C. F. RITCHEL.

THIEF PROOF TREASURE BOX.

APPLICATION FILED APR. 25, 1907.

1,198,581. Patented Sept. 19, 1916.

Fig. 1.

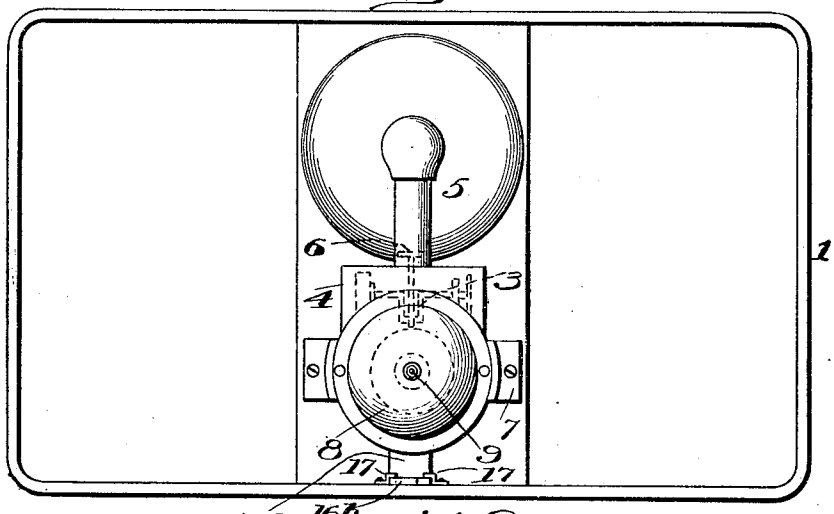


Fig. 2

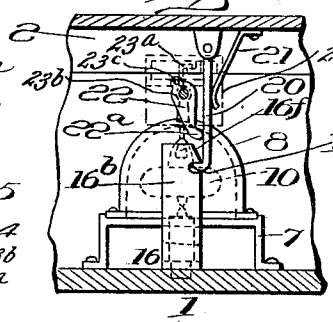


Fig. 4.

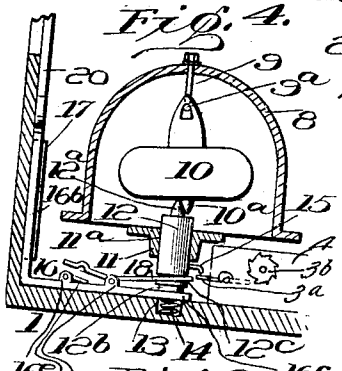


Fig. 5.

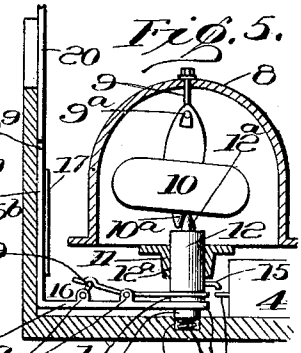


Fig. 3.

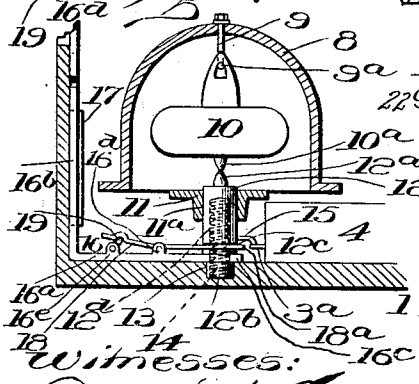


Fig. 8.

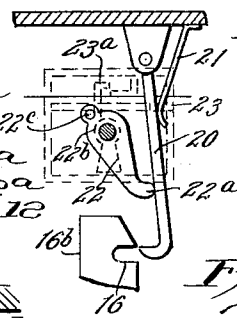


Fig. 6. 14

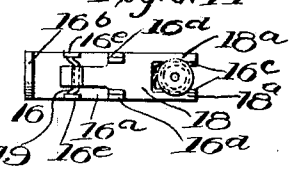
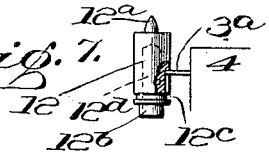


Fig. 7.



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UNITED STATES PATENT OFFICE.

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THIEF-PROOF TREASURE-BOX.

1,198,581. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed April 25, 1907. Serial No. 370,188.

To all whom it may concern:

Be it known that I, CHARLES F. RITCHEL, a citizen of the United States, and a resident of Bridgeport, county of Fairfield, State of Connecticut, have invented a certain new and useful Thief-Proof Treasure-Box, of which the following is a specification.

My invention is an improved thief proof treasure box.

One of the objects of the invention is the production of such a box with an alarm so connected thereto that when the alarm operating mechanism is released upon the movement of the box, the alarm will be sounded.

Another object is to produce such a box with an alarm operating mechanism carried thereby, said alarm operating mechanism being so secured thereto that in transportation it will not operate.

Another object is to produce such a box that when it is tampered with in an attempt to open it without a key, the alarm mechanism will be released and the alarm sounded.

Other objects will appear from the hereinafter description.

One type of the invention is illustrated in the accompanying drawing which forms a part of this application.

Referring to the drawing in which the same reference character indicates the same part in the several views, Figure 1 is a top plan view of the box with the top thereof removed and showing the alarm operating mechanism, and the alarm in plan. Fig. 2 is a front view of said mechanism, showing the top of the box closed and the coöperating part carried thereby in engagement with the alarm releasing mechanism. Fig. 3 is an enlarged side elevation of the alarm releasing mechanism viewed at right angles to Fig. 2, and showing the position of the parts when the alarm releasing mechanism is locked so that the box may be transported without releasing said mechanism. Fig. 4 is a similar view showing the position of the parts when the alarm operating mechanism is released upon tilting the box. Fig. 5 is a view showing the position of the parts when the alarm operating mechanism is released when the box has been tampered with in an attempt to force the cover. Fig. 6 is a plan view of the alarm releasing locking mechanism. Fig. 7 is a vertical section of a detail showing a slightly modified construction. Fig. 8 is a detail view showing the dog 22 in relation to the lock.

The part marked 1 on the drawing represents the box.

2 is the top thereof which may be hinged to the body of the box in the ordinary manner.

3 is a crank shaft connected to and driven by any suitable mechanism, such as ordinary clock mechanism, not shown, mounted in the case 4. Connected to this crank is a piston 6 which moves in a cylinder which is connected to a horn 5. When the clock mechanism operates the piston travels backward and forward in the cylinder, sucking and forcing air to blow the horn in a well known manner and causing an alarm. This whole mechanism may be termed an alarm mechanism. The specific form of horn is immaterial. Any suitable well-known horn structure may be employed. In Fig. 1 it will be understood that the bell of the horn is shown in end view, that is, the axis of the horn is perpendicular to the connected cylinder containing the piston 6. Secured to and forming a part of the alarm operating mechanism, is an arm 3^a extending through the case 4. When this arm is held in a certain position, the alarm mechanism is prevented from operating and when said arm is released it permits the said mechanism to operate the air pump to blow the horn as a signal or alarm that the box is being removed or tampered with. Such detent structures are well understood. For purposes of illustration, I have shown the inner end of the arm 3^a adapted to engage with a toothed wheel 3^b, forming part of or geared to the clock mechanism, when the outer end of the arm is depressed, the arm being spring-pressed in the opposite direction to disengage its inner end from the wheel.

The mechanism for releasing the alarm operating mechanism will now be described. Secured inside the box to the bottom thereof is a support 7. Carried by this support is an inverted cup-shaped shell 8. Extending down from the top of this shell is a rod or support 9 having a hook 9^a on the lower end thereof to which is suspended a plumb 10. On the lower end of this plumb is a projection or finger 10^a. 11 is a hub or guide carried by or formed integral with the support

7. 12 is a plunger which moves longitudinally in the opening 11^a of said hub 11. The upper end of this plunger also has a projection or finger 12^a which normally rests against the end of the finger 10^a. The lower end 12^b of the plunger is reduced and fits in a recess 13 in the bottom of the box. The plunger just above its reduced portion is provided with an annular groove 12^c. The plunger is provided with a recess 12^d into which fits a coil spring 14. The lower end of this coil spring rests in the recess 13 at the bottom of the box and tends to raise the plunger and keep the finger 12^a in contact with the finger 10^a when the plumb is vertical or the box sitting level. Projecting from or carried by the plunger is an arm 15 which normally rests against the arm 3^a and holds the arm down and thus prevents the operation of the alarm mechanism. In some cases, instead of providing the plunger with the arm 15, I may have a vertical groove therein into which projects the end of the arm 3^a, as more clearly shown in Fig. 7 of the drawing. This mechanism operates as follows: Normally the box must be substantially level and the position of the plunger and plumb as shown in Figs. 2 and 3 of the drawing; that is to say, with the plumb vertical and its finger 10^a resting against the finger 12^a of the plunger, holding the plunger down in its locked position against the tension of the spring and the arm 15 in engagement with the arm 3^a. When the box is tilted, the plumb following gravity, the finger 10^a thereof will move out of contact with the finger 12^a whereupon the plunger will be raised or moved vertically by the spring 14; the arm 15 will then be raised out of engagement with the arm 3^a, whereupon the said arm will be released, and the alarm operating mechanism will move to operate the pump 6 and blow the horn to sound an alarm. The position of the parts when the box is tilted, the end of the finger 10^a being out of engagement with the finger 12^a, is shown in Fig. 4 of the drawing. The mechanism for locking the plunger so that it will not move when the box is tilted, and the mechanism for operating the plunger when the box is being tampered with in an attempt to open it whether the said plunger is locked or not, will now be described. 16 is a flat plate which is bent at right angles to form a horizontal member 16^a which normally rests on the bottom of the box, and a vertical member 16^b which fits against the front wall of the box. The member 16^b is adapted to be moved vertically and raise the member 16^a off the bottom of the box for a purpose hereinafter to be described. The member 16^b is guided and held against the front wall of the box by keepers or guides 17. The inwardly projecting end of the member 16^a is recessed to form two prongs 16^c of a fork which straddles the reduced portion 12^b of the plunger and rests under the shoulder of the plunger formed by said reduced portion. 18 is a lever which is pivoted to the member 16^a by the ears 16^d. 16^e is another pair of ears between the first mentioned ears and the front wall of the box. Pivoted to these ears is a rod 19 bent eccentrically and which rests under one end of the lever 18. The other end of the lever 18 is recessed to form two prongs 18^a which fit in the groove 12^c on the plunger 12. The upper end of the member 16^b has one corner of it beveled 16^f and under this beveled corner is formed a recess or notch 16^g. To the lid of the box is pivoted a catch 20. 21 is a spring which bears against the catch and forces it normally in the direction of the member 16^b. The operation of this mechanism is as follows: If the box is transported and the plunger 12 is left to operate freely, as soon as the box is tilted or shaken, the plumb 10 will swing off the top of the finger 12^a of the plunger and the spring will force the plunger up whereupon the arm 3^a will be released and the alarm mechanism will be operated to sound the alarm. To prevent this, the lever 18 has been provided. When the rod 19 is raised so that it bears against the forward end of the lever 18, the other end of the lever which is secured to the plunger will be held down thus preventing the plunger from rising when the plumb is moved from its contact with the finger 12^a. Therefore, when the eccentric 19 is in position, the alarm mechanism will not be released whether the box is tilted or not. The position of the parts when the mechanism is locked for transportation is shown in Figs. 3 and 5.

When the box is tampered with in an attempt to raise the lid without unlocking, the mechanism will operate as follows: Upon raising the lid, however slightly, the catch 20 being hooked to and in engagement with the member 16^b, will raise said member lifting the member 16^a off the bottom of the box. This movement raises the plunger 12 which carries the arm 15 out of engagement with the arm 3^a, whereupon the clock mechanism will be released to operate the plunger 6 to sound the alarm mechanism.

Of course, it is necessary that the lid of the box be so arranged that it can be raised by the proper person without setting off the alarm. To accomplish this, I have pivoted either to the lid of the box or to the inside of the front wall thereof, preferably to the latter, a lever or dog 22 having one end 22^a thereof normally in contact with the catch 20. This dog is so connected to the locking mechanism 23 that when the key is turned to open the box, said dog is swung so that its end 22^a will force the catch 20 out of en-

gagement with the notch 16^g of the member 16^b, whereupon the lid can be raised and the box opened without operating the plunger and setting off the alarm. The dog 20 may obviously be connected with the locking mechanism in any suitable manner. For purposes of illustration I have shown the dog pivoted at 22^b and provided with a pin 22^c, which projects into the path of the locking bolt 23^a, so that the dog is moved to disengage the catch 20 when the bolt is withdrawn.

While I have here shown what I consider the best type of my invention, yet it is to be understood that I do not intend to limit myself to the exact construction herein shown and described, as it is obvious that many changes may be made without departing from the spirit or scope of my invention as expressed by the claims.

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

1. In a box, an alarm, alarm operating mechanism, a plunger for controlling the operation of said mechanism, means tending to move the plunger from its position in which it prevents operation of said mechanism, and two separate mechanisms for holding the plunger against the tendency of said means, one of said mechanisms comprising a weighted pendulum which is automatically moved from plunger-holding position when the box is moved and the other of said means including a manually operable lever operable to lock the plunger to prevent sounding the alarm during the shipment of the chest, when the first holding mechanism is in non-holding position.

2. In a box, for containing valuables, an alarm, an alarm operating mechanism, a plunger engaging said mechanism to prevent its operation when the plunger is in a certain position, a guiding means for said plunger, said plunger being provided with a finger having an engaging face of reduced cross section; a spring for moving said plunger out of engagement with the said alarm mechanism; a plumb provided with a reduced finger whose face engages the finger on the said plunger to hold it against the alarm mechanism against the tension of the spring, the engaging faces of said fingers being of about the same area, said plumb being adapted, when the box is slightly tilted, to be moved out of engagement with the plunger to permit the spring to move the plunger to release the alarm mechanism.

3. In a box, for containing valuables, an alarm, an alarm operating mechanism, a spring pressed plunger, having a finger with a reduced portion, said finger acting to prevent movement of said alarm operating mechanism; a plumb having a finger engaging said first-named finger, said plumb holding said finger against the movement of the spring, and a pivoted lever coöperating with the plunger, and a means for holding the lever in such position as to prevent the plunger from operating.

4. In a box, an alarm, alarm operating mechanism, means comprising a plunger for holding said mechanism against operation, means acting upon said plunger to positively move the holding means out of engagement with the alarm operating mechanism, and means carried by the lid of the box and engaging said positively operating means to move the plunger upon the movement of the lid of the box, whereby the alarm operating mechanism will be operated.

5. In a box, an alarm, alarm operating mechanism, a plunger engaging said mechanism to hold the alarm operating mechanism against movement, a member connected to the plunger to positively move the said plunger to release the alarm operating mechanism, another member connected to the first mentioned member and having a recess therein, a catch connected to the lid of the box and engaging the recess of the second member, whereby upon the moving of the lid of the box the plunger will be moved to release the alarm operating mechanism.

6. In a box, an alarm, alarm operating mechanism, a plunger engaging said mechanism to hold the alarm operating mechanism against movement, a member connected to the plunger to positively move the said plunger to release the alarm operating mechanism, another member connected to the first mentioned member and having a recess therein, a catch connected to the lid of the box and engaging the recess, a lock on said box and means connected to the lock, whereby upon operating the lock to open the box the catch will be moved out of engagement with the said recess, whereby the lid of the box may be raised without releasing the alarm operating mechanism.

7. In a box, an alarm, alarm operating mechanism, a plunger engaging said mechanism to hold the alarm operating mechanism against movement, a member connected to the plunger to positively move the said plunger to release the alarm operating mechanism, another member connected to the first mentioned member and having a recess therein, a catch connected to the lid of the box and engaging the recess, a lock on said box, and a lever pivoted to the box and connected to the lock of the box, whereby upon the lock being operated to open the box, the said lever will force the catch out of engagement with the recess, whereby the box may be opened without releasing the alarm operating mechanism.

8. In a box, an alarm, alarm operating mechanism, a plunger having connection with said mechanism for restraining movement thereof, a plumb for holding the plun-

ger in its operative position, said plumb being moved out of its holding position when the box is tilted, and means operable to move the plunger out of operable position when the box is in non-tilted position.

9. In a box, having a lid, an alarm, alarm operating mechanism, a plunger having connection with said mechanism for restraining movement thereof, a plumb for holding the plunger in its operative position, said plumb being moved out of its holding position when the box is tilted, and connections between the lid and plunger to move the latter to start the alarm when the lid is pried open.

10. In a box having a lid, an alarm, alarm operating mechanism, a plunger having connection with said mechanism for restraining movement thereof, a plumb freely suspended above the plunger, said plunger and plumb having contacting pointed projections, and means connecting the lid and plunger to move the plunger against the action of the plumb.

11. In a box, an alarm, alarm operating mechanism, a plunger having connection with said mechanism for restraining movement thereof, a plumb freely suspended above the plunger, said plunger and plumb having contacting pointed projections, and means operable to move the plunger against the action of the plumb, so as to raise the plunger and plumb and release the alarm.

12. In a box adapted to receive the articles to be protected, a horn, a pump to force air into the horn to blow the same, mechanism for operating said pump, a plunger engaging said mechanism to prevent movement thereof, a spring for holding the plunger into engagement with said mechanism, and a plumb engaging said plunger to hold it down against the tension of the spring when the box is level, and the said plumb moving out of engagement with the plunger when the box is tilted.

13. A safety chest containing an alarm and alarm-operating mechanism, in combination with a plunger adapted to coöperate with said mechanism to hold the same against operation, guiding means for said plunger, a spring tending to move said plunger so as to release said mechanism, a weighted pendulum coöperating with said plunger to hold the same against the action of said spring, and manually operable means for holding said plunger, when desired, when said pendulum is out of holding relation.

In witness whereof I have hereunto set my hand at the city of New York, county of New York and State of New York, this 13th day of April, 1907.

CHARLES F. RITCHEL.

In presence of—

ALLAN W. FOOSE,

I. RICHARDS.

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