

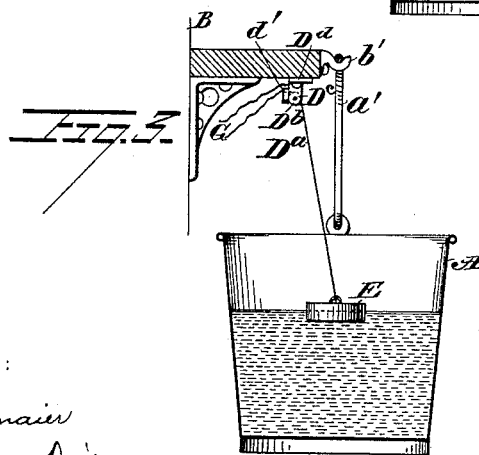
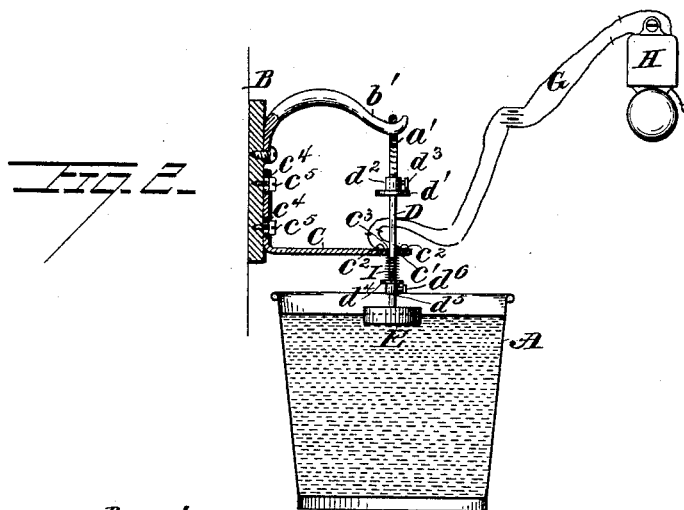
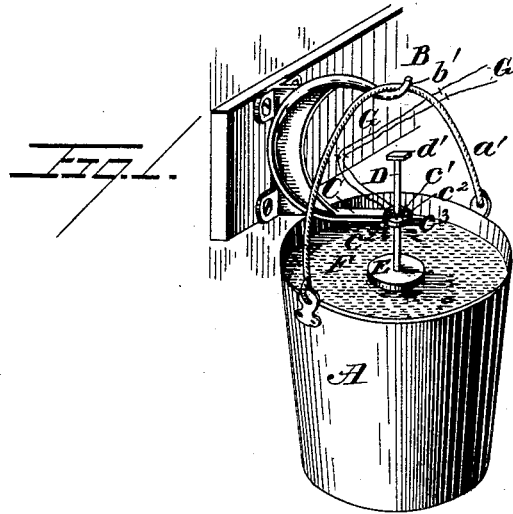
(No Model.)

J. NOLAN.

FIRE BUCKET LOW WATER ALARM.

No. 384,212.

Patented June 5, 1888.



WITNESSES:

Lewis Altman  
F. Norman Dixon.

INVENTOR.

John Nolan,  
per Joshua Dusey  
Atty.

# UNITED STATES PATENT OFFICE.

JOHN NOLAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
AUTOMATIC ELECTRIC ALARM COMPANY, OF CAMDEN, NEW JERSEY.

## FIRE-BUCKET LOW-WATER ALARM.

SPECIFICATION forming part of Letters Patent No. 384,212, dated June 5, 1888.

Application filed October 28, 1887. Serial No. 253,583. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN NOLAN, a citizen of the United States, residing at the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Fire-Bucket Low-Water Alarms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a perspective view of the device. Fig. 2 is a longitudinal vertical sectional view of a modification thereof. Fig. 3 is a like view of another modification.

The object of this invention is to provide a simple and efficient device for sounding an alarm upon the evaporation of the water, or a portion thereof, contained in fire-buckets, in order to notify the attendant of such evaporation, that he may immediately refill the buckets.

The invention relates, primarily, to a fire-bucket low-water alarm, which consists in the combination, with the water-containing fire-bucket, of a disk or body adapted to float upon the water in said bucket and to fall therewith upon the evaporation of the water, and thereby actuate a suitable alarm or sounder connected with said disk or body, as hereinafter more fully explained.

The invention consists, also, in the combination, with the water-containing fire-bucket, of a disk or body adapted to float upon the water in said bucket, a contact-piece connected with said disk or body and adapted to complete an electric circuit upon the fall of said body when the water evaporates within said bucket, whereby an alarm-bell connected with said circuit will be set in operation, and thus notify the attendant of such evaporation.

The invention consists, also, in various details of construction, which will be hereinafter fully explained, and be duly claimed.

Referring to the annexed drawings, A represents an ordinary fire-bucket suspended by the bail *a'* from a hook, *b'*, projecting from the wall B, from which wall below said hook there also projects a bar, C, provided with a hole, *c'*, therein, in line, preferably, with the center of the bucket. Said bar C and hook *b'* may be formed integrally or separately. Extending

bears at its lower end a light disk or body, E, adapted to float upon the water F, contained within said bucket. To the upper end of this rod D is secured a contact-piece, *d'*, of copper or other suitable electric conductor. When the rod D is composed of electric conducting material, said piece *d'* is insulated therefrom by an interposed rubber ring or otherwise. On each side of the hole *c'*, directly in line vertically with the piece *d'*, is a stud, *e'*, to which is attached the end of the electric-circuit wires G, with which there is connected at some suitable point an electric bell, H.

When the bar C is of material that is a good electric conductor, I insulate the studs *e'* therefrom by interposing between said studs and the bar C a piece of rubber, *e''*.

From the above-described construction it will be obvious that when the bucket A is full of water, or nearly so, the circuit H will be broken between the studs *e'*, the contact-piece *d'* being some distance above the same, as shown; but when the water evaporates a certain distance—say until the bucket is about two-thirds full—the float E, falling with the water, will cause the contact-piece *d'* to come into contact with the studs *e'*, and thus complete the electric circuit, whereupon the bell G, Fig. 2, will sound an alarm, and thus notify the attendant of such evaporation.

In order that the contact-piece *d'* may be so adjusted on the rod D that it (said piece) will complete the circuit when a predetermined quantity of water has evaporated, I sometimes provide said piece *d'* with a boss, *d''*, in which works a screw, *d'''*, adapted to be screwed up against the rod D, and thus clamp said piece at any point desired. (See Fig. 2.) This screw is composed of vulcanite or other suitable non-conducting material when the boss *d''* is a good electric conductor.

As a ready means to adjust the bar C vertically in order that the device may be used in connection with buckets having different sized bails *a'*, I usually provide said bar with vertical slots *c'*, through which extend the retaining-screws *e''*. By loosening these screws it will be seen that the bar may be adjusted vertically, as occasion may require, and may be retained at the proper adjustment by tightening said screws. By vertically moving this

bar C the point at which the contact with the circuit is made may be regulated without adjusting the piece  $d'$  on rod D. I prefer, however, when the bar C has been properly adjusted to adapt it to certain buckets, to regulate the point at which said contact is made by adjusting said piece  $d'$ , as hereinbefore explained.

In order to guard against any possibility of the float E not falling with the water in the bucket by reason of the rod D being held in the hole  $c'$  by friction or otherwise, I sometimes provide the rod D below the bar C with a flange,  $d^1$ , between which and said bar there is interposed a light compression-spring, I, which of course is not sufficiently powerful to force the float E down into the water. If desired, this flange may be provided with a boss,  $d^2$ , and set-screw  $d^3$ , and thus be vertically adjustable on said rod with relation to the bar C. (See Fig. 2.)

As shown in Fig. 3, the float E, instead of being secured to the end of a rod, as D, is attached to the end of a cord,  $D^a$ , which passes up over a pulley,  $D^b$ , to the sides  $D^c$  of whose frame  $D^d$  the circuit-wires G are connected. On the other end of the cord is the contact-piece  $d'$ , which comes into contact with the frame  $D^d$  and completes the electric circuit when the water in the bucket evaporates, as clearly seen in said Fig. 3.

The particular advantage of the modified construction just described is that the bucket A may be quickly removed from the hook  $b'$  in case of fire, as the cord  $D^a$ , being flexible, will not catch against the side of the bucket, as the rigid rod would be apt to do. In order, however, to obviate this defect in the device wherein the rod is employed, I make said rod elastic, whereby it will yield to a lateral pull when the bucket is unhooked. In lieu of thus making the rod elastic, the hole  $c'$  may be elongated, which will effect the same result.

Obviously the invention may be variously modified without departing from the essential principle thereof. I would state, however, that I am aware of the fact that there have been described for steam-boilers and like ves-

sels low-water alarms wherein a ball or float falling with the water completes an electric circuit and thus actuates an alarm-bell connected therewith; but in such constructions the boiler or vessel and the electric alarm devices were fixed relatively and were not readily detachable from and attachable to each other, as is the case with my invention, which removable feature is obviously essential in a fire-bucket low-water alarm of the character described. I would also state, in this connection, that I believe to be broadly new the combination of an attachable and detachable fire-bucket and electric sounding devices operating therewith, as hereinbefore set forth.

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

1. The combination, with a rigid bracket or bail-support, the guide-bar, and a normally-broken electric circuit connected therewith, of the float, the elastic rod extending therefrom and passing through said guide-bar, the contact-piece attached thereto, and the alarm-bell in said broken circuit, substantially as described.

2. In a fire-bucket low-water alarm, the combination, with the rigid bracket or bail-support, the guide-bar below said bracket, a normally-broken electric circuit connected therewith, and an alarm in said broken circuit, of a float, a rod extending therefrom and passing through said guide-bar, and an adjustable contact-piece on said rod, substantially as described.

3. In a fire-bucket low-water alarm, the combination, with a rigid bucket-support, of a broken circuit having two stationary contact-points in close relation to each other and to the bucket-support, a float, a movable contact-piece adapted to engage said contact-points, a connection between said float and said movable contact-piece, and a guide for said connection, substantially as described.

In testimony whereof I have hereunto affixed my signature this 26th day of October, A. D. 1887.

JOHN NOLAN.

Witnesses:

FRANCIS S. BROWN,  
JOSHUA PUSEY.