No. 622,116. Patented Mar. 28, 1899.

M. H. CASPARI.

ELECTRIC SWITCH.

(Application filed Feb. 25, 1898.)

(No Model.)

Fig. 1.

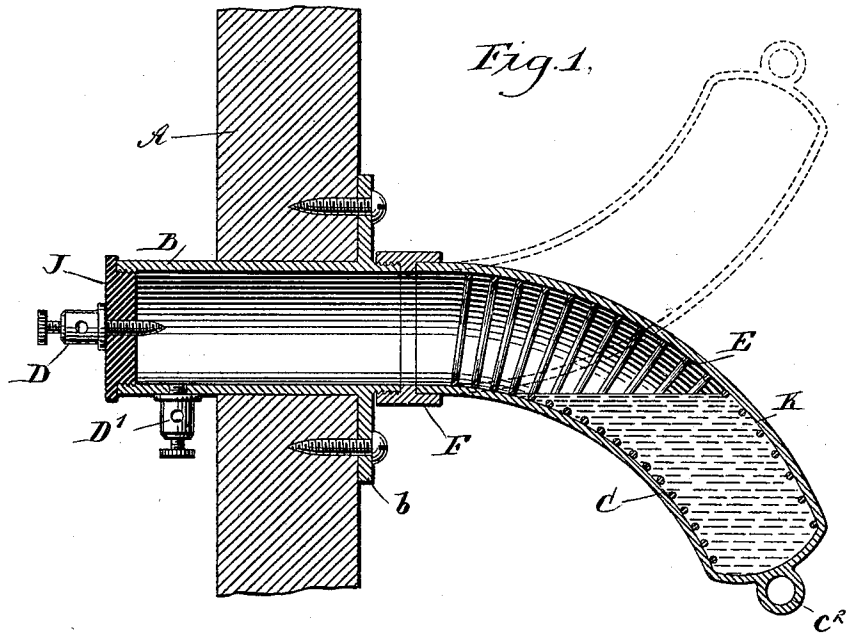


Fig. 2.

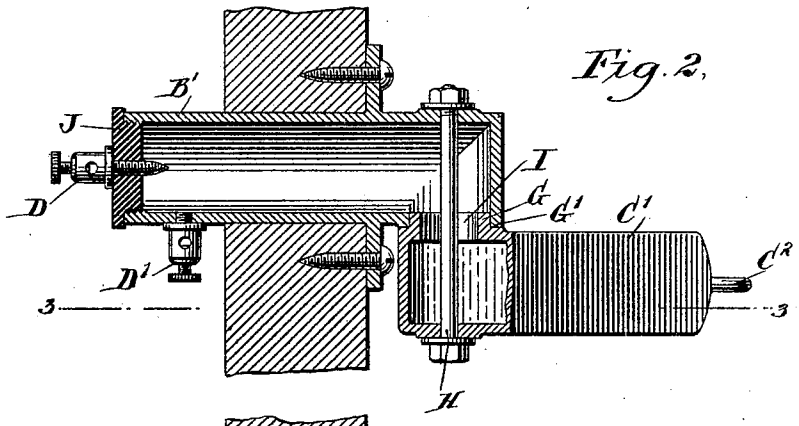
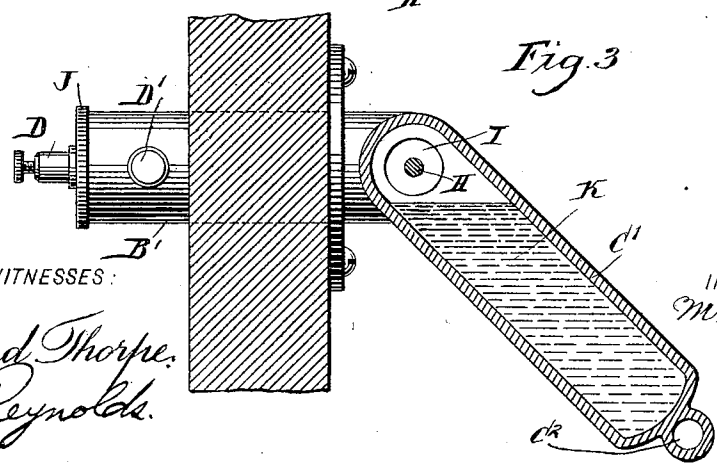


Fig. 3.



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ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 622,116, dated March 28, 1899.

Application filed February 25, 1898. Serial No. 671,613. (No model.)

To all whom it may concern:

Be it known that I, MAX HENRY CASPARI, a subject of the Emperor of Germany, at present residing in the city of New York, borough of Manhattan, in the county of New York and State of New York, have invented a new and Improved Electric Switch, of which the following is a full, clear, and exact description.

My invention relates to an improvement in electric switches or circuit making and breaking devices, having for its object the maintenance of a clean contact-surface between the two parts of the switch; and the invention comprises certain novel constructions, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a cross-sectional elevation of one form of my device. Fig. 2 is a partial sectional plan view of a slightly-modified construction, and Fig. 3 is a partial sectional elevation of the same on the line 3 3 in Fig. 2.

The switch consists, essentially, of a chamber having attached thereto the two poles or binding-posts for the circuit-wires, said binding-posts being insulated from each other and being placed at different elevations, said chamber containing a quantity of mercury, which normally will flow to a portion of said chamber, which latter may be raised or lowered, so as to cause the mercury to cover one or both of the poles, and thus make the contact.

In Fig. 1 the main portion of the chamber is represented by a hollow casing B, which is preferably made of metal and is provided with a flange *b* or any other suitable means by which it may be secured to the switchboard A. The casing B is provided at one end with a binding-post D′, connected directly to the body of the casing, and with a second binding-post D, which is supported in an insulating-disk J, which closes one end of the casing. By this means the binding-post D is normally insulated from the casing, and consequently from the other binding-post D′.

In the form shown in Fig. 1 the other end of the casing B is connected with a flexible extension C, said extension being formed of rubber, leather, or any other suitable flexible material and secured to the casing by means of a collar F. This flexible extension is preferably provided with a spirally-coiled wire E, placed within the same and serving to maintain the circular form of said extension. Within the extension C is placed a quantity of mercury K, which is sufficient in amount to rise nearly to the level of the lower surface of the main part of the casing B. Normally the extension will assume the position illustrated in full lines in Fig. 1, in which it is shown as dropped downward, the level of the mercury being just below the lower surface of the casing B. The rear end of said extension may be provided with an eye C^2 to receive a cord or other device for raising the same. When the extension C is elevated, the mercury will flow into the body of the casing B and will rise to such a height as to immerse both of the binding-posts and close the circuit. When the extension C is allowed to drop, the mercury will flow back and break the circuit.

A slight modification in construction, although involving the same principle, is shown in Figs. 2 and 3. In this form the casing B is provided with a hollow extension C′, provided at one end with a laterally-extending tube G, having an aperture I therein, said tube being adapted to enter an opening in the side of the casing B and form a tight joint therewith at G′. Through the casing B′ and extension C′ is passed a bolt H, which holds the casing and extension together, so as to prevent their separation and the consequent leakage of the mercury K, contained in the extension C′. Normally the extension will drop down into the position shown in Fig. 3 and the mercury K will fall below the level of the binding-post D. When the extension C′ is elevated, the mercury will flow forward into the casing B′ and cover both binding-posts. It will be seen that the principle involved in the two constructions described is identical, one form having a flexible extension and the other a hinged extension.

The form of switch herein shown and described may be used for currents of any potential and quantity by making the binding-posts of suitable size. These posts may be indefinitely increased in size. By using copper binding-posts the mercury will form an

amalgam therewith and the contact will be maintained clean and bright. Being protected from the air there will be no possibility of corroding the surfaces and destroying their efficiency. The rearward extension C' will be made of an insulating material in those cases where it is to be operated directly by the hand of the operator. In other cases it may be made of metal.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An electric switch, comprising a horizontally-disposed casing, a line-terminal passing through the lower part of the casing, a second insulated terminal entering the casing at a higher elevation than the first one, and an extension of the casing hinged thereto and adapted to be raised above or also below the main casing, the two being connected through the hinge and being partially filled with a conducting liquid.

2. An electric switch, comprising a horizontally-disposed metallic casing having one end closed by a disk of insulating material, a terminal extending through said disk into the casing, a second terminal connected with the casing, and an extension hinged to the casing and containing mercury, said casing and extension having a connecting-passage through the hinge whereby the mercury may, by raising or lowering the extension, be made to flow into the casing or extension at will.

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