

T. DROST.
CONTROLLING APPARATUS FOR CAB STANDS.
APPLICATION FILED JAN. 19, 1912.

1,044,151.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.

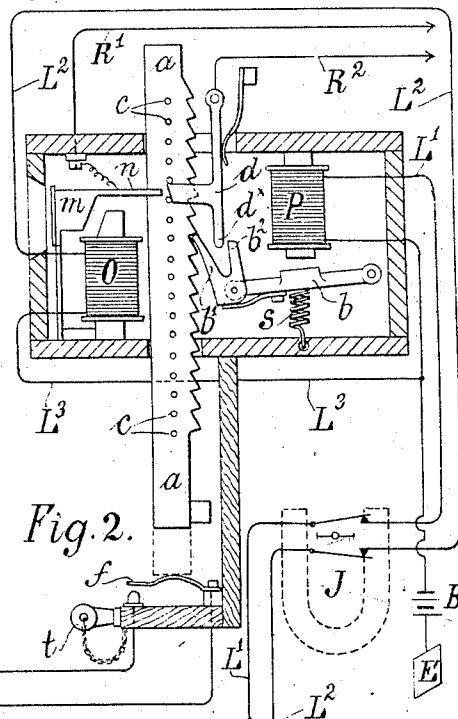
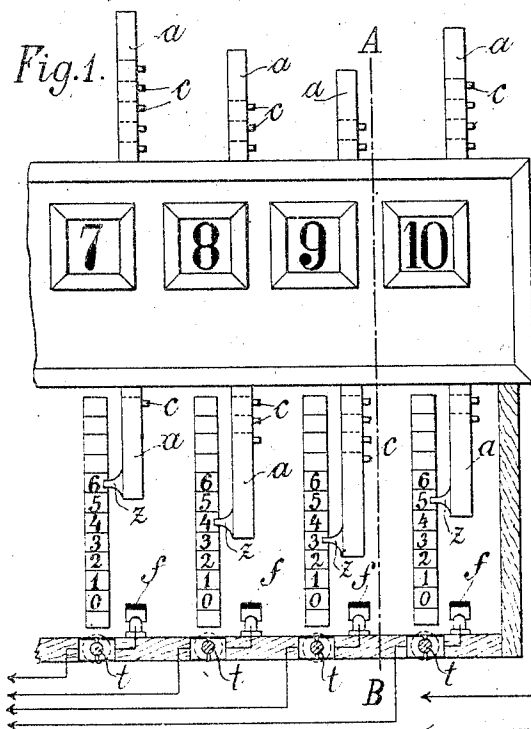
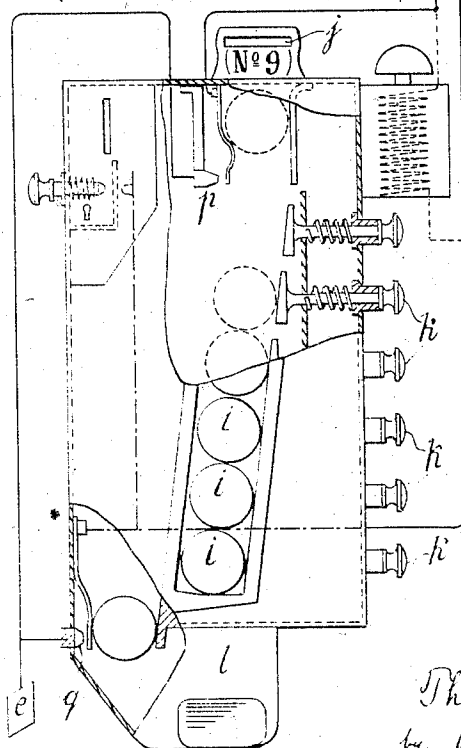


Fig. 3.



Witnesses:

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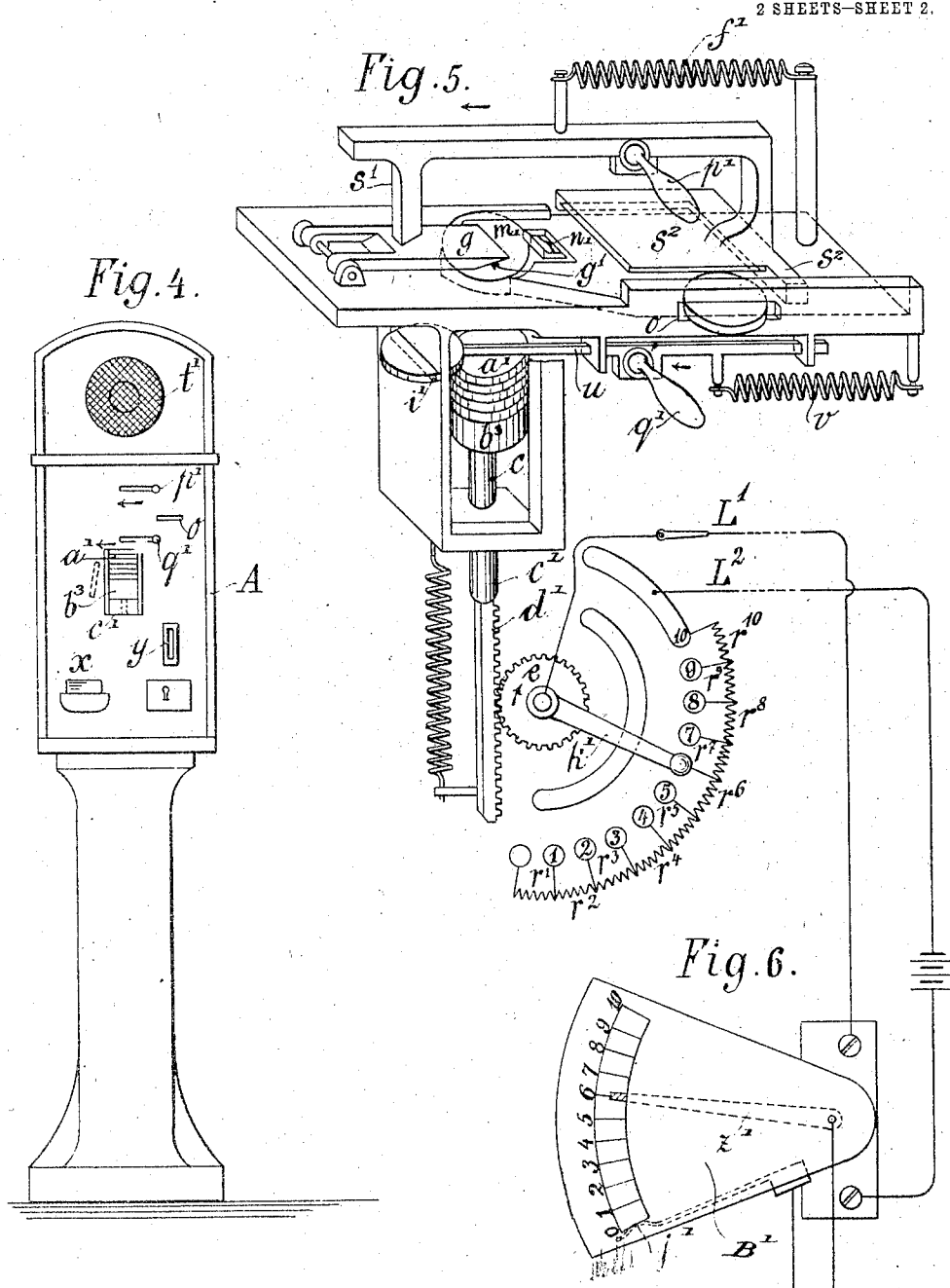
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

THEODOR DROST, OF HAMBURG, GERMANY.

CONTROLLING APPARATUS FOR CAB-STANDS.

1,044,151.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THEODOR DROST, subject of the German Emperor, residing at 5 Holzbrücke, Hamburg, Germany, have invented a certain new and useful Improved Controlling Apparatus for Cab-Stands, of which the following is a specification.

This invention relates to a check controlled indicating mechanism, designed more particularly for cab stands whereby a direct reading of the number of cabs at each cab stand may be had, the indications being produced by a special indicator apportioned to each cab stand or branch station and arranged in sets at the central or controlling station. Thus at the latter station it can be seen directly from the indicator how many cabs there are at any particular cab stand, the indicating number being changed automatically by a suitable electric connection in accordance with the departure and arrival of cabs, for which purpose a checking transmitter apparatus is arranged at each cab station. A registering device may also be connected to the apparatus for enabling a subsequent determination of the number of cabs leaving each cab stand. It is also possible to combine with the invention a gravity drop annunciator for indicating the cab stands, which are becoming unoccupied, and also a registering device for recording the times of departure for each cab stand.

Referring to the accompanying drawings, Figure 1 is a portion of the apparatus provided at the central station and adapted to indicate the number of cabs, the numbers of the peep holes indicating the cab stands; Fig. 2 is a sectional elevation on the line A—B of Fig. 1, showing the ratchet mechanism operated by two electromagnets and adapted for raising and lowering the indicator-racks; Fig. 3 represents the check receiving apparatus provided at the various cab stands. Fig. 4 is an exterior elevational view of a modified form of apparatus provided at the branch stations or cab stands; Fig. 5 is a partly perspective and partly diagrammatic view of this modified form; and Fig. 6 is a diagrammatic view of the indicating means at the central station adapted to operate in connection with the form shown in Figs. 4 and 5.

The invention contemplates the provision of means for effecting a mechanical distance-indication at a central or controlling

station whereby the number of cabs which are present at a cab stand at any given time may be quickly seen. Each cab stand is provided for this purpose with a fixed apparatus which, aside from other accessories for controlling purposes, is adapted for the insertion of cab checks and visibly indicates by the number of inserted checks the number of cabs available at the cab stand. The cab drivers are instructed to insert their checks in the apparatus on their arrival at the cab stand and to take the bottom check out of the apparatus before their departure from the cab stand.

According to this invention, an electric indicating mechanism at the central station is operated by an electric transmitting device in such a manner that it can be ascertained how many checks are actually in the apparatus. A signal may also be transmitted and registered if desired each time a cab leaves the cab stand.

The check receiving apparatus (Fig. 3) forming part of the mechanism disclosed in Figs. 1 to 3 is provided with an insertion-contact *p* (beneath the check slot *j*) and an ejecting contact *q* is provided where the cab checks drop into the lower collecting chamber *l* or pass to the delivery opening and are ejected by means of a pusher *k*. The contacts *p* and *q* are in the form of spring contacts (as shown in Fig. 3) but may also be arranged so that the circuit is closed with the aid of the metal cab checks themselves.

On arriving at the cab stand, the cab drivers insert their checks in the standing or fixed apparatus at *j* and take their checks out of the apparatus again when leaving the cab stand; the number of checks *i* visible through the peep hole indicates the number of cabs present at the cab stand.

An indicating apparatus (Fig. 1) is automatically operated from the contacts *p* and *q* and is provided at the central station where the centralized control over a group of cab stands, for example, ten cab stands, is exercised.

The indicating apparatus (Figs. 1 and 2) comprises as many indicators fitted in one single case as there are cab stands. These indicating devices are each provided with a vertically adjustable indicator-rack *a*, whose indicating mark *z* moves over a scale. The figures 0-6 indicate the number of cabs; the stand or fixed apparatus and indicating ap-

paratus may of course be adapted for any desired maximum number of cabs.

The actuation of each rack *a* is effected by means of an electromagnetic device (Fig. 2) in the following manner. An electro-
 5 magnet *P* is connected by a line *L*¹ to the insertion-contact *p* of the stand apparatus (Fig. 3); a second electromagnet *O* is connected by a line *L*² to the ejecting contact *q* (Fig. 3). The line *L*³ establishes the connection with the battery *B* and earth plate *E*
 10 and on the other hand, the contacts *p* and *q* are grounded or earthed with the plate *e*.

The electromagnet *P* controls an armature *b*, which is provided with a bifurcated
 15 pawl *b*¹ *b*², whose one arm *b*¹ engages as a pawl in the teeth of the indicator rack. The latter is also provided in accordance with its teeth with a number of laterally projecting
 20 pins *c* and the spring pawl *d* engages with these pins in such a manner that they secure the rack *a* in its upward position, whereby a stepwise upward movement takes
 25 place as often as the electromagnet *P* is energized and the armature *b* with its pawl is drawn upward. A spring *s* subsequently draws the armature *b* back again into the initial position. The spring armature *m*
 30 having the projection *n* is controlled by the electromagnet *O* and the projection *n* protrudes through the gap between the pins *c* against the head of the pawl *d* in such a
 35 manner that in the first place the pawl *d* is disengaged from the pins *c* rearwardly and in the second place the pawl *b*¹ is released from engagement with the rack *a* by
 40 means of the pawl-extension *d*¹ engaging at *b*². The rack *a* is therefore free and drops until the movement is temporarily limited
 45 by one of the pins *c* bearing against the projection *n*. If the armature *m* swings back when the electromagnet is released, the projection *n* allows the pin *c* resting thereon to slide downward and the pawl *d* again arrests the rack *a* in a lower position where-
 upon the pawl *b*¹ engages again.

The apparatus above described operates so that when the contact *q* of the check receiving
 50 apparatus (Fig. 3) is temporarily closed once, twice or several times by an ejected cab check, the electromagnet *O* will be energized and a rack *a* will be lowered one, two or several steps. The contact *p* operated by
 55 lifting of the rack *a* so that this rack with its indicator *z* indicates the number of cabs actually at the cab stand (No. 9).

If in consequence of the departure of the last cab, the cab stand is vacant and the indicator *z* therefore descends to the zero position, the circuit can be completed to a gravity drop annunciator or indicator (not shown) by a spring contact at *f* (Fig. 2) which the rack *a* depresses into its low
 65 position for closing the circuit. The contact

f leads to the indicator by means of the conductors marked, "To the indicator." The number of the cab stand would then be marked on this annunciator by a signal indicating that the stand is vacant and re-
 70 quires re-occupation.

To enable a call to be made from the central station to a cab stand, a magneto-generator *J* (indicated by dotted lines in Fig. 2) in combination with interrupters may be
 75 provided so that an alternating current can be sent over the lines *L*¹ *L*² and produce a loud signal at the standing apparatus (Fig. 3). This apparatus may also be provided with the coin operated call apparatus for
 80 night service.

In order to cut out the circuit leading from *f* to the annunciator, a plug interrupter, as indicated at *t* in Figs. 1 and 2, may be provided; the loosely hanging plug would
 85 then also indicate the vacant cab stand.

In Fig. 2 the connection with a registering mechanism is also shown by way of example. For this purpose, a current line *R*¹ *R*² is connected at one terminal to the armature *m* and to the pawl *d* at the other terminal, such lines leading to a time recording
 90 mechanism after the manner of a control clock. Consequently, a recording of the time takes place simultaneously with the operation of the electromagnet *O*.
 95

A modified construction of the whole system is shown in Figs. 4-6, which is based on a more simple electric transmitting means, which depends on the cutting in and out of
 100 the resistance by means of the metal cab checks. As shown in Fig. 4 the apparatus case *A* is provided with a glass covered peep hole, through which the check pile or stack *a* and the space limited below by a piston *b*³ can
 105 be seen. The number of checks stacked therein can therefore be directly determined. There is provided above a pusher having a handle *q*¹. When this pusher is moved to the left, a check is ejected so that it drops
 110 into the delivery receptacle *x* on the left; farther above is a pusher adapted to be operated by a handle *p*¹ and when this pusher is moved to the left on the check being previously inserted in the slot *o*, the
 115 check assumes its position at the upper end of the pile. The remaining equipment of the apparatus preferably embodies a telephone system; in the upper part is the speaking opening *t*¹ of the telephone, while
 120 for the purpose of sending a call a coin slot may be provided at *y* with a coin-freed calling mechanism.

The arrangement of the stack *a*¹ with pushers is best seen in Fig. 5. The piston *b*³ supporting the check pile *a*¹ and forced up
 125 by a spring or the like is provided with a downwardly extending rod *c*¹ provided with the rack *d*¹. The latter engages with a toothed wheel *e* which has fixed thereto the
 130

switch arm or contact adjuster k' . The same moves over the step contacts 1, 2, 3... 10 of the row of resistances r' r^2 r^3 ... 10 and according to its angular position, it effects the cutting in of more or less resistances of this row. The circuit L' L^2 leads to the measuring instrument B' (Fig. 6) at the central station and the indicator z' of the measuring instrument is moved, according to the resistance switched in, to the position corresponding to that of the switch arm k' . Consequently, the switching position of the arm k' and the indicating position of the indicator z' on the measuring instrument B' depend on the height of the pile or stack a' .

The introduction or insertion of a check takes place at the upper end of the pile where the top check is arrested by a depressed hinged abutment g having the cam incline g' . The check is inserted through the slot o , passes in the path of a pusher s^2 which is adapted to be moved to the left by means of the handle p' against the action of the spring f' and is guided under the action of this pusher along guides over the pile space. The check moves under the cam incline g' of the hinged abutment when the latter is released from the upwardly acting projection s' of the pusher. Consequently, the check forces itself in between the part g and the previous top check and assumes the position of the same. During the rearward movement of the pusher s^2 (to the right) the projection s' is again guided on an incline over the back of the hinged abutment g so that the latter again forms the locking abutment with respect to the pile of checks. A spring tongue or pawl n' temporarily prevents the rearward movement of the check m' inserted at the top.

The pusher u carrying the handle q' and connected to a spring v serves for ejecting a check from the pile or stack. If this pusher is moved to the left against the spring action, the flat head of the pusher, whose thickness is in proportion to that of the check, enters the pile space laterally and forces a check outwardly through a slot z' on the other side of the pile. After falling out, the check passes into the aforesaid delivery receptacle w (Fig. 4) where the cab driver may take the same. As soon as the handle q' is released, the pusher u is retracted and the piston b^3 raises the other checks one step.

As the checks are of the same thickness, the step-position of the piston likewise determines the number of inserted checks. The position of the piston also varies the switching position of the rheostat controlling switch k' and the indicator z' of the indicating instrument B' at the controlling station is adjusted accordingly. Thus, the indication of the number of cabs available

at the respective cab stand, which is necessary for the control, takes place regularly. The vacant state of a cab stand is indicated in like manner.

The system may be supplemented in such a manner that the arrival (insertion of a check) or the departure of a cab (ejection of a check) is signalized by a calling signal at the central station, so that telephonic communication with the cab driver for purposes of control is rendered possible.

Fig. 6 also shows how a local circuit can be closed when the apparatus is in the zero position and the circuit L' L^2 is interrupted, namely, by an auxiliary spring f' forming a relay contact with the indicator z' . This auxiliary device may also be used for signaling or recording purposes, as in the case of the constructional form according to Figs. 1-3.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim and wish to secure by Letters Patent is:

1. In check controlled indicating mechanism, an electric circuit including therein a central station and one or more branch stations, check receiving means at each branch station, indicating means at the central station, and means operable automatically by the insertion or withdrawal of checks at said receiving means to actuate the indicating means at the central station to an extent and in an indicating direction corresponding to the number of checks inserted or withdrawn.

2. In check controlled indicating mechanism, an electric circuit including therein a central station and one or more branch stations, check receiving means at each branch station, indicating means at the central station, and means at the central station, operable automatically by the insertion or withdrawal of checks at said receiving means, for actuating said indicating means to an extent and in an indicating direction corresponding to the number of checks inserted or withdrawn.

3. In check controlled indicating mechanism, an electric circuit including therein a central station and one or more branch stations, check receiving means at each branch station, indicating means at the central station, and means operable automatically by the insertion or withdrawal of checks at said receiving means, for actuating said indicating means in a step by step motion to an extent and in an indicating direction corresponding to the number of checks inserted or withdrawn.

4. In check controlled indicating mechanism, an electric circuit including therein a central station and one or more branch stations, check receiving means at each

branch station, indicating means at the central station, and electro-magnetic means operable automatically by the insertion or withdrawal of checks at said receiving means for actuating said indicating means to an extent and in an indicating direction corresponding to the number of checks inserted or withdrawn.

5. In check controlled indicating mechanism, an electric circuit including therein a central station and one or more branch stations, check receiving means at each branch station, indicating means at the central station adapted to travel in two directions corresponding to the insertion or withdrawal of checks at the branch stations, and means operable automatically through the medium of said circuit by the insertion or withdrawal of checks at said receiving means for actuating said indicating means to an extent and in an indicating direction corresponding to the number of checks inserted or withdrawn.

6. In check controlled indicating mechanism, an electric circuit including therein a central station and one or more branch stations, check receiving means at each branch station, a reciprocating indicator at the central station and a plurality of electro-magnetic means operable automatically by the insertion or withdrawal of checks at said receiving means for moving said indicator in a direction and to an extent corresponding to the number of checks inserted or withdrawn.

7. In check controlled indicating mechanism, an electric circuit including therein a central station and one or more branch stations, check receiving means at each branch station, electrical contacts at each branch sta-

tion adapted to be closed respectively upon the insertion or withdrawal of check at said receiving means, indicating means at the central station and electro-magnetic means electrically connected with the respective contacts at the branch station and adapted to actuate said indicating means in a direction and to an extent corresponding to the number of checks inserted or withdrawn.

8. In check controlled indicating mechanism, an electric circuit including therein a central station and one or more branch stations, check receiving means at each branch station, indicating means at the central station including a reciprocating rack bar, an electrical contact at each receiving means adapted to be operated by the insertion of a check at said receiving means, an electro-magnet at the central station and under control of said contact, an armature for said electro-magnet including a pawl adapted to engage the teeth in said rack bar and move the latter to an extent corresponding to the number of checks inserted at the check receiving means, a second contact at said receiving means adapted to be operated upon the withdrawal of checks therefrom, a second electro-magnet at said central station in electrical connection with said second mentioned contact and an armature for said second electro-magnet adapted to release said pawl from said rack upon withdrawal of check from said receiving means.

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

THEODOR DROST.

Witnesses:

ERNEST H. L. MUMMENHOFF,
IDA CHRIST. HAFFERMANN.