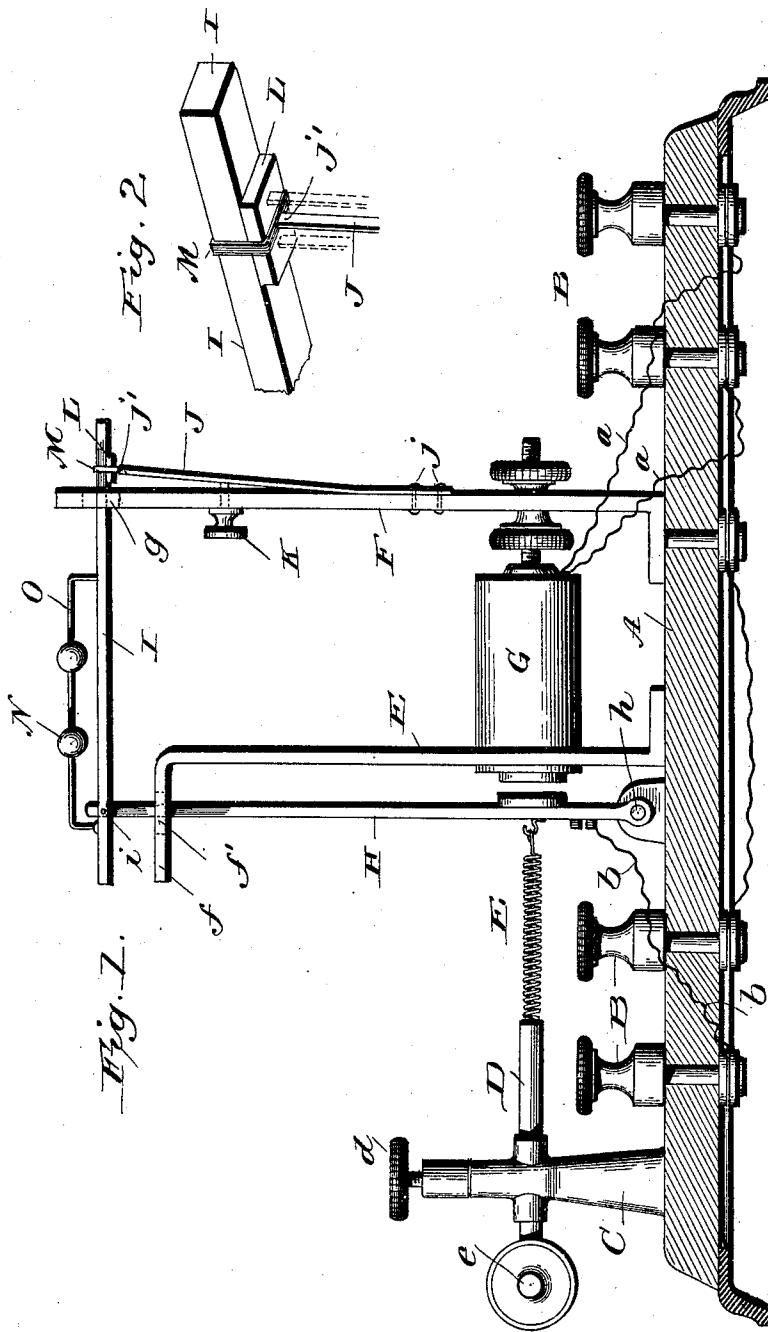


(No Model.)

W. S. HULL.
ELECTRIC ALARM.

No. 545,653.

Patented Sept. 3, 1895.



Witnesses:

L. C. Hills
E. A. Bond

Inventor:

Wm. S. Hull,
by E. B. Stocking
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM S. HULL, OF DALLAS, TEXAS.

ELECTRIC ALARM.

SPECIFICATION forming part of Letters Patent No. 545,653, dated September 3, 1895.

Application filed November 26, 1894. Serial No. 529,951. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. HULL, a citizen of the United States, residing at Dallas, in the county of Dallas, State of Texas, have invented certain new and useful Improvements in Electric Alarms, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in electric alarms designed for use in connection with any and all forms of systems of safe and vault protection, and it has for its objects, among others, to provide a simple, yet efficient, device for this purpose, in which is employed but a single magnet, so arranged as to produce as good, if not a better, result as any instrument with two coils. The armature of this magnet is suspended between the two contact points, the magnet pulling the armature in one direction and a spring exerting its influence in the opposite direction, the adjustment of the spring equalizing the pull of the magnet. The armature has a pivoted horizontal arm, which is supported at one end upon a platina point attached to a post having provisions for its adjustment, and the said arm arranged to slide back and forth under conditions which will be hereinafter set forth. The friction caused by this sliding of the arm or bar assists in maintaining the suspension of the armature between the contact points. Means are provided for increasing or diminishing this friction, and the arm is provided with a platina point and an insulator so arranged that normally the platina point on the post will engage the said insulator; but as the sliding arm moves either one way or the other the insulator moves off of the platina point and the arm drops and its platina point comes in contact with that on the post. The lengthening of the line moves the sliding arm in one direction and sounds an alarm, and the arm is moved in the opposite direction with a like result upon the shortening of the line from any cause. The alarm will be continuous, because the arm cannot move in either direction until it is lifted up and the insulator rests upon the platina point on the post.

Other objects and advantages of the invention will hereinafter appear and the novel

features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a view partly in elevation and partly in section, illustrating my invention. Fig. 2 is a perspective detail of the contact points and a portion of the sliding arm of the armature.

Like letters of reference indicate like parts in both of the views.

Referring now to the details of the drawings by letter, A designates a base or support to which are connected the binding-posts B and other parts of the apparatus.

C is a post rising from the base, and through this post extends a horizontal bar D, to which is connected one end of a spring E, the other end of which is connected with the armature of the magnet, as shown in Fig. 1. Suitable means are provided for adjusting the arm to regulate the tension of the spring. In this instance such means consists simply of a binding-screw *d* and an adjusting-screw *e*.

F are uprights, upon and between which is supported the magnet G, of any suitable form, and one of these uprights is provided at its upper end with the horizontal portion *f*, which has a slot *f'* through which works the upper end of the armature H, which is pivotally connected at its lower end with the base, as shown at *h*, the spring E being connected therewith at a point above its pivot, as shown.

The binding-posts shown at the right of Fig. 1 are those of the main line, the same being connected by the wires *a* with the magnet, as shown, while the wires *b* connect the binding-posts at the left, which are those of the alarm-circuit, with the armature and the upright F at the right of Fig. 1. To the upper end of the armature, which passes loosely through the slot *f'* in the lateral portion of the upright, is pivotally connected at *i* the horizontal bar or arm I, one end of which is passed loosely through a slot *g* in the upper end of the upright F at the right of Fig. 1.

J is a post secured at its lower end to the right-hand side upright F, as at *j*, while at its upper end it carries a platina strip or point

5 *j'*, the said post being adjustable by means of
 a thumb-screw K, as shown in Fig. 1. On the
 free end of the horizontal arm I of the arma-
 ture is a platina strip L, secured thereto in any
 10 suitable manner, in this instance by an insu-
 lating-band M, which embraces the arm as
 best shown at Fig. 2, the insulating band
 being extended beyond the platina strip, as
 shown, for a purpose which will soon be made
 15 apparent. The friction of the horizontal arm
 at the sliding point is increased or diminished
 by means of the weight or weights N, slid-
 ingly mounted upon a wire O, connected with
 the said horizontal arm, as shown.
 20 With the parts constructed and arranged
 substantially as above specified the operation
 will be as follows: The instrument being
 properly adjusted with the armature in sus-
 pension, the platina point *j'* of the post J rests
 25 upon the insulator M. Now the platina points
 are out of contact, and if the current on the
 wire is increased—as, for instance in short-cir-
 cuiting, cutting out a resistance-coil, or other-
 wise shortening the line—then the armature
 30 will move up to the magnet. The additional
 strength thus given to the magnet permits it
 to overcome the pull of the spring and the
 friction of the slide. The sliding arm is moved
 and the insulator is moved away from the
 35 platina point on the post and the sliding arm
 drops until its platina strip engages the pla-
 tina point on the post and the alarm is sound-
 ed. If the wire is lengthened or broken in
 two after the armature is adjusted in suspen-
 40 sion, then the armature will move away from
 the magnet, the spring being more powerful
 than the current in the magnet and overcom-
 ing the friction of the sliding arm, and the in-
 sulator is moved away from the platina point
 45 of the post and the arm drops with its platina
 strip in contact with that on the post and the
 alarm is sounded. The ring of the bell will
 be continuous, for the armature cannot move
 either way until the sliding bar or arm has
 50 been raised and the insulator rests upon the
 platina point of the post J.
 Modifications in detail may be resorted to
 without departing from the spirit of the in-
 vention or sacrificing any of its advantages.
 For instance, the platina point can be placed

on the sliding arm and the insulator and pla-
 tina strip upon the post, being a mere reversal
 of the arrangement above described.

Other similar changes would be considered
 within the scope of the invention.

What is claimed as new is—

1. In a device for the purpose specified, the
 combination of a magnet and its armature, a
 vertical and a horizontally-disposed contact
 point, and a sliding bar or arm carrying one
 60 of said contact points and an insulator nor-
 mally resting upon the vertical contact point
 and adapted when moved in either direction
 to fall off of the vertical contact and bring
 the vertical contact and the conducting part
 65 of the sliding arm into contact, substantially
 as specified.

2. In a device for the purpose specified, the
 combination with a magnet, the pivoted ar-
 mature and its pivoted portion, of a contact
 point, and a cooperating contact point and an
 70 insulator, in a different plane from and divid-
 ing said cooperating contact point, substan-
 tially as specified.

3. The combination with the magnet, the
 armature and the sliding arm thereon, of the
 contact point, the platina strip and the insu-
 lator in a different plane, substantially as and
 75 for the purpose specified.

4. The combination with the magnet, the
 pivoted armature, the alarm connections and
 the main line, of the sliding arm carried by the
 armature, the contact points the insulator
 dividing one of said points and the means for
 80 keeping them normally separated, said means
 being in a different plane from the contact on
 the arm, as set forth.

5. A magnet and a pivoted armature and
 sliding arm connected with said armature and
 provided with a contact point and an insulator
 90 dividing the same and arranged upon a differ-
 ent plane, combined with an adjustable pivot-
 ally-mounted vertical contact arm upon which
 the sliding arm normally rests as set forth.

In testimony whereof I affix my signature
 95 in presence of two witnesses.

WILLIAM S. HULL.

Witnesses:

THOMAS J. COFFEY.

H. C. BARLOW.