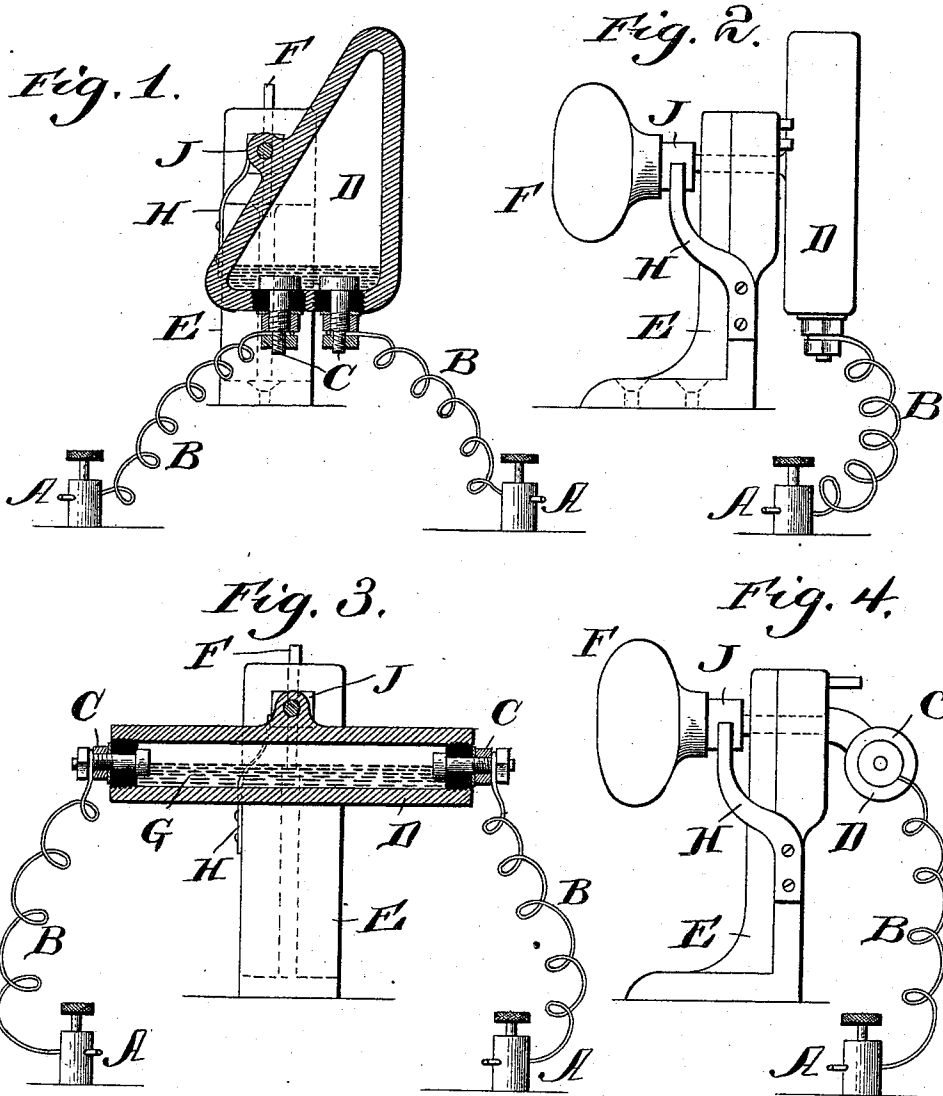


(No Model.)

F. B. BADT.
SWITCH.

No. 529,578.

Patented Nov. 20, 1894.



Witnesses:

J. B. McGirr.
A. E. Lee

Inventor

Francis B. Badt

By Francis W. Parker
Attorney

UNITED STATES PATENT OFFICE.

FRANCIS B. BADT, OF CHICAGO, ILLINOIS.

SWITCH.

SPECIFICATION forming part of Letters Patent No. 529,578, dated November 20, 1894.

Application filed October 14, 1892. Serial No. 448,877. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS B. BADT, a subject of the King of Prussia, residing at Chicago, Cook county, Illinois, have invented a new and useful Improvement in Switches, of which the following is a specification.

My invention relates to switches and has for its object particularly to provide an air tight switch in which the connection will be made and broken in an air tight chamber.

It is illustrated in the accompanying drawings, wherein—

Figure 1, is a cross section. Fig. 2, is a side view. Fig. 3, is a cross section through a modification, showing a long interval between the terminals. Fig. 4, is a side view of the same.

Like parts are indicated by the same letter in all the figures.

A A are the terminals of main wires which are to be connected, and B B are the short conductors connected therewith and associated with the switch, whereby the circuit through the mains, including the mains, may be opened or closed. These short conductors lead to insulated terminals C C which pass through the sides of the air tight chambers D D'. The air tight chambers D are pivotally supported on the standards E E and are associated with the thumb pieces F F, whereby such chambers may be rocked or turned upon their pivots so as to assume different positions. These chambers may be variously shaped, as indicated in the several diagrams, but they are shaped so that a liquid partially filling such chamber will be in contact with both terminals when the chamber is in certain positions, but will not be in contact with both terminals at other times.

G is a conducting liquid in such chamber.

H is a flat spring bearing against the square side of the shank J of the thumb piece F, whereby such shank is normally kept in the position at which it is left so that the chamber is elastically locked in either position.

The use and operation of my invention are as follows: Referring to the forms of the device in which the chamber is movable, it is evident that if the chamber be moved from the position which it occupies, for example,

as illustrated in Fig. 1, the liquid which in that figure covers, and thus connects the two terminals, will lie upon the opposite side of the chamber and in contact with neither, or with but one of the terminals. In this case the circuit is broken. Thus, by turning the thumb piece and moving the chamber into a new position, the circuit may be made or broken at will. The same general form of construction is illustrated in Figs. 3 and 4, but here the terminals are separated and when the chamber has been moved into its new position one of the terminals is immersed in the liquid and the other is free.

My device can be variously altered and applied without departing from the spirit of my invention and I do not wish to be limited to the precise form of construction shown. I have employed mercury as the circuit closing fluid, though of course other fluids could be used. I also prefer to make this chamber entirely air tight. I also prefer to fill the chamber with some gas, along with the fluid circuit closer or mercury, such gas being entirely free from oxygen so as to prevent injury to the terminals and the circuit closing fluid, or being of such a nature as not to attack the fluid circuit closer or the terminals.

The switch is constructed with the intention to use it in places where there is danger that the electric spark of an electric switch, in making or breaking contact might ignite explosive gases, as for instance, in coal mines where there is fire damp, or in distilleries or breweries, where alcoholic vapors will mix with air and form a highly explosive gas. The main point therefore in this switch is that it must be absolutely air tight so that no explosive gas can get into the switch, and be ignited by the electric spark, which is also caused in making or breaking contact in the switch.

I claim—

In an electric switch, the combination of an eccentrically pivoted, air tight chamber, terminals passing through the walls thereof, a quantity of conducting fluid in such chamber, a standard by which the switch is supported, a thumb piece provided with an end that passes through a hole in the standard and

is rigidly attached to the air tight chamber
so that said chamber can be rotated, a square
shank attached to said thumb piece, a spring
having one end attached to the standard and
5 the other end bearing against the square
shank on the thumb piece, said chamber be-
ing of such a shape and the terminals so lo-

cated that said terminals are both immersed
in the liquid or simultaneously free thereof.

FRANCIS B. BADT.

Witnesses:

FRANCES W. PARKER,
WALTER J. GUNTHERP.