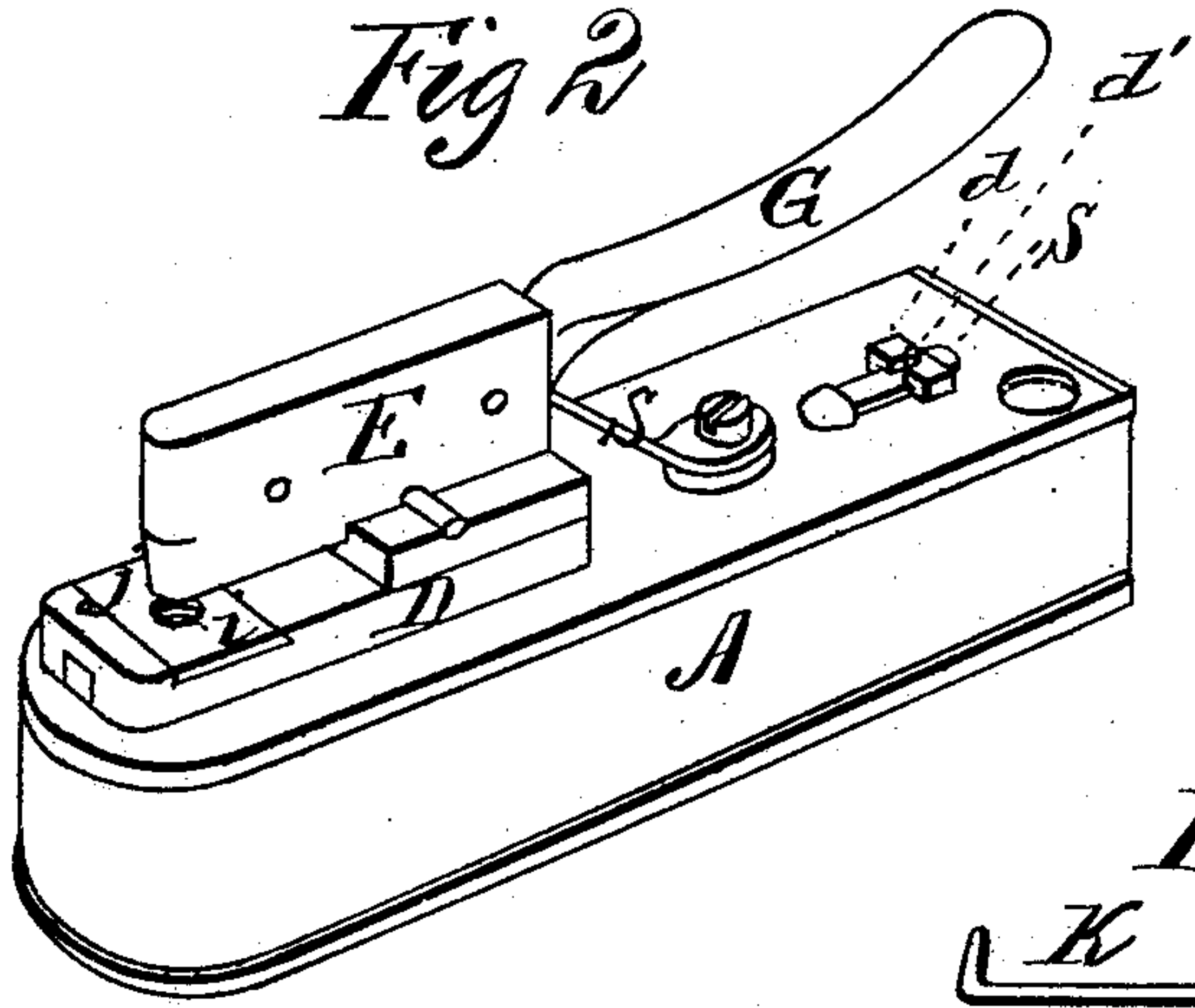
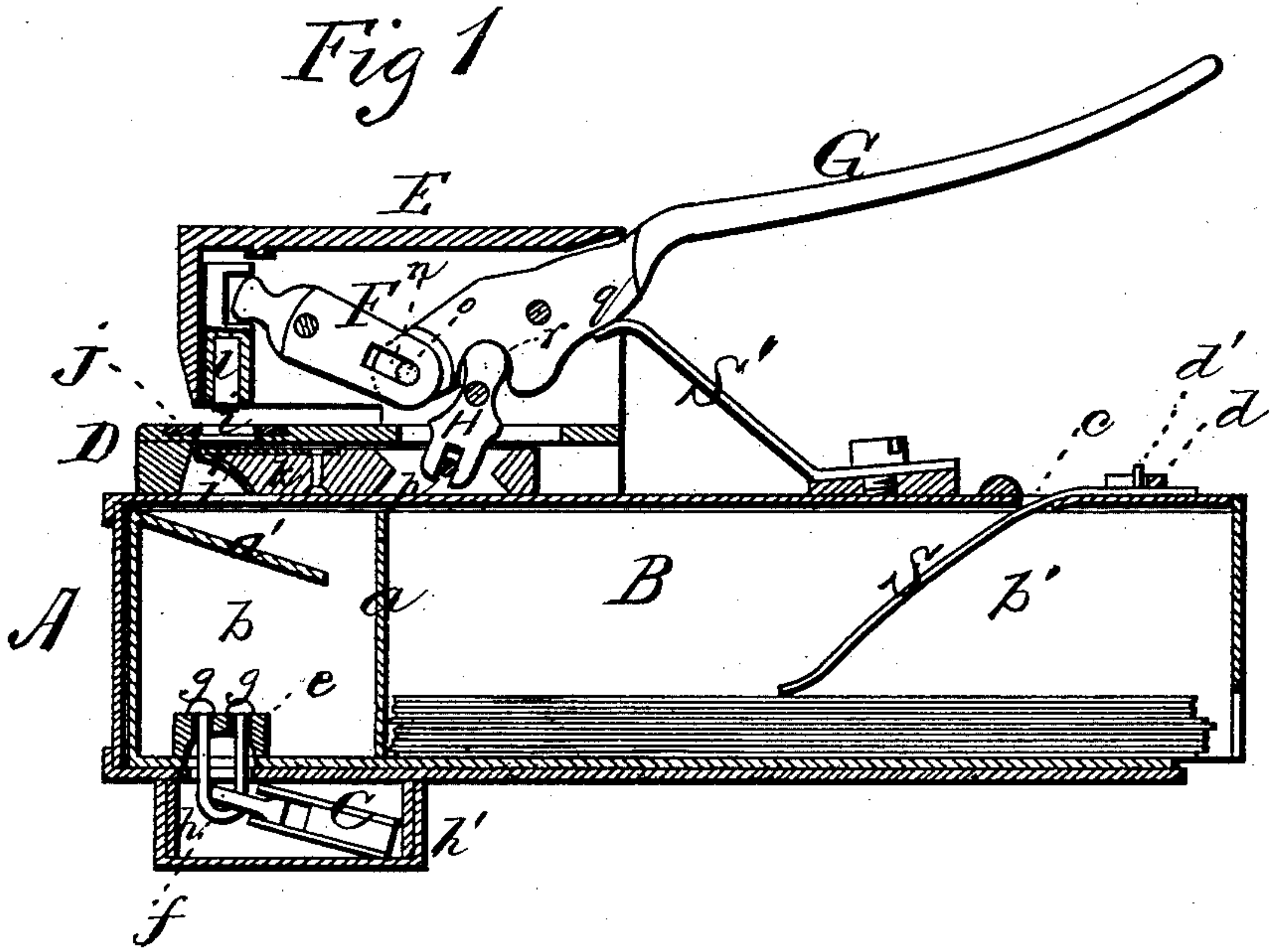


F. B. WOODRUFF.  
CONDUCTORS' PUNCH.

No. 172,540.

Patented Jan. 18, 1876.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN CONDUCTORS' PUNCHES.

Specification forming part of Letters Patent No. 172,540, dated January 18, 1876; application filed November 20, 1875.

*To all whom it may concern:*

Be it known that I, FRANCIS BUTLER WOODRUFF, of Eldora, in the county of Hardin and State of Iowa, have invented a new and valuable Improvement in Conductors' Punches; and I do hereby declare that the following is full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal vertical section of my conductors' punch, and Fig. 2 is a perspective view of the same. Figs. 3 and 4 are detail views thereof, and Figs. 5 and 6 are plan views of my ticket.

This invention has relation to improvements in conductors' punches; and it consists in the arrangement and novel construction of the various devices employed, whereby very useful and desirable results are obtained, as will be hereinafter more fully explained and claimed.

In the annexed drawings, the letter A designates an oblong metallic case of suitable dimensions, which is provided with a drawer, B, occupying its whole interior. This drawer is divided into two parts by a transverse partition, *a*, the end part *b* being designed to receive the clippings, and the other *b'* to receive tickets, the construction of which will hereinafter appear, and which are held in contact with the bottom of box *b'* by means of a metallic spring, S, which passes up through an opening, *c*, in the top of the case, and is secured thereto by being passed under a metallic catch, *d*, from which it may be detached, when necessary, by means of a pin, *d'*, secured to the said spring, and projecting through a slot in the catch, as shown in Fig. 2. The tickets may be readily removed from the drawer, without opening the same, through an aperture formed in the bottoms of the case and drawer, and a thumb-hole in the end of the latter.

The drawer is locked into the case in the following manner, to wit: The clipping-box *b* is provided with a raised plate, *e*, through which projects an endwise-movable staple, *f*, having enlargements *g* upon its free ends,

which prevent its being drawn through the said plate. This staple is sufficiently long to project through slots formed in the bottom of the drawer and case, and to receive the bow of a padlock, C, arranged in a box, *h*, and concealed from view by a cap, *h'*, applied upon the said box. In practice the cap will be sealed to the box, so that any tampering with the same, for the purpose of unlocking the drawer, will be immediately apparent. D represents a raised metallic die-bed, into which the die-plate *j* will be recessed in a position such that the circular aperture *i* formed therein shall be over a larger aperture, *i'*, formed in the top of the case. Within this die-bed an endwise-movable slide, *k*, is arranged, the object of which will hereinafter appear. E represents an upright metallic box, which is rigidly secured to die-bed D, and is provided at one end with guide-bearings for an endwise-movable punch-bar, *l*, which overhangs aperture *i* in the die-plate *j*. This punch-bar is operated by means of a vertically-vibrating lever, F, the reduced end of which engages in a recess, *m*, in the said punch-bar. The power end of lever F is bifurcated, each arm of the bifurcation being provided with a slot, *n*, adapted to receive a trunnion, *o*, on the weight end of a vertically-vibrating operating-lever, G, projecting from the open rear end of the said box, as shown in Fig. 1.

When the power-arm of this lever is depressed the punch-bar will be forcibly lowered, and will cut out of a ticket a clipping, which will be forced through apertures *i i'* into receptacle *b* upon an inclined chute, *a'*, the object of which is, besides guiding the clipping into the said receptacle, to render abortive any attempt to shake the clipping out of the same through the said apertures.

Slide-plate *k*, before alluded to, is designed to close perforation *i* in the die-plate, when the punch-bar *l* is at rest, and to be retracted when it descends, for the purpose of reopening the said perforation and allowing the clipping to descend into receptacle *b*. This is accomplished through the medium of a vertically-vibrating dog, H, the lower bifurcated end of which engages over a pin in a slot, *p*, formed in the said slide, and the upper reduced rounded end of which is received in a recess, *r*, of



corresponding shape, in operating-lever G. When this lever is depressed, thus actuating the punch-bar, lever H will retract the slide simultaneously, and uncover the perforation *i* in the die-plate.

In practice, the punch-bar will be raised and the slide thrust under perforation *i* by the reaction of a suitable metallic spring, S', rigidly secured to case A, and having its free end in close contact with a cam-shaped swell, *q*, upon the under side of the said lever, which spring had been strongly compressed in actuating the punch-bar.

To remove the drawer, in order to have access to receptacle *b*, detach cap *h'* and unlock the padlock; then, having removed the bow of the lock, thrust staple *f* up into plate *e* until its lower end shall be free of the drawer. The latter may then be withdrawn from the case and the contents of the clipping-box readily emptied and counted. The drawer being replaced, the staple is drawn out by means of a hook, K, when the lock may be replaced and secured, as above described.

The cutting end of the punch-bar is beveled, as shown in Fig. 4, and is made tubular, for the purpose of receiving a rubber extension, *t*, the object of which is to thrust the clipping into perforation *i*, so as to prevent all chance of its failing to enter the receptacle *b*.

What I claim as new is—

1. In combination with a receptacle, *b*, having aperture *i*, the slide *k* and shelf *a'*, substantially as specified.

2. In combination with the case A and drawer B of the raised bridge-plate *e*, an endwise-movable staple, *f*, substantially as specified.

3. In a conductor's punch, the combination, with a punch-case, A, of the detachable drawer B, having partition *a*, substantially as specified.

4. In combination with a punch-case A and drawer B, having box *b*, the slide *k*, adapted to open the aperture in the die-bed when the punch-bar descends, and to close it when the said punch-bar ascends, substantially as specified.

5. The combination of a vertically-vibrating lever, G, having recess *r*, and the vibratory lever H with a slide, *k*, perforated die-plate *j*, and a clipping-receptacle, substantially as specified.

6. In combination with punch-bar *l* and slide *k*, the connecting-lever F, actuating-lever G, dog H, and spring S', substantially as specified.

7. The spring S', in combination with an endwise-movable punch-bar, *l*, and slide *k*, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

FRANCIS BUTLER WOODRUFF.

Witnesses:

J. W. ZIEGER,  
C. B. DAVIS.