No. 611,923. Patented Oct. 4, 1898.

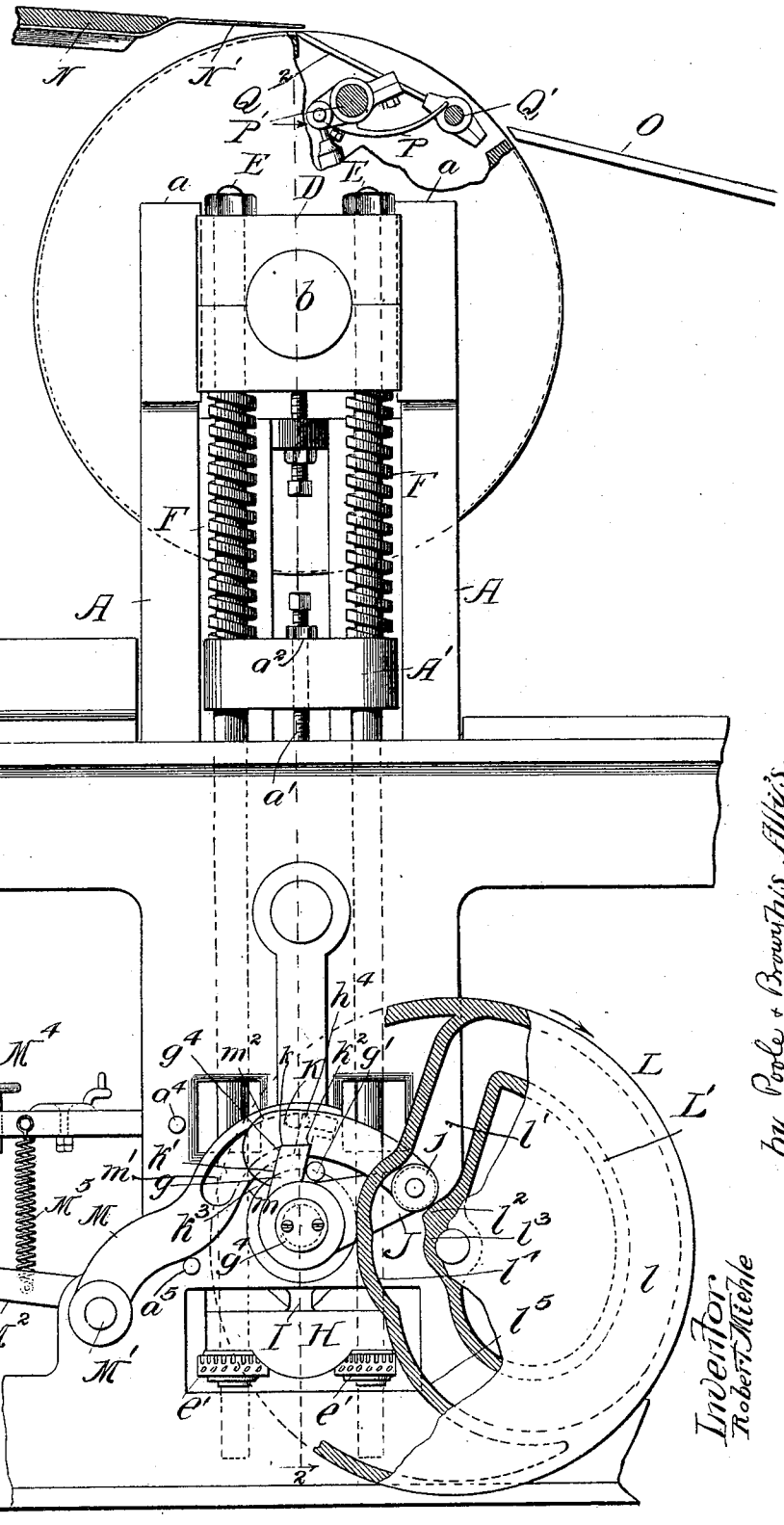
R. MIEHLE.

PRINTING PRESS.

(Application filed Mar. 6, 1895.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1



Witnesses:
Edmund F. Shaw.
Harold G. Bassett.

Inventor
Robert Miehle
by Poole & Brown, his Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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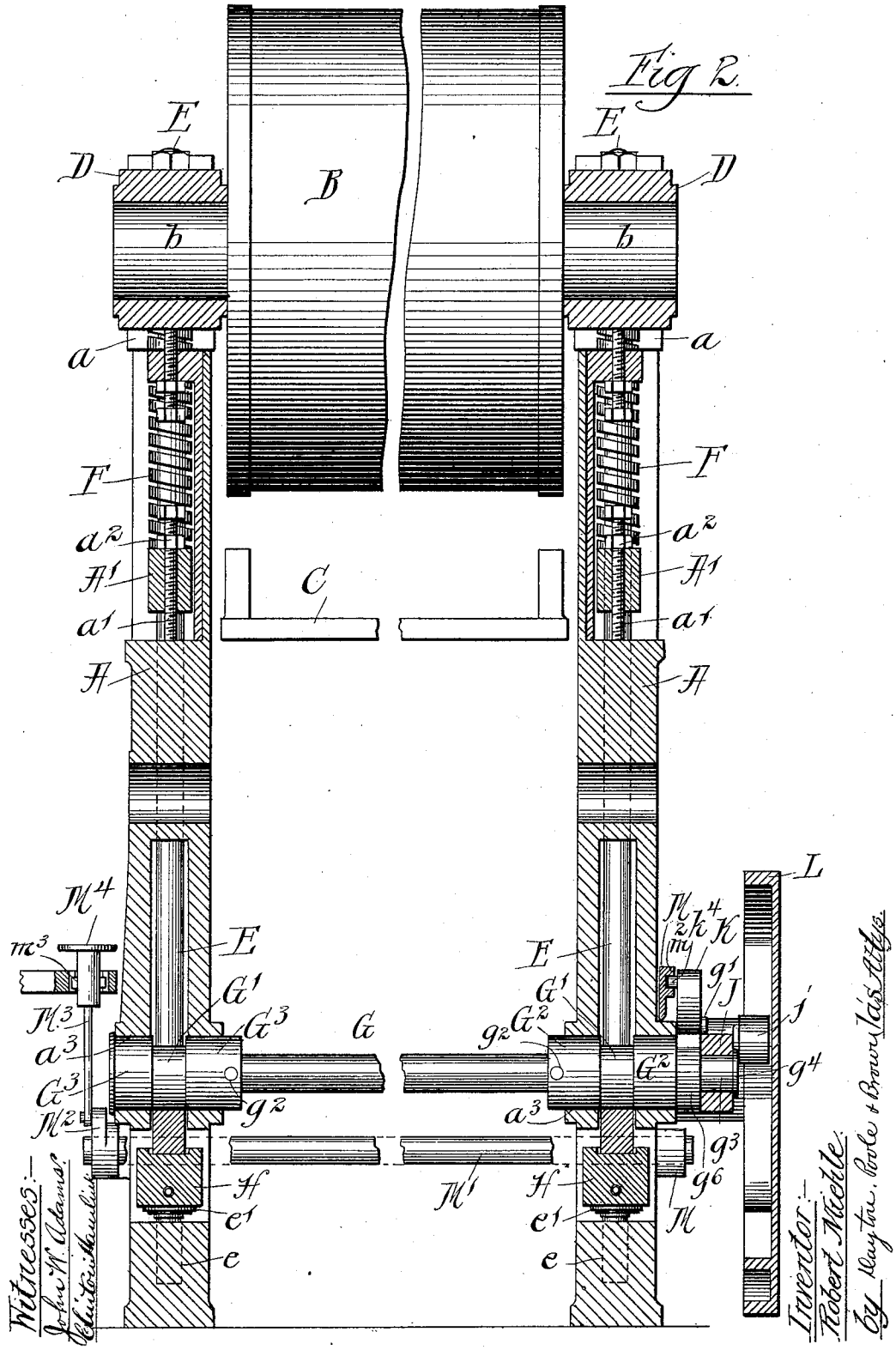
R. MIEHLE.

PRINTING PRESS.

(Application filed Mar. 6, 1895.)

(No Model.) 3 Sheets—Sheet 2.

Fig 2.



Witnesses:-
John A. Adams.
Chester Hamilton.

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By Wright, Brown & Brown, Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 611,923. Patented Oct. 4, 1898.

R. MIEHLE.

PRINTING PRESS.

(Application filed Mar. 6, 1895.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 3.

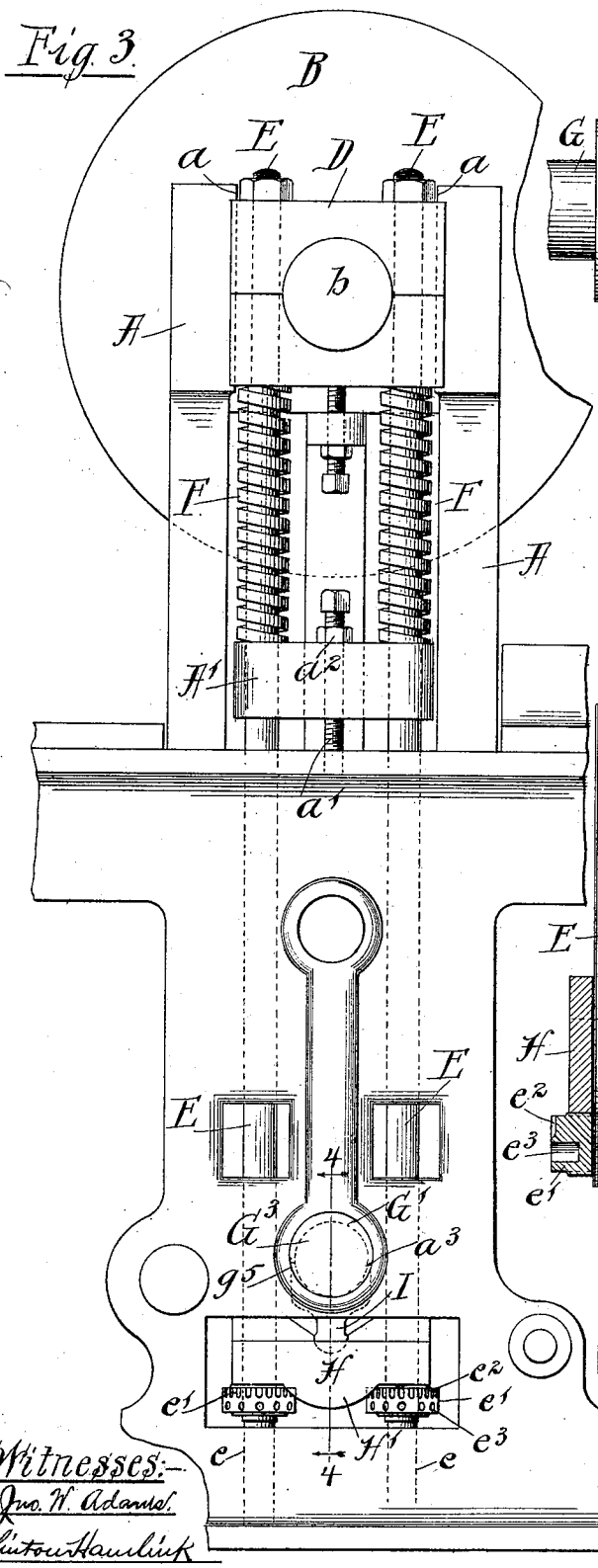


Fig. 4.

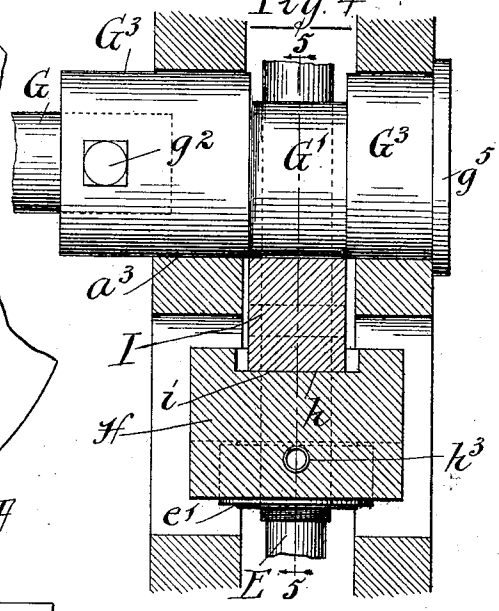
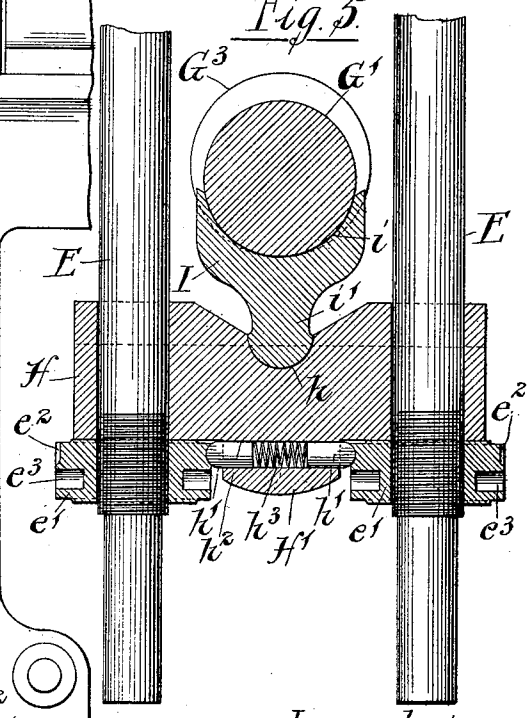


Fig. 5.



Witnesses:—
Jno. W. Adams.
Clinton Hamlink

Inventor:—
Robert Miehle.
by Clayton, Poole & Brown
his Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROBERT MIEHLE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MIEHLE PRINTING PRESS AND MANUFACTURING COMPANY, OF SAME PLACE.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 611,923, dated October 4, 1898.

Application filed March 6, 1895. Serial No. 540,717. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MIEHLE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Printing-Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in that class of printing-presses comprising a reciprocating type-bed and a constantly-rotating cylinder mounted transversely above the bed and adapted to be moved bodily toward and from the same to secure the impression and to permit the free return movement of the bed thereafter.

The invention relates more particularly to improvements in mechanism for raising and lowering the impression-cylinder, and in its general features involves a construction similar to that set forth in my prior patent, No. 550,992, issued December 10, 1895.

The invention consists in the matters hereinafter set forth, and particularly pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a fragmentary side elevation, partially in section, of a printing-press constructed in accordance with my invention. Fig. 2 is a vertical transverse section taken on line 2 2 of Fig. 1. Fig. 3 is a view similar to Fig. 1 of the opposite side of the machine. Fig. 4 is a detail section taken on line 4 4 of Fig. 3. Fig. 5 is a similar view taken on line 5 5 of Fig. 4. Fig. 6 is a detail section showing the foot-piece M^4 of Fig. 1. Fig. 7 is a horizontal section taken on line 7 7 of Fig. 6, showing the foot-piece in changed position.

As shown in said drawings, A A designate the main side pieces of the machine-frame, which are arranged vertically and parallel with each other, B the impression-cylinder supported vertically on said frame-pieces at the upper part of the machine, and C the reciprocating type-bed located below said cylinder.

D D are journal-boxes, in which the journals *b b* of the impression-cylinder are mounted. Said journal-boxes are arranged to slide or move vertically in vertical slots *a a* in the frame-pieces A A.

N designates the feed-table, which is supported over the upwardly-moving side of the impression-cylinder and is provided with extensions or fingers N′, which project over said cylinder and form guide-supports to guide the sheet from the table to the cylinder.

O designates one of the fly-fingers, which fly-fingers are located at the downwardly-moving side of the cylinder in advance of the point at which the sheet is received from the feed-table N.

P designates one of the nippers, pivotally mounted in one side of the cylinder upon a shaft P′, which has bearing at its opposite ends in the cylinder-heads, which nippers are adapted to grasp between the outer ends of the same and a coacting part of the cylinder the advance edge of the sheet as said sheet is delivered from the feed-table. Said nippers retain the edge of the sheet during the revolution of the cylinder in which the printing is being done, but release the same at the beginning of the second revolution of the cylinder and just before said advance edge reaches the fly-fingers O.

Q designates one of the sheet-lifters, which are actuated to lift the advance edge of the sheet after it has been released by the nippers P and just before it reaches the fly-fingers O. Said sheet-lifters are pivotally mounted upon a shaft Q′, having bearing at its opposite ends in the cylinder-heads. Said nippers and lifters are of that kind shown and described in my prior patent, No. 574,297, granted December 29, 1896, and will desirably be actuated by the mechanism shown and described in said patent.

E E are vertical rods secured in the journal-boxes and extending downwardly to points near the bottom of the frame-plates. Preferably said rods E E are held in place and guided at their lower ends by being inserted in guide-apertures *e e*, formed in the frame-plates in the manner illustrated.

F F are coiled springs located beneath the journal-boxes and between the same and horizontal bars A′, which rest on the side plates A. Said springs operate to lift the journal-

boxes D, and thereby tend to maintain the impression-cylinder B in its elevated position. As shown, the springs F are placed around the rods E, which are arranged to pass freely through suitable apertures in the ends of the horizontal bars A', and the latter are adjustably supported upon the side plates by means of set-screws a', which have a screw-threaded engagement with the bar and rest at their lower ends upon the adjacent upper surface of the side frames. By adjusting the set-screws a' the bars A' may obviously be raised or lowered to place the springs F under greater or less compression, as desired. Lock-nuts a^2, provided on the set-screws, enable the latter to be locked in place after being properly adjusted.

G designates a rock-shaft extending horizontally across the machine-frame at the lower part thereof and journaled at its ends in bearings a^3, formed in the side plates A. Said rock-shaft is provided at points near its ends and vertically beneath the journal-boxes D of the impression-cylinder with eccentrics or eccentric parts G' G'.

H H designate yoke-bars connected with the rods E and extending between the same directly beneath the eccentrics G', and I I are oscillatory bearing-blocks inserted between said eccentrics and yokes. The upper ends i of the bearing-blocks I I are hollowed out to fit closely against the under surface of the eccentrics G' and are herein shown as made of sufficient width to embrace almost the entire lower half of said cams and afford a large bearing-surface against the same. The lower ends i' of the blocks are made much narrower than their upper ends i and are rounded off upon a circular curve, so as to fit within similarly-shaped transverse grooves or sockets h in the yokes H. The upper surface of the yokes is herein shown as sloping downwardly toward the grooves h on both sides thereof, so that any lubricant falling upon the yokes is naturally conducted into said grooves to lubricate the bearings between the same and the oscillatory blocks I I. Obviously with this construction when the rock-shaft G is turned or oscillated in its bearings the impression-cylinder will be moved bodily in a vertical direction, being drawn downwardly against the action of the lifting-spring when the shaft is turned in one direction and allowed to rise under the pressure of said springs when the shaft is turned in the opposite direction. As herein shown, the connection between the yokes H H and rods E E is effected by passing the said rods through the vertical holes in the ends of the yokes and providing them with screw-threaded parts, upon which adjusting-nuts e' e' are placed in position to bear against the under surface of the yokes. Said adjusting-nuts enable the vertical position of the impression-cylinder to be changed as desired for the purpose of adjusting the same with relation to the type-bed or for determining the pressure of the type against the cylinder in printing. To enable the nuts e' e' to be secured in their adjusted position, they are herein shown as of cylindrical form and provided in their peripheries with a plurality of shallow apertures e^2. Said apertures are adapted to be engaged by spring-pressed detents h', Fig. 5, inserted in suitable apertures h^2 in a depending lug H', provided on the under surface of the yokes midway between the ends thereof. As herein shown, the two detents h' of each yoke are inserted in opposite ends of a single aperture h^2 which extends longitudinally through said lug H', both detents being actuated by a coil-spring h^3, inserted between them. The apertures e^2 of the nuts and the ends of the detents h' are rounded, so that when the nuts are intentionally turned by means of a spanner inserted in spanner-holes e^3 or otherwise said detents will be pressed back to permit the nuts to be adjusted as desired, but will normally engage the apertures e^2 with sufficient pressure to hold the nuts against any accidental displacement.

The oscillatory or rocking motion of the shaft G is transmitted to said shaft by means of a radial arm g, rigidly secured to one end of the same. Movement of this arm in one direction is limited by a pin g', secured in the adjacent frame-plate A and so arranged that the arm will strike the pin and prevent the further rotation of the shaft when the impression-cylinder has reached the upward limit of its movement under the action of the lifting-springs F F.

J designates a swinging arm pivoted concentrically with the rock-shaft G and herein illustrated as mounted on the projecting end of said rock-shaft outside of the arm g. Pivoted to the outer end of the arm J is a dog K, which is provided near its free end, or that remote from the arm J, with a notch k, adapted to receive the end of the arm g of the rock-shaft. The wall k' of said notch nearest the free end of the dog is made considerably longer than its opposite wall k^2 to form a tooth or projection k^3, so that when the dog is lifted or moved so as to swing it outwardly away from the arm g on the rock-shaft G said tooth or projection will stand in position to engage the end of the arm while the latter is disengaged from the notch.

In the particular construction herein illustrated the rock-shaft G is provided with separate cast sections G^2 and G^3, in which the eccentric parts G' G' are formed and which are made larger in diameter than the main part of the rock-shaft and have sockets at their inner ends to receive the end portions of the same, being secured thereto by set-screws g^2 or otherwise. Said sections G^2 and G^3 are fitted to the bearings a^3 in their parts at either side of the eccentrics G' G', which are made smaller in diameter than said sections. The section G^2 at the end of the shaft on which the arm g is located is preferably cast integral with said arm and is provided out-

side of the arm with a prolongation or stud g^3, on which the swinging arm J is mounted, said arm being held thereon by a plate or washer g^4, secured to the end of the stud in any suitable manner. The other section G^3 at the opposite end of the shaft is provided at its outer end with a flange g^5, which overlaps the aperture in the frame-plate at the outer surface of the latter and holds the rock-shaft from endwise movement in one direction. The shaft is held from endwise movement in the other direction by a flange or collar g^6 on the section G^2, of which the arm g forms a continuation or extension. With this construction it is obvious that when the dog K is moved or swung outwardly on its pivot far enough to release the arm g from the inner wall of the notch k the dog may be moved endwise by turning of the arm J without its moving the arm g; but said dog cannot at such time pass away or become entirely detached from the arm g by reason of the projection j^3 at the end of the dog, which projection insures the return of the arm g to its position in contact with the stop g' and the lifting of the impression-cylinder away from the type.

Oscillatory movement is given to the arm J and the dog K connected thereto by means of a cam-wheel L, provided with a cam-groove L', which is engaged by a pin or friction-roller j upon the free end of the arm J. Said cam is rotated through any suitable connections (not shown) with the driving-gear of the machine, so as to make one complete revolution with each complete reciprocation of the type-bed. As herein shown, said cam-groove L' comprises a larger concentric portion l, opening into an eccentric and approximately radial portion l', which leads toward the center of the cam-wheel. At its inner end said portion l' opens into a short concentric portion l^2, which in turn is connected by an eccentric portion l^3 with an inner concentric portion l^4, closely adjacent to the hub of the cam. From said inner concentric portion l^4 a third eccentric portion l^5 leads into the outer concentric portion l. The arrangement of the parts is such that when the pin j engages the inner concentric part l^4 of the cam-groove the notch k of the dog K will engage the end of the arm g, and the latter will stand in contact with the stop g', the impression-cylinder being then in its uppermost position. As the cam revolves in the direction indicated by the arrow the pin j will pass from the concentric portion l^4 and through the eccentric portion l^5, and the dog K will force the arm g away from the stop g', thereby rotating the shaft G and drawing down the impression-cylinder against the tension of the springs F. Said cylinder will obviously be moved into its lowermost position when the pin j enters the outer concentric portion l of the groove and is held in such position until said pin has passed through the entire length of the portion l or during the entire forward movement of the type-bed and while the impression is being made. At the end of the forward movement of the type-bed the pin j enters the eccentric portion l' of the cam and withdraws the dog K, thereby permitting the impression-cylinder to be rapidly raised by the pressure of the springs F and by the action of the projection k^3 of the dog upon the arm g. In passing through the short concentric portion l^2 between the eccentric portions l' and l^3 there will obviously be a momentary dwell, during which the impression-cylinder will be for a moment held stationary just before reaching its uppermost position.

The movement of the impression-cylinder with relation to the cam L and the parts actuated thereby is such that the pin j will traverse the concentric portion l^2 of the cam and will thereby cause a momentary dwell in the upward movement of the cylinder just as the rear end of the freshly-printed sheet is passing from beneath the under face of the guide-supports N'. The object of this dwell is to hold the impression-cylinder out of contact with the guide-supports N' until the end of the previously-printed sheet has passed beyond the said supports, so that its freshly-printed surface will not be blurred thereby. Immediately after the sheet has passed said supports the cylinder is raised to its uppermost limit by the passage of the pin j through the eccentric portion l^3 of the cam-groove and is held in that position during the passage of the pin through the inner concentric portion l^4. At this time the nippers P will be actuated to grasp the advance edge of the next sheet which is being delivered from the feed-table N, said nippers engaging the edge of the sheet between the guide-supports. This construction enables the cylinder to be actually brought into contact with the guide-supports at the time the nippers come in contact with the advance edge of the sheet to clamp the same against the cylinder, and thereby obviates the buckling of the paper caused by the pressing of same downward between said guide-supports against the surface of the impression-cylinder when the latter is not in contact with the said supports, this difficulty having been always heretofore experienced, owing to the fact that the impression-cylinders could not be brought quite into contact with said supports without danger of blurring the edge of the previously-printed sheet.

While I have referred to the part l^2 of the cam as a "concentric" portion, yet it is not necessary that the same should be exactly concentric with the center of the cam, or, if concentric, that the concentric part should have any definite or considerable length. The main purpose of the part l^2 is to give a "dwell" to or decrease the speed of the bodily movement of the impression-cylinder as the latter rises at a point near the upper limit, so as to enable the paper to advance beyond the guide-supports before the cylinder strikes the same, and this result may be produced

by retarding the motion of the cylinder as well as by stopping it entirely. As far as this part of the invention is concerned, therefore, it embraces a construction of the cam by which the cylinder is temporarily or momentarily retarded as well as in which its upward movement is actually interrupted.

The provision in a printing-press having an impression-cylinder which is movable toward and from the type-bed and provided with a feed-table having fingers or guide-supports which are adapted to project over the cylinder on that side thereof opposite the type-bed to deliver the sheet in position to be grasped by the nippers of means for giving to said cylinder a momentary dwell just before the rear edge of the previously-printed sheet has passed the guide-supports is of the greatest importance, as it prevents the guide-supports from coming into contact with the freshly-printed sheet and permits said supports to be actually brought into contact with the cylinder after said sheet has passed the guide-supports. Heretofore in printing-presses of this character difficulty has always been experienced for the reason that the impression-cylinder could not be brought into contact with the guide-supports without danger of blurring the edge of the previously-printed sheet and the fact that when said supports were out of contact with the cylinder and held the sheet some distance above or away from the same the nippers caused the sheet to buckle when actuated to clamp between the outer ends of the same and the cylinder the advance edge of the sheet. With my device, on the other hand, the guide-supports are in actual contact with the cylinder when the nippers are actuated to grip the sheet against the cylinder, so that the sheet is held off of the cylinder only by the thickness of the guide-supports, which is so slight that the effect of bending the edge of the sheet between the guide-supports is not noticeable.

For preventing the descent of the impression-cylinder when unnecessary—as, for instance, in case of failure to feed a sheet of paper to the machine at the proper time—a tripping device for disengaging the dog K from the arm g is provided as follows: M is a cam or arm mounted on a rock-shaft M′, arranged parallel with the shaft G. Attached to said rock-shaft is a foot-lever M^2, which, in the case of a large machine, will have attached to it an operating-rod M^3, provided with a foot-piece M^4. A spring M^5 serves to lift the foot-lever, and stops a^4 and a^5 on the frame limit the movement of the cam-arm and the rock-shaft in both directions. The cam-arm is provided with a flange m and with a cam-surface m', which is located opposite a stud k^4 on the dog K at the time the dog is at the rearward limit of its movement and the arm g is in contact with the pin g', or, in other words, when the dog K is in the position shown in Fig. 1, which it occupies when the impression-cylinder is elevated. Said outwardly-deflected part of the cam-surface is so arranged that when the rock-shaft M is turned by pressure upon the foot-lever and the cam-arm is thereby moved said surface will be thrown outwardly in such position that when the stud k^4 reaches or rides over the same the dog will be thrown outwardly or swung away from the arm g a distance sufficient to disengage the notch k from said arm. When, however, pressure on the foot-lever is released and the cam-arm returns to its normal or usual position, the cam projection or outwardly-deflected part m' will rest inside of or out of the path of said stud k^4, so that it will have no effect on the movement of the dog and the latter will remain engaged with the arm g. The position last described is the usual one in the operation of the machine, the dog remaining engaged with the arm, so as to give continuous oscillatory movement to the rock-shaft, as hereinbefore stated. When, however, it is desired to prevent the type from coming in contact with the impression-cylinder, the cam is actuated through the medium of the foot-lever and the dog K thereby lifted, so as to free it from the arm g, and thus allow the dog to complete its oscillation without giving movement to the rock-shaft, it being of course understood that the dog slides freely from the end of the said arm g during the movement of these parts.

The cam-arm M is also provided with an outer flange m^2, arranged opposite and approximately parallel with the flange m and which is adapted for contact with the stud k^4 of the dog K, so as to limit the outward movement of the free end of the dog and prevent the same from being thrown, by accident or otherwise, out of its operative position or so far away as to allow the projection k^3 to pass the arm g. The stud k^4 may travel on the flange m, below the outwardly-deflected part m' thereof during the motion or throw of the dog at the time the latter is disengaged from the arm g. The presence of said flange is not essential, however, inasmuch as the dog may be otherwise guided, or it may be allowed to slide upon or ride over the end of the arm g after it is released from the same, as in the construction illustrated. Peferably a cushion or block g^4, of leather or other suitable material, is inserted or held in the bottom of the notch k to prevent noise when the dog is thrown into engagement with the arm.

If the cam-arm M be moved or shifted by the operator at any point during the forward or backward movement of the dog K, it will have no effect until the dog nearly reaches the rearward limit of its stroke, when the stud k^4 will ride upwardly on the cam-surface m' and will be thereby lifted or thrown outwardly free from the arm g at the time the said arm is restored to its normal position in contact with the pin g', it being of course understood that the springs which act to lift the impression-cylinder will hold the said arm

positively against the pin when the dog is thus released from the said arm. It follows that the operator may move or actuate the cam-arm at any time after the dog begins its forward movement and the depression of the cylinder and the printing of the sheet will take place without interruption by reason of such movement of the cam-arm; but that if the operator's foot remains on the foot-lever and the cam-arm is held in its shifted position the impression-cylinder will remain elevated during the next or succeeding movement of the type-bed. It will also be understood that in case the cam-arm is moved while the dog K and arm g' are at rest and at the backward limit of their movement, or, in other words, during the time when the pin j is in the concentric portion l^4 of the cam-groove nearest the center of the wheel, the dog will be thrown outward and released from the arm g, so that when the dog begins its forward movement it will remain disengaged from the arm and complete its full stroke without moving said arm or shifting the impression-roller.

In order to enable the impression-cylinder to be maintained for a time in its elevated position without keeping a constant pressure on the foot-piece M^4, I have provided a locking device for the foot-piece, which is constructed as follows: The rod M^3, to which the foot-piece M^4 is attached, extends through the footboard or platform N, on which the operator stands, said footboard being provided with a slot for the passage of the rod, in which the upper end of the same may move laterally a limited distance. The rod is provided near its upper end with opposite lateral projections m^3 and the slot with lateral notches n', through which the projections m^3 are adapted to pass when the rod is located at one end of the slot. The said projections are so located on the rod that when the foot-piece is depressed and moved laterally the projections may pass beneath the footboard at either side of the slot, thereby preventing the foot-piece and the lever M^3 from being lifted by the spring until the foot-piece is again shifted to bring the projections beneath or in alinement with the notches n', through which notches said projections pass as the foot-piece rises under the action of said spring. When the foot-piece is depressed and the projections carried beneath the footboard, as described, the spring M^5 will hold the projections against the under side of the footboard, so that the lever will be held in its depressed position and cannot rise until the projections are released by force applied to move the foot-piece laterally to the opposite end of the slot. The device described therefore constitutes a locking device by which the lever M^3 may be easily locked in position to prevent actuation of the impression-cylinder and as easily released. The locking device described is adapted for convenient actuation by the foot of the operator, it being obvious that when the foot-piece is depressed it may be shifted to its locked position by a horizontal or sidewise movement of the foot used to depress it and that when in its locked position it may be easily released by a downward pressure of the foot, accompanied by a lateral movement thereof in the opposite direction. In the particular instance illustrated the foot-piece has the form of a cast head provided with a hub m^4, in which the rod M^3 is inserted and secured by a set-screw and on which the projections m^3 are cast.

Printing-presses similar to that shown herein have been heretofore provided with means for depressing the cylinder, consisting of a rock-shaft having eccentric parts and yokes extending beneath the same and connected with the cylinder-bearings, such yokes having flat horizontal top surfaces on which rest laterally-sliding blocks engaged with the eccentrics of the rock-shaft. This prior construction has the disadvantage that it is exceedingly difficult to keep properly lubricated the contact-surfaces of the yokes and sliding blocks by reason of the great pressure between the surfaces thereof and the fact that said surfaces are flat and horizontal, so that the parts are liable to work imperfectly by reason of friction resulting from lack of lubrication. The construction herein described avoids the objection stated, inasmuch as the concave bearing or socket affords the greatest facility for oiling, while at the same time the relative movement of the block and yoke being less friction due to the movement of the block on the yoke is greatly lessened.

Devices have also been used for depressing the cylinder, consisting of a rock-shaft having rigid crank-arms, the free ends of which are connected by means of pivoted bars with the yokes, the crank-arms and bars in such case forming toggles, the straightening of which effects the depression of the cylinder. Such toggle connection is not only more complicated in construction than that herein shown, but it is rendered inaccurate in operation by a relatively slight wearing away of the bearing-surfaces of the several pivotal joints thereof, so that the extent of movement given the cylinder will be changed after use of the machine for a comparatively short period of time. By my improved construction I secure a strong, durable, and efficient device which produces a minimum of friction in operation and is at the same time easily and cheaply constructed.

The lifting-springs may not always be necessary, as the bearing-blocks I may be connected with both the eccentrics and yokes by auxiliary pivoted connections, so that they will act as a means of lifting as well as depressing the impression-cylinder.

I claim as my invention—

1. In a printing-press, the combination with an impression-cylinder, and a reciprocating type-bed, of a feed-table provided with guide

fingers or supports which project over said cylinder in position for contact with the said cylinder when the latter is at the upward limit of its movement, and means for giving movement of the impression-cylinder toward and from the type-bed, constructed to lift the said cylinder into contact with the guide fingers or supports, and to interrupt the upward movement of said cylinder when it reaches a point near the upper limit of its movement and before it makes contact with said guide fingers or supports.

2. The combination, with movable bearings for the impression-cylinder, of downwardly-extending rods secured to the bearings, adjusting-nuts upon said rods, yokes resting on said adjusting-nuts and provided with depending lugs located between the adjusting-nuts, and spring-pressed detents seated in said lugs, said nuts being provided with a plurality of peripheral recesses adapted to be engaged by said detents, substantially as described.

3. The combination, with movable bearings for the impression-cylinder, of downwardly-extending rods secured to the bearings, adjusting-nuts upon said rods, yokes resting on the adjusting-nuts and provided with depending lugs located between the nuts, and provided each with a straight guide-passage, detents sliding in said guide-passage, and springs located between the inner ends of the detents and forcing the same outwardly toward the nuts, said nuts being provided with peripheral recesses for engagement with the detents, substantially as described.

4. The combination, with the machine-frame and impression-cylinder, of movable bearings for the impression-cylinder, and a cam acting on said bearings for raising and lowering the same, the cam-groove of said cam having inner, outer and intermediate concentric portions connected by eccentric portions, the intermediate concentric part or shoulder, acting to interrupt or retard the upward movement of the impression-cylinder, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

ROBERT MIEHLE.

Witnesses:
C. CLARENCE POOLE,
S. K. WHITE.