3 Sheets—Sheet 1.

F. W. GRIFFITH, G. P. BYRNE & A. SHEDLOCK.

PRINTING-PRESS.

No. 189,728. Patented April 17, 1877.

Fig. 1.

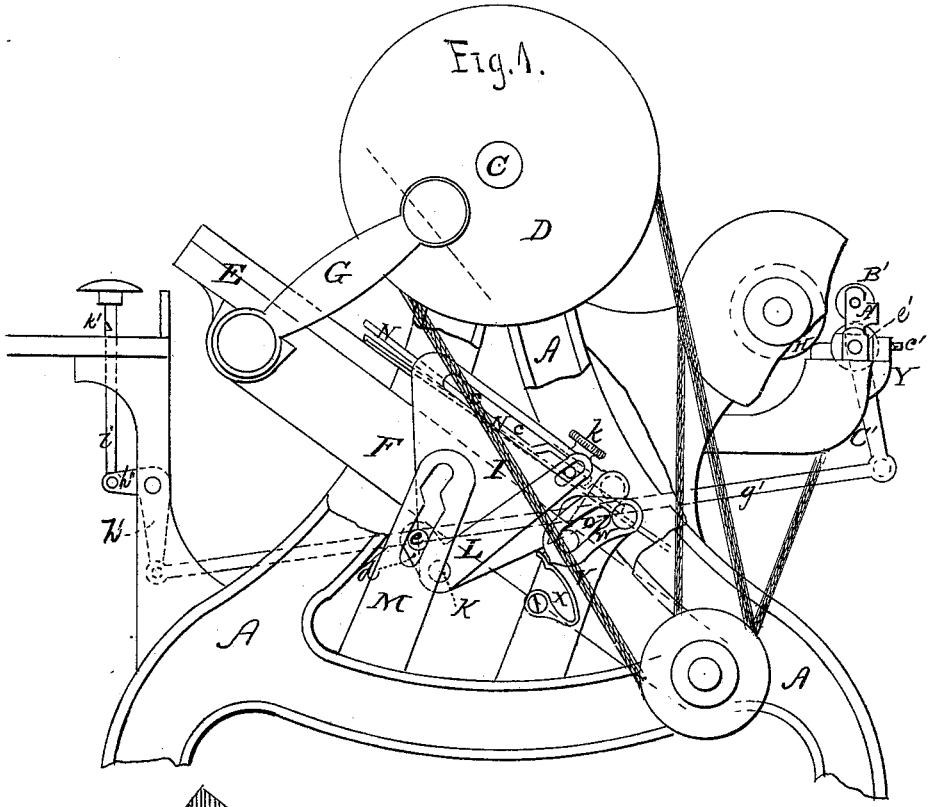
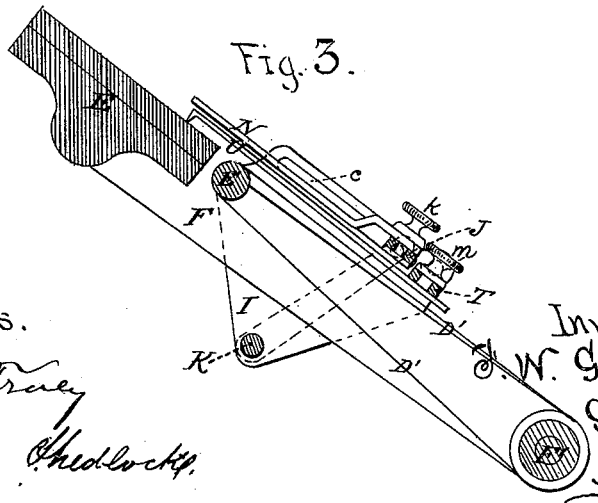


Fig. 3.



Witnesses.

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3 Sheets—Sheet 2.

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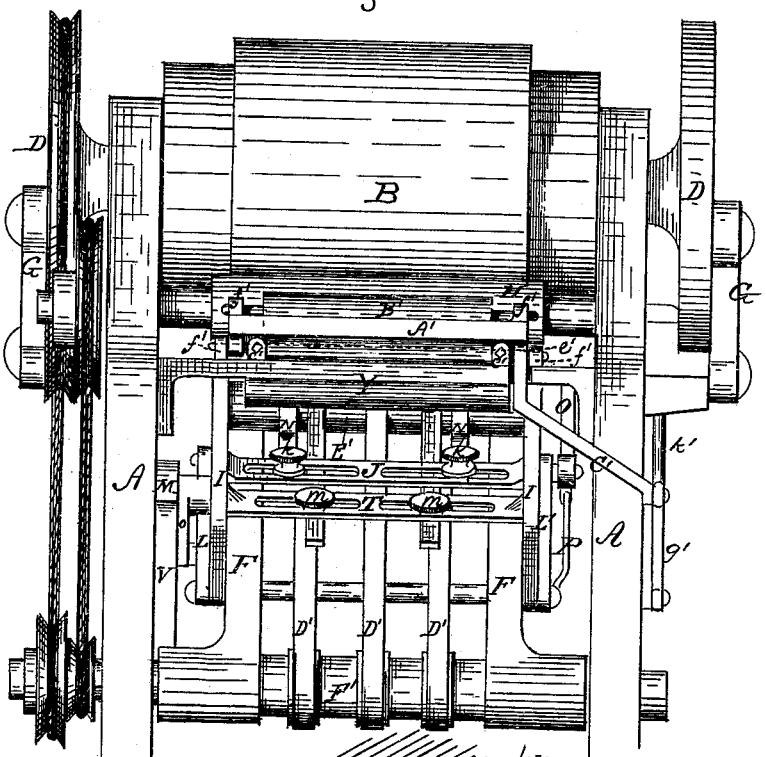
Fig. 2.



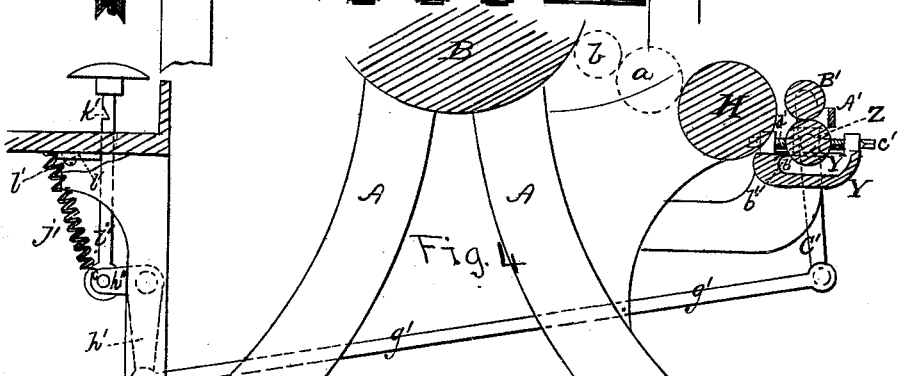


Fig. 4

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3 Sheets—Sheet 3.

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PRINTING-PRESS.

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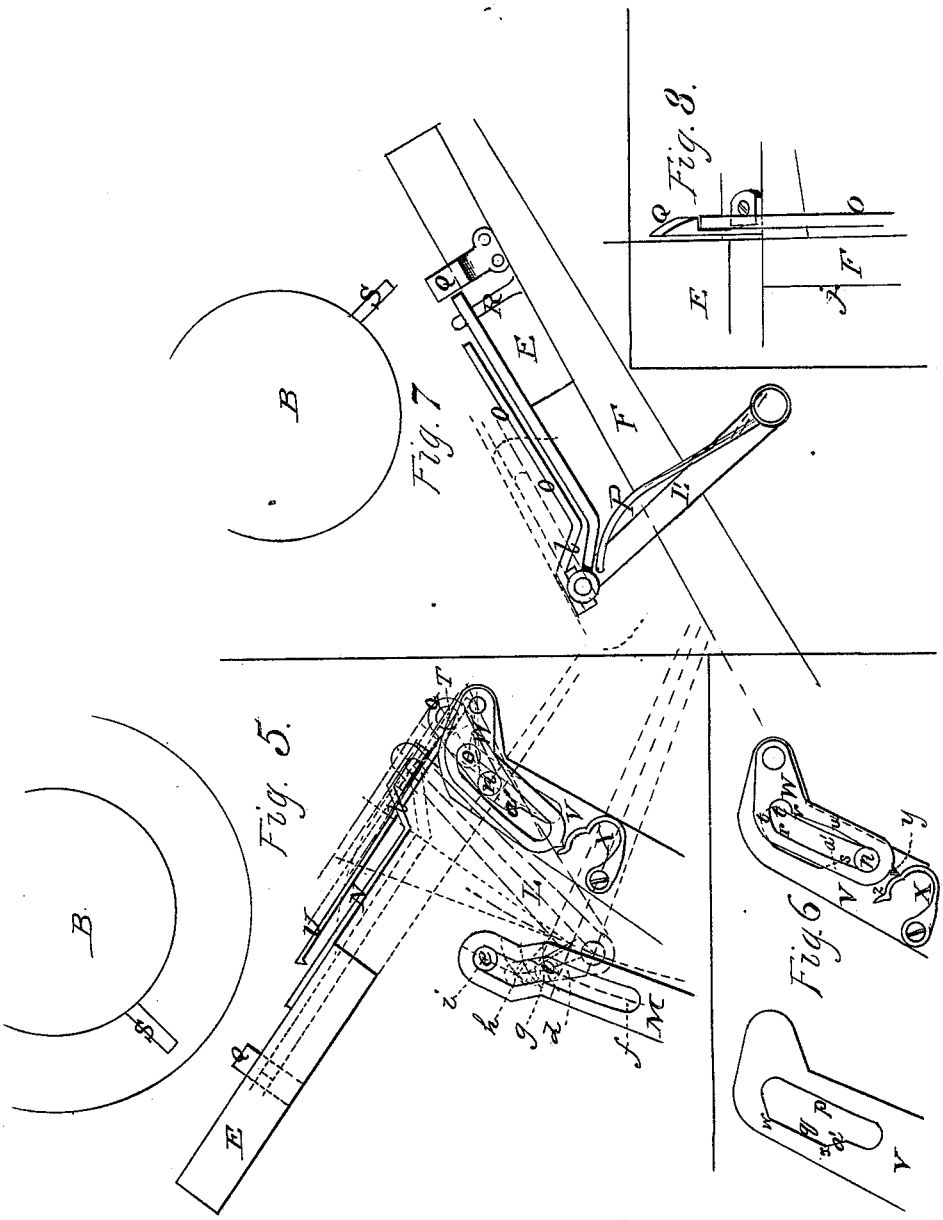

Witnesses.
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UNITED STATES PATENT OFFICE.

FREDERICK W. GRIFFITH, GEORGE P. BYRNE, AND ALFRED SHEDLOCK, OF NEW YORK, N. Y.; SAID SHEDLOCK ASSIGNOR TO SAID GRIFFITH AND BYRNE.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. **189,728**, dated April 17, 1877; application filed August 29, 1876.

To all whom it may concern:

Be it known that we, FREDERICK W. GRIFFITH, GEORGE P. BYRNE, and ALFRED SHEDLOCK, 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 printing-presses, more particularly to those used for "job-" work; and consists in a novel construction, combination, and arrangements of parts; and its object is to improve the operation of such presses generally, as will be fully hereafter set forth.

Figure 1 is a side elevation. Fig. 2 is an end elevation. Fig. 3 is a longitudinal sectional view. Fig. 4 is a longitudinal section of a part of the press, showing the ink-fountain and means for operating the same. Figs. 5, 6, 7, and 8 are diagrams representing the operation of certain parts of our improvements.

This invention is an improvement on the press described in United States Letters Patent No. 168,635, dated October 11, 1875, granted to F. W. Griffith and George P. Byrne, and also on a certain invention in presses described in an application for United States Letters Patent therefor filed by F. W. Griffith and Geo. P. Byrne, January 17, 1876.

We will herein confine ourselves to a description of our improvements as applied to the press referred to in above Letters Patent, and for a particular description of the construction and operation of such press reference may be had to said patent.

In the drawings, A is the side frames; B, the stationary bed and distribution-cylinder; C, the shaft passing through this cylinder and carrying on each end the crank-disks D D. E is the oscillating platen, and F the platen-arms. G G are the links pivoted at one extremity to the sides of the platen, and at the other to the crank-disks, so that as the latter revolve the platen is oscillated to and from the bed-cylinder. H is a roller that receives the ink from the ink-fountain, and conveys it by means of a traversing-roller to the inking-rollers, both shown by dotted lines at *a* and *b*, Fig. 4. Such is a general description of the principal parts of the press to which we have applied our improvements, and which will enable those skilled in the art to readily understand the following description of our invention, which is designed—

First, to manipulate the sheet; *a*, to strip it from the form after it has been printed; *b*, to remove it from the platen; *c*, to regulate the action of the stops which support the sheet.

Second, to place the supply of the inking-rollers under the control of the feeder from his position at the feed-table.

Third, to regulate the flow of ink from the ink-fountain.

To the outside of each platen-arm, and just below the platen, is bolted a triangular plate, I. In the upper part of these plates is a straight slot, *c*, and in each of these slots enters a pin, projecting from each extremity of the bar J, so that the bar can rock in these slots. K is a rock-shaft, running transversely of the platen-arms, and having its bearings in the lower end of the triangular plate I. This shaft carries on each extremity, just outside the plates I, the arms L L′, which extend to and embrace, in a slot formed in their free extremities, the pins projecting from the ends of the bar J, which pass through the slots in the plate I. One of these arms, L, has formed on its lower end a short limb, *d*, and from this limb a stud, *e*, projects and enters the cam-slot in the plate M, bolted to the frame of the machine. The cam-slot from *f* to *g* and *h* to *i* is an arc of a circle, having the point *j* as a center. From *g* to *h* it bends, as shown, so as to throw the arms L L′, as the platen in rocking carries the pin *e*, through this bend, as will be readily understood from Figs. 1 and 5. The bar J is slotted longitudinally, and through the slots pass clamping-screws *k k*, which bind at right angles to it, and extending toward the platen the fingers N N, composed of strips of steel bent as shown at *l*, Figs. 3 and 5. The pin on one extremity of the bar J extends through the slot in the arm L′, as shown at Fig. 2, and carries a bent arm, O, Fig. 7, which extends toward the platen E.

P is a spring, secured to the arm L′, which tends to press the arm O upward. Q is a spring-catch, secured to the platen, as shown at Figs. 7 and 8; and R is a stop, likewise secured to the platen immediately behind the catch Q.

From the cylinder B or side frame of the machine projects a stop, S, against which, when the bar J was in the upper part of the slot in which it reciprocates, the arm O would come in contact on the upward movement of the platen. On moving upward, the arm O passes over the spring-catch Q, and on being depressed by the stop S it forces the catch back and slips under it, and is thereby held down, and the fingers N, attached to the bar J, are likewise pressed on the platen, and held there by the spring-catch Q.

On the backward movement of the arm O its end passes from under the catch Q, and the spring P forces it upward against the stop R, which determines its upper position. T is a bar, running parallel with the stripping finger-bar J, and which has circular bearings at each end in the triangular plates I I on the platen arms. This bar is slotted similarly to the bar J, and to it are attached, by set-screws, which pass through the slots, the guide-fingers U U, which extend up to the platen, as shown at Figs. 3 and 5. These fingers are slotted longitudinally, the set-screws *m m* passing through the slots, by which they are adjusted in the direction of their length, while the slots in the bar T allow of their lateral adjustment. These fingers are operated by the compound cam V W, which acts on the stud *n*, projecting from the arm *o*, secured to the extremity of the bar extending through its bearing in the triangular plate I, and as the platen oscillates these fingers are given a motion by which they rest on the platen while the latter is ascending, rise therefrom the moment it commences to descend, or immediately thereafter, close again toward the bottom of the descent, and keep closed until the platen has reached its highest point and commences to descend.

The construction of the compound cam is as follows: It is composed, essentially, of two cam-plates, V W, one of which is stationary and the other pivoted. The configuration of the slot in the stationary cam-plate V represents the path of travel of the stud *n*, on the arm *o*, and to keep it (the stud) against the sides *p* and *q* the pivoted cam plate W is employed. In Fig. 6 this cam is in position to keep the stud against the side *p*, the side *r s* of the cam W being an arc of a circle, concentric with the circle of which the side *p* of the stationary cam-slot is an arc. The circles of which these sides of the cams are arcs are struck from the center *j*, about which the platen-arms oscillate, and consequently in moving through the slot formed by these sides of the cams, when the movable one is in the position shown at Fig. 6, the arm is kept stationary between the points *r* and *s*; but from this point *r* in the movable cam there occurs the offset *t*, and on the stud arriving at, and entering, this offset it strikes upon the upper incline thereof, and throws the movable cam W into the position shown at Fig. 5. The side *u v* of the movable cam, which is an arc of a circle struck from the center of the circle of which the side *w x* of the stationary cam is an arc, then is parallel with this arc. When the movable cam is thrown into this position, it is held there by the tooth or projection *y* on its free end entering the depression *z* of the spring X. As the platen descends, the stud *n* has of necessity to ride over the offset *t* in the movable cam, and in doing this the arm *o* is thrown forward, the bar T turned slightly, and the guide-fingers U U raised from the platen. The stud now enters the slot formed by the sides *v*, *u*, and *q* of the stationary and pivoted cams, which sides are arcs of circles, having a center common with those of which the sides *r*, *s*, and *p* are arcs, and thus the guides are kept elevated until the stud arrives at the offset *a′* on the stationary cam, which throws the arm back, and in so doing forces the pivoted cam into its original position, where it is held by the tooth *y* entering another depression in the spring X. Thus the arm is thrown back, and the guides closed on the platen.

At the rear of the press is situated the ink-fountain Y. (See Figs. 1, 2, and 4.) It consists of a receptacle, which may be cast in one piece, and bolted to the side frames. The interior of one side is undercut or hollowed, as shown at *b′*, Fig. 4, the edge formed by the top of this side and the hollowed interior being made true, and sharpened to serve as a knife for removing the surplus ink on the fountain-roller Z, which is kept up to it by the set-screws *c′* acting against sliding journal-boxes *e′ e′*, in which it (the roller) has its bearings. On each side of the fountain is a lug, *f′*, to which is pin-jointed the frame A′, carrying the roller B′, the pivots on which the frame rocks coinciding with the center of the fountain-roller Z. From the frame A′ extends the arm C, and this arm is connected, by the rod *g′*, with the bell-crank *h′*, the horizontal limb *h″* of which is pin-jointed to the vertical rod *i′*, passing up through the table, as at Fig. 4. *j′* is a spring, which tends to keep the parts in the position shown at Fig. 4.

On depressing this rod the roller B′ is thrown against the taking-roller H, which is kept constantly revolving, and this roller thus takes off a certain amount of ink, which, through the traversing roller shown in dotted line at *a*, Fig. 4, is transferred to the inking-rollers shown in dotted line at *b*, Fig. 4. *k′* is a nick cut in the rod *i′*, and *l′* is a plate for entering this neck, and thus holding down the rod *i* when continuous contact is required between the rocking-roller B′ and the taking-roller H.

D′ are endless tapes passing around the roller

E′, situated immediately below the platen, and the roller F′, which is concentric with the centers, on which the platen rocks.

The operation of the parts is as follows:

The guide U U being on the platen, and the fingers N N elevated therefrom and at their lowest point, as shown at Figs. 1 and 3, the paper is laid on the platen, which then commences its ascent, and on the stud *e* arriving at the bend in the cam-slot *h g*, which occurs shortly before the impression is taken, the arms L L′ are thrown forward, and the continued ascent of the platen brings the arm O in contact with the stop S, which depresses the fingers on the sheet of paper, in which position they are held by the spring-latch Q. Under these conditions the impression is taken, and as the platen commences to descend the fingers strip the sheet from the type and the before-mentioned operation of the compound cam V W immediately raises the gages U U from the platen, and at this instant the cam M throws the arms L L′ backward with a quick motion, and the fingers N N, which are kept pressed on the paper by the latch Q, thus draw it down off the platen onto the tapes D′ D′, and, by the arm O slipping from under the latch Q, the fingers are suddenly thrown up by the spring P, and the sheet is borne off on the tapes.

In small presses a continuous discharge of ink from the fountain is objectionable. In many cases so small a quantity is needed that it is impossible to regulate the discharge to the quantity actually needed; consequently, an accumulation of surplus ink attaches to the inking-rollers, and the advantage of the fountain is lost. The before-described device obviates this difficulty, by placing the supply of ink to the inking-rollers under the control of the feeder from his position at the feed-table.

A modification of our devices for placing the supply of ink under the control of the feeder may be effected by pivoting the fountain itself to the frame, and having the roller B′ set in studs bolted on the fountain.

We disclaim the combination of reciprocating stripping-fingers with tapes, such combination being described and claimed in an application filed by F. W. Griffith and Geo. P. Byrne, January 17, 1876.

We claim—

1. The combination of the bar J, arms L L′, cam M, arm O, spring P, latch Q, and platen E, constructed and operating substantially in the manner described and specified.

2. In combination, the rock-bar J, arm O, spring P, and spring-latch Q, so constructed and combined that when the arm O is depressed it shall force back the latch, and slip thereunder, and be retained thereby during its backward motion, substantially in the manner described and specified.

3. In combination, the rock-bar J having bearings in the arms L L′, arm O, spring P, and stop S, constructed and operating substantially in the manner described.

4. The combination of the bar T, arm O, and compound cam V W X, constructed and operating substantially in the manner described and specified.

5. The compound cam, consisting of the stationary and movable parts V and W, and retaining-spring X, constructed and operating substantially in the manner described and specified.

6. The combination, with the fountain Y, having a fixed edge, *b′*, of the roller Z, sliding journal-boxes *e′*, and set-screws *c′*, constructed and operating substantially in the manner described and specified.

7. The combination, with the ink-fountain provided with a stationary knife-edge, of a roller adjustable to and from the stationary knife-edge, for the purpose of regulating the supply of ink from the fountain, constructed and operating substantially in the manner described and specified.

8. The combination, with the fountain-roller Y, rocking-roller B′, frame A′, of the mechanism for moving the rocking-roller to and from the taking-roller H from the position of the feeder of the press, constructed and operating substantially in the manner described.

9. The combination, with a roller having a motion to and from the taking-roller H, for supplying such taking-roller with ink from the fountain, of the mechanism, whereby the necessary motion can be imparted to such roller by the feeder of press from his position at the feed-board, and by which such roller can be held in continuous contact with the taking-roller H, substantially in the manner described and specified.

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