

Oct. 20, 1953

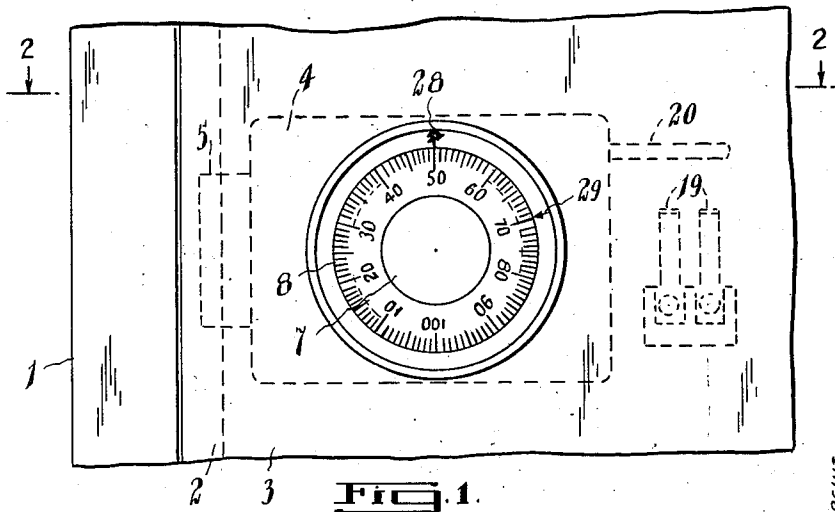
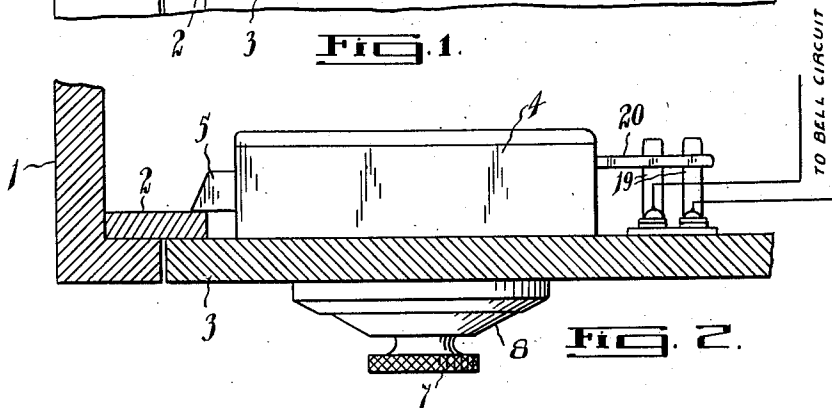
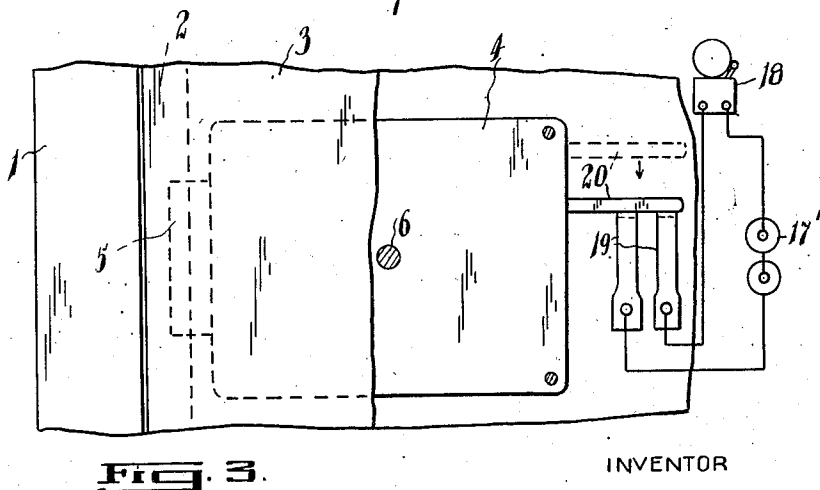
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2,655,807

HOLDUP ATTACHMENT FOR SAFES AND VAULT LOCKS

Filed May 21, 1952

2 Sheets-Sheet 1



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HOLDUP ATTACHMENT FOR SAFES AND VAULT LOCKS

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2 Sheets-Sheet 2

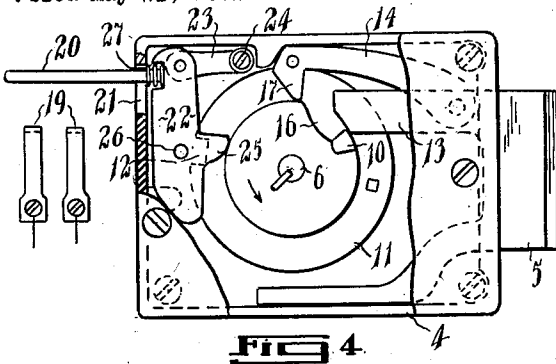


FIG. 4.

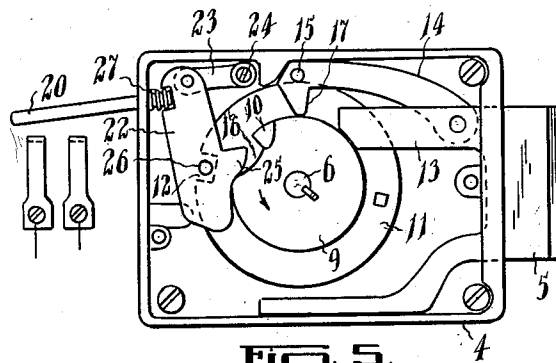


FIG. 5.

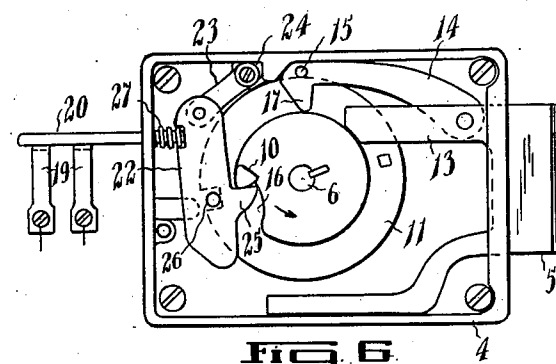


FIG. 6.

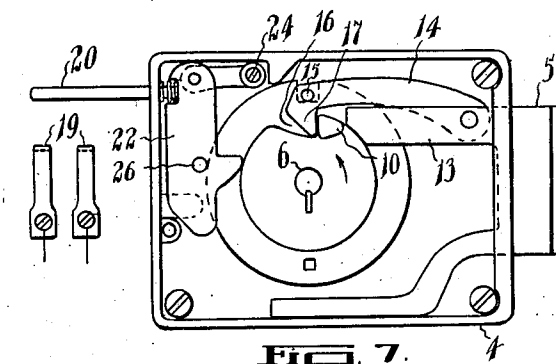


FIG. 7.

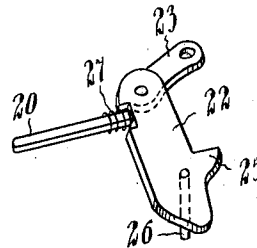


FIG. 9.

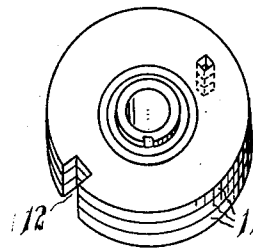


FIG. 10.

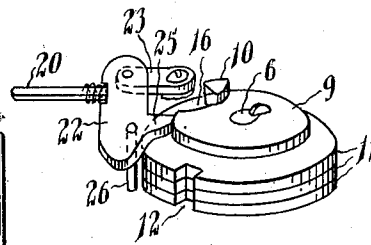


FIG. 11.

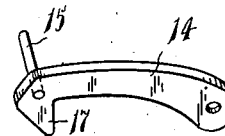


FIG. 8.

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HOLDUP ATTACHMENT FOR SAFES
AND VAULT LOCKS

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Application May 21, 1952, Serial No. 289,134

3 Claims. (Cl. 70—303)

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This invention relates to combination locks of the type used in connection with the doors of safes. Such locks include a plurality of combination wheels, each of which is provided with a notch in its periphery, which notches are brought into alinement, by using the proper safe combination, to receive a pin on the side of the bolt operating pawl or dog to allow said pawl or dog to drop so that its catch projection will lie in the path of the catch on the catch wheel, which latter is rotated by the dial knob.

One of the important objects of the present invention is to provide in conjunction with this well known type of safe lock protective means which will enable the lock to simulate the action of a time-controlled lock, which means may be brought into operative condition by turning the dial knob and using a combination other than that normally used to open the safe, thus permitting a person, who might be compelled by a robber to open the safe, to set the combination to bring into action the time-controlled lock action simulating means, and thus give the robber the impression that the person cannot open the safe.

A further important object of the invention is to combine with said time lock simulating means other means for controlling the operation of an alarm to give warning to others that an attempt at robbery is being made.

These and other objects which will hereinafter appear are attained by means of the constructions hereinafter described and illustrated in the accompanying drawings in which

Fig. 1 is a front view of part of a safe with the alarm circuit closing means shown in dotted lines;

Fig. 2 is a sectional view on the line 2—2 in Fig. 1;

Fig. 3 is a front view, similar to Fig. 1, but partly broken away and showing the alarm circuit closed;

Fig. 4 is a rear view, partly broken away, showing both the alarm-controlling and the lock-releasing means out of operative position;

Fig. 5 is a similar view showing the alarm-controlling means ready for operation and the lock-releasing means in inoperative position;

Fig. 6 is a similar view showing the alarm-controlling means in alarm-giving position, and the lock-releasing means in inoperative position;

Fig. 7 is a similar view showing the alarm-controlling means in inoperative position and the lock-releasing means in operative position;

Fig. 8 is a perspective view of the lock-opening pawl or dog;

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Fig. 9 is a perspective view of the alarm-operating click plate;

Fig. 10 is a perspective view of the combination wheels; and

Fig. 11 is a perspective view of the combination wheels, the catch wheel and the alarm-control click plate.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

Referring to Figs. 1, 2 and 3, 1 indicates a portion of the safe body, 2 the door frame, 3 the safe door, 4 the lock casing, and 5 the slide bolt which projects from an opening in the end of the casing and engages behind the frame 2 as indicated in Fig. 2 to hold the door closed.

The lock, as above mentioned, is of ordinary construction, and in the present description only reference will be made to those details necessary to enable a proper understanding to be had of the present invention.

Pivoted in the casing is a shaft 6 on the outer end of which is mounted the usual knob 7 with surrounding dial 8. On the inner end of this shaft is the catch wheel 9 on which is formed the catch 10. In front of the catch, the catch wheel is provided with a notch 16 in its periphery.

11 indicates the usual combination wheels, each of which is provided with a peripheral notch 12. These combination wheels, by manipulating the dial knob in accordance with the proper combination, are moved relative to one another to align the notches 12 in the wheels in a manner well known in the art.

The slide bolt 5 is actuated by the catch 10, which engages the end of an arm 13 to move the bolt to door-locking position, and is moved to unlocking position by a pawl or dog 14 pivoted on said arm. This pawl or dog 14, which is shown particularly in Fig. 8, has a projection 17 at its free end adapted to engage in the notch 16 in the catch wheel. Said projection 17 has one straight side and said notch 16 has one straight end to provide a positive engagement between the two to effect the retraction of the bolt 5. The other side of the projection and the other end of the notch have co-operative inclined or cam surfaces which tend to cause the projection to lift out of the notch when the catch wheel is turned in a direction opposite to the arrow in Fig. 7. This pawl or dog 14 also has a pin 15 projecting from the side of its free end. This pin normally rides on the peripheries of the combination wheels before the combination is set, and therefore holds the pawl or dog 14 raised to such an elevation that the projection 17 thereof is held out of the path of the catch 10, but when the notches 12 are

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brought into alinement with one another by the setting of the combination and the catch wheel rotated to permit the projection 17 to enter the notch 16, the pin 15 on the pawl 14 may drop into these alined notches, and the straight side of the projection 17 on the pawl 14 is thus positioned to be engaged by the catch 10, as indicated in Fig. 7. It will be noted in this Fig. 7 that the catch 10 is positioned between the projection 17 and the end of the arm 13. By moving the dial knob to rotate the catch wheel as indicated by arrow, the catch will engage the projection to move the bolt to retracted position, after which, by moving the dial knob in the reverse direction, the bolt 5 will be moved to locking position through the engagement of the catch 10 with the end of the arm 13. When the door is locked by rotating the knob, the projection 17 of the pawl will ride up the inclined or cam end of the notch 16 and the pin 15 thus lifted from the notches 12 to allow the combination wheels to move to break the combination setting.

The construction above set forth is one commonly used in safe door locks, and the invention is concerned particularly with the combination therewith of the protective mechanism now to be described.

This protective mechanism has two objects in view, first, to simulate the action of a time-controlled lock, and, second, to operate an alarm to give warning that the person operating the lock is doing so under compulsion or duress.

Movable within the casing 4 is a click or pawl member 22, which is pivotally connected at one end with one end of a link 23, the other end of which link is pivotally connected at 24 inside the casing. This link may occupy a position substantially parallel to the inside of the wall of the casing 4 as shown in Fig. 5 or swing downwardly at an angle thereto as shown in Fig. 6.

This click member 22 is provided with a projection 25 on its edge nearest the catch wheel and also with a pin 26 projecting from its side, which projection and pin respectively serve the same functions as the projection 17 and pin 15 on the pawl 14. In other words, when by the operation of the dial knob 7, the notches 12 of the combination wheels 11 are brought into alinement with one another and with the pin 26, said pin may enter said notches when the catch wheel 9 is rotated to allow the projection 25 to enter the notch 16 as indicated in Fig. 5. By turning the catch wheel as indicated by the arrow in Fig. 5, the catch 10 will engage said projection 25 and draw the click member downwardly to the position shown in Fig. 6. A spring 27 positioned between the casing wall and the click member 22 tends to move said click member into contact with the catch wheel.

Referring to Fig. 1, the lock is conditioned for opening the door by using the regular pointer or star 28 to co-operate with the dial in setting the combination wheels to aline the notches 12 to receive the pin 15 of the pawl or dog 14 to permit the operation of the bolt.

In operating the lock to utilize the protective means a second combination must be employed. This second combination must naturally have a definite relationship to the door-releasing combination which is governed by the angular relationship between the pin 15 on the pawl 14 in its slot-engaging position in Fig. 7 and the pin 26 on the click member in its slot-engaging position in Fig. 5. This difference, with the dial scale

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of Fig. 1, amounts to twenty points, and therefore the numbers used in the two combinations would differ by twenty points. As an alternative, a second pointer or star 29, as indicated in Fig. 1, could be employed, and the second combination would in this case use the same numbers as the door-opening combination to avoid having to remember two groups of combination numbers. This second pointer or star 29 must be spaced at an angle from the regular pointer or star equal to the angle to which the combination wheels should be turned beyond their regular setting in order to bring the slots 12 into alinement at a point for receiving the pin 26, when the catch plate 22 is allowed to effectively move in under stress on the spring 27.

By rotating the catch wheel back and forth gently the click member 22 may be moved between the positions shown in Figs. 5 and 6, thus giving an action similar to that of a time-controlled lock. By turning the catch wheel sharply in the direction opposite to that indicated by the arrow, the click member will be kicked out of the path of the catch 10 despite the pressure of the spring 27 and thus allow the combination wheels to move relative to one another to break the alinement of the notches 12.

In Fig. 3 is shown an alarm circuit which is controlled by the click member 22. This circuit includes a source of electric energy, such as the dry cells 17, an audible signal, such as the alarm bell 18, and a pair of contacts 19 mounted on the inside of the door close to the lock casing. The circuit is closed to operate the audible signal by bridging said contacts 19, and in the drawing this bridging is effected by a contact arm 20 mounted on the click member 22 and extending through a slot 21 in the wall of the casing 4.

When the click member 22 is drawn downwardly by the catch wheel as indicated in Fig. 6, the contact arm 20 is moved down to bridge the contacts 19 to close the alarm circuit and sound the alarm.

If the catch wheel is moved back and forth to simulate the action of a time-controlled lock as referred to above, the signal will be sounded intermittently, but it will be evident that the arm 20 might be used to move to circuit-closing position a contact which would remain in said position until otherwise moved out of circuit-closing position. It will be evident, of course, that the alarm bell may be located in any position in or outside the building.

It will be seen that by the addition of the click member and its associated parts, which click member operates in conjunction with the catch wheel of the safe lock in the same manner as the pawl or dog which actuates the slide bolt, I am able by the operation of the dial knob and using another combination, or a false pointer or star, to set the combination wheels to actuate the click member instead of the slide bolt, to permit a limited back and forth partial rotation of the dial knob to simulate the action of a time-controlled lock, or to operate the alarm, or both as desired.

What I claim is:

1. A safe lock including a plurality of concentric combination wheels each having a peripheral notch adapted to be aligned with those of the other wheels, a catch wheel rotatable on the same axis as the combination wheels and having a notch in its periphery, a movable bolt, a pawl member for actuating said bolt and

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adapted to engage in the notch in the catch wheel, and a pin projecting from the side of the pawl member and riding on the peripheries of the combination wheels adapted to engage in the notches in said combination wheels when said notches are aligned in bolt-releasing position, in combination with protective means adapted to be actuated by said catch wheel when said combination wheels are set in another position, said protective means including a click member adapted to engage in the notch in the catch wheel, said click member having a pin projecting from its side adapted to engage in the notches in the combination wheels when said notches are in alinement in another position.

2. A safe lock including a plurality of concentric combination wheels each having a peripheral notch adapted to be alined with those of the other wheels, a catch wheel rotatable on the same axis as the combination wheels and having a notch in its periphery, a movable bolt, a pawl member for actuating said bolt and adapted to engage in the notch in the catch wheel, and a pin projecting from the side of the pawl member and riding on the peripheries of the combination wheels adapted to engage

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in the notches in said combination wheels when said notches are alined in bolt-releasing position, in combination with a click member adapted to engage in the notch in the catch wheel and having a pin projecting from its side adapted to engage in the notches in the combination wheels when said notches are in alinement in another position, spring means tending to hold the click member against the periphery of the catch wheel, said click member when engaged in the notch in the catch wheel being adapted to permit limited rotation of the catch wheel in opposite directions without disengaging its pin from the notches in the combination wheels.

3. A safe lock as defined in claim 2 in which the click member is pivotally connected with one end of a pivoted link.

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