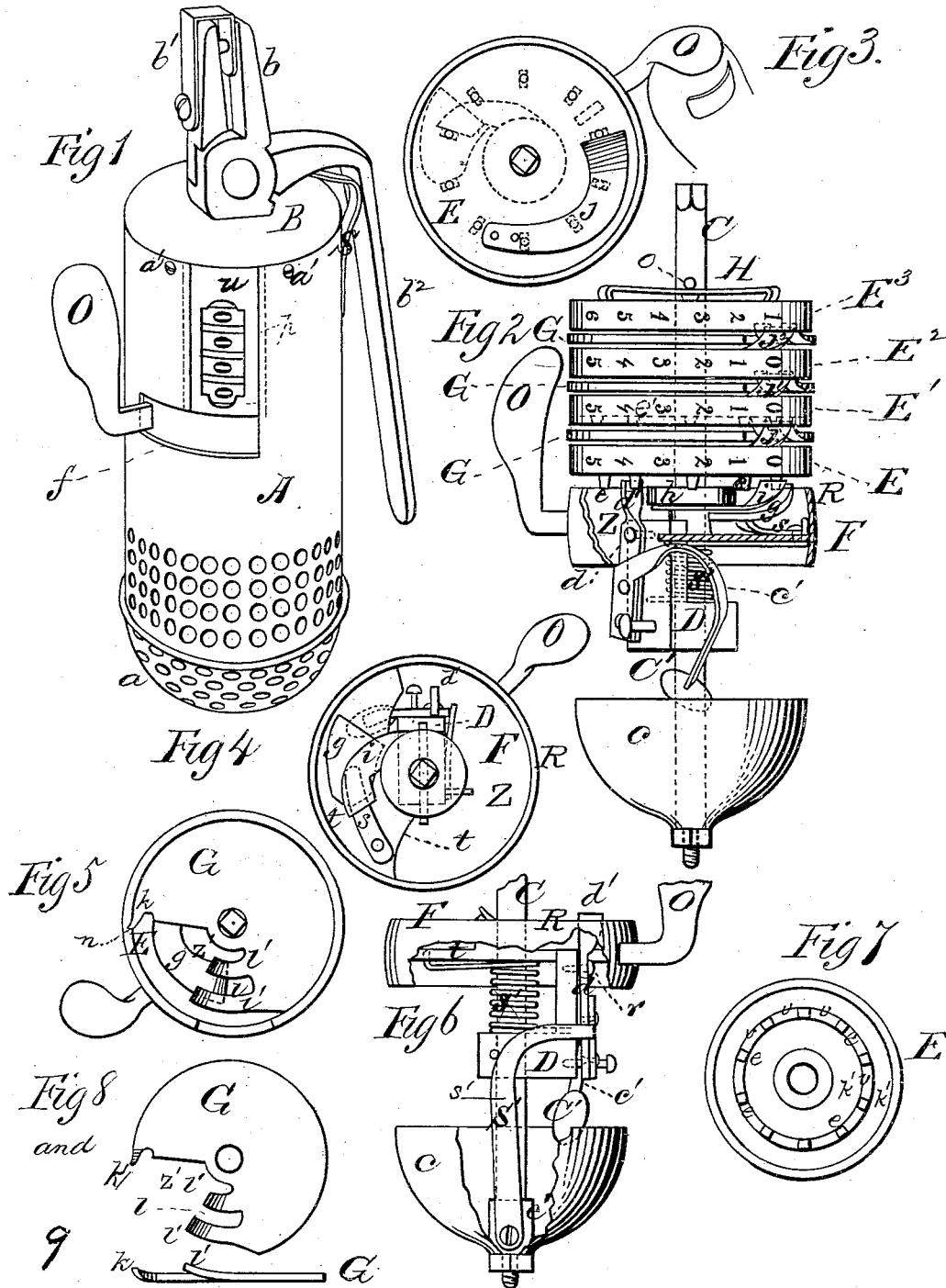


N. A. RANSOM.

COMBINED REGISTER AND PUNCH.

No. 189,261.

Patented April 3, 1877.



WITNESSES
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IMPROVEMENT IN COMBINED REGISTER AND PUNCH.

Specification forming part of Letters Patent No. **189,261**, dated April 3, 1877; application filed August 5, 1876.

To all whom it may concern:

Be it known that I, NEWMAN A. RANSOM, of Chicago, in the county of Cook and State of Illinois, have invented a new and valuable Improvement in Combined Registers and Punches; and I do hereby declare that the following is a 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 perspective view of my improved punch. Fig. 2 is a side view of the same, with the casing removed; and Figs. 3, 4, 5, 6, 7, 8, and 9 are detail views of parts thereof.

The object of this invention is to provide a single convenient hand instrument for conductor's use, which shall be capable of registering cash fares, and punching tickets, the two operations being independent of each other.

The invention consists in providing an elongated or cylindrical case, adapted to be conveniently held in the hand, with exterior punch-jaws, and with interior alarm and registering mechanism, having no connection with said punch-jaws; in the construction and novel arrangement of the longitudinal punching-lever and transverse registering lug or lever on opposite sides of the case; in the circular series of face-teeth on the register-wheels, the raised interspaces between said teeth, and the circular channels on each side of the series; in the non-rotating guard-plates, having one or more upturned prongs to play in said channels, and the spring-pawls adapted to engage the teeth and move on the raised interspaces between said channels; in the combination, with registering mechanism, and an alarm-hammer, of a lever or wheel, having an eccentric or side opening, through which the hammer-shank plays; and in the combination, with an alarm-hammer, of a registering-disk, having teeth directly engaging the stem of said hammer, all as hereinafter shown and described.

In the accompanying drawings, the letter A designates a portable case, which is of cylindrical or other suitable elongated form,

adapted to the hand. One of its ends is permanently closed, and the other is provided with a cap, B, which is designed to be secured to the case by screws or pins *a'*, or like means. The exterior ends or heads of these fastenings are sealed when the case is prepared for use, so that, although they can be readily removed, yet in all instances when the case has been opened this will be indicated by the defaced seals until new seals are applied by some duly authorized person. Within the case is arranged, at one end, the alarm-bell *c*, being firmly secured in position to the shaft or central longitudinal stem C, which is non-rotating in its position in the case, so that it bears a fixed relation thereto when inserted therein. At the end of the case opposite to that in which the alarm-bell is located, the registering-disks E E¹ E² E³ are pivoted upon the stem C, the series comprising as many disks as required. On the under side of each disk is arranged a circular series of teeth on the face thereof, intermediate between the margin and the center, and between the disks are located driving-pawls and guard-plates. F represents the register-lever or wheel, which is pivoted on the stem C, and has its handle or lug O extending through the transverse slot *f*, in the case to be moved by the thumb transversely outside of the case. This lever F is provided with a broad rim, R, inside the case, and in contact with its wall, closing the slot *f*. On one side of the lever or wheel within the rim R a space, L, is left, through which passes the stem *c'* of the hammer C', an arm or end, *d'*, of which engages directly with the teeth *e* on the under side of the lowermost or unit disk E. The stem of the hammer is pivoted to the rigid offset D, with which the shaft C is provided. When the disk E is turned, one of its face-teeth will press the hammer-stem *c'* to one side, said stem turning on its fulcrum until released from the tooth, when it will be thrown back by the spring S' striking an alarm on the bell, while the periphery of the disk, which is graduated, will show a higher digit at the longitudinal slot or window *u*. Usually this slot joins the transverse slot *f*, and is open at its end, serving for the introduction of the lug O into said transverse slot.

In order to move the unit-disk E the lever F is provided with a spring-pawl, *g*, which engages with the under teeth of said disk, and at each stroke moves the latter forward one-tenth of a revolution. When the lever F is released it is thrown back by a spring, *s'*, so that the pawl *g* will engage with the next tooth of the disk E.

The registering-disks have each the digits from 0 to 9 regularly spaced on their peripheries. The longitudinal window-slot *u* is of sufficient length and breadth to show one digit on each of the disks, these digits together forming the number registered. Each of the registering-disks has, on one face, a circular series of teeth, *e*, as above described. On each side of said series is a circular channel, *k'*, sunk deeper than the raised interspaces *v* between the teeth. On its other face each of the registering-disks, except the last, is provided with a spring-pawl, *j*, seated in a recess in its face, and directed toward the series of teeth *e* of the adjacent disk to engage therewith.

Between each disk and the next is arranged a guard-plate, G, which is non-rotating, being fixed in position with relation to the stem C or case by a spur, *k*, seated in a groove, *n*, or other suitable stop. The object of this guard-plate is to prevent the pawl *j* of one disk from engaging with the tooth *e* of the next one, except at a segment-space, *q'*, cut out of said plate. At one side of this segment-space the plate G is provided with bent prongs *V*, the ends of which play in the channels *k'* on each side of the series of teeth, below the interspaces *v* between the teeth, and serve to arrest the pawl *j* and disengage it from the tooth *e* when its disk has been moved one-tenth of a revolution. By this construction the pawl *j* comes into operation when it reaches the segment-space, pushes the next disk by one of its teeth *e* one-tenth of a revolution, and is then disengaged by the prongs of the guard-disk G, which pass under its end and lift it from the tooth. In this manner every tenth move of the units-disk causes one movement of tens-disk, and so on through the action of any number of disks required. All of this mechanism, with the exception of the lower handle or thumb-lug O, is within the case A. It is the register and alarm mechanism, and is entirely disconnected from the punching devices, which are upon the exterior of case.

In this construction, *b* designates the fixed jaw of the punch, which is borne on one end of the case A, a movable jaw, *b*¹, being pivoted thereto. One of these jaws bears a punch, and the others a die, for punching fare-tickets. The jaw *b*¹ has a lever-arm, *b*², which extends lengthwise of the case on the opposite side from the thumb-lug O in a suitable position, to be readily operated by the fingers. The case A forms the handle or lever-arm for jaw *b*. A spring, S, serves to hold the jaws open.

Backward rotation of the disk E is prevented by the spring-stop *i* on the collar *h*, fixed on the main shaft C.

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

1. In combination with the cylindrical casing, containing the mechanism of a registering-alarm, and serving as one of the lever arms or handles of the punch, the removable cap B, having the fixed jaw *b* of a punch secured thereto, the removable jaw *b*¹ pivoted to the fixed jaw, and provided with a handle, *b*², extending along the casing, and a spring, S, for holding the jaws open, substantially as specified.

2. A ticket-punch, having one of its lever-arms or handles made hollow to inclose a registering-alarm mechanism, substantially as specified.

3. In combination with the disk E, having teeth *e* upon its under side, the lever-wheel F, having pawl *g* engaging with the said teeth, and rotating with the said wheel, and the collar *h* fixed to the main shaft and provided with a spring-stop, *i*, overlying the said pawl, and preventing disk E from backward rotation, substantially as specified.

4. The combination, with the casing A, having groove *n*, the central non-rotating shaft C, the registering-disks E E¹ E² E³, having spaced cogs upon their under sides, and spring-pawls upon their upper faces, of the plates G, having spurs *k* fitting in groove *n*, and the upturned prongs *V*, substantially as specified.

5. The casing A, having longitudinal groove *n*, the non-rotating central shaft C, and the registering-disks E E¹ E² E³, operated, the one by the other, in combination with the guard-plates G engaging with the said groove *n*, substantially as specified.

6. The register-wheel, having a circular series of teeth, *e*, on its face, exterior and interior circular channels *k'* at the sides of said series, and raised interspaces *v* between said teeth, substantially as specified.

7. The non-rotating guard-plates G, having upturned prongs *V* adapted to be placed between the register-wheels, substantially as specified.

8. The registering-disk, having a circular series of teeth, *e*, and a channel beside the same sunk deeper than the raised spaces between the teeth, in combination with an adjoining disk, having a spring-pawl, *j*, and the intermediate non-rotating guard-plate G, having a prong, *V*, playing in said channel, substantially as specified.

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

NEWMAN A. RANSOM.

Witnesses:

ROBERT BECKINGTON,
JOHN H. PECK.