2 Sheets—Sheet 1.

G. P. APPLETON.

Oscillating Printing Presses.

No. 196,512. Patented Oct. 23, 1877.

Fig. 2.

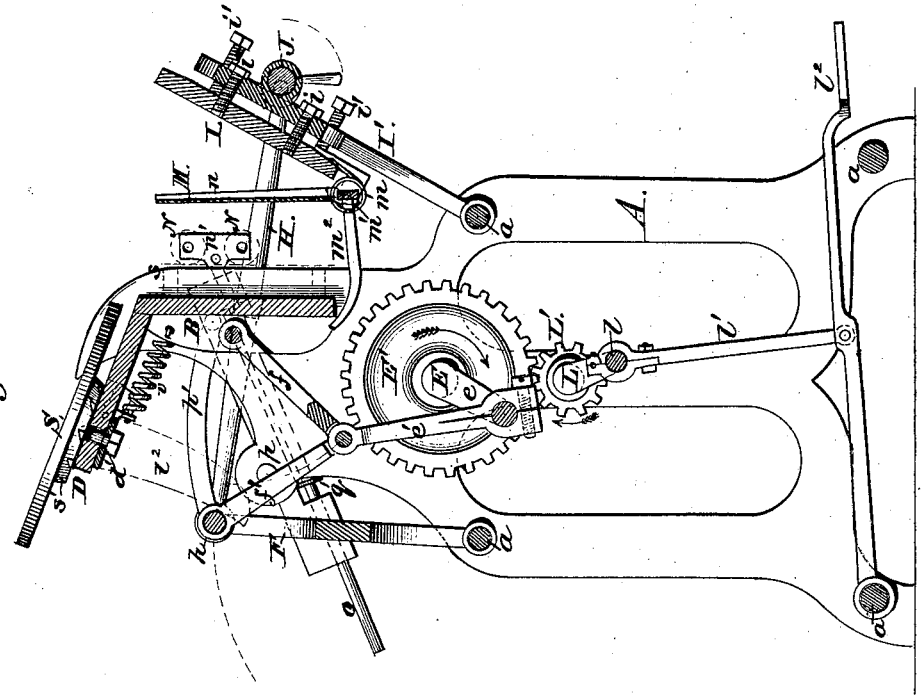
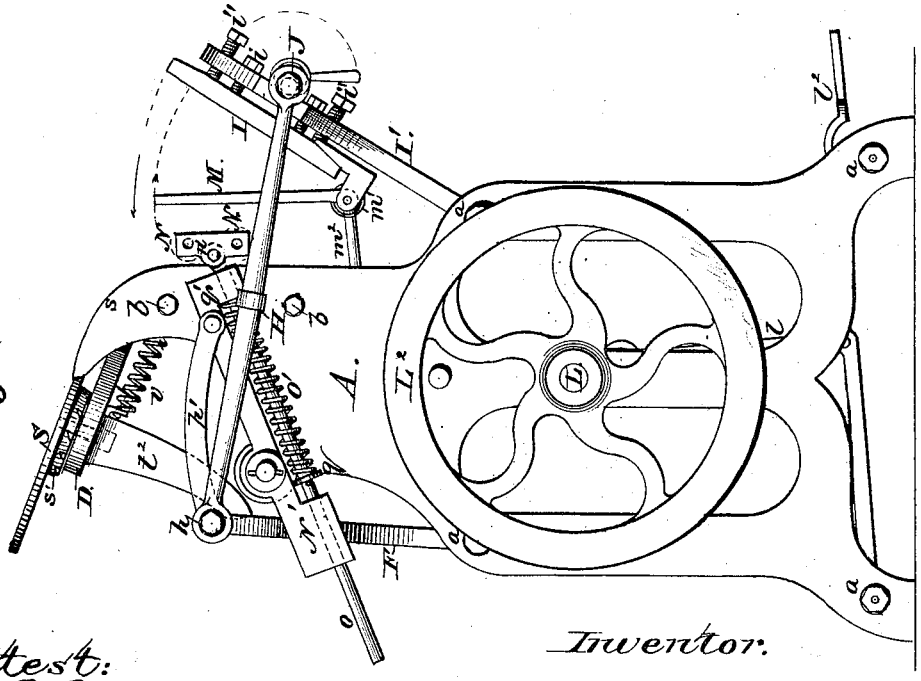


Fig. 1.



Attest:
H. C. Perrine
Samuel Appleton

Inventor:
George P. Appleton.

2 Sheets—Sheet 2.

G. P. APPLETON.

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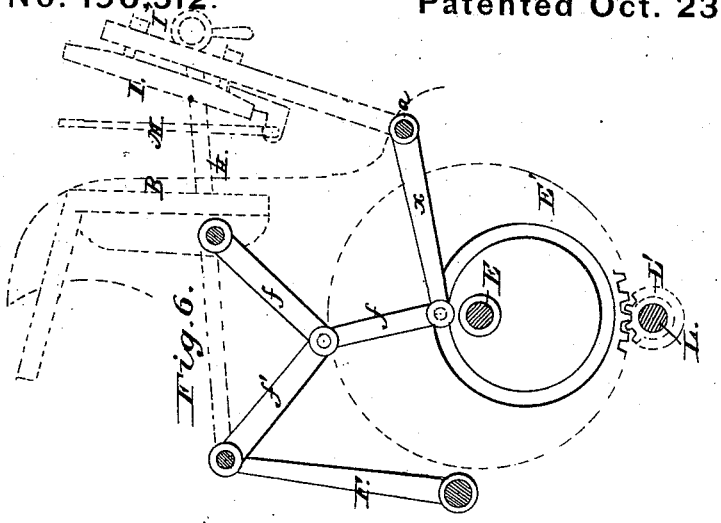

Fig. 6.

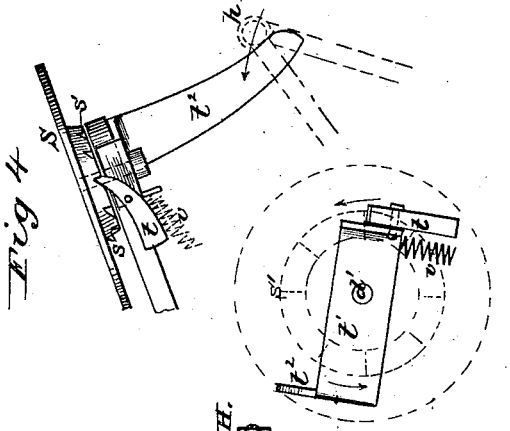

Fig. 4

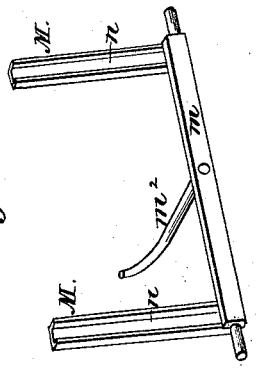

Fig. 5.

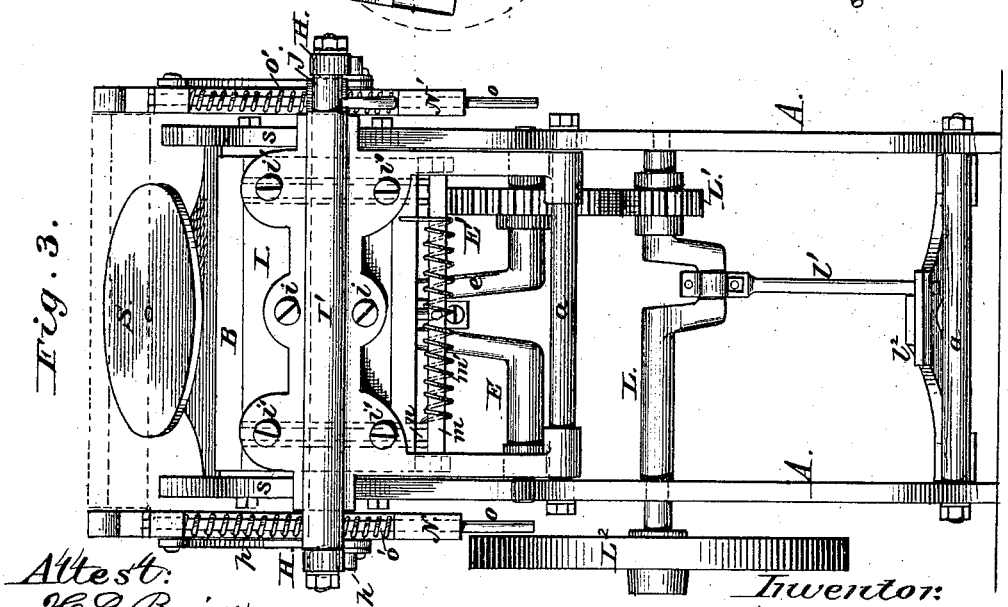

Fig. 3.

Attest:
H. L. Bruce
Samuel Appleton

Inventor:
George P. Appleton.

UNITED STATES PATENT OFFICE.

GEORGE P. APPLETON, OF PEMBROKE, NEW HAMPSHIRE.

IMPROVEMENT IN OSCILLATING PRINTING-PRESSES.

Specification forming part of Letters Patent No. **196,512**, dated October 23, 1877; application filed August 7, 1877.

To all whom it may concern:

Be it known that I, GEORGE P. APPLETON, of the town of Pembroke, county of Merrimack, and State of New Hampshire, have invented certain new and useful Improvements in Printing-Presses, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of this invention is to produce a cheap and efficient printing-press, which shall be simple in its construction and powerful in its action, and which shall be adapted to the printing of cards, circulars, and other small matter.

In the accompanying drawings, Figure 1 represents a side elevation of my improved press; Fig. 2, a longitudinal vertical section of the same, taken through the center thereof; Fig. 3, a front elevation; Fig. 4, detail views of the ink-distributing table, in elevation and reverse plan, showing the means employed for rotating the same; Fig. 5, a detail view of the nippers, and Fig. 6 a detail view of a modification of the means employed for operating the toggle bars or levers.

Similar letters of reference indicate corresponding parts in all of the drawings.

A A are the side frames for supporting the various parts of the press, and may be of any suitable form or design, and *a a a a* are rods or girts, by means of which the same are connected together. B is the type-bed, for supporting the type or form, and for this purpose it is secured in a vertical position, between the side frames A A, by screw-bolts *b b*. I is the platen, and I′ its carrying-frame, the former being secured to the latter by screw-bolts *i i*. This frame is pivoted to the upper front girt *a*, or other convenient part of the machine, in such a manner as to be free to vibrate thereon, and admit of the platen approaching and receding from the type-bed B. *i′ i′ i′ i′* are screws for adjusting the platen or tympan, and bringing its face into parallelism with the face of the type-bed, as is usual in this style of press; and *f f′* are the toggle levers or bars for imparting to said platen the desired forward and backward movement. These levers or bars are arranged in rear of the type-bed, the former being articulated to the rear side of the type-bed, and the latter to the upper end of the swinging frame F, which is jointed at its lower end to the upper rear rod or girt *a* of the frame, and is connected by rods H H to the frame I′, that carries the platen, as shown in Figs. 1 and 2 of the drawings.

By this arrangement of the toggle-levers and their connection with the platen, it will be seen that the same are out of the way of the operator. The length of the swinging frame F, from its axis of motion to the point of connection, *h*, with the rods H H, is approximately the same as that between the pivot of the frame I′ and its point of attachment to said rods. The levers *f′* of the toggle are also hung on the same axis, *h*, on which the rods H are connected with the swinging frame F, and this swinging frame is in an upright position approximately parallel with the platen. The arrangement of parts described allows the power of the toggle-levers to be employed most advantageously at about right angles to the face of the platen, in whatever position it may be. The strain, too, is direct, the power of the toggles being applied at the same point, *h*, where the rods H are connected to the swinging frame; and to still further insure this result, the points where the levers *f* of the toggles are connected to the press-frame are in line, or nearly in line, with the rods H, as shown in Fig. 2. Thus the axes on which the toggle-levers are hung are in line with the rods H, and these rods are approximately at right angles to the platen, in whatever position it may be. This arrangement also admits of the swinging frame being readily utilized, directly and without the intermediary of complicated connections, to operate both the ink-distributing table and the inking-roller.

The toggle levers or bars *f f′* are operated by the rod *e′*, which is connected at its upper end to said levers at their point of junction, and at its lower end to the crank *e* of the shaft E, which is journaled in suitable bearings formed in or attached to the side frames A A. This shaft is provided with the gear E′, which meshes into and receives motion from the gear L^1, secured to a second shaft, L, that works in bearings also secured to the side frames A A. This shaft L is provided with a balance-wheel, L^2, and a crank and treadle attachment, *l* l^1 l^2, by means of which the same may be operated,

and through it the working parts of the press, by the foot of the operator.

M M are the nipper-fingers for holding the paper or other material operated on down to the surface of the platen. These fingers, usually two in number, are connected to a shaft, *m*, that is journaled in suitable bearings attached to the lower edge of the platen, and are held in contact with said platen, when not otherwise removed, by a spring, m^1, all as shown in the drawings. For the purpose of operating these fingers to cause them to release their grasp upon the paper or material being operated upon, I arrange on the shaft *m* a curved rod or arm, m^2, which passes under the lower edge of the type-bed B, in such a manner that, when the platen approaches the face of the type or form, the rod or arm will not come in contact with the edge of the type-bed, but the spring m^1 will hold the nipper-fingers M tightly against the surface of the platen; and after the platen, on its backward movements, has passed a given point, the curved end of the rod or arm m^2 impinges against the lower edge of the type-bed, causing it to retract the arms M M, thereby releasing their grasp from the paper.

In order that feed-guides may be employed, when sheets are being printed that have a narrow margin, without interfering with the operation of my nipper-fingers, I construct the latter with a groove, *a*, extending their entire length. This groove I make of sufficient width and depth to receive the feed-guide, so that the same may be secured to the platen immediately in the path of either of the fingers, and the latter in such case are capable of closing down over the feed-guide, and the ledges on either side of the groove, passing down beside the edges of the said feed-guide, will be forced against the platen to firmly hold to place the paper or material to be operated on.

By this construction it will be seen that sheets having an exceedingly narrow margin may be printed without the slightest inconvenience, and without in any way interfering with the operation of the nipper-fingers.

N N are the inking-rollers, which are journaled in bearings $n' n'$, that are jointed to rods *o o*, carried by the vibrating arms N′ N′. These arms are pivoted at *p p* to the side frames A A, so as to be free to vibrate thereon, and are connected by the rods $p' p'$ to the upper end of the swinging frame F, so that as the latter is caused to swing back and forth, by the action of the toggle levers or bars $f f'$, a rocking or vibrating motion is transmitted to the said arms N′ N′, and the inking-rollers are thereby caused to pass down over the type or form secured to the type-bed, and rack onto the ink-distributing disk or table. $o' o'$ are spiral springs, secured to the rods *o o* between the collars *q q* thereon and the projection $q' q'$ on the end of the swinging arms N′ N′, and serve to hold the inking-rollers by a yielding pressure against the face of the type as they are passed over the same. *s s* are guides, by means of which the said inking-rollers are guided from the ink-distributing disk or table down over the face of the type or front, and back again.

S is the ink-distributing disk or table for distributing the ink evenly over the surface of the inking-rollers, and for this purpose it is arranged in an inclined position in rear of the type-bed B, by being pivoted to a girt or stand, D, by a stud, d'. This disk or table is provided on its under side with a ratchet, s', into which engages a pawl, *t*, that is carried by a lever, t^1. The latter is also pivoted to the stud d', and has its end t^2 bent downward so as to be in the line of movement of the swinging frame F, so that as the same, in the operation of the press, is swung toward the rear of the type-bed by the action of the toggle levers or bars $f f'$, it comes in contact with the lower end of the bent portion t^2 of the bar t^1 and carries it forward, and this, in turn, through the intermediary of the pawl *t*, rotates the ink-distributing disk or table S.

v is a spiral spring, secured at one of its ends to the rear of the type-bed B, and at its other to the lever t^1, and serves to operate the said lever in an opposite direction to that of the swinging frame F, and to retract the pawl after it has been carried forward by said frame and the latter has returned.

J is a throw-off or impression-regulator, which may be of any suitable form or construction, and is applied to the rear side of the frame I′, by means of which the platen may be prevented from coming in contact with the face of the type when no paper has been interposed.

I have in the foregoing described a press the toggle levers or bars for operating the platen of which are operated by a crank; but it is obvious that such devices may be actuated by a cam, and I have accordingly in Fig. 6 illustrated such a modification. I have also shown a press adapted to be operated by the foot of the operator; but it is equally plain that I may substitute a band-pulley for the balance-wheel, and drive the press by power, if thought desirable, without departing from my invention.

The operation of my device is as follows: The press being in the position shown in Fig. 2 of the drawings, motion being imparted to the shaft E in the direction of the arrow, as shown in said figure, the crank *e* rises, carrying upward the rod e', and forces upward the joint of the toggle levers or bars $f f'$, thereby straightening them out. This movement causes the upper end of the frame F to swing outward, and this, being connected by rods H H with the platen I, draws it against the face of the type, and forms the impression. The continued rotation of the shaft in the same direction draws down the rod e', and with it the joint of the said toggle-levers, which draws in the frame F, and causes it to swing toward the rear of the type-bed B. As before remarked, this frame being connected with the platen, it is forced outward, and the arm m^2, coming in contact with the lower edge of the

type-bed, withdraws the nipper-fingers, and the inking-rollers are carried down over the face of the type or front. During this operation the said frame strikes the lower bent end of the lever t and carries it forward, and with it the ink-distributing disk or table S, which is rotated the distance of one tooth at each impression of the press.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is the following:

1. The combination, with the type-bed and the platen, of the swinging frame, the rods connecting said frame and platen at points approximately the same distance from their respective centers of motion, and the toggle-levers jointed to the swinging frame on the same axis with the connecting-rods, said elements being combined and arranged for joint operation as shown and set forth.

2. The combination, with the platen, the inking-roller frames, and the ink-distributing table, of the swinging frame, connected with and operating the platen by rods H, the ink-roller frame by rods p p', and the feed devices of the ink-distributing table by the arm t^2, substantially as set forth.

GEORGE P. APPLETON.

Witnesses:
CHARLES P. MORSE,
SAMUEL APPLETON.