

J. R. QUAIN.
ALARM FOR PREVENTING THEFT.
APPLICATION FILED OCT. 4, 1912.

1,057,879.

Patented Apr. 1, 1913.

2 SHEETS-SHEET 1.

Fig. 1.

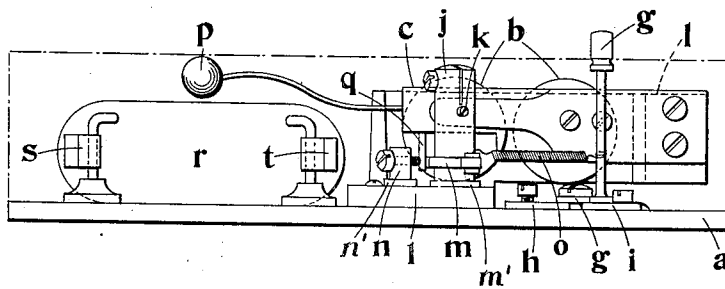
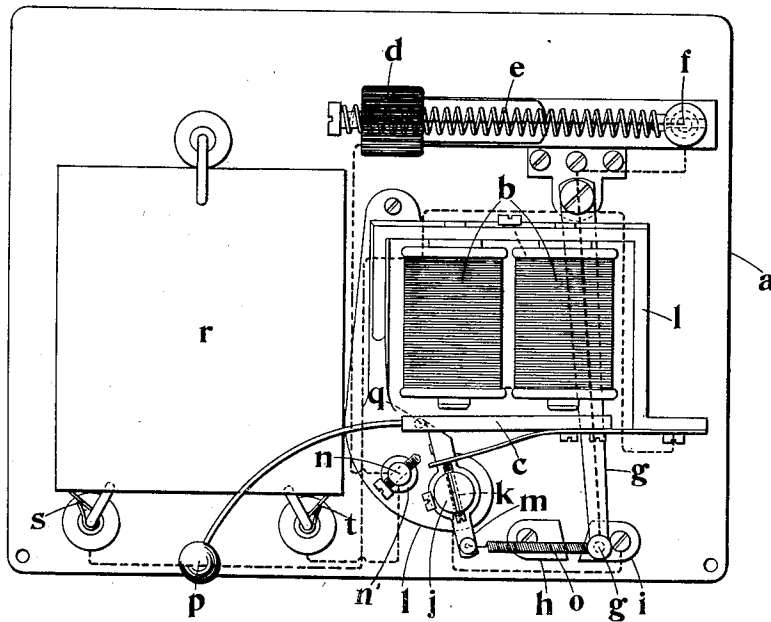


Fig. 2.

Witnesses—
Stanley Wood
Robert Owen Hughes.

Inventor
John Robert Quain
by
W. H. [illegible]
Attorney.

J. R. QUAIN.
ALARM FOR PREVENTING THEFT.
APPLICATION FILED OCT. 4, 1912.

1,057,879.

Patented Apr. 1, 1913.

2 SHEETS—SHEET 2.

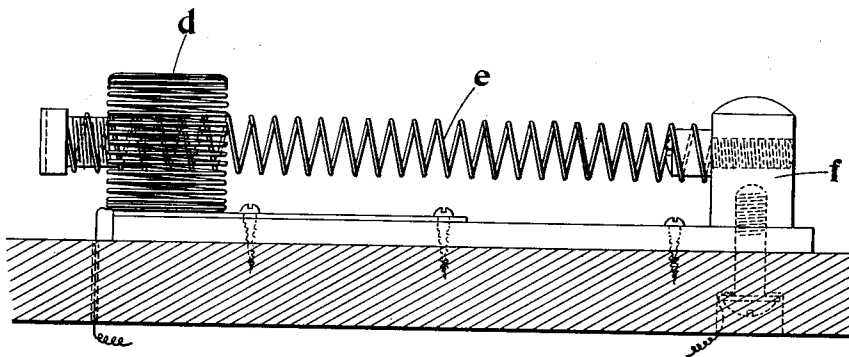


Fig. 3.

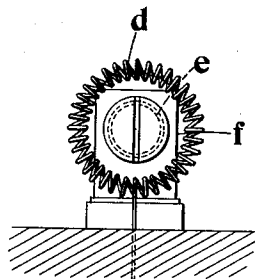


Fig. 4.

Witnesses—
Stanley Wood
H. S. Blake

Inventor
John Robert Quain
by
W. S. Quain
Attorney.

UNITED STATES PATENT OFFICE.

JOHN ROBERT QUAIN, OF WESTMINSTER, LONDON, ENGLAND.

ALARM FOR PREVENTING THEFT.

1,057,879.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed October 4, 1912. Serial No. 723,937.

To all whom it may concern:

Be it known that I, JOHN ROBERT QUAIN, a subject of the King of Great Britain and Ireland, residing at Dacre House, Victoria street, Westminster, London, S. W., England, have invented certain new and useful Improvements in Alarms for Preventing Theft, of which the following is a specification.

- 10 This invention relates to alarm apparatus for use in connection with receptacles such as jewel cases, trunks, safes, and for other purposes, of the kind in which a sensitive electric circuit-closing device, such as a
15 gravity-operated contact, carried by the receptacle, is adapted to be operated automatically, upon the slightest movement of the receptacle, to close an electric circuit of, or otherwise to set in operation, an audible
20 alarm or other signal device, and in which the alarm or signal device, when set in operation, may be provided to continue to operate even though the circuit through the sensitive circuit-closing device be broken.
25 The invention has for its object to provide a simple and effective form of electrically operated or electrically started alarm mechanism.

- According to the invention a sensitive
30 circuit-closing device is provided wholly within the article or receptacle and consisting of a flexible elastic contact member arranged within an encircling fixed contact member in such manner that the slightest
35 movement of the article or receptacle carrying the circuit-closing device serves to set the flexible elastic contact member in vibration, by reason of its inertia, so that it contacts with the fixed contact to close the electric circuit.
40

- According to the invention, moreover, the circuit-closing device is used in the circuit of an electro-magnet provided with an armature the movement of which serves to
45 release a lever or member mounted under spring action and adapted positively to close the circuit of the electro-magnet or a circuit exterior thereto and to short circuit the sensitive circuit-closing device herein-
50 before referred to.

- In the application of the invention the electro-magnet referred to may be the electro-magnet of an electric bell or like audible signal, the armature carrying a clapper in the usual manner. In cases where it is desired to operate a signal at a distance from

the alarm mechanism the electro-magnet may merely serve for the closing of the circuit leading to the signal.

The application of the invention to an alarm apparatus suitable for a jewel-case or like receptacle is illustrated in the accompanying drawings in which:—

Figure 1 is a plan view of the apparatus. Fig. 2 is a side elevation of the apparatus. Fig. 3 shows the sensitive closing device to an enlarged scale and Fig. 4 is an elevation corresponding to Fig. 3.

In the construction of alarm apparatus illustrated in the drawings there is mounted upon a base board *a* an electric mechanism, such as is used for electric bells, comprising an electromagnet *b* and resiliently mounted armature *c*. The sensitive circuit-closing device consists of a fixed ring contact *d* which may be in the form of a coiled spring and a flexible spring contact *e* carried by a suitable standard *f* and extending centrally through the ring contact *d*. The spring contact *e* is weighted at the free end and is of such length and stiffness that the slightest movement of the base board *a* in any direction serves to cause the spring contact to vibrate and thus to touch and complete a circuit through the ring contact *d*.

A hand switch having a pivoted contact arm *g*, operating by lateral movement over two contact blocks *h*, *i*, is suitably mounted adjacent the standard *j* carrying the interrupter or contact pin *k* of the electro-magnet. Upon the standard *j* which is insulated from the metal base plate *l* of the electromagnet *b*, by the member *m'* there is rotatably carried a contact arm *m*. Adjacent the standard *j* there is mounted a post *n*, with an adjustable contact point, insulated from the base plate *l*, by a member *n'* in such a position that the contact arm *m* may be rotated into contact with it. The contact arm *m* is connected with the switch arm *g* by a coiled spring *o* of such length and strength that when the switch arm *g* is moved over to the contact block *i* the spring *o* will rotate the contact arm *m* against the contact point of the pin *n*, while when the switch arm *g* is moved over to the contact block *h* the spring *o* on compression swings the contact arm *m* away from the contact point through an angle of about 90°. The armature *c* carries a clapper *p* and a pin *q* which in the normal position of the armature serves to arrest the contact arm *m* to

prevent its rotation against the contact point of the pin *n*.

A dry cell *r* or other suitable source of electricity is provided and the circuits therefrom are made in the following manner: The terminal *s* is connected to the coils of the electromagnet which in their turn are connected to the armature *c*. The standard *j* is connected with the contact block *i*. The switch arm *g* is connected with the flexible spring contact *e* and the ring contact *d* is connected to the pin *n* and thence to the terminal *t*.

In setting the apparatus the switch arm *g* is moved to the contact block *i* thus rotating the contact arm *m* until it is arrested by the pin *q*. On a slight movement of the apparatus the circuit is closed between the contacts *d* and *e* by the vibration of the contact *e*, and the current passes through the following parts of the apparatus *s*, *b*, *l*, *j*, *i*, *g*, *e*, *d*, *n*, *t*. The armature *c* is thus set in vibration and the alarm sounded by the striking of the clapper *p* against the side of the containing receptacle or a bell. On the first attraction of the armature *c* the contact arm *m* is released by the pin *q* and closes the circuit through the pin *n*, short-circuiting the hand switch and the sensitive circuit-closing device. The current now passes by way of the following parts of the apparatus: *s*, *b*, *l*, *j*, *m*, *n*, *t*, and the alarm continues to sound until the contact arm *m* is moved away from the pin *n* by the return of the switch arm *g* to the contact block *h*. The end of the contact arm *m* is beveled off to allow of its return past the pin *q*. Such an apparatus ar-

ranged within a jewel case or other movable receptacle when set serves to give an alarm immediately the case or receptacle is moved. Where it is desired to give an alarm at a distance the cell *r* need not be included in the apparatus which serves merely to close an exterior circuit by the contact of the arm *m* with the pin *n*.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a burglar alarm, the combination with an electrical signal device having a circuit of a substantially horizontally disposed coiled spring, means supporting one end of the spring, the other end being wholly free for vibration, and a contact ring surrounding the free end portion of the spring, the circuit for the signal device being connected to be closed by contact of the spring with the ring.

2. In a burglar alarm, the combination with an electric signal device having a circuit, of a substantially horizontally disposed spring, means supporting one end of the spring, the other end being wholly free for vibration, and a contact ring surrounding the free end portion of the spring, the circuit for the signal device being connected to be closed by contact of the spring with the ring.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

JOHN ROBERT QUAIN.

Witnesses:

WILLIAM EDWARD EVANS,
ROBERT OWEN HUGHES.