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PATENTED MAR. 26, 1907.

C. MAASKANT.  
LOCK FOR RAILWAY TRUCKS.  
APPLICATION FILED NOV. 27, 1905.

2 SHEETS—SHEET 1.

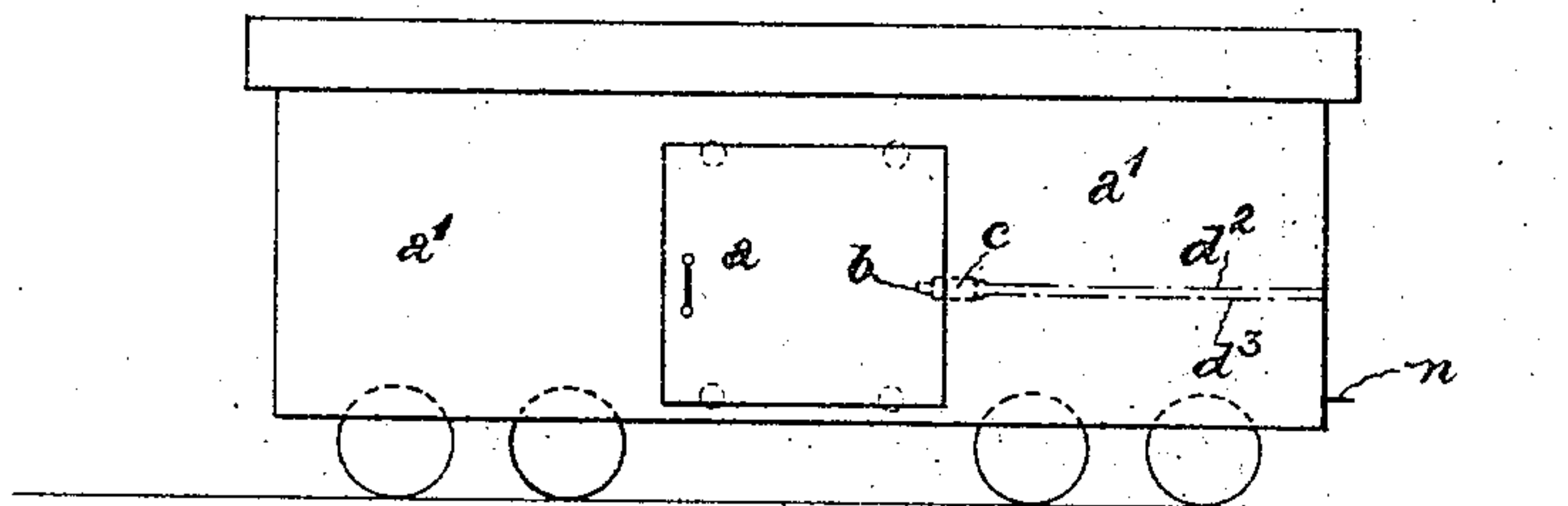


Fig. 1.

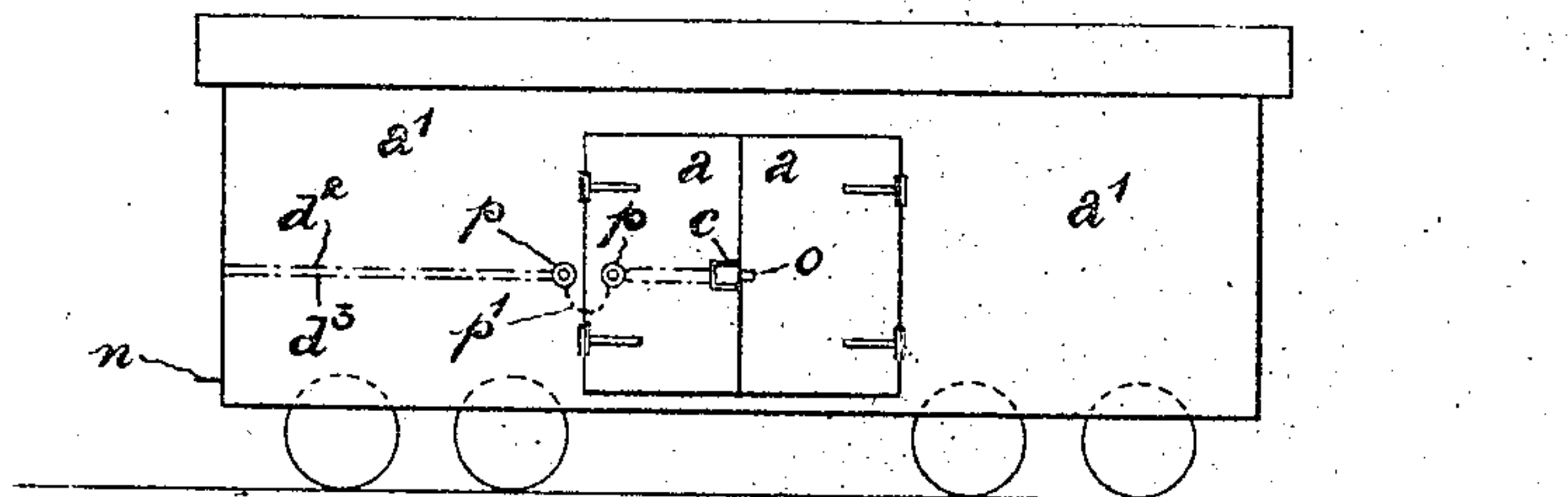


Fig. 2.

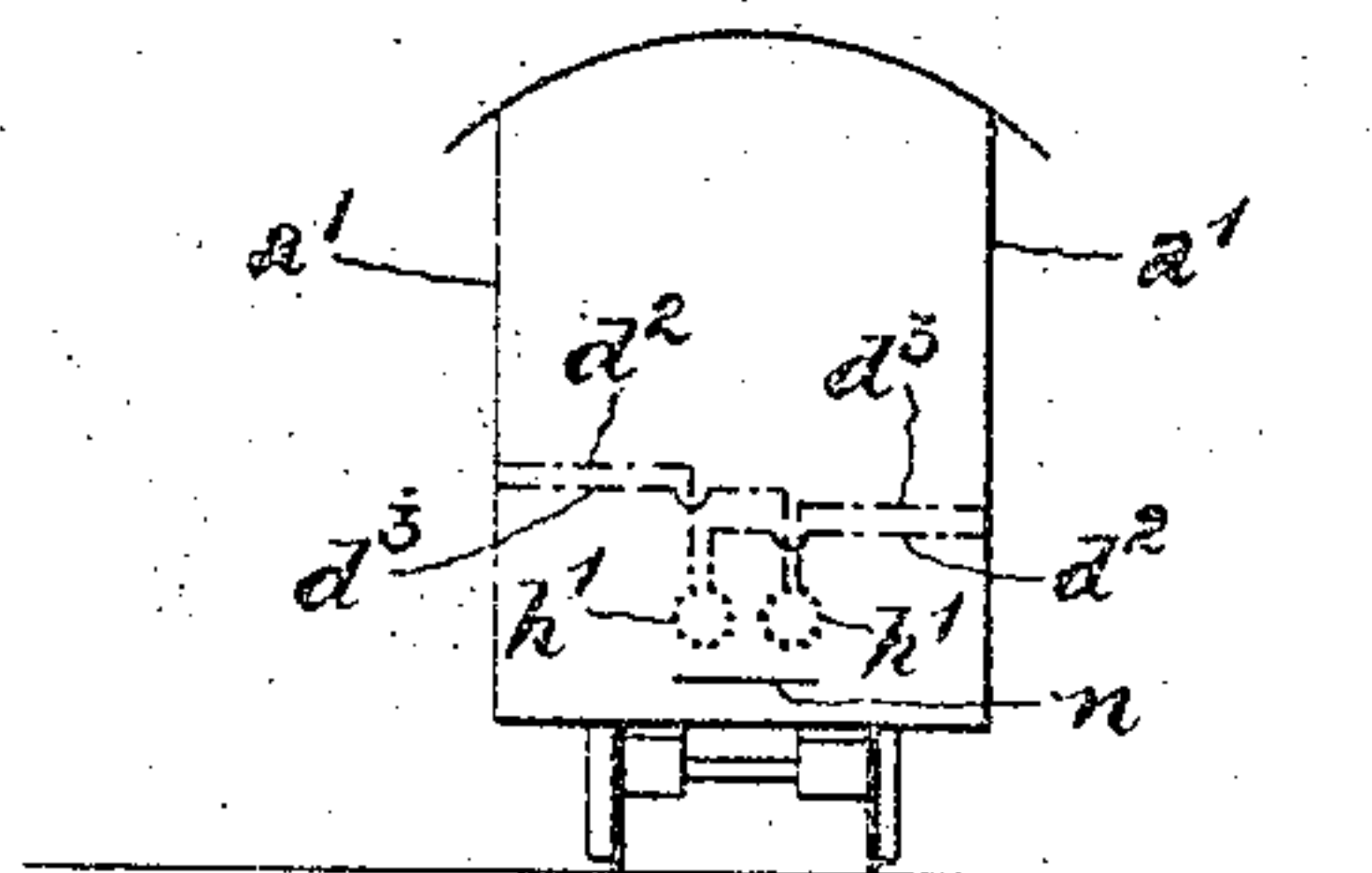


Fig. 3.

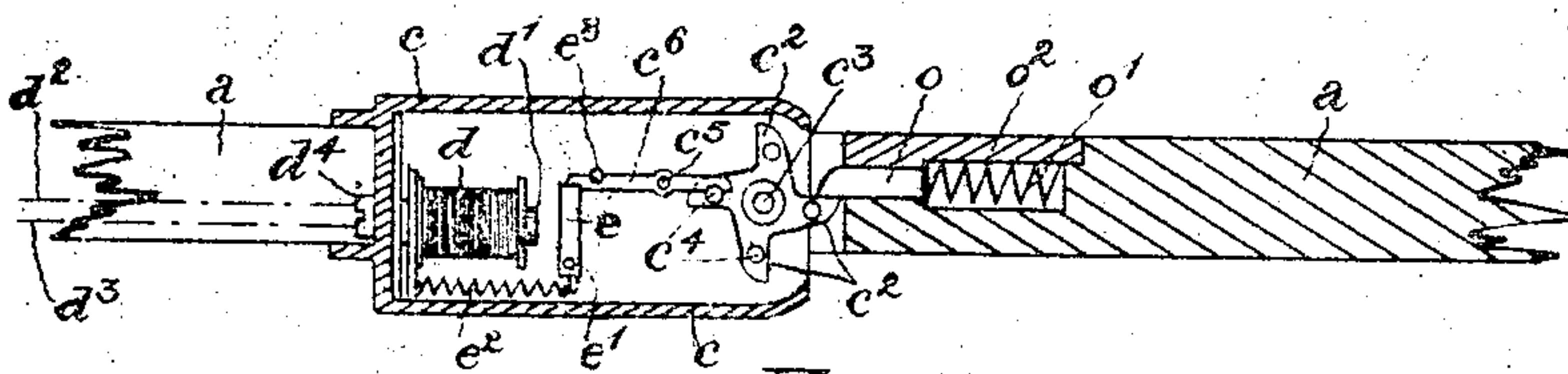


Fig. 11.

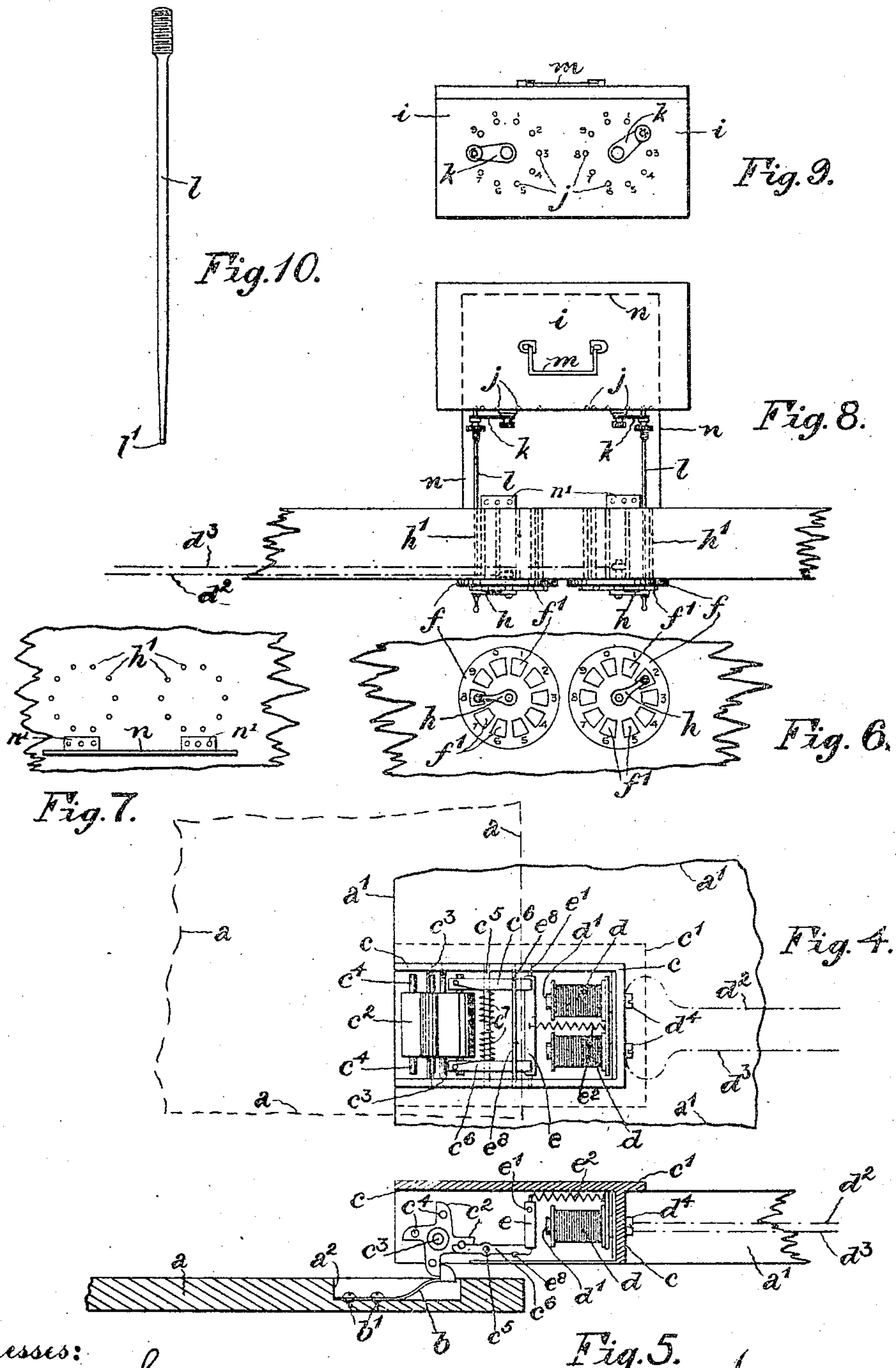
Witnesses:  
*R. Orendale*  
*J. Orendale*

Inventor  
Cornelis Maaskant  
by *Char. Orendale*  
his Attorney.

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2 SHEETS—SHEET 2.



Witnesses:

*R. Wendale*  
*J. Wendale*

Fig. 5.

Inventor:  
Cornelis Maaskant  
by *Chas. Wendale*  
his Attorney.



# UNITED STATES PATENT OFFICE.

CORNELIS MAASKANT, OF WATERVAL BOVEN, TRANSVAAL.

## LOCK FOR RAILWAY-TRUCKS.

No. 848,258.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed November 27, 1905. Serial No. 239,348.

*To all whom it may concern:*

Be it known that I, CORNELIS MAASKANT, a subject of the King of Great Britain, residing at Waterval Boven, Transvaal, have invented certain new and useful Improvements in Locks for Railway-Trucks, of which the following is a specification.

This invention relates to means designed for preventing unauthorized access to the contents of railway-trucks and other similar vehicles.

The object of the invention is to prevent thefts of merchandise from such vehicles while in transit.

The invention is applicable to covered trucks or vehicles fitted with either sliding or hinged or swinging doors.

According to this invention the door is fitted with a spring-catch which is engaged by a suitably-disposed electrically-operated lock fitted in the side of the truck. The lock is actuated by the passage of a current of electricity through an electromagnet or electromagnets, which attract an armature, releasing a spring-controlled catch or catches to release the lock and allow the door of the truck or vehicle to be opened. The wires or conductors from the electro magnet or magnets actuating the lock are connected with a switchboard arranged inside the truck or vehicle. The switchboard consists of a plurality of metal contacts, over which move two revoluble switches. The contacts are preferably numbered or otherwise marked to allow of the switches being placed in any position or on any particular contacts and so that a record can be kept of the exact positions in which the switches have been placed. Two rings of holes are formed through the truck coinciding with the metal contacts of the switchboard, and an electric battery is provided having revoluble terminals which are adapted to be brought into the same positions as the switches on the switchboard, so that when conductor-pins are attached to said revoluble terminals and projected from the outside through the holes in the truck contact is made with said contacts and the circuit closed. The armature is thereby attracted and the catch or catches fixing the lock or locks released, which allows the door or doors of the truck to be opened. The switchboard on the inside of the truck is preferably protected by a suitable box or cover, and it is preferably located at one end of the truck.

The apparatus may be arranged so that the locks are simultaneously actuated at both sides of the truck.

In order to open the truck, it will be understood that the person or persons using the electric battery must be acquainted with the exact positions of the switches on the switchboard in the vehicle, and this information is imparted only to the person or persons authorized to have access to the interior of the truck or vehicle.

The invention will now be described in detail by aid of the accompanying drawings, wherein—

Figure 1 represents a side elevation of a railway-truck fitted with sliding doors with the invention applied thereto. Fig. 2 is a view similar to Fig. 1 in which the truck is provided with hinged or swinging doors. Fig. 3 represents an end elevation of the truck. Fig. 4 is a front elevation of the electric lock as employed with the sliding door, with the front cover or plate of the lock removed and showing in dotted lines the position assumed by the door when closed. Fig. 5 is a sectional plan of Fig. 4. Fig. 6 is an elevation of the switchboard fitted inside the truck or vehicle. Fig. 7 is an elevation of a portion of the end of the truck, showing the holes or apertures through which the electrical conductor-pins pass to make contact with the metallic contacts of the switchboard. Fig. 8 is a plan of a portion of the end of the vehicle, showing the switchboard and switches and also the electric battery with the conductor-pins which by passing through the apertures serve for making contact with the contacts of the switchboard to actuate the lock. Fig. 9 is a front elevation of the electric battery with the revoluble terminals to which are attached the conductor-pins. Fig. 10 is an elevation of one of the conductor-pins detached and drawn to an enlarged scale, and Fig. 11 represents in sectional plan the lock applied to a vehicle fitted with hinged or swinging doors.

Referring to the arrangement shown in Figs. 1 and 3 to 10, the sliding door is represented at *a*, and the sides of the car at *a'*. As shown more particularly in Figs. 4 and 5, the sliding door *a* at or in proximity to one edge is constructed with a recess *a<sup>2</sup>*, in which is located a spring-catch *b*, fixed by means of the screws *b'*. In the edge of the side *a'* of the truck is fitted an electric lock, consisting of a casing *c*, constructed with a flange *c'*, by



means of which it is fixed on the inside of the truck. Inside the casing *c* is arranged a revoluble catch, which is shown formed with four projections *c*<sup>2</sup>, which are adapted to engage the end of the spring-catch *b* to lock the door, as shown in Fig. 5. The revoluble catch is free to rotate on pivots *c*<sup>3</sup> in the case *c*. At each end of the four projections *c*<sup>2</sup> of the revoluble catch is formed or fitted a projecting pin *c*<sup>4</sup>. In the casing *c* at one side of the revoluble catch is fitted a spindle *c*<sup>5</sup>, on which are loosely mounted two levers or bars *c*<sup>6</sup>. These levers *c*<sup>6</sup> at one end are adapted to engage the pins *c*<sup>4</sup>. On the spindle *c*<sup>5</sup> are placed two spiral springs *c*<sup>7</sup>, which at one extremity rest upon the arms of the levers *c*<sup>6</sup> and serve to maintain them in contact with the pins *c*<sup>4</sup>. In the casing *c* is fixed a rod or bar *c*<sup>8</sup>, which forms a stop for and is engaged by the other ends of the two levers *c*<sup>6</sup>, the springs *c*<sup>7</sup> serving to keep the ends of the levers *c*<sup>6</sup> pressed against the bar *c*<sup>8</sup>. In the opposite end of the casing *c* are arranged two electromagnets, consisting of the induction-coils *d* and iron cores or poles *d*<sup>2</sup>. *d*<sup>2</sup> *d*<sup>3</sup> are the positive and negative electric wires or conductors connected by the terminal screws *d*<sup>4</sup> with the induction-coils *d*, which latter are electrically connected or in series. Arranged in front of the cores *d*<sup>2</sup> of the electromagnets is an armature *e*, which is constructed with pivots *e*<sup>1</sup>, about which it can swing inside the casing *c*. This armature *e* is arranged so that it engages the ends of the levers *c*<sup>6</sup> and keeps them against the rod *c*<sup>8</sup> and prevents the rotation of the revoluble catch. To one end of the armature *e* is attached a suitably strong spiral spring *e*<sup>2</sup>, which serves for returning the armature *e* into position to engage the ends of the two levers *c*<sup>6</sup>.

The lock is actuated to release the spring-catch *b* in the following manner: When the circuit is closed, the cores *d*<sup>2</sup> of the electromagnets attract the armature *e* and cause it to release or disengage the extremities of the two levers *c*<sup>6</sup>. This allows the revoluble catch to rotate on its pivots *c*<sup>3</sup>, so that the spring-catch *b* may disengage the projection *c*<sup>2</sup> on the revoluble catch.

In Figs. 6, 7, and 8 I show the arrangement of the switchboard, which is located inside the truck, preferably in proximity to the floor-level. This consists of the two ebonite or other suitable disks *f*, in holes in which are fitted brass or other suitable contact-pieces *f*<sup>1</sup>, arranged in a circle. These contacts *f*<sup>1</sup>, of which ten are shown provided on each disk, are numbered from "0" to "9," but instead of using numerals they may be otherwise marked. At the center of each of the disks *f* is revolubly supported a switch *h*, each of which switches is provided with a handle to allow of its being rotated to place it in electrical connection with any one of its series of contacts *f*<sup>1</sup>. To one of these switches

*h* is attached the positive wire or wires from the lock or locks and to the other the negative wire or wires, so that the circuit is completed or closed through the two particular contacts *f*<sup>1</sup> on which the switches *h* are placed. As seen in Figs. 3, 7, and 8, two rings of holes *h*<sup>1</sup> are formed through the truck in such positions that they coincide with the ten contacts *f*<sup>1</sup>, carried by each of the disks *f*.

In Figs. 8 and 9 I show the box or case *i*, containing the electric batteries or cells which are adapted to supply a sufficiently strong current to attract the armature *e* to release the lock, as previously described. This case *i* is constructed with notches or indentations *j* in the front corresponding in number and position to the contacts *f*<sup>1</sup> of the switchboard or the coincident holes *h*<sup>1</sup> in the truck. The positive terminal or terminals of the cell or cells are connected to a terminal *k*, revolubly attached to the front of the case *i*, which terminal is adapted to be placed in any one of its series of notches *j*, formed in the front of the case *i*, and the negative terminal or terminals of the cell or cells are in like manner electrically connected with another revoluble terminal *k*, which is adapted to be placed into any one of the other series of notches *j* on the front of the battery-case *i*. The notches *j* are spaced to correspond with the spacing of the holes *h*<sup>1</sup>, formed in the truck. The ends of the revoluble terminals *k* are constructed with screw-threaded holes, into which are screwed two conductor-pins *l*, (see Fig. 10,) which may be provided with platinum tips *l*<sup>1</sup> at their outer ends. These conductor-pins *l* in length slightly exceed the length of the holes *h*<sup>1</sup>, formed in the truck, so that when they are pushed into the holes *h*<sup>1</sup> they make contact with the metal contacts *f*<sup>1</sup> of the switchboard.

The battery-case *i* is shown provided with a handle *m* for convenience in carrying it, and the truck or other vehicle is shown provided with a ledge or platform *n* on the outside, on which the battery-case *i* may be placed to push the conductor-pins *l* into the holes *h*<sup>1</sup>. This platform *n* is preferably hinged, as shown at *n*<sup>1</sup>, so that it may be raised to cover the holes *h*<sup>1</sup> to prevent the ingress of dust or other matter and is provided at such a level that when the case *i* is resting upon it the notches *j* in the front of the case *i* coincide with the holes *h*<sup>1</sup>, and thereby insure the conductor-pins *l* coinciding with the particular holes *h*<sup>1</sup> according to the positions in which the revoluble terminals *k* have been set.

Referring to the arrangement shown in Figs. 2 and 11, adapting the invention to a truck or other vehicle fitted with hinged or swinging doors, the case *c* and general arrangement of the lock are substantially the same as that shown and described in connection with Fig. 5. The electromagnets *d*<sup>2</sup>,



armature *e*, revoluble catch, and locking-levers *e'* operate in identically the same manner when the current is passed through the magnets to release the revoluble catch. The electric lock is attached to one half of the door *a*, which is bolted or otherwise secured on the inside of the truck, and in the other half of the door is located a spring-bolt comprising the bolt *o* and spring *o'*, located in a recess at the inner end of the bolt *o*, which bolt *o* and spring *o'* are secured in position by means of a plate *o''*, fixed to the inside of the door. When the revoluble catch of the lock is released, as previously explained, it allows the half of the door *a* to which the spring-bolt *o* is fitted to be opened.

The trucks or other vehicles are preferably provided with similarly-constructed locks for the doors at each side of the vehicle, and the wires or conductors *d'' d'''* are connected with the switches *h* of the switchboard in parallel, so that when the conductor-pins *l* make contact with the contacts *f''* the locks at both sides of the vehicle are actuated. In Fig. 3 I show this arrangement, the two negative conductors of the two locks being connected to the one switch *h* and the two positive conductors to the other switch *h*.

In the case of the trucks with the swinging doors *a* (see Fig. 2) I provide two rosettes *p*, containing two connections to which the electric wires *d'' d'''* are attached and connect said connections by means of flexible wires *p'*. This allows the door *a* to swing freely without placing any strain on the wires or conductors *d'' d'''*.

In using the invention the switches *h* on the switchboard are set on any particular contacts *f''* and a record made thereof. The doors *a* of the truck having been closed, it is then necessary, in order to reopen the doors, to know the numbers of the particular contacts *f''* on which the switches *h* have been placed, and this information is supplied in any convenient manner to the person or persons authorized to reopen the truck. As previously explained, the revoluble terminals *k* are set in corresponding positions at the front of the battery-case *i*, and the conductor-pins *l* having been screwed into position in said terminals *k* the case *i* is placed on the platform *z* and the conductor-pins *l* projected into the particular holes *h'* corresponding to the positions of the switches *h* on the inside of the vehicle, so that contact is made between the pins *l* and contacts *f''* and the circuit thereby closed. This causes the electric magnet or magnets *d d'* to actuate the lock and allow the doors *a* to be opened, as hereinbefore fully explained.

What I claim as my invention, and desire to protect by Letters Patent, is—

1. An apparatus of the nature indicated comprising an electrically-operated lock fitted to the door of the truck or vehicle,

switches and a switchboard located inside the truck or vehicle, said switchboard providing a plurality of contacts for each switch, conductors between the switches and the lock, an electric battery the terminals of which are revoluble and adapted to carry contact-pins, which pins are adapted to pass through holes formed in the truck to make contact with any of the contacts of the switchboard, substantially as described.

2. An apparatus of the nature indicated comprising an electrically-operated lock fitted to the door of the truck or vehicle, revoluble switches and a switchboard located inside the truck or vehicle said switchboard being constructed to provide a plurality of contacts for each switch, conductors between the switches and lock, and an electric battery the terminals of which are revoluble and adapted to carry contact-pins, which pins are adapted to pass through holes formed in the truck to make contact with any of the contacts of the switchboard, substantially as described.

3. An apparatus of the nature indicated comprising an electrically-operated lock fitted to the door of the truck or vehicle, switches and a switchboard located inside the truck or vehicle, the switchboard providing a plurality of contacts for each switch, conductors between the switches and the lock, a case or box which serves for inclosing an electric battery the front of which case or box is marked to correspond with the positions of the contacts of the switchboard, and terminals revolubly mounted in the case which are adapted to be placed in position to make contact with any of the contacts of the switchboard, and conductor-pins fitted to the revoluble terminals which serve for making contact with said contacts, substantially as described.

4. An apparatus of the nature indicated comprising an electrically-operated lock fitted to the door of the truck or vehicle, switches and a switchboard located inside the truck or vehicle, the switchboard providing a plurality of contacts for each switch, the truck having formed through it holes coinciding with the contacts of the switchboard, and a plate attached to the outside of the truck which serves as a platform for the battery-case and is adapted to be raised to cover the holes in the truck, conductors from the switches to the lock and a case or box which serves for inclosing an electric battery connected to revoluble terminals attached to the box or case which terminals are adapted to be placed in positions corresponding to those of the switches on the switchboard, and conductor-pins removably connected to the revoluble terminals which are projected through the holes in the truck to make contact with the contacts of the switchboard to close the circuit, substantially as described.



5. In an apparatus of the nature indicated a case or box which serves for inclosing an electric battery, said case having formed in its exterior notches corresponding in position to the contacts of the switchboard, revoluble terminals which are adapted to be placed in said notches and conductor-pins fixed to said revoluble terminals, an electrically-operated lock, switches and a switchboard inside the truck the latter having formed in it holes coinciding with the contacts of the switchboard through which the conductor-pins of the revoluble terminals may pass to make contact with those contacts of the switchboard upon which the switches have been placed to close the circuit, substantially as described.

6. An apparatus of the nature indicated consisting of an electrically-operated lock comprising a revoluble catch which is adapted to engage a spring-catch fixed to the truck, the revoluble catch having projections at each end, two spring-controlled levers adapted to engage said projections to lock the revoluble catch, a bar which serves as a stop for said levers, an armature which engages the ends of said levers and an electromagnet which attracts the armature, releases the levers and allows the revoluble catch to rotate and the door to be opened, two switches and a switchboard located inside the truck or vehicle said switchboard providing a plurality of contacts for each switch, conductors

between the switches and the lock and a case or box which serves for inclosing an electric battery which is connected to revoluble terminals attached to the box or case which terminals are adapted to be placed in corresponding positions to those of the switches on the switchboard, and conductor-pins detachably connected to the revoluble battery-terminals, which pins are adapted to pass through holes in the truck to make contact with the contacts of the switchboard to close the circuit to release the lock, substantially as described.

7. An apparatus such as described comprising an electrically-operated lock fitted to the door of the vehicle, switches and a switchboard located inside the vehicle, said switchboard providing a plurality of contacts for each switch, conductors between the switches and the lock, an electric battery and detachable contact-pins constituting the terminals therefor which pins are adapted to pass through holes formed in the truck to make contact with any of the contacts of the switchboard to close the circuit.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CORNELIS MAASKANT.

Witnesses:

CHAS. OVENDALE,  
R. OVENDALE.