2 Sheets—Sheet 1.

F. W. GRIFFITH & G. P. BYRNE.

PRINTING PRESS.

No. 189,556. Patented April 17, 1877.

Fig. 1.

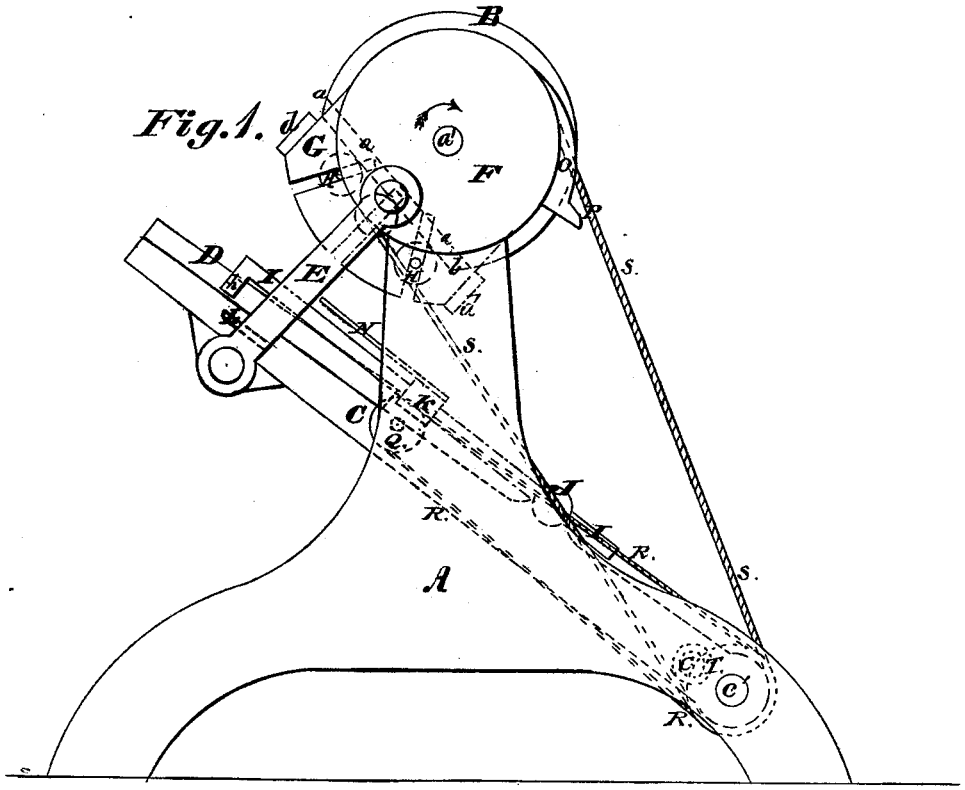
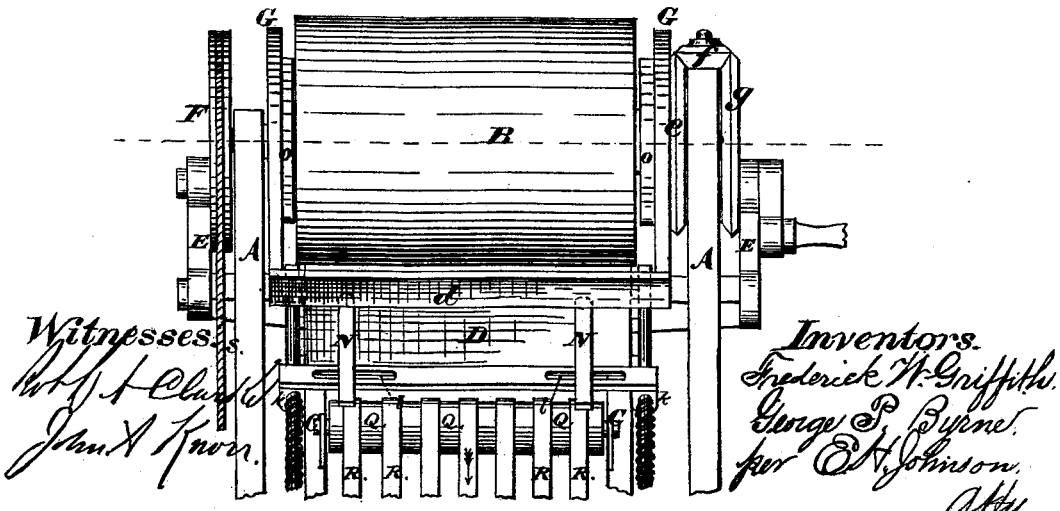


Fig. 2.



Witnesses.
John A. Knox.

Inventors.
Frederick W. Griffith.
George P. Byrne.
per E. H. Johnson.
Atty.

F. W. GRIFFITH & G. P. BYRNE.

PRINTING PRESS.

No. 189,556. Patented April 17, 1877.

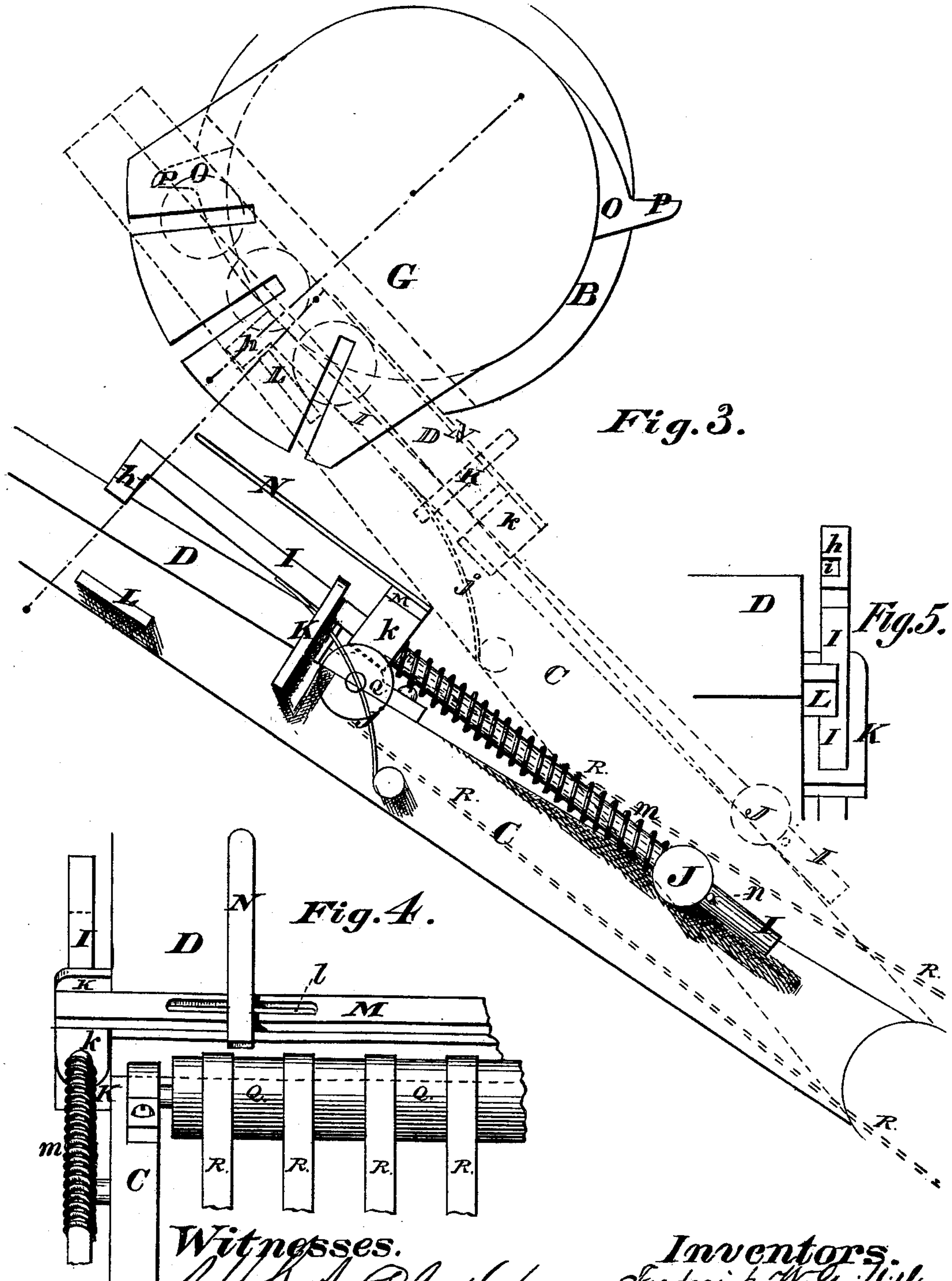


Fig. 3.

Fig. 5.

Fig. 4.

Witnesses.
Robt. D. A. Clarke
John A. Knox

Inventors.
Frederick W. Griffith,
George P. Byrne,
per E. S. Johnson.
Atty.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FREDERICK W. GRIFFITH AND GEORGE P. BYRNE, OF NEW YORK, N. Y.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **189,556**, dated April 17, 1877; application filed January 17, 1876.

To all whom it may concern:

Be it known that we, FREDERICK W. GRIFFITH and GEORGE P. BYRNE, of the city, county, and State of New York, have invented certain Improvements in Printing-Presses, of which the following is a specification:

Our invention relates to job-printing presses; and consists in a novel construction, combination, and arrangement of parts, which have for their object to improve the operation of the press, as will be fully hereafter set forth.

Figure 1 is a side elevation of a press embodying our improvements. Fig. 2 is a rear elevation of a portion of Fig. 1. Fig. 3 is an enlarged view of a portion of Fig. 1, and which illustrates more fully the parts of our improvements. Fig. 4 is a rear view of a portion of Fig. 3, and Fig. 5 is a view in detail.

These improvements are shown as applied to the improved press described in Letters Patent No. 168,635, granted to us October 11, 1875, and for a detailed description of such press reference may be had to said Letters Patent. We, however, have shown in the accompanying drawings the principal parts of the press, A A being the side frames; B, the stationary distributing and bed cylinder, supported in square bearings in the upper part of the side frames. The dotted lines *a b* represent the chase. C C are the oscillating arms, which carry at their upper extremities the platen D. They are journaled at *c c* in the side frames, and are oscillated by the connecting-bar E, which is pinned to the platen-frame and to the crank-disk F. G G are the roller-frames, carrying the inking-rollers H H, (shown in dotted circles.) These roller-frames are rigidly connected with each other by the bars *d d*, and revolve on a portion of the hub projecting from the cylinder, and they are driven by the gearing *e f g*, the gear-wheel *g* being secured on a shaft which passes through the hollow hub of the cylinder, and carries at its other extremity the crank-disk F.

In presses of this class, which are designed for very rapid work, it is found necessary, in practice, to provide some means by which the adhesion of the paper to the form may be overcome, and the sheet stripped therefrom; and we have found it expedient, while employing an automatic delivering device, such as is shown and described in our before-mentioned patent, which supports the sheet for a proper length of time, and then allows it to slip from the platen onto delivering-tapes, to provide a means for starting and assisting the sheet on its descent. To accomplish these purposes we first employ fingers or bars, which are pressed down by suitable means, and kept pressed on the paper until it is properly separated from the form; secondly, we reciprocate by suitable mechanism these fingers on the paper, so as to overcome its adhesion to the platen, consequent upon its being pressed firmly thereon by the stripping-fingers, and then raise them to allow the sheet to slide off the platen and another one to be placed thereon.

I is a rod, which slides through the hub or block J, pivoted to the arm C of the platen-frame, so that the rod will oscillate on the point J as a center. The upper portion of the rod is square, and moves in the guide K, which prevents its turning, and acts as a limit to its upward motion. The upper extremity of the rod I has a piece, *h*, projecting downward therefrom, in which is cut the slot *i*, as shown at Fig. 5, and on the arm of the platen-frame is a projecting cleat or ledge, L.

The rod is kept pressed up against the stop K by the spring *j*. On the other side of the platen-frame is a duplicate set of the parts just described, arranged precisely the same, and designated by similar letters of reference, as will be seen by reference to Fig. 2.

On each of the rods I I is a block, *k*, secured thereon by set-screws, and to these blocks the extremities of the bar M are secured. *l* are slots cut in the bar M, and N are fingers or thin bars, which are secured to the bar M at right angles thereto by set-screws passing through the slots *b*, so as to admit of their lateral adjustment.

These fingers may be of any desired shape, and may have supplementary fingers projecting at right angles therefrom, so as to bear on the lower edge of the sheet.

m are coiled springs, which act against the blocks J and *k*, and tend to keep the stops *n* on the rods against the blocks J.

O is a cam, of the form shown, which may be secured to the roller-frame G, or be formed

directly thereon. The rear of this cam is extended into a projection, P, the object of which will soon be obvious. Both roller-frames are provided with this cam.

Q is a roller, journaled between the platen-arms, and just below the lower edge of the platen, the top of the roller being even with the top of the platen, as shown. c' is a shaft, journaled in the side frames, its center being as near as possible to the center c, on which the platen-arms oscillate; or the platen-arms may be so journaled in the frames as to allow of the shaft c' being concentric with the center on which they (the platen-arms) oscillate. On the shaft c', between the side frames, is secured a roller of the same length as the roller Q, and of about the same diameter, or somewhat larger. On the shaft c', outside the frame, is fastened the grooved pulley T. S is a band, passing around the grooved periphery of the crank-disk F and the pulley T. R R are endless tapes or bands passing around the roller Q, and the one at the lower part of the press. The upper lengths of these tapes are in the same plane with the top of the platen.

The parts, being constructed and arranged as described, will operate as follows:

On the shaft a', turning in the direction of the arrow, the roller-frames are revolved in the opposite direction through the pinion f, and the rollers pass down over the form to ink it, and having passed over the type and out of the way of the platen, the latter ascends, and in its ascent, of course, carries up the rods I I and the other mechanism on its frame.

When the platen is in close proximity with the form the roller-frame has turned so as to have brought the cam O nearly in the position shown by the dotted lines, Fig. 3, and as the platen continues to ascend the rods I I come in contact with the cams O, or a portion of the roller-frames, if the cams are formed directly on the edge thereof, and by the continued ascent of the platen they are forced down by the roller-frames acting as stops into the position shown by the dotted lines in Fig. 3, and the fingers or bars N N thus pressed down on the paper. At this juncture the impression is taken, and the dead-center of the crank-disks F g having been passed, the platen is about to commence its descent. If there were no provision made for keeping down the fingers on the paper—as, for instance, if the rods were pressed down merely by the periphery of the roller-frame—these rods would be pressed up by the spring j, and the moment the platen commenced its descent the fingers would begin to arise from the platen. Therefore, to keep the rods pressed down, and the fingers N N firmly on the paper during the early descent of the platen, so as to effectually strip the paper from the form, and until such a time as the fingers may safely be reciprocated to start the sheet downward, we employ the cam O, of the form and dimensions shown, so that it shall compensate for the fall of the platen, and thus keep the rods pressed down until the projections P arrive at them. When this takes place the projections strike the rods on their ends, and push them on the ledges L, which enter the slots in the piece h, and continues keeping the fingers on the sheet. As the roller-frame revolves, the projections P P force the rods downward until they slip off the ledges L L, and are forced up and forward by the springs j and m. This downward motion of the fingers moves the sheet off the platen onto the conveying-tapes of the press, R R. The under surface of the fingers may be roughened or covered with some material which will cause more friction between it and the paper than between the latter and the platen.

We claim—

1. The reciprocating fingers to overcome the adhesion of the sheet to the platen and draw it therefrom, in combination with the mechanism for operating them, substantially in the manner described and specified.

2. In combination, the rods I I, springs j, fingers N N, and stops for coming in contact with and depressing the rods, constructed and operating substantially in the manner described and specified.

3. In combination, the rods I I, springs $j\,j$, fingers N N, and cams O O, for keeping the fingers depressed during the early descent of the platen, substantially as described and specified.

4. In combination, the rods I I, springs $j\,j$, springs $m\,m$, fingers N N, cams O O, projections P P, and ledges L L, substantially as described and specified.

5. The combination of the stripping-fingers N N, for drawing the sheet off the platen, with the tapes R R, situated in the same plane with the top of the platen, for receiving and conveying away the sheets, constructed and operating substantially in the manner described and specified.

FREDERICK WM. GRIFFITH.
GEO. P. BYRNE.

Witnesses:
J. B. NONES,
R. CHARLES.