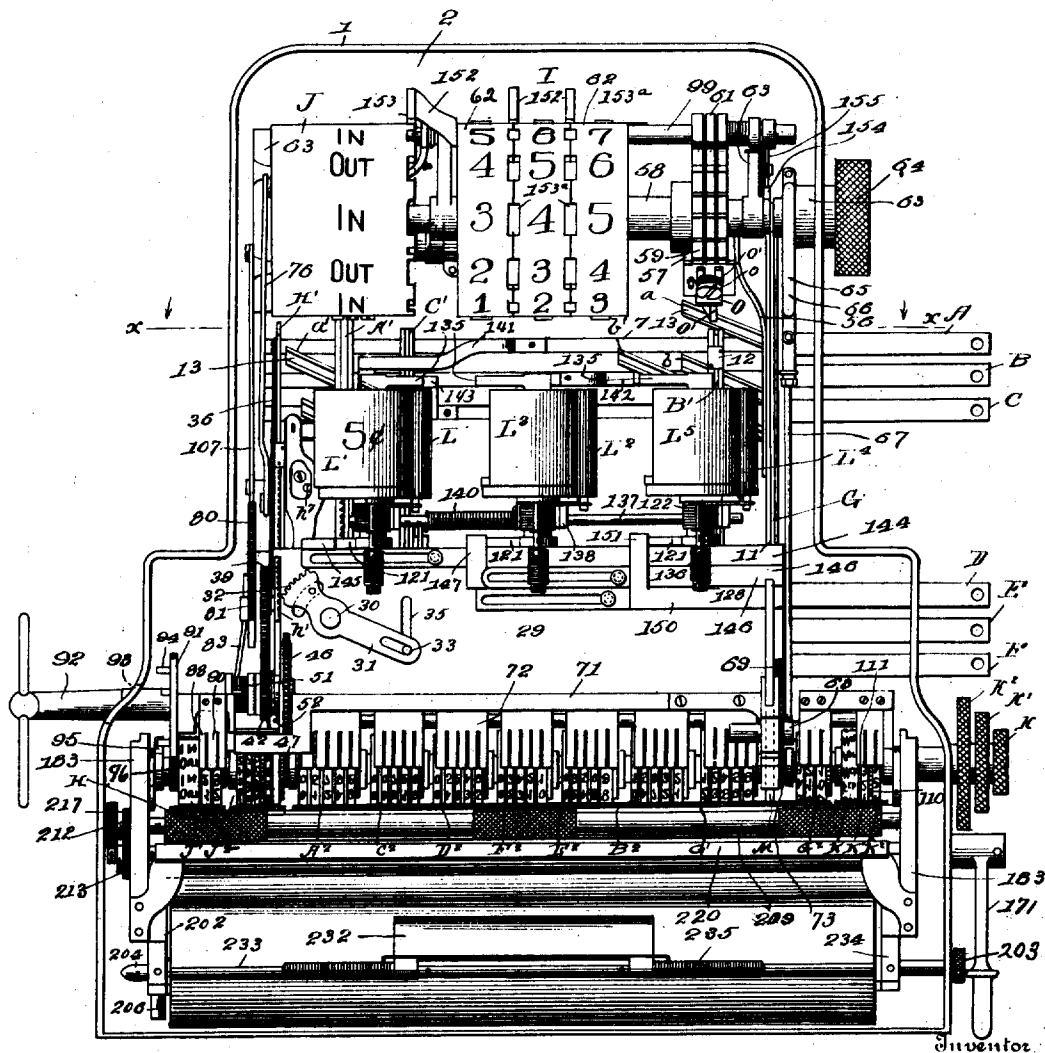


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APPLICATION FILED MAY 4, 1903.

13 SHEETS—SHEET 1.

Fig. 1.



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PATENTED JULY 28, 1908.

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APPLICATION FILED MAY 4, 1903.

13 SHEETS—SHEET 2.

Fig. 2.

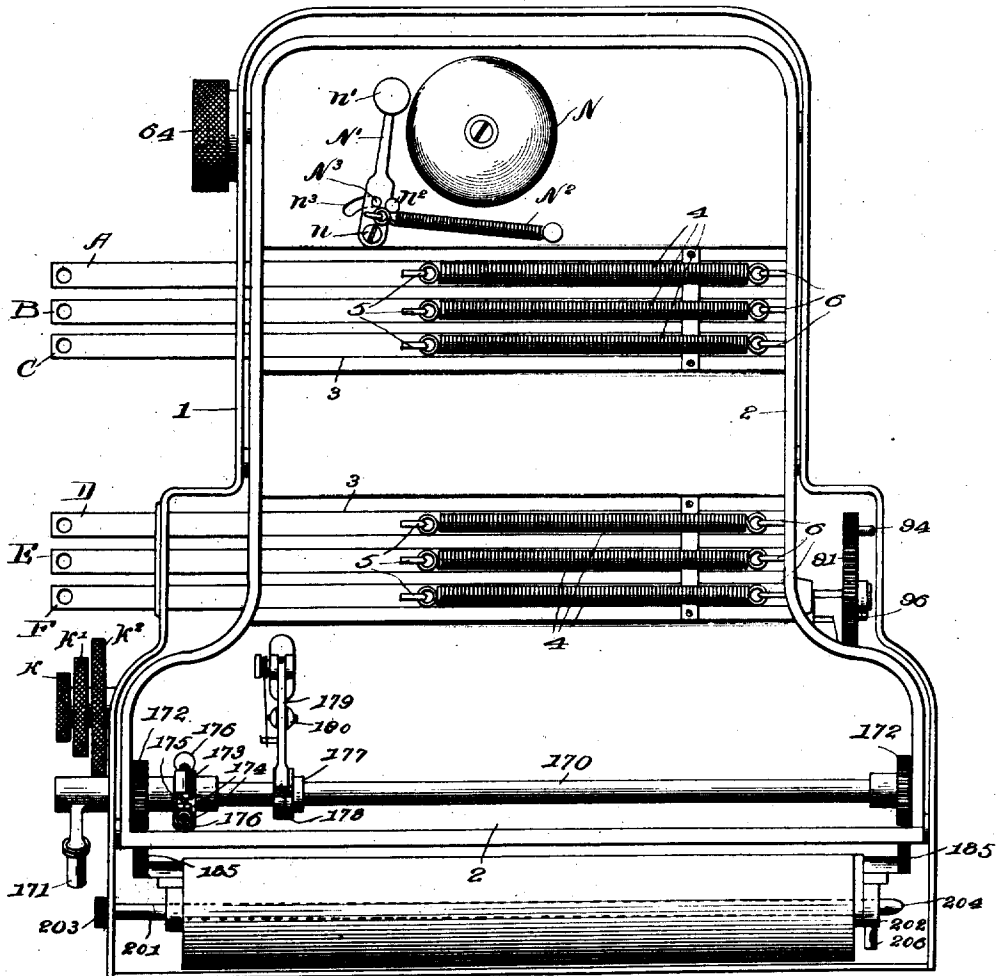
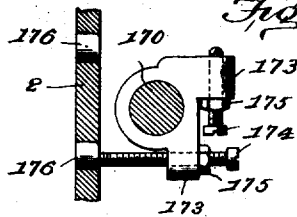


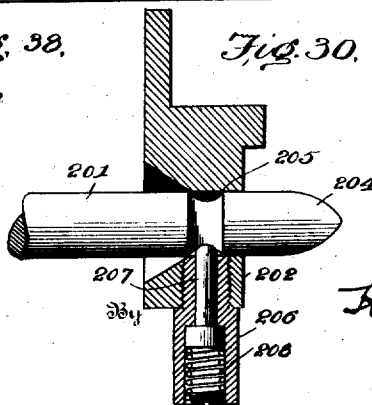
Fig. 28.



Witnesses

G. H. W. W. W. W.  
G. H. W. W. W. W.

Fig. 30.



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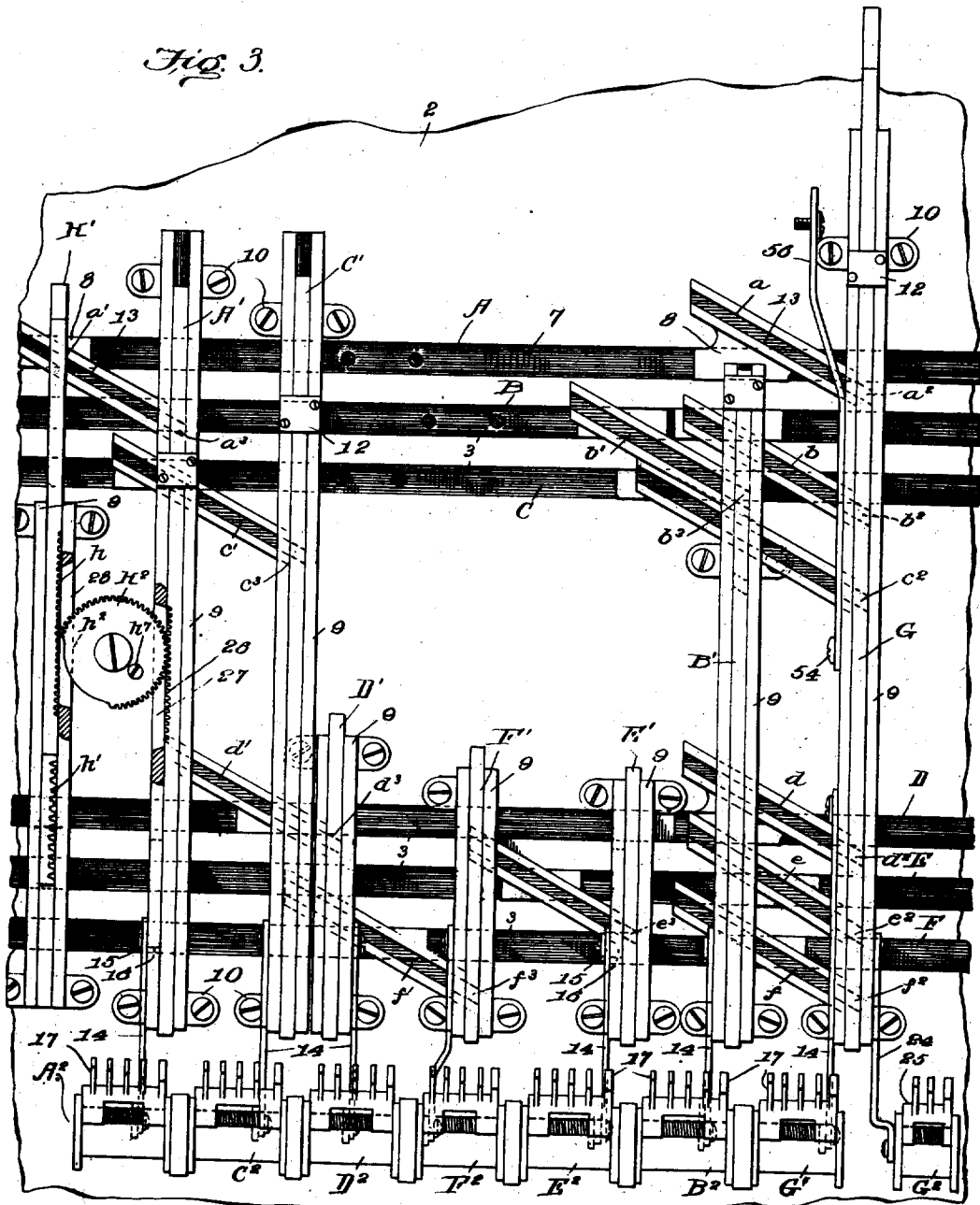
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PATENTED JULY 28, 1908.

13 SHEETS—SHEET 3.

Fig. 3.



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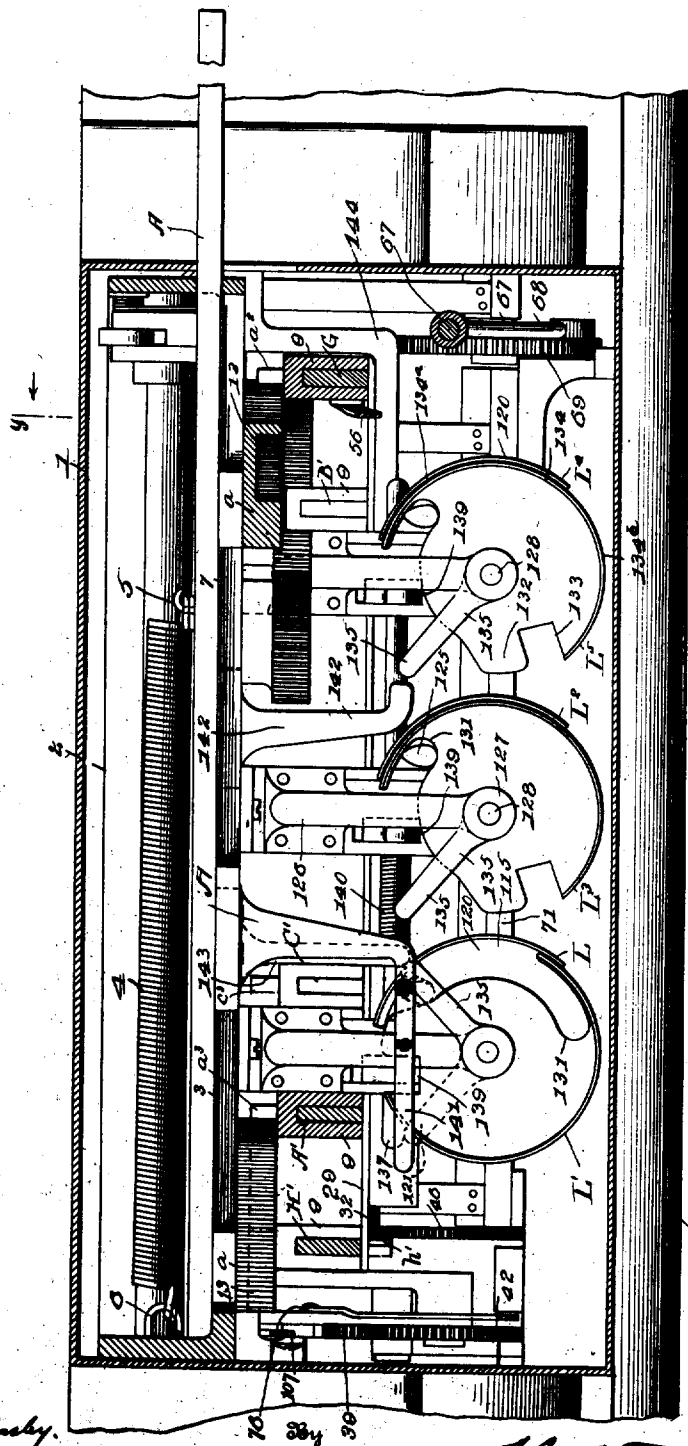
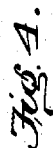
No. 894,780.

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APPLICATION FILED MAY 4, 1903.

13 SHEETS--SHEET 4.



**Witnesses**

Howard Mahoney.  
Arturo Young.

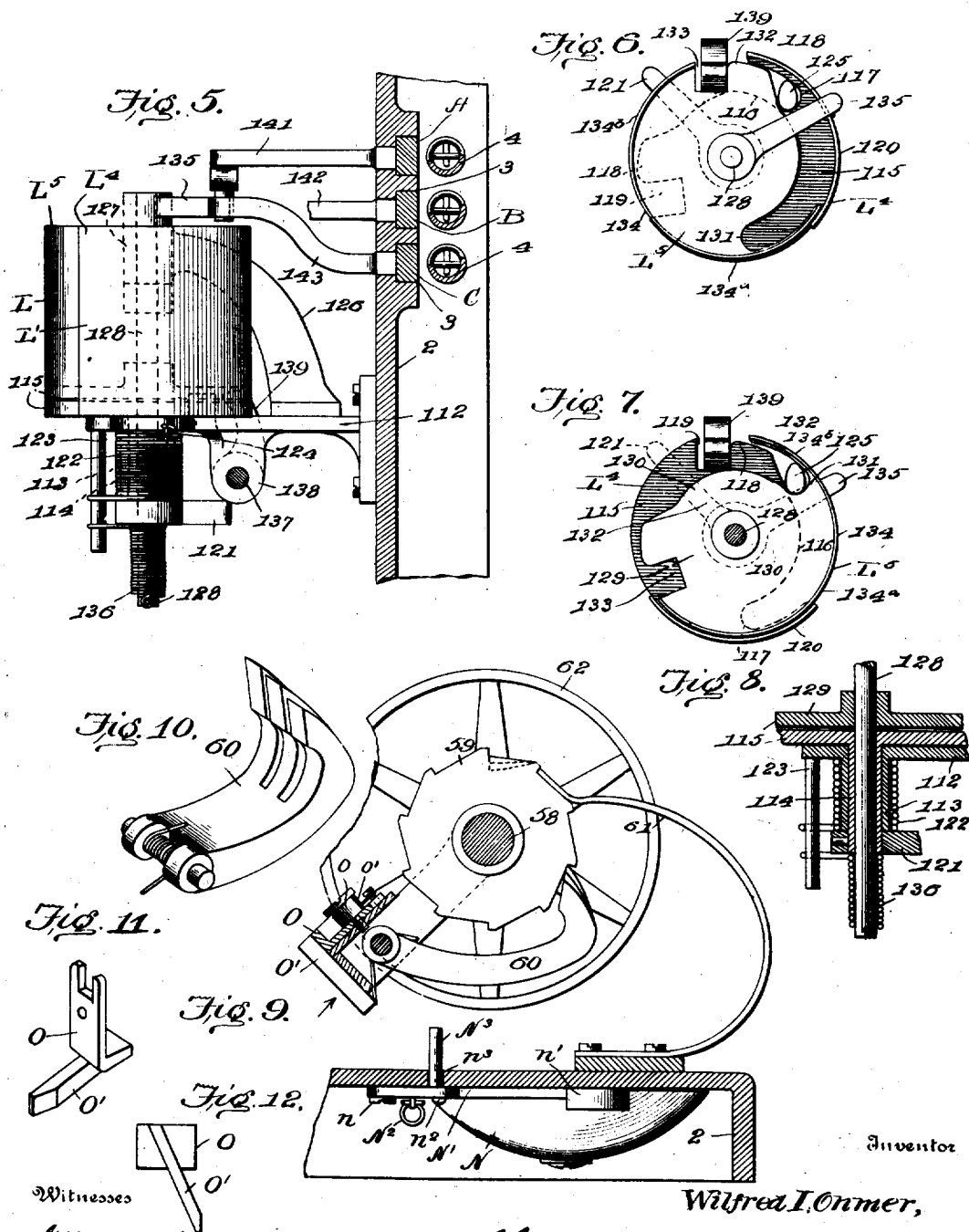
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13 SHEETS—SHEET 5.



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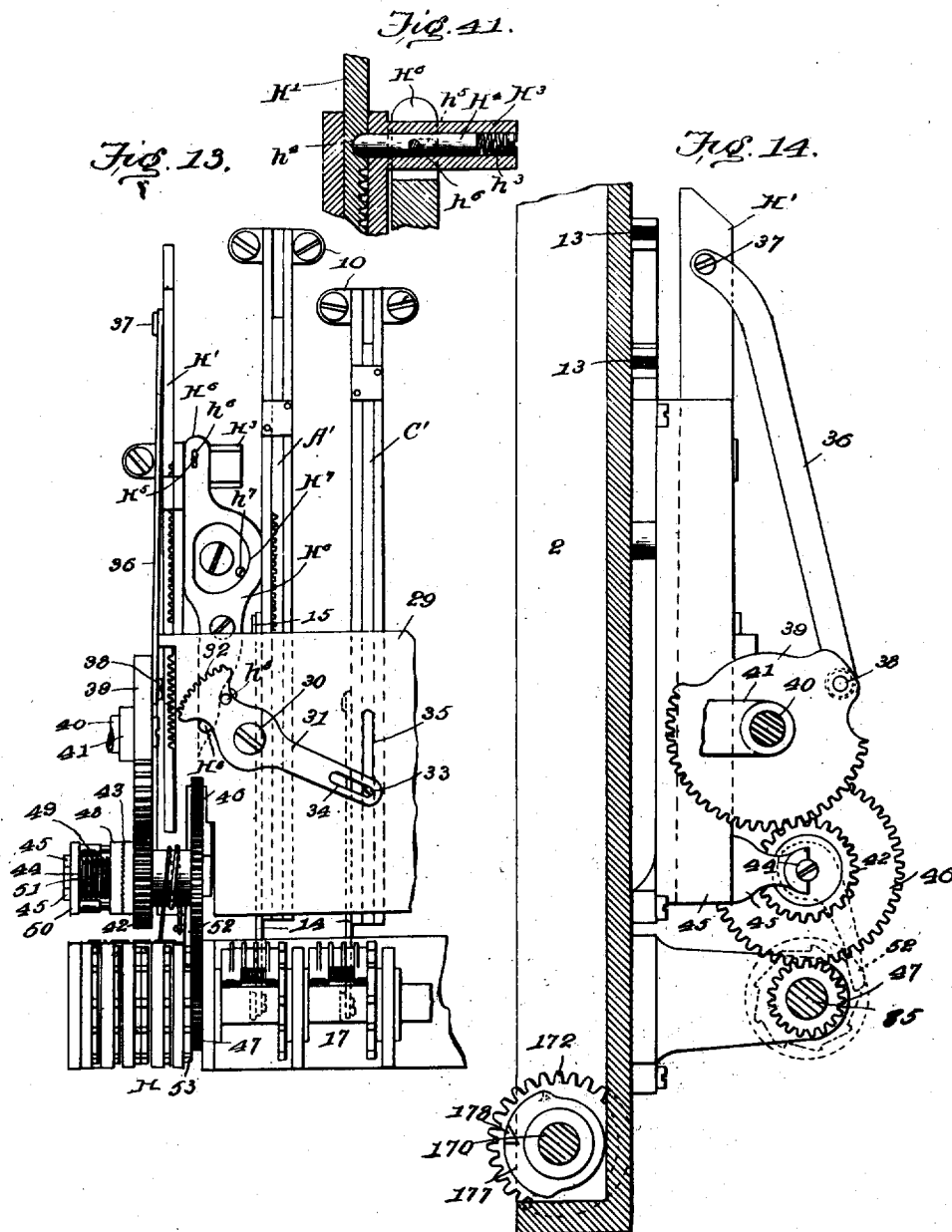
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APPLICATION FILED MAY 4, 1903.

13 SHEETS—SHEET 6.



**Witnesses**

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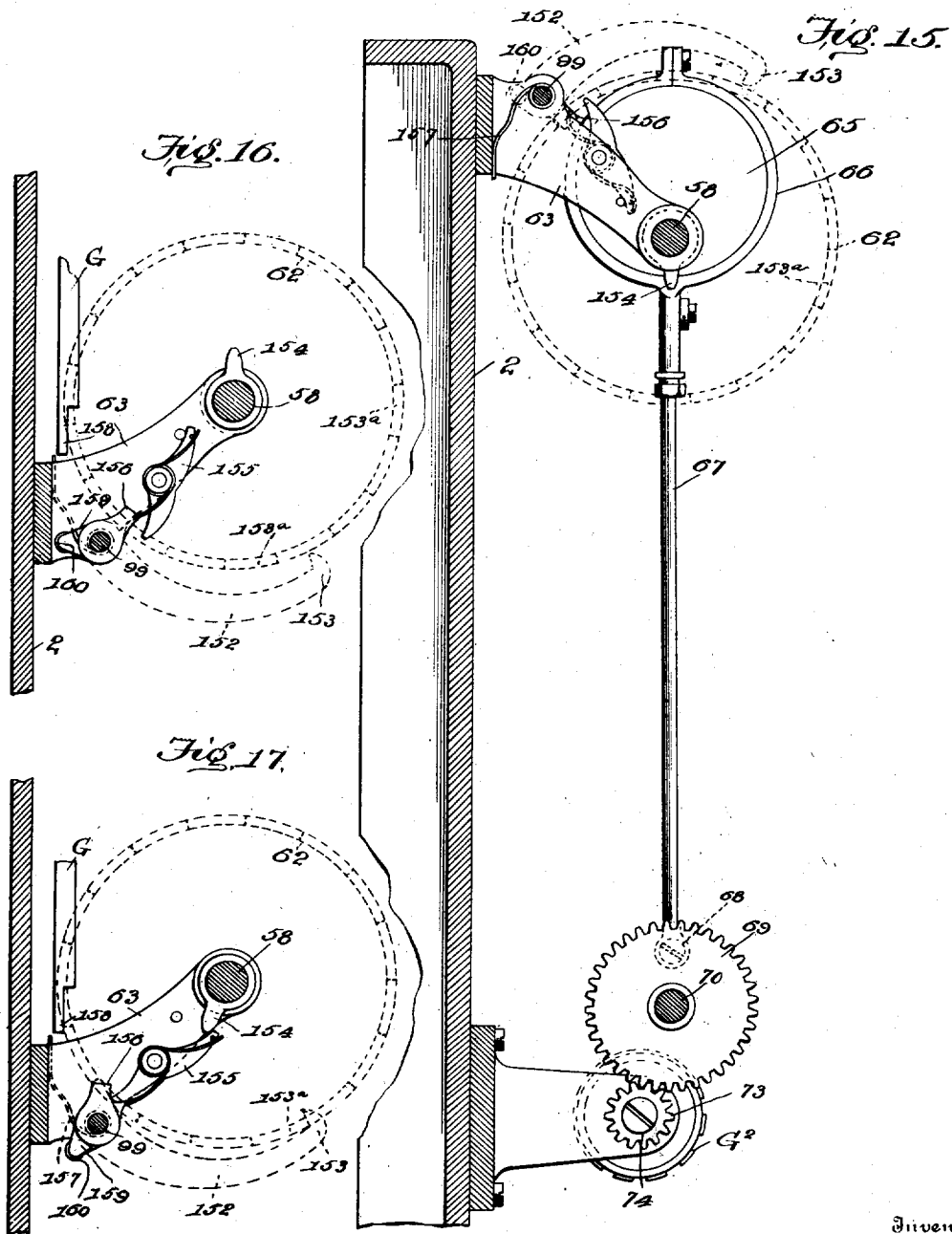
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PATENTED JULY 28, 1908.

13 SHEETS—SHEET 7.



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13 SHEETS—SHEET 8.

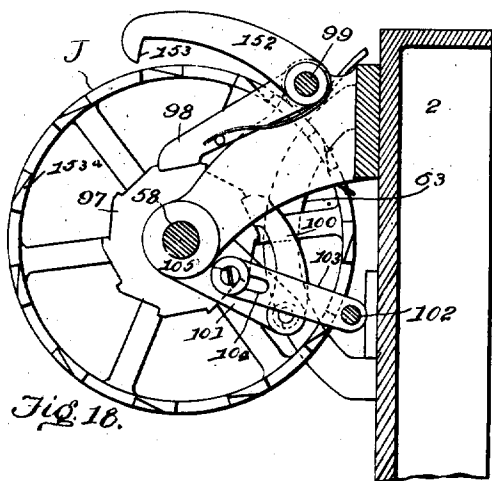


Fig. 16.

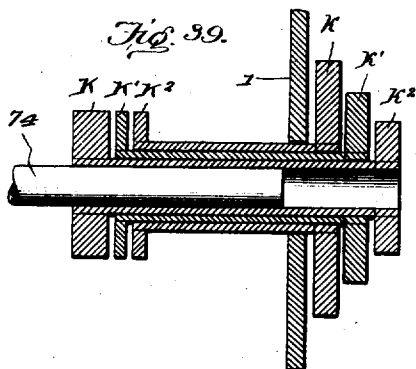


Fig. 39.

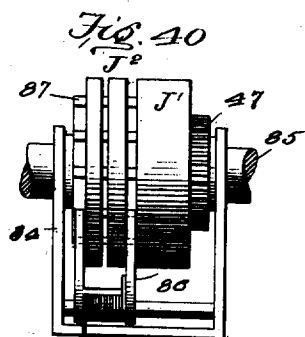


Fig. 40.

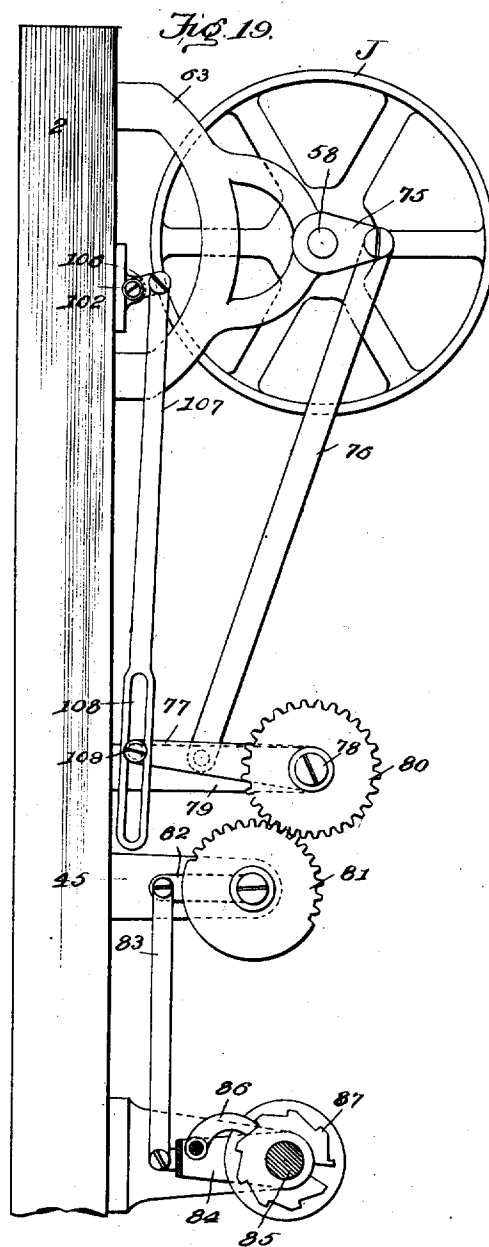


Fig. 19.

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PATENTED JULY 28, 1908.

13 SHEETS—SHEET 8.

Fig. 20.

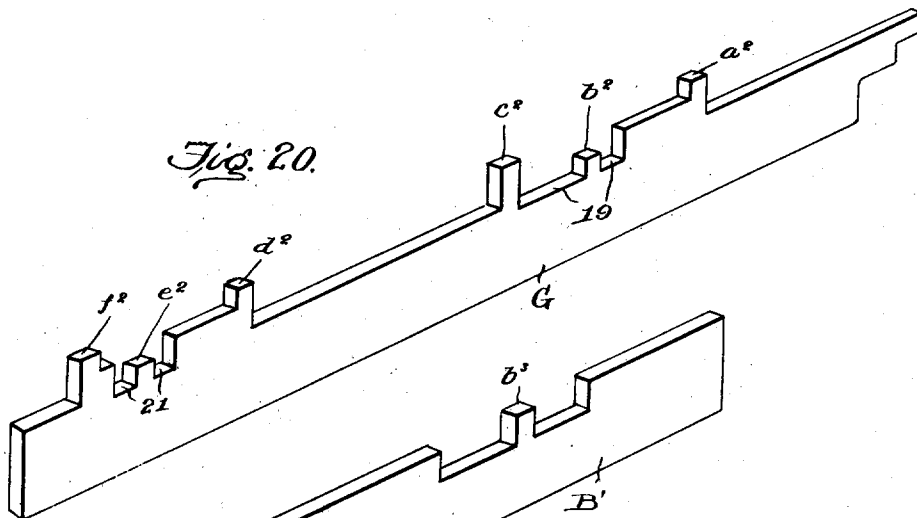


Fig. 21.

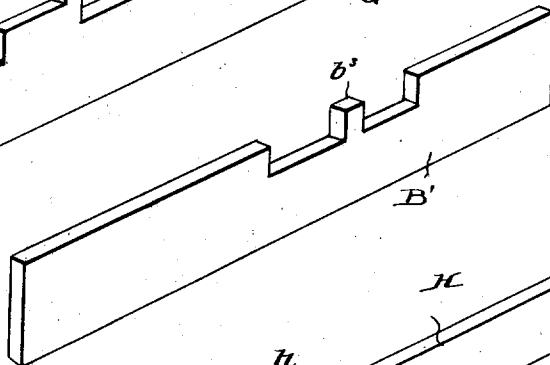


Fig. 22.

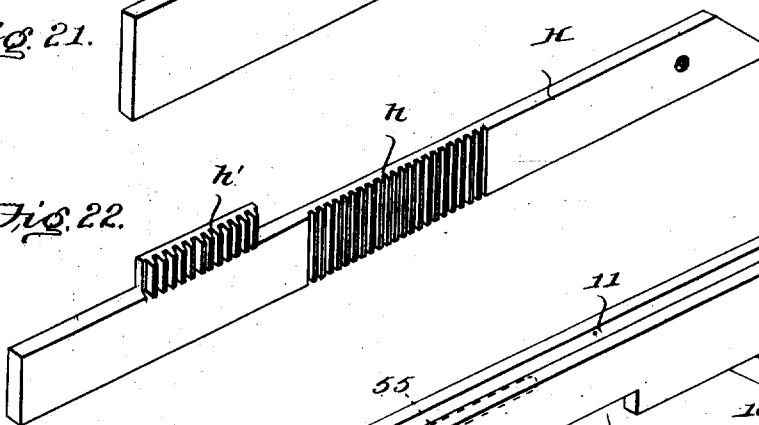
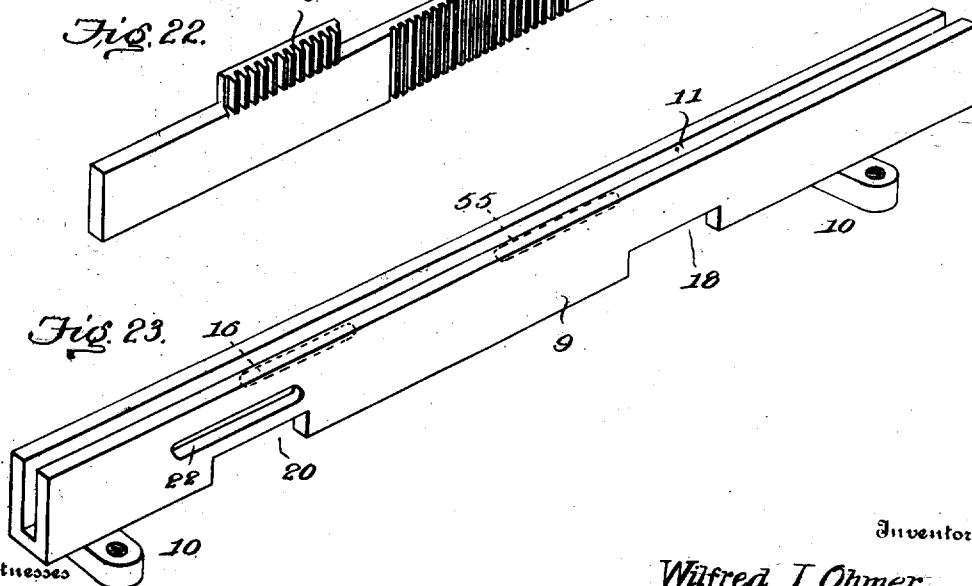


Fig. 23.



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PATENTED JULY 28, 1908.

13 SHEETS—SHEET 10.

Fig. 24.

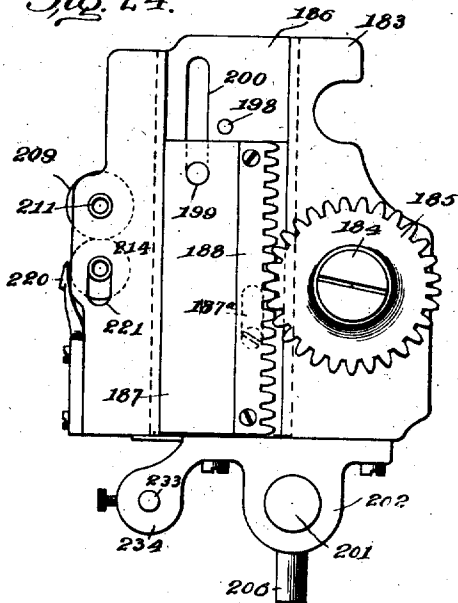


Fig. 25.

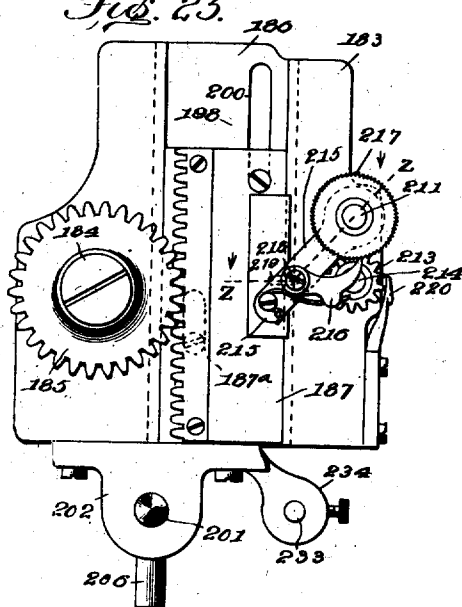


Fig. 26.

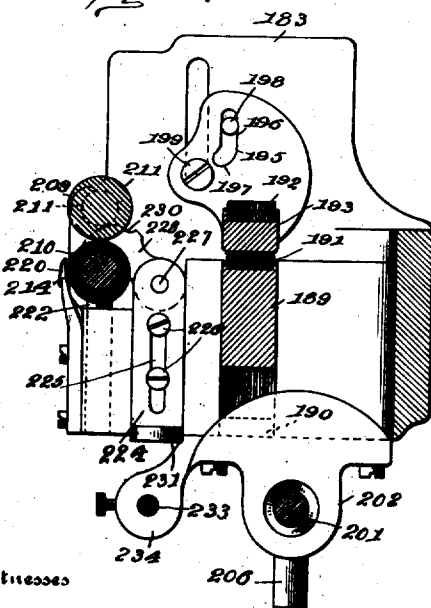


Fig. 27.

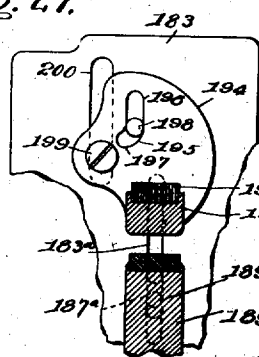


Fig. 28.

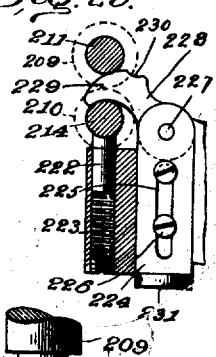
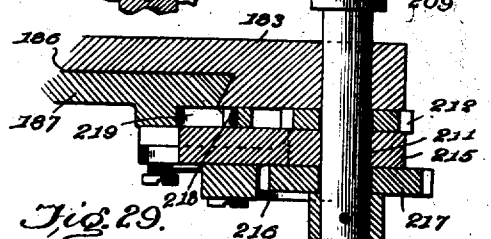


Fig. 29.



Witnesses

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Arthur Young.

Wilfred I. Ohmer,

H. A. Faulstich,

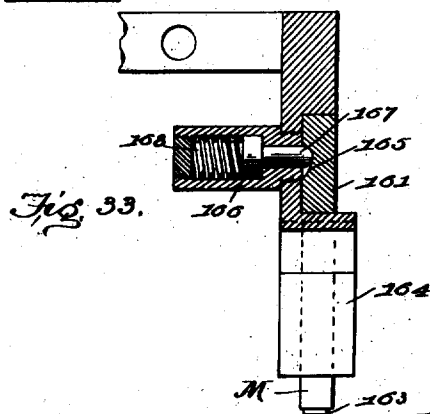
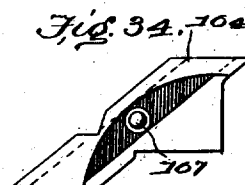
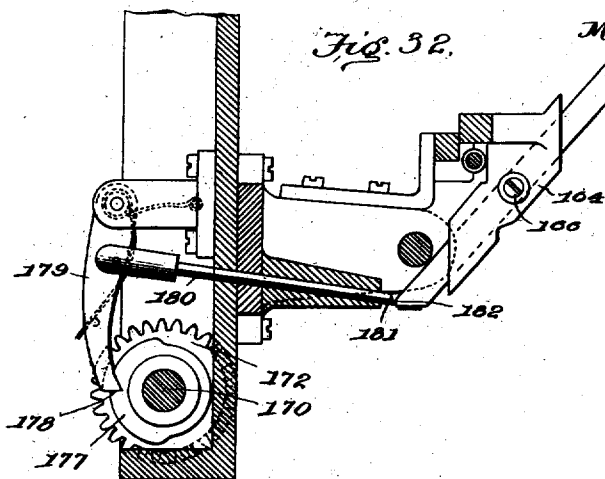
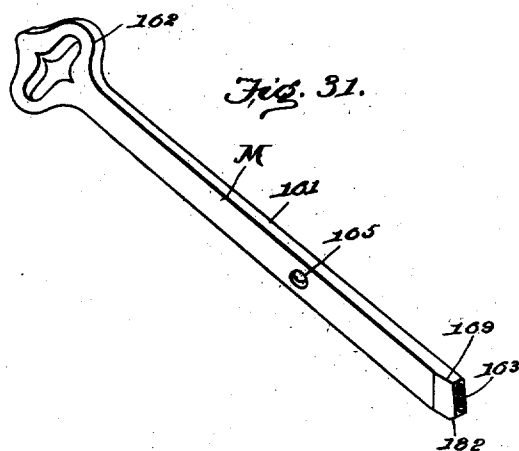
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13 SHEETS—SHEET 11.



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APPLICATION FILED MAY 4, 1903.

13 SHEETS—SHEET 13.

Fig. 35.

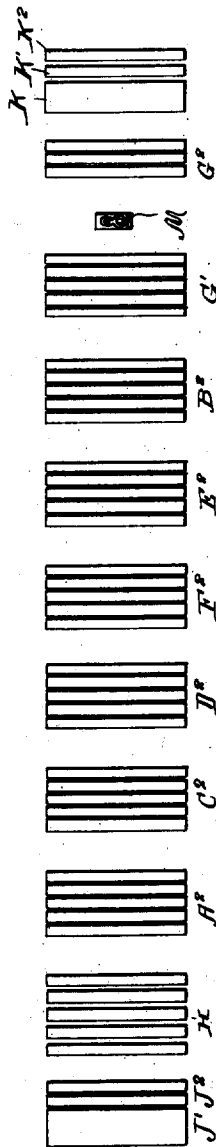
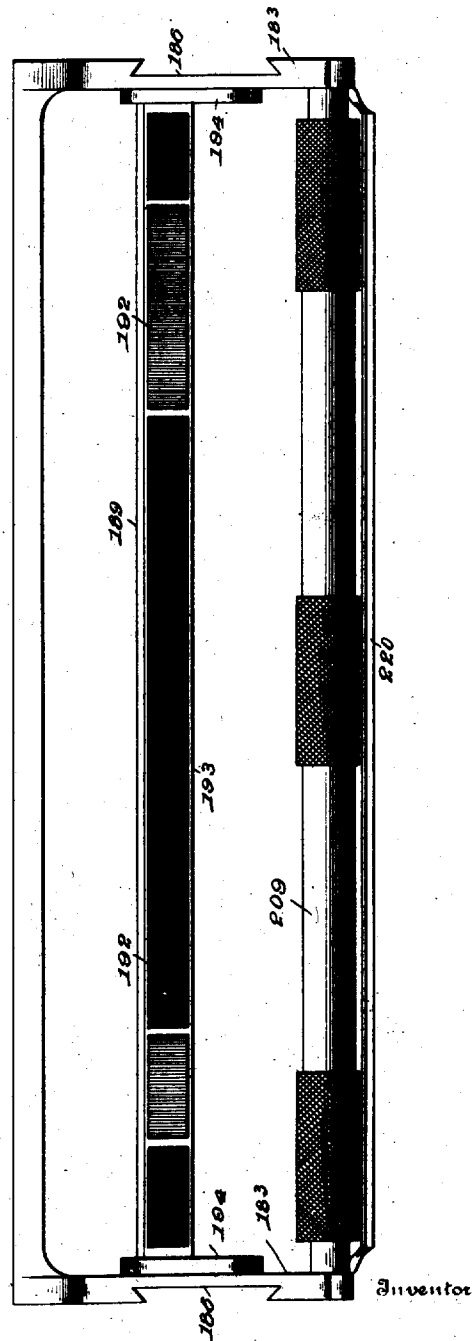


Fig. 36.



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APPLICATION FILED MAY 4, 1903.

PATENTED JULY 28, 1908.

13 SHEETS—SHEET 13.

*Fig. 37.*

	Date
Trip total passengers	22 Oct 14
Conductors mark	2 Oct 14
Grand total passengers	2 Oct 14
Total transfer fares	2 Oct 14
Total 1/2 ticket fares	2 Oct 14
Total pass fares	2 Oct 14
Total full ticket fares	2 Oct 14
Total 3cent cash fares	2 Oct 14
Total 5cent cash fares	2 Oct 14
Total cash	2 Oct 14
No. of trip or impression	2 Oct 14
Direction or Station	2 Oct 14

Inventor

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Bertrude Young.

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**Attorney**

# UNITED STATES PATENT OFFICE.

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## FARE-REGISTER.

No. 894,780.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed May 4, 1903. Serial No. 155,593.

*To all whom it may concern:*

Be it known that I, WILFRED I. OHMER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Fare - Registers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to fare registers, and more particularly to that class constituting combined registers and recorders, which both register or indicate and also make a record of the data.

The present invention has for its object to provide an efficient and compact machine which, in its most highly developed and complete form, is adapted to indicate, first, either the direction of the trip or the name of the next station, second, the total number of passengers carried on the particular trip, and third, the character of each fare paid, as, for instance, five cent cash fare, three cent cash fare, full ticket fare, half ticket fare, pass fare, and transfer fare. In addition to indicating these data, the machine is also adapted to make at any time a record of the following facts. First, the direction of the trip or the name of the station towards or from which it is made, second, the number of the trip or of the record, third, the total amount of cash received by the conductor, fourth, separate totals for each of the different kinds of fare in connection with which the machine is adapted to be used, as, for instance, the totals of each of the different kinds of fares just previously enumerated, fifth, the grand total of the number of passengers carried on all trips, sixth, the total of the number of passengers carried on each trip. In addition, the record comprises a date, indicating the date of the record, and a distinctive mark, which I term the conductor's mark, indicating the person who took the record.

To obtain these ends my invention consists in certain novel features which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a register embodying my invention in one form, the front of the casing being removed; Fig. 2 is a rear elevation of the same; Fig. 3 is a detail view, in front elevation and on an enlarged scale, with portions of the machine removed, illustrating

the mechanism whereby the printing counters are operated; Fig. 4 is a detail plan section, taken on the line  $xz$  of Fig. 1, and looking in the direction of the arrows; Fig. 5 is a detail vertical section, taken on the line  $yy$  of Fig. 4, and looking in the direction of the arrows, illustrating the fare indicating mechanism; Fig. 6 is a detail plan view of one pair of fare indicators, the same being shown in one of their three positions; Fig. 7 is a similar view, showing a second position; Fig. 8 is a sectional view of a part of Fig. 4; Fig. 9 is a detail sectional view, on an enlarged scale, of a portion of the trip total passenger indicating register; Fig. 10 is a detail perspective view of the pawl shown in Fig. 9; Fig. 11 is a detail perspective view of one of the elements shown in Fig. 9, detached; Fig. 12 is a view of the working face of the tripping dog shown in Fig. 11; Fig. 13 is a face view of the cash printing counters and their operating mechanism; Fig. 14 is a side elevation of what is shown in Fig. 13; Fig. 15 is a vertical sectional view, on an enlarged scale, showing in detail portions of the resetting and overthrow preventing mechanism; Figs. 16 and 17 are detail sectional views of the overthrow preventing mechanism, viewed from the opposite direction from Fig. 15; Fig. 18 is a detail sectional view, illustrating the operating mechanism of the direction or station indicating wheel; Fig. 19 is a view showing said indicating wheel from its opposite side and illustrating its operating mechanism and the operating mechanism by means of which the corresponding printing or recording wheel and the trip number printing counter are actuated; Fig. 20 is a detail inverted perspective view of one of the slide bars; Fig. 21 is a similar view of another one of the slide bars; Fig. 22 is a perspective view of the rack by means of which the total cash printing counter is operated; Fig. 23 is a similar view of the guide or way in which the slide bar shown in Fig. 20 travels; Fig. 24 is an elevation of one end of the frame supporting the printing mechanism; Fig. 25 is a similar view of the opposite end thereof; Fig. 26 is a sectional view of the same; Fig. 27 is a view of a portion of Fig. 26, showing a different position of the parts; Fig. 28 is a detail sectional view, illustrating another portion of the construction shown in Fig. 26; Fig. 29 is a detail sectional view, taken on the line  $zz$  of Fig. 25, and looking

in the direction of the arrows; Fig. 30 is an enlarged detail sectional view, illustrating a part of the roll holder; Fig. 31 is a detail perspective view of a conductor's key; Fig. 32 is an enlarged detail sectional view, illustrating the locking mechanism and the conductor's key cooperating therewith; Fig. 33 is a transverse sectional view, taken on the line *u u* of Fig. 32; Fig. 34 is a detail view, detached, of the guide or key way of the conductor's key; Figs. 35 and 36 are views illustrating the relations between the printing counters and the inking pad, Fig. 36 showing also the supporting frame of the printing mechanism and the feed rollers; Fig. 37 is a view showing the printed report, which is a product of the machine; Fig. 38 is a detail sectional view illustrating the stop devices of the impression mechanism shaft; Fig. 39 is a detail sectional view of the dating mechanism; Fig. 40 is a detail view of the trip printing wheel and printing counter and their actuating pawls; and Fig. 41 is a detail sectional view of a portion of Fig. 13.

The machine as a whole is of the type intended to be removably mounted in a fixed position, as, for instance, upon the wall of a car, and is to be operated by any suitable operating means within convenient reach of the conductor. It is inclosed within a suitable casing, the body of which is indicated at 1, the front being removed in the illustrations to show the internal construction. This front will have the usual sight apertures, by means of which the faces of the indicators are rendered visible. The back of the case, indicated at 2, forms a base or support, to which the various parts of the machine are attached or on which they are mounted. In this base there are mounted to slide transversely thereof in horizontal planes the actuating slides, the base being provided with grooved ways 3 to receive said slides. In the present instance, I have shown six of these slides, although their number may be varied, as desired, and said slides are indicated by the respective reference letters A, B, C, D, E, F. These slides project beyond the side of the casing for connection with the operating devices whereby they are respectively actuated, and are normally drawn inward into the casing by means of springs 4, one for each slide, connected at one end to the slide, as indicated at 5, and at the other end to the base, as indicated at 6, these springs being shown more particularly in Fig. 2. In front of each slide the base 2 is provided with a slot 7, through which project the parts carried by the slides, which parts serve to actuate the register mechanism. Each actuating slide is provided with two inclined or cam projections to operate respectively the common slide bar G, hereinafter referred to, and the individual slide bar corresponding to that particular actuating slide, and transmitting

its motion to the corresponding printing counter, said slide bars moving in directions at right angles to the actuating slides. Thus the slide bar A is provided with an inclined or cam piece *a*, secured to or connected with the slide bar by means of a shank or stem 8, extending through the slot 7, and with a second similar inclined or cam piece *a'*, also having a stem or shank 8, by means of which it is connected with the slide A through the slot 7. The inclined cam pieces *a* and *a'* thus lie in front of the front face of the base 2.

Supported in a raised position in front of the base 2 is a guide way 9, shown in detail in Fig. 23, provided with feet 10, by which it is raised clear of said base, so as to permit the cam pieces *a*, *a'* to pass between it and the plate. This guide way has a groove or slot 11 cut in it to receive the slide bar G, which fits and slides vertically therein longitudinally of the way, being held in position by retaining plates 12 at the front and by the bottom of the guide way at the rear, said bottom being slotted, however, except at its end portion, for the purpose hereinafter set forth. The slide bar G projects below the guide way 9, so as to be engaged by the cam piece *a*, and also by the corresponding cam pieces of the other actuating slides. This engagement may be effected in any suitable manner, and I have shown, in the present instance, each cam piece as provided with a groove 13, extending longitudinally thereof, the slide bar G being provided with corresponding projections adapted to enter and traverse said grooves. Thus the guide bar G, shown in detail in Fig. 20, has a projection *a*<sup>2</sup> on its under side, which lies in the path of the front end of the groove 13 of the cam projection *a*. The said cam projection lies normally to the left of the slide bar G in Fig. 3, but when moved to the right in said figure by pulling out the slide A, the groove 13 of said cam projection *a* will engage the projection *a*<sup>2</sup> of the slide bar G and will move said slide bar first upward and then downward as the slide A is moved first outward and then inward.

A' indicates the second slide bar, actuated by the slide A through the medium of the cam projection *a'*, which has a groove 13, with which cooperates a projection *a*<sup>3</sup> on the slide bar A', said projection being shown in dotted lines in Fig. 3. This slide bar A' moves parallel with the slide bar G and simultaneously therewith, and operates the printing counter A<sup>2</sup>, to be hereinafter more specifically referred to, which serves to print the total number of five cent cash fares. This is accomplished by means of a pitman or connecting rod 14, connected with the slide bar A' by a screw 15, passing through a slot 16 in the side of the guide way 9, in which the slide bar A' is mounted. This rod 14 is connected to the pawl yoke 17 of the counter A<sup>2</sup>, so as to impart to the same an oscillating or

rocking motion such as to add one to the number printing wheels 17 of which the counter  $A^2$  is composed, in a manner well known in devices of this character. Similarly, the actuating slide B is provided with a cam piece  $b$ , which coöperates with a projection  $b^2$  on the slide bar G, and with a second cam projection  $b'$ , which coöperates with a projection  $b^3$  on a slide bar B', which, through a pitman or link 14, operates a printing counter B<sup>2</sup>, which prints the total number of transfer fares received. The inclined cam projections  $b$  and  $b'$  are arranged in a plane above the cam projection  $a$ , so as to clear the same, and for this reason the guide way 9 of the slide bar G is cut away, as indicated at 18, and the lower edge of the slide bar G is cut away, as indicated at 19, to bring the projection  $b^2$  on a higher level than the projection  $a^2$  and permit the lateral movement of the cam pieces  $b$  and  $b'$ .

The actuating slide C has inclined cam pieces  $c$  and  $c'$ , which coöperate respectively with a projection  $c^2$  on the slide bar G, and a projection  $c^3$  on a slide bar C', sliding vertically in the guide way 9, and operating, through a link 14, the printing counter C<sup>2</sup>, which prints the total three cent cash fares.

The three actuating slides A, B and C just referred to are arranged in a group above the fare indicators hereinafter referred to. The three actuating slides D, E and F are arranged in a similar group below said fare indicators, and the actuating slide D has inclined cam projections  $d$  and  $d'$ , coöperating respectively with a projection  $d^2$  on the slide bar G, and a projection  $d^3$  on a slide bar D', which operates, through a link 14, a counter D<sup>2</sup>, which prints the total full ticket fares received.

The actuating slide E has an inclined cam piece  $e$ , coöperating with a projection  $e^2$  on the slide bar G, and an inclined cam projection  $e'$ , coöperating with a projection  $e^3$  on a slide bar E', which, through a link 14, operates a printing counter E<sup>2</sup>, which prints the total half ticket fares.

The actuating slide F has an inclined cam piece  $f$ , which coöperates with a projection  $f^2$  on the slide bar G, and a cam projection  $f'$  which coöperates with a projection  $f^3$  on a slide bar F', which operates a printing counter F<sup>2</sup>, which prints the total number of pass fares received. The cam projections  $e$  and  $e'$  are arranged in a higher plane than the cam projections  $d$  and  $d'$ , and the guide way 9 is correspondingly cut away, as indicated at 20, and the slide bar G similarly cut away at 21, to accommodate this arrangement.

All of the slide bars move in guide ways 9 similar to the guide way of the slide bar G, and all have the links or connecting rods 14 and pins 15, while the guide ways 9 all have slots 16 to accommodate said pins. The slide bar G also has a slot 16, shown in dotted

lines in Fig. 23, to accommodate a pin 15, to which is pivoted a yoke 14, which operates the pawl yoke 17 of a printing counter G', which prints the grand total number of passengers. On its opposite side the guide way 9 of the slide bar G is provided with a slot 22 to accommodate a pivot screw or pin 23, to which is pivoted one end of a link 24, which operates the pawl yoke 25 of a printing counter G<sup>2</sup>, which prints the trip total number of passengers, or, in other words, the total number of passengers carried during any one trip.

It will thus be seen that when any one of the actuating slides is actuated it will not only add one to its own individual printing counter, but will also add one to each of the printing counters by means of which the grand total of passengers and the trip total of passengers is recorded.

In addition to the printing counters previously enumerated, I also employ a printing counter H, which is a counter of the adding type, by means of which the total amount of cash received by the conductor may be made a matter of record. This printing counter is operated by each one of the slide bars representing a cash fare, and, in the present instance, there are two of these cash fare slide bars, to-wit, the slide bar A' and the slide bar C'. To effect this operation, I employ a slide bar H', which operates the counter H through the mechanism hereinafter described, and which has a differential movement, or moves a greater or less distance, according as it is actuated from the slide bar A' or the slide bar C'. To this end, the slide bar H' slides in a guide way 9 similar to that of the other slide bar, with which its movement is parallel, and is provided with two racks,  $h$  and  $h'$ , located preferably in different planes, although a continuous rack might be employed. The slide bar A' is provided with a rack 26, formed on one side thereof, and its guide way 9 is provided, adjacent to said rack, with a slot 27, while the guide way of the slide bar H' is provided, opposite the rack  $h$ , with a similar slot 28. A gear H<sup>2</sup> is mounted on the base 2, between the slide bars A' and H', so as to extend through the slot 27 and mesh with the rack 26 on the slide bar A'. This gear H<sup>2</sup> also extends through the slot 28 and is provided with a blank portion  $h^2$ , which is normally presented to the rack  $h$ . When the slide bar A' is moved its proper distance, the gear  $h^2$  meshes with the rack  $h$  and moves the slide bar H' a fixed distance upward and backward, but normally the slide bar H' is not in mesh with said gear. A bridge plate 29 extends across the front of the machine above the several slide bars, and on this bridge plate there is pivoted at 30 a lever 31, provided at one end with a gear segment 32, adapted to mesh with the rack  $h'$ , but nor-



mally out of engagement therewith, as shown in Fig. 13. The other end of this lever 31 is suitably connected with the slide bar C', so as to be actuated thereby, as, for instance, by means of a pin 33 on the slide bar C', which engages a slot 34 in the lever 31. The bridge plate 29 is provided with a slot 35 for the passage of the pin 33. When the slide bar C' is given a full movement, the gear segment 32 of the lever 31 is brought into mesh with the rack h' on the slide bar H' and moves the same vertically up and down a fixed distance. In the present instance, the distances which the slide bar H' is moved by the respective slide bars A' and C' bear the relation of five to three. The slide bar H' operates the printing counter H through the medium of a link 36, pivoted to the bar H' at its upper end, as shown at 37, while its lower end is pivoted at 38 to an eccentric pin on a gear segment 39, mounted loosely on a stud shaft 40, supported by a bracket 41, arising from the base 2. This segment 39 meshes with a pinion 42, carrying a clutch member 43 and mounted loosely on a shaft 44, supported in brackets 45 from the base 2. The shaft 44 has secured thereon a gear 46, which meshes with the driving pinion 47 of the printing counter H, and said shaft 44 is further provided with a clutch member 48, free to slide thereon longitudinally, but caused to rotate therewith by pins 49, which enter apertures in said clutch member. A plate 50, secured to the shaft 44, carries the pins 49, and there is interposed between said plate and the clutch member 48 a spring 51, which forces said clutch member into engagement with the clutch member 43. By reason of this construction, the downward movement of the slide bar H' turns the printing counter H, the amount added thereon being three or five, according as the slide bar H' is actuated from the slide bar C' or the slide bar A'. The return of the slide bar H' does not affect the printing counter H, as the ratchet clutch composed of the members 43 and 48 permits the pinion 42 to turn on the shaft 44 during this movement without affecting the said shaft. A spring pawl 52, loosely mounted on the shaft 44, serves as a detent to prevent return motion of the pinion 47, which is provided with a ratchet wheel 53 coöperating with said pawl.

In order to hold the rack bar H' in inoperative position when not in use, I provide a locking mechanism, shown in detail in Figs. 13 and 41. In this construction I provide a housing or tubular bearing H<sup>3</sup>, in which is mounted to slide a bolt H<sup>4</sup>, backed by a spring h<sup>3</sup>, and adapted to engage a locking notch h<sup>4</sup> in the bar H'. The bolt H<sup>4</sup> is provided with a transverse pin H<sup>5</sup>, which extends through longitudinal slots h<sup>5</sup> in the housing H<sup>3</sup> and engages slots h<sup>6</sup> in a lever H<sup>6</sup>,

lying between the bars A' and H' and pivoted on the base 2. This lever has an opening provided with a cam surface H<sup>7</sup>, which is engaged by a pin h<sup>7</sup> on the gear H<sup>2</sup>. The lower end of said lever lies in the path of a pin h<sup>8</sup>, carried by the lever 31 and extending down through a slot H<sup>8</sup> in the bridge plate 29. Normally, the bolt H<sup>4</sup> locks the bar H', but when either the gear H<sup>2</sup> or the lever 31 is operated, the lever H<sup>6</sup> is so actuated as to withdraw the bolt and permit the bar H' to move. The spring h<sup>3</sup> relocks the parts when the bar H' returns to its normal position.

The common slide bar G also actuates the passenger indicating register, by means of which the total number of passengers on any given trip is visibly indicated. To this end, said slide bar G is provided with a pivot pin or screw 54, passing through a slot 55, indicated in dotted lines in Fig. 23, in the side of the guide way 9. To this pivot 54 is connected the lower end of a link 56, the upper end of which is pivotally connected to a pawl yoke 57, by means of which the trip passenger register I is operated. This register is of a well known type, being mounted on a shaft 58, and comprising ratchet wheels 59, of which three are shown in the present instance, each wheel having one notch deeper than the wheel next in order, and being operated by differential pawls 60, pivoted on the yoke 57. Detent pawls are shown at 61 for preventing reverse motion of the ratchet wheels 59. The ratchet wheels are mounted on concentric sleeves, loose on the shaft 58, and connected respectively to the number exhibiting wheels 62, so that the number exhibited by said wheels through the opening in the casing provided for that purpose is increased by one for each complete vertical movement of the common slide bar G. There is also loosely mounted on the shaft 58 a direction or station indicating wheel J, operated in the manner hereinafter set forth, and bearing on its periphery either words indicative of the direction of the trip, as, for instance, the words "In" and "Out", as shown, or other similar words, or the names of the successive stations along the road, where it is desired to make a record at each station.

The shaft 58 is mounted in suitable bearings in brackets 63, arising from the base 2, and is rotatable in said bearings by means of a milled head 64 on one end thereof projecting through the casing 1. This rotation of the shaft 58 resets the wheels of the register I to zero, through any of the known mechanisms for that purpose, and at the same time resets the trip total passenger printing counter G<sup>2</sup> to zero through the medium of the mechanism shown more particularly in Figs. 1 and 15. In said figures, 65 indicates an eccentric, secured on the shaft 58 and embraced by a strap 66, to which is connected a rod 67, the lower end of which is pivoted

eccentrically at 68 to a gear or gear segment 69, mounted on a stud shaft 70, carried by a fixed bar 71, which also carries the detent pawls 72 of the various printing counters, extending in a row from A<sup>2</sup> to G', across the machine. The gear 69 meshes with a pinion 73 on the shaft 74 of the printing counter G<sup>2</sup>, and the arrangement of the parts is such that a single rotation of the shaft 58 will impart an oscillating motion to the gear 69, and will thus, through the pinion 73, rotate the shaft 74 of the counter G<sup>2</sup> first backward and then forward, thus returning the number printing wheels on said shaft to zero through any of the well known mechanisms for that purpose. This resetting movement of the shaft 58 also serves to actuate the direction indicating wheel J, and also a direction printing wheel J' and printing counter J<sup>2</sup>, from which are obtained respectively a record of the direction and of the number of the trip, where the division of records is by trips. If the division is by stations, then the record would be that of the name of the station at which the record is taken, and the number of the record. This is accomplished by the construction shown more particularly in Figs. 1, 18 and 19. There is secured on the end of the shaft 58 opposite to that bearing the head 64 a crank arm 75, to which is connected one end of a link 76, the other end of which is pivoted to a second crank arm 77, mounted on a stud shaft 78, supported on a bracket 79, arising from the base 2. The shaft 78 carries a gear segment 80, which meshes with a similar segment 81, mounted on the shaft 40. This segment carries a projection 82, which is connected by a link 83 with a pawl yoke 84, mounted loosely on a shaft 85, which is the shaft on which the number printing wheels and pinion 47 of the printing counter H are mounted. The pawl yoke 84 is thus given a rocking motion around the shaft 85 and is provided with a pawl 86, which engages a ratchet 87, formed on the printing wheel J, which is loosely mounted on the shaft 85, and prevented from turning backward by a detent pawl 88. The yoke 84 also carries a pawl 89, which operates the first of the number printing wheels of the printing counter J<sup>2</sup>, the second wheel being operated from the first in any well known manner. These number printing wheels also have detent pawls 90 to prevent their backward rotation, and are so mounted on the shaft 85 as to be set to zero by the rotation of said shaft in the proper direction. The number printing wheels of the total cash adding counter H are also similarly mounted on said shaft 85, so that, when said shaft is properly turned, both the trip counter and total cash counter may be set to zero. This is accomplished by means of a gear segment 91, adapted to be rotated by a key 92, which may be inserted through a suitable opening

93 in the casing, said gear segment being provided with stop pins 94, which limit its movement in either direction by engagement with a fixed projection 95, said gear segment meshing with a pinion 96, secured on the shaft 85.

The direction or station indicating wheel J is, as heretofore stated, mounted loosely on the shaft 58 and is prevented from turning in a reverse direction by means of a ratchet wheel 97 secured to it and engaged by a spring pawl 98, mounted loosely on a shaft 99, which, in the present instance, is the main shaft of the overthrow preventing device, and which is mounted in suitable bearings in the brackets 63. The forward motion of the wheel J is imparted to it by means of a spring pawl 100, carried by an arm 101, mounted loosely on the shaft 58, said pawl 100 being adapted to engage the ratchet wheel 97. A rock shaft 102 is mounted on the base 2 and is provided with an arm 103, having a slot 104, which is engaged by a pin 105 on the arm 101. Said rock shaft 102 is also provided at its projecting end at the side of the machine with an arm 106, to which is pivoted the upper end of a link 107, the lower end of which is slotted, as indicated at 108, to receive a pin 109 on the end of the vibrating crank arm 77. By reason of this construction the arm 101 is rocked back and forward at the proper time to advance the indicating wheel J one step at the end of each complete rotation of the setting shaft 58, so that said indicating wheel J and the printing wheel J' are always in corresponding positions.

It will be observed that the printing wheel J' and all of the number printing counters are arranged in axial alinement, with their printing faces in the same plane, and I also mount in axial alinement with said wheel and counters three date printing wheels, indicated, respectively, by the reference letters K, K' and K<sup>2</sup>, carrying, respectively, abbreviations of the names of the months, and numbers to indicate the days thereof. These wheels are each provided with a detent ratchet wheel 110 and a corresponding detent pawl 111, to properly position said wheels, and are mounted on a common shaft on concentric sleeves, extending through the casing and provided externally of said casing with operating and indicating wheels or knurled heads *k, k', k<sup>2</sup>*, by means of which the wheels K, K', K<sup>2</sup> may be readily set to print any desired date.

Each actuating slide has coöperating with it a corresponding fare indicator, which, when said actuating slide is operated, will be turned into such a position as to indicate, through a suitable opening in the casing 1, the particular amount or character of the fare just paid. The fare indicators are, for convenience and compactness, mounted concen-

trically in pairs, and I will proceed to describe the particular construction of one of these pairs, it being understood that the same description is applicable to each pair.

5 The indicators proper are designated by the reference letters L and L' for the first pair, L<sup>2</sup> and L<sup>3</sup> for the second pair, and L<sup>4</sup> and L<sup>5</sup> for the third pair, and the particular pair which I will specifically describe will be the pair L<sup>4</sup>, L<sup>5</sup> at the right of Fig. 4. A bracket 10 112 extends forward from the face of the base 2 and supports a vertical bearing sleeve 113, in which is mounted a shaft 114, which has at its upper end the disk-like base 115 of the indicator L<sup>4</sup>. This base is generally circular in 15 form, but is cut away for a portion of its length, so as to be of smaller diameter, as indicated at 116, one end of this smaller diameter terminating in a stop shoulder 117, while the other end merges into a cam projection 20 118, beyond which lies a notch or recess 119. From this base 115 rises the body portion 120 of the indicator L<sup>4</sup>, which carries upon it a suitable legend, in the present instance, the word "pass," since this particular indicator 25 is used in connection with the actuating slide which is employed when a pass is presented in payment of fare. The lower end of the shaft 114 is provided with a projecting arm 121, 30 secured thereon, and the said arm and the body of the indicator are held normally in inoperative position by means of a spring 122, coiled around the bearing 113 and having one end connected to a fixed pin 123, depending from the bracket 112, while its other 35 end is connected with a pin 124, projecting downward from the under face of the base 115. The bracket 112 also has an upwardly projecting pin 125, which lies adjacent to the portion 116 of the base 115 and is adapted; 40 by its contact with the stop shoulder 117, to limit the movement of the indicator under the influence of the spring 122. The bracket 112 has an arm or extension 45 126, which carries a bearing 127, in which is mounted a shaft 128, which also extends downward through the base 115 and shaft 114, which are apertured and hollow to permit the passage of said shaft and are free 50 to turn thereon. On the shaft 128 is secured the base 129 of the indicator L<sup>5</sup>, which is similar to the base 115, and which is therefore provided with a portion of reduced diameter 130, a stop shoulder 131, a cam portion 132, and a notch or recess 133. The 55 body 134 of the indicator L<sup>5</sup>, which is concentric with and lies within the body 120 of the indicator L<sup>4</sup>, is of a length about twice as great, measured peripherally, as that of the body 120 and is divided into two parts, one 60 of which, 134<sup>a</sup>, bears upon it a legend indicating the character of the fare, in the present instance, the word "transfer," since this indicator is operated by the actuating slide 65 employed when a transfer is used in payment

of fare. The other portion or half 134<sup>b</sup> of the body 134 is blank, or has no distinctive indicating character upon it, or a neutral character, so that, when it is so turned as to be presented at the sight opening, it will have 70 no fare indicating function. The shaft 128 is provided at its upper end with a projecting arm 135, while its lower end, which projects below the arm 121, has coiled around it a spring 136, one end of which is secured to the 75 shaft, and the other end to the fixed pin 123. This spring serves to turn the indicator L<sup>5</sup> normally to inoperative position, with its blank indicating surface opposite the sight opening. 80

Each of the pair of indicators is similarly constructed, and below them and extending under all three pairs is a rock shaft 137, 85 mounted in bearings 138 and provided with three arms 139, one for each pair of indicators. These arms are normally forced forward or towards the bases of the indicators by means of a spring 140, coiled around the shaft 138.

The three upper arms 135, belonging, respectively, to the indicators L', L<sup>3</sup> and L<sup>5</sup>, 90 are arranged to be operated by the actuating slides A, B and C, and to this end, the actuating slide A is provided with a projecting arm 141, which is adapted to engage the arm 135 of the indicator L'. Similarly, the 95 slide B has a projecting arm 142, in the path of which lies the arm 135 of the indicator L<sup>3</sup>. The slide C has an arm 143, which engages and actuates the arm 135 of the indicator L<sup>5</sup>. The indicators L, L<sup>2</sup> and L<sup>4</sup> have their 100 actuating arms 121 located below, so as to cooperate with the lower group of actuating slides D, E and F, and to effect this result, the slide D has secured to it a bar 144, which extends along the top of the bridge plate 29 105 and carries a projection 145, which is adapted to engage the arm 121 of the indicator L. The slide E carries a similar bar 146, having a projection 147 to engage the arm 121 of the indicator L<sup>2</sup>, and the slide F has a bar 150, 110 having a projection 151 to engage the arm 121 of the indicator L<sup>4</sup>.

It will be seen that, when any actuating slide is moved out, one of the indicators will be partially rotated so as to turn its indicating 115 face into indicating position. The normal position of all of the indicators is that shown in detail in Fig. 8, but one of them is always in indicating position, being held in such position by the engagement of the cooperating 120 arm 139 with its notch or recess 119. When any actuating slide has been operated so as to rotate another indicator into indicating position, the cam portion 118 of the indicator thus rotated will, by contact with the cooperating 125 arm 139, partially rotate the rock shaft 137, and thus release the indicator already in indicating position, by withdrawing from its notch 119 the corresponding arm 139, and the spring of that particular indicator will 130

return it to non-indicating position. The indicator which is being moved to indicating position will continue to move toward that position until the cooperating arm 139 drops into its notch 119, whereupon it will be held in such indicating position until some other actuating slide than the one through which it is operated is in turn given an operative movement. In this way, the particular fare is always indicated to correspond with the particular printing counter of the recording apparatus which is actuated, and such fare will remain indicated until some other kind of fare is to be indicated.

In connection with the indicators I and J, I employ an overthrow preventing mechanism, comprising the shaft 99, already referred to, and arms 152 secured thereon and having hook-like extremities 153, which are adapted to engage teeth 153<sup>a</sup> on the marginal portions of the peripheries of the wheels 62 and J. In the present instance, I have shown one of these arms to cooperate with the wheel J, and two of said arms to cooperate with the three wheels 62, said wheels having teeth on their adjacent edges, so that one of the locking arms may engage the teeth of two adjacent wheels. The rock shaft 99 is operated both from the resetting shaft 58 and from the common slide bar G. The former operation is accomplished by a cam projection 154, carried by the shaft 58, which cam projection is adapted, at the close of the complete setting revolution of the shaft 58, to come into contact with one end of a spring controlled lever 155, mounted on one of the brackets 63. This lever is held by its spring in the normal position shown in Fig. 16, but when actuated by the contact of the cam projection 154, its other end will come into contact with a projecting arm 156 on the rock shaft 99. This rock shaft is provided with a spring 157, which normally holds the locking arms 152 out of engagement with the indicator wheels, but when said rock shaft is actuated in the manner just described, the locking arms are thrown over into a position where their hook-like ends 153 engage the teeth 153<sup>a</sup> of the register wheels and prevent further motion thereof as long as a torsional strain is maintained on the shaft 58. When said shaft 58 is released, the spring 157 throws the locking arms out of engagement, and the shaft may be again used to reset the wheels.

The overthrow preventing mechanism is also operated by the common slide bar G, the upper end of which, indicated at 158, is extended upward sufficiently to come into contact, near the end of its upward stroke, with a projection 159, carried by the rock shaft 99 and preferably provided with an anti-friction roller 160. In this way, the overthrow preventing mechanism is operated

every time a fare is registered, as well as upon the resetting of the indicators I and J.

In connection with the various printing counters and printing wheels employed for recording the different data hereinbefore referred to, I also employ a recording device, which I term a conductor's key, and by means of which a distinctive character, such, for instance, as a number, may be brought into printing position in alinement with the various printing wheels. One of these devices is shown in Fig. 31 and indicated by the reference letter M. It consists of a bar 161, having a handle 162 and an inclined terminal printing face 163, carrying a printing character thereon. Each conductor will be provided with a key having a distinctive character. An inclined guide way 164 is suitably supported in a fixed position in the casing at such an angle as to bring the printing surface 163 into alinement with the various printing wheels when the key is inserted in said guide way, and the outer casing will be provided with a suitable opening, through which the key may be inserted into the guide way 164. In order to insure the proper positioning of the key and the holding of it there with sufficient resistance to make an impression, I provide inside of the body 161 of the key a recess 165, and I mount in the side of the guide way 164 a casing 166, containing a detent pin 167 and a backing spring 168. When the key is thrust into the guide way it will pass down the same, its front end being beveled at one side, as indicated at 169, to press back the detent pin, and when the key has reached the proper position, the detent pin will spring into the recess 165 and hold the key in such position. From an inspection of Fig. 33 it will be seen that the upper wall of the recess 165 is relatively abrupt, so as to insure the stoppage of the key at the proper point, while its lower wall is gradually inclined, said incline being sufficient to hold the key against the printing pressure, while at the same time permitting its withdrawal.

It will be understood, of course, that when a record is to be taken, the conductor inserts his key, so that his distinctive mark will form a part of the record, and then withdraws the key, which he keeps in his possession.

I also provide an audible alarm or signal to indicate the registering of each fare, and to this end there is mounted on the back of the base 2 a bell, N, and a striking lever N', pivoted at n, and provided with a striker n'. A spring N<sup>2</sup> draws the lever toward the bell, and a stop pin n<sup>3</sup> prevents it from contacting therewith when at rest. The lever N' is provided with a pin N<sup>3</sup>, which projects forward through a slot n<sup>3</sup> in the base 2. The pawl yoke 57 is provided with a tripping dog O, pivoted on its front face by means of a pivot screw o, and having an inclined or oblique

rib or flange O', which is held normally against the under side of the pawl yoke by means of a spring o'. During the upward or effective movement of the pawl yoke, the rib O' comes into contact with the pin N<sup>3</sup>, and, the tripping dog being held in a fixed position relatively to the yoke by reason of the rib O' being pressed against the under side of the yoke, the striking lever will be drawn away from the bell until the rib O' passes clear of the pin N<sup>3</sup>, when the spring N<sup>2</sup> will cause it to fly back and strike the bell. During the return movement of the yoke, the rib strikes the pin on its other side, and the tripping dog turns on its pivot to pass the pin without moving it, said dog being returned to normal position by the spring o' when the rib O' has passed the pin.

Referring now to the impression mechanism by which a record is taken from the various printing devices previously described, the same is operated from a rock shaft 170, mounted in the lower portion of the frame and having one of its ends projecting outside of the outer casing and provided with an operating handle or lever 171. Within the casing there are mounted on the rock shaft 170, near each end thereof, pinions 172, from which motion is imparted to the impression, inking and paper feeding devices in the manner hereinafter described. The motion of the rock shaft 170 is limited by adjustable stops, each consisting of a collar 173, located at right angles to the shaft 170 on which it is mounted, and provided with a stop screw 174, threaded through said collar and provided with a locking nut 175. Stop plates or projections 176 are carried by the base 2, with which the ends of the stop screws come into contact at the limit of motion in each direction, and said screws may be adjusted so as to determine these limits, as desired.

I also provide a locking mechanism, controlled by the conductor's key hereinbefore referred to, which keeps the shaft 170 locked except when a conductor's key is properly inserted in the machine. To this end, the shaft 170 is provided with a collar 177, having therein a notch 178, normally engaged by a spring locking pawl 179, this engagement taking place when the printing lever is at the limit of its motion and in its normal position. A rod 190 is pivoted to the pawl 179 and extends through suitable guides forward into the path of the key N. The front end of the rod 180 is preferably beveled, as shown at 181, and the extremity or toe of the key N is also correspondingly beveled off, as shown at 182, so that, when the key is pushed home, the rod 180 is pushed back and disengages the pawl 179, thereby freeing the shaft 170 and the printing mechanism.

The printing mechanism proper comprises a housing 183 at each end of the base of the machine at the lower part thereof, in which

is mounted a shaft 184, carrying at each end a gear 185, which meshes with the corresponding pinion 172. Each housing 183 has formed in its outer face a way 186, in which is mounted to slide vertically a slide 187, provided with a rack bar 188, which meshes with the corresponding gear 185. Each slide 187 is provided with a slot 187<sup>a</sup>, which is relatively short and which registers with a longer slot 183<sup>a</sup> in the housing 183.

189 indicates an impression bar, which is mounted to slide in ways 190 in the inner faces of the housings 183, and which is provided at each end with a pin 189<sup>a</sup>, which projects through the slot 183<sup>a</sup> into the slot 187<sup>a</sup>. This impression bar is preferably provided with an impression surface 191, of rubber or the like, by means of which it may press the paper against the printing surface of the printing counters. This bar may thus be reciprocated vertically upward, so as to cause it to press the paper against the type faces of the printing counters, etc., and then downward, so as to withdraw it after the impression is made. The inking may be accomplished either by an inking roller or an inking pad, and, in the present instance, I have shown an inking pad 192. This pad is carried in a support or housing 193, provided at each end with a plate 194, having therein a cam slot 195, having a straight and normally vertical portion 196 and a lower portion 197, curved, as shown, and standing at an angle to the portion 196.

Each of the housings 183 has on its inner face a fixed pin 198, which enters the corresponding slot 195. Each of the rack bar carriers or slides 187 is provided with a pin 199, which extends through a vertical slot 200 in the housing and is pivotally connected with the corresponding plate 194. It results from this construction that when the inking pad is at rest, its normal position is that shown in Fig. 26, in which it is withdrawn slightly below the impression surface of the printing wheels. When the handle or lever 171 is depressed, the slides 187 first move upward without moving the impression bar, and the inking pad is carried up to the position shown in Fig. 27, the pins 198 traveling in the straight portions 196 of the slots 195, and the inking pad being pressed against the printing wheels. Further upward motion of the slides 187 causes the inking pad to swing around the pins 198 as pivots, swinging said pad outward and upward out of the way of the impression bar, which now begins to move upward, so as to press the paper against the printing wheels. Upon the return movement of the parts, the inking pad again swings down into position and travels back to the position shown in Fig. 26. The paper is carried in the form of a roll on a rod 201, removably supported in bearings 202, attached to the lower ends of the housings

183. This rod is provided at one end with a milled head 203, by means of which it may be manipulated, and its other end is made conical, as shown at 204, see Fig. 30, and is provided with an annular groove 205. The bearing 202 at that end is provided with a housing or casing 206, carrying a detent pin 207, backed by a spring 208, which will hold the rod 201 in position, but permit its ready withdrawal. The paper passes between the impression bar 189 and the housing 193 of the inking pad and thence between the feed rollers 209 and 210. The feed roller 209 is preferably of metal with a roughened surface at intervals thereon, while the feed roller 210 is preferably of rubber. The feed roller 209 has a shaft 211, which has secured thereon a gear 212, which meshes with a similar gear 213 on the shaft 214 of the feed roller 210.

215 indicates a pawl arm, hung loosely on the shaft 211, and provided with a spring pawl 216, which is adapted to engage a ratchet wheel 217, secured on the shaft 211. Said pawl arm is provided with a pin 218, which takes in a slot 219 in the slide 187 at that side of the machine. By reason of this construction, during the downward or return motion of the slide, the feed rollers are rotated so as to feed the paper forward the necessary distance. A straight edge or tearing plate 220 extends across the space between the feed rollers on the under or discharge side thereof and forms a ready means of tearing off the printed portion of a sheet after it has been withdrawn from the machine. To facilitate this withdrawal, the feed roller 210 is adjustable towards and from its companion feed roller, and to this end, its shaft 214 is mounted in slots 221 in the housings 183.

At each end of the printing mechanism there is mounted a plunger 222, forced normally upward by a spring 223, and bearing against the shaft 214, so as to force the lower feed roller towards the upper one. The separation is effected by means of a slide 224, mounted on the inner face of each housing 183 and guided thereon by a slot 225 in the slide, and pins or screws 226 passing through said slot into the housing. At the upper end of each slide there is pivoted at 227 a cam arm 228, having a wedge-like end portion 229, lying between the shafts 211 and 214 and provided at its widest portion with a notch or recess 230. By pressing upward on the thumb piece 231 at the lower end of the slide 224, the wedge 229 may be forced between the feed roller shafts, so as to force the lower shaft downward, and this motion will continue until the notch 230 comes underneath the upper shaft 211, which will seat itself therein and hold the parts stationary with the feed rollers separated. A downward pull on the slides 224 will permit the springs 223 to bring the lower feed roller up again into contact with the upper feed roller.

In order to maintain a proper tension upon the roll of paper, I employ a plate 232, pivoted on a rod 233, mounted in extensions 234 of the brackets 202. Springs 235 serve to press this plate against the roll of paper.

As a matter of material advantage in the reading of the records, I prefer to employ distinctive inks for various parts thereof, and, in Figs. 35 and 36, I have shown an arrangement whereby those portions of the inking pad which supply ink to the total cash printing counter, the grand total passenger printing counter, the trip total passenger printing counter, and the conductor's key, are supplied with a different ink, such, for instance, as red, from the remainder of the inking pad, on which ordinary black ink may be used. In this way, the most important figures and those relating to the particular trip, and which are reset after the record is taken, may be more easily read and noted.

The general operation of the machine, where it is used as a street car register, and in the customary manner in which such registers are used, is as follows. Assuming that all of the counters have been set to zero, the dater set to print the proper date, and the direction indicating wheel set to print the proper direction of the trip, as "In" or "Out", the conductor will, upon the receipt of a fare of any kind, move the actuating slide provided for that fare, by means of a suitable operating mechanism for the purpose. Assuming that a five cent cash fare is paid, the movement of reciprocation thus imparted to the actuating slide A will indicate or add one on the five cent fare total printing counter. It will also add or indicate five on the cash total printing counter. It will also indicate or add one on the grand total passenger printing counter, and one on the trip total passenger printing counter. It will also indicate or add one on the trip total passenger indicating register. It will cause the five cent fare indicator to become visible, and will return the indicator previously showing to a non-indicating position. It will also ring the bell. Similarly, each actuating slide will add one to its own printing counter and will also add one to both the grand and trip total passenger printing counters, and at the same time add one to the trip total passenger indicating register. Those actuating slides which relate to cash fares will at the same time add to the cash total printing counter the amount of cash paid as fare. At the end of the trip, the conductor will insert his key in the machine, thereby unlocking the printing mechanism, and will press the printing lever down and back. This will make a record for the particular trip, and after this record has been made, the machine is reset by turning the head 64, which will make one complete revolution, and which will thereby accomplish the following results: first, it sets to zero the



trip total passenger indicating register; second, it sets to zero the trip total passenger printing counter; third, it adds one to the trip number printing counter; fourth, it shifts the direction indicating wheel one space, changing it from "In" to "Out", or the reverse, as the case may be; fifth, it shifts the corresponding direction printing wheel one space to make it correspond to the indicating wheel. During the next or return trip, the actuating slides are used as before, and at the end of the trip the resetting is again accomplished by turning the shaft 58 through the medium of the hand wheel 64.

Thus at the end of every trip a record is made, giving the direction of the trip, its number, the total amount of cash received on that trip, the total number of passengers carried on the trip, and the conductor's mark or number. In addition to this, the record comprises a continuous or grand total of each particular kind of fare received, the grand total number of passengers carried, and the date of the particular record. These are arranged in a row, as shown in Fig. 37, and the figures, etc., of the successive records are arranged in columns, as also shown in said figure. At any predetermined time, such, for instance, as the end of the day, or the end of the day's run for the particular car, the key 92 may be inserted in the machine and turned so as to set to zero the trip number printing counter and the cash total printing counter. The outer casing is provided with a hinged lower portion, kept locked by a key, and which may be opened by the proper person to give access to the printing mechanism, so as to inspect the printed record upon the continuous strip, and this record may be then removed, if desired, the straight edge 220 affording a ready means for tearing it off, while the lower feed roller may be dropped down to permit the withdrawal of the paper, and then readily replaced, by means of the mechanism provided for that purpose.

Where the indicating wheel J and the corresponding printing wheel J' have the names of successive stations thereon, a record may be taken at each station, and the general resetting mechanism operated at the end of each trip.

Obviously, although I have shown one particular embodiment of my invention, the details of construction may be varied and some of the features may be dispensed with without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself to the precise details hereinbefore described and shown in the accompanying drawings.

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

1. In a fare register, the combination, with a plurality of specific fare printing

counters, of a separate actuating mechanism for each counter, a grand total passenger printing counter, and operating mechanism whereby said last-mentioned counter is actuated by each of the specific fare actuating mechanisms, substantially as described.

2. In a fare register, the combination, with a plurality of specific fare printing counters, of a separate actuating mechanism for each counter, a trip total passenger printing counter, operating mechanism whereby said last-mentioned counter is actuated by each of the specific fare actuating mechanisms, and means for resetting said trip total passenger printing counter independently of the other counters, substantially as described.

3. In a fare register, the combination, with a plurality of specific fare printing counters, of a separate actuating mechanism for each counter, a grand total passenger printing counter, a trip total passenger printing counter, operating mechanism whereby said two last-mentioned counters are actuated by each of the specific fare actuating mechanisms, and means for resetting the trip total passenger printing counter independently of the other counters, substantially as described.

4. In a fare register, the combination, with a plurality of specific fare printing counters, of a separate actuating mechanism for each counter, a grand total passenger printing counter, a trip total passenger indicating register, and operating mechanism whereby said last-mentioned counter and register are actuated by each of the specific fare actuating mechanisms, substantially as described.

5. In a fare register, the combination, with a plurality of specific fare printing counters, of a separate actuating mechanism for each counter, a trip total passenger printing counter, a trip total passenger indicating register, operating mechanism whereby said last-mentioned counter and register are actuated by each of the specific fare actuating mechanisms, and means for resetting said trip total passenger printing counter and indicating register independently of the other counters, substantially as described.

6. In a fare register, the combination, with a plurality of specific fare printing counters, of a separate actuating mechanism for each counter, a grand total passenger printing counter, a trip total passenger printing counter, a trip total passenger indicating register, operating mechanism whereby said two last-mentioned counters and said register are actuated by each of the specific fare actuating mechanisms, and means for resetting the trip total passenger printing counter and indicating register independently of the other counters, substantially as described.

7. In a fare register, the combination, with a plurality of specific fare indicators and a corresponding plurality of specific fare printing counters, of separate actuating mechanisms for simultaneously operating each fare indicator and the corresponding counter, a grand total passenger printing counter, and operating mechanism whereby said last-mentioned counter is actuated by each of the specific fare actuating mechanisms, substantially as described.

8. In a fare register, the combination, with a plurality of specific fare indicators, and a corresponding plurality of specific fare printing counters, of separate actuating mechanisms for simultaneously operating each fare indicator and the corresponding counter, a trip total passenger printing counter, operating mechanism whereby said last-mentioned counter is actuated by each of the specific fare actuating mechanisms, and means for resetting said trip total passenger printing counter independently of the other counters, substantially as described.

9. In a fare register, the combination, with a plurality of specific fare indicators, and a corresponding plurality of specific fare printing counters, of separate actuating mechanisms for simultaneously operating each fare indicator and the corresponding printing counter, a grand total passenger printing counter, a trip total passenger printing counter, operating mechanism whereby said two last-mentioned counters are actuated by each of the specific fare actuating mechanisms, and means for resetting the trip total passenger printing counter independently of the other counters, substantially as described.

10. In a fare register, the combination, with a plurality of specific fare indicators, and a corresponding plurality of specific fare printing counters, of separate actuating mechanisms for simultaneously operating each fare indicator and the corresponding printing counter, a grand total passenger printing counter, a trip total passenger printing counter, a trip total passenger indicating register, operating mechanism whereby said two last-mentioned counters and said register are actuated by each of the specific fare actuating mechanisms, and means for resetting the trip total passenger printing counter and indicating register independently of the other counters, substantially as described.

11. In a fare register, the combination, with a plurality of specific fare printing counters for indicating different cash and other fares, of a separate actuating mechanism for each counter, a total cash adding printing counter, and differential mechanism connecting said last-mentioned counter with each of the specific fare actuating mechanisms relating to cash fares, whereby each of such cash fare actuating mechanisms will

simultaneously actuate its own specific printing counter and add the amount of such cash fare on the adding counter, substantially as described.

12. In a fare register, the combination, with a plurality of specific fare indicators, and a corresponding plurality of specific fare printing counters, of separate actuating mechanisms for simultaneously operating each fare indicator and the corresponding printing counter, a trip total passenger printing counter, a trip total passenger indicating register, operating mechanism whereby said last-mentioned counter and register are actuated by each of the specific fare actuating mechanisms, means for resetting the trip total passenger printing counter and indicating register independently of the other counters, a total cash adding printing counter, differential mechanism connecting said last-mentioned counter with each of the specific fare actuating mechanisms relating to cash fares, whereby each of said cash fare actuating mechanisms will simultaneously actuate its own specific printing counter and add the amount of such cash fare on the adding counter, and means for resetting said adding counter independently of the other counters, substantially as described.

13. In a fare register, the combination, with a plurality of specific fare indicators, and a corresponding plurality of specific fare printing counters, of separate actuating mechanisms for simultaneously operating each fare indicator and the corresponding printing counter, a grand total passenger printing counter, a trip total passenger printing counter, a trip total passenger indicating register, operating mechanism whereby said two last-mentioned counters and said register are actuated by each of the specific fare actuating mechanisms, means for resetting the trip total passenger printing counter and indicating register independently of the other counters, a total cash adding printing counter, differential mechanism connecting said last-mentioned counter with each of the specific fare actuating mechanisms relating to cash fares, whereby each of such cash fare actuating mechanisms will simultaneously actuate its own specific printing counter and add the amount of such cash fare on the adding counter, and means for resetting said adding counter independently of the other counters, substantially as described.

14. In a fare register, a direction indicating wheel and means for operating the same, in combination with a direction printing wheel moving in unison therewith, and a printing counter for recording the number of movements of said wheels, substantially as described.

15. In a fare register, a direction indicating wheel and means for operating the same, in combination with a direction printing



wheel moving in unison therewith, a printing counter for recording the number of movements of said wheels, and means for resetting said printing counter, substantially as described.

16. In a fare register, a direction indicating wheel and means for operating the same, in combination with a direction printing wheel and a trip printing counter alined on a common shaft and acting in unison with the direction indicating wheel, and means for resetting said printing counter independently of the printing wheel, substantially as described.

17. In a fare register, a plurality of specific fare and total printing counters, in combination with a cash total adding printing counter, a trip printing counter, a trip resetting mechanism operating said trip printing counter, and a separate general resetting mechanism for resetting said total cash printing counter and trip printing counter independently of the other counters, substantially as described.

18. In a fare register, a trip total passenger indicating register having a resetting shaft, and a direction indicating wheel, a direction printing wheel, and a trip printing counter actuated by said resetting shaft, substantially as described.

19. In a fare register, a trip total passenger indicating register provided with a resetting shaft, a direction indicating wheel, a direction printing wheel, and a trip printing counter actuated by said resetting shaft, and independent means for resetting said trip printing counter, substantially as described.

20. In a fare register, and, in combination, a trip total passenger printing counter, a grand total passenger printing counter, specific fare total printing counters, a total cash adding printing counter, a trip printing counter, a trip printing wheel, and date printing wheels, all of said printing wheels and counters being arranged in alinement, a separate type bar or key bearing a distinctive printing character and adapted to be inserted in the machine and brought into printing alinement with said counters and wheels, a trip total passenger indicating register, specific fare indicators, a direction indicator, means for operating said counters, indicators and registers, a trip resetting mechanism for resetting the trip total passenger indicating register and the corresponding printing counter, said resetting mechanism also actuating the direction indicator, the direction printing wheel and the trip printing counter, and a separate resetting mechanism for simultaneously resetting the total cash adding printing counter and the trip printing counter, substantially as described.

21. In a fare register, the combination, with a plurality of independently movable actuating slides, each provided with two in-

clined cam projections, of a corresponding plurality of slide bars mounted to slide in ways at right angles to the actuating slides and adapted to be engaged by one of the cam projections of the corresponding actuating slide, a separate counter actuated by each of said slide bars, a common slide bar adapted to be engaged by the other cam projection of each of the actuating slides, and a counter or register operated by said common slide bar, substantially as described.

22. In a fare register, the combination, with a plurality of actuating slides, and a corresponding plurality of slide bars independently operated thereby and moving in parallel guide ways, said slide bars having a substantially equal range of movement, of an adding counter, a rack slide bar connected with said counter and moving parallel with the first-mentioned slide bars, one of which is provided with a rack, a mutilated gear meshing with said rack and adapted to mesh with the rack slide bar, and a pivoted lever provided with a gear segment also adapted to mesh with said rack slide bar and operatively connected with the other of the first-mentioned slide bars, whereby a differential movement is imparted to said rack slide bar, substantially as described.

23. In a fare register, two fare indicators rotatably and concentrically mounted and having indicating bodies lying one within the other and provided with indicating and blank portions, each indicator being provided with a locking notch and cam projection, springs for returning said indicators to their normal or blank positions, means for separately rotating said indicators against said springs, and a spring controlled rock shaft provided with an arm located in the path of the cam projections and adapted to engage the locking notches, substantially as described.

24. In a fare register, a plurality of groups of fare indicators, each consisting of two indicators rotatably and concentrically mounted and having indicating bodies lying one within the other and provided with indicating and blank portions, each indicator being provided with a locking notch and cam projection, springs for returning said indicators to their normal or blank positions, means for separately rotating said indicators against said springs, and a spring controlled rock shaft provided with arms located in the path of the cam projections and adapted to engage the locking notches, substantially as described.

25. In a fare register, a trip total passenger indicating register, a resetting mechanism therefor, an overthrow preventing mechanism operated by the resetting mechanism, and an actuating mechanism for said register, also operating the overthrow pre-

venting mechanism, substantially as described.

26. In a fare register, a trip total passenger indicating register, a resetting mechanism therefor, and an overthrow preventing mechanism operated by the resetting mechanism, in combination with a plurality of separate actuating mechanisms, one for each fare, and a common actuating member adapted to be engaged and operated by each actuating mechanism and in turn actuating the overthrow preventing mechanism, substantially as described.

27. In a fare register, the combination, with a plurality of alined printing wheels, of a guide way provided with a detent, and a type bar or key provided with a distinctive printing character, adapted to be inserted in said guide way and held in alined printing position by said detent, substantially as described.

28. In a fare register, the combination, with alined printing wheels, and an impression mechanism comprising a rock shaft provided with a notch, of a spring pawl normally engaging said notch to lock the shaft at its limit of motion, an operating arm connected to said pawl, a fixed guide way, and a type bar or key provided with a distinctive printing character and adapted to be inserted in said guide way with its printing character in alined printing position, said key when thus inserted engaging the operating arm and releasing the locking pawl, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

WILFRED I. OHMER.

Witnesses:

KATHARINE P. EVANS,  
W. H. H. ECKI.