the Construction of Printing-Presses; and that the following is a full, clear, and correct description of the same, reference being had to the accompanying drawing making part of this specification, and to the letters of reference marked thereon, in which—

Figure I is a side elevation of my improved printing-press, the platen being in position to receive the sheet to be printed. Fig. II is a sectional side elevation of the same, the bed and platen being in position for an impression to be given. Fig. III is a view of the eccentric shaft. Fig. IV is a top view of the platen, and the means to operate it. Fig. V is a view showing the construction of the roller-holders. Fig. VI is a top view of the roller-arms and carriers.

In the drawings like parts of the invention are designated by the same letters of reference.

The nature of the present invention consists in certain improvements, as more fully hereinafter set forth, and will be found to relate more particularly to the means employed to operate the bed and the platen of the press, and give it the periods of rest necessary for the reception of the sheet, and for the reception of the impression, and in improved means to hold and carry the form-inking rollers.

To enable those skilled in the arts to make and use my invention, I will describe its construction and operation.

A shows a frame for supporting the operative parts of my improved printing-press. B is a shaft inserted in the frame A, having secured upon one end of it a wheel, C, having a cam, *c*, cut in it so formed as to give a period of rest to the platen while receiving the sheet to be printed, and while receiving an impression from the type secured upon the bed of the press. D is a rock-shaft supported in the frame A, and having secured upon one end of it the crank-arm *d*, in the lower end of which is secured a stud, *c*², supporting a roller which plays in the cam *c* of wheel C, so that a rocking motion is given to the shaft D. To this shaft D are attached the projecting arms E, in the forward ends of which are held the boxes F. G

shows a shaft held in the frame A, upon which is keyed the platen H, upon which the paper to be printed is laid. This platen H is provided at its rear or back with the bearing-pieces I, and to one of these bearing-pieces is attached a slotted piece, J, so that one of the boxes F shall be snugly held in the slotted piece J, while the other box is free to move upon the bearing-piece attached to the platen H. K shows a shaft inserted in the frame A, the ends of which shaft project beyond the frame a certain distance. In the ends of this shaft K, placed eccentrically, are the studs *k*, over which are passed the forward ends of the rocking connections L, the rear ends of the same being passed over the rocking crank-studs *m*, secured in the roller-arms M, to which are attached the roller-carrier supports N. O shows the bed-frame of the press upon which the form is secured, hung upon a rod, P, inserted in the frame A. Q is a connection, one end of which is passed over a crank-stud, Q², inserted in the wheel C, and its opposite end over a stud, *q*, inserted in an extension, M¹, of one of the roller-arms M. M are the roller-arms secured upon a rock-shaft, R, passed through the bed-frame O, and N are the roller-carrier supports attached to one end of the arms M. The roller-carrier supports, two of which are employed, one on either side of the press, consists of a lever attached at one end to the arm M, while to its opposite end is attached at one-third from the rear end of its length the carrier *n*, in the front end of which the forward roller S is secured and carried, and to the short end of this carrier is attached the saddle-piece *n*², in which the two rollers S² are carried. A spiral spring, T, attached at one end to the lever N, and at its opposite end to the arm M, governs the movements of the rollers S and S², and causes them to bear with an equal pressure upon the same as they pass from the ink-distributing surface down over the form and up over the form, and onto the ink-distributing surface. U shows an ink-distributing table or disk secured upon the bed-frame O, and revolved by a ratchet, V, and rocking pawl held on bell-crank lever, operated in turn by a surface-cam, W, secured upon the rock-shaft R. Upon this disk or table the ink to be sup-

plied to the form by the rollers S and S² is placed, and by the rotation of the table by the ratchet and cam secured upon the rock-shaft R is distributed. X is a handle attached to the shaft K, by which the same may be turned by the operator, and Y are stops secured in the frame A to govern the throw of the handle X. The forward ends of the connections L being attached to the eccentric studs upon the rock-shaft K, and their rear ends to studs inserted in the roller-arms M, held upon the rock-shaft R carried at the back of the bed, and moving with it when the position of the rock-shaft K is changed by turning the handle X the bed O will be moved away from or drawn toward the platen H. Thus a simple and easily-operated "throw-off" is provided for.

Such being the construction, the operation is as follows: We will suppose the platen to be in position to receive the sheet to be printed, the form to have been placed upon the bed, the rollers S and S² having reached the extent of their downward movement, and resting at or near the bottom of the bed O. The sheet to be printed having been laid upon the platen, and motion being imparted to the wheel C in any convenient manner, the same commences to revolve. In this wheel C is the cam *c*, in which plays the roller attached to the crank-arm *d*, secured upon one end of the rock-shaft D, and over a stud inserted in this wheel C is passed one end of the connection Q, its opposite end being passed over a stud secured in extension M¹ of one of the roller-arms M secured upon the rock-shaft R. The wheel continuing to revolve the rock-shaft D is rocked up, carrying with it the projecting arms E, in which are held the boxes F. As the rock-shaft is rocked up the projecting arms are gradually raised from an inclined position to a position at right angles with the face of the platen, when it shall receive the impression, and the boxes F, moving, one in the piece J and the other upon or against the bearing-piece I attached to the platen H, cause the platen to be rocked upon the shaft G, and to be moved from the position necessary to receive the sheet to be printed into a position for the reception of the impression. During this movement of the platen, the inking-rollers, held in the carriers as described, have been carried up and over the form and onto the ink-distributing table by the connection Q attached at one end to the stud in the wheel C, and at the other end to a stud secured in extension M¹ of one of the roller-arms M. By the movement of the wheel C this connection Q, attached as described, causes the rock-shaft R to be rocked up. As the shaft is rocked up the back ends of the connections L are thrown around the rock-shaft R, until their centers are brought into line with the centers of the shafts D and K, and the bed is vibrated forward to give an impression. Thus, at the moment of impression, the rock-shaft with its projecting arms carrying the sliding boxes, the connections, the eccentric shaft centers, and the

crank-centers upon the bed rock-shaft, are all brought into a direct line with each other. An impression having been given, and the motion of the press continuing, the movement of the rock-shaft being reversed, or the shaft being rocked back, the bed is vibrated back to its former position to relieve the printed sheet, and to allow the free passage of the rollers over the form, the inking-rollers are carried down and over the distributing-surface and over the form, imparting ink to the same; and the platen, by the downward movement of the projecting pieces upon the rock-shaft D, is moved back to its former position, the ink-distributing surface having been revolved a certain distance during the downward movement of the rollers S and S², by the ratchet V, operated by the surface cam W, secured upon the rock-shaft R.

It will be observed that the platen is held upon an axis of its own, placed directly underneath, and that the rock-shaft with its projecting arms, when the platen is in position to receive the impression, stands at a right angle from the face of the platen, and in line with its center; a platen being thus held and supported, a form may be printed upon any part as safely and well as though it were permanently stationary.

The sliding boxes are chosen and used for the purpose of presenting a large bearing-surface upon their outer surfaces, and thus necessarily insure greater durability. They also present a larger bearing upon the pins or bolts which pass through them, viz., one-half the full size of such pins or bolts. Were rollers used instead of boxes, but a single line upon their periphery would be opposed to the crush of the impression.

When desirable to use four rollers instead of three rollers, a second saddle-piece may be substituted for the single-roller swing-piece, in which case it will be attached centrally to the lever.

Having now set forth my invention, what I claim as new is—

1. The combination of the rock-shaft R with the rocking crank-studs *m*, to which are attached the connections L, and the extension M¹, and its connection Q, constructed and operating substantially as and for the purposes set forth.

2. The swing-carriers *n*, holding and carrying a single roller, in combination with the saddle-pieces *n*², pivoted by the carriers *n*, and holding and carrying two rollers, said carriers *n* hung and rocked upon a center, so placed that an equal pressure shall be given to all the rollers in passing over a plane or curved surface from single springs T, substantially as and for the purposes set forth.

3. The rock-shaft D with the projecting arms E, in combination with the sliding boxes F, and the platen H, for the purposes fully set forth.

4. The rocking connections L, in combination with the vibrating bed O, rock-shaft R,

crank-studs *m*, arms *M*, handle *X*, and the shaft *K*, provided with the eccentric studs *k*, for the purpose specified.

5. The combination of the rock-shaft *K*, provided with the eccentric studs *k*, the rock-shaft *D*, with its projecting arms *E*, the rock-shaft *R*, with its crank-studs, and the connections *L*, so constructed that the centers of the

same shall fall in a direct line with each other at the moment of impression, for the purpose specified.

GEO. P. GORDON.

In presence of—

A. SIDNEY DOANE,
JOHN H. STAATS.