

No. 650,174.

Patented May 22, 1900.

C. D. GRIMES.
TICKET MACHINE.

Application filed July 21, 1899.

(No Model.)

2 Sheets—Sheet 1.

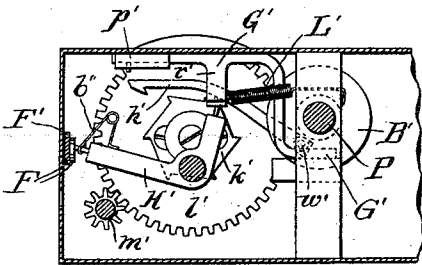


Fig. 4.

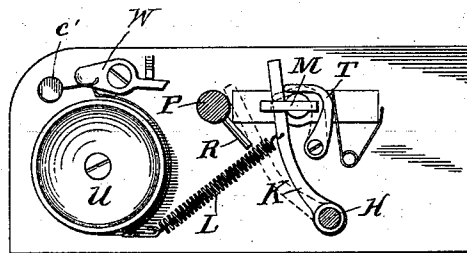


Fig. 3.

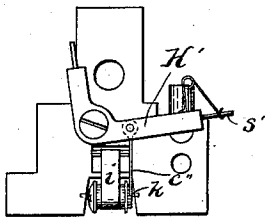


Fig. 6.

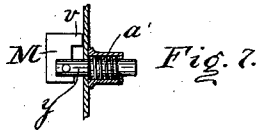


Fig. 7.

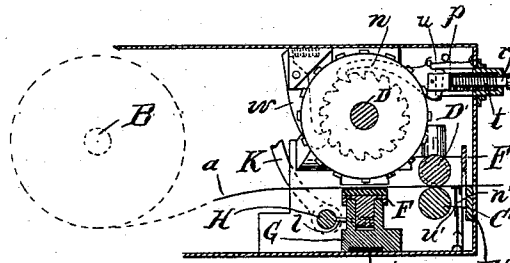


Fig. 5.

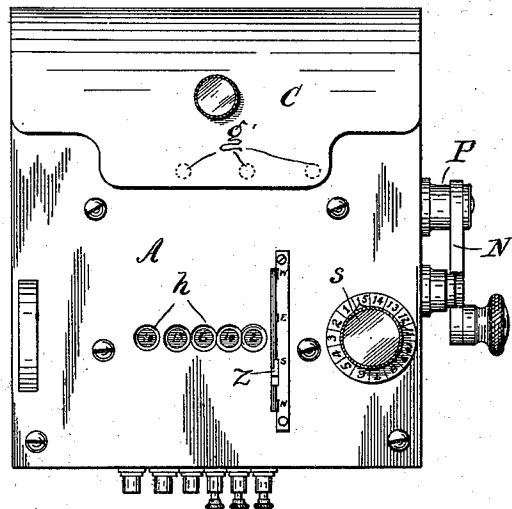


Fig. 1

Witnesses.

Clarence E. Mehlhoff
H. G. Edwards.

Inventor.

Charles D. Grimes
by Alfred M. Allen
Attorney.

No. 650,174.

Patented May 22, 1900.

C. D. GRIMES.
TICKET MACHINE.

(Application filed July 21, 1899.)

(No Model.)

2 Sheets—Sheet 2.

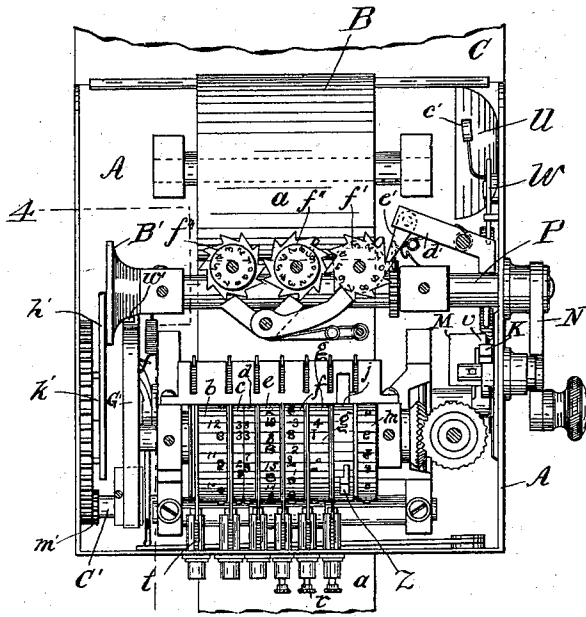


Fig. 2.

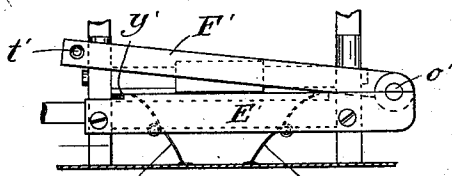


Fig. 8.

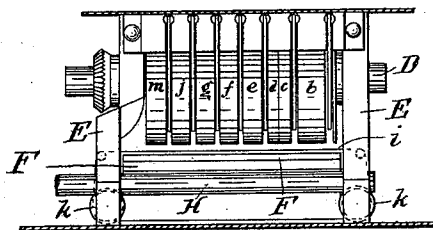


Fig. 9.

Witnesses.

Clarence C. Melthof

H. G. Edwards.

Inventor.

Charles D. Grimes
by Alfred M. Allen
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES D. GRIMES, OF DAYTON, OHIO, ASSIGNOR TO EDWARD B. WESTON, OF SAME PLACE.

TICKET-MACHINE.

SPECIFICATION forming part of Letters Patent No. 650,174, dated May 22, 1900.

Application filed July 21, 1899. Serial No. 724,675. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. GRIMES, a citizen of the United States, residing at Dayton, county of Montgomery, and State of Ohio, have invented a certain new and useful Improvement in Ticket-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to ticket-machines for use by conductors of street-cars to register the issuance of transfer-tickets for use in transferring passengers to connecting lines; and it has for its object to provide a holder for the transfer-slips with printing, severing, registering, and indicating devices, whereby the issuance of each transfer will be properly registered, automatically printed with the date, time, route, direction, and trip, and severed from the ticket-roll, while it is further provided that the date, hour, and trip to be printed on the transfer-tickets shall only be in the control of the management and entirely out of the control of the conductor.

The invention consists of a certain novel construction and arrangement of parts to be hereinafter particularly pointed out and claimed.

In the drawings, Figure 1 is a front elevation of my improved register. Fig. 2 is a similar view taken just within the front wall of the case. Fig. 3 is an elevation of the right-hand side wall of the case, taken from within, showing the parts mounted thereon. Fig. 4 is a longitudinal section taken on lines 4-4 of Fig. 2, showing the other side of the case. Fig. 5 is a cross-section showing the printing mechanism. Fig. 6 is a detail view showing the printing-ribbon and means for actuating it. Fig. 7 is a detail sectional view of the crank-stopping device. Fig. 8 is a side elevation of the severing-knives, and Fig. 9 is a front elevation of the type-wheels and platen.

A is the case, of suitable construction to hold the working parts and provided with a hinged top or cover C to permit access to the case for the storage of the transfer-slips *a*, which are preferably printed in a long strip formed in a roll and mounted in the storage-roll B.

Mounted loosely on the shaft D, extending

across the lower end of the case, are a series of type-wheels *b, c, d, e, f, g, j,* and *m*. These wheels carry type-figures and also printed figures on their periphery, the printed figures corresponding to the type, but arranged on the disks opposite the corresponding type, so that the printed figures show through openings *h h* in the front of the case when the corresponding type-figures are presented to the printing devices. *i* is a type-ribbon passing across the faces of the type-disks and mounted on rollers *k k*, journaled in the standards E E, which support the type-disk shaft D. The strip of transfer-tickets *a* passes from the roll B underneath the type-ribbon and over the platen F. This platen F rests on the frame G and is connected with the rock-shaft H by the arms *l l*, so that as the rock-shaft is rocked the platen F will be raised to cause an imprint of the type through the ribbon on the transfer-ticket. Of the seven type disks or wheels shown *b* carries type to represent the month, *c* and *d* to represent the hour and fraction of hour, *j* to represent the direction, and *m* the route, so that with every operation of the printing device complete information will be stamped on the transfer-ticket.

To change the type, I provide a ratchet-wheel for each type-disk, which is engaged by a dog *n*, pivoted to a rod *p*, one for each disk. The type-disks carrying type which represent the date are arranged so that the rod *p* can only be grasped by a proper key kept at the office, while the rods which actuate the type-disks representing the hour, fraction of hour, number of trip, direction, and route of the transfer are provided with pull-buttons *r*, lever *z*, and finger-knob *s*, respectively, so that for each day the register can be set by the officer holding the key to print the proper date on each ticket and permitting the conductor to change the hour, fraction of hour, trip, direction, and route to suit the requirements. Thus no transfer-tickets can be obtained at all which will not be stamped with the proper date no matter what the conductor may do. To return the pull-buttons to their normal position, I provide coiled springs *t*, and the dogs *n n* are kept in engagement with their respective ratchets by

springs *u*, while stop-pawls *w* are also provided to prevent any back movement or turning back of the type-disks.

Secured to the rock-shaft H, at one end thereof, is the lever-arm K, which extends up along the side of the case and is normally caught behind the shoulder *v* on the plate M. This plate M is provided with a pin *y*, which extends through the case, while a coiled spring *a'* tends to keep this pin pressed outwardly, where it forms a stop for the crank N, mounted on the shaft P, journaled across the case in suitable bearings.

In order to turn the crank, as will be hereinafter explained, the operator presses in the pin *y*, which at once releases the lever K, and the coiled spring L, attached thereto and to the case, at once pulls down the lever, rocking the shaft H and raising the platen F to print the transfer-slip, as hereinbefore described. As soon as the stop-pin *y* is pressed in and the lever K released to take the position shown in dotted lines, Fig. 3, a spring-pressed pawl T engages behind the other edge of the plate M, as shown in dotted lines, Fig. 3, holding the stop-pin out of the pathway of the crank N until released, as will be described.

Mounted on the shaft P, rotated by the hand-crank N and in the same plane with the lever K, is a pin R, and as the shaft is rotated this pin at once contacts with lever K and returns it to its normal position. At the same time the lever K contacts with the end of the pawl T and returns it to its normal position, releasing the stop-pin *y*, so that the crank N will be stopped at the end of one complete rotation. Secured to the side of the case is the bell U, provided with a hammer *c'*, mounted on a pivoted spring-pressed lever W, the outer end of which lies in the pathway of the pin R, so that the hammer is lifted by the movement of the pin and dropping after the pin has passed strikes the bell and indicates the operation.

Pivoted on the inner front wall of the case is the bell-crank lever *d'*, carrying the pawl *e'*, which engages the ratchet-wheel *f'*, pivoted likewise to the front wall of the case. The pin R as the shaft P is rotated strikes the end of this bell-crank lever and thus actuates the pawl to move the wheel *f'* one tooth. The usual tens and hundreds wheels *f''* and *f'''* are connected with this units-wheel *f'*, so that the complete rotation of a wheel of lower denomination will actuate the next higher wheel, and the wheels are each numbered on their faces, so that they display through suitable openings, and thus a perfect register is kept of the number of rotations of the shaft P. In order, however, that the conductor may not be able to keep track of the number of registrations, these display-openings for the registry-wheels are located under hinged cover C, as shown at *g'*, and the cover is locked, so as to be accessible only to the one holding the proper key.

Pivoted on the inner end of the shaft P to the outer face of the disk B' on a pin *w'*, which passes through the disk and extends out from its inner face, as shown in Fig. 2, is the dog *h'*, whose outer end engages a ratchet R', secured to the gear *l'*, journaled on the side of the case, the engagement taking place, as shown in Fig. 4, when the shaft P has been partially rotated. The gear *l'* meshes with a pinion *m'*, mounted on the lower of a pair of feed-rollers C' D', so that with the movement of the crank N the feed-rollers are rotated. The slip of transfer-tickets *a* passes between these feed-rollers, and by this movement the slip is fed from the case, the connection being so arranged that with each rotation of the shaft P and crank N the exact width of a transfer-slip will be fed from the case through the slot *n'*. Immediately within this slotted opening *n'* is located a pair of shears consisting of a fixed cutting edge E' and a movable knife F', hinged to the fixed knife at *o'*. Sliding in a guide *p'* on the front wall of the case is a sliding bar G', carrying an arm *r'*, which is connected to one end of a bell-crank lever H', pivoted on a suitable support. The other end of this bell-crank lever is provided with a pin *s'*, which engages the opening *t'* in the end of the movable cutter-blade F'. This lever H' also carries a spring *b''*, which bears against the end of the cutter-blade F' to keep same in contact with the fixed blade, as shown in Fig. 4. The sliding bar G' extends downward at its inner end, and as the disk B' on the end of shaft P about completes its revolution the pin *w'* thereon contacts with the end of the bar and moves it forward, thus rocking the lever H' and causing the knife F' to descend with a shearing cut to sever the transfer-ticket from the roll, the pin *w'*, as already stated, being the pivot of the dog *h'*, extended through the disk B'. It is evident that this pin *w'* will not strike the end of the dog *h'* until after the dog *h'* has actuated the ratchet *h'* and its gear *l'*. It will also be evident that the actuation of the sliding bar G' will not take place until the crank N has almost completed its stroke. In order, however, that the ticket may not drop, the end of the fixed knife is cut away, as at *y'*, so that a narrow tongue is left connecting the severed ticket with the ticket-slip until torn off by the conductor. As soon as the ticket is severed the cutting-knife is drawn back by the action of the spring L' on the sliding bar G'.

In order to prevent the ticket-slip from dropping down inside the case, a spring-plate *u'* is provided at the rear of the cutters. The bell-crank lever H' also carries a rod *c'* in the nature of a pawl, which engages a ratchet on the ink-roller *k*, so that with every movement of the cutting devices the ink-roller is actuated to present a fresh portion of the ink-ribbon to the various type.

The sequence of operations of the various working parts will be evident from the fore-

going description. The position of the parts in all of the figures is the same, with the end crank N just ready to begin its stroke. The pin *y*, which forms the stop, being pushed in, the lever-arm K is released, which operates the printing mechanism. The rotation of the shaft at once brings back the lever-arm K to its normal position behind the plate M, and the disk B' carries the dog *h'* and the pin *w'* upward until the dog engages the ratchet *k'* to actuate the feed-rollers to feed the printed transfer-slip from the case. At the same time the pin R strikes the lever W and rings the bell. When the crank N about completes its movement, the pin *w'* will be in a position to strike the lower end of the sliding bar G' to actuate the cutting mechanism to sever the ticket-slip from the roll.

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

1. In a ticket-machine, the combination, with the case, having a transfer-slip of paper stored therein, a printing mechanism for printing thereon, a spring for operating the same and a catch for holding said spring out of operation, a feeding device for delivering the paper strip and means for operating the same, said catch forming a stop for said feeding mechanism, substantially as described.

2. In a ticket-machine, the combination, with the case having a transfer-slip of paper stored therein, a printing mechanism for printing thereon, a spring for operating the same and a catch for holding said spring out of operation, feed-rollers for delivering said transfer-slip from the case, a crank for operating the same, said catch forming a stop for the feed-roller crank whereby the catch must be shifted to release the printing mechanism before the feeding operation, substantially as shown and described.

3. In a ticket-machine, the combination, with the case having a transfer-slip stored therein, of a series of type, a type-ribbon and platen for printing said slip, a rock-shaft with arms for raising the platen, a lever on said rock-shaft, a spring for actuating same, a catch for holding said lever and means for releasing the catch from the outside of the case.

4. In a ticket-machine, the combination, with the case, having a transfer-slip stored therein, of feed-rollers for feeding said slip and a crank for actuating the feed-rollers, type, type-ribbon, and platen for printing said slip, a rock-shaft with arms for raising the platen, a lever on said rock-shaft, a spring for actuating the same with a catch for holding said rock-shaft lever out of operation, said catch also forming a stop for the feed-roller crank, substantially as shown and described.

5. In a ticket-machine, the combination, with the case, having a transfer-slip of paper stored therein, and feed-rollers for feeding said strip from the case, of a cutting-knife hinged at one edge of the strip-delivery opening, a crank-shaft with intermediate mech-

anism for operating said feed-rollers, a sliding bar and a bell-crank lever, one end of said bell-crank lever being coupled to said cutting-knife and the other end connected with said sliding bar and a pin on the crank-shaft to contact with said sliding bar at each operation of the crank-shaft to actuate said cutting-knife, substantially as shown and described.

6. In a ticket-machine, the combination, with the case having a transfer-slip of paper stored therein, of a printing mechanism for printing thereon, a spring for operating the same and a catch for holding said spring out of operation, feed-rollers for delivering said transfer-slip from the case, and a crank for operating said feed-rollers the catch also forming a stop for the feed-roller crank, a cutting-knife hinged at one edge of the strip-delivery opening, a sliding bar, and a bell-crank lever, one end of said bell-crank lever being coupled to said cutting-knife and the other end connected with said sliding bar, and a pin on the crank-shaft to contact with said sliding bar to actuate said cutting-knife, substantially as shown and described.

7. In a ticket-machine, the combination, with the case, having a transfer-slip stored therein, of feed-rollers for feeding said slip and a crank for actuating the same, type with type-ribbon and platen for printing said slip, a rock-shaft with arms for raising the platen, a lever on said rock-shaft, a spring for actuating the same and a catch for holding said printing-lever out of operation forming a stop for the feed-roller crank, a cutting-knife hinged at one edge of the strip-delivery opening, a sliding bar, and bell-crank lever, one end of said bell-crank lever being coupled to said cutting-knife and the other end connected to said sliding bar, and a pin on the crank-shaft to contact with said sliding bar to actuate said cutting-knife, substantially as shown and described.

8. In a ticket-machine for transfer-slips, the combination, of a printing mechanism, a rock-shaft for actuating the same, and lever on said rock-shaft with a spring for operating the same, an operating-shaft, with a spring-actuated stop therefor, a catch on said stop engaging said lever whereby the releasing of the stop will throw into operation the printing mechanism, substantially as shown and described.

9. In a ticket-machine, for transfer-slips, the combination, with type-disks, type-ribbon and platen for printing, of a rock-shaft with arms for raising said platen, a lever on said rock-shaft with a spring for actuating the same, an operating-shaft with a spring-actuated stop therefor, a catch thereon engaging said lever whereby the releasing of the stop will throw into operation the printing mechanism, substantially as shown and described.

10. In a ticket-machine for transfer-slips, the combination, with printing mechanism therefor, of a rock-shaft for actuating the

same, a lever on said rock-shaft with a spring for operating the same, an operating-shaft, with a spring-actuated stop therefor, a catch on said stop engaging said lever, a dog to engage said stop upon the release of the lever with a pin on the operating-shaft to return said lever to its normal position as the shaft is rotated after each printing operation, substantially as shown and described.

10 11. In a ticket-machine, the combination, with the case having a transfer-slip of paper stored therein, of a series of rotatable type-wheels with means for rotating same from without the case, type-ribbon and platen for
15 printing said slip, a rock-shaft with arms for raising the platen, a lever on said rock-shaft

with a spring for actuating the same and a catch for locking said lever out of operation, a main operating-shaft with a crank for which said catch serves as a stop, a pin on said shaft 20 for returning the lever to its normal position, feed-rollers for feeding said strip from the case with gear for driving same, and a ratchet on said gear with pawl on said crank-shaft to engage said ratchet and feed said strip in 25 short strips from the case, substantially as shown and described.

CHARLES D. GRIMES.

Witnesses:

C. S. BILLMAN,
L. W. JAMES.