J. SANGSTER.

Conductors' Punches.

No. 148,989. Patented March 24, 1874.

Fig. 1.

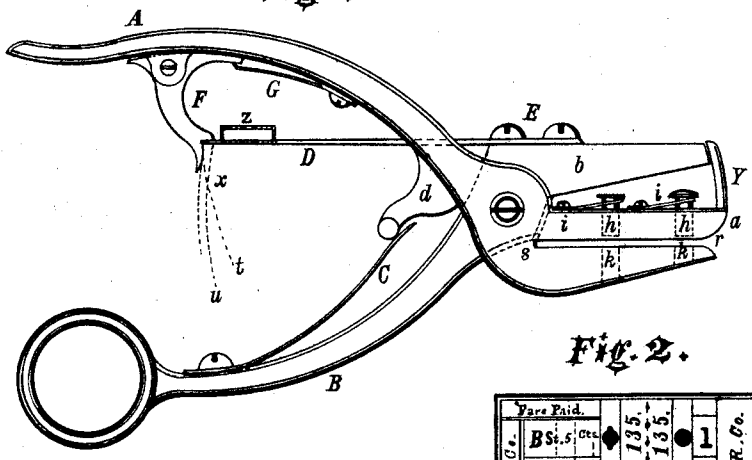


Fig. 2.

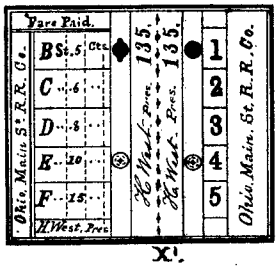
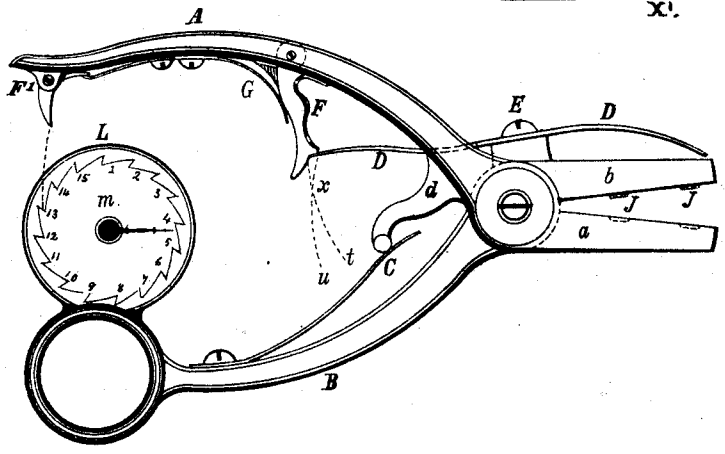


Fig. 3.



Witnesses.

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AM. PHOTO-LITHOGRAPHIC Co. N. Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JAMES SANGSTER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO DAVID P. DOBBINS, OF SAME PLACE.

IMPROVEMENT IN CONDUCTORS' PUNCHES.

Specification forming part of Letters Patent No. **148,989**, dated March 24, 1874; application filed October 26, 1872.

To all whom it may concern:

Be it known that I, JAMES SANGSTER, of Buffalo, in the county of Erie and State of New York, have invented certain Improvements in Conductors' Punches, of which the following is a specification:

The nature of my invention consists, first, in arranging and combining, with the jaws of a conductor's punch, two or more punches, so arranged that both a ticket, and a stub attached to it, may be punched at one operation; second, in arranging and combining a spring with a pawl and the handles of a conductor's punch, so that an alarm will be produced by the vibrations of said spring as it recoils from the pawl during the action of punching a ticket, the sound being given by the spring alone, without striking a bell or other equivalent device.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation representing my said invention. Fig. 2 represents a ticket designed for use in combination therewith, and by which its operation will be more clearly hereinafter described. Fig. 3 is a side elevation, showing a modification of my invention, and the arrangement of a register in combination with it.

In the said drawings, A and B are the handles of the punch, made in the usual form; *a* and *b* the jaws forming a part of said handles. C is the spring by which the handles and jaws are forced apart or opened. It is attached to the handle B and presses against the piece *d* on the handle A. D represents the alarm-spring. It is made of tempered steel, and firmly fastened to one of the jaws of the punch at E. This spring is made sufficiently stiff and strong to insure the sound required, which may be varied in tone by changing either its length, breadth, or thickness. F is a pawl for operating said spring. It is fastened to the handle A. G is a small spring for holding it in position. It is shown in front of the pawl in Fig. 1, and at the back of the same in Fig. 3.

The alarm-spring D in Fig. 3 is fastened in the center instead of at one end, as shown in Fig. 1, which arrangement I think insures a better and clearer sound, although the first arrangement answers the purpose well.

h h, in Fig. 1, are the punches. They are kept up out of the dies *k k* by the springs *i i*.

In Fig. 3 I have shown an embossing-stamp in place of the punches *h h*, which would produce a raised letter or figure on the ticket instead of punching holes through it; but I prefer the arrangement of punches shown in Fig. 1.

L, in Fig. 3, shows how a register may be combined with the punch, if desired. It is operated by the pawl F′ and the movement of the handle A, which operation is clearly shown by the drawings. The face is left off, so as to show the ratchet-wheel *m*, the figures merely showing the position they would occupy on the dial.

In Fig. 1, Y represents a guard to prevent the paper to be punched from entering the wrong part of the punch, either by accident or otherwise. If desired, a whistle may be combined with the spring, substantially as shown at Z, in Fig. 1. In that case it would be necessary to surround the spring with a casing, so as to leave a space or air-chamber, into which it could react when released by the pawl F, thereby inclosing it in such a manner as to confine the air, so as to get the best effect possible by the recoil of said spring. The whistle may either be attached to the spring or to some part of the air-chamber. In either case the result would be the same.

The operation of my invention is as follows: The paper card or ticket is placed in the opening *r* on the jaw *a*, until it reaches the point S, which serves as a gage, preventing the card from going in too far. A movement of the handles A and B together causes the jaws *a* and *b* to close and force the punches through both ticket and stub. At the same time the pawl F forces the spring D down in the line of its motion, as shown at *t*, while the line of motion of the pawl being in the line *u*, causes it to pass over or slip off from the end of the spring at the point X, which allows it to recoil and produce the required alarm.

It will be readily seen that when the spring C is allowed to act and force the handles apart again, the pawl F is drawn past the spring, so as to assume the position shown in the drawing. The ticket, after being punched, is separated through the punctured seam X′, one part being retained by the conductor, and the other given to the passenger.

Both punches may be alike, or one may be made of a size, form, or shape differing from the other, if desired. One form of punch of a different shape from the other, which may be varied, is shown by the punch-marks represented on the ticket in Fig. 2.

I claim—

1. The combination of the handles A B of a conductor's punch with the pawl F and spring D, substantially as and for the purposes herein described and shown.

2. In combination with the jaws of a conductor's punch, two or more punches, so arranged that both a ticket and a stub attached to it may be punched at one operation, substantially as and for the purposes herein described.

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