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SAFETY CHEST FOR CONTAINING VALUABLES.

APPLICATION FILED JULY 17, 1913.

1,291,051.

Patented Jan. 14, 1919.

2 SHEETS—SHEET 1.

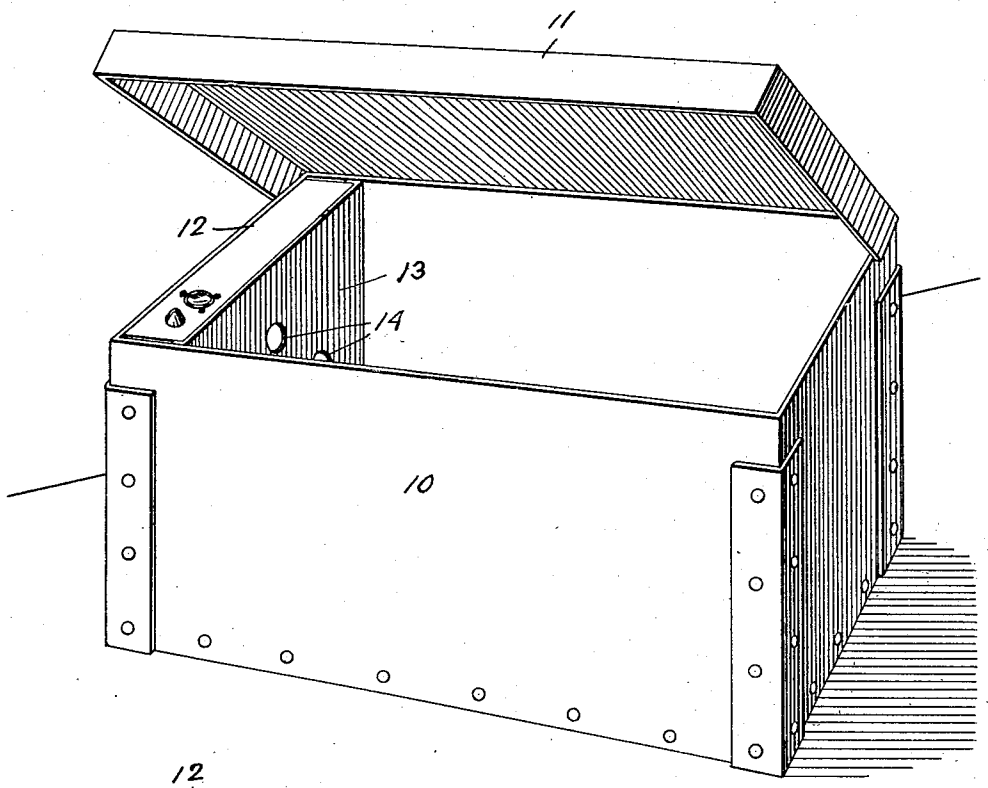


FIG. 1.

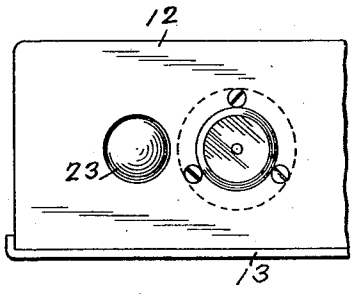
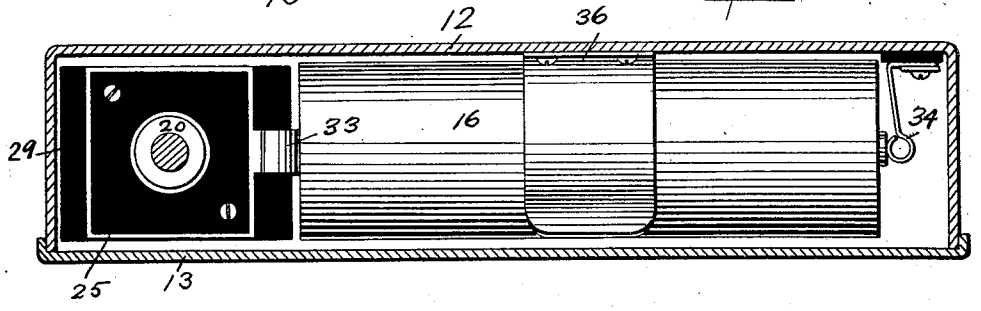


FIG. 4.

FIG. 5.



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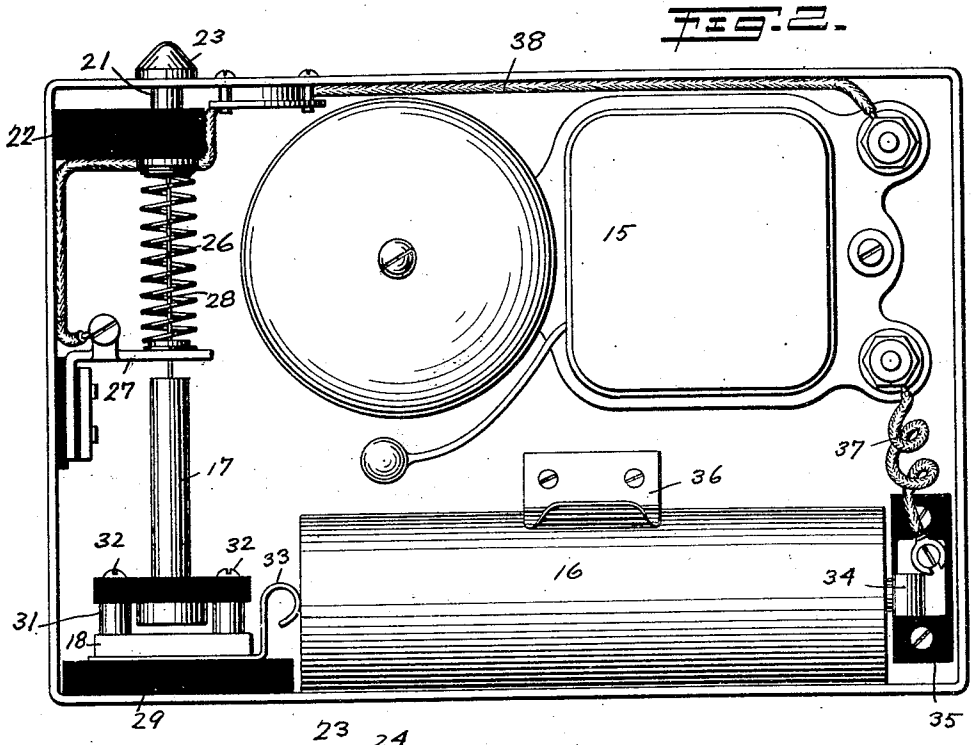
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2 SHEETS—SHEET 2.

Fig. 2.



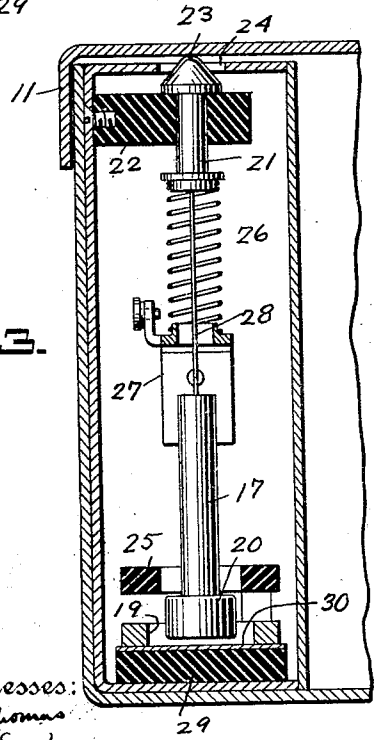


Fig. 3.

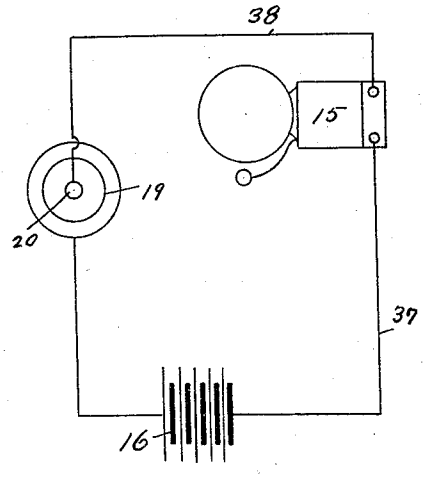


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SAFETY-CHEST FOR CONTAINING VALUABLES.

1,291,051. Specification of Letters Patent. Patented Jan. 14, 1919.

Application filed July 17, 1913. Serial No. 779,621.

To all whom it may concern:

Be it known that I, JAMES L. McQUARRIE, a citizen of the United States, residing at Montclair, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Safety-Chests for Containing Valuables, of which the following is a specification.

This invention comprises an improvement in safety chests for containing valuables, and the object is to produce an exceedingly simple mechanism whereby a continuous alarm is sounded in event of unauthorized disturbance of the chest. To this end the invention consists in the parts, improvements and combinations and sub-combinations, the preferred embodiments of which are herein described and illustrated and more particularly pointed out in the appended claims.

In the accompanying drawings illustrating the invention:

Figure 1 is a perspective view of a suitable form of receptacle, with its cover partly open, displaying the alarm-containing case located at one end of its interior;

Fig. 2 is an elevation looking at the interior of the alarm-containing case, the cover of the case being removed;

Fig. 3 is a vertical transverse section through the alarm case and a portion of the chest;

Fig. 4 is a fragmentary plan view of the alarm-containing case;

Fig. 5 is a horizontal section through the alarm-containing case taken through the battery and bell; and

Fig. 6 is a diagrammatic view illustrating circuit relations.

The chest 10 is of suitable construction and is provided with a hinged cover 11. In accordance with the best embodiment of the invention the alarm mechanism is all contained in a narrow upright case 12, which is removably disposed within the chest adjacent one of the side walls thereof, the construction being such as to leave the majority of the space inside the chest unobstructed for storage purposes. As shown, the case 12 is disposed against one of the end walls of the chest and is of substantially the same height and length as this wall, so as to fit snugly into the end portion of the chest, where it may be held frictionally, or by special means if desired. The inner wall 13 of the case 12 is removable to afford access to the mechanism therein, and, as indicated in Fig. 1, this wall or cover may be perforated at 14 to avoid undue muffling of the sound.

The alarm proper is shown as comprising an ordinary electric bell 15, which is supplied with current from a battery 16, and the alarm is actuated by a gravity-operated device which is freely movable in response to disturbance of the chest; and in accordance with the invention magnetic means are provided for holding the gravity-operated device when thus moved relatively to the chest by agitation of the latter, so as to render the alarm continuously sounding. In one embodiment of the invention the alarm-controlling device comprises a pendulum 17 having universal suspension, and a contact 18 against which the pendulum is adapted to swing in event of the chest being moved or tilted in any direction; and one of these parts constitutes a magnet, so that magnetic attraction keeps the pendulum from swinging away from the contact after it has established electrical connection therewith. In this way the bell is caused to ring continuously by means of mechanism consisting of few and inexpensive parts. As shown, the simplest embodiment of the invention is one in which the battery, bell, pendulum 17 and contact 18 are all included in the same circuit. In the preferred construction the contact 18 has an inner circular surface 19 surrounding the bob 20 of the pendulum at a suitable distance, and the pendulum is a permanent magnet having a south pole at one end and a north pole at the opposite end, but it will be apparent that the stationary member of the circuit closer might be the magnetic part.

Means are provided for producing relative vertical movement between the pendulum and contact, so as to dispose them in and out of operative relation; and, more specifically, means are provided whereby one of these elements is moved by closing the cover of the chest into a position where it may contact with the other, while opening of the cover causes such element to move in the opposite direction, so as to be incapable of effecting the electrical and magnetic contact. In the particular construction shown, the pendulum is suspended from a plunger 21 which operates in a guide opening in a block of insulation 22 fixed in the upper part of the

case, this plunger being provided at its upper end with a button 23, which projects through an opening 24 in the top of the case in position to be engaged and depressed by the cover 11 when the latter is closed. This action lowers the pendulum inside the contact 18, as shown in Fig. 3, and carries its bob below an encircling guard 25 of insulating material, which, when the cover 11 is opened, receives and restrains the bob from movement. The plunger 21 is automatically raised to elevate the pendulum into the position shown in Fig. 2 by means of a spiral spring 26, which is interposed between the lower end of the plunger 21 and a bracket 27, which projects and is insulated from one end wall of the case.

The universal suspension of the pendulum is provided for in a simple and effective manner by the employment of a straight spring wire or rod 28, which connects the upper end of the pendulum with the plunger 21 and thus enables the pendulum to swing in any direction. It will be understood that the magnetism of the pendulum is sufficiently strong to hold it against the contact 18, but insufficient to move the pendulum against the force of gravity and the resistance of the suspension spring unless the pendulum is displaced more or less by agitation of the chest.

The contact 18 is insulated from the case by being mounted on a block of insulation 29 secured to the bottom of the case, and a contact plate 30 is preferably interposed between the contact 18 and this insulating support. The insulating guard 25 is supported on posts 30, 31, rising from the contact 18, and these various parts may be held in assembled relation and secured to the case by screws 32, which pass through the posts into the bottom of the case.

The compact and convenient arrangement of the parts inside the case 12 constitutes an advantageous feature of the invention. Thus, the contact plate 30 has a spring contact finger 33 bent up from it, and between this contact finger and another similar member 34, mounted on a block of insulation 35 at the opposite end of the case, the removable battery is adapted to be inserted. In this position it is held between a spring retainer 36 and the bottom wall of the case, the said retainer being secured by screws or otherwise to the outer wall thereof. The bell 15 is disposed horizontally in the space above the battery 16, and one of its binding posts is connected by wire 37 with the spring contact 34, while its other binding post is connected by a wire 38 with the bracket 27, whence the current passes through the spring 26 to the plunger 21 and thence by way of the suspending wire 28 to the pendulum, which, when swung out of central position, completes the circuit by way of the contact 18 and the contact plate and finger 30, 33. It will be seen that the actuating mechanism, that is to say the pendulum and the contact 18, are disposed in a very small space at the end of the case, beyond the ends of the battery and bell.

What I claim as new is:

1. A safety receptacle having contained therein an alarm and a circuit for actuating the same, a universally movable pendulum for changing the condition of said circuit upon disturbance of the receptacle, and means whereby said pendulum is held by magnetic attraction in alarm-actuating condition, all of said elements being contained within the receptacle.

2. The combination with a portable safety chest, of an alarm and alarm circuit therein, and a pendulum provided with a universal suspension and coöperating contact within the chest included in said circuit, and permanent magnetic means for holding the pendulum against the contact when swung against the same by agitation of the receptacle.

3. The combination with a portable safety chest of the following elements completely contained therein: an alarm, battery and circuit, and a pendulum and contact, one of which is a permanent magnet, for closing said circuit and holding it closed.

4. In a safety receptacle, an alarm and a circuit closing of which causes the alarm to sound, in combination with a magnetic pendulum forming one terminal of said circuit and having universal suspension, and a contact encircling and normally spaced from said pendulum and forming the other terminal of said circuit.

5. A safety receptacle, containing an alarm, an actuating circuit, a device to control said circuit freely and universally movable in response to disturbance of the receptacle, and permanent magnetic means for holding said device when thus moved from normal position, all of said elements being contained within the receptacle.

6. In a safety receptacle, the combination of an alarm, an electric circuit for actuating said alarm, a gravity-operated circuit closer, universally movable, for completing said circuit made by the contacts of said circuit closer comprising a permanent magnet and its armature, one surrounding the other, for holding the circuit in closed condition.

7. In a safety receptacle, the combination with an alarm and circuit, of a pendulum forming one terminal of said circuit, a universal spring suspension for said pendulum, and a contact forming the other terminal of said circuit in concentric relation to the pendulum, one of these terminals being a permanent magnet of a strength sufficient to hold the pendulum against the contact but

insufficient to attract it from normal position against gravity and the resistance of the spring suspension.

8. The combination with a safety receptacle having a cover, of an electric alarm therein, a pendulum and a coöperating contact for actuating said alarm, and a support for one of the two last-mentioned parts movable by the closing of said cover to bring said parts into operative relation.

9. The combination with a safety receptacle having a cover, of an electric alarm therein, a pendulum and coöperating contact for actuating said alarm, and a member from which said pendulum is suspended depressible by the closing of said cover.

10. The combination with a safety receptacle having a cover, of an electric alarm therein, a pendulum and coöperating contact for actuating said alarm, a spring for moving the pendulum vertically out of operative relation to said contact, and a plunger arranged to be engaged by said cover to move the pendulum in the opposite direction.

11. The combination with a safety receptacle having a cover, of an electric alarm therein, a pendulum and coöperating contact for actuating said alarm, a plunger from which said pendulum is suspended arranged to be depressed by closing of said cover, and a spring tending to move the plunger upward so as to elevate the pendulum out of operative relation to the contact.

12. In a safety chest, an alarm and actuating means including an electric circuit and a pendulum and coöperating contact, means for producing relative vertical movement between said pendulum and contact to dispose them in and out of operative relation, and a guard arranged to restrain said pendulum when the parts are out of operative relation.

13. The combination with a safety chest having a cover, of an alarm therein and means for actuating the same comprising an electric circuit, a pendulum and coöperating contact, means whereby closing of said cover moves the pendulum vertically into operative relation to said contact, means tending to move the pendulum out of operative relation to the contact, and a non-conducting guard arranged to receive the pendulum at such time.

14. The combination with a safety chest, of the following elements: an electric bell and circuit, a battery, a pendulum and cooperating contact for closing said circuit, one of the last two elements being magnetic, and a removable narrow case disposed adjacent one of the side walls of the chest and containing the aforesaid elements.

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

JAMES L. McQUARRIE.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."