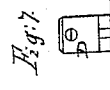
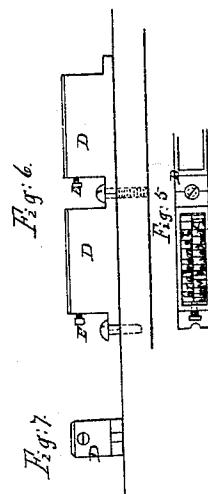
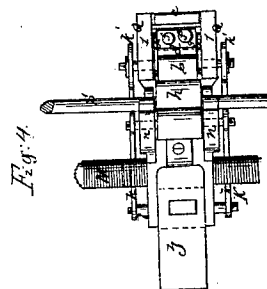
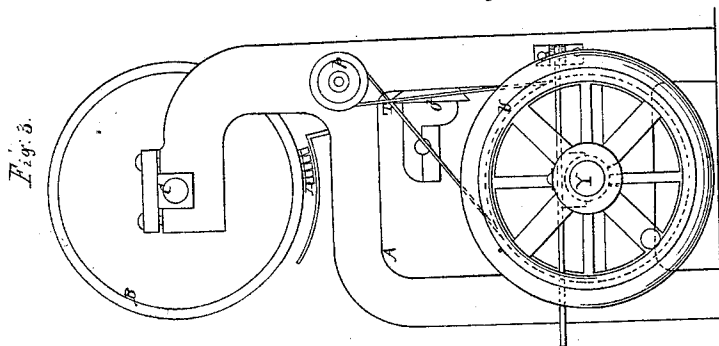
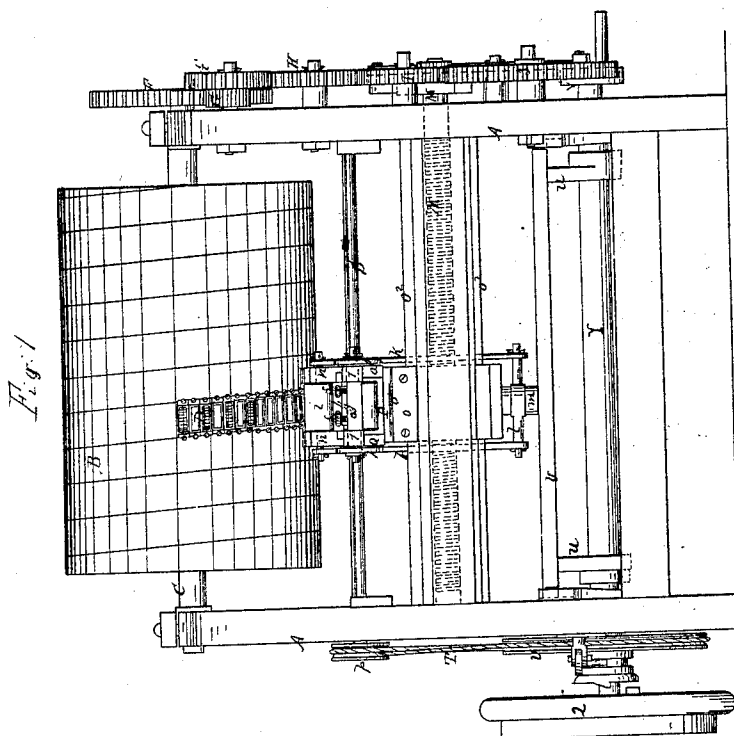
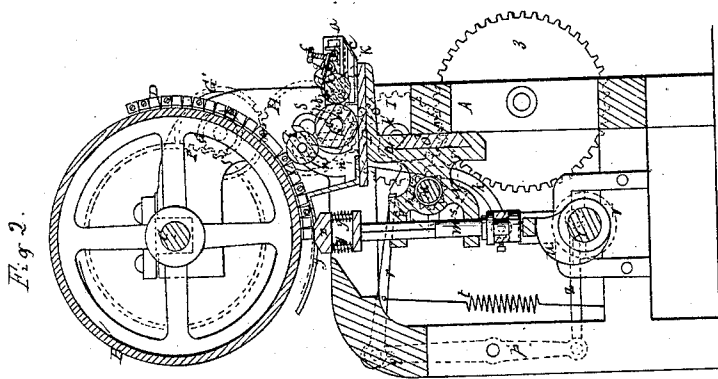


J. Lord.
Addressing Mach.
N^o 21,429. Patented Sept. 7, 1858.



UNITED STATES PATENT OFFICE.

JAMES LORD, OF PAWTUCKET, MASSACHUSETTS.

MACHINE FOR PRINTING ADDRESSES ON NEWSPAPERS, &c.

Specification forming part of Letters Patent No. **21,429**, dated September 7, 1858.

To all whom it may concern:

Be it known that I, JAMES LORD, of Pawtucket, in the county of Bristol and State of Massachusetts, have invented a new and useful Machine for Addressing Newspapers, Pamphlets, Envelopes, and articles of a like nature; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification.

Figure 1 is an elevation of the back part of the machine. Fig. 2 is a vertical transverse section of the same at the line 1 1 of Fig. 1. Fig. 3 is an end elevation of the same. Fig. 4 is a top or bird's-eye view of the ink-rollers, the frame in which they are arranged, and the parts in immediate connection therewith. Fig. 5 is a top view of one of the type-boxes, on an enlarged scale, detached from the cylinder. Fig. 6 is a side view of the same. Fig. 7 is an end elevation of the same.

Similar letters in the figures refer to corresponding parts.

The nature of this invention and improvement consists in securing spirally to the periphery of a cylinder a series of type-boxes in which are inserted the type expressing the desired name and address and causing the said type to be inked and revolved over a follower on which the paper to be impressed is placed, and which has an up-and-down movement as well as a longitudinal one, the said cylinder of boxes and follower being arranged in such relation to each other and actuated by such a combination and arrangement of mechanical devices as will cause them to act in concert and the papers to be imprinted by the simple labor of placing them above the follower.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The frame A is made of a rectangular form of sufficient size and strength to contain and support the several parts of the machine. Above this frame is placed the printing-cylinder B, which is secured on a horizontal shaft C, extending longitudinally from one end of the frame to the other and turning in suitable boxes at its extremities. On the periphery of this cylinder B is secured a series of rectangular boxes D, having flanges at their ends, by which they are secured to the same

by screws, which enable them to be readily attached and detached, as occasion may require, which boxes are open on their outer parts to admit the type indicating the required name and address and are provided with set-screws E for securing the type within them. They are arranged spirally around the periphery of the cylinder parallel with its axis, with their inner edges touching each other.

On one end of the shaft C is secured a cog-wheel F, which meshes in gear with a smaller cog-wheel or pinion G, turning on a stud or permanent shaft secured to the end of the frame. Outside this pinion G and to the same is secured an additional cog-wheel G', which meshes in gear with a smaller cog-wheel H, turning on a stud or shaft, and this cog-wheel H meshes in gear with a corresponding cog-wheel I, which in its turn gears with a smaller cog-wheel or pinion K, secured on the end of a horizontal longitudinal shaft M, turning in boxes in the frame below the top thereof. This shaft extends the whole length of the frame, and has a screw-thread cut on its periphery nearly its whole length, and is embraced by a pair of jaws N, having a female screw formed on their inner embracing portions and extending horizontally from a vertical sliding plate O, extending horizontally at its upper edge or end, so as to form a base-plate O' for the support of the inking and distributing rollers, hereinafter described. This sliding plate O and its attachments is attached by angular lips to a longitudinal guide beam or bar O², extending the full length of the frame of the machine and having angular edges which are embraced by said lips in such a manner as to allow the same to traverse over the beam or bar O² from end to end. On top of the horizontal base-portion O' of this casting is secured a horizontal plate P, having vertical sides rising from its edges, and to these vertical sides are secured the upright portions of right-angled castings Q, the upper horizontal portions 1 of which are arranged parallel with and partly over the sides of the plate P, and are provided with slots extending nearly their full length, in which are inserted the tongues on the side pieces of a horizontal frame a, between which is arranged a horizontal iron ink-receiving roller b, whose journals are par-

allel to the longitudinal timber of the frame *a*, to which the angular-edged plate *O* is secured, and project a short distance beyond the faces of the sides of the plate *P*. Immediately below this roller *b* and on top of the plate *P* is placed an ink box or trough *c*, the sides of which extend up nearly to the journals of said roller *b*, so as to cause its lower portion to run in the ink in said box or trough *c* and to take up a portion of the same during its revolution, any excess of ink being taken from the periphery of the roller *b* and caused to descend into the ink box or trough *c* by the edge of an inclined adjustable plate *d*, secured by screws between a metallic plate *g* and an oscillating bar *c'*, resting on pivots in the sides of the frame *a*. The sharpened edge of the plate *d* is made to press with greater or less force against the periphery of the ink-roller *b* by two thumb-screws *f*, which pass through corresponding female screws formed in the lower part of the metallic plate *g* and press against the horizontal portion of the bar which connects the tongue-pieces of the frame *a*. This ink-receiving roller *b* receives its motion from a larger roller *h*, of wood, for conducting the ink to the distributing-roller, which roller *h*, with its periphery touching the periphery of the ink roller or doctor *b*, is attached loosely on a longitudinal shaft *S*, extending the full length of the frame and turning in boxes in the end posts of the same and provided at one end outside the said frame with a grooved pulley *p*, around which is passed a band *T*, twisted or crossed and extending around a larger grooved pulley *U* on the main horizontal shaft *Y*, whose ends project a short distance beyond the ends of the frame. Parallel with this wooden conducting-roller *h* is arranged a smaller composition distributing-roller *i*, the journals of which rest in boxes or openings in the upper ends of two curved bars *k*, extending downward in an inclined direction inside the angular-edged plate or bar *O*² and bent under the screw-shaft *M*, being jointed at their lower ends to the extremities of a cross-head *l*, secured to the upright shaft *m*, to which the follower or platen is attached. These curved bars *k* have curved branches *k'* extending from near their upper ends and curving upward in the form of segments of circles and provided with slots *k*², formed in them near their ends, through which the journals of the ink-receiving roller or doctor *b* pass, which slots *k*² are in the form of segments of circles scribed, respectively, from the center of the type-cylinder shaft *C* and from a less radius. The journals of the distributing-roller *h* pass through curved slots *n'*, formed in ears *n*, rising from the edges of the base portion *O'* of the plate *O* and extending in a curved direction between the upper ends of the bars *k* and ends of the distributing-roller *h*, the said slots *n'* being made in the form of a segment of a circle scribed from the shaft of the roller *h'* at their lower ends and

in the form of a segment of a circle scribed from the center of the type-cylinder *B* at their upper portions, so as to somewhat resemble a cyma reversa in form and enable the periphery of the said roller *h* to be retained in direct contact with the periphery of the conducting-roller *h'* when its journals are at the lower portions of the curved slots *n'* and to be moved away from in ascending and toward the same in returning or lowering and parallel with the periphery of the type-printing cylinder *B* when the said journals are at the upper portions of said slots *n'*. The horizontal shaft *S* has a straight groove formed in its periphery, extending from end to end and the conducting-roller surrounding the same is caused to revolve with it by a key or pin projecting from the bore of the roller *b* and entering the said groove, but, being loose upon the shaft, is also caused to traverse over the same with the follower or platen and other parts moving with it. The shaft *S* is revolved by the cross-band *T* around the pulley *p* on its end, and the conducting-roller *h'* communicates motion to the inking roller or doctor *b* and distributing-roller *h*. The horizontal driving-shaft *Y* is arranged immediately below the axis of the type or printing cylinder *B* and rests in suitable boxes secured to the lower end rails of the frame *A* and at any convenient part between the top and bottom of the said frame and extends the full length of the same, and is provided at its rear end with a small wheel *V'*, to which is attached by a wrist-pin the end of a connecting-rod *Z*, whose opposite end is jointed to the lower end of a vibrating or oscillating lever *p'*, suspended to the frame *A* at its center by a pin on which it moves as a fulcrum, and having a slot *q* at its upper end, to which the end of a pawl *r* is attached by a screw and nut, so as to admit of its adjustment with a view of increasing or diminishing the extent of its vibration. The opposite end of this pawl *r* is bent downward, somewhat after the manner of a bill-hook, and rests on the notches of a ratchet-wheel *s*, secured on the end of the screw-shaft, being held upon the same by a spiral spring *t*. Through the instrumentality of the vibrations of the pawl *r* the screw-shaft *M* is turned at intervals, and the printing-cylinder *B* is revolved simultaneously with the movement of the ink-roller the required distance at each vibration to bring the type-box next in succession on said cylinder over the paper to be printed.

Two eccentric-cams *u* are secured to the main driving-shaft *Y* near its ends, on the edges of which rest a horizontal longitudinal bar *v*, having tenons formed on its ends, which enter and slide in suitable grooves at the ends of the main frame *A*. The lower end of a vertical rod *m* rests on this bar *v*, which rod passes through guides formed by curved wings extending from the jaws *N*, and is provided with a cross-head *l* at its lower end, having four vertical rods *y* secured to a rect-

angular block attached to its upper extremity, the upper ends of which enter corresponding openings in a block or platen *x*, on which the paper to be printed is placed. This block or platen rests on spiral springs surrounding said rods *y* for the purpose of giving it an elastic yielding motion when pressed upward against the type-boxes, and its attachments are moved with the screw jaws or clutch *N*. A small horizontal frisket or shield *z*, having an opening above said platen or follower *x*, corresponding in size and form with the area of the type-boxes, is arranged above the platen and secured to the base-plate *P*, on which the ink-box rests, for preventing any other part of the paper being brought in contact with any other of the type-boxes than the one immediately above the platen or follower. A fly-wheel 2, which also serves as a band-wheel for driving the machine, is secured loosely on the end of the horizontal shaft, on the hub of which is formed a projecting cog, against which a corresponding cogged clutch-hub on the horizontal shaft is brought in contact when desired to run the machine, and from which it can be detached when it is required to stop the movements of the said machine.

The operation is as follows: Motion being communicated to the main driving-shaft *Y* by any convenient power, either by treadle, connecting-rod and crank, or a band around the fly-wheel 1, an oscillating or vibratory motion is given to the lever *p'*, which causes the pawl *r* to be vibrated over the ratchet-wheel *s*, and with its vibration to the rear causes the bent end of the pawl *r* to force upon the notch of the ratchet *s*, with which it is in contact, which causes the screw-shaft *M*, on whose end it is secured, to be turned sufficiently to bring the type-box on the printing-cylinder *B*, containing the name and address desired to be imprinted, immediately over the platen or follower *x*, and the said platen or follower and bent plate *O'*, containing the ink-rollers *b h i*, ink-box, and other attachments, to be slightly moved longitudinally by the action of the screw-shaft *M* on the screw jaws or clutch *N*, the inclination or spiral of the threads of the screw on the said shaft *M* being such in relation to the spiral arrangement of the type-boxes and their width and extent of their movement at each stroke of the pawl *r* as to produce this effect. On the return vibration of the lever *p'* the pawl *r* moves over the notches of the ratchet *s* without turning the same, and the printing-cylinder *B*, screw-shaft *M*, and cog-wheels *F G G' H I K*, connecting the two, remain in a state of rest, and thus enable the platen or follower *x*, above which the paper to be imprinted is placed, to be raised upward and pressed against the type-box immediately above it by the action of the eccentrics *u* raising the horizontal bar *v* and with it the vertical rod *m*, to which the platen or follower is attached. During this upward movement

of the platen or follower *x* the curved bars *k* are also raised, and with them the distributing-roller *i*, whose journals rest in openings in their ends, the said roller *i* being at the commencement of its upward movement caused to move parallel with the periphery of the conducting ink-roller *h* by the lower corresponding segment of a circle-formed groove *n'* in the ends of the ears *n* and curved branch bars *k'* and subsequently caused to move outward from the circle on which it previously moved and pushed upward on a segment of a circle parallel with the periphery of the printing-cylinder, so as to roll its inked periphery over the box of type against which it rests. In descending it goes through the same cyma reversa movement. In this manner the operation is continued, the spirally-arranged type-boxes *D* being successively brought over the platen or follower *x* and the papers to be marked placed upon the shield or frisket *z* above the same and raised at the proper time and imprinted by the type in the boxes, which have been previously inked by the distributing-roller *i*, until they have all been revolved over the platen or follower *x*, and the jaws or clutch *N* reaches the end of the screw-shaft *M*, when the pawl *r* is raised from contact with the ratchet-wheels *s*, and the ink-rollers *b h i* and their attachments, including the platen or follower *x*, are quickly moved to the opposite end of the screw-shaft *M* by simply turning a large cog-wheel 3, turning loosely on a shaft or stud at the end of the frame *A* and meshing in gear with the lower cog-wheel or pinion *l*, the difference in the sizes of the two wheels thus meshing in gear giving an increased speed to the screw-shaft *M*. A fresh printing-cylinder, with boxes containing additional names and addresses to be imprinted, may then be substituted for the one previously operated, or in the event of the first cylinder containing all the names and addresses desired the machine may be arranged for repeating the operation upon an additional and fresh issue of the newspaper.

By means of this invention any number of type-boxes containing type expressing the names and addresses of subscribers of a newspaper can be secured on a cylinder, and these names and addresses can be speedily transferred or imprinted upon a corresponding number of the papers by the simple placing of them successively on the frisket or shield above the platen or follower and giving motion to the machine.

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

1. Imprinting the names and addresses of subscribers and others on newspapers, envelopes, &c., by inserting type expressing such names and addresses in boxes secured spirally on the periphery of a revolving cylinder *B* and causing the said newspapers or envelopes to be successively pressed against the type in the boxes by means of a platen or follower *x*,

which is made to act in concert with the cylinder, in the manner herein described.

2. The combination and arrangement of the connecting-rod Z, vibrating lever *p'*, pawl *r*, ratchet *s*, and screw-shaft M, for giving the required revolving motion to the printing-cylinder B and longitudinal motion to the platen *x*, and receiving, conducting, and distributing rollers *b h i*, in the manner and for the purpose described.

3. The combination and arrangement of the eccentric-cams *u*, longitudinal shaft Y, and upright rod *m*, for raising the platen or follower *x* to produce the required impression upon the paper, as described.

4. The combination and arrangement of the cyma-reversa-formed slots *n'* in the ears *n* and ends of the branch rods *k'* of the curved bars *k* with the distributing and conducting ink-rollers *h i*, in the manner and for the purpose set forth.

5. The combination of the adjustable plate *d*, oscillating bar *c'* and plate between which it is secured, and graduating thumb-screws *f* with the ink-receiving roller *b*, as before described.

JAMES LORD.

Witnesses:

A. A. TILLINGHAST,
HORACE CARPENTER.