

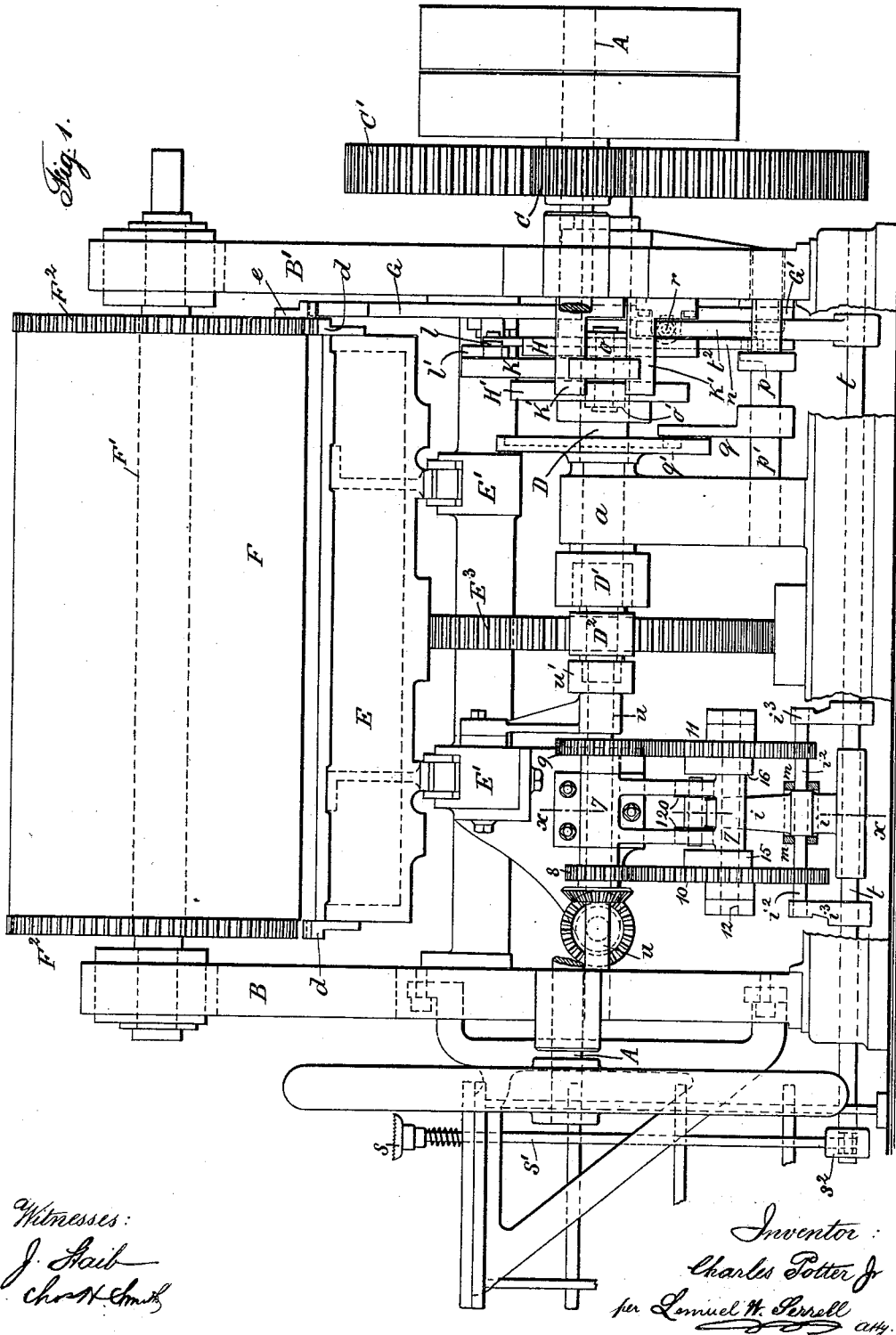
(No Model.)

4 Sheets—Sheet 1.

C. POTTER, Jr.
STOP CYLINDER PRINTING MACHINE.

No. 344,496.

Patented June 29, 1886.



Witnesses:
J. Haub
Chas. H. Smith

Inventor:
Charles Potter Jr.
per Lemuel H. Perrell atty.

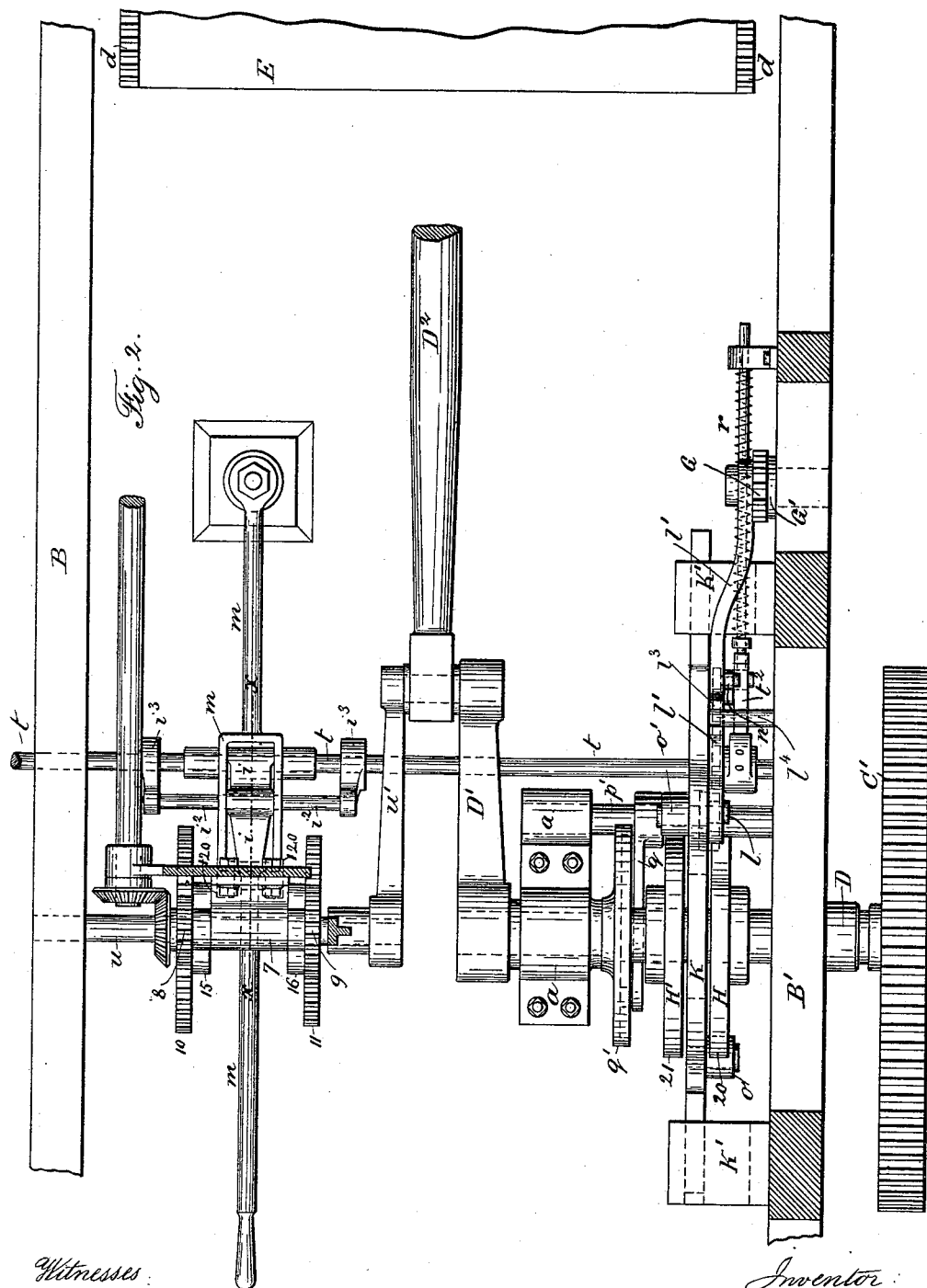
(No Model.)

4 Sheets—Sheet 2.

C. POTTER, Jr.
STOP CYLINDER PRINTING MACHINE.

No. 344,496.

Patented June 29, 1886.



Witnesses:
J. Hall
Chas. H. Smith

Inventor:
Charles Potter Jr.
per Samuel W. Perrell

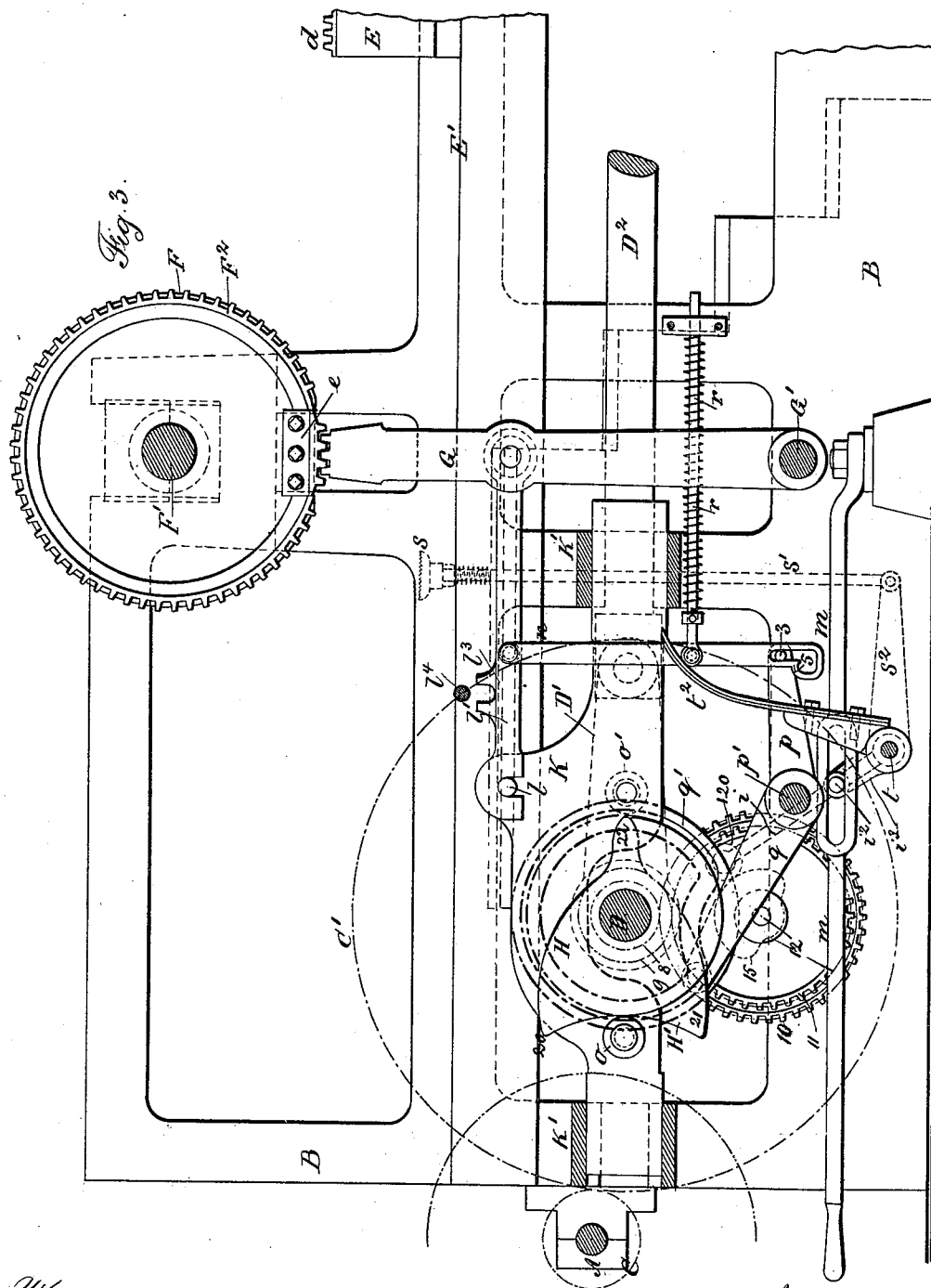
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4 Sheets—Sheet 3.

C. POTTER, Jr.
STOP CYLINDER PRINTING MACHINE.

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Patented June 29, 1886.



Witnesses:
J. Hail
Chas H. Smith

Inventor:
Charles Potter J
per Lincoln W. Perrell atty

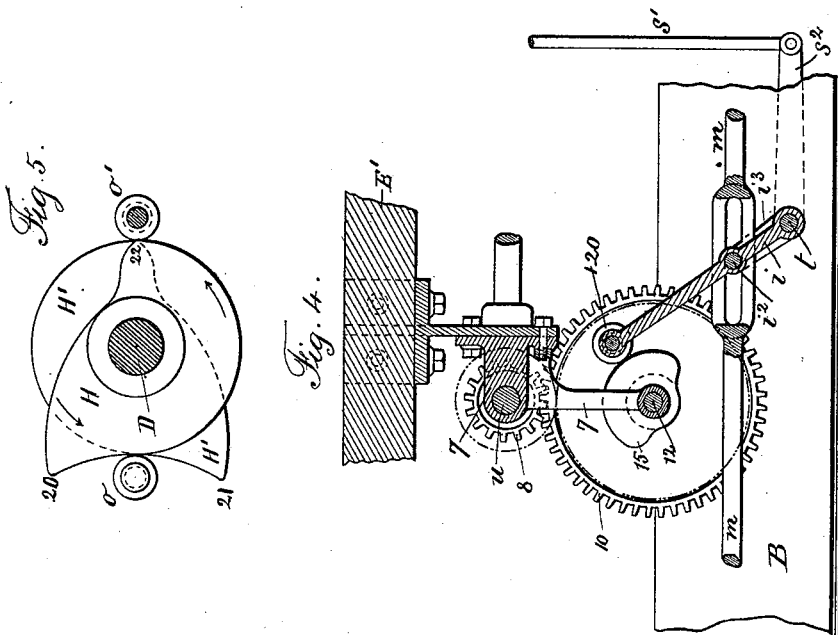
(No Model.)

4 Sheets—Sheet 4.

C. POTTER, Jr.
STOP CYLINDER PRINTING MACHINE.

No. 344,496.

Patented June 29, 1886.



Witnesses:
J. Smith
Chas. H. Smith

Inventor
Charles Potter Jr
per *Samuel W. Powell* atty.

UNITED STATES PATENT OFFICE.

CHARLES POTTER, JR., OF PLAINFIELD, NEW JERSEY.

STOP-CYLINDER PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 344,496, dated June 29, 1886.

Application filed January 31, 1883. Serial No. 83,643. (No model.)

To all whom it may concern:

Be it known that I, CHARLES POTTER, Jr., of Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Stop-Cylinder Printing-Machines, of which the following is a specification.

In Letters Patent No. 178,326 a printing-press is represented which has some resemblance to the present invention. I have improved thereon, and rendered the press more perfect and better adapted to use under the various circumstances arising, especially, in lithographic printing.

In my present invention the impression-cylinder remains stationary, while the bed carrying the stone or types is passing along upon the return-stroke, the one part of the periphery of the impression-cylinder being removed to prevent contact of the same with the printing-surface during this movement, and the impression-cylinder is partially turned by a lever, so that teeth on the reciprocating bed engage with teeth upon segmental wheels at the ends of the impression-cylinder. I make use of a slide that is moved in the proper direction and at the proper time to give motion to the said lever and the impression-cylinder, and the slide and lever are connected by a movable link having a hook that engages with a pin on the slide. When the impression-cylinder is to be stopped, the hook is lifted off the pin, but it is necessary that this should be done when the flat side of the impression-cylinder is next to the bed, otherwise the parts would not be in their proper position and injury would result to the press or to the types or stone. To avoid this, the hook is lifted at the proper moment by automatic mechanism, and the attendant can cause this to come into action, or it can be brought into operation periodically by the other parts of the press, so that with lithographic or other printing the surface may be moved back and forth beneath the inking-rollers once each impression or twice or three times each impression, in order that the necessary amount of ink may be distributed upon the printing-surface to give the proper color or appearance to the print, or the attendant can stop the impression entirely until the stone has been properly inked up.

It is to be understood that my improvement does not relate to the manner of supplying the paper to the impression-cylinder, nor to the type-bed, nor to the inking devices in themselves. These all being of ordinary construction are not represented in the drawings, and do not require description.

In the drawings, Figure 1 is an end view of the press with part of the frame and driving-shaft removed. Fig. 2 is a plan view of the mechanism below the top portion of the frame. Fig. 3 is an elevation with the near frame removed; and Fig. 4 is a detached view at the line *xx*, Fig. 2 and Fig. 5 is a detached view of the cams and the rollers upon the hook-bar.

The driving-shaft A is supported in bearings at the end of the frames B B', and it is provided with a pinion, C, gearing into the wheel C' on the shaft D.

a is an intermediate bearing for the inner end of the shaft D, and there is a crank, D', and connecting-rod D², for giving to the bed E a reciprocating movement. This bed E is supported in suitable slideways, E', and it is constructed in any desired manner. Its surface usually contains an ink-distributing table, in addition to the type or stone from which the impression is taken.

In Fig. 1 a gear-wheel, E³, is shown as in line with the connecting-rod D². I have placed this wheel in a fork at the end of said rod D², and caused it to roll upon a stationary rack of teeth at the bottom, and to act at the top upon a rack of teeth upon the under side of the bed E, to give motion to the same.

The impression-cylinder F is upon a shaft, F', in bearings within the frames B B', and it is constructed in the usual manner, with a segment removed from one side, so as to form a flat place, beneath which the bed can return after the impression has been taken without the stone or types coming in contact with the impression-cylinder. The gear-wheels F² at the ends of the cylinder F are also segmental, so that the racks *d* on the bed may pass by without coming into contact with the teeth of such gears; but when the impression-cylinder receives a partial rotation, it brings the teeth of the gear-wheels F² sufficiently around to be in the path of the rack-teeth *d*, and the

impression-cylinder is then turned by the racks upon the bed as the latter is moved along beneath it.

At one side of one of the segmental gears F^2 there is a toothed segment, e , bolted, and the lever G , that is pivoted at G' , and has teeth at its upper end, gears into this segment e ; hence when this lever remains stationary the impression-cylinder will also stand still, but when the lever is moved its gear-teeth give motion to the segment e and start the impression-cylinder F in rotation, so that it may be carried around by the rack-teeth d of the bed E , as aforesaid.

Upon the shaft D there are the two cams H H' , and the hook-bar K is between them, and supported in the bracket-pieces K' from the frame B' ; said hook-bar slides endwise on the brackets, and it is provided with the studs and rollers o o' for the respective cams; also, with a stud, l , for the hook at one end of the drop-hook l' , the other end of which is pivoted to the lever G . The shapes of these cams H H' are such and they are so placed that motion is given to the lever G and the impression-cylinder is turned at the right time, the object being to hold the cylinder as the bed passes out from beneath it, and then start the rotation by the movement given from said cams at the time the bed arrives at the proper place to engage the teeth.

The cams represented are of the shape that is found in practice to operate the best. These cams are shown separately in Fig. 5, together with the rollers o o' , and from this it will be seen that when the projection 20 of cam H presses on the roller o the hook-bar K , drop-hook l' , and lever G are moved to turn the cylinder F . As the bed is approaching for the impression, and while the bed is turning the impression-cylinder, the point 21 of H' acts upon the roller o' , the hook-bar and lever are moved the other way, and at the end of the movement of the bed in one direction the portion 22 of cam H again acts on o , moving the lever G and turning the impression-cylinder after the racks d on the bed E have separated from the gear-wheels F^2 , so as to hold the flat part of the impression-cylinder next to the bed, and to allow the bed to return while the impression-cylinder remains stationary. The semicircular portions of the cams H and H' are in contact with the rollers o and o' , respectively, during half their rotation, and hence the parts of the impression-cylinder cannot be moved during this period. It will now be evident that while the parts of the impression-cylinder are at rest the hook l' may be lifted off the stud l , and the impression-cylinder will still remain stationary, and the bed can be moved back and forth any desired number of times without any impression being taken. This is important, because it allows for the ink to be worked and distributed to any desired extent upon the stone or other surface to be printed upon. The pressman or attendant must not be able to raise the hook l'

from the stud l by a direct action. Otherwise, through carelessness or ignorance, the hook might be raised at a time that the impression-cylinder is in motion, and it would either stop at the wrong place and be in the way of the printing-surface, or else the gears may fail to interlock and become injured.

To effect the unhooking of the drop-hook l' automatically, and during the time that the impression-cylinder is at rest, is the object of the devices next described. To the drop-hook l' a hanging lifter-link, n , is pivoted, and there is at the lower end of this lifter-link a compound slot, in which is the pin 3 upon the arm p , that extends out from the rock-shaft p' , and upon this same rock-shaft is an arm, q , with a pin or roller in the grooved cam q' . (See dotted lines in Fig. 3.) This cam is circular, except at one place, where there is an inward curve, and this cam q' is placed in reference to the cams H H' , so that the inward curve only acts upon the pin and arm q at the time that the impression-cylinder F , lever G , slide-bar K , and drop-hook l' are stationary, and the semicircular portions of H H' in contact with o o' . If, now, the drop-hook is raised these parts will remain stationary until the hook is again dropped upon the pin l . Upon the link n there is a shoulder, 5, in the compound slot; but its spring and its connecting-bar r press the flat side of the compound slot against the pin 3, keeping this shoulder 5 away from the pin; but if a force is applied to the lifter-link n , to move it against the spring r , the shoulder 5 will come above the pin 3 at the time the inward curve of the cam q' moves the lever-arms q , rock-shaft p' , and said pin 3 downwardly, and instantly the continuation of the movement of the cam q' will cause the lifter-link n to raise the drop-hook l' , and disconnect the lever G from the hook-bar K , and allow the lever to remain stationary, as aforesaid. The lifter-link n may be acted upon by any suitable mechanism. I have shown two modes of moving the same. The first is by the treadle s and push-bar s' , arm s'' , rock-shaft t , and spring-toe t' , which, when the pressman's foot is applied to the treadle s , presses upon the lifter-link n , and swings it as soon as the pin 3 descends below the shoulder 5 to move it as aforesaid, and thereby allow the attendant or pressman to throw off the impression at the end of any movement, and at no other time. The second is by automatic devices that allow the impression to be made every second or third reciprocation of the bed. The shaft u is in line with the shaft D , and driven by the drag-crank u' or otherwise, and said shaft is supported in suitable bearings, and keyed upon it are two pinions, 8 and 9, gearing into wheels 10 and 11, loose upon a shaft, 12, that is supported in the frame or bearings 7. These gears are of such relative sizes that the gear 11 revolves once for each two revolutions of the driving-shaft D , and the gear 10 revolves once for each three revolutions of the shaft D . Fastened to the

sides of the respective gears 10 11 are the cams 15 and 16, and there is upon the rock-shaft *t* an arm, *i*, that is upon a feather or upon the stay-bar *i*² of the fixed crank-arms *i*³, so that the said arm *i* may be moved along endwise of the rock-shaft *t*; but it can be used to turn such rock-shaft, and there are rollers 120 at the end of the arm *i*. The lever *m*, or other suitable device, is employed to move the arm *i* endwise upon the rock-shaft, and to hold it in place. When occupying an intermediate position, as seen in Fig. 1, the rollers 120 are not in contact with either of the cams 15 or 16; but when moved to the right the cam 16 acts on said lever and rock-shaft once in every two revolutions of the press, and when moved to the left the cam 15 acts upon the roller 120 once every three revolutions of the press. These cams are shaped so that motion will be given to the rock-shaft *t*, and the spring-toe *t*² pressed against the lifter-link *n* during either one or two strokes of the press, so that the rock-shaft, acting through the means before described, will throw off the impression every second reciprocation of the bed, or else throw off the impression during two reciprocations of the bed, and bring it into action every third impression. I prefer to employ a fork or inverted hook, *f*, upon the hook *l*, and a stud, *l*², upon the frame *B*, so that as the hook-bar is raised the fork passes at each side of this pin, and holds the hook-bar and lever to prevent the parts moving until the hook-bar is lowered again. The

toe *t*² is preferably sufficiently yielding to allow of the rock-shaft *t* being moved before the pin 3 has descended in the slot at the lower end of the lifter-link *n*, and hence the toe will give to said lifter-link the required motion instantaneously as soon as the pin 3 has passed below the shoulder 5.

The inking-rollers and the devices for supplying and delivering the sheet are not shown, as these may be of any desired character and do not form any feature of the present improvements.

I claim as my invention—

1. The combination, with the impression-cylinder, bed, segmental teeth, and lever, of the drop-hook *l*, the pendent lifter *n*, having a compound slot in the lower end, the pin 3, the rock-shaft, spring-toe, and treadle, substantially as set forth.

2. The cams 15 16 and means for rotating the same, in combination with the arm *i*, rollers 120, rock-shaft *t*, toe *t*², hanging lifter *n*, having a compound slot at the lower end, the pin 3, and means, substantially as specified, for moving said pin, slide-bar *K*, lever *G*, segmental gear-teeth, impression-cylinder, gear-wheels *F*², and gear *c*, substantially as set forth.

Signed by me this 26th day of January, A. D. 1883.

CHARLES POTTER, JR.

Witnesses:

GEO. T. PINCKNEY,
HAROLD SERRELL.