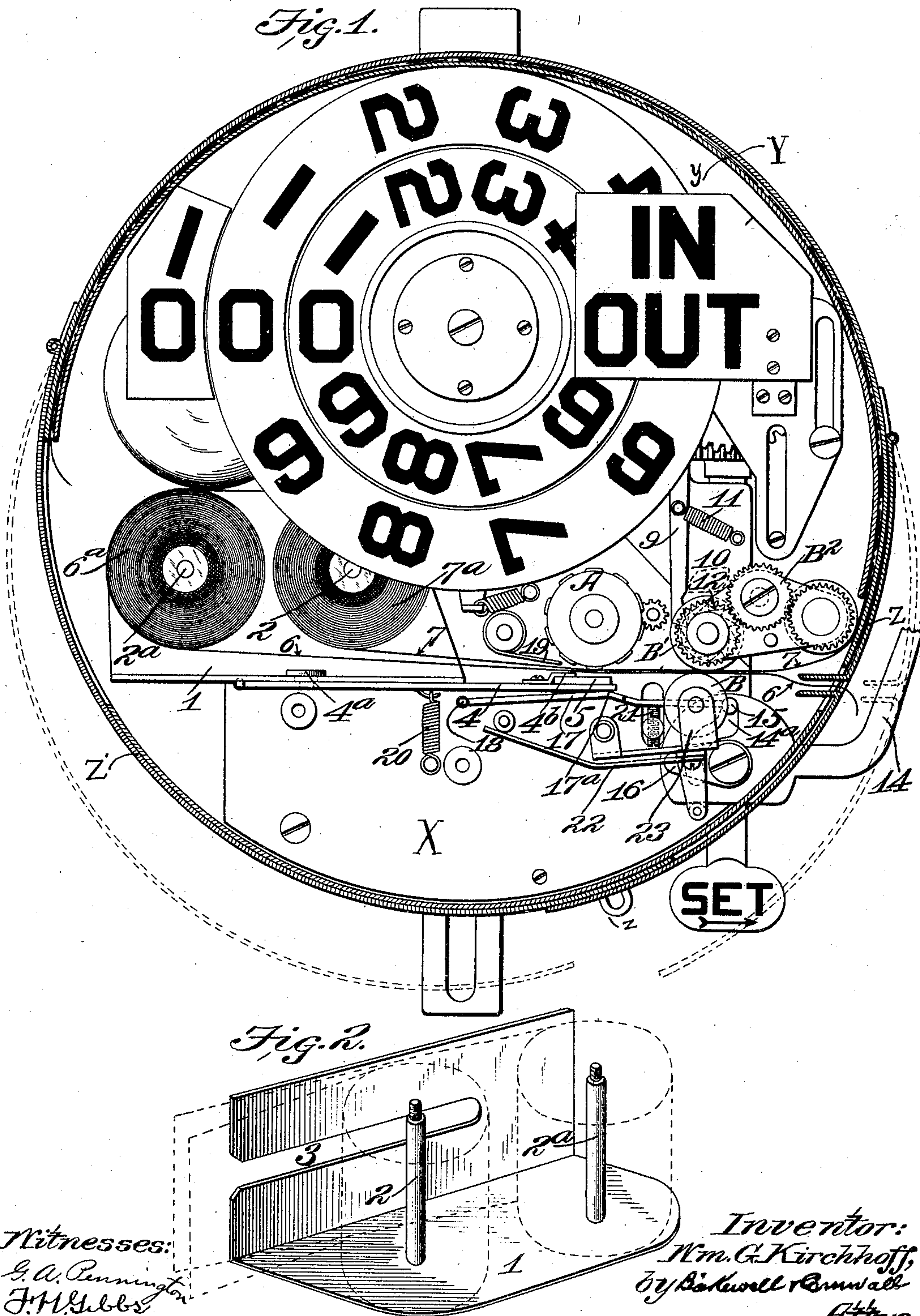


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PATENTED JULY 11, 1905.

W. G. KIRCHHOFF.
FARE REGISTER.

APPLICATION FILED SEPT. 27, 1902.



UNITED STATES PATENT OFFICE.

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FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 794,509, dated July 11, 1905.

Application filed September 27, 1902. Serial No. 125,022.

To all whom it may concern:

Be it known that I, WILLIAM G. KIRCHHOFF, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Fare-Registers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevational view of my invention, and Fig. 2 is an isometrical perspective of the paper-roller-carrying bracket.

This invention relates to the means for perpetuating a record of the number of fares of a single class or of all classes indicated by a fare-register, and has special reference to the devices used in printing or marking such record, either in conjunction with fare-registers of which I am the sole or one of the joint inventors, as well as in devices of a similar character; and it consists in the several features of novelty in arrangement and in the detail construction of parts, all as hereinafter more fully described, and specifically pointed out in the claims.

It has been my practice heretofore in this class of devices, as shown in Letters Patent No. 683,471, of October 1, 1901, granted to me, to provide a roll of paper adapted to be fed past a totalizer and insert in the fare-register what is known as a "conductor's strip," on which, as well as on said continuous strip, impressions of the numbers of fares registered were imprinted by means of type with projecting faces adapted to make a clean-cut impression upon said conductor's strip, at the same time printing through the thinner superimposed continuous strip, which retained its impression and was only removable by an authorized agent of the company, while the conductor's strip was removable by the conductor after it had received its impression. To insure the use of the conductor's strip, means have been provided to render some of the essential parts of the device inoperative except at such times as said strip was in position, all

of which tended to add to the number of operative parts of the fare-register and rendered it more liable to accident, because of such complication of parts, in addition to which said conductors' strips, serving as they did the double purpose of recording strips and stops for parts of the locking mechanism, were necessarily made of heavy cardboard. Such strips were provided upon one face with firm compact surface, while the opposite or printing face was of softer material, such as "blotting-paper," to more readily take an impression from the printing totalizer-wheels. The conductors' strips if carefully inserted in place were not liable to do any damage; but owing to the fact that they were brought into contact with the thinner continuous strip within the register where the point of contact was not clearly visible such conductors' strips frequently injured the continuous strip and sometimes completely severed it from its roll, thereby placing out of commission the permanent record of the company. Another feature of the conductor's strip which I seek to avoid is the heavy expense incident to the use thereof. The material thereof being of the nature described, the weight for a given lineal quantity is comparatively much in excess of a light thin paper and the cost is so excessive as to cause investigation to create economy in this feature, which has resulted in the production of the present device, in which—

A is the bank of numeral-wheels, commonly known as the "totalizer" and hereinafter called the "marker." B B' are the feed-rollers, which bear, respectively, upon the lower strip of paper and upon the upper strip, the roller B' having geared to it through the intermediate gear B² a third feed-roll, bearing upon said upper strip and causing it to advance within the shell of the fare-register casing, said shell being shown in said patent referred to in detail. Hence as no claim is made thereto no detailed description thereof or of other well-known features of fare-registers will be attempted here, and only such reference thereto will be made as may be necessary to a correct understanding of my pres-

ent invention. In convenient proximity to said marker A is a bracket 1, provided with two spindles 2 2^a, upon which may be mounted two rolls of paper or upon one of which
 5 may be mounted a single roll composed of two superimposed layers of paper adapted to be unwound together. Said bracket 1 is provided with a longitudinal slot 3. Pivotally
 10 mounted in convenient supporting means below said bracket is a platen 4, which, with said marker A, forms a paper-channel, the platen forming the lower or bed member thereof, and connected slidably to said platen,
 15 so as to be easily removed to supply paper, is said paper-bracket, a stud 4^a with an enlarged head fitting in said slot 3 to hold said bracket in position. Upon the upper face of said
 20 platen is a clip 4^b, in which may be inserted the cushion 5, which is preferably formed of soft rubber or some suitable material adapted to present a cushioned surface, upon which
 25 may rest the paper strips 6 and 7 coming from the rolls 6^a and 7^a, respectively, and being fed through the channel between the platen and the marker by the rollers B B'.
 30 It will be apparent that said cushion 5 may be held in place by any suitable securing means, however, such as a rivet or any equivalent thereof, and the clip is only shown as a convenient means for securing a removable cushion therein, as it may be necessary to replace
 said cushion after long use thereof.

A pawl 9 is pivotally connected to a slidable plate 10 and by means of the spring 11
 35 is normally held in engagement with a ratchet 12 on the shaft with the feed-roller B'. Said slidable plate corresponds to the plate 70 of said patent and is operated on each resetting
 40 of the dial, as at the end of a trip, when conductors are changed, &c. In other words, whenever the face indicating members of the register are reset the mechanism of the register will move said plate in a direction to
 45 cause said pawl to engage its ratchet 12 and cause partial rotation of said feed-wheel, thereby advancing both strips of paper forward sufficiently to present a new surface in position to receive its imprint from the
 50 marker, which is imprinted thereon during such resetting of the number-dials shown, whereupon the characters or signs "In," "Out," &c., are shifted to indicate a trip in some other direction. If it is desired to obtain
 55 an impression from the marker at any intermediate point short of a full trip in one direction, as when a relief-conductor takes the car, the lever 14 is depressed, thus causing the cam 14^a to ride on the lug 15, projecting from
 60 said plate 10, and said lug following said cam will first cause said plate 10 to ride down toward the platen, thereby causing the pawl 9 to engage the rack of roller B' and advance the paper, after which the nose-piece 16 will
 65 engage the forward end of the arched plate 17, pivoted at 18, and cause its upper angle

17^a to bear against the under side of the said platen, thereby carrying the cushion with the interposed strips of paper 6 and 7 against the marker with considerable pressure, whereby
 an impression is made in both strips, one of which, 6, is accessible to the conductor and
 70 the other of which, 7, is carried around the casing of the register, as usual. When the lever 14 is in the position shown, the paper-feed rollers are so close together that feeding
 75 from one roll will cause advancement of the other roll; but when said lever is thrown down to permit the removal of the portion of strip 6 which the conductor wishes to tear
 80 off the said rollers are somewhat widely separated, thereby permitting the unwinding of said strip without unwinding from the other roll when two rolls are used, which is the preferred method, owing to the fact that but very
 85 slight advancement of the paper is necessary to record totals of trips, whereas the conductors are more inclined to tear off more generous portions in seeking to procure their individual strips.

Above the paper-channel and bearing against
 90 the upper or company strip is a yielding flat spring 19, which tends to guide such strip to the marker A. Secured at one end to the lower end of the platen is a spring 20, connected to said platen, and at the opposite end
 95 is connected to some fixed portion of the register for the purpose of retracting said platen after each impression has been made by said marker. The stop 21 serves to limit the movement of lever 17 and the spring 22 tends to
 100 hold the bracket 23 in its upper position, thus causing the roller B to ride normally in the lower portion of the paper-channel, where it may assist in passing the paper therethrough.

It will be noted that the "marker" of this
 105 construction is held on a fixed axis and receives its impulse from the usual old and well-known connections with conductors' straps, cord, &c., all of which is old in the art and is illustrated in said patent referred to. No ink
 110 being used, the paper strips may contact with the marker and cushions without becoming smeared therefrom and no record will be printed thereon accidentally or otherwise except at such predetermined times as said
 115 platen shall be actuated either in setting the numbers of the face-dial or the dial-hand, if one is used, back to zero or when the conductor's strip is removed.

In view of the fact that the two strips 6 and
 120 7 are fed uniformly it is obvious that the two rolls 6^a and 7^a, from which said strips are taken, are preferably of uniform size, so that they will become exhausted at about the same time. In this way the bracket may be re-
 125 moved and the two rolls renewed at the same time.

As usual in this class of registers, there is a base-casting, (marked X,) upon which the moving parts are mounted, and an inclosing
 130

casing Y, made of thin sheet metal, housing in the mechanism and supporting in position a face-plate, (not shown,) which is provided with openings to expose the proper numerals of the indicator-wheels and direction-plate, and above the face-plate is arranged a glass cover-plate. (Not shown.)

It will be noted that the strip 6 issues through an opening in a panel Z, which closes an opening in the casing Y, (so as to be accessible to the conductor,) while the strip 7 (the company's strip) passes up into a way formed in part by the casing Y and inner wall y . Two panels Z and Z' are hinged to the casing Y, said panels closing toward and overlapping each other, so as to cooperate with a hasp z common to both of them. In connection with this hasp a lock may be used, the key to said lock being retained by an authorized representative of the company.

The conductor may pull out and tear off any portion of his strip when the handle 14 is pulled down, as heretofore described; but when it is desired to tear off the printed portion of the company's strip it is necessary to gain access thereto, which is done by folding back the hinged panel Z', as shown by dotted lines in Fig. 1. It is desirable to remove the printed portions of the company's strip at intervals, as the capacity of the way formed between the walls Y and y is limited, and I deem it unnecessary to provide a special mechanism for winding the printed portion of the strip. In order to give access to the conductor's strip without disturbing the panel Z', I arrange the panel Z over the panel Z'. The panel Z' closes an opening through which access may be gained to the bracket 1, and if panel Z' can only be opened when the panel Z is open it follows that the rolls of paper can only be inserted by an authorized representative of the company. When the panel Z' is opened, the bracket 1 can be removed, new rolls of paper introduced on its spindles, said paper being threaded through its guideway between the printing wheels and platen, the operator starting the company's strip through its way and passing the end of the conductor's strip through its opening in the panel.

The bracket of course is slid into proper position in the machine, after which the panel Z' is closed to prevent access thereto, and afterward the panel Z is closed.

I am aware that many minor changes in the construction, arrangement, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus 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 casing containing a registering and printing mechanism, of a platen within the casing, a paper-bracket having a longitudinal slot, and a fastening device projecting through the slot and into the platen, said paper-bracket having a laterally-slidable movement on said platen into and out of the casing; substantially as described.

2. In a fare-register, the combination with a casing containing a registering and printing mechanism, of a platen within the casing, a paper-bracket having a longitudinal slot, and a fastening device projecting through the slot and into the platen, said paper-bracket having spindles, two rolls of paper on said spindles one of which has its printing portion issued through the casing to the exterior, and a hinged panel for closing access to the other of said strips contained within the casing, said hinged panel also preventing access to the paper-bracket and its carried rolls of paper; substantially as described.

3. A paper-bracket for fare-registers, comprising a portion having a longitudinal slot, a portion at one edge of the first-named portion and projecting at right angles thereto, and paper-holding means carried by the last-named portion; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 25th day of September, 1902.

WILLIAM G. KIRCHHOFF.

Witnesses:

FREDERICK H. GIBBS,
GEORGE BAKEWELL.