

(No Model.)

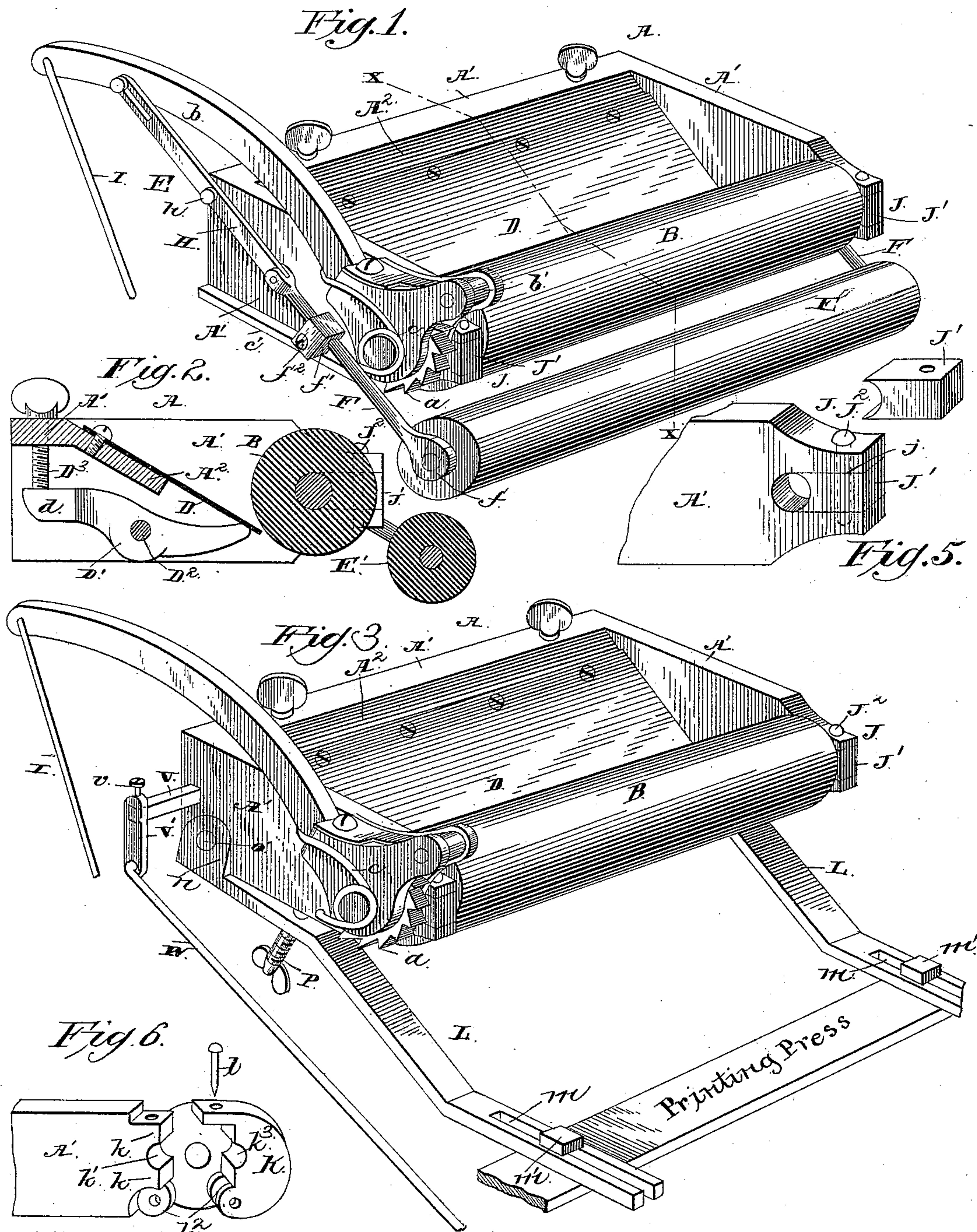
2 Sheets—Sheet 1.

J. K. BITTENBENDER.

INK FOUNTAIN FOR PRINTING MACHINES.

No. 355,965.

Patented Jan. 11, 1887.



Witnesses
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(No Model.)

2 Sheets—Sheet 2.

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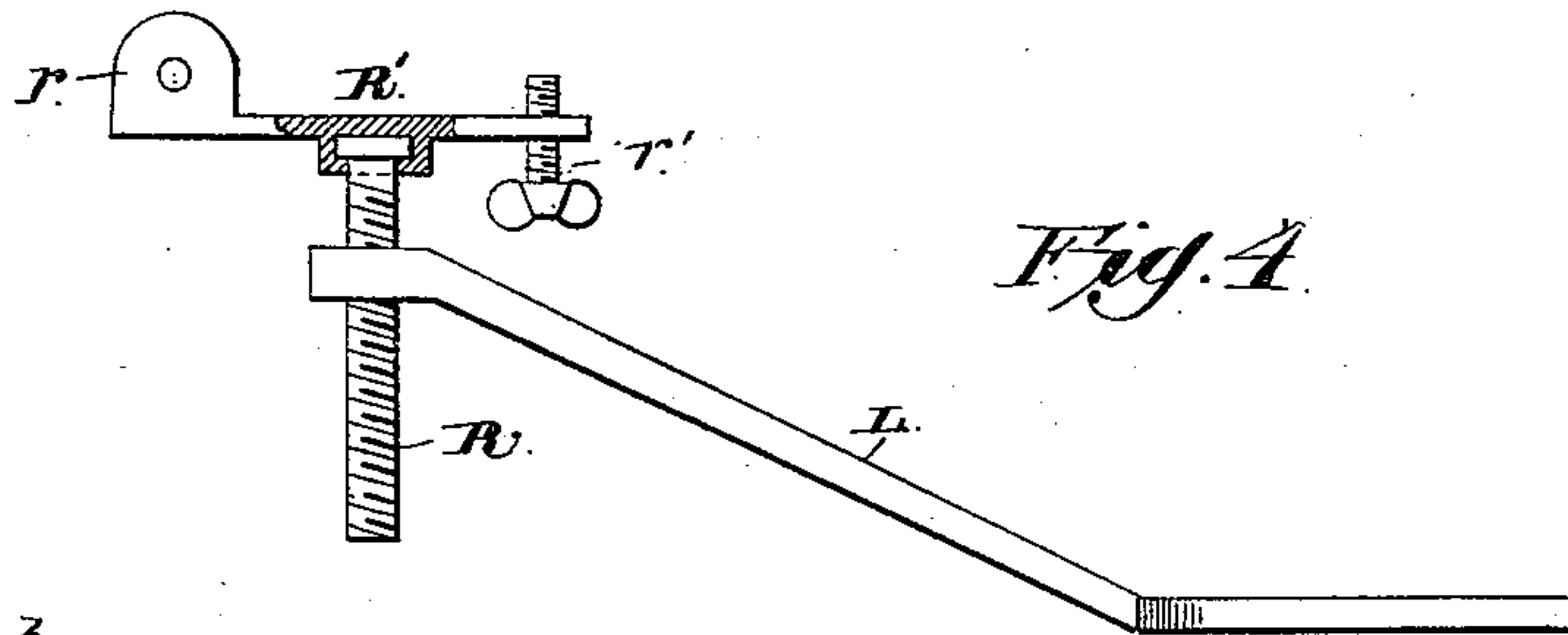


Fig. 4.

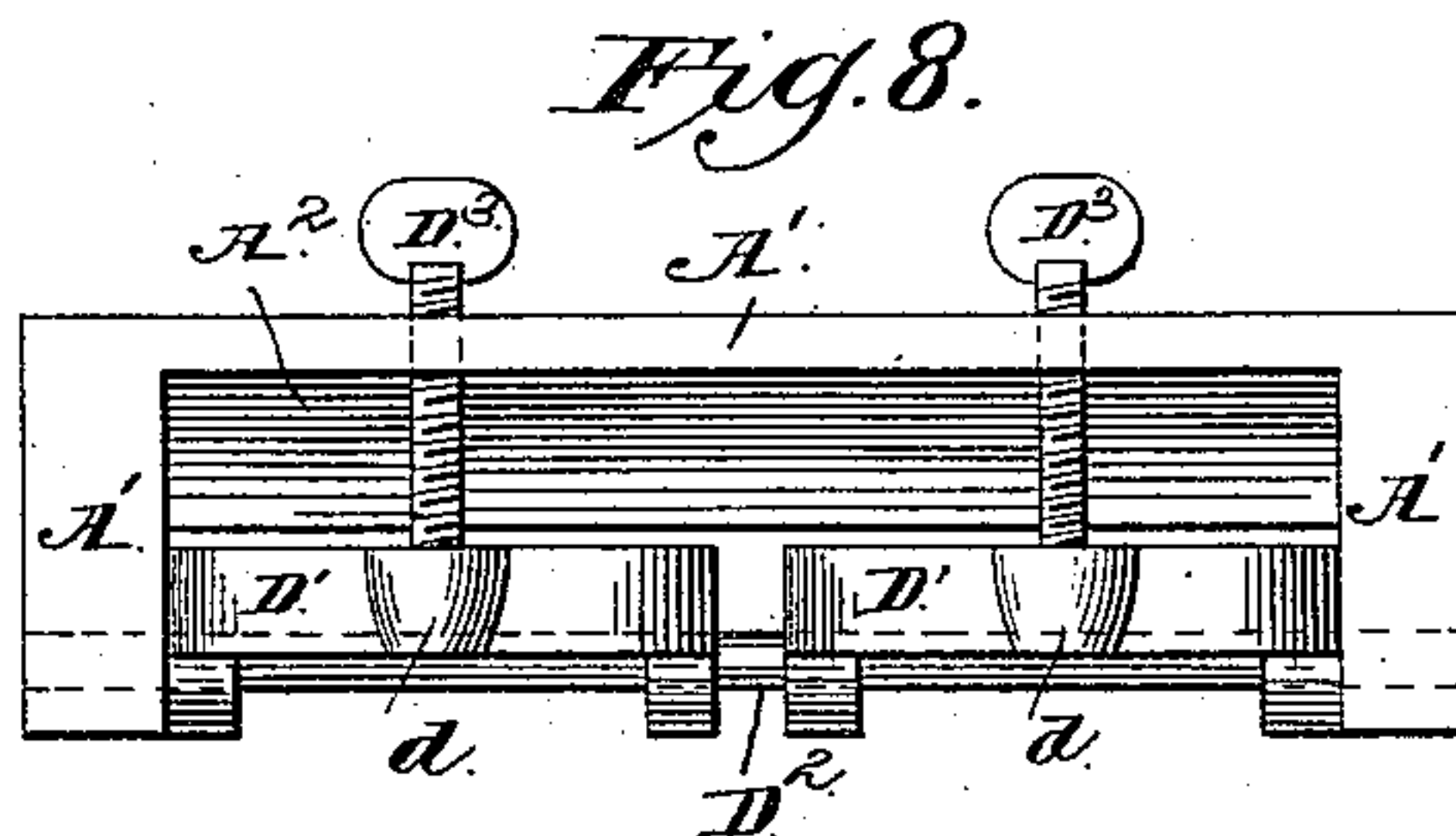


Fig. 8.

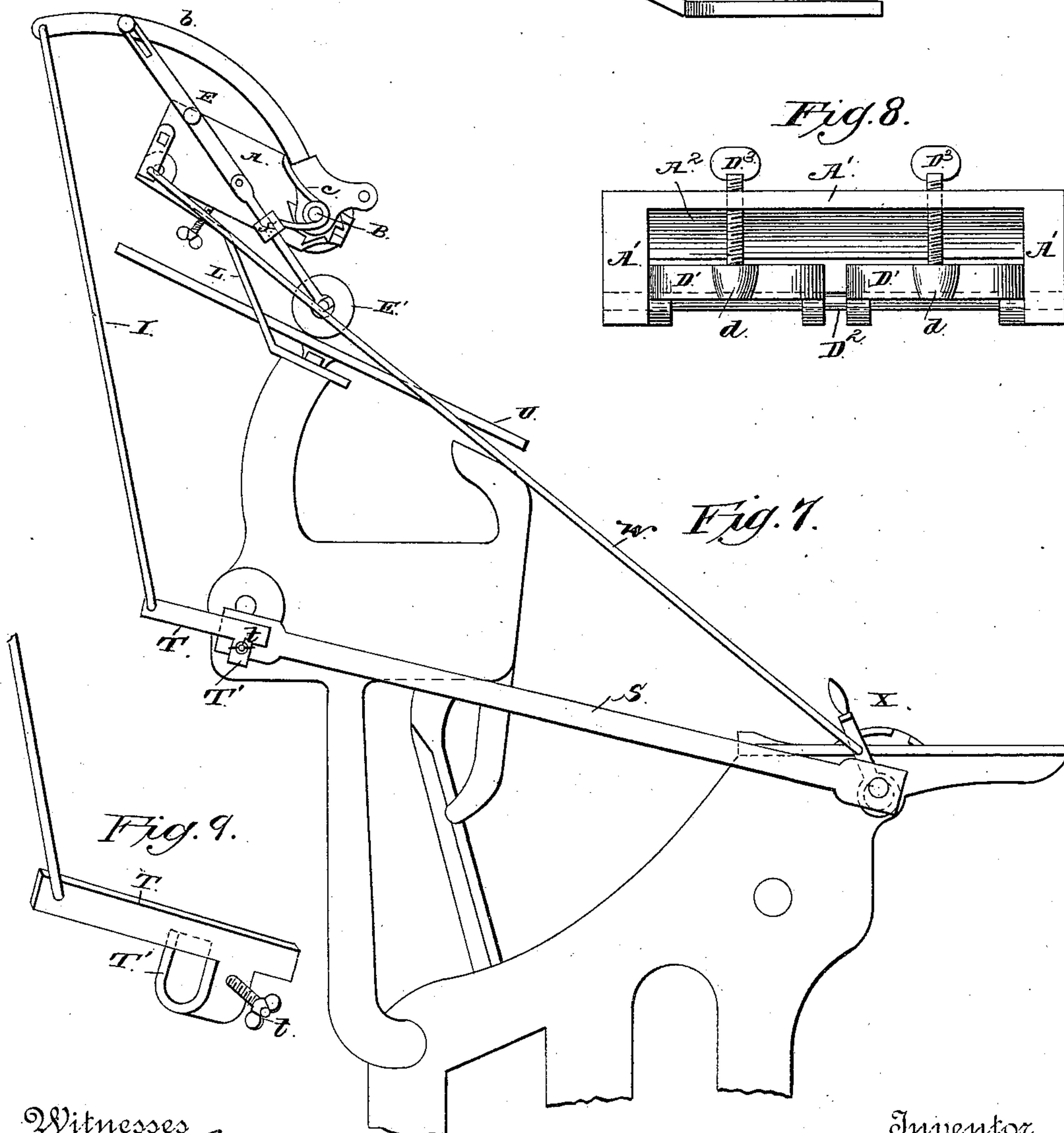


Fig. 7.

Fig. 9.

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JOHN K. BITTENBENDER, OF BLOOMSBURG, PENNSYLVANIA.

INK-FOUNTAIN FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 355,965, dated January 11, 1887.

Application filed November 24, 1885. Serial No. 183,886. (No model.)

To all whom it may concern:

Be it known that I, JOHN K. BITTENBENDER, a citizen of the United States, residing at Bloomsburg, in the county of Columbia and State of Pennsylvania, have invented a new and useful Improvement in Ink-Fountains for Printing-Machines, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention has relation to improvements in fountains for containing ink for printing-presses; and the novelty consists of the peculiar construction and combination of parts, substantially as hereinafter fully set forth, and
15 specifically pointed out in the claims.

This invention is especially designed as an improvement in that class of inking apparatus patented to me on the 23d day of January, 1883, numbered 270,886; and it has for its objects to provide an automatic brayer for spreading the ink uniformly and evenly on the disk of a printing-press; to provide improved means for quickly and readily attaching the trough or frame to a printing-press of any
25 class employing a disk; to provide means whereby the conveying ink-roller can be readily and quickly removed from its bearings for the purposes of replacing the same with rollers of other colors, and for cleaning the journals of the conveying-roller of ink and dirt, which are liable to adhere thereto, and thus clog up and prevent free rotation of the roller, and to provide means which shall be simple, strong and durable in construction, and thoroughly effective in operation.
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In the accompanying drawings, which form a part of this specification, Figure 1 is a perspective view of my improved ink-fountain and apparatus for printing-presses, showing the automatic brayer attachment. Fig. 2 is a vertical longitudinal sectional view on the line *x x* of Fig. 1. Fig. 3 is a perspective view of the trough or receptacle, showing my improved attaching-brace, the automatic brayer attachment being omitted in this figure. Fig. 4 is
40 another form of brace for attaching the trough to a printing-press. Fig. 5 is a detail view showing my preferred form of journal-bearing for the conveying-roller. Fig. 6 is a similar view of another form of journal-bearing, with a hinged cap. Fig. 7 is an end elevation of a

portion of a printing-press with my improvement attached. Fig. 8 is a rear end elevation of the trough. Fig. 9 is a detail.

Referring to the drawings, in which like letters of reference indicate corresponding parts in all the figures, A designates the trough of my improved inking apparatus; B, the conveying-roller journaled in the extreme front ends of the trough; D, the plate for supplying the roller B with ink, and E my improved brayer attachment.
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The conveying-roller B is provided with actuating mechanism substantially the same as that shown in my patent hereinbefore referred to—that is to say, one end of the shaft of the roller has a ratchet-wheel, *a*, rigidly keyed or otherwise secured thereon, an operating-lever, *b*, pivoted at its lower end on the shaft and carrying a pivoted spring-pressed pawl, *b'*, which engages with one of the teeth of the ratchet-wheel, and a retracting-spring, *c*, which is coiled around the roller-shaft and having one arm bearing against the lever to force the same upwardly, after its depression, to actuate the roller and ratchet, and the other arm of the spring bearing against a lug or flange, *c'*, of the trough A. (See Fig. 1.)
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The automatic brayer attachment is operated simultaneously with and by the actuating-lever *b*, and said attachment comprises a transferring-roller, *E'*, preferably made of a suitable composition and journaled in the extreme forward slotted ends, *f*, of supporting-arms F, which are arranged at each side of the trough, and are mounted to slide in bearings *f'*, which are pivoted to the outer vertical faces of the trough A, as at *f''*. The rear ends of these roller-supporting arms F are extended beyond their bearings *f'*, and are pivoted to a lever, *H*, which is pivoted at its center, as at *h*, at one end to a point near the outer end of the conveying-roller actuating-mechanism lever *b*, and at its other end the said lever is connected to the roller-supporting arm F, whereby when the lever *b* is depressed the motion thereof will be transmitted through the lever *H* and arm F, and the bearing *f'* of the latter link or arm F oscillated or turned on its pivot, so as to cause the transferring-roller *E'* to come in contact with the inked surface of the conveying-roller B, which receives its supply of
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ink from the feeding-plate D, and is rotated by the downward stroke or movement of the lever *b*.

The invention is to be applied to a press known to the art as the "Gordon" press, having a disk and inking-rollers therefor, and in operation, when the inking press-rollers ascend the disk, the transferring-roller of the automatic brayer attachment is carried upwardly and brought in contact with the inked surface of the conveying-roller by depressing the lever *b*, to actuate the roller B and the roller E', as is obvious. The spring *c* automatically returns the operating-lever *b* when the pull upon its operating cord or rod I is released, thus permitting the transferring-roller E' to return to its normal position, and as the press-rollers descend the disk of the printing-press the brayer transferring-roller comes in contact with and inks the disk, thoroughly distributing the ink thereon before the return of the press-rollers. When the disk of the printing-press revolves, the transferring-roller E' is elevated from engagement therewith by means of an arm or rod, I, so that after the completion of the rotatory movement of the printing-press disk the transferring-roller again descends upon the disk.

To render the trough or receptacle A very strong and durable, I cast or form the same—that is to say, the side and rear walls, A', are cast integral with a downwardly and forwardly inclined bottom, A²—to the trough. This construction provides the requisite degree of strength, and the bottom serves as a brace to the side and rear walls, and it terminates at a short distance from the forward ends of the side walls of the trough. In the forward ends of the side walls of the trough I provide bearings J for the conveying-roller B.

In Fig. 5 of the drawings the front ends of the side walls are cut away or recessed, as at *j*, preferably in a horizontal plane, as shown, the rear end being rounded, and in this recessed portion the journals, studs, or shaft of the roller B is located, and held in place by a sliding cap-piece or block, J', which fits in and closes the outer end of the recess, and is secured in place by means of a removable pin or bolt, J². In lieu of forming the recess or socket *j* for the reception of the roller, shaft, or studs in a horizontal plane, the recess or socket may be cut or formed in a downwardly-sloping direction, so as to allow the roller to be held in its socket by the weight thereof, the sliding removable cap J' being employed to prevent its accidental displacement.

In Fig. 6 the vertical faces of the side walls are provided with forwardly-projecting lugs *k* and a semicircular recess, *k'*, and to said sidewalls are hinged, as at *k*², the cap-pieces K, which are provided with a similar semicircular recess, *k*³. When the cap-pieces K are closed upon the shaft or studs of the roller B, they are secured in place by means of removable pins or bolts *l*, and the semicircular recesses thereof register with the similar re-

cesses of the side walls, and thus form the bearings for the roller B.

It will be seen that the roller B can be quickly and easily removed from its bearings, thus permitting free access to the bearings and the roller-shaft for the purpose of cleaning them of ink and dirt, which are liable to adhere thereto and prevent the free rotation of the roller. A roller of another color can be very readily substituted, so that the device can be adapted to different classes of work, and the interchangeable rollers are preferably made hollow, with the heads riveted or otherwise secured thereto.

L designates arms for supporting the trough and its devices upon the printing-press, the forward ends thereof being slotted, as at *m*, and bent, and through these slots pass headed bolts *m'*, to detachably and adjustably secure the arms and its trough to the printing-press. The rear ends of the arms L rest under the trough and have upwardly-projecting pivot-lugs *n*, arranged to bear on the vertical faces of the trough and pivoted thereto by means of removable pins or bolts *o'*. P designates an adjusting thumb-screw or bolt bearing in a threaded socket in each of the upper portions of the trough-supporting arms and adapted to bear against the lower faces of the side walls of the trough, said screws serving to adjust it to a horizontal or any desired position to cause the ink to be uniformly distributed over the feeding-plate D.

In Fig. 4 of the drawings I have shown another form of trough-supporting arms, in which the trough can be adjusted to any desired elevation on the arms L. The upper rear ends of the arms are provided with a threaded socket, and in each of these sockets works a vertical threaded shaft or rod, R, which is provided with an enlarged head that works loosely in a socket of a plate, R', which is thereby swiveled to the shaft and carried by the same, the rear end of which has a pivot-lug, *r*, and the front end an adjusting thumb-screw, *r'*, which are adapted to operate in a similar manner to the lug and adjusting-screw of the device shown in Fig. 3 of the drawings. By means of this latter-described form of trough-supporting arms the trough can be adjusted vertically, so as to elevate its roller and the frame at any desired point above the printing-press, and at the same time it can be adjusted to hold the trough in a horizontal plane. By means of the removable pins or bolts that connect the arms to the trough the latter can be disengaged from the former very readily when it is desired to remove the disk of the printing-press while the trough is full of ink.

The feeding-plate D of the trough is preferably made of elastic sheet-steel, and it is secured at its upper edges to the inclined bottom A' of the trough. The lower delivery end of the feed-plate is adjustable toward and from the conveying-roller B by means of bent levers D', which are journaled so as to oscillate on a shaft, D², which is supported in the side

walls of the trough A. The upper ends of the levers are each provided with a lug, *d*, on which bears an adjusting thumb-screw, *D*³, working in a threaded socket in the rear wall of the trough.

It will be seen that by turning the adjusting-screws downwardly the oscillating levers *D*¹ will force the spring-plate toward the conveying-roller and decrease the quantity of ink fed to the roller by the plate, and when the spring feeding-plate is forced away from the conveying-roller by the weight of the ink, such movement being allowed by turning the screw upwardly, the quantity of ink fed to the roller will be increased, as will be readily understood.

The apparatus may be used in the form shown in Fig. 3 of the drawings—that is to say, without the brayer attachment—and when the device is used in this form the operation thereof is precisely the same as in my former patent hereinbefore referred to, the press-rollers of the printing-press coming in contact with the inked surface of the conveying-roller, which is operated by means of a cord or rod, *I*, attached to the free end of the lever *b*, leading to the connecting-rod *S* of the printing-press.

Various slight changes in the form and proportions of parts may be made without departing from the spirit or sacrificing the advantages of my invention, the essential features of which have been explained.

The invention is especially designed to be applied, as before stated, to that class of printing-presses known to the art as the "Gordon" or the "Peerless" presses, and in Fig. 7 I have shown a general outline of the former-named press with my improvement applied thereto. The rod *I* is pivoted at one end to the outer end of the lever *b*, and at its inner end it is pivoted to a link, *T*, which link carries a curved clamp, *T*¹, and an adjusting-screw, *t*, at its upper end. The clamp is fitted around the head or one end of the connecting-rod *S* of the printing-press, and is held thereto by the adjusting-screw *t*, whereby when the rod *S* acts to revolve the disk *U* of the press through the intermediate mechanism (not shown herein) the outer end of the lever *b* is depressed to elevate the transferring-roller from engagement with the disk, and to bring it in contact with the conveying-roller to take ink therefrom, and when the disk *U* ceases its rotation the connecting-rod *S* draws the rod *I* forward, to permit of the elevation of the lever *b* and the depression of the transferring-roller into contact with the disk *U*.

V designates a short shaft or pin, rigidly secured in the trough above and in rear of the pivot thereof and of the point of connection with the suspending-arms, and *V*¹ a crank-arm detachably secured thereon by an adjusting-screw, *v*. The lower end of the crank-arm *V*¹ is pivotally connected to a connecting-rod, *W*, and the forward end of this rod is pivoted to a lever, *X*, of the printing-press. This le-

ver is used to throw off the impression of the press, so that it will not print, and yet allow the continued movement of the rollers and other parts thereof. When the lever is thus operated, it will move the rod *W* and turn the crank *V*¹ and shaft *V*, which will serve to move the trough on its pivots and elevate the front end thereof, whereby the supply of ink to the disk and rollers of the press is cut off and obviates the objection of giving too deep an impression to the paper caused by the rollers having a surplusage of ink, as will be very readily understood.

I am aware that it is not new, broadly, to provide an ink-fountain consisting of supporting-arms adapted to be secured to a printing-press, a trough pivotally connected thereto, and adjusting-screws working in the arms and bearing against the trough to move the free end thereof vertically.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the trough, its conveying-roller, a lever for actuating the roller, a transferring-roller journaled in arms pivoted to the trough, and a jointed arm or arms connecting with the actuating-lever and the roller-suspending arms, whereby when the lever is actuated the transferring-roller will be brought into engagement with the inked surface of the conveying-roller, as herein set forth.

2. The combination, with the trough having the conveying-roller and operating-lever, of a transferring-roller mounted upon the trough and connected to the lever and adapted to be operated simultaneously with the latter to apply ink to the printing-press disk, substantially as described.

3. The combination of a trough having a conveying-roller and an actuating-lever therefor, a transferring-roller, supporting-arms mounted on the trough and having the transferring-roller secured therein, and connecting-arms intermediate of the supporting-arms and actuating-lever, substantially as described.

4. The combination of a trough having a conveying-roller and an actuating-lever therefor, a transferring-roller, pivoted supports mounted on the trough, supporting-arms having the transferring-roller journaled therein and loosely fitted in the supports, and a pivoted arm connected to one of the supporting-arms and the actuating-lever, substantially as described.

5. The combination of the trough-supporting arms adapted to be secured to a printing-press, a vertically-adjustable plate carried by each of the said arms, a trough pivotally supported on the plates, and adjusting-screws working in the plates for moving the free end of the trough vertically, substantially as described, for the purpose set forth.

6. The combination of the trough-supporting arms adapted to be secured to a printing-press, the vertically-disposed threaded rods or shafts *R*, supported in the arms, the adjustable

plates swiveled on and carried by the said shafts, a trough pivotally connected to the plates, and adjusting-screws r' , working in the plates for moving the free end of the trough
5 vertically, substantially as described, for the purpose set forth.

7. The combination of a trough having bearings, a roller journaled therein, and a cap pivoted at one end to the trough and detachably
10 secured thereto at its outer end, whereby the roller can be removed and the bearings exposed, substantially as described, for the purpose set forth.

8. The combination of a trough having perforated lugs and a recess, k' , a roller, a cap pivoted at one end to one of the lugs, and a pin for detachably securing the free end of the cap to the other lug of the trough, substantially as described.

20 9. The combination of the pivoted trough, the throw-off lever of the printing-press, a shaft rigidly secured to the trough, a crank-arm, and a rod connecting the lever with the crank-arm, substantially as described.

25 10. The combination of a trough having a conveying-roller, the arms for supporting the trough upon a press, a lever for actuating the said roller, the arms F, mounted in supports pivotally connected to the trough, and trans-
30 ferring-roller mounted in the arms, a link, H,

intermediate of one of the arms F, and the actuating-lever b , a rod, I, pivoted to said actuating-lever, and a link, T, pivoted to the rod, and carrying a clamp and binding-screw to connect the link to the rod S of the press, substantially as described. 35

11. The combination of a movable trough, a throw-off lever of a printing-press, and connections, substantially as described, intermediate of the trough and lever, whereby the trough
40 is adjusted to cut off the ink-supply to the press when the lever is operated to throw off the impression-bed thereof, substantially as described.

12. The combination of a trough having a
45 conveying-roller and an actuating-lever therefor, a transferring-roller supported in arms mounted on the trough and connected with the lever, a rod also connected with the lever, and an arm, T, connected to the rod and having a
50 clamp to detachably secure the arm to a connecting-rod of a printing-press, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN K. BITTENBENDER.

Witnesses:

F. D. DENTLER,
L. R. BOMBOY.