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SURPRISE AND ALARM DEVICE.
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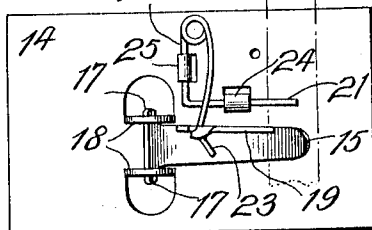
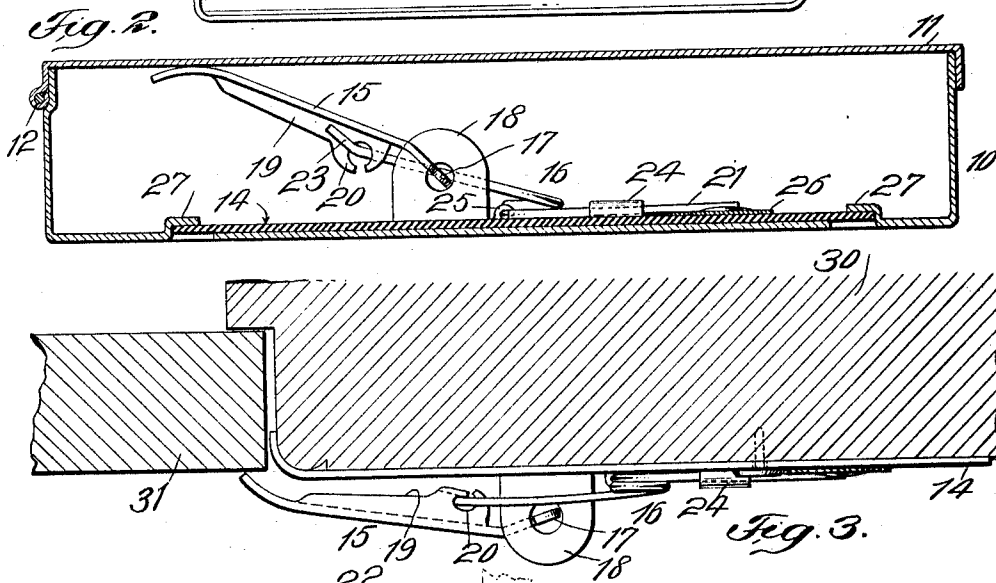
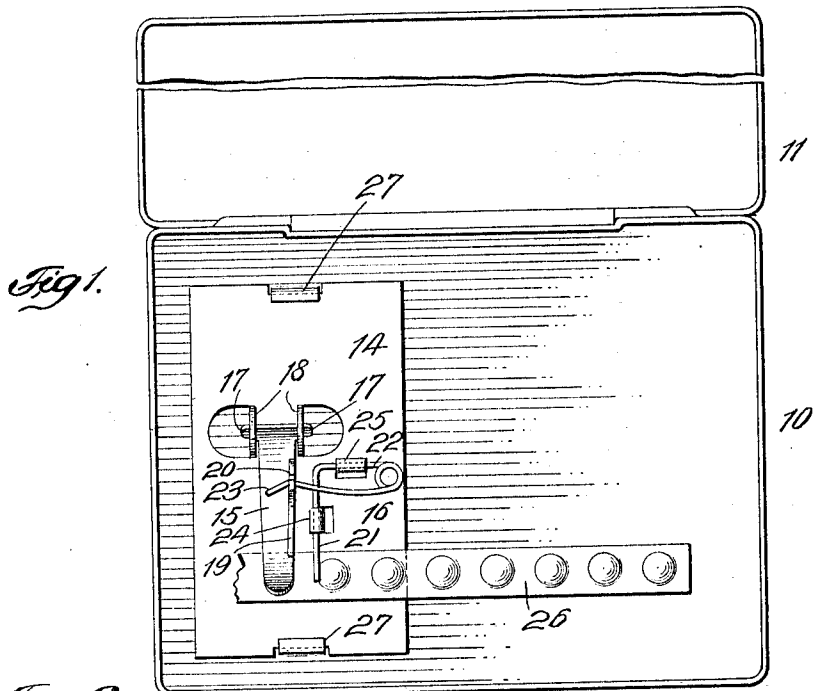


Fig. 4.

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UNITED STATES PATENT OFFICE.

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SURPRISE AND ALARM DEVICE.

1,041,095.

Specification of Letters Patent.

Patented Oct. 15, 1912.

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To all whom it may concern:

Be it known that I, JAMES L. KELLOGG, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Surprise and Alarm Devices, of which the following is a specification.

The invention pertains more particularly to the class of devices by which on the movement of a part, such as the lid of a box or a door, a pivoted hammer-arm may act to explode a cap.

The mechanism of my invention may be employed wholly for amusement purposes, as when placed in a box and rendered operable to explode a cap when the lid or cover of the box is opened by an unsuspecting person invited to remove something, as a cigarette or piece of candy, therefrom, or said mechanism may be employed for more serious purposes, as when applied to the door-frame of a room and arranged to become operative to explode a cap on the opening of the door leading to said room, the explosion of the cap then serving as an alarm to the occupant of the room.

The mechanism even in its last suggested use, may be employed for amusement purposes, as, for instance, to surprise a person expected to open the door and enter the room.

The mechanism whether applied within a box or to a door-frame, will consist of a suitable base-plate, a pivoted hammer, a spring for actuating the hammer, and means for holding a cap in position to be struck by the hammer when the latter is actuated to explode the cap.

The mechanism constituting my invention is highly efficient and at the same time very simple in its details and inexpensive of manufacture, and said mechanism is self-contained and may be bodily applied to position with entire convenience.

The invention may be said to embody improvements on the device patented to me April 5, 1910 No. 954,031, for a surprise or joke toy.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 illustrates an open box, the lid being shown as partly broken away, con-

taining the mechanism of my invention, the hammer being shown in its operated position or as having been released by and having been moved to said position and exploded a cap upon, the opening of the lid of the box; Fig. 2 is an enlarged vertical transverse section of the same with the lid shown in its closed position and the hammer in its inoperated or "set" position ready to spring to its operated position shown in Fig. 1 upon the opening of the box; Fig. 3 is a horizontal section through a portion of a door frame and door with the mechanism of my invention shown applied to the door frame in such position that the end of the hammer in its inoperated position will project upon the edge of the door, so that the latter on being opened can initiate said hammer in movement to a sufficient extent to enable its spring to compel the further movement necessary to enable the hammer to explode the cap; and Fig. 4 is an elevation, on a smaller scale, of the mechanism detached from the door frame, with the hammer shown in its operated position.

In the drawings, 10 designates the body of a box and 11 the lid or cover therefor, said cover being hinged at 12, in any usual or suitable way. Within the box and upon the bottom thereof, I secure a plate 14 preferably of sheet metal, and upon this plate I mount the hammer-arm 15 and also secure the spring 16, the entire mechanism preferably comprising three connected pieces, one being the plate, another the hammer and the third the spring. The hammer 15 is an elongated arm having at opposite sides of its shank-end the laterally extending trunnions 17 freely held within apertures formed in corresponding ears 18 slit and turned upwardly from the plate 14. The arm 15 has a pivotal or swinging motion on the trunnions 17 and at its inner end is slightly curved, as shown more clearly in Fig. 2. At one edge the arm 15 is formed with a side flange 19, and this flange is formed at its inner end with an eye 20 for the free end of the spring 16. The spring 16 is formed of a right-angular part represented by the arms 21, 22, and a free end portion or member, numbered 23, the latter at its outer end having a bearing in the eye 20 and at its other end being coiled and connecting with the arm 22 at the outer end of the latter. The spring 16 is secured to the plate 14 by means

of ears 24, 25 which are slit and turned up from the plate 14 and extend over upon the arms 21, 22 of the spring, and said ears 24, 25 bind the arms 21, 22 down against the plate 14 on lines at right angles to each other, thereby preventing any swiveling action of the spring in said ears. The forwardly projecting end of the member 21 of the spring performs the important duty of a clamp or binder for the strip of paper caps 26, holding said strip, especially adjacent to the cap to be exploded, stationary and close against the forward portion of the plate 14. The body of the box 10 may be made of metal and in such instance the plate 14 may be secured thereto by lips 27 slit and pressed upwardly from the material of the box, but I do not, of course, limit my invention to any special means for securing the plate 14 in position. The plate 14 is preferably secured in such location within the body of the box that when the hammer-arm 15 is turned rearwardly or toward the hinge of the cover, its free end will be adjacent to the rear portion of the box so that when the cover 11 is closed it will engage the free end of the hammer-arm 15, as shown in Fig. 2, and serve to hold said arm in its then position set for operation. When the free end of the arm 15 is extended toward the hinged edge of the cover, the spring 16 will not be able by the force it will then exert to cause said arm to open the cover 11, especially when the device is used in a tin box having a reasonably close fitting cover. When, however, the lid or cover 11 is opened by a person to whom the box may be handed, the spring 16 will cause the arm 15 to quickly fly from its set position shown in Fig. 2 to its operative position shown in Fig. 1, and said arm in swinging downwardly upon the cap of the strip 26 below it, will cause said cap to explode. The hammer arm turns on a horizontal axis and swings frontwardly in effecting the explosion.

One very desirable feature of my mechanism in the arrangement of the spring member 23 and its connection with the hammer-arm 15 is, that when the hammer arm is moved to the position shown in Fig. 2, preparatory to the closing down of the lid or cover 11 thereagainst, the spring member 23 is carried almost beyond the dead center of the axis of said arm, and therefore in the set position of the hammer-arm exerts a minimum force thereagainst, this feature of the construction also resulting in the cover 11 being enabled, when closed, to hold the hammer-arm in its set position preparatory to being allowed to operate on the opening of the cover. I may force the hammer-arm downwardly in setting the same to carry the spring-member 23 downwardly beyond the axial center of said arm, and in such posi-

tion of the parts the spring would hold the hammer-arm in its rear position so that it would not operate on the opening of the cover 11 unless said cover possessed some means, as a simple finger, initiating the arm in movement during the opening movement of said cover. I however prefer in setting the hammer-arm 15 not to move it rearwardly and downwardly sufficiently far for the spring-member 23 to be carried rearwardly and downwardly beyond the axial center of the arm 15, but to move said arm rearwardly only sufficiently far for the spring 23 to lose enough of its acting force to enable the cover 11 to hold the arm 15 in its set position ready for operating by the mere act of opening the cover.

When the devices of my invention are used in a box they will preferably be arranged as I have shown in Figs. 1 and 2 and hereinbefore described. The strip of caps will be applied to the plate 14 by hand, and the forwardly projecting portion of the spring arm 21 will serve as a sufficient clamp for holding the strip against said plate. In setting the hammer-arm 15 the cover 11 will be opened on its hinge 12 and with the thumb of the left hand the operator may easily turn the hammer-arm back from its position shown in Fig. 1 toward that illustrated in Fig. 2, and with the other hand gradually close the cover 11, the latter meeting the convex free end of the hammer-arm and serving to compel the rear movement of said arm as the operator releases his thumb from the same. The box may then be handed to a person to take something therefrom, and upon the opening of the lid or cover 11 the arm 15 will become released and spring frontwardly and downwardly against the positioned cap and cause the same to explode.

When the device of my invention is to be applied for use in connection with, say, a door, such as a door to a room in a house, the base-plate 14 will be applied to the door casing 30 in such location that the hammer-arm 15, when moved to its set position, will project over into the path of the adjacent edge of the door 31 in order that when the door is opened it may move against said hammer-arm and initiate it in movement so that it will, under the force of the spring 16, swing to its opposite position against the cap. When the device is applied to use in connection with the door, the hammer-arm 15 will be moved to its set position, that is set for operation, the same as when the device is used within a box, but I will always then move the arm 15 until the spring-member 23 is actually beyond the center line of the trunnions 17, as I show in Fig. 3, so that said spring will, at such time, have no tendency to cause the arm 15 to operate but act rather to hold it in its set position ready

for operation by the door 31. In the use of the device illustrated in Figs. 1 and 2, I rely upon the closed cover 11 to hold the hammer-arm in a sensitive position for automatic operation, preferably not moving the said arm downwardly until the spring-member 23 passes the axial center line of the trunnions 17, but when the device is to be employed on a door casing, I will turn the hammer-arm 15 far enough to carry the spring-member 23 beyond the axial center of the trunnions 17, since in such use of the device no covering means are present to retain the arm in a position set for operation. As soon as the door 31 has been opened against the end of the hammer-arm 15 to a sufficient extent for the spring member 23 to pass outwardly beyond the axial center of the trunnions 17, the spring will cause said arm to quickly turn to its other or operated position against the cap positioned to be exploded thereby. The use of the device arranged as illustrated in Fig. 3 may be for purposes of amusement, or if used in a bedroom, for creating an alarm to the occupant thereof in the event that anyone should open the door 31.

There are other uses to which the devices of my invention could be put, but it will be unnecessary to indicate them.

It will be seen that the devices constitute a simple, easily constructed and operated, self-contained set of mechanism which may be conveniently applied to a box or to a door-frame, or to other locations in which it may be desired to employ the same.

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

1. In a device of the character described, a base, a hammer-arm pivotally mounted thereon, means for holding a paper-cap to be exploded by said arm, and a laterally extending actuating spring-member connected with said arm at one side of its axis of motion to be carried by the arm toward the other side of said axis on the moving of the arm to its predetermined set position for operation.

2. In a device of the character described, a carrying base-plate, a hammer-arm pivotally mounted at one end thereon on an axis substantially parallel therewith, means on said plate for holding a paper-cap against the same in position to be struck by said arm, and a laterally extending actuating spring-member secured to said plate and connected at its free end with said arm at one side of its axis of motion to be carried by the arm toward the other side of said

axis on the moving of the arm to its predetermined set position for operation.

3. In a device of the character described, a carrying base-plate, a hammer-arm pivotally mounted at one end thereon on an axis substantially parallel therewith, and a rod of spring wire secured to said plate and at one part constituting a spring-clamp for holding a paper-cap against said plate in position to be struck by said arm and at another part affording a laterally extending actuating spring-member lying at right angles to said spring clamp and connected with said arm at one side of its axis of motion to be carried by the arm toward the other side of said axis on the moving of the arm to its predetermined set position for operation.

4. In a device of the character described, a carrying base-plate, a hammer-arm pivotally mounted at one end thereon on an axis substantially parallel therewith, and a rod of spring wire secured to said plate and at one part constituting a spring-clamp for holding a paper-cap against said plate in position to be struck by said arm and at another part affording a laterally extending actuating spring-member lying at right angles to said spring clamp and connected with said arm at one side of its axis of motion to be carried by the arm toward the other side of said axis on the moving of the arm to its predetermined set position for operation, said plate having ears integral therewith and standing at right angles thereto and affording bearings for said arm and ears integral therewith and extending at right angles to each other securing said wire rod thereto.

5. In a device of the character described, a base-plate, a hammer-arm pivotally mounted at one end thereon on an axis parallel therewith and having at one side of its axis of motion an eye, means on said plate for holding a paper-cap against the same in position to be struck by said arm, and a laterally extending actuating spring-member secured to said plate and at its free end entered in said eye and to be carried by said arm toward the other side of said axis of motion on the moving of the arm to its predetermined set position for operation.

Signed at New York city, in the county of New York and State of New York, this 16th day of July A. D. 1912.

JAMES L. KELLOGG.

Witnesses:

ARTHUR MARTON,
CHAS. C. GILL.