

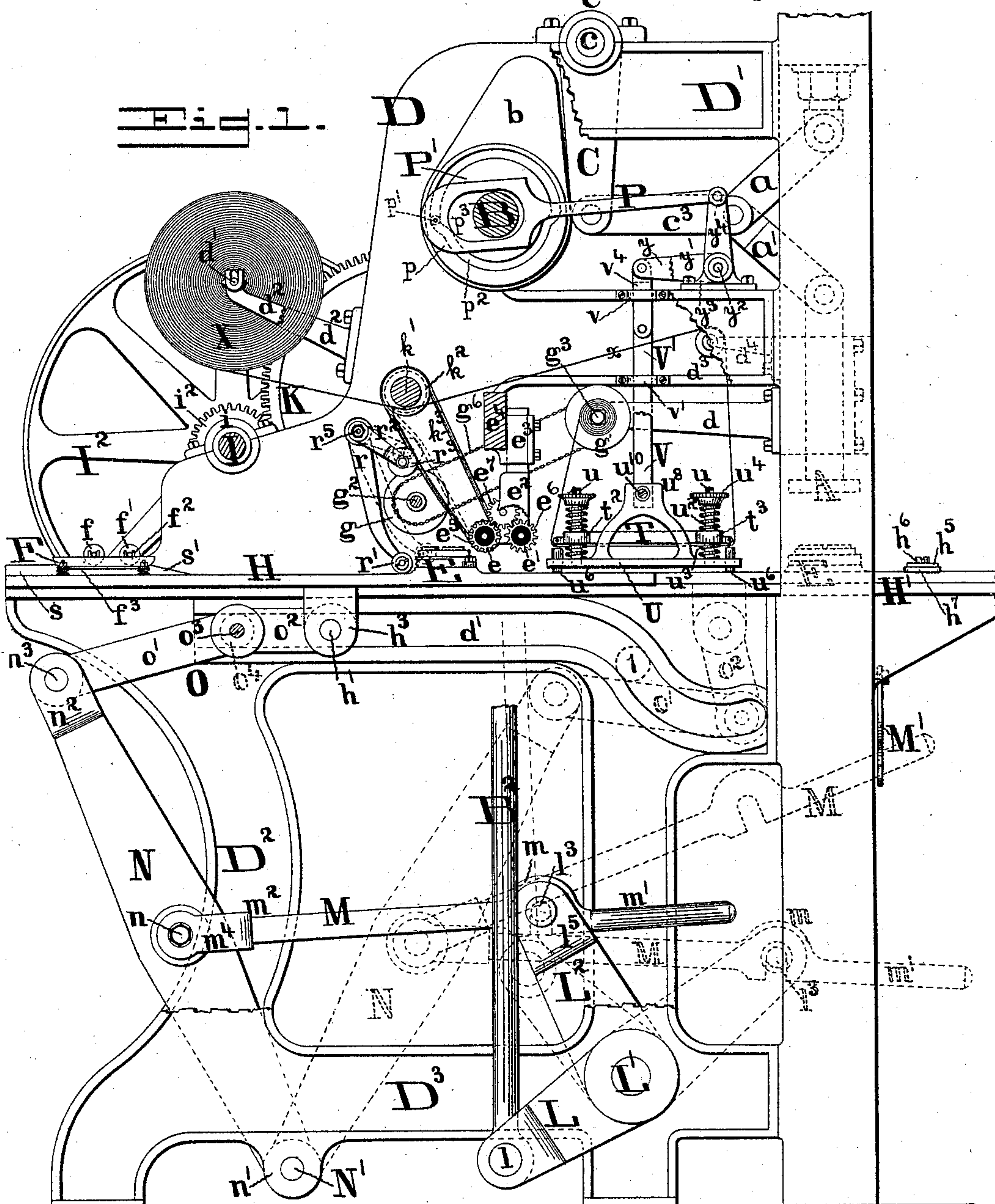
(No Model.)

2 Sheets—Sheet 1.

C. T. PACKER & G. W. SWIFT.
EMBOSSING PRESS.

No. 580,831.

Patented Apr. 13, 1897.



WITNESSES

Sam^l A Ferrell
Howard, S. Newstrin

INVENTORS

Charles I. Packer and
George W. Swift,
By Wm. S. Sowell, Atty.

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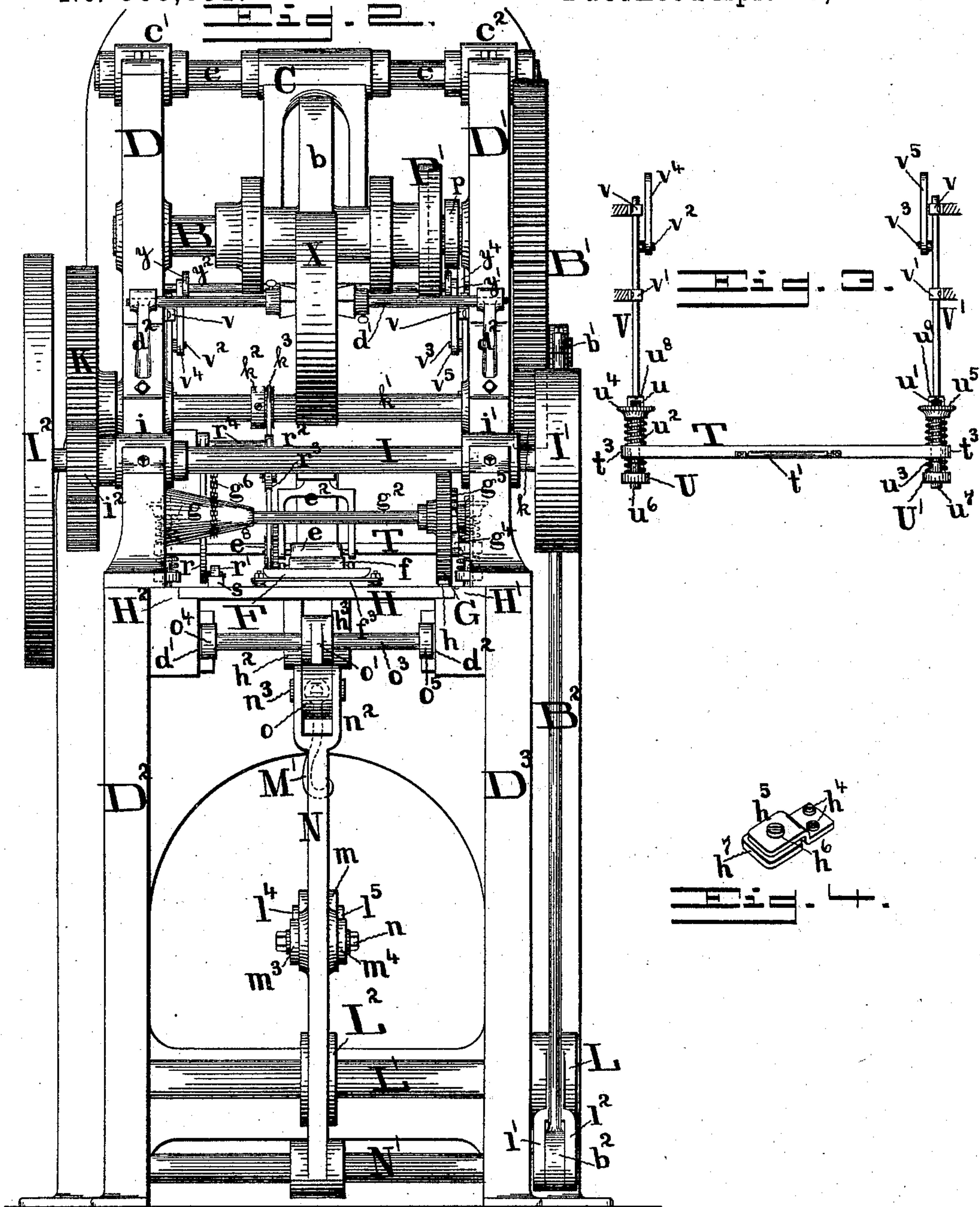
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UNITED STATES PATENT OFFICE.

CHARLES T. PACKER AND GEORGE W. SWIFT, OF PHILADELPHIA,
PENNSYLVANIA.

EMBOSSING-PRESS.

SPECIFICATION forming part of Letters Patent No. 580,831, dated April 13, 1897.

Application filed April 17, 1894. Serial No. 507,862. (No model.)

To all whom it may concern:

Be it known that we, CHARLES T. PACKER and GEORGE W. SWIFT, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Embossing-Presses, of which the following is a specification.

Our invention has relation to that class of printing machinery known to the trade as "embossing-presses."

Machines of this class generally comprise a suitable stamp, a corresponding die and a sliding table or support therefor, an inking roller or rollers, and a wiping-plate for the removal of surplus ink from said die; and it is the object of our invention to provide certain new and useful improvements in the mechanism whereby these devices are respectively operated.

Ordinarily the die-supporting table is actuated by a rotary cam, which, owing to the extent of movement required of said table, is quite large, adding much weight to the machine and requiring considerable power for its operation alone, and when worn away to any extent prevents the necessary exactness of registry of the stamp and die, besides being productive of considerable jar and clatter. Furthermore, the disconnection of this cam with the die-operating mechanism for securing a plurality of impressions when it is desired to dispense with the inking of the die between each impression, as, for instance, in the operation of embossing without ink, is not readily attainable.

The inking roller or rollers of this kind of machine are also in continual operation and when not performing their prescribed functions are very apt to and do throw the ink around and spatter the adjacent parts of the machine while the wiping-plate is in a fixed position and the die upon its return movement depressed to avoid contact therewith, rendering the assumption by said die of the same operative position relatively to the stamp quite uncertain.

Our invention contemplates the obviation of these objections through the provision of an embossing-press or similar machine the inking-rollers of which are adapted for rota-

tion intermittently, or at such times only as the same are being replenished and when inking or reinking the die; a reciprocating wiping-plate adapted for alternate contact with and clearing said die; a system of cranks and levers which afford a light, frictionless, and positive actuating medium for the table; a swivel or jointed connection intermediate the latter and its operating mechanism, controlled by a cam slot or slots, whereby said table is caused to dwell temporarily during the stamping operation; a friction-brake or stop which operates on and effects the stoppage of the table at the same place invariably without jarring the same, and a cast-off link between the stamp and table operating mechanisms, whereby the latter may be instantly disconnected from the former and the table rendered inactive altogether, all as hereinafter more fully described and claimed, and as illustrated in the accompanying drawings, which represent an embossing-press embodying a good form of our improvements, and in which—

Figure 1 is a side elevation, partly broken away and in section, of our improved machine; and Fig. 2, an end view of the same. Fig. 3 is an elevation of the wiping-plate detached. Fig. 4 is a perspective view of the friction-brake or stop.

The stamp A of this machine and its operating mechanism are of ordinary construction, said stamp being, as usual, actuated by a cam b on the shaft B through a yoke C, the trunnions c of which are journaled in boxes c' c² on the upper edges of the sides D D' of the frame of the machine, the connection c³, and the toggle-levers a a', with which it is operatively connected. So also are the die E, the ink-fountain F, and the paper-feeding devices, the latter, as ordinarily, comprising a pair of rotary cones whose shafts or spindles g² g³ are journaled in suitable bearings in said frame and in the arm d, supported thereby, motion being imparted to shaft g² in one direction of movement of the table H through a gear-wheel G, provided with a pawl g⁴ for engagement with a ratchet g⁵ thereon and meshing with a rack h on said table, such motion being communicated to cone g' through a link belt or

chain g^6 , and the spindle thereof adapted for reception of one end of the paper x , the speed with which the same is unwound from the roll X on shaft d' , supported by brackets d^2 , being governed by the position of the belt or chain on the respective cones.

The main or driving shaft I, which has its bearings in boxes $i i'$ on the sides D D' of the upper part of the frame of the machine, has at one end a driving-pulley I' and near its other end a pinion i^2 , and terminates thereat in a fly-wheel I², said pinion meshing with a gear-wheel K on one end of shaft k' , and the pinion k on the other end meshing with a crank-gear B' on the cam-shaft B. Now in lieu of connecting the rod or pitman B², which at its upper end b' is connected with said crank-gear, at its lower end with a cam, as heretofore, such rod or pitman is of such length as to permit of the journaling of its end b^2 on a pin l in lugs $l' l^2$ in the outer end of a rock-arm L, the rock-shaft L', which supports this arm, having its bearings in the lower parts of the sides D² D³ of the base of the frame and having thereon a centrally-located rock-arm L² at or about right angles with the rock-arm first mentioned, a pin l^3 in lugs $l^4 l^5$ on the end of arm L² being adapted for reception of the correspondingly-notched portion m of the cast-off link or lever M, the outer end of which is formed into a handle m' and the inner end m^2 forked, the lugs $m^3 m^4$ thereof straddling the lever N at or about its center and having openings for the pin or bolt n , upon which such lugs are journaled. Lever N at its lower end is secured on the shaft N', which is supported in lugs n' on the lower edges of the sides D² D³ of the base of the frame and at its upper end n^2 is forked and provided with a pin n^3 , upon which is journaled an end o of section o' of the double link or connection O, section o^2 of the same being journaled on a pin h' in lugs $h^2 h^3$ on the under side of the table H and the respective sections united by a transverse rod o^3 , which passes through the adjacent ends of said sections and has at each end a roller $o^4 o^5$, the opposite inner sides of the base of the frame having each a suitably-located cam-slot $d' d^2$ for reception of said rollers, which slots, as shown clearly in Fig. 1, are for the most part straight, but at their forward ends are curved downwardly at a radius equal to the distance between the centers of pin h' and rod o^3 , the purpose of which will presently appear.

One of the ways H' H² in which the table H slides has secured thereto by screws h^4 a cleat h^5 , which at its outer end overhangs the path of said table and by a screw h^6 adjustably supports a friction-block h^7 or brake, of rawhide or other elastic material, the pressure of which upon said table being regulated by said screw.

As is perfectly obvious, starting with the parts in the positions shown in Fig. 1, the rotation of crank-gear B' under the impulse of

the train of gears hereinbefore described will cause the exertion of an updraft on the rock-arm L by the rod or pitman B² and the rocking of the shaft L' and the arm L² thereon from left to right, said arm L² thereby drawing the lever N in the same direction through the medium of the cast-off link M, and the table H, owing to the temporary rigidity of the link or connection O which results from the travel of the rollers $o^4 o^5$ in the straight portions of the slots $d' d^2$, sliding forwardly in its ways H' H² coincidentally therewith and at the same speed until said rollers strike the inclined or curved portions of said slots, when said link or connection O begins to buckle and said table to gradually slacken its speed under the superior pressure of the brake h^7 until the rollers reach the point indicated by the dotted circle 1, Fig. 1, at which instant the direct action of the table-operating mechanism ceases and the table is brought to a dead-stop by said brake without the least jar.

The die E, of course, is so located as to be directly under the stamp A at this stage, and said table remains stationary while said stamp is making the desired impression, said rollers continuing their movement forward and back and the sections of the link or connection O simply swinging on their bearings under the impulse of the devices with which they are connected until the rollers again reach the point indicated by the dotted circle aforesaid, when the table is drawn back to its initial position by a reverse operation of its actuating mechanism. Thus while the speed of the table between the stamping operations is quite considerable the ease with which it is brought to the stopping-point and the little time consumed therein is conducive to an increase in the number of impressions possible in a given time with little or no jar or noise.

If for any reason a number of impressions at one point be necessary or it be desired to merely emboss without the die being inked, the table H and the inking apparatus may be thrown out of action at once when its operating mechanism is in the position shown in dotted lines in Fig. 1 by the mere raising of the cast-off link M sufficiently to cause the disengagement of the notch therein with the pin l^3 of arm L² and, for convenience, catching the handle m' in the hook M', as shown in similar lines in said figure, which affords a support for said link, effecting the total separation of such mechanism from the other parts of the machine, which may continue in the performance of their functions independently thereof.

As will be readily understood, each movement to and fro of the table H effects a re-inking of the die and a replenishment of the inking-rollers for the next operation, and it is necessary in order that said rollers may be thoroughly inked that they shall rotate when in contact with the ink-rollers $f f'$.

The inking-rollers $e e'$ of this machine, which, as stated, are normally inactive, are

journalled in a frame e^2 , which is adjustably sustained by a centrally-located box or casing e^3 , with which the cross-bar e^4 is provided, and have each on their spindles a gear e^5 e^6 , which mesh with an intermediate gear e^7 , journalled on said frame. A grooved pulley e^8 on the spindle of roller e and a similarly-grooved collar k^2 on the shaft k' have running thereon a belt k^3 , which normally is too loose to communicate motion from the one to the other. The tightener for this belt comprises a depending arm r , provided at its lower end with a roller r' , in rolling contact with the table H , a shorter arm r^2 with a grooved roller r^3 for engagement with said belt, as shown, and a hollow spindle r^4 , sustained on a laterally-projecting shaft r^5 , to opposite ends of which spindle said arms are respectively secured.

The ink fountain or reservoir, the spindles of the rollers $f f'$ of which are mounted in notches or recesses (shown at f^2) in the sides thereof, rests on a yielding base or spring-supported frame f^3 at the rear end of the table and is so disposed that the upper surface of said rollers, which at their lower portions are in the ink, are in horizontal alinement with the lower surfaces of the inking-rollers $e e'$. At the side of said reservoir, in the path of the roller r' , is located a raised track or cam-shoulder s , which when said table is impelled forwardly forces itself by its incline s' under said roller and raises the arm r , effecting the throwing forwardly of the arm r^2 and its attached roller r^3 , as shown in dotted lines in Fig. 1, sufficiently to tighten the belt k^3 , thereby causing the rotation of said rollers $e e'$ just before and during the projection thereunder of the rollers $f f'$ only. As soon, however, as the latter are withdrawn from this position by the return movement of the table the track or shoulder s recedes from beneath the roller r' , the tightener resumes its normal condition, the belt k^3 becomes loose again, and the rollers $e e'$ cease their motion.

The relative positions of the die E and the ink fountain or reservoir F are such that when and as long as the former is under the stamp and the table is at rest the rollers $f f'$ of said fountain or reservoir are in rolling contact with and feeding the inking-rollers $e e'$ preparatory to the passage back and forth thereunder of said die upon the return of said table to its initial position, or to the point illustrated in Fig. 1, and the forward movement of the same again. In this way the die becomes thoroughly inked, though in order to avoid the soiling of the paper to be embossed it is necessary to have the flat of the die perfectly clean, to which end the wiping-plate T , over the surface of which passes the paper x and which has at each side a roller $t' t'$ therefor, is provided, said plate having enlargements $t^2 t^3$ at its corners, through openings in which pass guide-rods $u u'$, and being suspended at such corners between springs $u^2 u^3$, which encircle said rods and are controlled by the ad-

justing-nuts $u^4 u^5$ on the threaded upper ends of the latter. As will be observed, these rods project upwardly from horizontal side bars U U' , provided with pins $u^6 u^7$ at their ends, which form feet therefor, and supported by jointed hangers $V V'$, which at their lower ends are secured in the arms $u^8 u^9$ of said side bars by screws u^{10} , have liberty of vertical movement in straps $v v'$, secured to the inner sides of the sides $D D'$ of the frame of the machine, and are provided near their upper ends with shouldered pins $v^2 v^3$, which permit the extensions $v^4 v^5$ of said hangers, which are journalled thereon, to clear the upper ones of said straps. Said extensions at their upper ends are pivotally connected with rock-arms $y y'$ on the ends of rock-shaft y^2 , which latter is sustained in bearings at y^3 and is provided with another rock-arm y^4 , the same being similarly connected with the cam-rod P , which terminates in an enlargement p , such enlargement supporting a roller p' (shown in dotted lines) for engagement with a cam-groove p^2 in the cam P' on the shaft B and having a central opening p^3 for the passage of and affording clearance for said shaft, which it encircles. The position of this cam B' on the shaft B is such that when the parts are in the relation shown in full lines in Fig. 1, the table being about to move forwardly and the die E to pass under the rollers $e e'$, the roller p' will be in the higher part of the groove p^2 therein and the cam-rod and rock-arm with which it is connected drawn toward the right of the drawing, causing the depression of the rock-arms $y y'$ and the hangers $V V'$, the side bars $U U'$, and the wiping-plate T , the springs u^2 exerting sufficient pressure to secure the thorough wiping of the die E by the paper which is interposed between it and said plate, while allowing the same to yield to such extent as to prevent injury to said die, the length of paper presented by plate T being sufficient to both wipe and polish the die.

While the return movement of the table II is taking place roller p' is in the lower part of the cam-groove p^2 and the rock-shaft y^2 actuated in the other direction, an operation of the wiping-plate and its operating mechanism the reverse of that just described taking place and said plate raised out of the way of said die, the gear-wheel G and shaft g^2 in this event being operative through the engagement of the pawl g^4 and ratchet g^5 and another length of paper drawn from the roll X under the shaft k' , around the roller d^3 , supported by the arm d^4 , over the plate T , to the spindle g^3 , and a clean wiping-surface thus afforded.

What we claim as our invention is as follows:

1. In an embossing-press, the combination of the table, a reciprocating cam-shoulder, the ink fount or reservoir, the die, an inking roller or rollers for the die, a normally loose driving-belt for said roller or rollers, and a

tightener for said belt operated through its engagement with the cam-shoulder aforesaid, substantially as and for the purpose specified.

2. In an embossing-press, the combination of the sliding table, a cam-shoulder on the latter, the ink fount or reservoir, the die, an inking roller or rollers for the die, a normally loose driving-belt for said roller or rollers, and a pivotally-supported belt-tightener having at one end a roller adapted to run on the cam-shoulder and at its other end provided with a grooved pulley for contact with said belt, substantially as and for the purpose specified.

3. In an embossing-press, the combination with the table, the die thereon and a wiping-plate for the latter, of a support for such plate comprising a pair of side bars having feet adapted to rest on the frame of the press when the plate is depressed and supporting spring-encircled rods which terminate in adjusting devices, said plate being sustained between the springs on said rods and having openings for the latter and said bars being connected with mechanism whereby they are depressed upon the passage of the die under such plate and raised thereafter, substantially as and for the purpose specified.

4. In an embossing-press, the combination with the table, the die thereon and a wiping-plate for the latter, of a support for such plate comprising a pair of side bars having feet adapted to rest on the frame of the press when the plate is depressed and supporting spring-encircled rods which terminate in adjusting devices, said plate being sustained between the springs on said rods and having openings for the latter and said side bars being secured to jointed hangers which have liberty of lengthwise movement in straps on such frame and at their jointed ends are connected with suitably-actuated rock-arms, substantially as and for the purpose specified.

5. In an embossing-press, the combination with the table and its actuating-lever, of a double link or connection the outer ends of the sections of which are attached to said table and lever respectively, a cam slot or slots, and a bearing for the inner ends of the link-sections controlled by the slot or slots, substantially as and for the purpose specified.

6. In an embossing-press, the combination with the table and its operating mechanism of a cam slot or slots, a double link or connection between the table and such mechanism, and a bearing for the adjacent ends of the link-sections having an end or ends in the slot or slots, substantially as and for the purpose specified.

7. In an embossing-press, the combination with the table of a suitably-actuated oscillating lever, a pair of oppositely-disposed cam-slots, a double link or connection between the table and such lever, and a rod or shaft which affords bearings for the adjacent ends of the link-sections and provided with

rollers in engagement with said slots, substantially as and for the purpose specified.

8. In an embossing-press, the combination with the table of a suitably-actuated oscillating lever, a double link or connection the outer ends of the sections of which are attached to said table and lever respectively, a pair of oppositely-located cam-slots for the most part straight and having their forward ends of a curvature equal to the distance between the centers of one of the link-sections, and a rod or shaft which affords bearings for the inner ends of said sections and is provided with rollers in engagement with said slots, substantially as and for the purpose specified.

9. In an embossing-press, the combination with the sliding table of a suitably-actuated oscillating lever connected with said table a suitably-actuated rock-arm carrying a pin, a cast-off link in permanent pivotal relation with said lever, provided with a notch for reception of and disengagement from the pin and terminating in a handle, and a suitably-located hook for retention of the handle when said link is raised out of engagement with said pin, substantially as and for the purpose specified.

10. In an embossing-press, the combination with the sliding table and its actuating mechanism of a stop therefor comprising a friction-block of rawhide or other elastic material, and a lateral support for the same secured to one of the slideways and projecting over the path of said table and sustaining a screw whereby said block is adjustably supported, the latter being adapted to exert a braking pressure upon the table upon its passage at intervals thereunder, substantially as and for the purpose specified.

11. In an embossing-press, a table carrying a die, means for actuating said table, a wiper device consisting of bars suitably supported and guided, studs attached to said bars, a wiper-plate moving freely on said studs and cushioned on springs above and below, and means for actuating said bars, substantially as set forth.

12. In an embossing-press, the combination with the table, the die thereon and a wiping-plate for the die, of a support for such plate comprising a pair of side bars supporting spring-encircled rods which terminate in adjusting devices, said plate being sustained between the springs on said rods and having openings for the latter, and said side bars being secured to jointed hangers which have liberty of lengthwise movement in straps on the frame and at their jointed ends are connected with suitably-actuated rock-arms, substantially as set forth.

13. In an embossing-press, the following elements in combination: a supporting-frame-work; a table or bed upon which is superimposed and by which is carried the lower member of a die proper, and which reciprocates in both directions in a horizontal plane; a

mechanism which occasions a predetermined horizontal reciprocation of the table or bed and a predetermined dwell of the same at the completion of its forward movement; a vertically-reciprocating plunger which carries the upper member of said die proper, and the reciprocation of which in consonance with the predetermined correspondent movement of the table occasions the registry of said members of the die and their embrace between them, and the compression of, the paper to be embossed; a mechanism for applying ink to the member of the die carried by the table; and a vertically-movable mechanism for wiping the face of the inked member of the die clean of surplus ink, which operates upon said inked member only during the forward movement of said member occasioned by the forward movement of the table; substantially as set forth.

14. In an embossing-press, the following elements in combination: a supporting-framework; a horizontally-reciprocating table or bed upon which is superimposed and by which is carried the lower member of a die proper; a mechanism which occasions a predetermined horizontal reciprocation of the table or bed and a predetermined dwell of the same at the completion of its forward movement; a vertically-reciprocating plunger, which carries the upper member of said die proper, and the reciprocation of which in consonance with the predetermined correspondent movement of the table occasions the registry of the said members of the die and their embrace between them, and the compression of, the paper to be embossed; a mechanism for applying ink to the member of the die carried by the table, which consists, essentially, of an ink-fount superimposed upon and carried by the reciprocating table and provided with an ink-supplying roller, of an ink-applying roller supported above the bed, and of a mechanism which in the reciprocation of the bed positively drives the ink-applying roller during the passage of the ink-supplying roller beneath it, but exerts no influence upon, but upon the contrary permits of, the idle running of said ink-applying roller during the period of the passage of the lower member of the die proper beneath it; and a mechanism for wiping the face of said inked member of the die clean of surplus ink; substantially as set forth.

15. In an embossing-press, the following elements in combination: a supporting-framework; a horizontally-reciprocating table or bed upon which is superimposed and by which is carried the lower member of a die proper; a mechanism which occasions a predetermined horizontal reciprocation of the table or bed and a predetermined dwell of the same at the completion of its forward movement; a vertically-reciprocating plunger, which carries

the upper member of said die proper, and the reciprocation of which in consonance with the predetermined correspondent movement of the table occasions the registry of the said members of the die and their embrace between them, and the compression of, the paper to be embossed; a mechanism for applying ink to the member of the die carried by the table, which consists, essentially, of an ink-fount superimposed upon and carried by the reciprocating table and provided with an ink-supplying roller, of an ink-applying roller supported above the bed, and of a mechanism which in the reciprocation of the bed positively drives the ink-applying roller during the passage of the ink-supplying roller beneath it, but exerts no influence upon, but upon the contrary permits of, the idle running of said ink-applying roller during the period of the passage of the lower member of the die proper beneath it; and a mechanism for wiping the face of the inked member of the die clean of surplus ink, which operates upon said inked member only during the forward movement of said member occasioned by the forward movement of the table; substantially as set forth.

16. In an embossing-press, the following elements in combination: a supporting-framework; a horizontally-reciprocating table or bed upon which is superimposed and by which is carried the lower member of a die proper; a mechanism for occasioning a predetermined horizontal reciprocation of the table and a predetermined dwell of said table at the completion of its forward movement, which consists of an actuating-lever, of a double link or connection the outer ends of the sections of which are attached to the reciprocating table and the actuating-lever respectively, of a cam slot or slots formed in the supporting-framework, and of a bearing for the inner ends of the link-sections controlled by the slot or slots; a vertically-reciprocating plunger, which carries the upper member of said die proper, and the reciprocation of which in consonance with the predetermined correspondent movement of the table occasions the registry of the said members of the die and their embrace between them, and the compression of, the paper to be embossed; a mechanism for applying ink to the member of the die carried by the table; and a mechanism for wiping the face of said inked member of the die clean of surplus ink, substantially as set forth.

In testimony whereof we have hereunto set our hands this 2d day of April, A. D. 1894.

CHARLES T. PACKER.
GEORGE W. SWIFT.

Witnesses:

SAML. A. FERRELL,
HOWARD S. HEWSTON.