

(No Model.)

W. M. BROWN.
ELECTRIC CONTACT BOX.

No. 587,642.

Patented Aug. 3, 1897.

Fig. 1.

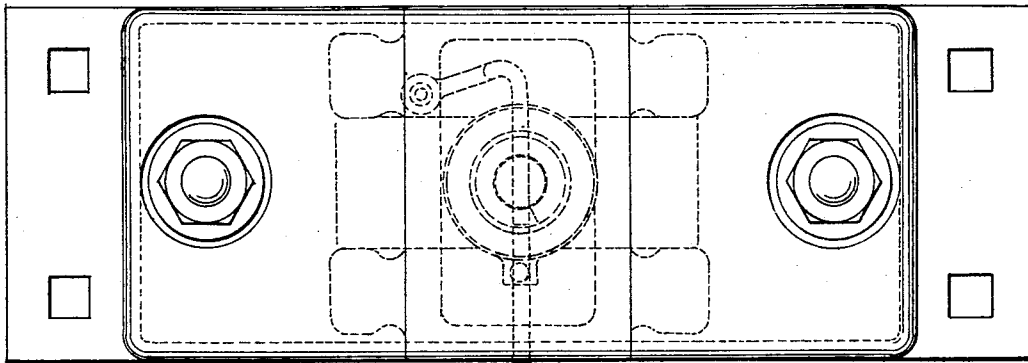
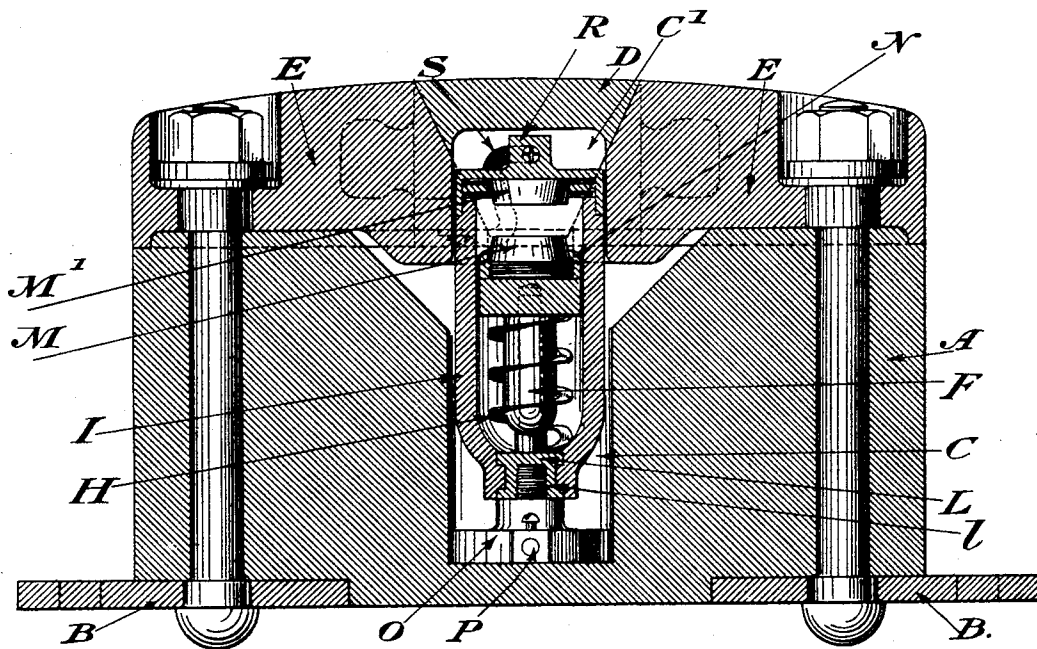


Fig. 2.

WITNESSES:

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ELECTRIC CONTACT-BOX.

SPECIFICATION forming part of Letters Patent No. 587,642, dated August 3, 1897.

Application filed September 30, 1896. Serial No. 607,459. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILTON BROWN, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Electric Contact-Boxes, of which the following is a specification.

My invention relates to electric contact-boxes, and more particularly to that class of contact-boxes designed to contain a switching mechanism which closes the electric circuit between the contact portion of the box and the supply-conductor at such times as a suitable magnet-field is over said box, but immediately opening the electric circuit again as soon as the magnetic field is no longer over the box.

My invention consists of certain improvements in the construction and arrangement of the parts of the contact-box whereby certain advantages in the line of cheap, simple, and durable construction are gained.

In the drawings and in the following description I have shown a contact-box suitable for electric railways, but my invention may be used for other purposes.

Referring to the drawings, Figure 1 is a top view of a contact-box containing my invention, and Fig. 2 is a vertical section through the center of Fig. 1.

Referring more particularly to Fig. 2, A is the base of the box and is preferably made of wood, which may be creosoted or otherwise treated with preservative.

B B are iron base-plates which serve to fasten the box to ties or other substructure.

Within the base A is the cavity C.

The top of the box is formed of a center D, of non-magnetic material, said material being either an electric conductor or an electric insulator, according to the nature of the construction of the current-collecting device carried by the car, and the sides E E, of magnetic material, preferably of cast-iron. I prefer to join the sides E E to the center D by casting the former about the latter. Within the top is a cavity C', forming an extension of the cavity C. The cavity C C' thus formed is designed to contain the several parts of my invention to be described.

I is a receptacle which I prefer to make of insulating material. In the bottom of this receptacle the standard L is rigidly inserted, said standard serving as a method of securing receptacle I to pedestal O, here shown as secured by the thread 1. The standard L also serves to make electric contact between the metallic pedestal O and the spring H. Another purpose of the standard L is to guide the plunger-armature F, as clearly shown in the drawings.

The pedestal O rests in the bottom of the cavity C and is made of any good electric conductor, preferably copper or brass. To O is fastened in any suitable manner, as at P, a branch wire from the electric supply-feeders.

The plunger F is made of iron and is intended to be primarily the armature for the traveling magnet. It is here shown as cylindrical, although I do not confine myself to this shape, and is here shown as of greater diameter near the top, at which portion its diameter is but slightly less than that of the inside of the receptacle I. The lower portion of the armature F is smaller in diameter, so as to allow room for the spiral spring H to encircle it, as shown. Extending upwardly into the armature is an opening to admit the top or guiding portion of the standard L. The upper end of the armature F terminates in a threaded neck to receive the collar N. This collar has taper-flanges, as shown, by which means the tapered contact-piece M is fastened securely upon and in good electric contact with the plunger-neck.

The receptacle I is sealed by means of the metallic top R, fastened to it. The tapered contact-piece M' is forced into good electric contact with the under side of R by a collar threaded on the outside to fit the inside, as clearly shown. The cover R is in electric circuit with the contact portion of the contact-box, the connection being here shown as by the wire S.

The spring H, made of any metal, such as brass, which combines the necessary physical properties to make a good spring and the necessary electrical conductivity, is fastened to standard L and to plunger F in any suitable manner. This spring serves the double pur-

pose of carrying the current when the circuit is closed and of facilitating the breakage of the same circuit as soon as the counteracting magnet-field is removed from over the contact-box. It is evident that while the spring here shown is spiral in form this form is not essential and I do not confine myself to it.

I make the contact-pieces M M' of carbon, so as to avoid any possible adhesion between them, caused by accidental arcing between them, and I believe that carbon is the best material of which to make these contact-pieces. I do not, however, limit myself to its use, as many other electric conductors could be used.

The path traveled by the circuit and the action of the switching mechanism in the particular contact-box described would be as follows: Upon the arrival of the traveling magnet the magnetic lines would pass downward through one side E of the top of the box, thence through armature F, thence upwardly through the other side E of the top. The armature guided by the standard L would rise vertically, extending spring H and bringing into firm contact with each other the contacts M and M'. The electric current would come from the supply-feeders into pedestal O by connection at P, through O into standard L by thread 1, through L into spring H, through H into armature F, through F into contact M, through M into contact M', through M' into receptacle-cover R, thence through wire S into the contact portion of the box.

Having fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. A switching mechanism for electric con-

tact-boxes, comprising the combination with a fixed contact and a contact-carrying armature, of a spring encircling and secured to said armature and to a fixed portion of the mechanism.

2. A switching mechanism for electric contact-boxes comprising the combination, with a fixed contact and a contact-carrying armature, of a spring encircling and secured to said armature and to a fixed portion of the mechanism in circuit with the source of supply.

3. In a switching mechanism for electric contact-boxes, the combination with a movable armature having a threaded neck, of a threaded collar having taper-flanges adapted to engage and secure a tapered contact.

4. A switching mechanism for electric contact-boxes comprising, in combination, a vertically-movable armature, a spring adapted to force the armature downward, a vertical guide for said armature, a movable contact M and a fixed contact M', all substantially as, and for the purpose set forth.

5. In a contact-box of the class described, in combination, the vessel I of insulating material, the metallic cover R, the standard L, the spring H, the armature F, the contacts M M', all substantially as, and for the purpose set forth.

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

WILLIAM MILTON BROWN.

Witnesses:

GEO. E. HAMILTON,
JOHN H. KENNEDY.