

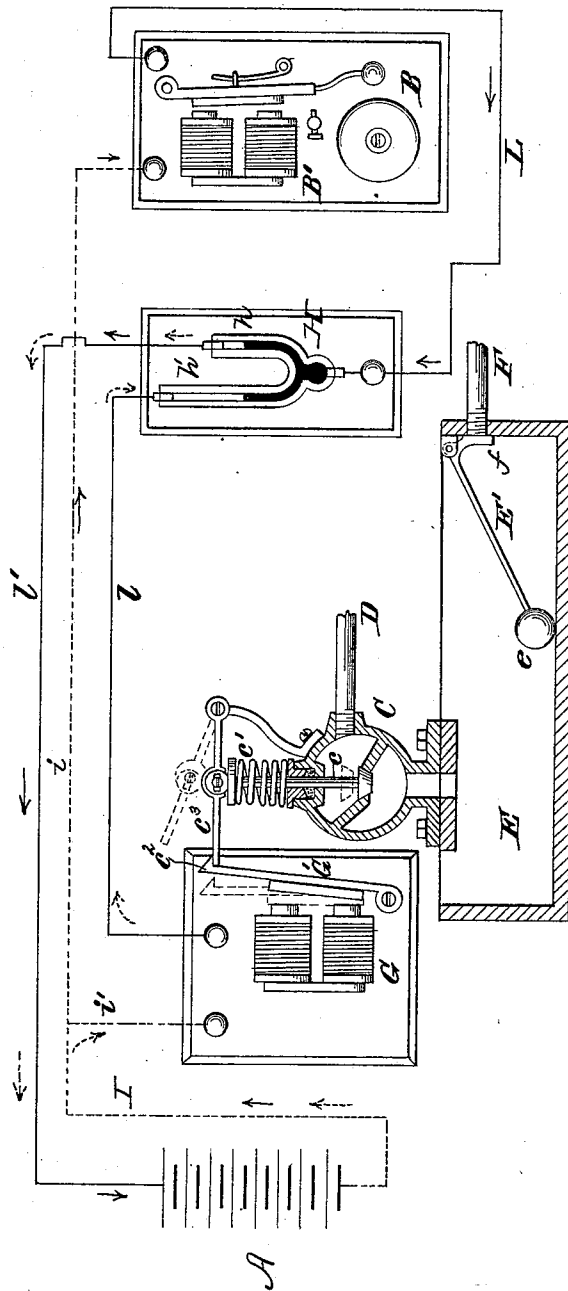
(No Model.)

C. A. EVANS.

ELECTRIC FIRE ALARM AND EXTINGUISHER.

No. 269,273.

Patented Dec. 19, 1882.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CLARENCE A. EVANS, OF UPLAND, PENNSYLVANIA.

ELECTRIC FIRE ALARM AND EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 269,273, dated December 19, 1882.

Application filed September 9, 1881. Renewed May 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE A. EVANS, a citizen of the United States, residing at Upland, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Electric Fire Alarms and Extinguishers; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawing, which forms part of this specification, and which is a diagram illustrating my improvements.

My invention has for its object to provide a fire alarm and extinguisher for dwellings, stores, and other structures.

My improvements consist in the peculiar construction and combination of parts hereinafter fully set forth, having reference particularly to the combination, with an electric battery, an electric bell, and electrically-actuated valve-movement in open circuit therewith, of a circuit-closer adapted and arranged upon due increase of temperature to close the circuit first to said bell and subsequently to said valve-movement, as hereinafter fully set forth.

Referring to the accompanying drawing, A represents a voltaic battery, and B an electric bell having an electro-magnet, B', in open circuit therewith, said bell being preferably of that kind which will ring continuously as soon and as long as circuit with said battery is established and maintained.

C represents a valve in a water-pipe, D. The stem *c* of said valve is provided with a spring, *c'*, which, when not locked or held closed, opens the valve by raising it and admits water from the pipe D to pass through the same. The water so admitted flows into a tank, E, provided with a float, *e*, on a lever, E', said lever being connected with another valve, *f*, in a main supply-pipe, F.

G represents an electro-magnet, and G' its armature, which, when the magnet is not energized, serves to hold down the valve-stem *c* by reason of the lever *c'* passing under a lug, *c''*, on said armature, thus at such times keeping said valve closed.

H is a mercury-cup, of inverted siphon form, having two legs, *h* and *h'*, respectively, the former being shorter than the latter.

The circuits are as follows: I is a conductor

for the outgoing current, which is split or connected to form two branches, *i* and *i'*, leading to the bell-magnet B' and to the valve-magnet G, respectively. From the bell-magnet 55 there is a return-conductor, L, which enters the mercury-cup at the bottom, as shown. From the upper ends of the two legs of said mercury-cup proceed two conductors, *l* and *l'*, one leading to and completing circuit with the valve-actuating magnet G, the other being the return to battery. When the temperature produced by fire in the apartment where the cup H is located causes the mercury in said cup to rise sufficiently, the circuit is closed through 65 the short leg *h*, the current then going as indicated by the arrows in full lines, causing the bell to be rung. It continues ringing for some time, when, if it should fail to attract due attention to effect the extinguishment of the fire, the mercury will continue to rise and establish circuit through the longer leg of the cup and close the circuit to the valve-actuating magnet G, such circuit being as indicated by the arrows in dotted lines. This cuts out the bell, as 75 the valve-magnet is in the shorter circuit, which the electric current will take by preference. If desired, any amount of resistance can be placed in the bell-circuit, so as to insure the full battery-power going to the valve-magnet G after circuit therewith has been established. Circuit to the magnet G being established, said magnet is energized, attracting its armature away from the stem *c* of the valve C. The 85 spring *c'* now opens said valve, permitting water to flow into the tank and raise the float *e* sufficiently to cause the valve *f* to be opened, thus letting on a full head of water to flood the apartment and extinguish the fire.

I do not wish to confine myself to the particular location of the various parts. In occupied tenements the bell is designed to be placed inside the same to give notice to the inmates. Applied to churches, warehouses, or other unoccupied structures or those unprovided with 95 watchmen, the bell may be placed outside, so as to sound an alarm that will be audible to passers-by or to parties in the neighborhood.

The battery may be employed for a door or burglar alarm usually, so as to avoid the expense of maintaining it alone for the purposes 100 herein already described.

In practice the magnet-valve may be quite small, so that slight battery-power only will be required therefor, its opening letting on a sufficient supply to open a larger valve through the medium of the float.

What I claim as my invention is as follows:

1. The combination, with an electric battery, of a thermostatic circuit-maker, an electric bell, and an electrically-actuated valve mechanism, said bell and valve mechanism being in open circuits, each of which said circuits communicates with a thermostat common to both, and which are closed successively by means substantially as described.
2. The combination of electric battery A, electric bell B, and electro-magnet G, armature G', having lug c^2 , lever c^3 , spring c' , and

valve C, with double mercury-cup H, having legs h h' , of unequal length, and conductors from said battery and in open circuit with said mercury-cup, bell, and valve mechanism, respectively, said parts being arranged substantially as described, whereby a sufficient temperature will close the circuits to and operate said bell and valve mechanism successively, as specified.

In testimony that I claim the foregoing I have hereunto set my hand this 31st day of August, 1881.

CLARENCE A. EVANS.

Witnesses:

S. J. VAN STAVOREN,
JOHN W. STEWARD.