No. 743,600. PATENTED NOV. 10, 1903.

J. W. H. UYTENBOGAART.

ELECTRIC FIRE ALARM.

APPLICATION FILED MAY 6, 1903.

NO MODEL.

FIG. 1.

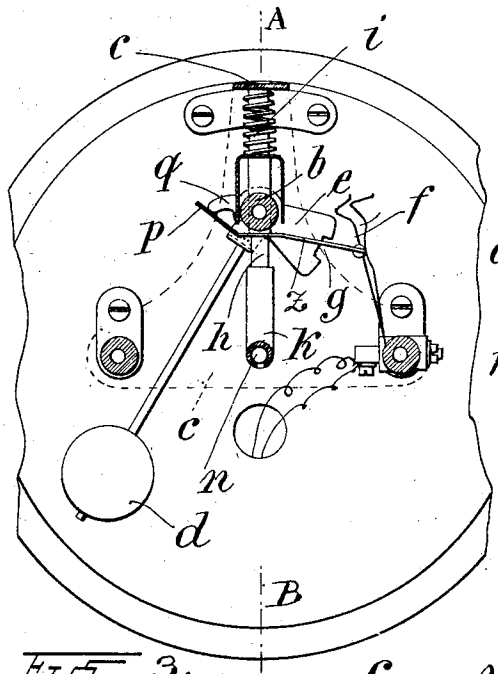


FIG. 2.

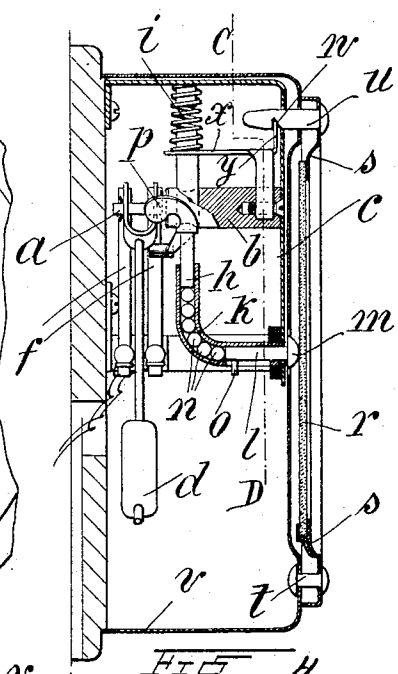


FIG. 3.

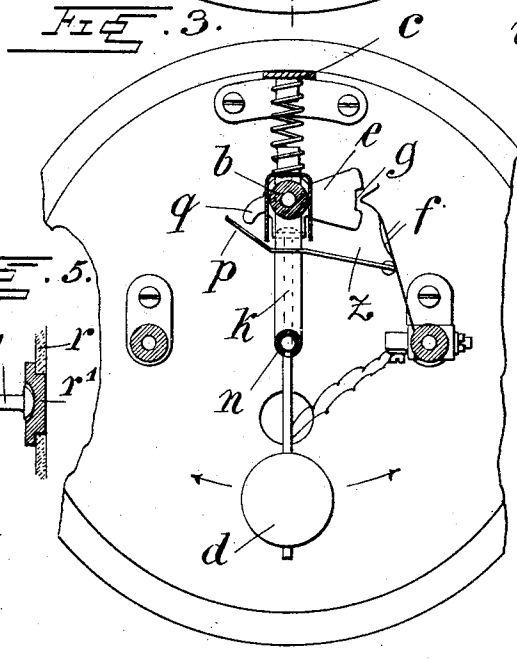
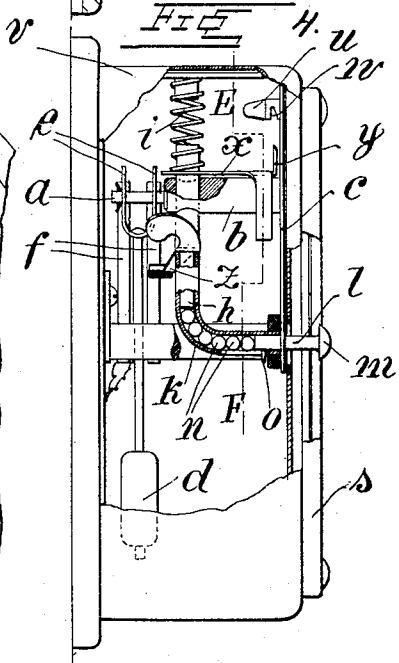


FIG. 5.

FIG. 4.



Witnesses:-

Inventor:-

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 743,600. Patented November 10, 1903.

UNITED STATES PATENT OFFICE.

JOHANNES WILHELMUS HUYBERT UYTENBOGAART, OF UTRECHT, NETHERLANDS.

ELECTRIC FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 743,600, dated November 10, 1903.

Application filed May 6, 1903. Serial No. 155,883. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES WILHELMUS HUYBERT UYTENBOGAART, a subject of the Queen of the Netherlands, residing at Utrecht, Netherlands, have invented a new and useful Improved Electric Fire-Alarm, of which the following is a description.

The present invention relates to that class of electric fire-alarms in which the glass of an electrical contact instrument is broken in order to sound the alarm.

The invention consists, essentially, in a pendulum-contact which when the glass of the instrument is broken is released automatically and makes and breaks contact with the alarm-conductors until the pendulum ceases swinging owing to the action of gravity, when the contact is finally broken and the alarm ceases. Thus according to the particular construction and size of the pendulum the instrument may be adjusted to sound the intermittent alarm, say, for twenty seconds or longer, when the alarm ceases.

The invention also comprises means for preventing the withdrawal of the glass, retaining the pendulum in its position of rest until the said glass has been broken in, so that it is impossible to take the glass out whole and tamper with the apparatus.

In order to render the present specification easily intelligible, reference is had to the accompanying drawings, in which similar letters of reference denote similar parts throughout the several views.

Figure 1 is a front sectional elevation taken along the line C D of Fig. 2, which is a cross-section on the line A B of Fig. 1. Fig. 3 is a front sectional elevation on the line E F of Fig. 4, which is a sectional side elevation, most of the parts being shown in side view, as hereinafter set forth. Fig. 5 shows a glass with fusible center piece.

In a frame c, which is mounted on the base-plate c' by means of suitable screws, a bearing-arm b is rigidly attached, carrying a stub-shaft a, on which the pendulum d is mounted to swing freely. The upper end of the pendulum-stem on which it swings is bifurcated and provided with two conducting-wings $e\,e$, in conductive connection one with the other and having their exterior edges recessed, as at g, Figs. 1 and 3. In proximity to the edges of these wings are fixed two contact-springs $f\,f$, which are in conductive connection with the terminals of the alarm-circuit, as will be clearly seen from Figs. 1 and 3. Guided in the bearing b and vertically movable therein is a rod h, having rigidly attached to it above the said bearing a forwardly-extending plate x, having an upturned arm y, for a purpose hereinafter set forth, and a pair of downwardly-turned arms $y'\,y'$ to prevent the rod h from turning in its bearing in the part b. The lower end of rod h extends into the upper end of a curved tube k, having its horizontal arm fixed in the lower part of the frame c, Figs. 2 and 4. In the horizontal arm of this tube k a plunger-rod l is located, having a head m to rest against the glass front r and having its outward movement limited by means of a pin extending radially from the plunger-rod through a slot in the lower side of the tube.

Between the inner end of the plunger-rod l and the lower end of the rod h a series of balls n are inserted to transmit the downward movement of the rod h to the plunger-rod l. This arrangement for transmitting the downward movement of the rod h may be replaced by any other suitable means—for instance, a lever arrangement or the like. At the upper part of the rod h a strong spring i is located between the plate y, which is, as stated, rigidly attached to the said rod h, and the upper arm of the frame c, so that when the glass r is broken and the plunger-rod l released the spring i will be free to depress the rod h and force the plunger-rod l outward to the limit of its stroke.

Below the bearing b a plate p is located and rigidly attached to the rod h, and the head of this plate bears against the tail q of the pendulum-stem when the rod h is in its raised position and retains the pendulum in the position shown in Fig. 1. This plate p is extended at the opposite side of the rod h and provided with a head which when the rod h is in its upper position rests against and pushes back one or both of the contact-springs f, as illustrated in Fig. 1. When this plate sinks, with the rod h, under the influence of spring i, it will release both the pendulum and

the contact spring or springs, as illustrated in Fig. 3, and the pendulum will be free to swing as long as its momentum lasts.

In order to retain the glass disk in position and to prevent its being taken out without being broken, the following means are provided: The whole instrument is inclosed in a casing v, the same being suitably attached to the base-plate c', and the head m of the plunger-rod l, extending through an orifice in the front plate of the said casing, which front plate may be recessed, as shown, for the reception of the glass r. The glass r may be loosely fitted into suitable small sockets s' at the back of the retaining-ring s for the same, and this ring is provided with a pin t, having a head at the bottom, and a second pin u at the top, adapted to take into orifices in the casing v at the top and bottom of the same. The pin u is notched at w, and when the ring s, with the glass therein, is placed on the casing the head of pin t engages behind the same, as the ring is displaced to allow the pin u to be inserted in its orifice, and then the upturned end y of the plate x springs into the notch w of the pin u and prevents the ring s from being removed without releasing the spring i and rod h and setting the apparatus going. Thus it will be seen that the glass disk r cannot be removed except by breakage. In practice the glass may be smashed by hand or the instrument may be mounted in rooms where the fire may break out, in which case the heat would crack the glass and cause the alarm to be given.

I wish it to be clearly understood that the above-described construction is only one form of embodying the invention, which might be varied in many ways without departing from the nature of the invention.

The device operates in the following manner: When the glass is broken, the plunger-rod l is released and the spring i is free to depress the rod h. This releases the pendulum d by lowering the plate p and also the contact-springs f by the movement of the arm z. The pendulum swings and the projecting edges of the wings e make and break contact with the said springs f until the pendulum ceases to swing. It then occupies the position shown in Fig. 3, in which case the springs f lie in the recess of the wings e and the contact is broken, the alarm having been continued a sufficiently long time to alarm the station.

In Fig. 5 a fusible center piece r' is mounted in front of the rod l in a hole in the glass and fuses when a fire breaks out.

I claim as my invention—

1. In an electric alarm device having a disk, adapted to be penetrated when the alarm is to be given, the combination of a pendulum and means for arresting the same in one of its end positions as long as the disk is whole and means for making and breaking contact with an alarm-circuit as long as the pendulum swings, when the disk has been penetrated substantially as described.

2. In an electric alarm device of the class specified, the combination of a pendulum and means in connection with the same for making and breaking an electric alarm-circuit, a spring-pressed rod normally held up against the pressure of its spring by a glass disk and means in connection with the said rod for arresting the pendulum in one of its end positions and out of contact with the said circuit until the glass is broken and means for permanently breaking the said circuit when the pendulum ceases to swing substantially as described.

3. In an electric fire-alarm of the class specified, the combination of a pendulum having contacting wings attached thereto, spring-contacts in connection with an alarm-circuit mounted in proximity to said wings, means for arresting the said pendulum in its end position as long as the glass disk is whole and for retaining the said contact-springs out of contact with the said wings during this time and means for releasing the parts as soon as the glass is broken to make and break contact as long as the pendulum swings substantially as described.

4. In an electric alarm of the class specified, the combination of a pendulum having contact-wings adapted to swing with it, a spring-pressed rod having means in connection therewith for arresting the pendulum in one of its end positions and having its spring normally held compressed by the glass disk of the instrument, spring-contacts, in connection with the terminals of an alarm-circuit, mounted in proximity to the said pendulum-wings and means in connection with the said rod for retaining them out of contact with the said wings when the pendulum is arrested and a recess in the edge of said wings in which the said spring-contacts lie, without making contact when the pendulum has ceased to swing, after release, substantially as described.

5. In an electric alarm device of the class specified, the combination of a pendulum and spring-contact, in connection with an alarm-circuit, mounted in proximity to said pendulum a spring-pressed rod, to arrest said pendulum in one of its end positions as long as the glass is whole, a ring to receive the glass disk and means in connection with the said spring-pressed rod to lock the said ring and disk to the instrument as long as the glass is whole, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHANNES WILHELMUS
HUYBERT UYTENBOGAART.

Witnesses:
B. T. ROESELINE,
J. M. KONIAN.