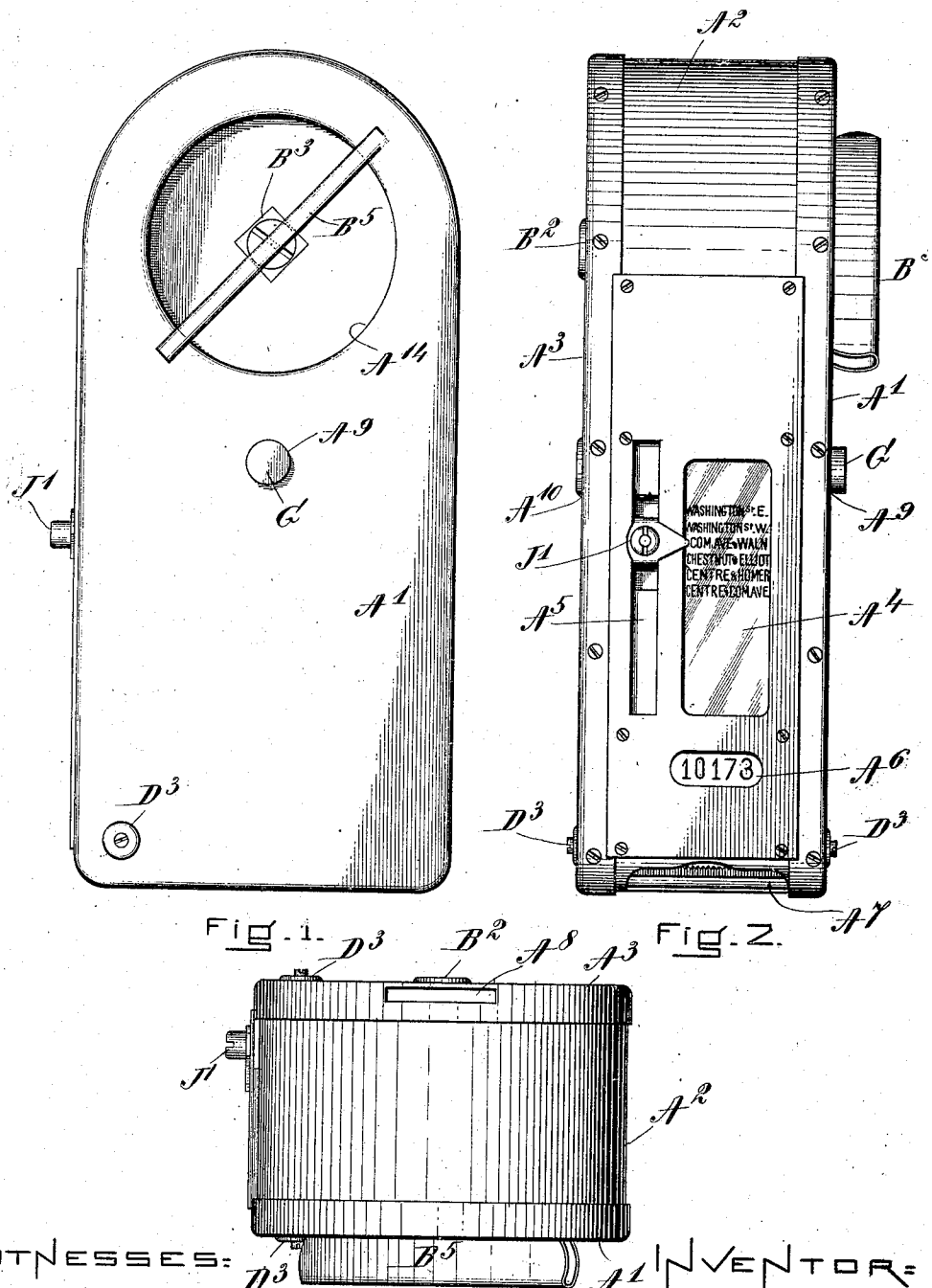


H. H. CUMMINGS.
TICKET APPARATUS.
APPLICATION FILED APR. 12, 1907.

4 SHEETS—SHEET 1.



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Fig. 3.

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No. 873,302.

PATENTED DEC. 10, 1907.

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4 SHEETS—SHEET 2.

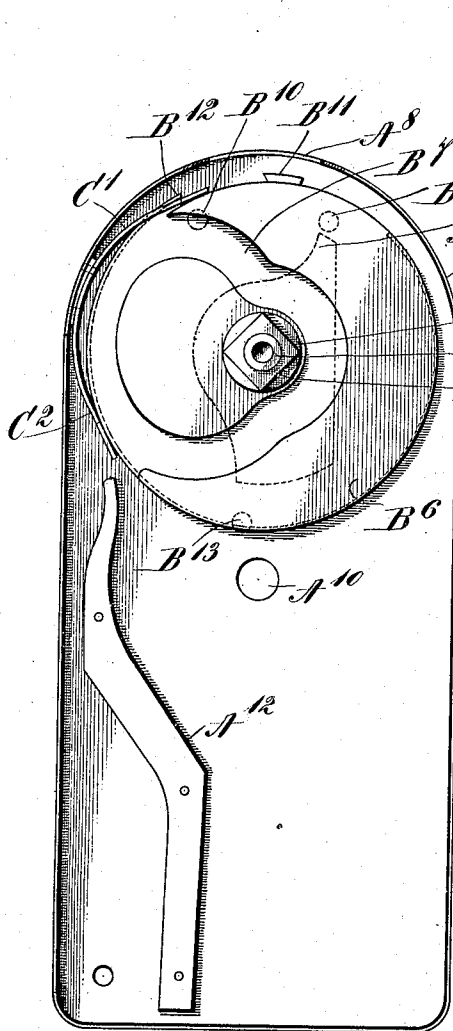


FIG. 4.

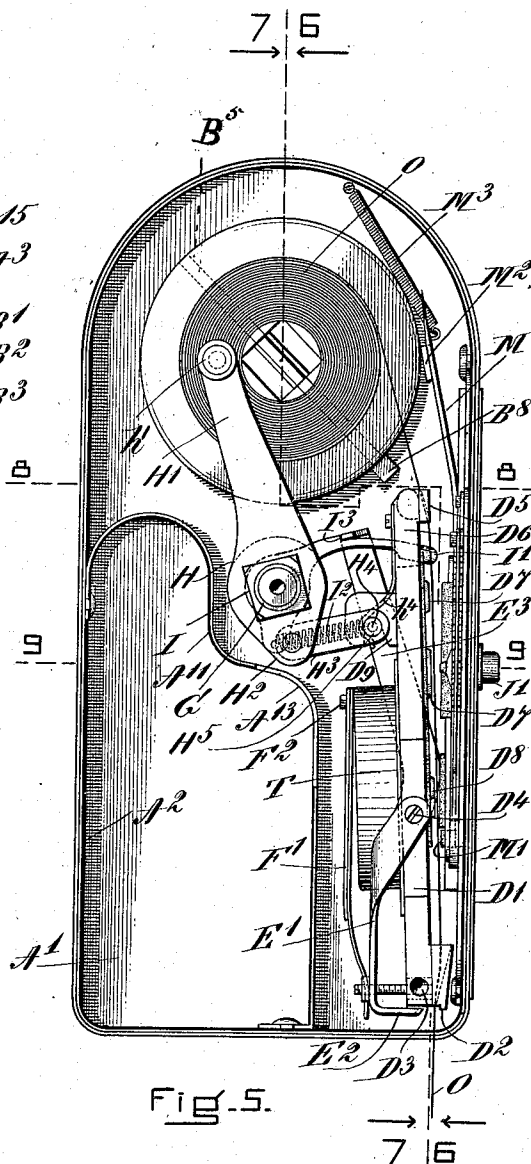


FIG. 5.

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4 SHEETS—SHEET 3.

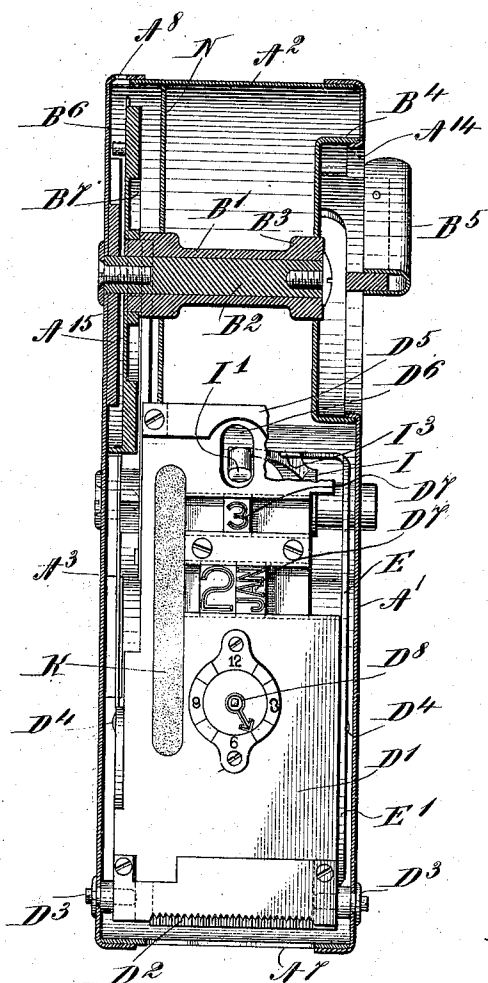


FIG. 6.

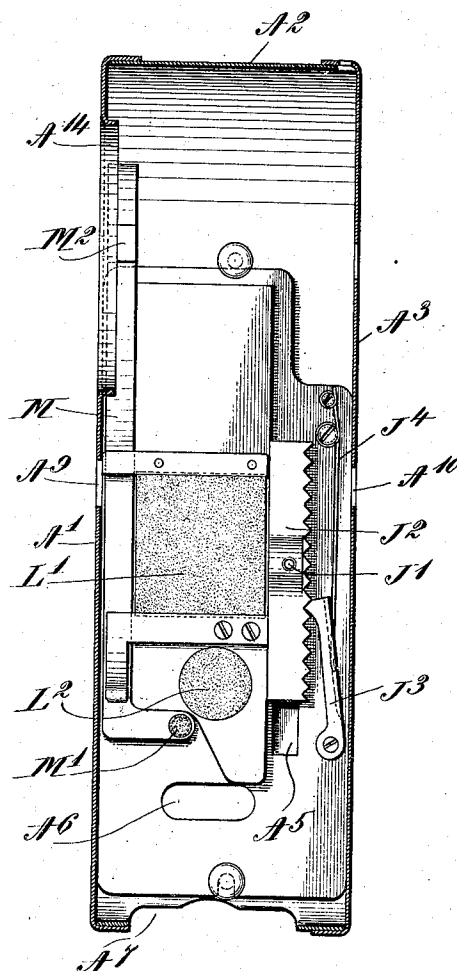


FIG. 7.

WITNESSES:

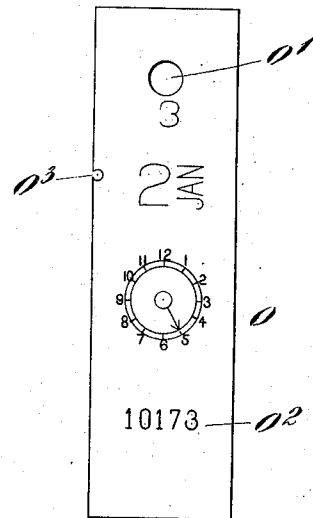
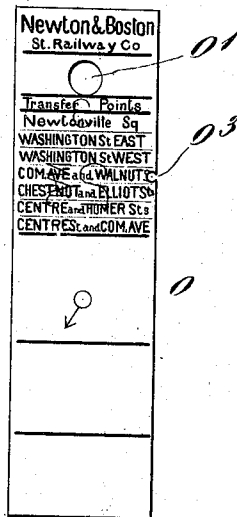
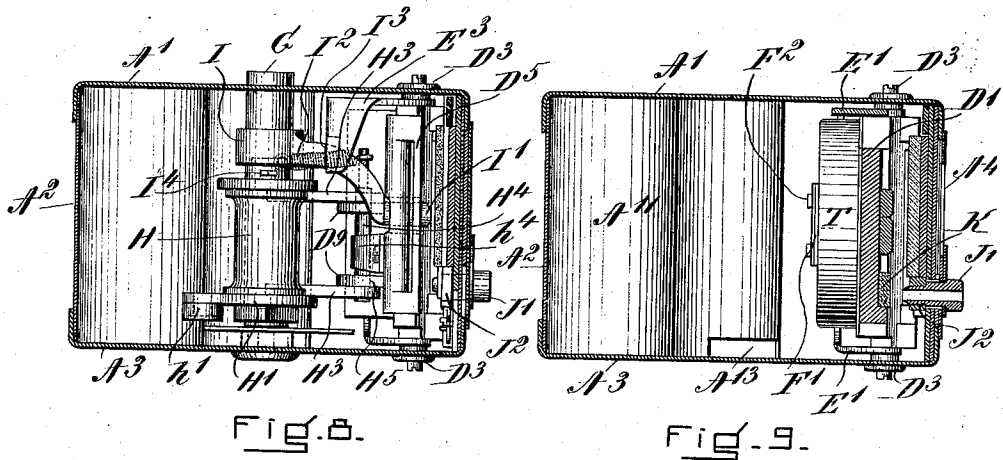
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APPLICATION FILED APR. 12, 1907.

4 SHEETS—SHEET 4.



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Fig. 11.

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UNITED STATES PATENT OFFICE.

HENRY H. CUMMINGS, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO ADAMS D. CLAFLIN, OF NEWTON, MASSACHUSETTS.

TICKET APPARATUS.

No. 873,302.

Specification of Letters Patent.

Patented Dec. 10, 1907.

Application filed April 12, 1907. Serial No. 367,798.

To all whom it may concern:

Be it known that I, HENRY H. CUMMINGS, a citizen of the United States, and resident of Newton, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Ticket Apparatus, of which the following is a specification.

My invention relates to mechanism for delivering tickets or paper checks one by one and consists in mechanical improvements which comprise devices for feeding a ticket strip and severing successive equal lengths therefrom. This mechanism is adapted to coin control and is also equipped with ticket stamping devices among which may be included a time stamp if desired, so that the mechanism as a whole is adapted for use by persons such as street car conductors who have occasion to distribute large numbers of tickets or transfer strips and who, as is well known, are very generally addicted to fraudulent practices in the manipulation of such transfer checks, which practices will be effectually restrained by the employment of the mechanism herein described.

My present specification and claims are addressed to those features of my invention which relate solely to feeding a ticket strip and severing lengths therefrom.

In the drawings hereto annexed which illustrate one embodiment of my invention,—Figure 1 is a front elevation of the case which contains the ticket strip feeding and severing mechanism; Fig. 2 is a side elevation looking toward the left side of Fig. 1; Fig. 3 is a top plan view of the casing shown in Figs. 1 and 2; Fig. 4 is an elevation of the inside of the back plate of the case showing the main shaft, main operating cam and parts of the coin guides; Fig. 5 is an elevation showing the inside toward the front plate of the case; Figs. 4 and 5 show the parts as they appear in the interior when the back plate of the case is taken off and the two separated portions are turned so as to disclose their respective interiors; Fig. 6 is a cross section of Fig. 5 taken along the irregular line 6—6 and looking toward the right side of Fig. 5. This Fig. 6 shows the face of the primary jaw member of the ticket severing devices in elevation; Fig. 7 is a sectional view taken along the line 7—7 of Fig. 5 looking to the right. This figure shows the strip feeding finger, the strip punch and its slide and the impression pads which co-act with

printing devices upon the primary jaw; Fig. 8 is a section through the case along the line 8—8 of Fig. 5 showing the interior mechanism in plan; Fig. 9 is a section through the case along the line 9—9 Fig. 5; Fig. 10 shows a severed section of a ticket strip on that side which faces the primary jaw member; and Fig. 11 shows the reverse side of the same ticket strip.

The casing of the ticket feeding and severing mechanism shown in the drawings and best illustrated in Figs. 1, 2 and 3, consists of a front plate A', a continuous peripheral plate A² which I will call the side plate and a back plate A³. By preference I join the front plate A' and side plate A² to form a box and utilize the back plate A³ as the cover therefor and in practice will lock these two parts together. This casing is provided with several apertures. The aperture A⁴ preferably protected by a transparent sheet serves to display an index column for the guidance of the operator in selecting any one of a number of positions in which to place the ticket punch J'.

A⁵ is an aperture through which the ticket punch J' projects from the interior and along which the said punch may slide.

A⁶ is an aperture through which one of the consecutively printed numbers on the ticket strip may be viewed; A⁷ is an opening through which the ticket strip emerges from the case and A⁸ is an opening through which to insert a coin in order to set free the interior apparatus to permit its operation.

A⁹ and A¹⁰ are openings in the front plate and back plate respectively for the accommodation of the stud G.

A¹¹ (Fig. 5) is an internal sheet metal partition which with the side plate A² forms a coin receptacle.

A¹² is a plate secured to the back plate A³ which acts as a guide to conduct a coin through the aperture A¹³ (Fig. 5) formed in the partition A¹¹.

A¹⁴ (Fig. 1) is a circular aperture in the front plate A' whereof the edge is flanged inwardly as seen in Fig. 6, and A¹⁵ (Fig. 4) is a guide plate secured to the back plate A³ to guide a coin during the first part of its descent toward the coin receptacle.

B' (Figs. 4 and 6) is a tubular shaft mounted to turn upon the stud B² which is secured to the back plate A³. The outer end of the shaft B' is squared as at B³ to fit into a cen-

tral square hole in the dish B⁴. The turning handle B⁵ extends across the opening A¹⁴ projecting at each end a short distance over the face of the front plate A', and a lug B⁵ (see Fig. 5) upon the handle B⁵ projects through an aperture in the side of the dish B⁴ in position to engage with the feed finger to be described below. The shaft B' at its lower end is keyed to the cam disk B⁶ in which is formed the cam groove B⁷ (Figs. 4 and 6). This cam plate carries on its periphery teeth or catches B¹¹ B¹² and has projecting from its rear face the pins B⁹ B¹⁰. The pin B¹³ is secured to the back plate A³ and serves to prevent a coin from emerging from the cam plate B⁶ except in the direction toward the coin receptacle within the partition A¹¹.

A spring detent with arms C¹ C² is secured to the side plate A² (Fig. 4) in position to cooperate with either of the catches B¹¹ or B¹². With the apparatus in the position shown in Fig. 4 a coin introduced through the aperture A⁸ falls between the pins B⁹ B¹⁰; resting against the guide plate A¹⁵ and the periphery of the coin projecting beyond the periphery of the cam plate B⁶, so that when the latter is turned (to the left as viewed in Fig. 4) the coin presses the spring member C' upward to permit the catch B¹¹ to pass it, and likewise as the coin is carried by the pin B⁹ to the position where it leaves the cam plate, it lifts the spring arm C² so that the catch B¹¹ may pass that detent arm likewise. The two catches B¹¹ B¹² prevent the cam plate from being turned in either direction except through a very small rotative angle, and should any person tamper with the apparatus by lifting the arm C' as by inserting a knife blade through the slot A⁸, the arm C² will fall between the catches B¹¹ B¹² after about one third of a full rotation of the cam plate B⁶, and lock the apparatus in such position that by no means can it be disengaged. In such case its condition will betray the person who attempted to tamper with it as soon as the apparatus is returned to the person authorized and able to open it. A full rotation of the cam plate B⁶ actuated by the shaft B' and handle B⁵ produces a single full cycle of operation of the mechanism. The principal members of this mechanism are a pair of jaw members whereof I designate D' (Fig. 5) for convenience as the primary member and E' the secondary member. The primary member D' is provided with a ticket severing end or jaw at D² this being serrated so that in cooperation with the severing end or jaw E² of the other member which, for convenience I term the secondary member, it will mutilate or partially sever a ticket strip rendering it easy to tear off while at the same time it will securely retain the end of the strip after the projecting portion has been removed. The primary mem-

ber D' is pivoted in the case upon pivots D³, one of these pins projecting from or through the front plate A', the other from or through the back plate A². At the other end of the primary member the strip guide D⁵ is located, (see Figs. 5 and 6) this strip guide consisting of a flat bar extending across the upper end of the primary member. Adjacent to the strip guide D⁵ the aperture D⁶ is formed in the primary member through which projects the trigger I'. The secondary member E' is pivoted upon the primary member and has, as above described, its severing end or jaw E² at one side of the pivot and a projecting arm E³ at the other side of the pivot extending upward in the case toward the catch I³. The two jaw members, primary and secondary, are normally urged to a position of closure by the spring F' secured at F² to the primary jaw member. In the specific instance here shown the securing of the spring F' is upon the back of the casing T of the timepiece which operates the time stamp. In the face of the primary member there are placed suitable impressing types at D⁷ and D⁸ the latter being a rotatable time stamping type actuated by the time piece in the case T. The ticket strip O is coiled in a spiral and slid over the shaft B' and one end thereof is carried under the strip guide D⁵, thence along the face of the primary member out between the jaw ends D² and E² from which point it emerges through the opening A⁷ in the case.

The jaw members are actuated by the following mechanism: Upon the stud G which is mounted upon the back plate A³ and extends through the hole in the front plate at A⁹ in which it finds a steadying bearing, there is mounted the rocker H whereof the arm H' extends upward and is furnished with the cam follower h', the latter cooperating with the cam groove B⁷ in the cam plate B⁶. On the other side of the rocker H there is a short arm H² in which are pivoted the links H³ between which extends the pin H⁴ which is held in the yoke blocks D⁹ by the spring h⁴. As the cam B⁶ rotates the arm H' is carried outward from the shaft B' and the primary member D' is pushed forward by the links H³ carrying with it in this movement the secondary member E', the jaw ends D² E² of the two members being closed together by the spring F' during this part of their movement. As the two jaw members move outward, the end of the arm E³ slips into the catch I³ which extends from the sleeve I which turns on the stud G. The spring I² urges the catch toward the end of the arm E³ so as to insure its engagement. When during the latter half of the rotation of the cam B⁶ the arm H' of the rocker H moves inward toward the shaft B' the primary member D' is tipped back to its original position as shown in Fig. 5, but the upper arm E³ of the secondary member being detained by the catch I³ does

not partake of the return movement of the primary member and thus the jaw ends of the two jaw members are distended as shown in Fig. 5. Theretofore, as the primary member 5 D' moved forward, the trigger I', preferably formed in the same piece with the catch I³, projected less and less in front of the primary jaw member D' until the perforation O' (see Fig. 10) in the ticket strip O, which per- 10 foration in the operation of the apparatus is normally engaged by the trigger I', was moved out of engagement with the said trigger. At this point in the cycle of operations and before the primary jaw member 15 returned to the position shown in Fig. 5, the lug B⁸ on the handle B⁵ engaged the block M² on the feed finger M. This feed finger as shown in Fig. 5 is a slightly flexed strip of steel extending down parallel to the primary 20 jaw member and terminating in a sidewise bent finger with a friction pad M' thereon (see Figs. 5 and 7). The lug B⁸ first presses the feed finger M outward, that is to say, away from the shaft B' and consequently 25 moves the lower end with its friction pad M' inward against the ticket strip O, further movement of the lug B⁸ brings it into engagement with the block M² pushing the feed finger M downward against the tension of the spring M³. The engagement of the 30 friction pad M' with the ticket strip, the jaws D² and E² being open pushes the ticket strip a little way so that its end protrudes from the aperture A⁷ and so that the perforation O' which hitherto had been in register with the 35 trigger I', has passed down and away from the said trigger. When the lug B⁸ slips off the block M², the finger M is drawn back by the spring M³. Then, when the rotation of the cam B⁶ is completed, the jaws D² E² are distended as shown in Fig. 5 and the ticket strip projects out of the aperture A⁷.

Another result of the forward movement of the primary jaw member D' is the im- 45 pressing of the ticket strip by the several types carried by the primary member which cooperate with the pads L' L² secured to the interior of the case (see Fig. 7) and also causes the ticket strip to be perforated or 50 notched as at O³ (see Figs. 10 and 11) by the punch J' (see Fig. 5). The adjustable location and operation of this punch will be described herein below. With the ticket strip 55 impressed and punched and given its initial forward feed so that it protrudes between the jaws D² and E² and out of the aperture A⁷ the operator now takes hold of the protruding end of the ticket strip and draws out the strip. The strip is perforated at regular in- 60 tervals with holes O' (Figs. 10 and 11) and when in the act of drawing out the strip one of these perforations O' comes into register with the end of the trigger I', the guide bar D⁵ (Figs. 5 and 6) which acts to press the 65 strip against the trigger I', insures the en-

gagement of the trigger with the perforation in the strip. The strip then acts to draw the trigger I' downward and frees the arm E³ from the catch I³ and the spring F' at once 70 snaps the severing jaws D² E² together, prevents any further withdrawal of the strip and cuts or mutilates the strip so that the protruding portion can be easily torn off. When left in this condition that portion of 75 the strip which lies along the face of the primary jaw member D' is held stretched between the closed jaws D² E² and the trigger I', so that in the next succeeding operation of the apparatus that portion of the ticket 80 strip which comes in contact with the printing and punching devices is held smooth and flat and in proper condition to be impressed and punched.

The ticket punch which forms a portion of 85 this mechanism is designed especially for use by street car conductors and so arranged that the ticket strip can be punched in any one of a number of determinable locations. The punch itself is the hollow screw J' which 90 projects through the slot A⁵ in the side plate A² so that it can be readily manipulated. The punch J' is secured to a sliding rack J² mounted to slide on the interior of the case. A detent J³ held by the spring J⁴ engages the 95 serrations in the sliding rack J². These serrations are spaced to correspond with the alined spacing of the printing in the index guide located behind the aperture A⁴ (Fig. 2) and also to correspond with the similar 100 printing on each equal length of the ticket strip. If, therefore, the passenger desiring a transfer check wishes to go say to Commonwealth avenue and Walnut street, the outer end of the punch J' is slid until its pointer 105 seen in Fig. 2 stands opposite the printed name of this destination. The inner end of the punch then registers with the similar printed destination on the ticket strip, so that when the apparatus is operated as above 110 described, the strip is nicked or punched as at O³ (Figs. 10 and 11) according to the demand of the passenger taking a check.

The above described apparatus operates 115 moreover as a counter to count the rotations of the shaft B' in the following manner; in printing the ticket strips each measured length is printed with a number or numbers 120 running in consecutive series and these numbers are so placed upon the measured lengths that when the apparatus is ready for the insertion of a coin and the operation of its mechanism, the number on the strip is 125 visible through the aperture A⁶ (Fig. 2) in the side plate A² of the casing. As it is impossible to remove a ticket from the strip, without giving the shaft B' a complete rotation, in the manner above described, the 130 number visible through the aperture A⁶ is a certain index of the number of rotations which the shaft B' has undergone. All that

is necessary is for the person handling the device to make a note of the first number visible when he takes the apparatus when at any time later he may by ascertaining the visible number tell just how many rotations the shaft B' has made and therefore may know how many more rotations it may make before the ticket strip is exhausted.

What I claim and desire to secure by Letters Patent is:

1. In a strip feeding mechanism, the combination of a case, a primary jaw member movably mounted in the case, a secondary jaw member movably mounted on the primary jaw member, a spring to close the jaw members together, means to move the primary jaw member reciprocally on its mounting, a catch to arrest one of the jaw members and hold the two members distended, a trigger controlling the catch and adapted to be actuated by a suitably perforated strip to release the jaw member held thereby, and means to advance a strip between the distended jaw members.

2. In a strip feeding and severing mechanism, the combination of a case provided with a strip receptacle and a strip aperture, a pair of jaw members having their severing ends within the case close to the strip aperture, the primary jaw member pivoted in the case, the secondary jaw member pivoted on the primary jaw member, a spring to close the jaw members together, means to move the primary jaw member reciprocally on its pivot, a catch to arrest the secondary jaw member and hold the two members distended, a trigger, controlling the catch and adapted to be actuated by a suitably perforated strip, to release the secondary jaw member, and means to advance a strip between the distended jaw members.

3. In a strip feeding and severing mechanism, the combination of a case, a primary jaw member movably mounted in the case, provided with a severing edge and a strip guiding bar, a secondary jaw member movably mounted on the primary jaw member, provided with a severing edge to cooperate with that of the primary jaw member, a spring to close the jaw members together, means to move the primary jaw member reciprocally on its mounting, a catch to arrest the secondary jaw member and hold the two members distended, a trigger to control the catch, and a reciprocally movable feed finger between the trigger and the severing edges, and means to actuate the feed finger to advance a strip between the distended jaw members.

4. In a strip feeding and severing mechanism, the combination of a case, a pair of jaw members with cooperating strip severing ends, the primary jaw member movably mounted in the case, a strip guide on the primary jaw member, the secondary jaw

member movably mounted on the primary jaw member, a spring to close the severing ends of the jaw members, means to move the primary jaw member reciprocally on its mounting, a catch to arrest the secondary jaw member and hold the two members distended, a trigger to control the catch, located close to the strip guide, a reciprocally movable feed finger between said trigger and the severing ends of the jaw members, and means to actuate the feed finger to advance a strip between the distended jaw members.

5. In a strip feeding and severing mechanism, the combination of a case, a pair of jaw members with cooperating severing ends, the primary jaw member consisting of a plate movably mounted in the case, the secondary jaw member movably mounted on the primary member, a spring to close the jaw members together, means to move the primary jaw member reciprocally on its mounting, a catch, mounted in the case, to arrest the primary member and hold the jaw members distended, a trigger to control the catch, projecting through an aperture in the primary member, a strip guide on the primary member adjacent to the trigger aperture, a reciprocally movable feed finger between said trigger and the severing ends of the jaw members, and means to actuate the feed finger to advance a strip between the distended jaw members.

6. In a strip feeding and severing mechanism, the combination of a case, a primary jaw member provided with a severing edge at one end, a strip guide at the other end, and pivoted in the case near the severing edge, a secondary jaw member pivoted on the primary jaw member between the severing end and strip guide thereof, and having a severing edge to cooperate with that of the primary jaw member, a spring secured to one jaw member and bearing on the other to close the severing edges, means to rock the primary jaw member on its pivot, a catch mounted in the case to arrest the secondary jaw member and distend the jaws on the return movement of the primary member, a trigger controlling the catch, projecting through an aperture in the primary jaw member, to release the secondary jaw member from the restraint of the catch, a reciprocally movable feed-finger between the trigger and the severing edge of the primary jaw member, and means to actuate the feed finger to advance a strip between the distended jaw members.

7. In a strip feeding and severing mechanism, the combination of a case, a primary jaw member, consisting of a plate having a strip guide at one end, pivoted in the case at the other end and provided with a severing jaw near its pivot, strip impressing types on the primary member between the strip guide and severing edge, a secondary jaw member

pivoted on the primary jaw member; having a severing edge to cooperate with that of the primary jaw member and an arm extending from its pivot on the side farther from the severing edge, a spring secured to one jaw member and bearing on the other to close the jaws, a shaft journaled on the base, a stud mounted in the case, a rocker pivoted on the stud, and connections between the rocker to the primary jaw member and the shaft, respectively to rock the primary jaw member on its pivot as the shaft is rotated, a catch, mounted on the stud, to arrest the secondary member by engaging its arm as the primary member is rocked in one direction and to distend the jaws as the primary member is rocked in the reverse direction, a trigger on the catch and projecting through an aperture in the primary jaw member, adapted to be engaged by a perforation in a strip, a feed finger between the said trigger and the severing edges, and means to actuate the feed finger to advance a strip between the distended jaw members.

8. In a strip feeding and severing mechanism, the combination of a case, a primary jaw member pivoted at one end therein and having a strip guide at its other end, a secondary member pivoted on the primary member midway between the ends thereof, a spring reacting between the jaw member to close them, a stud in the case, a rocker pivoted on the stud, a main shaft, connections therefrom to the rocker to move the primary jaw member reciprocally on its pivot, a catch mounted on the stud, to arrest the secondary jaw member as the primary jaw member makes its return movement, a trigger on the catch projecting through an aperture in the primary jaw member adjacent to the strip guide, a feed finger between the two ends of the primary jaw member, and means to actuate the feed finger to advance a strip along the primary jaw member, said trigger adapted to engage a perforation in the strip and be moved thereby to release the catch, and thereafter to hold the strip stretched between itself and the closed ends of the jaw members.

9. In a strip feeding and severing mechanism, the combination of a case comprising a shell and cover, and provided with a strip aperture, a pair of jaw members within the case with their severing ends adjacent to the strip aperture, the primary jaw member pivoted to the case near its severing end, the secondary jaw member pivoted on the primary jaw member, a spring reacting between the jaw members to close them, a shaft in the case, connections between the shaft and primary jaw member to rock the latter in its pivot, a catch to arrest the secondary jaw member and distend the jaws, a trigger on the catch adapted to be engaged by a perforated strip, a feed finger, reciprocally movable in the case, to advance a strip between the distended jaw members, a shaft operating handle on the outside of the case, and means actuated by said handle to engage and move the feed finger to feed a strip.

10. The combination of the shaft, a pair of relatively movable spring closed jaws, means operated by the shaft to move the jaws, a catch to hold the jaws in distended position, a flexible strip, perforated at equally spaced intervals, a trigger to release the catch, a strip guide, to guide the strip perforations into register with the trigger, a feed finger and connections therewith to the shaft, to feed the strip intermittently between the distended jaws, a casing inclosing said mechanism and provided with a sight aperture where-through a portion of the strip is visible, and a strip-aperture adjacent to the jaws, where-through the strip may be drawn, the sections of the strip between perforations bearing consecutive numerals registering with the sight aperture when a perforation in the strip engages the trigger to release the catch and jaws, to record the number of rotations of the actuating shaft.

Signed by me at Boston, Suffolk county, Massachusetts this ninth day of April 1907.

HENRY H. CUMMINGS.

Witnesses:

ODIN ROBERTS,
C. D. WOODBERRY.