

J. S. FOSTER.
TICKET-PUNCH.

No. 183,916.

Patented Oct. 31, 1876.

Fig. 1.

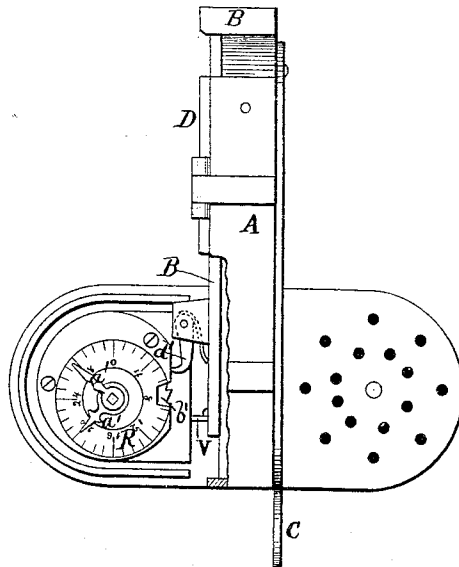


Fig. 2.

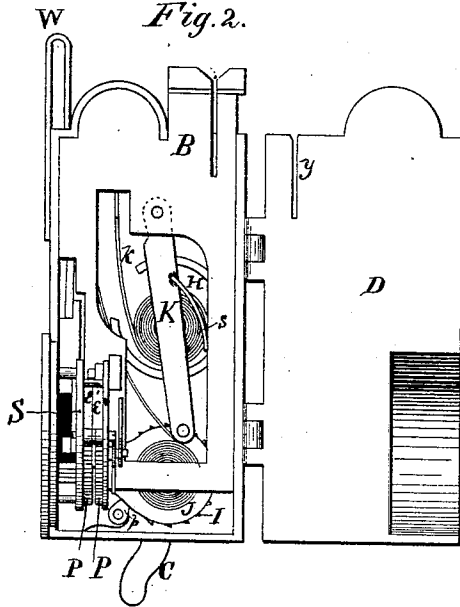


Fig. 3.

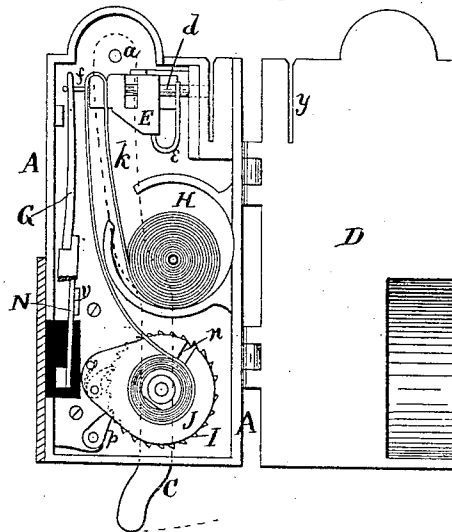
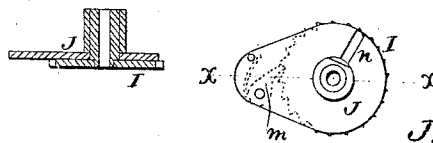


Fig. 4.



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Fig. 5.

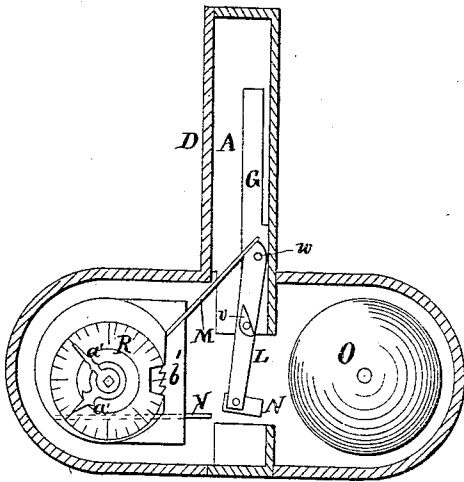


Fig. 6.

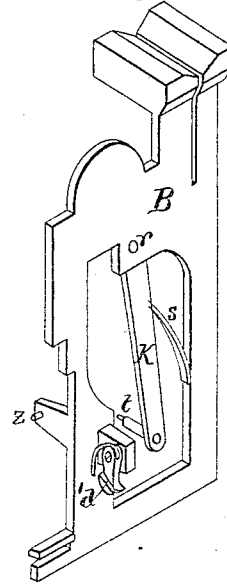


Fig. 7.

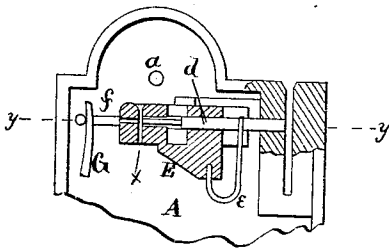
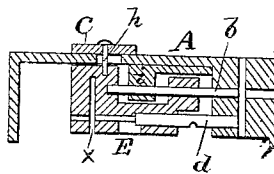


Fig. 8.



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IMPROVEMENT IN TICKET-PUNCHES.

Specification forming part of Letters Patent No. **183,916**, dated October 31, 1876; application filed September 23, 1876.

To all whom it may concern:

Be it known that I, JOSEPH S. FOSTER, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Ticket-Punches; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to a conductor's ticket-punch; and it consists in the construction and arrangement of parts, whereby, as a ticket is inserted to be punched, a bell will be rung, a register operated, and a piece of paper tape advanced, which, with the independent movement of the punch, will complete the operation.

The object of my invention is to construct such a device that the bell and register may be operated independent of the punch, and the punch operated independent of the bell and register.

One feature of this invention relates to a movable mouth-piece, which is so constructed that the act of inserting the ticket will force the mouth-piece down, and thereby sound an alarm, operate a registering mechanism, and move a roll of paper tape, (inclosed within the instrument,) so as to expose a new portion of its surface to be perforated by a small punch, which is also inclosed within the case.

Another novel feature is in connection with the punch, and consists of an auxiliary punch located within the case, and so combined with the principal punch as to be operated simultaneously with it, said auxiliary punch being much smaller than the principal one, and designed to operate on the paper tape alone.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a front elevation of the instrument, with part of the case removed to show the working parts. Fig. 2 is a side elevation, with the case-door open to show working parts. Fig. 3 is a similar side elevation, with the case-door open and mouth-piece removed

to show working parts. Fig. 4 shows the ratchet device for winding the paper tape. Fig. 5 is a section of the machine, showing bell and dial. Fig. 6 is a perspective view of the mouth-piece. Figs. 7 and 8 show the principal and auxiliary punches.

A represents the case; B, the mouth-piece; C, the punch-handle, and D the door to the case A. The handle C is pivoted to the case A at the point *a*. E is the slide that carries the two punches *b* and *d*, *b* being the principal punch, and *d* the small or auxiliary punch. The punch *b* is rigidly fastened to the slide E by a screw or other device, while the punch *d* is held in position only by a spring, *e*. The slide E is formed with an angular projection, *f*, to hook over a spring, G, and also a slot, *x*, for the passage of the paper tape. In the under side of the slide is a small hole for the insertion of a pin, *h*, that projects from the handle C, so as to move said slide when the handle is moved, an opening in the case allowing said pin to pass through and engage with the slide. The case A has a slot, *y*, for the insertion of the ticket to be punched. The main punch *b* passes through a hole in a lug, *i*, on the inside of the case. The auxiliary punch *d* is reduced in size where it passes through the slot *x*, and is formed with a notch, as shown in Fig. 8, to receive the spring *e*. H is a circular apartment for holding the roll of paper tape *k* before it is punched, and I is a ratchet-wheel for holding and winding the tape as it comes from the punch. J is a covering-plate for the ratchet-wheel I. This covering-plate moves around the same center as the ratchet-wheel, and has a driving spring-pawl, *m*, fastened to its under surface, to engage in the teeth on the edge of the ratchet-wheel. This plate has also a slot, *n*, cut through it on a radial line from the center to the circumference. *p* is a detent-pawl, fastened to the case, and acts also on the ratchet-wheel I, to prevent backward movement of the same. The sliding mouth-piece B is constructed substantially as shown in Fig. 6, and has a lever, K, attached to it, which lever moves back and forth from the fulcrum *r*. This lever has a spring, *s*, to hold it out in position, and also a driving-pin, *t*. The lower end of this pin engages in the slot *n* of the plate

J, so that when the mouth-piece is moved a reciprocating movement is imparted to the plate J, and, through the pawl *m*, the ratchet-wheel I is thereby caused to rotate. The mouth-piece B slides up and down just under the cover D.

L represents the bell-striker, provided with a cam, *v*, rigidly attached to it, as shown in Fig. 5. This striker turns on a pivot, *w*, and the end nearest said pivot is cut away to receive the pressure of a spring, M. A pin, *z*, rigidly fastened to the mouth-piece frame, moves around the cam *v*, and thus causes the hammer N to strike the bell O, the downward movement of the mouth-piece causing the pin to force the bell-striker L out against the spring by means of the cam, until the pin reaches the lower end of the cam, when it passes beyond the cam, and the striker, by the tension of the spring, is forced back to its normal position; but before gaining this normal position its accumulated momentum causes it to pass beyond said position and to strike the bell. The return movement of the mouth-piece causes the pin *z* to regain its former position, and in doing so it passes along the back of the cam, slightly forcing the cam and striker toward the bell, until it reaches the upper end of the cam, when the pin passes beyond the cam, and the striker, relieved from its forced position, again seeks its normal position, ready for a second downward movement of the pin and mouth-piece. P P represent register-wheels, moving about a common center, and having hands *a' a'* rigidly fastened to them. R is a dial-plate, to indicate the movements of the register-wheels and hands, this dial-plate and register-wheels being connected to a raised plate, S. The dial-plate R is cut away at the point *b'* for the admission of the pawl *d'*, which is secured to the mouth-piece, so that the movement of the mouth-piece moves the pawl, which, in turn, moves the register-wheels, the whole being designed to indicate the number of times the bell is rung and the tape *k* moved. *e' e'* are detent-pawls, designed to prevent a retrograde movement of the register-wheels. V is a spring fastened to the case, and operating on the mouth-piece to keep it in its normal position. The door or lid D is hinged to the case A, and when closed can be locked by any suitable locking device. W is a hook for securing the instrument in an upright position, the mouth-piece being uppermost when so secured.

It will be seen from the above that the alarm, registering mechanism, and mechanism for moving the paper tape are all operated from one source—viz., the movable mouth-piece; that the principal and auxiliary punches are operated by the punch-handle, and that there is no connection between the mouth-piece and

punch-handle, each performing its part independent of the other.

The manner of operating this improved ticket-punch is as follows: It is designed to secure the instrument, by a strap or otherwise, so as to have it suspended in front, or nearly so, of the conductor, the conductor's hands being entirely free to handle tickets and money. The conductor having taken a ticket inserts it in the mouth of the punch to be canceled, and, in the act of doing so, either the ticket or the conductor's hand forces down the mouth-piece, which causes the bell to be sounded, the register operated, and the paper tape advanced. Before removing the ticket the handle C of the punch is forced forward, which causes the ticket to be perforated, and also perforates the paper tape inclosed in the instrument.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a ticket-punch, of a punch for perforating the ticket, and an auxiliary punch inclosed within the instrument, said auxiliary punch being operated to perforate a tape by the same operation that the ticket is punched with the principal punch, substantially as set forth.
2. In a ticket-punch, a movable mouth-piece for operating a registering mechanism, sounding an alarm, and moving a roll of paper tape, substantially as herein set forth.
3. The combination, in a ticket-punch, of the main punch *b*, for punching the ticket, and the auxiliary punch *d*, operated simultaneously therewith by the same lever C, for perforating a paper tape concealed within the instrument, substantially as herein set forth.
4. The combination of the slide E, with hook *f*, spring G, punches *b d*, spring *e*, and pivoted lever C, with pin *h*, substantially as and for the purposes herein set forth.
5. The combination of the ratchet-wheel I, plate J, with pawl *m* and slot *n*, and the spring-arm K, pivoted to the mouth-piece B, and provided with the pin *t*, substantially as and for the purposes herein set forth.
6. The combination, in a ticket-punch, of the auxiliary punch *d* and slide E, with slot *x*, as and for the purposes herein set forth.
7. The combination, with the bell O, of the striker L, with hammer N and cam *v*, the spring M, and the pin *z* on the sliding mouth-piece, substantially as and for the purposes herein set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JOSEPH S. FOSTER.

Witnesses:

F. G. DAY,

JOHN D. VAN DUSEN.