

(No Model.)

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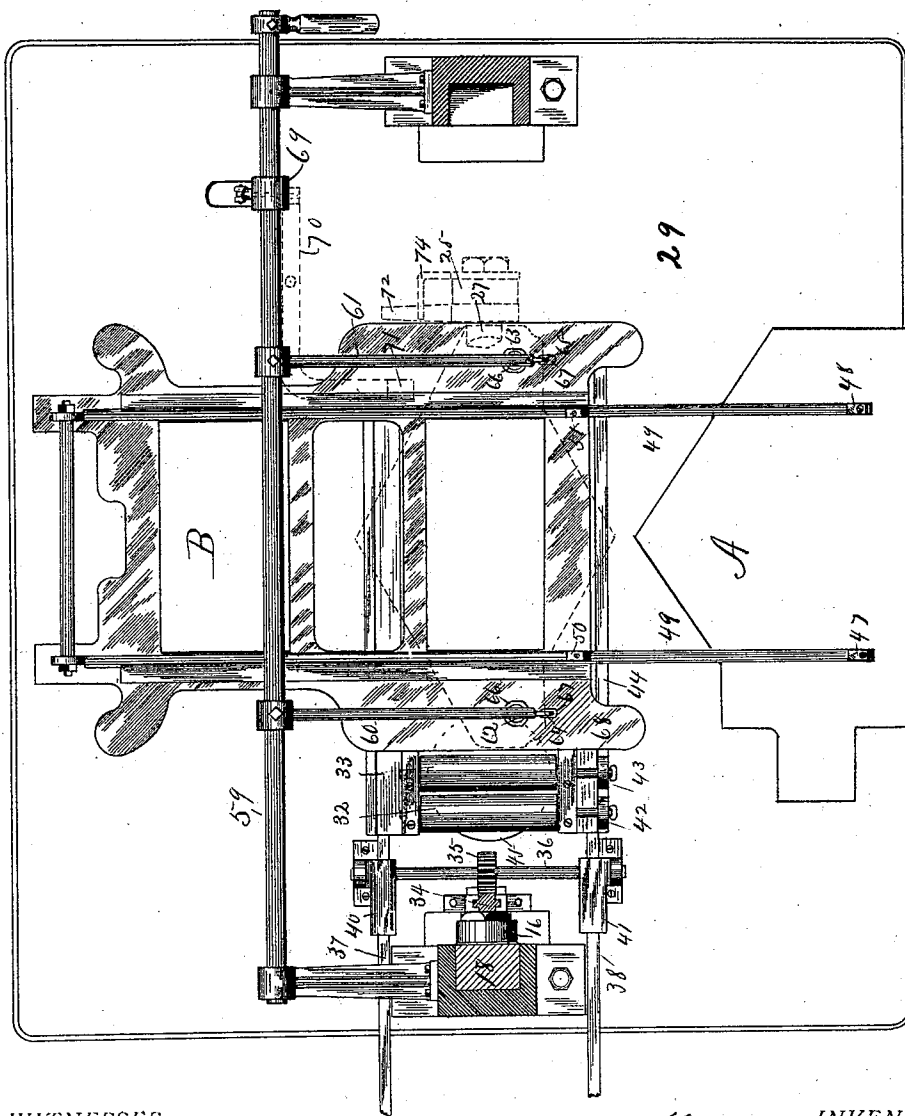
H. L. NEWELL.

PRINTING ATTACHMENT FOR ENVELOPE MACHINES.

No. 510,043.

Patented Dec. 5, 1893.

Fig 1.



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(No Model.)

4 Sheets—Sheet 2.

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Fig. 2.

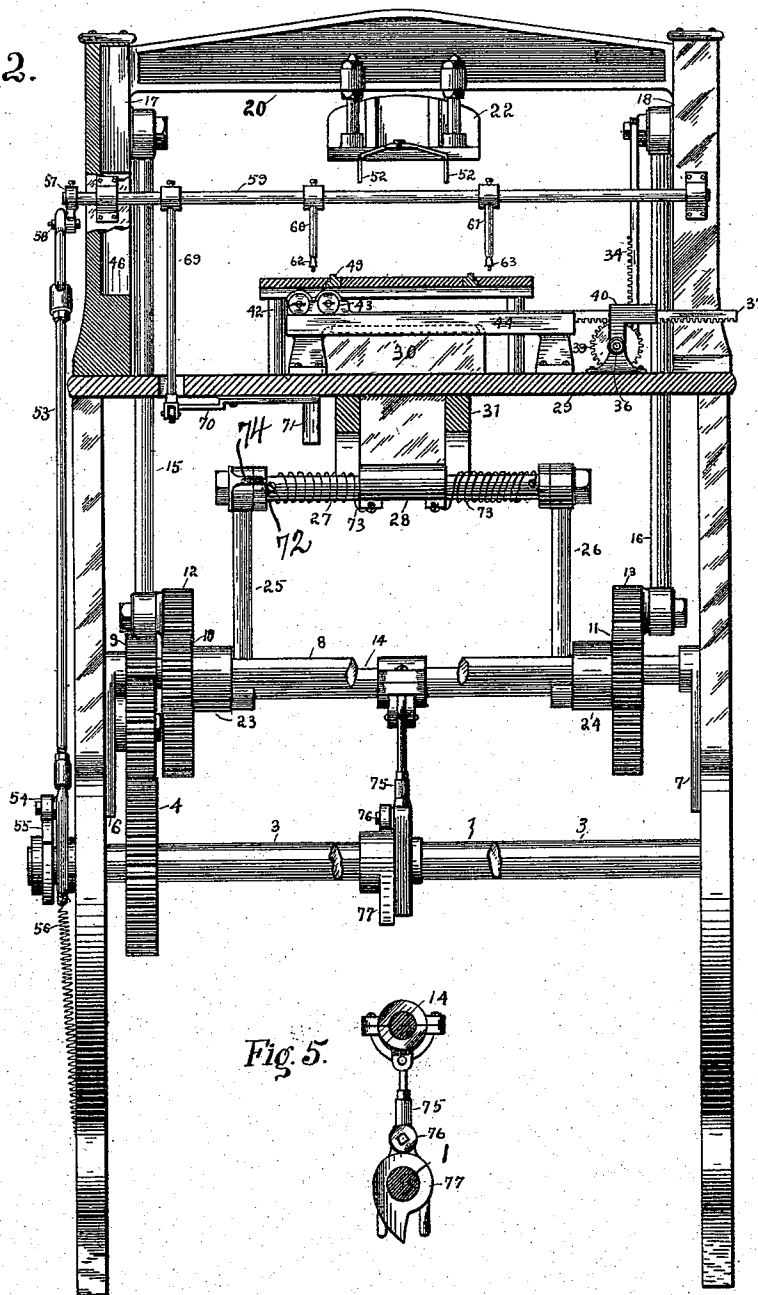
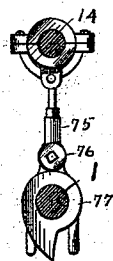


Fig. 5.



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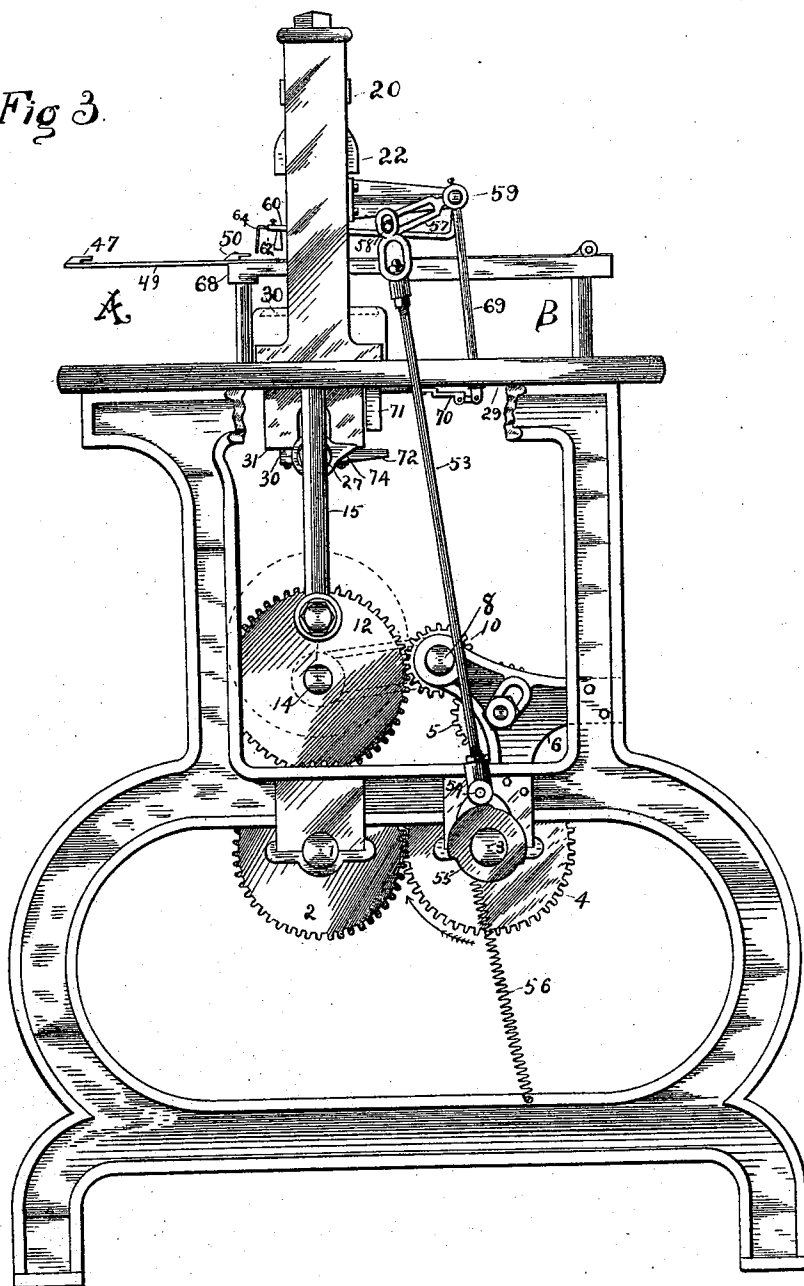
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Fig 3.



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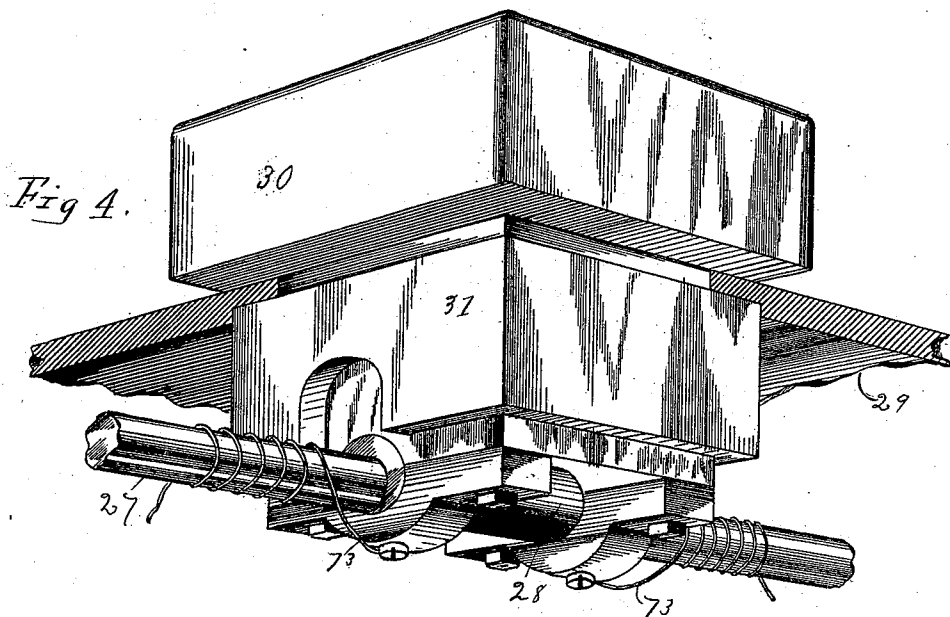
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WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY L. NEWELL, OF DAYTON, OHIO.

PRINTING ATTACHMENT FOR ENVELOPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 510,043, dated December 5, 1893.

Application filed March 6, 1893. Serial No. 464,851. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. NEWELL, of Dayton, county of Montgomery, State of Ohio, have invented a new and useful Improvement in Printing Attachments for Envelope-Machines, of which the following is a specification.

The invention to be herein specified and claimed, relates to improvements in that class of reciprocating envelope machines that are provided with mechanism for printing or embossing the blank, while it is undergoing the process of being made into an envelope.

More particularly speaking, the invention is confined to improvements in printing devices to be actively associated, in an intermediary relation, with the gumming and folding mechanisms, and operated therewith, by the power conveyed to a common shaft.

The object in view, is to provide an improved construction by means of which, the blank is printed at a most convenient point and in a most effective manner as it is being carried to the folding or creasing point.

As introductory to the specification, the character of the invention, will be more readily comprehended by a brief mention of the successive steps in the operation, that the well known parts of the machine are called upon to perform in connection with the function performed by the part comprising the improvement. The blanks, from which the envelopes are formed are supplied to the machine at a point, and in a manner that is well known to those familiar with the art of envelope making, gummed by the picker, and are carried rearwardly to the folding station by a carrier, mention of which will be only incidentally made in the specification, and it has not been deemed necessary to furnish more than a brief illustration of these parts, in the drawings.

In Figure 1 of the drawings, the relative positions of the gumming and folding stations are denoted, respectively by A and B.

The drawings herewith appended as supplemental to the specification, will be referred to, and the reference characters thereon, will be found to indicate corresponding parts throughout the several views.

Fig. 1. is a plan view of the table, with the type bed not shown. The standards of the

platen bar are shown in section. This view gives the relative location of the picker, printer and folder, the printer occupying a central position. Fig. 2. is a rear elevation partly in section; Fig. 3. an elevation of the side upon which the throw off mechanism is located; Fig. 4. a detached, detail view of the type bed, and eccentric, in perspective; Fig. 5. a detached, detail view of the device for breaking the fall, or deadening the jar occasioned by the type bed coming in contact with the table. The shafts supporting this device are shown in section.

The main shaft is indicated by Fig. 1, and is provided with suitable bearings in boxes located at the sides of the machine; to this shaft is attached the driving wheel 2 by means of which the system of gearing employed, is rotated. Immediately in the rear of the driving shaft, a similar shaft 3 is located, and upon which a gear wheel 4 is placed, that is capable of meshing with the driving wheel 2, and also with an intermediate gear wheel 5, pivoted to bracket 6. A similar bracket 7 is situated directly opposite to bracket 6, which provides therewith bearings for shaft 8; upon this shaft, pinions 9, 10 and 11 are located; the former is designed to mesh with the intermediate gear 5; pinions 10 and 11, mesh respectively with gear wheels 12 and 13, which are fulcrumed on a reciprocating shaft 14; attached to gear wheels 12 and 13 in a crank like manner, are the arms 15 and 16; the upper ends of these arms are likewise attached to the guides 17 and 18 of the vertical reciprocating platen bar 20, upon which the platen 22 is adjustably supported.

Returning to shaft indicated by 14, which is pivoted to the pinion shaft 8, by straps 23 and 24, one of which appears in dotted lines in Fig. 3, vertically extending arms 25 and 26, are pivotally attached at one end to this shaft, the other end of said arms being pivotally attached to shaft 27, having an eccentric portion 28, formed in the center thereof; the purpose of this eccentric will be explained in the description of the parts with which it is operated.

The table is indicated by 29, and the type-bed 30, is provided with a way 31 secured to the under surface of said table, beneath an opening therein, which opening, together

with the way 31, provides means for the type bed 30, to be vertically reciprocated therein, by action of shaft 27, which receives its motion from shaft 14, as before indicated.

5 The type is provided with inking rollers 32 and 33 which are subjected to a reciprocating motion by means of a vertical rack bar 34, secured to arm 16, and designed to mesh with the pinion 35. Fig. 1 shows this vertical
10 cal bar in section. Near the opposite end of shaft 36, upon which pinion 35 is secured, are likewise secured gear wheels 39 adapted to mesh with the horizontal racks 37 and 38, to which the inking rollers are secured. Only
15 one of these gear wheels, (39,) is shown in the drawings; brackets 40 and 41 furnish bearings for the shaft, 36, and also guides for the horizontal racks 37 and 38.

The inking rollers are provided with bear-
20 ers 42 and 43, at one end, adapted to be rotated over the track 44, as the horizontal racks 37 and 38 carry said rollers back and forth over the inking disk 45, and the type bed.

25 Thus far my attention has been concentrated upon the constructive features of my improvement. The operation thereof will be explained by referring to the primary source of power 2. The motion imparted by this
30 wheel, is transmitted to the platen 22 through the system of gearing hereinbefore described, and the arms 15 and 16. The rotation of the wheels 12 and 13, carries the arms 15 and 16 therewith, until the said arms, lower the
35 platen to a horizontal plane coincident with the plane of the blank; at this juncture, the guides 17 and 18, of the platen bar have reached the limit of their downward travel, and are in abutment with the lower terminal
40 of the ways, as shown at 46, Fig. 2; it will be noted that owing to the limited longitudinal extent of the ways in which the platen guides 17 and 18 move, the shaft 14, is compelled to change its axis of rotation, to a higher plane,
45 as shown by the dotted lines of the wheel 12, in Fig. 3; this change in the axis of the shaft's rotation is provided for by the straps 23 and 24 which give it a pivotal connection with the pinion shaft 8. The change in the axis of
50 rotation from a lower to a higher plane, imparts to the arms 25 and 26 a motion corresponding to the distance between the two axes of the shaft 14, which in turn causes shaft 27 to rise, and therewith the type bed,
55 to meet the platen; at this point, the printing operation is performed upon the blank carried thereto from the picker, by the hooks 47 and 48 on the reciprocating carrier 49; there are also on this carrier, hooks 50 and
60 51 which carry the blanks from the printer to the folding station, indicated by B. It will be understood that at the time the hooks 50 and 51 are removing a blank from the printer, hooks 47 and 48 are also conveying a blank
65 from the picker to the printer.

The platen has attached thereto, (see Fig. 2,) stops 52, 52, projecting downwardly there-

from on an incline; the object of these stops is to give the blank an exact adjustment after it has been carried to the printer; and to
70 obviate any tendency the blank may have, to shift too far rearwardly by the momentum given it by the carrier.

I provide an automatic device for preventing the platen and type bed from impacting,
75 should the carrier, for any reason, fail to carry a blank thereto. This consists of a thrust rod 53, bifurcated at its lower extremity so as to straddle the shaft 3; this rod is also, near its lower end, provided with an anti-friction
80 roller 54, designed to normally rest upon the periphery of cam 55, and thereby furnish a bearing for said rod; the bifurcated or forked portion of said rod serves to prevent it from moving laterally, and the office of the spring
85 56 is to apply the necessary tension to the rod 53, and thereby maintain the roller 54 at all times in bearing with the cam 55. This cam is secured to shaft 3, in a rigid manner, and it will be seen in Fig. 3, presents to roller 54,
90 three degrees of peripheral contour, as it is rotated. The upper extremity of rod 53, has an elongated slot therein, to which an arm 57 is loosely connected by means of the stud 58 at one end. To the other end of this arm, the
95 rocking rod 59 is fixed. 60 and 61 represent arms rigidly attached to this rocking rod. These arms are provided with downwardly projecting fingers 62 and 63 and stops 64 and 65; immediately beneath the fingers are aper-
100 tures 66—66 and 67—67 in the plate 68.

Referring again to the thrust rod 53, it will be understood that the stud 58, is allowed to move freely within the limits of the slot in the thrust rod, at times occupying a position at
105 the upper or lower terminal of said slot. It will be understood, that in the event there is not a blank present on the printer when the fingers 62 and 63 descend, they fall into the openings 66; the motion given to the rocking
110 rod 59 at this moment is by force of gravity, and the weight on this rod is so counter-balanced that the blank is sufficient to support it. The fingers while on their lowest plane of travel, bring the stud 58 in the highest por-
115 tion of the slot, but said stud is not effected by the movement of the thrust rod 53, until the intermediate surface of the cam 55 is presented to the roller 54, at which time the fingers are removed from the apertures. In the
120 description of this mechanism it is in order to state that 69 represents a downwardly projecting arm attached to the rod 59, to the lower end of which, is attached by a link connection, the angular lever 70, pivoted to the
125 under surface of the table 29, shown in dotted lines in Fig. 1; at the other extremity of this lever a downwardly projecting block 71, is secured.

On shaft 27, a dog 72 is rigidly secured and
130 maintained in a horizontal position by springs 73 which are secured to shaft 27. These springs apply tension to the said shaft and thereby give the dog 72, a normal tendency

to remain in contact with the stop 74, rigidly attached to the arm 25; in this position of the dog, the highest portion of the eccentric 28, is in contact with the lower surface of the type bed 30.

When the hooks 47 and 48 on the carrier, are conveying a blank to the printer, to occupy the position shown in dotted lines in Fig. 1, the fingers 62 and 63 are in the position shown in Figs. 2 and 3, and the roller 54 on thrust rod is upon the highest peripheral surface of the cam 55; when the blank assumes the position shown in dotted lines in Fig. 1 the fingers 62 and 63 descend by gravity to rest upon it; the said roller, on the thrust rod, is at this juncture in contact with the lowest surface on the periphery of the cam, at this moment the imprint is made upon the blank; the continued rotation of the cam next brings the roller in contact with the intermediate surface of the cam; at this point the fingers 62 and 63 are elevated from the blank, but the stops 64 and 65 are permitted to remain on the plate 68, to prevent the blank imprinted from being carried forward by hooks 50 and 51, which at this moment are passing under said blank to convey it to the folding station. The continued rotation of the cam 55 brings the roller 54 again in contact with the highest peripheral surface of said cam; the thrust rod 53 rocks the fingers 62 and 63 and stops 64 and 65 entirely away from the blank and permits it to be carried to the folding station B, and at which time the hooks 47 and 48 convey a blank to the printer. When the fingers are at their highest elevation, as appears in Figs. 2 and 3, the block 71 is at its greatest distance from the dog 72, as appears in dotted lines in Fig. 1. When there is no blank upon which the fingers may rest, they drop by gravity into openings in the plate, as hereinbefore mentioned in connection with the reference to the slotted thrust rod 53 and thereby brings the block 71 directly in the path of the dog 72, as said dog is brought upwardly by the arms 25 and 26, and the shaft 27 is thereby rocked to bring the eccentric portion 28 out of the position shown in Fig. 2, permitting the type bed to fall a sufficient distance to avoid meeting the platen.

I provide means to be finally described, for breaking the fall and lessening the jar occasioned by the downward movement of the type bed against the table; 75 represents a thrust piece pivoted to shaft 14 and provided with forks at its lower end adapted to straddle shaft 1. Upon this forked piece a roller 76 is placed and a cam 77 is rigidly attached adjacent thereto on the shaft 1 adapted to rotate therewith against the roller 76 and thereby meet said roller, as it is being vertically lowered by the downward movement of shaft 14. These parts are shown in Figs. 2 and 5, with the point of the cam 77 at its lowest plane; the type bed at this time is also at rest upon the table; as the type bed

ascends, the shaft 14, it has been noted, necessarily ascends therewith and the thrust or forked piece 75 with the roller 76; in the mean time shaft 1 is rotating the cam 77, when the highest vertical plane is reached by the point on said cam, it presents a position directly the reverse to that shown in Fig. 5; the anti-friction roller 76 is then bearing on that periphery of the cam, having the greatest incline, and gradually makes the circuit of said incline, until the cam again assumes the position in Fig. 3. Thus it will be noted, the fall of these parts is not attended with any considerable amount of opposing friction yet the parts are gradually allowed to fall their proper distance.

Having fully described my invention, I claim—

1. The combination, with the vertically reciprocating type bed, and the carrier 49, of a vertically reciprocating platen with stops 52—52, attached to the transverse bar 21, provided with guides 17 and 18, ways for said guides with abutments 46, the reciprocating shaft 14 with gear wheels 12 and 13, the vertical arms 15 and 16, pivoted to said wheels and to the guides 17 and 18, the shaft 27 and arms 25 and 26 connecting the type bed and shaft 14, and means for revolving the shaft 14, substantially as herein described.

2. The combination with the horizontal table, the type bed, and the shaft 27, supporting said type bed and of the platen 22 with stops 52—52, attached to a transverse bar having guides 17 and 18, ways for said guides having abutments 46, the reciprocating shaft 14 with gear wheels 12 and 13 fulcrumed thereon, the vertical arms 15 and 16 pivoted to said wheels and to the guides 17 and 18, vertical arms 25 and 26 pivotally attached to the shafts 14 and 27, and means for revolving the shaft 14 substantially as described whereby a single source of power is made to reciprocate both type bed and platen, in an exact vertical plane, at different times and independently of each other.

3. The combination with the vertically reciprocating type bed and platen, the latter provided with guides, and ways with abutments 46, of the cam 55, the slotted thrust rod 53, with the anti-friction roller 54, the rock shaft 59 connected to the rod 53 by the arm 58, the fingers 62, and 63 fixed to the rock shaft 59 by arms 60 and 61, the plate with apertures 66—66 to receive said fingers when there is no blank on said plate, the arm 69, the angular lever 70 attached thereto, the downwardly projecting block 71 attached to said lever, the dog 72 attached to shaft 27, said shaft having an eccentric portion 28 upon which the type bed is carried, and means for applying tension to said dog substantially as described.

4. The combination of the type bed and the platen, the shaft 27, the platen bar 21 with guides 17 and 18, ways for said guides with abutments 46, the reciprocating shaft 14

carried by arms pivoted to shaft 8, the gear wheels 12 and 13 fulcrumed on and the arms 25 and 26 pivoted to the shaft 14, said arms also attached to the shaft 27 the arms 15 and 16 pivoted to said wheels and to the guides of the platen bar, and means for revolving the shaft 14, substantially as described.

5. The combination with the table, the type bed and the way therefor, the platen, provided with the guides 17 and 18 and guide ways therefor with abutments 46, of the reciprocating shaft 14 carried by arms 23 and 24 pivoted to shaft 8, the shaft 27 supporting the type bed, and connected to shaft 14 by the arms 25 and 26, the gear wheels 12 and 13 fulcrumed on shaft 14, the arms 15 and 16 pivoted to said wheels and to the platen guides, and means for rotating said gear wheels so that when the arms 15 and 16 are impeded in their downward travel, by the abutments 46, the shaft 14 will rise and the type bed be actuated accordingly, substantially as described.

6. The combination of the plate 68 with apertures 66—66, the carrier 49, the rock shaft 59, the arms 60 and 61 fixed thereto, the fingers 62 and 63 and stops 64 and 65 on said arms, the slotted thrust rod 53 with anti-friction roller 54, the cam 55 upon which said roller has a normal bearing, and the arm 57 connecting said thrust rod and rock shaft, the lever 70 attached to the arm 69, the block 71 attached to said lever, the shaft 27 with eccentric portion 28 upon which the type bed is carried, the dog 72 rigid on said shaft, the stop 74 with which the dog has a normal contact, the arms 25 and 26 connected to the shaft 27, and means for actuating said arms and shaft, substantially as herein described.

7. The combination of a vertically reciprocating type bed, inking rollers 32 and 33 jour-

naled in bearers mounted on horizontal racks 37 and 38, the shaft 36 with pinions mounted thereon adapted to mesh with said racks, the vertical rack 34 pivoted to the arm 16, the pinion 35 centrally mounted on shaft 36 and adapted to mesh with the vertical rack, the gear wheel 13 connected to the arm 16 and mounted on shaft 14, the straps 23 and 24 connecting said shaft with shaft 8, pinion 11 mounted on shaft 8 and gearing with wheel 13, and means for actuating shaft 8 whereby motion is imparted to the inking rollers in the manner herein specified.

8. The combination with the type bed, the reciprocating shaft 14 the arms 25 and 26, and the shaft 27, connecting said type bed and shaft 14; and the main shaft 1, of the thrust piece 75 movably mounted on shaft 14 and provided with a bifurcated end to straddle shaft 1, the roller 76 pivoted to said thrust piece, the cam 77 fixed to shaft 1, and means for actuating shafts 1 and 14 so that when the latter shaft is being lowered to its normal position the force will be made gradual by the cam 77 revolving in bearing with the roller 76, substantially as herein described.

9. The combination with the type bed, of the shaft 27 with its median portion of an eccentric form, the dog 72 and springs 73 attached to said shaft, the stop 74 attached to the arm 25, the reciprocating shaft 14, the rock shaft 59, the angular lever 70 and the block 71, and means for actuating the shafts 14 and 59 whereby the type bed may be abnormally lowered, substantially as described.

In testimony whereof I have hereunto set my hand this 6th day of February, 1893.

HENRY L. NEWELL.

Witnesses:

GEORGE H. WOOD,
RICHARD J. McCARTY.