(Model.) 3 Sheets—Sheet 1.

F. R. ALDERMAN.

RECORDING TICKET PUNCH.

No. 261,195. Patented July 18, 1882.

Fig. 1

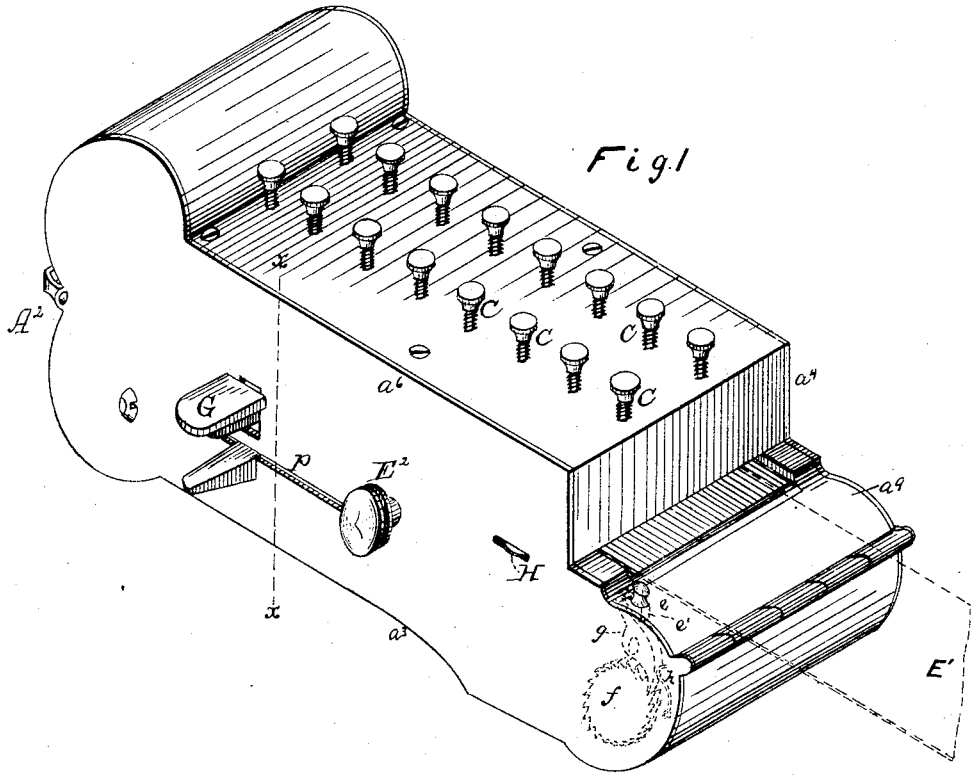

Fig. 2.

E			E							E		
	1	NORTH	4	3	2	1	3	2	1	NORTH	4	3	2
	5	SOUTH	90	70	50	40	20	10	5	SOUTH	90	70	50

Witnesses,
Phil. W. Hale.
J. M. Bool.

Inventor,
Frank R. Alderman,
by W. Stabler, Associate Attorney,
for W. W. Leggett,
Attorney.

(Model.) 3 Sheets—Sheet 2.

F. R. ALDERMAN.

RECORDING TICKET PUNCH.

No. 261,195. Patented July 18, 1882.

Fig. 3.

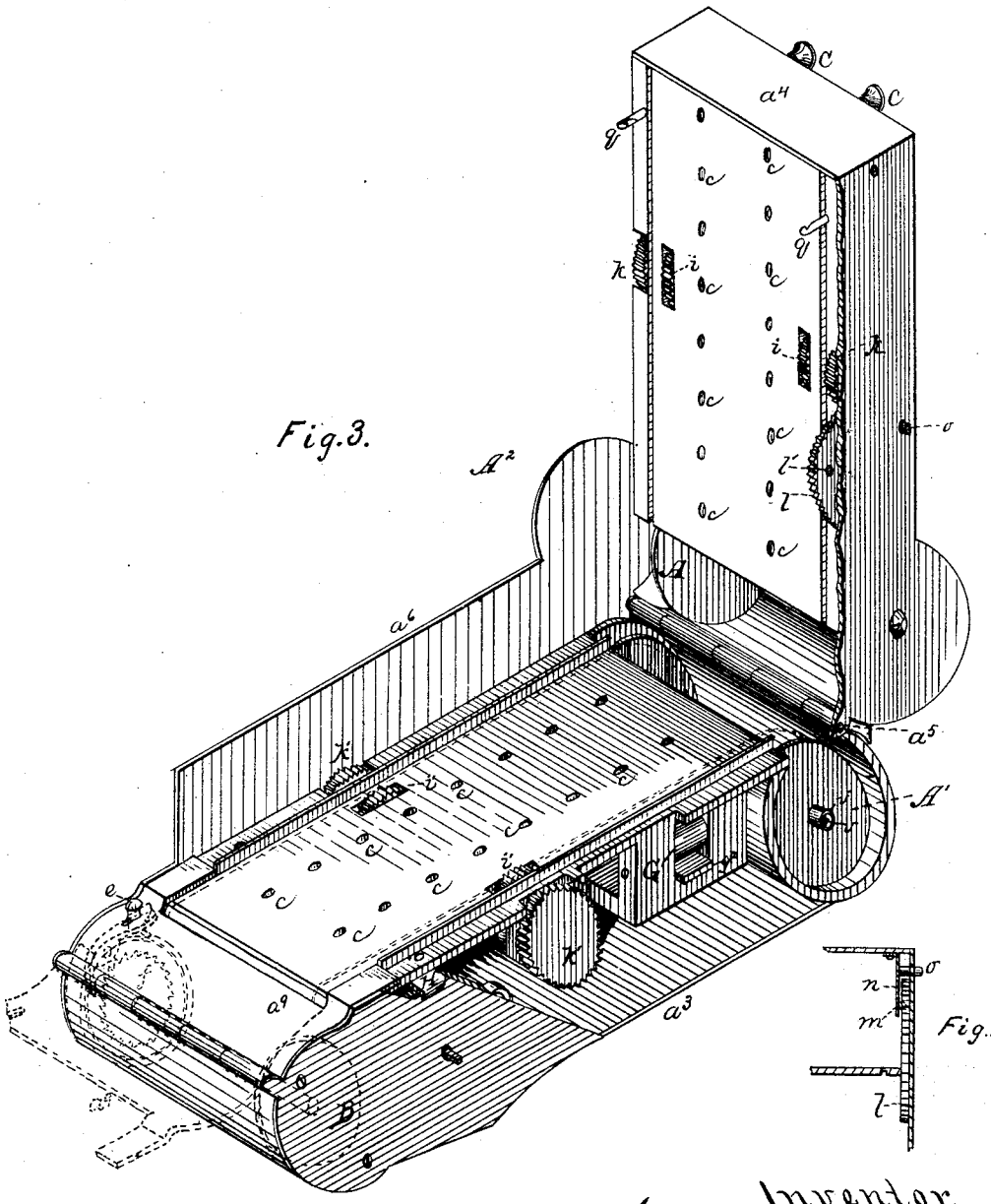

Fig. 4.

Witnesses,
Phil. W. Hale
J. McDool

Inventor,
Frank R. Alderman,
by W. B. Hale, Associate Attorney,
for W. L. Leggett,
Attorney.

(Model.) 3 Sheets—Sheet 3.

F. R. ALDERMAN.

RECORDING TICKET PUNCH.

No. 261,195. Patented July 18, 1882.

Fig. 6.

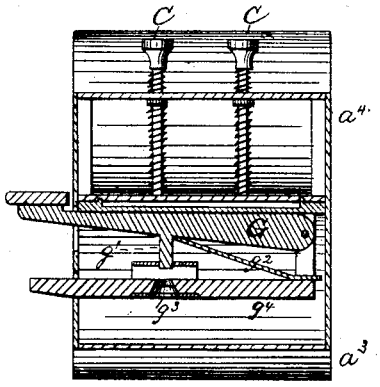

Fig. 7.

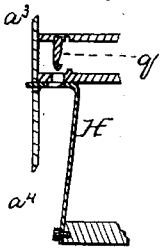

Fig. 5.

Witnesses.
Phil. W. Hale.
J. McPool

Inventor.
Frank R. Alderman,
by W. B. Hale, Associate Attorney
for W. W. Leggett, Attorney.

UNITED STATES PATENT OFFICE.

FRANK R. ALDERMAN, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO O. F. HALL, OF SAME PLACE.

RECORDING TICKET-PUNCH.

SPECIFICATION forming part of Letters Patent No. 261,195, dated July 18, 1882.

Application filed January 18, 1881. (Model.)

To all whom it may concern:

Be it known that I, FRANK R. ALDERMAN, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Railway Ticket or Check Punches; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists of a device designed to act as a check on railroad conductors when money is collected on the cars in payment of fares.

In the drawings, Figure 1 is a perspective viw of my improved ticket-punch. Fig. 2 is a view of a portion of a ticket-slip such as used with said punch. Fig. 3 is a perspective view of the ticket-punch from the opposite side with respect to Fig. 1, the case being opened and one of the side walls partially removed. Fig. 4 is a partially-sectional detail view, illustrating the locking wheel and catch. Fig. 5 is a side elevation of the punch with one side wall of the lower portion of the case entirely removed. Fig. 6 is a section on line *x x* of Fig. 1. Fig. 7 is a sectional detail view, illustrating the spring-latches.

The letter A^2 designates a case, which is composed of two box-like portions, a^3 and a^4, hinged together at one end of each, as shown at a^5. One of the side walls of each hinged portion projects, as shown at a^6 and a^7, respectively, and when the two portions are closed together the projecting portions of these side walls form side walls for the case portions opposite those to which said walls are attached. At opposite ends of the lower hinged portion, a^3, of the case are transversely arranged the two ticket-slip reels A′ and B, the former of which is mounted to turn loosely upon a pin, *v*, which projects from the fixed side wall, and is surrounded by the drum or sleeve *v′* of the reel, while the latter has its central shaft journaled in suitable bearings, and is driven in the direction of the arrow by a clock-work mechanism, F, and intermediate gearing. Upon the reel A′ is to be wound a slip of paper (shown in dotted lines at E) upon which is printed a continuous series of tickets, such as are shown in Fig. 2, the opposite end of the slip being attached to the reel B, while the intermediate portion lies upon the perforated top plate of the lower portion of the case, as shown in dotted lines in Figs. 3 and 5.

On one end of the shaft of reel B is fixed a ratchet-wheel, *f*, with which one end of a pawl, *g*, is held in engagement by a spring, *h*, the other end of said pawl projecting upward and arranged to be depressed by a cam-slide, *e′*, (see Fig. 1,) connected to a knob, *e*, the shank of which plays in a slot in the hinged curved door a^9 at the front of the lower portion of the casing. The free edge of this door is partially cut away to form a passage for the lower ticket-slip to its winding-reel B.

In the hinged end of the upper portion, a^4, of the casing is loosely mounted a reel, A, in a manner similar to that of reel A′. Upon this reel A is to be wound a ticket-slip, E′, similar to that wound upon reel A′. A portion of this slip is to be drawn off and extend between the two portions of the case lying upon the slip E, as shown in Fig. 5, and the printed tickets of the two slips coinciding. When the two parts of the case are closed together the two slips are caught between the corrugated wheels *i i* and *i′ i′*, the peripheries of which project through slots in the adjacent perforated plates of the two case portions, said wheels being fixed upon shafts mounted in said case portions. These two shafts (not shown in the drawings) are also provided with gear-wheels *k k* and *k′ k′*, respectively, which mesh together and enable motion to be transmitted to the upper from the lower shaft, which is provided with a projecting knob, E^2, by which it may be turned. There is also mounted in the upper case portion a locking gear-wheel, *l*, which engages with one of the wheels *k* and is held from moving by a spring-pin, *m*, which projects from a light spring, *n*, extending down from the top wall, said pin entering a single hole, *l′*, in said wheel when the pin and hole coincide, but at other times simply bearing against the side of the wheel without preventing it from turning. From the spring *n* a pin, *o*, projects above the wheel and out through an opening in the side wall of the casing, as

clearly shown in detail in Fig. 4. By pressing in this pin *o* the spring *n* will be forced inward, the pin *m* removed from the hole in the wheel, and said wheel and the wheel *k* with which it engages may turn freely.

In the upper portion, a^4, of the casing are arranged the spring-punches C, having their tips or cutting-faces coincident with the perforations *c* in the lower plate of the upper portion and top plate of the lower portion of the casing. These punches are supported by spiral springs, (or any other suitable springs may be used,) and they have knobs arranged above the top of the casing, by which they may be conveniently depressed.

In the side wall of the lower portion of the casing is a slit, *p*, and inside of the said lower portion is a punch, g', fixed to a pivoted lever, G, which is held up by a spring, g^2. Below the punch is a die, g^3, formed in a cross-bar, g^4. The punch may have a cutting-face of any desired design, and a corresponding die to distinguish the coupons from those of other ticket-punches. When a coupon is torn off, as will be hereinafter described, its end is to be inserted through the slit *p* and the lever G depressed to punch it.

From the under side of the upper portion of the casing project two notched pins, *q*, having their tips beveled. When the two portions of the case are closed together these two pins pass through holes in the top plate of the lower portion and their notches engage with the edge walls of openings in two springs, H H, the tips of which project through slots in the case-walls. The two portions of the case are thus held together, and by pressing in the projecting tips of the springs H H they will be disengaged from the pins, and the case may then be opened.

The method of operating my device is as follows: The reel A is provided with a continuous ticket-slip, which may be perforated transversely between the tickets for convenience in tearing; and reel A′ is also provided with a continuous ticket-slip, the exact duplicate of that on reel A, with the exception that it is not necessarily perforated. The reels are then placed in position, as shown in Figs. 3 and 5, and the ends of the slips are drawn out between the two portions of the casing, the perforated faces of which are arranged at a proper distance apart to permit the slips to pass freely, making, as it were, a double ticket-slip, one slip being above the other. The end of the bottom slip—that attached to reel A′—is then made fast by any suitable means to reel B and the clock-work mechanism wound up. The case is then closed and fastened by any suitable means. The ticket-slips now being in position and the punch ready for use, it is handed over to the conductor. Supposing the train is going north and he takes a fare of $1.20, (one dollar and twenty cents,) he would first press down upon the small knob marked "N," signifying north, then press upon small knob marked "1," signifying one dollar, and on small knob marked "20," signifying twenty cents. He then presses on small pin *o*, which disengages the pin *n* from the locking-wheel, and at the same time turns forward with knob E, which causes the slips to run forward, the coupon or ticket E itself taking an upward turn, as shown by dotted lines in Fig. 5, which ticket he tears off and gives to the passenger, and the duplicate taking a downward course and being wound on the reel B by the force of the clock-work attachment F, the small pin *n* running into place again when the required length of ticket is unwound.

It will be seen by the above description and drawings that it would be impossible to punch one ticket alone; also, that a ticket or duplicate could not be made away with, as, the tickets being on one continuous roll, a break in the duplicate would expose fraud on the part of the conductor or other person having charge of the punch. At the end of the trip the conductor would hand in his punch and collections at the office, where his returns would be made up, the duplicate furnishing an accurate record of all moneys received during the trip. In drawing off the duplicate from reel B the clock-work attachment is again wound up and the duplicate slips being replaced, the punch is again ready for use.

It will be seen that the tickets and punches are arranged to represent dollars and cents, which may be characterized by different-colored figures—say, for instance, the dollars being represented by a red figure on the head of small punches, and the cents by blue; or they can be arranged, as shown in Fig. 2, in two lines, one line representing dollars and the other cents; but I do not confine myself to any given method of arranging the punches. They may be placed diagonally or intersected one with the other, in order to give more room and lessen the possibility of pressing down more than one punch at a time.

For convenience, I mount the reels A and A′ in cylindrical compartments open at one end for introducing and removing the reels, and open at one side to permit the slips to pass out.

What I claim is—

1. In a ticket-punch, the combination, with a suitable casing and one or more punches, of devices for passing two ticket-slips simultaneously across the path of said punch or punches and means for winding up one of said slips within the casing and projecting the other slip out of said casing, substantially as described.

2. In a ticket-punch, the combination, with a series of punches suitably supported, of devices for passing two ticket-slips simultaneously across the paths of said punches and means for automatically winding up one of said slips, substantially as described.

3. In a ticket-punch, the combination of the two hinged case portions and the punches carried by one of said portions and the reels mounted at opposite ends of the other portion, and arranged respectively to deliver and wind up a ticket-slip which is passed across

the paths of said punches, substantially as described.

4. In a ticket-punch, the combination of the two hinged case portions, one carrying the punches and a reel for a ticket-slip and the other provided at each end with a ticket-slip reel, means for driving forward the slips from the delivery-reels, and automatic mechanism for turning the receiving-reel, the reels of the two case portions and the punches being so arranged that the slips drawn from the two delivery-reels may pass flatwise, side by side, between the said case portions and across the paths of the punches.

5. The combination, with the feed-wheels *k* *k* and *k'* *k'*, mounted on transverse shafts journaled in suitable bearings, of the wheel *l*, engaging with one of said feed-wheels, and an automatic stop for arresting said wheel *l* after it has completed a revolution, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

FRANK R. ALDERMAN.

Witnesses:
HENRY F. QUELCH,
W. M. PORTER.