C. W. Hawkes.

Nippers for Printing Press.

No. 10670. Patented Mar. 21. 1854.

Fig. 1.

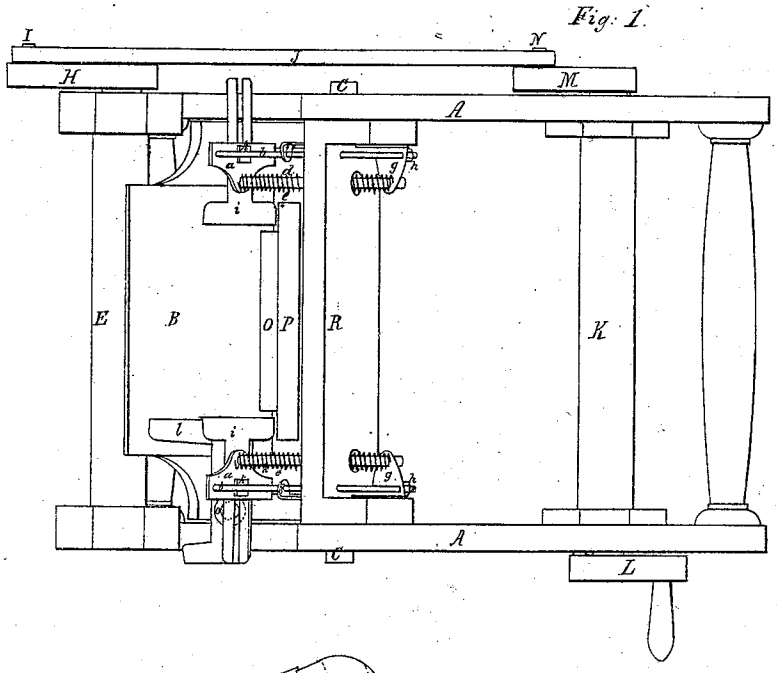


Fig. 9.

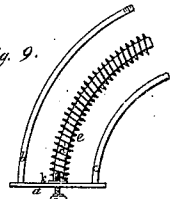


Fig. 8.

Fig. 7.

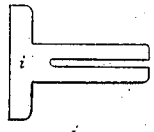


Fig. 6

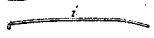


Fig. 5.

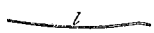


Fig. 4.

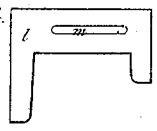


Fig. 2.

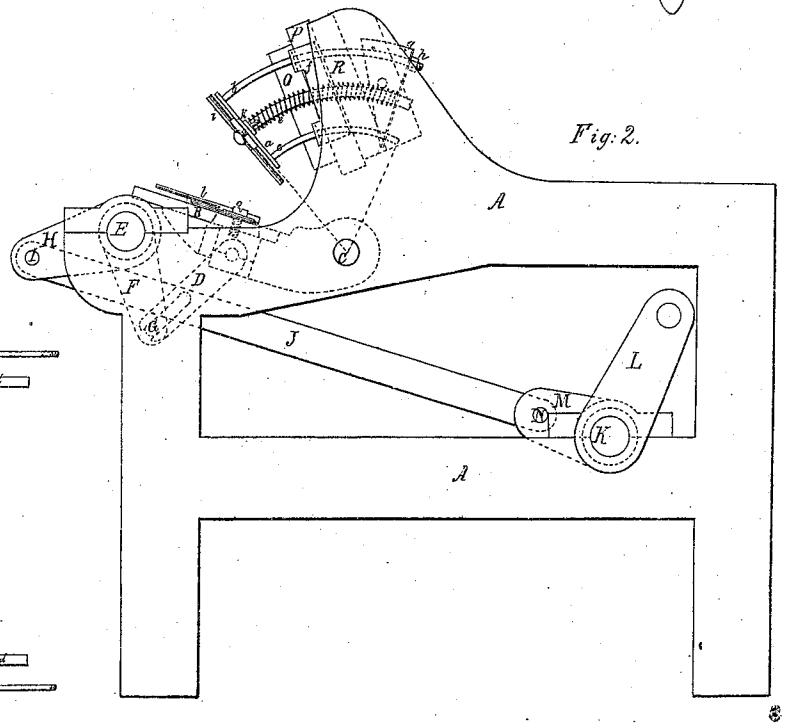
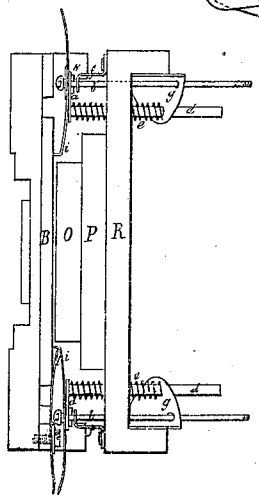


Fig. 3.



UNITED STATES PATENT OFFICE.

CHARLES W. HAWKES, OF BOSTON, MASSACHUSETTS.

NIPPER FOR PRINTING-PRESSES.

Specification of Letters Patent No. 10,670, dated March 21, 1854.

To all whom it may concern:

Be it known that I, CHARLES W. HAWKES, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Nippers for Printing-Presses; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a plan of a printing press with the nippers attached thereto, Fig. 2 is a side elevation, Fig. 3 is a view of the bed and platen in a vertical position showing the manner in which the nippers hold the sheet, Figs. 4 and 5 represent the grip spring for holding the sheet up from the platen, Figs. 6 and 7 represent the nipper, or the part which holds the sheet, Figs. 8 and 9 represent the nipper frame.

The same letters refer to like parts in all the figures.

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

I construct a printing press with a swing platen, Figs. 1 and and 2, in which A, A is the frame, B is the platen, C is the center on which the platen swings, D is the fork lever hung to the under side of the platen, E is the rock shaft, F is the rocker arm which is attached to the center of the rock shaft. The rocker arm has a pin or rod G, running through the lower end of it which plays loosely in the fork of the lever D. When the rock shaft is turned up, the rocker arm and fork lever form a toggle by which the platen is swung up and the impression given.

H is a fixed lever on one end of the rock shaft outside of the frame, I is a pin in the lower end of the fixed lever by which one end of the connecting rod J, is attached to the said lever.

K is the main shaft hung in the lower part of the frame near the back end, with a driving pulley or crank L, on one end, and a crank M, on the other end attached to the connecting rod by the crank pin N. By applying the power to the crank L, the face of the platen is made to swing up to the type, and back again at every revolution of the main shaft.

O is the type.

P is the bed to which the type is secured.

R is a wide girt, running crosswise of the frame, which holds the bed.

To construct the nipper I make a metallic nipper plate *a*, nearly as long as the form of type is wide, with a covered guide rod *b*, set in the plate near one end, and a similar guide rod *c*, set near the other end; and near the center of the said plate, I set a curved spring rod *d*, with a spiral spring *e*, coiled around it and running its whole length. (See Figs. 8 and 9). These curved rods all project from the back side of the plate, and all radiate from the center on which the platen swings. (See Fig. 2). The nipper plate and the curved rods secured thereto compose the nipper frame. The nipper frame is supported by two stands *f*, and *g*, which are secured some distance apart to the wide girt R. The stand *f*, is on the front side of the girt and has two ears with a hole in each to receive the guide rods, and through which they slide. The stand *g*, is on the back side of the girt and has a hole for each guide rod, and also one for the spring rod, through which the rods are all made to slide loosely. There is also a hole through the girt for each guide rod, and one for the spring, sufficiently large for them to play through without touching. When the nipper frame is hung in its place the nipper plate stands out a little forward of the face of the type, and the guide rods and spring rod all extend through and project a little beyond the stand *g*, with a nut *h*, on the end of one or more of the rods. This nut answers for a stop and also to adjust the nipper or to set it forward from the face of the type a greater or less distance. One end of the spiral spring, *e*, bears against the back stand and the other end bears against the nipper plate, *a*, the tendency of which is to press the nipper plate forward together with the curved rods. A flat steel spring might be used to operate the nipper instead of a spiral spring, which I consider a mechanical equivalent. I then make a nipper *i*, of a piece of thin steel (or some suitable metal) in the form of a T, (Fig. 7) with a slit in the tongue. This slit is made to give a chance to slide the nipper back and forth as occasion may require. The edge opposite the tongue is turned down at a right angle, represented more clearly in Figs. 3 and 6. This nipper

is held firmly to the face of the nipper plate by a thumb screw *j*, passing through the slit and screwing into the nipper plate, or into a nut *k*, back of the nipper plate. The head of this nipper is toward the type, with the angle edge downward, and is held in such a position that when the platen is raised to the nipper, the angle edge of the nipper is parallel to the face of the platen when the platen strikes it, and as the platen continues its upward motion, the nipper by the force of the spring bears hard against the platen and is carried up with said platen to the form, and recedes with it to the position where the nipper is designed to stop. The platen then leaves the nipper and falls to its lowest position.

In some cases I use a flat grip spring *l*, Figs. 4 and 5, the office of which is to hold the margin of the sheet up from the platen and to press it against the nipper. This grip spring has a slit *m* in it, (see Fig. 4) which admits of its being set out or in, and is held to the platen by a screw *o*, which passes through the slit and screws into the platen near the end, just inside of the frame.

In Fig. 3 the platen is turned up against the form, and the nippers are represented, one with the grip spring *l*, and one without it. When the grip spring is not used the angle edge of the nipper bears directly against the platen and grips the paper thereto, but when the grip spring is used the nipper bears against the said spring just back of the angle edge, gripping the margin of the paper, right in the angle of the nipper. I wish it distinctly understood, that this nipper is designed to be used either with or without the grip spring. In most cases the angle edge of the nipper pressing the paper against the platen would be sufficient to draw it from the form, but for large sheets it would sometimes be necessary to use the grip spring as it grips the paper in the angle of the nipper in such a way that it will hold it much stronger.

The platen is in its lowest position when the paper is laid on, as seen in Fig. 2, then by applying the power to the crank L, as before mentioned, the platen is made to swing up and carry the paper with it. Just before the platen gets to the form it strikes the nippers and carries them up with it to the form (as represented in Fig. 3) where the impression is given. One nipper by the action of the spiral springs, *e*, holds the margin of the paper to the platen, while the other one grips it between the nipper and grip spring. In this position the paper is firmly held while the platen swings down, the force of the spriral springs compelling the nippers to follow the platen in its downward motion until the paper is entirely free from the form, the nippers then stop, and the platen leaving them falls to its lowest position again, to receive another sheet.

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

1. In printing presses, the device herein described, for removing the sheet from the form after the impression has been given, substantially as herein set forth.

2. I claim the nipper frame constructed in the manner as herein described and for the purpose specified.

CHARLES W. HAWKES.

Witnesses:
B. P. WILLIAMS,
CHAS. P. THOMPSON.