W. G. & O. S. LAMB.

CHANCE CONTROLLED INDICATOR.

APPLICATION FILED FEB. 13, 1909.

934,550.

Patented Sept. 21, 1909.

3 SHEETS—SHEET 1.

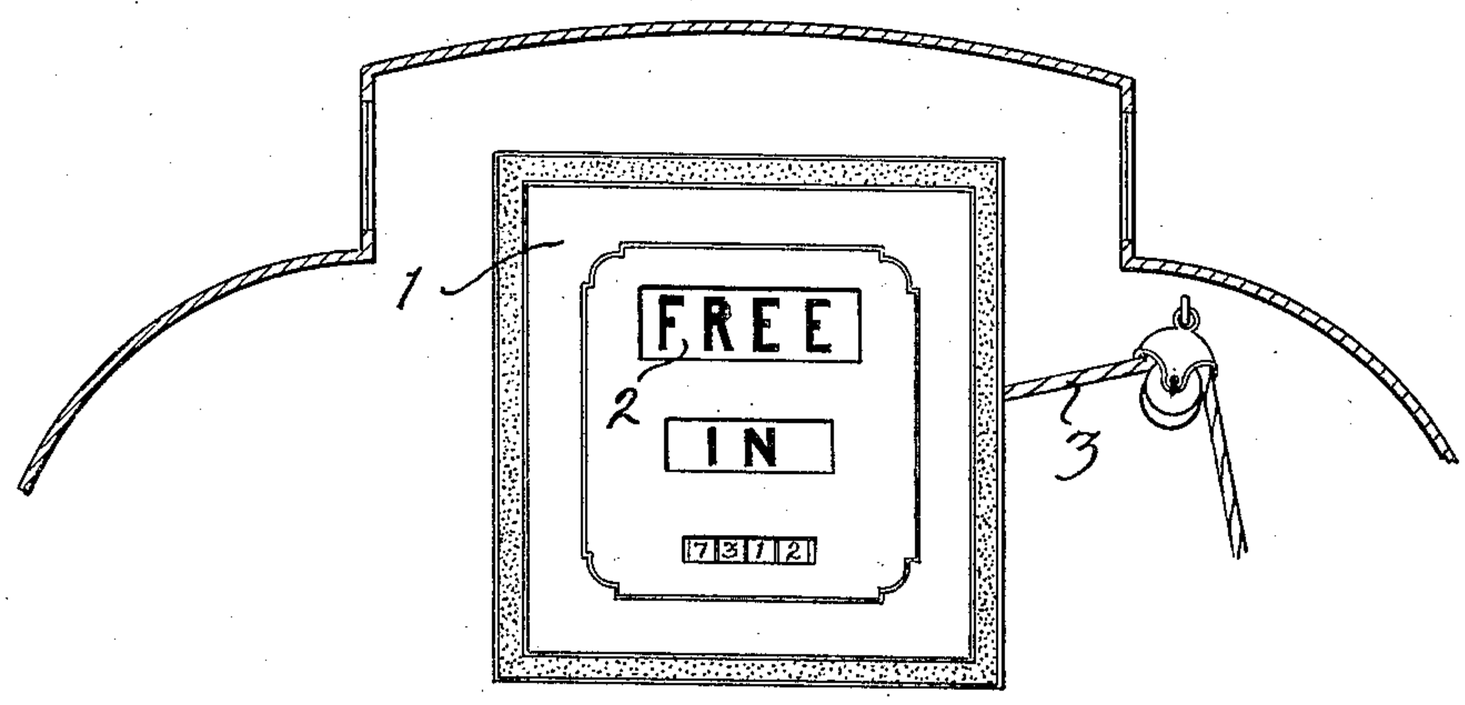

Fig. 1.

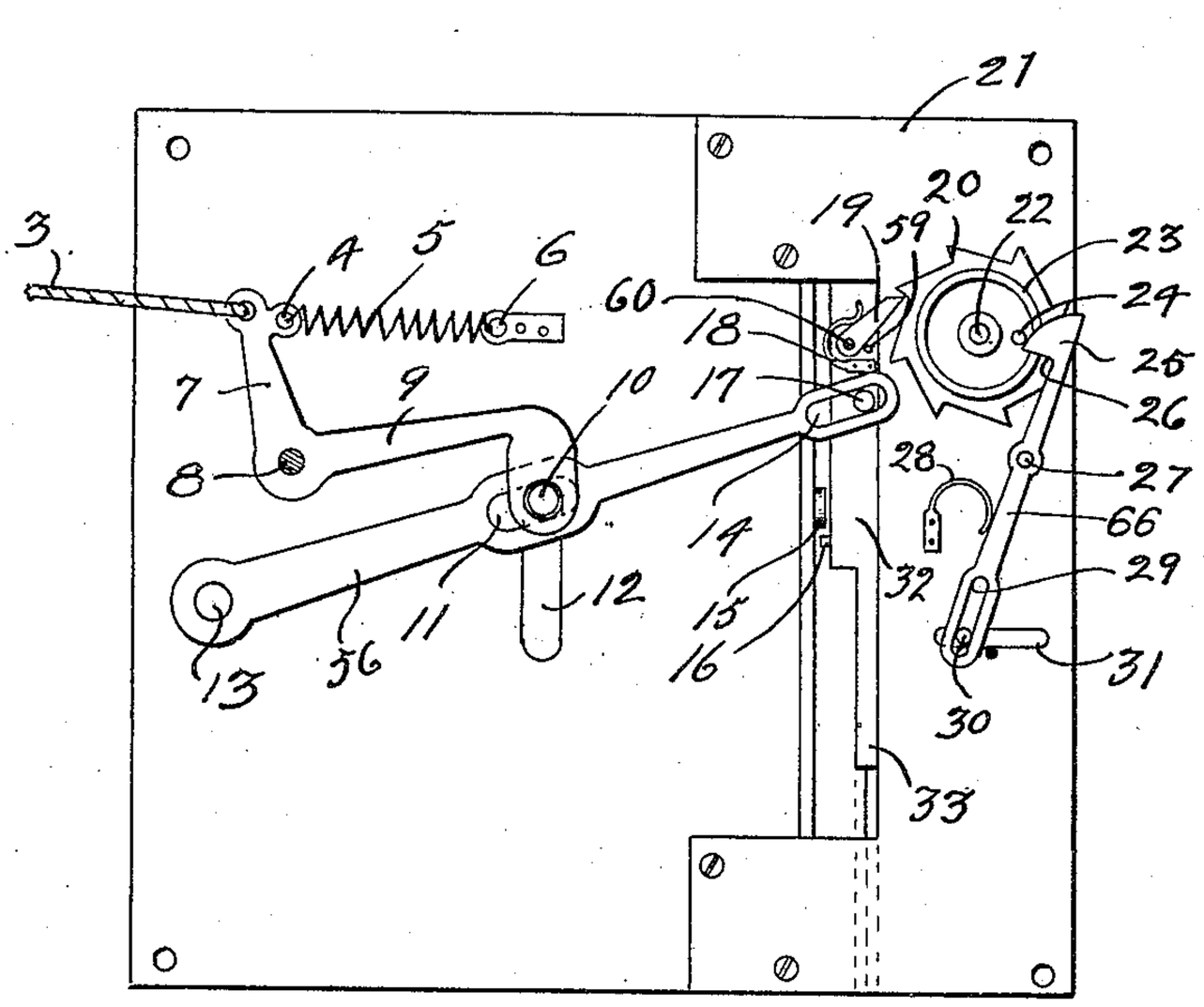

Fig. 2.

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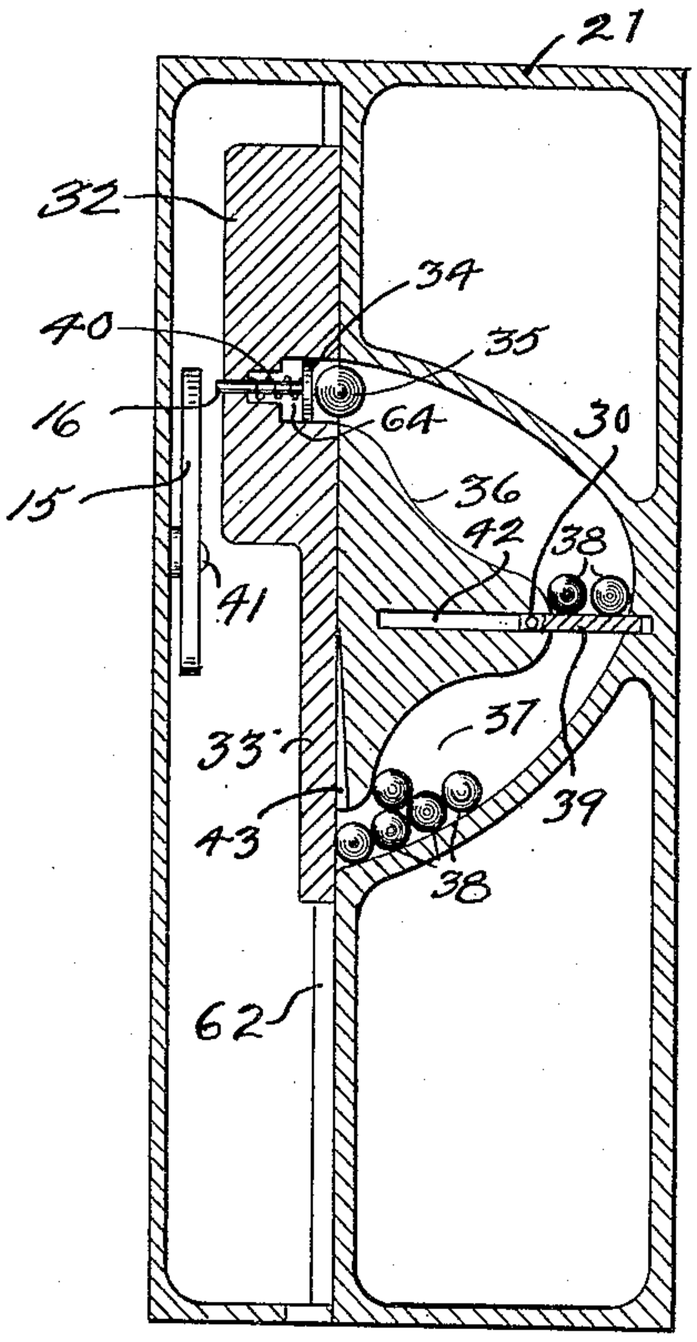

Fig. 3.

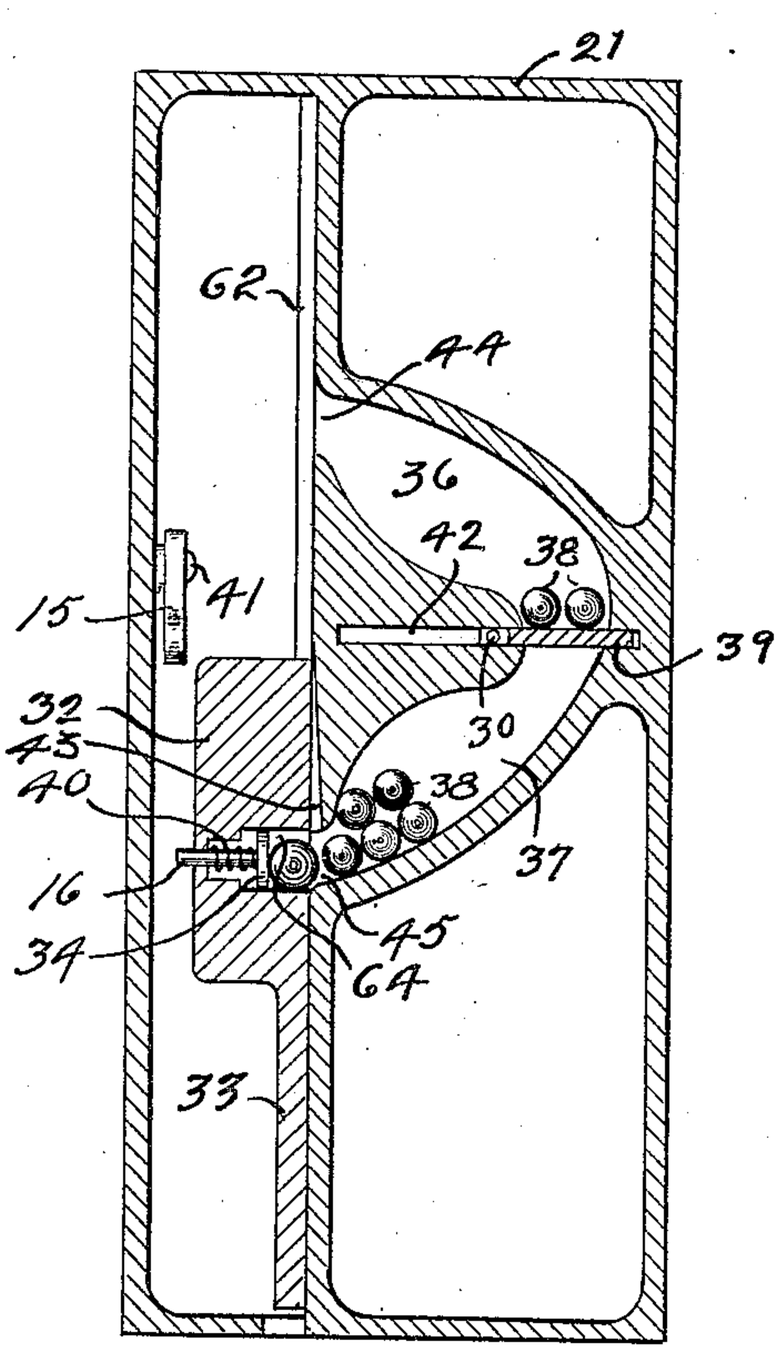

Fig. 4.

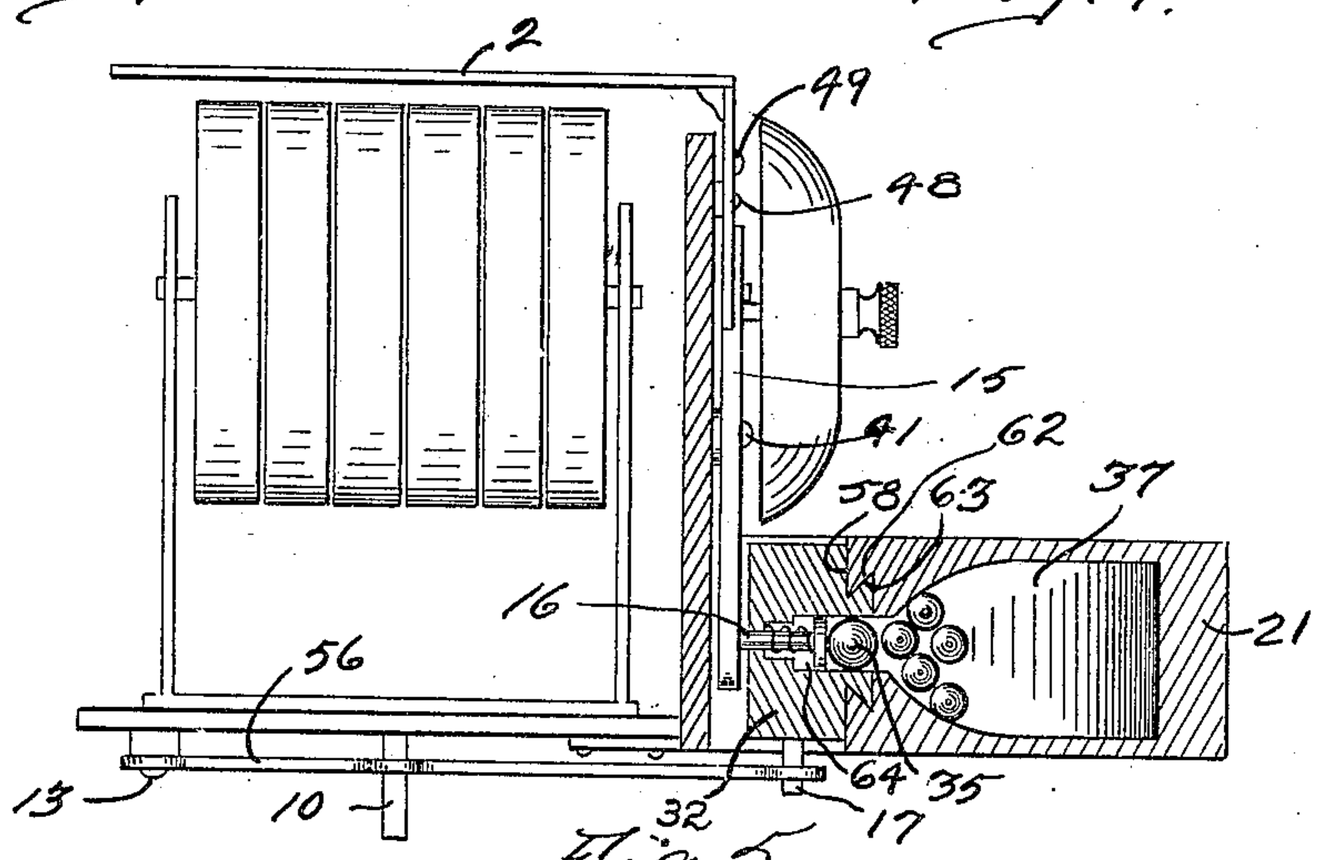

Fig. 5.

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3 SHEETS—SHEET 3.

Fig. 6.

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UNITED STATES PATENT OFFICE.

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CHANCE-CONTROLLED INDICATOR.

934,550. Specification of Letters Patent. **Patented Sept. 21, 1909.**

Application filed February 13, 1909. Serial No. 477,782.

To all whom it may concern:

Be it known that we, WILLIAM G. LAMB and ORANGE S. LAMB, citizens of the United States of America, and residents of Oelwein, Fayette county, Iowa, and of Waterloo, Blackhawk county, Iowa, respectively, have invented certain new and useful Improvements in Chance-Controlled Indicators, of which the following is a specification.

Our invention relates to improvements in chance-controlled indicators, and the object of our improvement is to provide for passenger-vehicles an apparatus capable of indicating one gratis fare only in any certain predetermined numeric sequence of units of fares in which all but the one mentioned are paid, the mechanism of the device being adapted to be chance-controlled in the allotment and variation of the serial location of each gratis fare among the units of each of said predetermined numeric series of paid fares inclusive of the gratis fare. This object we have accomplished by the mechanism which is hereinafter fully described and claimed, and which is illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation of the indicating dial of our device. Fig. 2 is an elevation of the manually-operable mechanism devised for actuating the ball-carrier, with the coacting means for moving the sliding partition. Fig. 3 is a vertical longitudinal section of the ball-shifting means and carrier, showing said ball-shifting means in its upper position and in the act of delivering a ball upon the sliding partition. Fig. 4 is a similar sectional view, showing said ball-shifting means in its lowermost position, and in the act of receiving a ball from the lower ball-receiving chamber. Fig. 5 is a horizontal section taken through the lower ball-receiving chamber and the ball-receiving pocket in the ball-shifting means. Fig. 6 is an external side elevation of the casing showing the movable indicator-plate and the connections therefrom to a gong, with the operative connections to the ball-shifting apparatus.

Similar characters of reference relate to similar parts throughout the several views.

Our device is especially intended to counteract and do away with the practice of certain employees of appropriating for their own use passenger fares of common carriers, such as city tramways or interurban railways. The object is to furnish chance-controlled means whereby one gratis fare in each predetermined sequence of fares may be indicated to the passengers in the vehicle, and particularly to the individual who has paid a cash fare, so that in the event that the registration of this individual's fare should result in an indicated free fare, the fare may be returned to him. But one free fare can be indicated in each predetermined numeric sequence, and the serial location of that free fare among the other paid fares in the sequence is a matter controlled by chance, and therefore not capable of prediction. As a result, each passenger who pays a cash fare is ordinarily inclined to watch the registration and indicating of fares by our device, in order not to miss the possibility of obtaining a gratis ride by having his fare returned to him, when the free fare is indicated. The traveling public thus checks the employees who collect the fare in these vehicles, and renders it possible and probable that all fares may be registered without loss by peculation.

It is our object to provide effective means, controlled by chance, to bring about the indicating of the free fares, when such means are manually operated by the collector serially and repeatedly in full view of the passengers.

Our chance-controlled indicating-device may be mounted adjacent to and coact with any suitable mechanism for registering totals, but is independent in itself for the purposes above indicated and described.

A bell-crank lever 7—9 is fulcrumed on a stud 8 projecting from a plate connected to a housing 21. A coiled tension spring 5 is connected between an eyelet 6 fixed on said plate and an eyelet 4 on the upper member 7 of said lever to ordinarily and normally keep the latter with its lower member 9 in its lowermost position. The lower member 9 has a downwardly offset portion in which a horizontal stud 10 is fixed, the latter projecting into and slidably contacting with the inner walls of a slot 11 medially located in the lever-arm 56, which is adapted to swing up and down on its fulcrum pivot stud 13. The stud 10 is projected through a vertical slot 12 in said plate, and its projected end may be connected with any suitable device for registering totals (not shown or described) which may be desired to be em-

ployed in coaction therewith. The swinging end of said lever 56 is expanded to contain a slot 14, which slidably incloses a stud 17 projected from the ball-shifting means or slide 32, the latter slidable vertically along a vertical transverse partition 58 of the housing 21. It will be seen on referring to Fig. 5, that the contacting faces of the slide 32 and the said partition are dovetailed together at 62—63 to retain them in coacting slidable contact. The housing 21 contains two ball-receiving chambers, one above the other, separated by a sliding-partition 39 which may be shifted horizontally in a slideway 42 in said housing to permit the small balls 38 or the single large ball 35 to move impelled by their own gravity from the upper chamber 36 into the lower chamber 37. The slide 32 has a lower extension 33, whose use is presently to be described. The slide 32 contains a pocket 64 which is of sufficient diameter and depth to receive one of the small balls 38, but which cannot receive the larger ball 35 wholly within it without pushing outwardly the pin 16 which extends from a contact-disk 34 in said pocket, the latter normally retracted toward the port 45 by a small coiled compression-spring 40. An orifice in the slide 32 permits of the protrusion therethrough of the outer end of said pin to effect an object to be presently described.

A lever 15 is medially pivoted on a fixed stud 41, and has one end above and adapted to be engaged by the pin 16 when the latter is protruded from its bearing and is moved upward with the shifting-slide 32. The other end of the lever 15 has a projecting stud 46 which is slidably received in a slot 47 on the rear end of a lever 65, the latter being medially pivoted on a fixed stud 48. The forward end of the lever 65 carries a rectangular indicator plate 2, which has on its forward face, an inscription such as the word "Free" or other term of similar significance, and which plate moves with the lever to have its inscription displayed through an opening in the dial 1, when the forward end of said lever is lifted. A link 50 has its upper end pivotally connected at 49 to the forward end of the lever 65, while its lower end is pivotally connected at 51 to the forward end of a lever 52, the latter being medially pivoted on a fixed stud 53. The rear end of the lever 52 carries a clapper 54 adapted to strike the gong 55 when the forward end of the lever 65 is elevated to display its said inscription on the indicator plate 2.

The slide 32 has a laterally-projecting stud 60, which serves as a pivot for a pawl 19 whose free end is adapted to engage the teeth of and drive the ratchet-wheel 23. A stop-pin 59 prevents movement of said pawl beyond a certain limit in one direction, while a curved spring bears yieldably against the opposite edge of the pawl from said stop-pin to keep it in due engagement with the teeth 20 of the ratchet-wheel. The ratchet-wheel 23 is rotatable in one direction upon a stud pivot 22. Said wheel is provided with the same number of teeth as the number of all the balls 38 and 35 in said housing chambers. In the illustration, the number of the balls, including the larger ball 35, is eight, and the ratchet-wheel 23 has a corresponding number of teeth.

The numeral 66 designates a lever which is medially pivoted on a fixed stud 27, while its lower end is provided with a slot 29 adapted to slidably receive a stud 30 projected into it through the slot 31 in the housing 21 from the horizontal sliding partition 39. The upper member 25 of the lever 66 has an offset lug 26 whose upper edge is curved and which is adapted to be engaged by a pin 24 which projects from the outer side of the ratchet-wheel 23.

The operation of our invention is thus described. A ratchet-wheel 23 having a certain predetermined number of teeth 20 to correspond with an equal number of balls 35 and 38, in the illustrated instance eight in all, the latter being first deposited in the lower chamber 37, is detachably secured pivotally upon the stud 22. The eight balls in the chamber 37 consist of seven small balls 38 to one large ball 35. It is of course obvious, that the sequence number of the total number of balls may vary from the number shown if desired, although but one large ball 35 is deposited therewith, but in case of change in the number of balls, the ratchet-wheel 23 must have an equal number of teeth. In the ball sequence shown, the large ball used effects the indication of one free fare out of eight, the remaining seven balls representing paid fares in each sequence. With each fare paid, the collector should pull the cord 3, the end of the latter being connected to the upper member of the bell-crank lever 7—9. The lever-arm 56 is by this means swung upward, carrying upward the ball-slide 32. One of the balls in the lower chamber 37 has previously entered the pocket 64, and being of small diameter (if it is one of the balls 38) is received wholly therein, without acting upon the pin 16 which remains retracted within said pocket and its bearing orifice. The slide 32 moves up, and when at its uppermost position, the ball 38 rolls through the upper port 44 into the upper chamber 36 and falls upon the sliding partition 39, now closing the channel of communication between the chambers 36 and 37. It is obvious that it is entirely fortuitous as to when the large ball 35 will appear in turn to be received in the pocket 64 of the slide 32, but when it does appear in turn, it is not wholly received

into the pocket 64, since the retracted pin 16 and its contact-disk prevent its conplete entrance. The lowermost depending part 33 of the slide 32 acts to keep the lower port 45 closed when the port 32 is in its uppermost position. That part of the housing 21 which lies immediately above the lower port 45 and is dovetailed into the contacting face of the slide 32, is beveled away downward toward the port 45 at 43. The depth of the bevel 43 at its lower end is just enough to permit the large ball 35 to be carried up in the pocket 64 past it, but when the slide 32 progresses upward in its movement the decreasing depth of said bevel causes the ball 35 to be pressed against the disk 34, which causes the protrusion of the pin 16 from its bearing orifice in the slide until its outer end enters the path of movement of the free end of the lever 15. The pin 16 becomes engaged with the lower edge of the free end of this lever and moving upward with the slide 32 lifts the engaged end of said lever until the slide 32 has arrived at its uppermost position, when the ball 35 is expelled into the chamber 36 through the upper port 44, and the pin 16 is again retracted within its seat and disengaged from said lever. When the lever 15 has its free end so lifted, the other end is depressed and acts upon the lever 65 to elevate its outer end with its plate 2. The inscription on the plate is thus displayed, while simultaneously the gong 55 is struck by means of the coacting lever 52 and link 50, calling attention of the paying passenger that he is entitled to a gratis fare, the fare paid by him then being returned by the collector.

The pin 24 is so located on the ratchet-wheel 23, that it actuates the lever 66 once only during each revolution of the wheel, and comes in contact with the boss on said lever as the slide 32 is moving upward with its attached pawl 19. The pin 24 after contacting with said boss 26 on its curved edge, pushes the latter over to the right, which causes the lower member of the lever to move the sliding partition 39 into its seat 42, and permitting all the balls piled thereon to pass into the chamber 37. All the balls, because of the peculiar oblique slope of the walls of said chamber in their convergence, become assembled in the lowermost part of the chamber and port 45, said port being just large enough for the passage therethrough of one ball. The large ball 35, in falling through into the lower chamber with the others, may occupy any position among them relative to its distance from the pocket 64, or its serial turn in entering said pocket, the result being a purely fortuitous allotment of its position in each numeric sequence. If a comparatively large number of balls are used, the chance for gratis fares becomes more limited, but in any case the effective check upon the collecting employee is in the passenger's insistence upon registration and indication of the fare.

It is to be understood that any variation of our invention which could come within the scope of a mechanical equivalent thereof, is claimed as covered thereby, without regard to specific differences such as the form or number of the balls or other objects used to fortuitously actuate the gratis fare indicator, or in the several connecting mechanical devices therebetween to effect that purpose.

It is also to be understood that this invention is not necessarily to be confined in use to the mere indicating of gratis fares in passenger vehicles, but it may also be employed in any other situation where the indicating of an event is to be fortuitously determined.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is:

1. A chance-controlled indicator, being the combination with a frame and an actuating member, of a movable indicator, a predetermined number of disconnected movable bodies in said frame, all of said bodies but one being of identical dimensions, a carrier connected to said actuating member adapted to severally engage and alter the position of all of said movable bodies, and means located between said carrier and said indicator adapted to move only to shift the position of the latter when the dissimilar one of said movable bodies alone is engaged and shifted in position by said carrier.

2. A chance-controlled indicator, being the combination with a frame and an actuating member, of a movable indicator, a predetermined number of disconnected movable bodies in said frame, all of said bodies but one being of identical dimensions, a carrier connected to said actuating member adapted to severally engage and alter the position of all of said movable bodies, means located between said carrier and said indicator adapted to move only to shift the position of the latter when the dissimilar one of said movable bodies alone is engaged and shifted in position by said carrier, and means connected to said actuating member adapted to return and deposit together indiscriminately all of the said movable bodies.

3. In a chance-controlled indicator, the combination with a housing having communicating chambers, of an actuating member, a movable indicator, a predetermined number of disconnected movable bodies in one of said chambers, all but one of said bodies being of the same dimensions, the dissimilar body being larger, each of said chambers having a port, a movable carriage connected to said actuating member, said carriage having a pocket adapted to receive said bodies singly and said bodies being located with

reference to said pocket as to enter it singly and fortuitously by gravity, through a port of their containing chamber, said carriage being adapted to be actuated to carry said bodies one by one from said containing chamber to the other chamber, removable means closing the communication between said chambers, a movable contact-piece in said carriage adapted to be projected therefrom by said dissimilar body alone when deposited therein, and operative mechanism linked to said movable indicator adapted to be engaged by said contact-piece and moved when said carriage is shifted to move the indicator to a desired location.

4. In a chance-controlled indicator, in combination, a housing containing communicating chambers, one above the other, a predetermined number of independent bodies of the same dimensions located in the lower chamber, a single independent body of larger dimensions located in the same chamber, a sliding partition adapted to cut off the communication between said chambers, each of said chambers having a port, a slide movable over said ports and having a pocket adapted to be placed in communication with said ports alternately and dimensioned to receive said movable bodies singly, means for moving said slide over said ports to close one when the other is in communication with said pocket, the lower chamber being formed to carry said bodies one by one by gravity fortuitously, a contact-pin in said pocket adapted to be projected from said slide only when the single body of larger dimensions is therein, yieldable resilient means adapted to hold said contact-pin retracted in said pocket, except when it is contacted and projected outward by said larger body, a movable indicator, and operative mechanism connected to said indicator and adapted to be contacted and actuated by said contact-pin when the latter is projected from said slide and said slide is being shifted to move said indicator to a desired location.

5. In a chance-controlled indicator, in combination, a housing containing communicating chambers, one above the other, a predetermined number of independent bodies of the same dimensions located in the lower chamber, a single independent body of larger dimensions located in the same chamber, a sliding partition adapted to cut off the communication between said chambers, each of said chambers having a port, a slide movable over said ports and having a pocket adapted to be placed in communication with said ports alternately and dimensioned to receive said movable bodies singly, means for moving said slide over said ports to close one when the other is in communication with said pocket, the lower chamber being formed to carry said bodies one by one by gravity fortuitously, a contact-pin in said pocket adapted to be projected from said slide only when the single body of larger dimensions is therein, yieldable resilient means adapted to hold said contact-pin retracted in said pocket, except when it is contacted and projected outward by said larger body, a movable indicator, and operative mechanism connected to said indicator and adapted to be contacted and actuated by said contact-pin when the latter is projected from said slide and said slide is being shifted to move said indicator to a desired location, and means connected to and actuated by said slide adapted to move said sliding partition when all said movable bodies have been received into said upper chamber to allow them all to drop into said lower chamber in a fortuitously arranged deposit.

6. In a chance-controlled indicator, in combination, a housing containing communicating chambers one above another, a predetermined number of fortuitously deposited balls of the same size in the lower chamber with one larger ball intermingled with them, means for opening and closing the communications between said chambers, means adapted to carry said balls singly by chance deposit therein from said lower to said upper chamber, a movable indicator or signal, and operative mechanism adapted to become connected between said carrying means and said indicator or signal and actuated to move said indicator or signal, only when said larger ball is received into said carrying means and carried therewith to said upper chamber.

Signed at Waterloo, Iowa, this 28th day of Jan. 1909.

WILLIAM G. LAMB.
ORANGE S. LAMB.

Witnesses:
G. C. KENNEDY,
O. D. YOUNG.