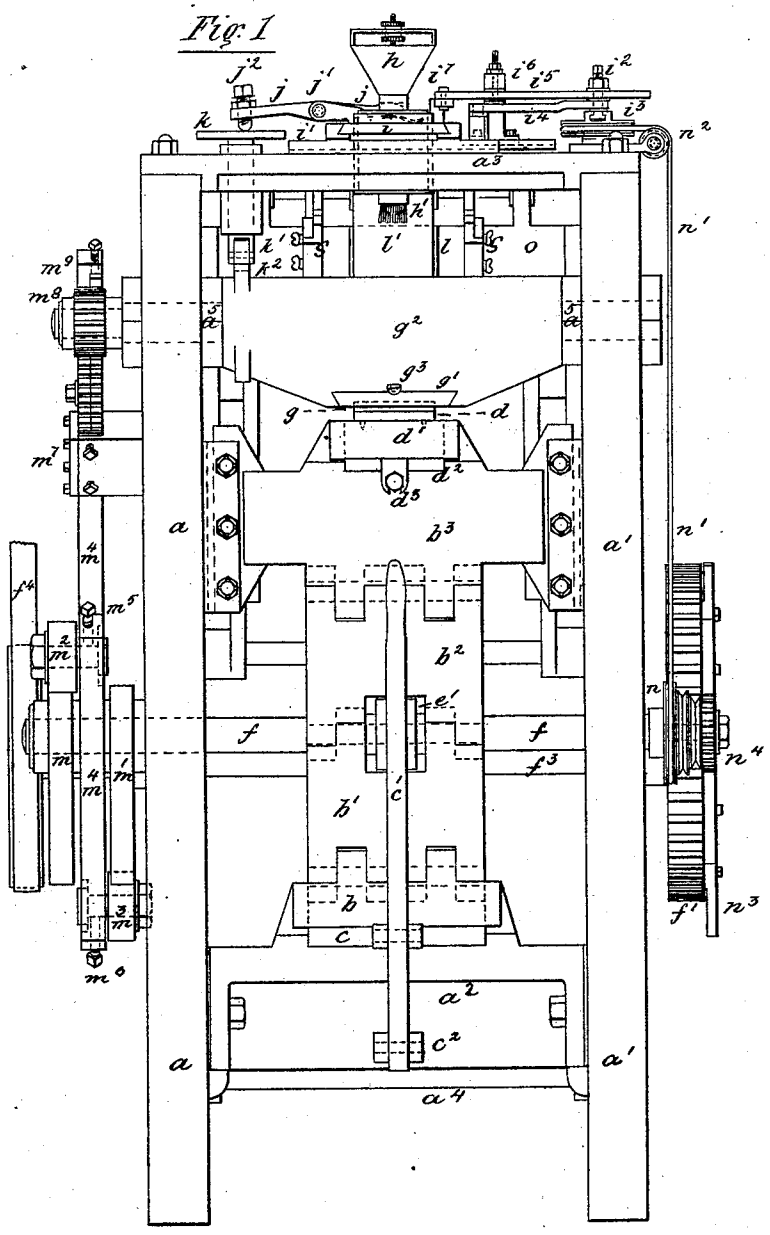
(No Model.) 4 Sheets—Sheet 1.

J. CARSON.

DIE STAMPING AND SURFACE PRINTING MACHINE.

No. 247,613. Patented Sept. 27, 1881.

Fig. 1



Witnesses,
Thos. Flesbie
H. D. Williams

John Carson
Inventor.
per Alfred Shedlock Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.)

4 Sheets—Sheet 2.

J. CARSON.

DIE STAMPING AND SURFACE PRINTING MACHINE.

No. 247,613. Patented Sept. 27, 1881.

Fig. 6

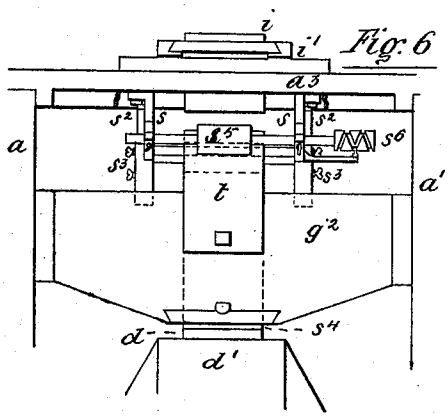


Fig. 2

Witnesses.
Thos. J. Corbin
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(No Model.) 4 Sheets—Sheet 3.

J. CARSON.

DIE STAMPING AND SURFACE PRINTING MACHINE.

No. 247,613. Patented Sept. 27, 1881.

Fig. 4

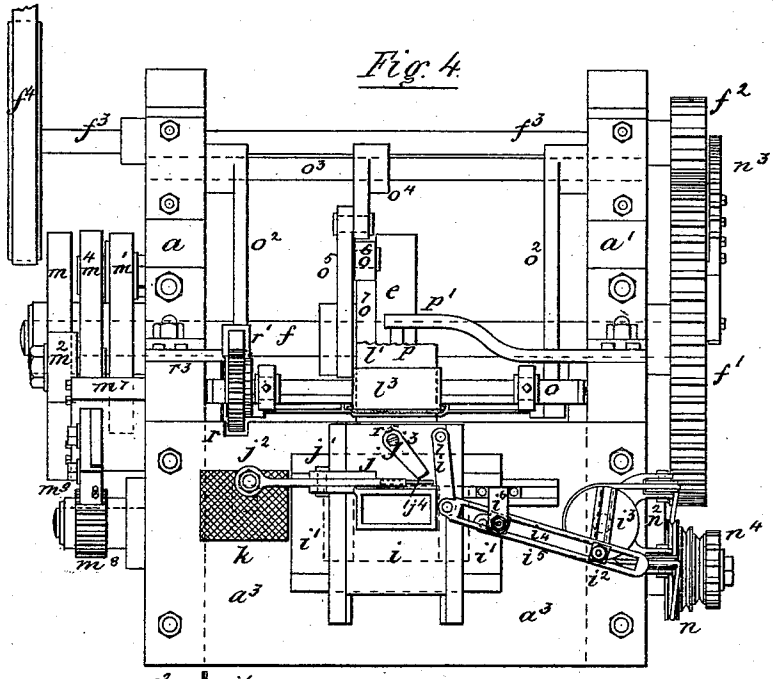


Fig. 3

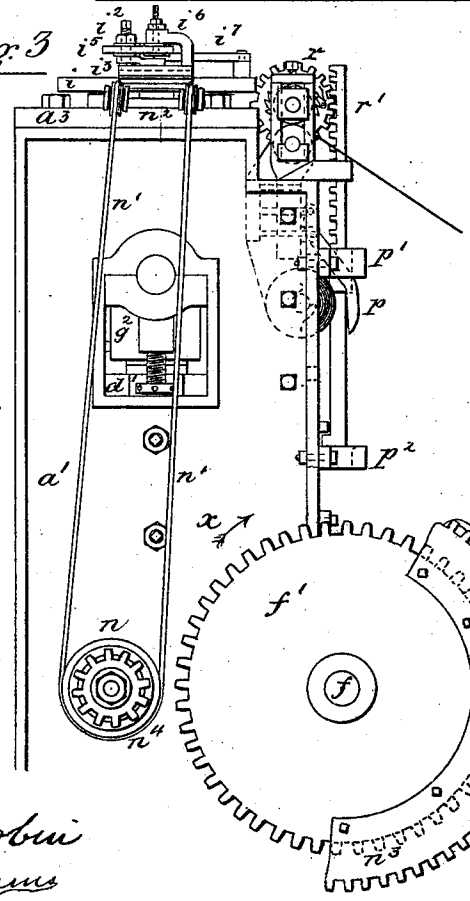
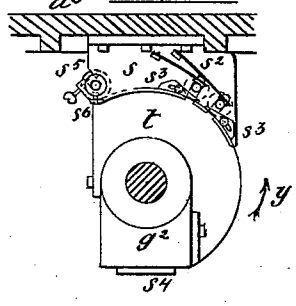


Fig. 8



Witnesses.
Thos. J. Curbin
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per Alfred Thew Lorke
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N. PETERS. Photo-Lithographer. Washington, D. C.

(No Model.) 4 Sheets— Sheet 4.

J. CARSON.

DIE STAMPING AND SURFACE PRINTING MACHINE.

No. 247,613. Patented Sept. 27, 1881.

Fig. 5.

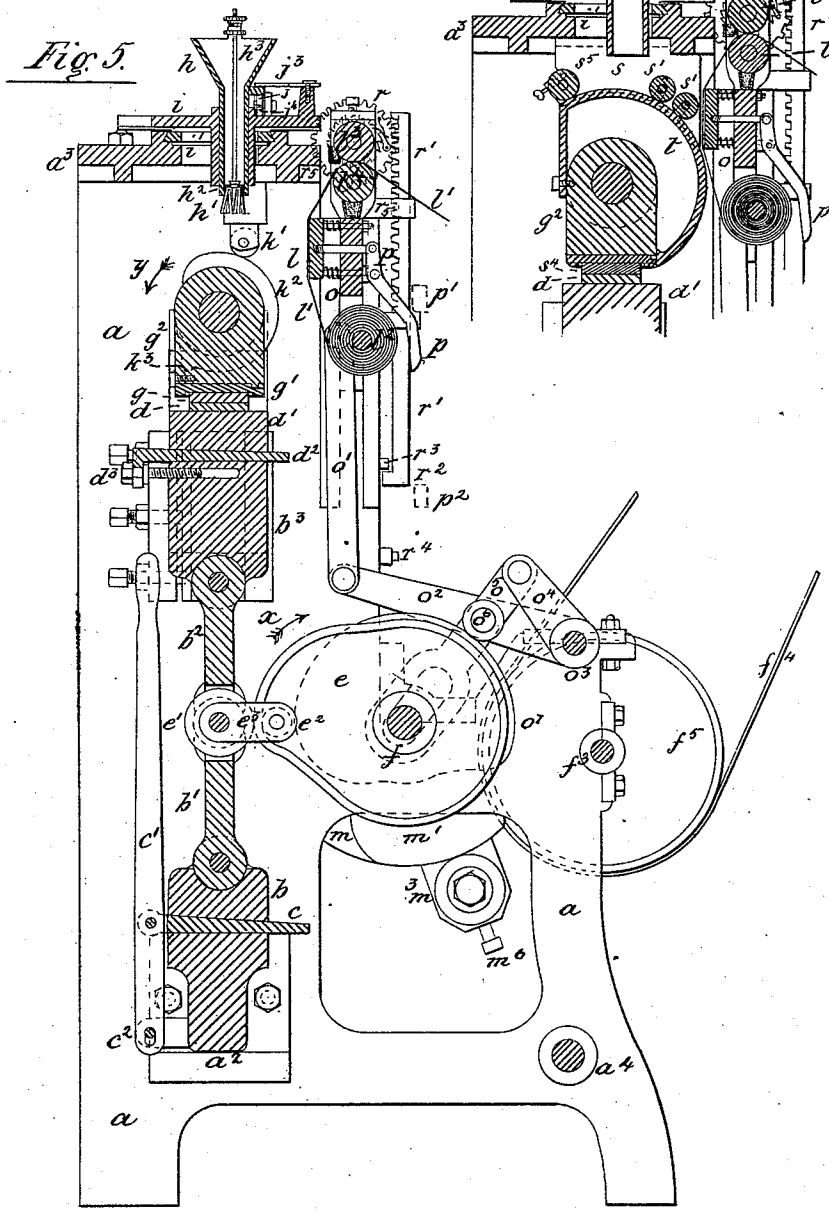


Fig. 7

Witnesses.
Thos. J. Cochran
H. D. Williams

John Carson.
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UNITED STATES PATENT OFFICE.

JOHN CARSON, OF BROOKLYN, NEW YORK.

DIE-STAMPING AND SURFACE-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 247,613, dated September 27, 1881.

Application filed February 4, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN CARSON, of the city of Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Improved Die-Stamping and Surface-Printing Machine, of which the following is a specification.

This invention has for its object to construct a die-stamping machine automatic in all its operations, and to adapt such a machine for surface-printing by simply changing the inking device and disconnecting the die-wiping attachment. The platen is operated by means of the ordinary toggle-lever system, and the die is held in a bed constructed to oscillate in bearings in the side frames of the machine to bring the die into a horizontal position, with its face upward, to receive the ink or color from a brush provided with a reservoir constructed to feed the ink or color through the brush to its surface, said brush having imparted to it a circular, elliptical, or reciprocating motion either crosswise or lengthwise of the die, according to the requirements of the style of work being printed, said movements being adjustable as to extent and readily changed one to the other. The die, after being properly inked, makes one quarter of a revolution, bringing its face into a vertical position, in which position it rests a sufficient time to allow the wiping device to move over its surface, and so remove the surplus ink therefrom. This wiping device consists of a pad carried by a vertically-moving frame, and over the face of the pad is arranged a strip of paper operated to present a fresh surface to the die each time the wiping thereof takes place. The pad is caused to recede from the die as it moves over it in imitation of the sweeping action of die-wiping by hand. The instrumentality employed to operate the paper over the wiping-pad is adjustable as to the amount of paper moved by it each operation of the machine, to enable all sizes of dies being properly wiped without waste of paper.

All that is necessary to do to convert the machine from a die-stamping to a surface-printing machine is to disconnect the wiping device and remove the ink or color receptacle and place inking and distributing rollers of the ordinary construction in a frame provided therefor, so that they may act on a semi-cylindrical ink-distributing surface secured to the rotating bed. The stationary inking-rollers take the ink from this surface and apply it to the surface-printing device as it is carried thereunder by the oscillating bed.

To describe my invention more particularly to enable those skilled in the art to which it appertains to make and use the same, I will now refer to the accompanying drawings, forming part of this specification, in which—

Figure 1, Sheet 1, is a front elevation of my improved automatic die-stamping and surface-printing machine. Fig. 2, Sheet 2, is a left-hand side view of the same. Fig. 3, Sheet 3, is a right-hand side view. Fig. 4, Sheet 3, is a plan view. Fig. 5, Sheet 4, is a central sectional elevation. Fig. 6, Sheet 2, is a front elevation of the surface-printing attachments. Fig. 7, Sheet 4, is a central sectional elevation of the surface-printing attachments. Fig. 8, Sheet 3, is a side elevation of the same.

The machine in its general construction resembles somewhat that class of die-stamping machines embodying toggle-lever; and it consists of two side frames, a and a', held together by the heavy girder a^2, tie-rod a^4, and top plate, a^3.

In guides projecting from the top of the girder a^2 is fitted the block b, in which is hinged the lower end of the lower toggle-lever, b', the upper end of the upper toggle-lever, b^2, being hinged to the head b^3, fitted to slide in vertical guides on the inside of the side frames, a and a'. These guides are provided with gibs and set-screws in the ordinary manner.

Between the girder a^2 and the block b is placed the wedge c, the front end of which is pivoted to the lever c', connected at its lower end to a projection from the girder a^2 by means of the pin or bolt c^2. The hole in the lever c', through which the pin c^2 passes, is slotted to allow the lever being pulled away from the toggle-lever b' b^2, and so partly withdraw the wedge c from between the block b and girder a^2 by means of the handle at its upper end, which is conveniently located to be operated by the attendant feeding the machine when it is desired to throw off the impression, the with-

drawal of the wedge *c* allowing the block *b*, toggle-levers b' b^2, and the head b^3, which carries the platen and impression-block, to fall, and so prevent an impression taking place.

The platen *d* is secured by means of dowel-pins to the top of the block d', which is fitted between guides projecting upwardly from the head b^3. This block d' rests on the wedge d^2, provided with a screw, d^3, turning in a lug on the front of the wedge d^2, so as to have a longitudinal play therein, and fitting in a tapped hole made therefor in the head b^3. This wedge has for its object to regulate the height of the platen *d*, said regulation being accomplished by turning in on it the screw d^3, and thereby moving the wedge d^2 with it, and so raising or lowering the block d' and platen *d*.

The toggle-levers b' b^2 are actuated by means of the cam *e*, secured to the center of the main shaft *f*, working against the roller e', located in the center of the middle joint of the toggle-levers, to bring the toggle-levers in a right line, and so raise the platen against the die, the reverse movement being imparted to the toggle-levers by means of the roller e^2, working against the inside of the flange on the side of the cam, and connected to rod of the center joint of the toggle-levers, on which the roller e' revolves, by the link e^3.

The die *g* is held in the chase g', secured to the bed g^2, by fitting into a dovetail groove, as shown in Fig. 1, from which it is prevented from moving by means of the half-headed screw g^3. This bed g^2 is fitted to oscillate in boxes a^5 a^5 made therefor in the side frames, *a* and a', and it is caused to make one-half a revolution to bring the die *g* under the color or ink applying device *h*, resting in this position a sufficient time for the die to be properly inked. It then moves back one-quarter of a revolution, the face of the die resting in front of the wiping device *l* until said wiping device has operated to remove the excess of ink or color, when it completes its movement and assumes the position as shown in Fig. 5, ready for the impression. These movements are imparted to the bed g^2 by means of the cams m m', keyed to the end of the main shaft *f*, which projects beyond the side frame, *a*, working respectively against the rollers m^2 m^3 on the sliding bar m^4. This bar m^4 is located between the cams *m* and m', and slides on a square box fitted freely on the main shaft *f*. The studs on which the rollers m^2 and m^3 rotate are set up by the set-screws m^5 m^6 to cause the rollers to bear hard against the cams *m* and m', the cams being made converse to one another, so there is no lost motion. The upper part of the sliding bar m^4 is guided by the box m^7, and it is provided with rack-teeth, which mesh into the teeth of the pinion m^8, and keyed rigidly to the end of the shaft of the bed g^2, projecting beyond the side frame, *a*. The part of the bar m^4 provided with the rack-teeth is divided longitudinally, one half of all the teeth being on the piece m^9, which is secured to the other part of the bar, on which the other half of all the teeth are formed, by bolts passing through slotted holes in it, and its upper end projects over the end of the bar, and has a set-screw passed through said projection bearing against the end of the bar.

The object of making the rack in two halves is to allow of the spaces between the teeth being reduced to gripe the teeth of the pinion m^8 firmly to prevent any backlash between them, and as the cams *m* and m' and their rollers m^2 and m^3 are constructed to work without any play, the bed g^2 will be operated and held in the three positions it has to assume without any lost motion.

The bed g^2 or its shaft may, if desired, be provided with a locking device; but such device will not be necessary if the parts just described be made in a proper manner.

The ink or color applying device consists of a receptacle, *h*, in the bottom of which is placed the brush h', and just over the brush is a partition, in which is fitted a valve, h^2, secured to the bottom of the stem h^3. This stem extends through the whole depth of the receptacle h', and is placed in a slot in the bridge. On the top of the receptacle the stem h^3 is firmly held to the bridge by thumb-nuts, as shown, and by means of which the opening of the valve is regulated to govern the flow of ink or color through the brush *h*. The slot in the bridge allows the valve and stem h^3 to be removed from the receptacle h' for the purpose of cleaning them, &c. The shape and size of the brush will be made to suit the particular die in use, so as to apply the ink or color thereto as much as possible without waste. In some cases the brushes will be round, in others long and thin, the receptacle, of course, being adapted to the brushes; and I propose in some cases to apply two or more colors to the die at one time by arranging two or more color-receptacles side by side, the form for such purpose being modified from that shown in the drawings, as will be well understood without further description.

The ink or color device is operated to move down onto the die as soon as the die is in position to receive ink or color, and then move over the die with a circular, elliptical, or reciprocating movement, by means of the following mechanism: The receptacle h' is fitted into the central opening in the slide *i*, which is made large enough, as shown in the plan view, Fig. 4, to receive all sizes and forms of them. This slide *i* is fitted in bearings on the slide i', which is itself fitted in bearings on the top of the top plate, a^3, the bearings of the slide *i* on the slide i' being at right angles to the bearings of the slide i' on the top plate, a^3, so that by imparting to these slides *i* and i' movement in their bearings properly timed the brush carried by the slide *i* may be caused to move over the die in any desired direction, and by moving the slide *i* only a reciprocating movement is had across the die, and by moving the slide i' only

a reciprocating movement lengthwise of the die is had. The slides i and i' are operated from an adjustable crank-pin, i^2, fitted in a flanged slot formed on the top of the horizontal disk i^3, working on a stud projecting from the top plate, a^3. This crank-pin i^2 is connected to the slide i' by the link i^4, and it operates the slide i by working in slotted lever i^5, which is pivoted to the arm i^6, fitted in a guide formed in the slide i', the end of the lever i^5 being connected to the slide i by means of the link i^7, so that as the disk i^3 is rotated the crank-pin i^2 causes the slide i' to move to and from the disk, and at the same time causes the slide i to move transversely on the slide i', the amount of movement imparted to the slide i' being governed by the distance the crank-pin i^2 is set from the center of the disk i^3, and the movement of the slide i being also governed by the throw of the crank and by the position of its fulcrum carried by the arm i^6, so that by the combined action of the slides i and i' the inking device, which is carried by the slide i and passes through openings in the slide i' and top plate, a^3, may be caused to travel over the die in any desired direction by the proper adjustment of the crank-pin i^2 and the fulcrum of the slotted lever i^5.

A reciprocating motion is given the inking device in direction lengthwise of the die by disconnecting the lever i^5 from the crank-pin i^2 or from the slide i, the crank-pin i^2 then acting only on the slide i' through the medium of the link i^4, and a reciprocating motion in direction across the die is imparted to the inking device by disconnecting the link i^4 from the crank i^2 or slide i', the crank then only acting on the slide i through the medium of the slotted lever i^5 and link i^7. The crank-pin i^2 in this case moves up and down the slot of the lever i^5, as the fulcrum on the arm i^6 is stationary.

The inking device h is fitted in the opening in the slide i so as to be free to move up and down therein, and it is held up to allow the edges of the die g to clear the brush when the die is being moved round in position to receive the color or ink by means of the end of the lever j acting against the under side of the lug projecting from the side of the ink-receptacle, said end of the lever j being held up by a spring, j^4, placed under it, as shown in the plan view, Fig. 4. The lever j is pivoted in arms j', secured to or forming part of the slide i, and through the other end of it is fitted the adjustable screw j^2, the end of which is rounded or provided with a caster-roller, and bears on the table k, provided with a square stem passing through a hole made therefor in the top plate, a^3. In the lower end of the stem of the table k is fitted the roller k', which rests on the flange or rim k^2, secured to or forming part of the bed g^2. The periphery of this flange k^2 is concentric with the center of rotation of the bed g^2, except at the part of it which will come in contact with the roller k' when the bed has moved a full half of a revolution and the die has just arrived in a horizontal position under the brush h. The rise k^3 on the flange k^2 (shown in dotted lines in Fig. 5) then lifts up the table k, and with it the outer end of the lever j, depressing its end under the lug on the ink-receptacle, thereby allowing the brush h' to come in contact with the die g, the pressure of the brush on the die being governed by adjusting the screw j^2. Rotary motion is now imparted to the disk i^3 and the brush h' caused to move over the dies, as before described, the end of the screw j^2 traveling in the same direction over the top of the table k, which for some purposes I propose to corrugate or provide with other irregular surface, thereby causing the lever j to vibrate as the screw moves over the top of the table k, and so imparting to the brush h' a dabbing action on the die g as it moves over it, this dabbing action of the brush on the die insuring a better application of some kinds of inks and colors to it. The spring j^3, secured to the top of a post projecting from the slide i, bears on the lug on the ink-receptacle to insure the brush coming in contact with the die.

The manner in which rotary motion is imparted to the disk i^3 at the right time is shown in Figs. 1 and 3. The cone-pulley n is fitted to rotate on a stud secured in the side frame, a', and connects with the disk i^3 by means of the belt n', which passes over the guide-pulleys n^2, carried in a frame secured on the top plate, a^3, and adapted to be set to keep the belt tight when placed on different rises of the cone-pulley n. This adjustment of the belt n' enables the speed of the inking device to be regulated as desired. Motion is imparted to the pulley n at the right time, or just when the die has arrived under the inking device, by means of the segmental gear-wheel n^3 meshing into the pinion n^4, secured to the cone-pulley n. This segmental gear-wheel n^3 is fastened to the side of the large gear-wheel f', which is secured to the main shaft f, and into which meshes the pinion f^2, keyed on one end of the driving-shaft f^3, fitted to rotate in boxes on the rear of the side frames, a and a', and driven by means of the belt f^4 passing over the pulley f^5, secured to its other end.

The wiping device consists of a pad, l, over the surface of which is stretched the strip of paper l', wound on a roll and held on the shaft l^2, and drawn over the face of the pad by means of the feed-rollers l^3 l^4, which are caused to partly rotate each time the paper-covered pad l is moved over the face of the die to bring a fresh portion of the strip of paper into position for the next wiping operation. The pad l, roll of paper l', and feed-rollers l^3 l^4 are all carried on the frame o, fitted to slide in vertical guides made therefor on the inside of the side frames, a and a', and the frame is actuated by the following means to cause the paper-covered pad l to move over the face of the die to remove the surplus ink or color therefrom when

the die has moved back one-quarter of a revolution just after receiving the ink or color from the brush h': At both sides of the machine, in close proximity to the side frames, the links o' o' are pivoted to the sliding frame o, the lower end of these links o' o' being connected by bolts or studs to the arms o^2 o^2, which are rigidly secured to the shaft o^3, fitted to oscillate in bearings in the side frames, a and a'. On the shaft o^3, near its center, is keyed the arm o^4, to the end of which is pivoted the upper end of the slotted link o^5, guided by means of its slot embracing the main shaft f. The link o^5 is provided with a roller, o^6, adjusted to work against the cam o^7, which is secured to the side of the cam c. The sliding frame o is thus raised up by the rotation of the cam o^7 and falls down by its own weight and that of the connecting links and arms on the shaft o^3, so as to always keep the roller o^6 against the cam o^7. A spring or springs may be attached to the side frames or any fixed part of the machine and to the arms o^2 o^2 or other parts of this movement to assist the frame o in its descent; but under ordinary circumstances such spring or springs will be unnecessary.

To impart to the wiping-pad l a retrograde action as it is passing over the die g in imitation of the operation of wiping the surplus ink off dies by hand, it is supported on four bolts which pass through holes in the frame o, and has a central stem connected to the short end of the lever p, whose fulcrum is formed by a bolt passing through it and lugs projecting from the back of the frame o. The long end of the lever p is bent, as shown in Figs. 3 and 5, so as to come in contact with the stops p' and p^2 as the frame o moves up and down. These stops p' and p^2 (shown by dotted lines in Fig. 5) are bolted to the flange of the side frame, a', and are constructed to be adjusted to act on the lever p in any part of the movement of the pad l over the die to draw the pad away from the die with a sweeping action. This sweeping action prevents the die tearing the paper l'. The stop p' draws the pad away from the die as the pad is moving upward over the die to wipe off the surplus ink, and the stop p^2 holds the pad back while the die is moving down into position to be wiped, and allows the edge of the pad to gradually approach the edge of the die as it commences to wipe. On the four bolts which support the pad l on the frame o are placed springs between the pad and the frame to keep the pad out in position to wipe the die, and the amount of pressure of the pad on the die due to these springs is governed by nuts on the ends of the four bolts.

It is necessary that a fresh surface of the paper l' be presented to the die each time it is wiped, and this is accomplished by the feed-rollers l^3 l^4 being caused to partly rotate each time the pad l moves down. On the shaft of the top roller, l^3, is fixed a ratchet-wheel, alongside of which, fitting loosely on the shaft, is a pinion, r, provided with a pawl adapted to catch in the ratchet. Said pinion r meshes into the rack r', carried in guides projecting from the sliding frame o, in which guides the rack r' is fitted with sufficient friction to always move with frame o, excepting when its bent end r^2 comes in contact with the stops r^3 and r^4. The stop r^3 is fixed to the side frame, a, and prevents the rack r' moving with the frame o in its upward movement, always causing the rack to assume the position it occupies, as shown in Fig. 5, when the frame o is in its highest position—that is to say, in position to cause the feed-rollers l^3 l^4 to rotate to their greatest extent and draw the paper l' over the pad l an amount equal to the width of the largest die the machine is designed to print from when the frame o is moving downward, provided the rack be held from moving with the frame o, which is done by setting the stop r^4 close against the bottom end of the rack r'. The stop r^4 is bolted to the flange of the frame a through a slot therein, so as to be adjustable thereon, and by setting this stop away from the bottom of the rack r'—as, for instance, in the position shown—then the rack will move down with the frame o until the stop r^4 prevents its further downward movement. The pinion r, moving down with the frame, is rotated, and through the medium of the pawl on its side and the ratchet-wheel on the roller-shaft the rollers l^3 l^4 are rotated, but not so much as when the rack r' is held stationary in its highest position. By this arrangement of the sliding rack and adjustable stop r^4 the length of paper drawn over the pad l is regulated as desired, and these parts are adjusted so that the length of the paper fed equals the width of the die in use.

To prevent the ink or color sticking to the rollers l^3 l^4 from the paper l', I propose to keep their surfaces moist by means of water-troughs r^5 r^5, provided with sponges or other absorbent material bearing against the rollers, and with some kinds of inks or colors a suitable oil will be used in place of the water for this purpose; or the sponges may be saturated with a suitable fluid to remove the ink or color from the rollers, should any adhere to them. The paper, as it leaves the rollers l^3 l^4, is allowed to fall loosely at the back of the machine in a box or basket to permit the ink or color to dry thereon, so that it may again be rolled and placed on the shaft l^2, which is easily detached from the frame o for this purpose, to utilize the other side of it for wiping the die.

The surface-printing attachment is shown at Figs. 6, 7, and 8, and it consists of the frames s s, secured to the under side of the top plate, a^3; or they may form a part of the same casting, as the position occupied by them in no way interferes with the other parts of the machine, as shown in Fig. 1. These frames s s are provided with slots, in which the inking-rollers s' s' are placed, the ends of their shafts working against the springs s^2 s^2, secured to the outsides of the frames s s; and they are

prevented from falling out of the slots and their pressure on the type or other surface-printing device, s^4, held in the oscillating bed g^2, regulated by the sliding wedge-shaped locking-pieces s^3 s^3, which are fastened to the side of the frames s s by thumb-nuts. s^5 is a distributing-roller of the ordinary construction, placed in notches in the front parts of the frames s s, adapted to have a longitudinal traversing movement imparted to it by means of the double-threaded screw and pivoted fork s^6, when it is caused to rotate. These inking-rollers s' s' and distributing-roller s^5 rest on the ink-distributing surface t, which is of semi-cylindrical form, secured by bolts to the bed g^2, concentric with the center of rotation of the bed. As the bed g^2 makes a half-revolution, as before described, the type, &c., s^4 moves under the rollers s' s', receiving the ink or color which the rollers have taken from the ink-distributing surface t. Said surface at the same time moves under the traversing roller s^5, which distributes the ink or color uniformly thereon. The main body of the semi-cylindrical piece t may be cast solid with the bed g^2, to act as a counter-weight to balance the part of the bed in which the die g is secured, and the ink-surface be formed as a light semi-cylindrical shell, to be attached thereto when the machine is to be used as a surface-printing machine.

The various cams and gears are of such a shape and so set on the main shaft f as to cause the several devices to operate in unison, as follows, upon power being applied to the driving-shaft f^3: Starting with the various parts of the machine in the positions shown in the drawings—that is, at the moment an impression is taking place and the main shaft f revolving in the direction indicated by the arrows x x—the cam e first acts on the toggles b' and b^2 and causes the platen d to fall away from the die g. The bed g^2 is then caused to rotate, as indicated by the arrow y, until the die g is in a horizontal position under the ink or color brush h', which immediately drops down onto the die and moves over it, as before described. While this inking is taking place the wiping-pad l falls down to its lowest position, and during such descent a fresh surface of the paper l' is brought over the pad, the brush h ceases to move over the surface of the die, and rises off it at the instant the bed g^2 commences to move back in the direction opposite to that indicated by the arrow y; and when the die g is in a vertical position just above the pad l it so rests until the pad has moved up, causing its paper-covered surface to rub over the face of the die, and so remove therefrom all the surplus ink or color. The adjustable stop p^2 may be set so as to hold the pad l away from the die at the commencement of the upward movement of the pad and allow it to come in contact with the die at any part of the die-surface by the end of the lever p leaving the stop p^2. This holding back of the moving wiping-pad and allowing it to commence wiping at any desired part of the die is of considerable advantage with some dies, the designs on which require that the wiping of them be commenced at certain parts of the design. The bed g^2 then continues its backward movement, and when the die is again in its lower horizontal position the platen d rises and presses the paper which has been placed thereon in the interim against the die. A full revolution of the main shaft having now taken place, the various devices again occupy the positions shown in the drawings. Should it be necessary to throw off the impression during the working of the machine, the lever c' is pulled outward, which withdraws the wedge c, allowing the block b and toggle-levers to fall and to prevent the platen d reaching the die g. This is the operation of the machine as a die-stamping machine. To change it to a surface-printing machine all that is required to be done is to remove the ink or color receptacle h, insert the inking-rollers s' s' and traversing roller s^5 in the frames s s, secure the semi-cylindrical ink-distributing surface t on the bed g^2, and lock the frame o in the position it occupies in the drawings by tightening up the gib-screws o^8 o^8, by which the frame is prevented from falling and the roller o^6 held up so as not to be acted upon by the cam o^7, which will now rotate without doing any work, thus causing the wiping device to be inoperative for the time being.

The operation of the machine as a surface-printing machine will be fully understood from the foregoing, so a repetition of the same is unnecessary.

Having now described my invention, I would have it understood that I do not wish to confine myself to the particular arrangement and combination of the various devices and their operating mechanical movements, as it is evident modifications may be made in the construction and arrangement of the various parts of the machine without departing from the nature of my invention; so

What I claim, and desire to secure by Letters Patent, is—

1. In a printing-machine, in combination, a reciprocating platen, a die-holding bed adapted to be oscillated, and an ink or color applying device constructed and operated to ink the die when it is in position diametrically opposite to its operative position with the reciprocating platen, substantially in the manner hereinbefore set forth.

2. The die-holding bed of a printing-machine, constructed and operated to oscillate in bearings to assume three positions of rest, in combination with an ink or color applying device, a wiping device, and a reciprocating platen, substantially as and for the purpose hereinbefore set forth.

3. The oscillating bed of a printing-machine, adapted to move into position at right angles to its position during the impression, in combination with a wiping device constructed and

operated to move over the face of the die, substantially as and for the purpose hereinbefore set forth.

4. The die-holding bed of a printing-machine constructed and operated, substantially as described, to oscillate one-half of a revolution, in combination with an ink or color applying device held by means of a spring-acting device above the range of movement of the die, and actuated by the moving die-bed to come in contact with the die as it assumes a position diametrically opposite its impression position, as and for the purpose set forth.

5. In a printing-machine, an oscillating die-holding device, an ink or color applying device adapted to be moved down onto the die and move over it with a circular or elliptical motion, a wiping device provided with a traveling paper covering and adapted to move over the face of the die to remove the surplus ink or color therefrom, and a reciprocating platen, combined, constructed, and operated substantially as and for the purpose hereinbefore set forth.

6. The oscillating bed g^2, provided with the pinion m^8, in combination with the bar m^4, provided with adjustable rack-teeth m^9, and the cams m and m', substantially as and for the purpose hereinbefore set forth.

7. The improvement in applying color to the die of a die-stamping machine, consisting of a brush provided with a color-reservoir, and operated by adjustable means, substantially as described, to move over the face of the die in circular or elliptical paths, as and for the purpose set forth.

8. The ink or color applying apparatus, composed of the removable receptacle h, slide i, and slide i', in combination with means, substantially as described, adapted to impart reciprocating motions to the slides i and i' at right angles to one another, substantially as and for the purpose hereinbefore set forth.

9. In combination with the ink or color receptacle h, the lever j, vertically-moving table k, and flange k^2 on the rotating bed g^2, substantially as set forth.

10. The disk i^3, provided with adjustable crank-pin i^2, rod i^4, slide i', lever i^5, provided with an adjustable fulcrum, i^6, and slide i, carried by slide i', in combination, substantially as and for the purposes hereinbefore set forth.

11. The combination, with the inking device of a stamping-machine adapted to move over the die, of a corrugated table adapted to impart a dabbing action to the brush of the inking device through the medium of a lever provided with a round and adjustable screw arranged to move over the corrugations of the table, substantially as and for the purpose hereinbefore set forth.

12. As an improvement in applying color to the die of a die-stamping machine, a brush provided with a constant color-supplying device, and adapted to be moved over the die in straight, circular, or elliptic paths, and at the same time to be moved up and down, by means substantially as described, and for the purpose hereinbefore set forth.

13. The ink-receptacle h, provided at its lower end with the brush h', and adapted to slide vertically in a socket made in the slide i, in combination with the die g, carried by the rotating bed g', and mechanism, substantially as described, adapted to depress the brush onto the die, substantially as and for the purpose hereinbefore set forth.

14. The combination of the disk i^3, provided with the adjustable crank-pin i^2, by which motion is imparted to the slides i and i' through the medium of the lever i^5, link i^7, and link i^4, with segmental gear n^3, pinion n^4, cone-pulley n, and cord n', substantially as and for the purpose hereinbefore set forth.

15. In combination, segmental gear n^3, pinion n^4, pulley n, cord n', the disk i^3, adjustable crank-pin i^2, rod i^4, connecting the crank-pin i^2 with the slide i', lever i^5, connecting the crank-pin i^2 to the slide i, provided with a socket projecting downwardly through the slide i' and top plate, a^3, and adapted to hold brushes of various shapes and dimensions, substantially as and for the purpose hereinbefore set forth.

16. In combination, the cams m and m', bar m^4, provided with rack-teeth, pinion m^8, rotating bed g^2, flange k^2, table k, lever j', and ink or color receptacle h, substantially as set forth.

17. In a printing-machine, the wiping device l, carried by the vertically-moving frame o, to remove the surplus ink or color from the die carried by the rotating bed, and adapted to be held stationary and inoperative by means of the gib-screws o^8 o^8, when the rotating bed is provided with surface-printing device, substantially as and for the purpose hereinbefore set forth.

18. In a wiping device for die-stamping machines, a paper-covered pad, constructed and operated by means substantially as described, in combination with a device for gradually reducing the pressure of the pad on the die as the ink or color is being removed therefrom by the action of the paper-covered pad thereon, constructed and operated substantially as set forth.

19. The pad l, frame o, and adjustable supporting bolts and springs, lever p, and adjustable stops p' and p^2, in combination substantially as and for the purpose hereinbefore set forth.

20. In combination, the cam o^7 and the frame o and their connecting links and arms on shaft o^3, the stops p' p^2, lever p, and pad l, substantially as set forth.

21. The feed-roller l^3, provided with a ratchet-wheel, in combination with pinion r, provided with a pawl, and the rack r', the sliding frame o, provided with friction-boxes, in which is held the rack r', the stop r^3, and adjustable stop r^4, substantially as and for the purpose hereinbefore set forth.

22. The wiping-pad l, provided with paper

covering l', operated to present a fresh surface over the pad by means of the rollers l^3 l^4, the whole carried by the vertically-moving frame o, in combination with the bed g^2, pinion m^8, sliding bar m^4, and cams m m', substantially as hereinbefore set forth.

23. In a wiping device for die-stamping machines, a paper-covered pad adapted to be moved over the face of the die and to approach the die, in combination with an adjustable device adapted to hold the pad away from the die until the approaching edges of the pad and die have passed by one another, constructed and operated substantially as set forth.

In testimony whereof I have hereunto set my hand this 3d day of February, 1881.

JNO. CARSON.

Witnesses:

EDWARD CAMMERFORD,

WILLIAM J. MANGAN.