C. H. NYE & E. ZAPF.

Conductors' Punch.

No. 165,683. Patented July 20, 1875.

Fig. 1.

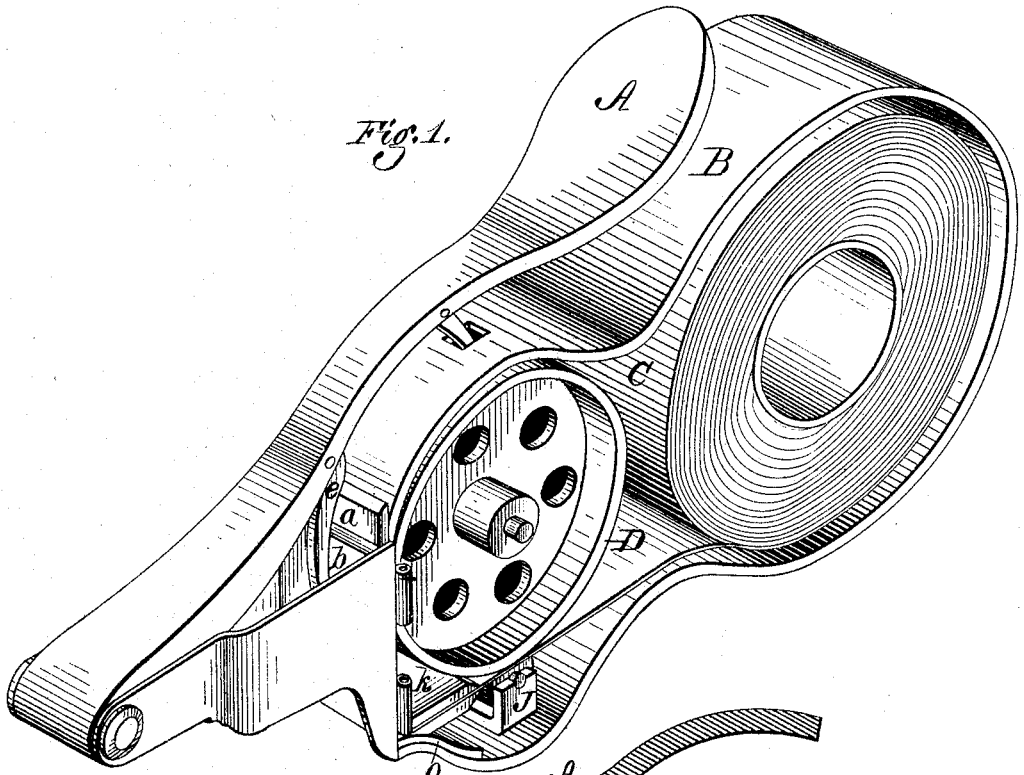


Fig. 2.

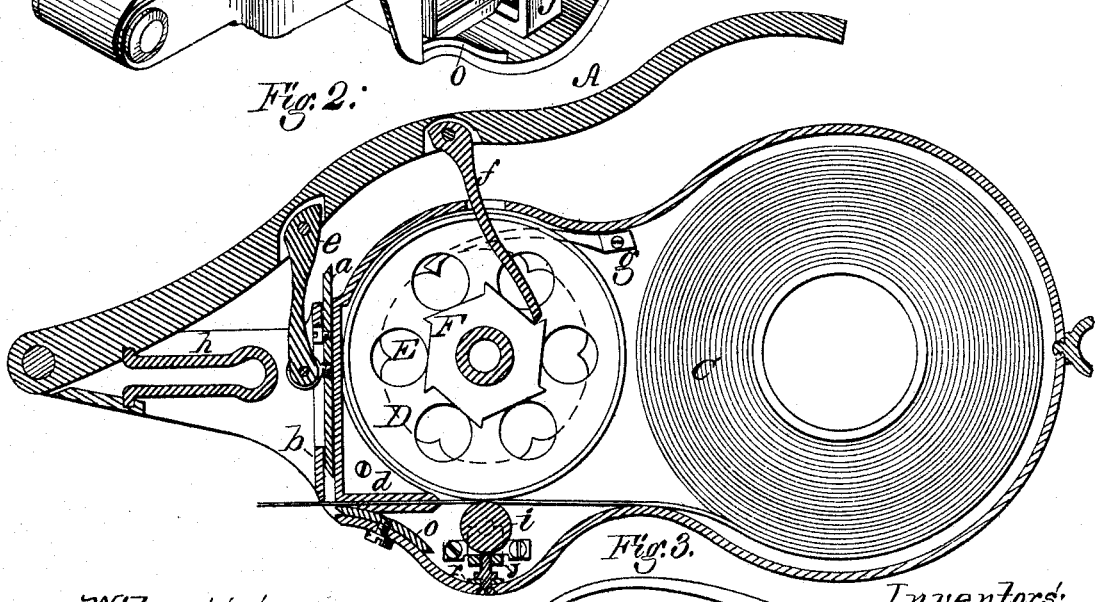
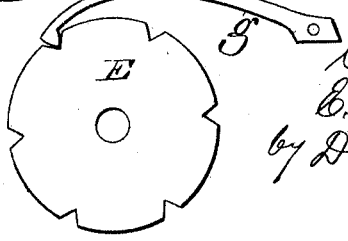


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES H. NYE, OF NEW YORK, N. Y., AND EDWARD ZAPF, OF CINCINNATI, ASSIGNORS TO HENRY NYE, OF CINCINNATI, OHIO.

IMPROVEMENT IN CONDUCTOR'S PUNCHES.

Specification forming part of Letters Patent No. **165,683**, dated July 20, 1875; application filed January 30, 1875.

To all whom it may concern:

Be it known that we, CHARLES H. NYE, resident of the city of New York, N. Y., and EDWARD ZAPF, resident of Cincinnati, Ohio, have invented a certain new and useful Automatic Premium Indicator; and we 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 the specification.

The object of our invention is a means whereby pilfering upon the part of street-car conductors or other collectors may be detected.

Our invention consists of an instrument for cutting off checks or receipts, successively numbered, or otherwise differently marked, for distribution to passengers or others paying such collector.

In the drawings, Figure 1 is a perspective view of such instrument with one side of the case removed. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a detached view of the regulator-wheel with its spring-pawl.

B represents the shell or case inclosing the instrument. A is a hand-lever outside the case, journaled in jaws, which form extensions of the sides of the case. *h* is a spring, attached, as shown in Fig. 2, to the lever and case, whose object is to raise the lever when the pressure of the hand is removed. D and and *i* are a pair of rolls for carrying the paper from the coil *c* to the cutters. There are two like rolls D attached rigidly to the same spindle, with a space between them for the ratchet F, which is also rigidly attached to the same spindle, or there may be one such roll D, having a circumferential division, within which the ratchet F may be secured. This ratchet is operated by a pawl, *f*, clearly shown in Fig. 2. This pawl, as shown, is made upon the end of a spring-lever, the object of which will be more clearly described hereafter. The adjacent edges or corners of the like rolls D are milled, and roll *i* has a circumferential projection, intended to press the paper against these milled corners, and thereby prevent slip. The roll *i* is suspended in a box or standard, J, one end of which is shown in Fig. 1, the other end, (not shown,) being similar to that shown. There are appropriate grooves (not shown,) in the two opposite sides of the case, within which, respectively, the different ends of the box J can freely slide. One end of this box is secured to its groove by a brace passing over it, which brace is fixed to the case, on either side of the groove, by screws, Fig. 2, leaving the box free to slide underneath it. There is a set-screw, (shown in Fig. 2,) which passes through the case B, by means of which the roll *i* can be properly adjusted to the rolls D. *r*, Fig. 2, is a disk, secured on the screw inside the case, which gives a bearing for the operation of the set-screw, and, as it may be formed so as to have spring-power, will yield sufficiently to compensate for different thicknesses of the paper. *e* is a link, the upper end of which is pivoted to the lever A, the lower end being hinged to an arm or projection extending from the outer face of the knife *a*, at or about the middle of its length. This mode of suspension of the knife *a* (by the center of its outer face) we have found by experiment to be the best adapted to our purpose, as, by it, there is a uniform pressure inward exerted upon the knife, which insures prompt and accurate action of the shear-blades. Another advantage resulting from this mode of attachment is that the knife *a*, which has an edge upon either end, as shown, may be removed and reversed so as to use either end for the cutting-edge. The knife *a* slides between two plates, *b* and *d*, which act as guides, Fig. 2. The outer of these plates, *b*, has a central longitudinal slot, (not shown,) and the knife *a* has a screw in its face, the head of which slides in this slot, Fig. 2. The upward limit of this slot is the limit to the upward motion of the knife, and also of the pawl *f*, which it prevents from rising from its appropriate place on the ratchet F after the rebound of the spring *h*, thereby avoiding jarring consequent upon the striking of the parts, and insuring an easy and noiseless operation of the instrument. There may be two holes in the face of the knife, equidistant from the center, for the above-described screw, which, when it is desired to reverse the knife, may be changed from the one to the other. *o* is the lower and stationary cutter, Fig. 2, which may be ad-

justed to the other knife by a slot in the case. Underneath the rolls D, and attached to the same spindle, there is a notched regulating-wheel, E, shown in Fig. 3, and in dotted lines in Fig. 2. This wheel has a pawl, *g*, that works into its teeth, formed of such material that it has a spring-like action, as well for the purpose of catching into the notches of the regulating-wheel when they are presented to it, as to press uniformly, with a brake-like action, upon the periphery of the wheel E, and thereby give regularity to the movement of the instrument, and prevent any recoil of the wheels D, and consequent disarrangement of the instrument. The distance between the notches of this wheel E will so correspond with the similar distance between the teeth of the ratchet F that they will each measure the amount of paper to be cut off for one ticket.

The coil of paper appropriately marked and divided into checks or tickets being placed in the instrument, and its end passed between the rolls D and *i*, and between the guides shown in Fig. 2, the instrument is ready for use.

The conductor, or other collector, takes the instrument in his right hand, the palm resting upon the lever A, which he presses down. The pawl *f* rotates the ratchet F the distance of the length of one tooth. This has passed forward sufficient paper to form one ticket, and has brought the movable knife down into contact with the paper to be cut.

Now, in order to pass the movable knife through the paper, the lever A will have to be pressed yet lower; but, in so doing, as the unfolding devices and the knife are both operated by the same lever, the operation of cutting would feed more paper, which, not having free access because of the contact of the cutters would become entangled, and thereby tend to disarrange the machine. This is provided against by the operation of the regulating-wheel E with its pawl *g*, for at the instant that sufficient paper has been unfolded the pawl *g* catches into a notch of the wheel E, which, being rigidly attached to the same spindle as the ratchet F, prevents further motion upon the part of the ratchet F while the cutters are severing the paper. The pressure of the lever A upon the pawl *f* in the meantime causes it to spring from and past the ratchet-tooth with which it was engaged. When the pressure of the hand is removed from the lever the spring *h* raises it so that the pawl *f* takes a new bite upon the ratchet F, when the instrument is ready for another operation.

We claim—

1. The combination of the register-wheel E and brake *g* with the ratchet-wheel F and pawl *f*, constructed to operate substantially as described, by which the ribbon is fed a certain distance, and then held while the knife is pressed down to sever the strip, as set forth.

2. The combination of the sliding standard J, roll *i*, provided with a set-screw, and feed-rolls D, all substantially as and for the purpose set forth.

3. The lever A, in combination with pawl *f* and link *e*, whereby the strip is fed forward and the knife reciprocated, substantially as shown and described.

4. The combination of the lever A, link *e*, slotted plate *b*, vertically-reciprocating knife *a*, and stationary cutter *o*, all arranged to operate substantially as described.

5. The knife *a*, having its operating link connected to it by a lateral projection, whereby pressure on the knife tends to press it up toward the stationary lip or blade, substantially as described.

6. In combination with the feed-rolls D, having their inner edges milled, the roll *i*, provided with a central circumferential projection, substantially as described.

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