No. 790,982. PATENTED MAY 30, 1905.

E. REBISCHUNG.

MECHANICAL ALARM FOR SAFES.

APPLICATION FILED SEPT. 24, 1904.

3 SHEETS—SHEET 1.

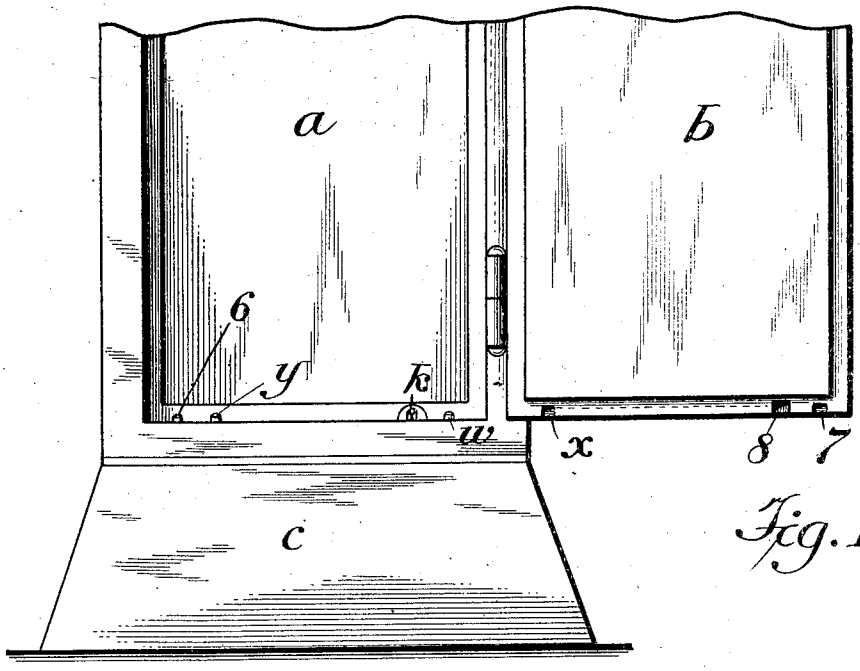
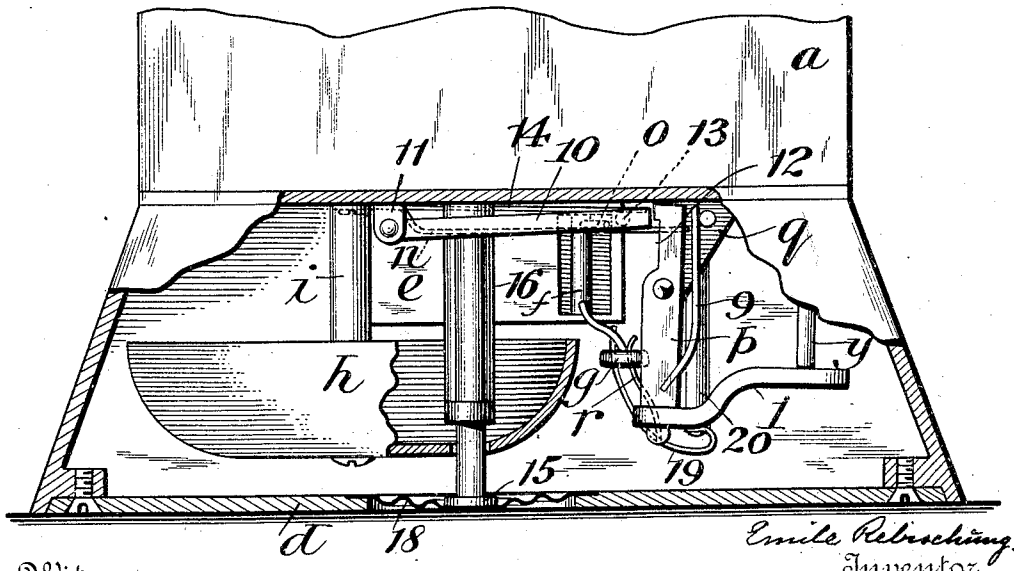


Fig. 1.

Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

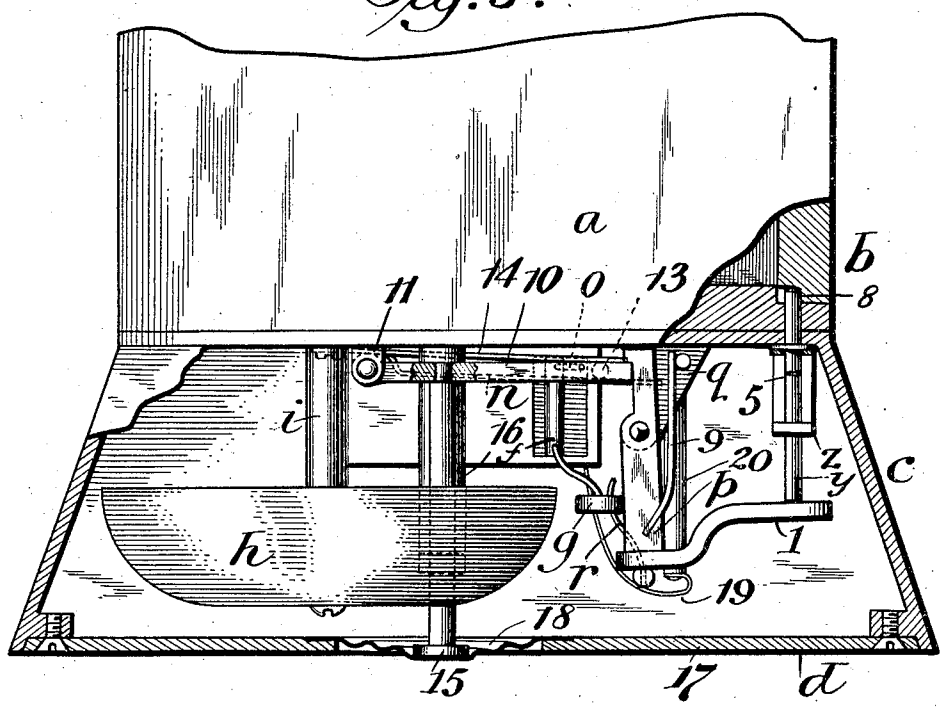


Fig. 7.

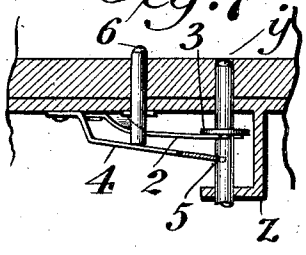
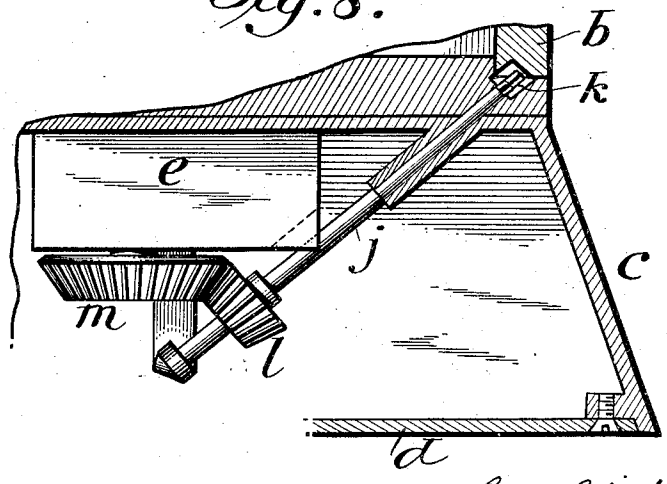


Fig. 8.



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3 SHEETS—SHEET 3.

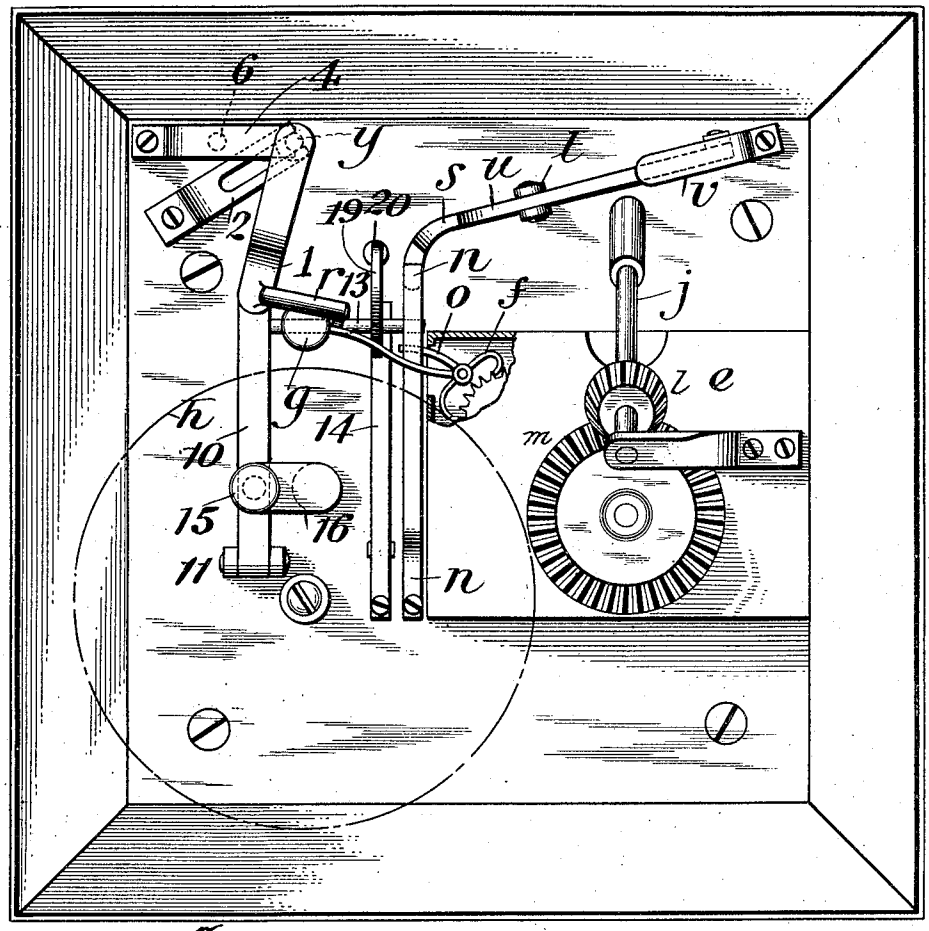


Fig. 4.

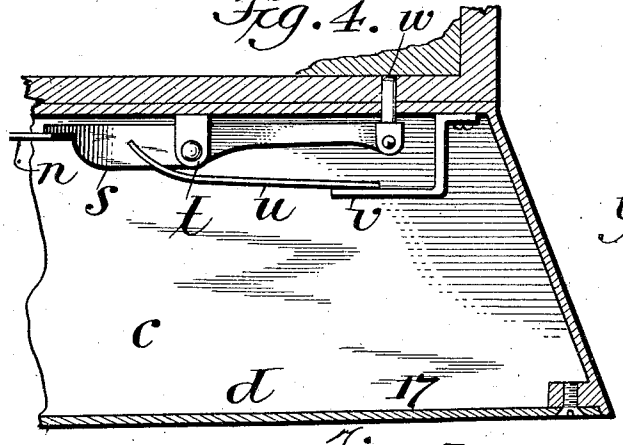


Fig. 5.

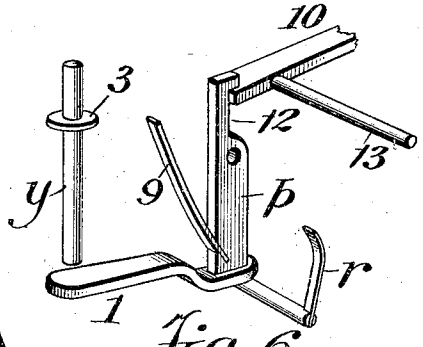


Fig. 6.

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No. 790,982. Patented May 30, 1905.

UNITED STATES PATENT OFFICE.

EMILE REBISCHUNG, OF NEW YORK, N. Y.

MECHANICAL ALARM FOR SAFES.

SPECIFICATION forming part of Letters Patent No. 790,982, dated May 30, 1905.

Application filed September 24, 1904. Serial No. 225,723.

To all whom it may concern:

Be it known that I, EMILE REBISCHUNG, a citizen of the United States, and a resident of the borough of Bronx, New York city, county and State of New York, have invented Improvements in Mechanical Alarms for Safes, of which the following is a specification.

This invention relates to alarm-giving devices for safes, strong-boxes, &c., and embraces mechanical structures similar to the devices in general operation and resulting effects to the mechanical alarm giving and controlling devices set forth in the application for Letters Patent filed by me April 23, 1904, Serial No. 204,546.

As in the previous application, this invention contemplates the use of a mechanical alarm device, as a spring-actuated bell-alarm; means for blocking the alarm adapted to be manually operated; a locking device for the alarm controlled by and made active to lock the alarm by the door of the safe, and a controlling device for the alarm to lock it, made operative by the weight of the safe as the safe rests upon its base of support, the same being so constructed as to release the alarm when the safe is raised or moved from its selected location.

In this present invention all of the operating devices of the various controlling mechanisms of the mechanical alarm are located within the safe and are operated and controlled and protected by the door from undue interference.

The mechanical alarm and all of its controlling devices are completely inclosed in a box which is attached to and preferably arranged as a base for the safe, none of the operating devices of the controlling mechanism being exposed or accessible unless the door of the safe is opened.

The construction of the mechanical devices devised by me for carrying out the principles involved in the various devices by which perfect security is provided against any tampering or interference with safes will now be fully described by reference had to the accompanying drawings, in which—

Figure 1 illustrates the lower part of a safe with the door open, showing the devices by which the alarm-blocking means, the clamping means, and the alarm-locking means are operated and the winding of the spring of the motor effected. Fig. 2 is a side view of the lower part of the safe with the alarm-containing case broken away, showing in one position the alarm-blocking means and the means for freeing the alarm when the safe is raised or moved from its base of support. Fig. 3 is a view similar to Fig. 2, showing the controlling devices in another position. Fig. 4 is a general inverted plan of the mechanical alarm and the controlling devices. Fig. 5 shows in section a part of the lower portion of the safe in section and a part of the alarm-locking means. Fig. 6 is a detached view in perspective of the alarm-blocking device. Fig. 7 is a portion of the alarm-blocking device and the clamping device; and Fig. 8 is a sectional view of a portion of the bottom of the safe and its door, showing the means adopted for winding the mechanical alarm.

The devices of this invention may be applied to safes or strong-boxes of any style or construction, the same in the drawings being shown applied to an ordinary small safe *a*, having an ordinary door *b* hinged to its front. Such door may be provided with any suitable lock or fastening device, which it is not thought necessary to show in the drawings, such forming no part of or having any connection with this invention. To the bottom of the safe is secured a box *c*, provided with a closed bottom *d*, which constitutes the base upon which the safe is supported. The mechanical alarm and its controlling devices are located in the box-base *c*, the alarm-giving device consisting of an ordinary spring-actuated motor *e*, constructed to operate the vibrating device *f*, which carries the hammer *g*, arranged to beat against the bell *h*, supported on the end of the post *i*. (Shown in full lines in Figs. 2 and 3 and by a broken line in Fig. 4.) The spring of the motor *e* is wound by means of a key applied to the free end of the shaft *j*, which is angularly arranged in the box-base *c*, with its winding end *k* exposed in a recess formed in the sill of the door of the safe *a*.

Said shaft *j* communicates motion to the spring of the motor through the medium of the bevel-wheels *l m*.

Two means are provided for arresting the motion of the hammer *g*, the one consisting of a spring *n*, arranged to normally bear against a rod *o*, extending from the shaft of the vibrating device *f*, and which is referred to as the "locking" device, and the other one includes a lever *p*, pivoted to a bracket *q* and provided with an arm *r*, arranged to bear against the rod of the hammer *g*, and referred to as the "blocking" device.

The means for releasing the locking device when the door of the safe is opened consists of a lever *s*, pivoted to a post *t* and provided with a spring *u*, which bears against a bracket *v* in such manner as to cause the free end of the lever, which is above the end of the spring *n*, to raise the spring away from the rod *o* of the vibrating device when the other end of the lever is raised. This action of the lever is caused by reason of the spring *u* being of greater strength than the spring *n*. The depression of this end of the lever *s* is accomplished by means of the plug *w*, attached thereto and projecting upwardly through the sill of the door, the lower edge of the door being provided with a ledge *x*, which acts on the top of the plug *w* when the door is closed, thereby raising the free end of the lever *s* away from the end of the spring *n* and allowing this spring to lock the vibrating device of the mechanical alarm.

To make the blocking device active—that is, to cause its arm *r* to stop the vibrations of the hammer *g*—a plug or rod *y* is fitted to slide freely through the sill of safe and through a guiding-bracket *z*, its lower end being above and free to act on the top of an extension 1 of the lever *p*, said plug being raised and held in its upward position by a spring 2, which bears against a collar 3 on the plug, and the plug is held in its downward position by a clamping device (shown as a spring 4) whose end bears with a clamping action against the side of the plug, which for greater security may have a shallow notch 5, into which the end of the spring seats, said spring being pressed away from the plug *y* by another plug, 6, resting on the spring and fitted to slide freely through the sill of the safe, as clearly shown at Fig. 7, the door of the safe having on its lower edge a ledge 7, arranged to act on the top of the plug 6, and thereby depress it when the door is closed, said lower edge of the door being also provided with a recess 8, into which the exposed end of the plug *y* extends when said rod is released from the clamping-spring 4. The blocking-lever *p* is provided with a spring 9, which bears against a pin projecting from the bracket *q* in such manner as to raise the extension 1 and also move the arm *r* away from the rod of the hammer *g*.

It will be observed that when the door of the safe is closed the alarm is locked by the spring *n*, the blocking device being then inactive. When the door is opened sufficiently far for the ledge *x* to free the plug *w*, the spring *n* will be depressed and the alarm freed, thus giving notice that the door has been opened; but this alarm can be avoided by the owner of the safe, who after unlocking the door can after partly opening it and before the plug *w* is released depress the plug or rod *y*, and so block the alarm, which will remain blocked by the action of the clamping-spring 4 until the door is again closed to press the spring 4 away from the rod *y*, thereby allowing said rod to be lifted into operative position by the spring 2 and the blocking device to be again made active.

The means for affording protection against the bodily removal of the safe by causing the alarm to sound as soon as the safe is raised and continue sounding until the power of the alarm is exhausted comprises a simple device used in conjunction with the blocking device. A bar 10 is at one end pivoted to a lug 11, with its other end adjacent to the edge of the blocking-lever *p*, which lever at this part of it is provided with a recess or notch 12, adapted to engage with the end of the bar 10 and hold it down when it is depressed and the lever *p* thrown forward by its spring 9. This bar 10 has a side pin or extension 13, against the upper side of which bears the spring 14, said pin being so located as to engage with the locking-spring *n* by contacting with its upper side. A vertically-arranged rod 15, guided by the bracket 16, acts by its upper end on the bar 10, it being of such a length that its lower end will be above the plane of the base of support when the bar 10 is in normal position and extend beyond said plane when the bar is forced down by the spring 14. It may here be mentioned that the resilience of the spring 14 is sufficient to overcome that of locking-spring *n*, so that when the bar 10 is depressed, as just described, the spring *n* will be moved away from the vibrating device of the mechanical alarm. The rod 15 is arranged with its lower end resting against a flexible part of the bottom 17 of the box-base (shown in Figs. 2 and 3 as a diaphragm 18) made of any suitable material and in such manner that it may be readily flexed or pressed outwardly by the tension of the spring 14 when the safe is lifted. The box-base is by this means completely closed and all of the operating devices of the alarm fully protected. From this construction it will be seen that should the safe be raised in an attempt to its surreptitious removal the bar 10, with the rod 15 and diaphragm 18, will by the action of the spring 14 be forced down, and the locking-spring *n* will be pressed away from the arm *o* of the vibrating device

of the alarm mechanism, leaving the hammer *g* free to beat the bell *h*, which action will continue until these controlling devices have been reset, and this cannot be done until the safe-door is opened and the plug *y* of the blocking device is pressed down to move the arm *r* against the rod of the hammer, which also relieves the end of the bar 10 of the catching-notch 12 of the blocking-lever *p*, allowing the rod 15 and its operated devices to move back into normal position when the safe is again placed on its support.

It is desirable that as much noise as possible be produced by the mechanical bell-alarm that the same may be heard a considerable distance, and as such a device suitable for application to small safes will necessarily be limited in size I have devised a means whereby the sound produced by vibratory hammers, such as are oscillated or rocked at high velocities by toothed wheels acting on escapement devices, spring actuated, beating against bells as ordinarily made, may be greatly intensified, the same consisting simply of a resilient buffer located in the path of beat of the hammer to resist and limit its backward movement and cause it to rebound with increased force and speed against the bell. Such resilient buffer is shown as a spring 19, carried by a post 20, and formed and located to retard the backward movement of the hammer *g*, the rod of which will beat against the spring. This causes the vibratory hammer, by whatever means it may be vibrated, to oscillate at a higher rate of speed than if allowed to complete the full path of motion due to the energy of the motor actuating it, the increase of speed and force of the blow depending on the strength of the buffer-spring.

From the foregoing it will be observed that all of the alarm-controlling means and devices are completely covered and fully protected, that they are simple in construction, and that all of the operating devices of the controlling means and the winding-shaft of the motor are covered and protected by the door of the safe, so that they can in no way be interfered with unless the proper knowledge or means for opening the safe is possessed.

I claim as my invention—

1. The combination with a safe and its door, of a mechanical alarm; means for blocking the alarm provided with a manipulating-piece located in the safe and protected by the door when the door is closed and exposed when the door is opened, whereby the alarm may be manually blocked; and means controlled by the door for freeing the alarm when the door is opened.

2. The combination with a safe and its door, of a mechanical alarm; means for blocking the alarm provided with a manipulating-piece located in the safe and protected by the door when the door is closed and exposed when the door is partly opened, whereby the alarm may be manually blocked; and means controlled by the door for freeing the alarm when the door is more fully opened.

3. The combination with a safe and its door, of a mechanical alarm; means for blocking the alarm provided with a manipulating-piece located in the safe and protected by the door when the door is closed and exposed when the door is opened, whereby the alarm may be manually blocked; and a clamping device for holding the alarm-blocking means in active position.

4. The combination with a safe and its door, of a mechanical alarm; means for blocking the alarm provided with a manipulating-piece located in the safe and protected by the door when the door is closed and exposed when the door is opened, whereby the alarm may be manually blocked; a clamp device for holding the alarm-blocking means in active position; and means controlled by the door for freeing the alarm when the door is opened.

5. The combination with a safe and its door, of a mechanical alarm; means for blocking the alarm provided with a manipulating-piece located in the safe and protected by the door when the door is closed and exposed when the door is opened, whereby the alarm may be manually blocked, and a clamping device for holding the alarm-blocking means in active position; and a lug or ledge on the door for freeing said clamping device from the alarm-blocking means.

6. The combination with a safe of a mechanical alarm and controlling mechanism therefor, said controlling mechanism comprising means for blocking the alarm; means for locking the alarm and a clamping device for holding the blocking means in active position; operating devices for actuating the controlling mechanism and located in the safe; a door provided with a lug or ledge adapted to act on the operating device of the alarm-locking means, a lug or ledge adapted to act on the operating device of the clamping device and a recess into which the operating device of the alarm-blocking means extend when the door is closed.

7. The combination with a safe of a mechanical alarm and controlling mechanism therefor, a winding-shaft for the mechanical alarm arranged with its key-operating end located in the safe at the door-opening; and a door for the safe adapted when closed to cover the key-operating end of the winding-shaft.

8. The combination with a safe, of a mechanical alarm and controlling mechanism therefor, a winding-shaft for the mechanical alarm arranged with its key-operating end located in the safe at the door-opening; an operating device similarly located and in communication with and adapted to permit the controlling mechanism to lock the alarm when it is depressed; a door for the safe adapted when closed to cover the key-operating end of the

winding-shaft and provided with a lug or ledge adapted to depress the operating device of the alarm-locking mechanism.

9. The combination with a safe of a mechanical alarm and controlling mechanism therefor, said controlling mechanism comprising means for blocking the alarm provided with an operating device located in the door-opening and which is adapted to be manually depressed when the door is opened; means for releasing the alarm when the safe is raised from its base of support and which is secured in its released position by the means for blocking the alarm; and a door adapted, when closed, to cover the operating device of the means for blocking the alarm.

10. The combination with a safe of a mechanical alarm and controlling mechanism therefor, said controlling mechanism comprising means for blocking the alarm provided with an operating device located in the door-opening; a door adapted, when closed, to cover the operating device of the means for blocking the alarm; means for clamping the alarm-blocking means when in active position; and means for releasing the alarm when the safe is lifted.

11. The combination with a safe of a mechanical alarm and controlling mechanism therefor, and controlling mechanism comprising means for blocking the alarm; means for locking the alarm; operating devices for controlling the alarm-blocking means and the alarm-locking means located in the safe; a door provided with a ledge adapted to depress the operating device of the locking means, and adapted to cover the operating device of the blocking means; and means for releasing the alarm when raised from its base of support and which is secured in its released position by the means for blocking the alarm.

12. The combination with a safe, of a mechanical alarm and controlling mechanism therefor, said controlling mechanism comprising means for blocking the alarm provided with an operating device located in the door-opening; a door adapted, when closed, to cover the operating device of the means for blocking the alarm; a winding device for the mechanical alarm arranged with its operating end located in the safe at the door-opening; and means for releasing the alarm when the safe is raised from its base of support.

13. The combination with a safe, of a mechanical alarm and controlling mechanism therefor, said controlling mechanism comprising means for blocking the alarm; means for locking the alarm; operating devices for controlling alarm-blocking means and the alarm-locking means located in the safe; a door provided with a ledge adapted to depress the operating device of the locking means, and adapted to cover the operating device of the blocking means; means for releasing the alarm when raised from its base of support and which is secured in its released position by the means for blocking the alarm; and a winding-shaft for the mechanical alarm arranged with its key-operating end located in the safe at the door-opening.

14. The combination with a safe, of a mechanical alarm and controlling mechanism therefor, said controlling mechanism comprising means for blocking the alarm; means for locking the alarm and a clamping device for holding the blocking means in active position; operating devices for actuating the controlling mechanism and located in the safe; a door provided with a lug or ledge adapted to act on the operating device of the alarm-locking means, a lug or ledge adapted to act on the operating device of the clamping device and a recess into which the operating device of the alarm-blocking means extends when the door is closed; means for releasing the alarm when the safe is raised from its base of support and which is secured in its released position by the means for blocking the alarm.

15. The combination with a safe and its door and a box-base secured to the safe, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm having an operating device which extends through an opening in the bottom of and is located in the safe and which is covered by the door when the door is closed.

16. The combination with a safe and its door and a box-base secured to the safe, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm having an operating device which is located in the safe; a clamping device for holding the alarm-blocking means in active position and having an operating device extending into the door-opening of the safe; and a lug or ledge on the door for depressing the clamp-operating device and thereby releasing the alarm-blocking means.

17. The combination with a safe and its door and a box-base secured to the safe, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm having an operating device which is located in the safe; a clamping device for holding the alarm-blocking means in active position and having an operating device extending into the door-opening of the safe; means for locking the alarm provided with an operating device also extending into the door-opening of the safe, a lug or ledge on the door for depressing the clamp-operating device and thereby releasing the alarm-blocking means; and a lug or ledge on the door adapted to act on the operating device of the locking means.

18. The combination with a safe and its door and a box-base secured to the safe, of a me-

chanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for locking the alarm provided with an operating device extending through an opening in the bottom of and into the door-opening of the safe; and a lug or ledge on the door adapted to act on the operating device of the locking means.

19. The combination with a safe and its door and a box-base secured to the safe, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm provided with a manipulating-piece located in the safe and protected by the door when the door is closed and exposed when the door is opened; and a winding-shaft for the mechanical alarm arranged with its key-operating end located in the safe at the door-opening.

20. The combination with a safe and its door and a box-base secured to the safe, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for locking the alarm provided with an operating device extending into the door-opening of the safe; a lug or ledge on the door adapted to act on the operating device of the locking means; and a winding-shaft for the mechanical alarm arranged with its key-operating end located in the safe at the door-opening.

21. The combination with a safe and its door and a box-base secured to the safe, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm provided with a manipulating-piece located in the safe and protected by the door when the door is closed and exposed when the door is opened; a clamping device for holding the alarm-blocking means in active position and having an operating device extending in the safe at the door-opening; a lug or ledge on the door adapted to act on the operating device of the clamping device and thereby release the blocking means; and a winding-shaft for the mechanical alarm arranged with its key-operating end located in the safe at the door-opening.

22. The combination with a safe and its door and a box-base secured to the safe, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm provided with a manipulating-plug located in the safe and protected by the door when the door is closed and exposed when the door is opened; a clamping device for holding the alarm-blocking means in active position and having an operating device extending in the safe at the door-opening; a lug or ledge on the door adapted to act on the operating device of the clamping device and thereby release the blocking means; a winding-shaft for the mechanical alarm arranged with its key-operating end located in the safe at the door-opening; means for locking the alarm and an operating device therefor located in the safe at the door-opening; and a lug or ledge on the door adapted to act on said operating device.

23. The combination with a safe and its door and a box-base secured to the safe, and having a flexible bottom, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm having an operating device which is located in the safe and which is covered by the door when the door is closed; and means bearing on the flexible bottom to flex it and release the alarm when the safe is raised from its base of support.

24. The combination with a safe and its door and a box-base secured to the safe, and having a flexible bottom, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm having an operating device which is located in the safe and which is covered by the door when the door is closed; means bearing on the flexible bottom to flex it and release the alarm when the safe is raised from its base of support; and a clamping device for holding the alarm-blocking means in active position.

25. The combination with a safe and its door and a box-base secured to the safe, and having a flexible bottom, of a mechanical alarm and controlling mechanism therefor inclosed within the box-base, said controlling mechanism comprising means for blocking the alarm having an operating device which is located in the safe and which is covered by the door when the door is closed; means bearing on the flexible bottom to flex it and release the alarm when the safe is raised from its base of support; a clamping device for holding the alarm-blocking means in active position; and means for locking the alarm controlled by the means for flexing the bottom of the box when the safe is raised; an operating device therefor located in the door-opening of the safe; and a ledge on the door adapted to act on said operating device.

26. In combination, a safe and its door; a mechanical alarm; a box exteriorly attached to the safe inclosing the alarm and its operating and controlling mechanism; a lever adapted to block the alarm; a plug extending from the attached box into the interior of the safe and covered by the door when the door is closed and arranged when manually depressed to act on the lever to cause it to block the alarm.

27. In combination, a safe and its door; a mechanical alarm; a box exteriorly attached to the safe inclosing the alarm and its operat-

ing and controlling mechanism; a lever adapted to block the alarm; a plug extending from the attached box into the interior of the safe and covered by the door when the door is closed and arranged when manually depressed to act on the lever to cause it to block the alarm; a clamping device arranged to hold the operating-plug of the blocking-lever in its depressed position and having a plug extending through the safe into the door-opening; and a ledge on the door for depressing the plug of the locking device and thereby release the blocking-lever.

28. In combination, a safe and its door; a mechanical alarm; a box attached to the safe inclosing the alarm and its operating and controlling mechanism; a lever adapted to block the alarm; a plug extending into the interior of the safe and covered by the door when the door is closed and arranged when manually depressed after the door is opened to act on the lever to cause it to block the alarm; a spring-actuated lock for the alarm; a lever arranged to act on the locking-spring provided with a plug which extends through the safe into the door-opening and which when depressed moves the lever away from the spring; and a ledge on the door for depressing said plug.

29. In combination, a safe and its door; a mechanical alarm; a box attached to the safe inclosing the alarm and its operating and controlling mechanism; a lever adapted to block the alarm; a plug extending into the interior of the safe and covered by the door when the door is closed and arranged when manually depressed to act on the lever to cause it to block the alarm; a clamping device arranged to hold the operating-plug of the blocking-lever in its depressed position and having a plug extending through the safe into the door-opening; and a ledge on the door for depressing the plug of the locking device and thereby release the blocking-lever; a spring-actuated lock for the alarm; a lever arranged to act thereon and having a plug extending through the safe into the door-opening; and a ledge on the door for depressing said plug.

30. In combination, a safe and its door; a mechanical alarm; a box attached to the safe inclosing the alarm and its operating and controlling mechanism; a lever adapted to block the alarm; a plug extending into the interior of the safe and covered by the door when the door is closed and arranged when manually depressed to act on the lever to cause it to block the alarm; a spring-actuated arm arranged to act on the locking-spring and an operating-rod therefor arranged to uphold said arm through the medium of the base of support of the safe; and a notch in the blocking-lever for holding the arm when it is released from the pressure of its holding-rod.

31. In combination, a safe and its door; a mechanical alarm; a box attached to the safe inclosing the alarm and its operating and controlling mechanism; a lever adapted to block the alarm; a plug extending into the interior of the safe and covered by the door when the door is closed and arranged when manually depressed to act on the lever to cause it to block the alarm; a spring-actuated arm arranged to act on the locking-spring and an operating-rod therefor arranged to uphold said arm through the medium of the base of support of the safe; and a notch in the blocking-lever for holding the arm when it is released from the pressure of its holding-rod; the lower end of said operating-rod resting on the bottom of the box which at such point of support is adapted to be flexed outward when the safe is raised.

32. The combination with a safe and its door, of a mechanical alarm, comprising a spring-motor, a vibrating hammer and a bell; a resilient back-stop or buffer arranged to limit the backward movement of the hammer and thereby increase its striking effect; and means locking the alarm provided with an operating-plug extending into the safe at the door-opening; and a ledge on the door adapted to act on said plug.

33. In an alarm device, in combination, a hammer adapted to vibrate; a bell against which the hammer impinges at the end of its vibrations in one direction; means for vibrating the hammer positively in both directions; and a resilient buffer arranged in the path of the vibrations so as to limit movements of the hammer in the other direction, and by its resiliency increase the striking effects of the hammer.

34. The combination with a safe and a box-base secured thereto; a mechanical alarm; a locking device therefor; a flexible diaphragm attached to and constituting a part of the bottom of the box; and a releasing device arranged between the locking device and the diaphragm and adapted to free the alarm of the locking device by pressing the diaphragm outwardly when the safe is moved from its base of support.

In testimony whereof I have hereunto subscribed my name this 22d day of September, 1904.

EMILE REBISCHUNG.

Witnesses:
TITUS KROTT,
ARTHUR C. BLATZ.