

Feb. 20, 1934.

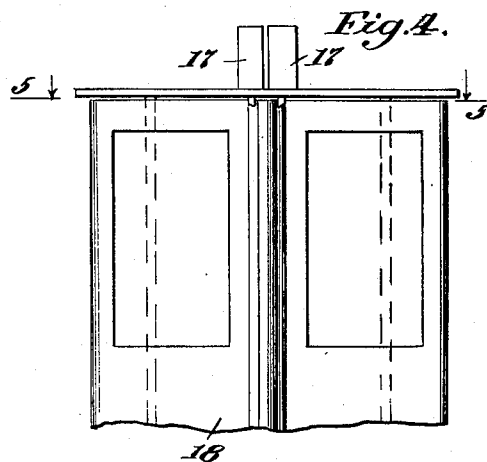
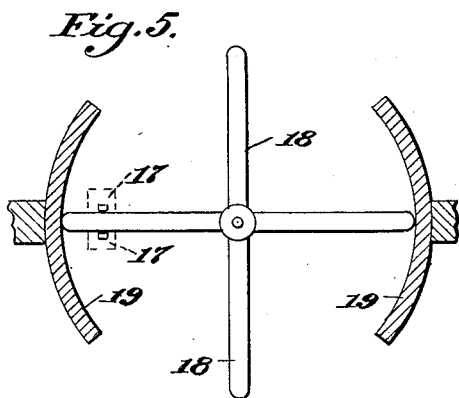
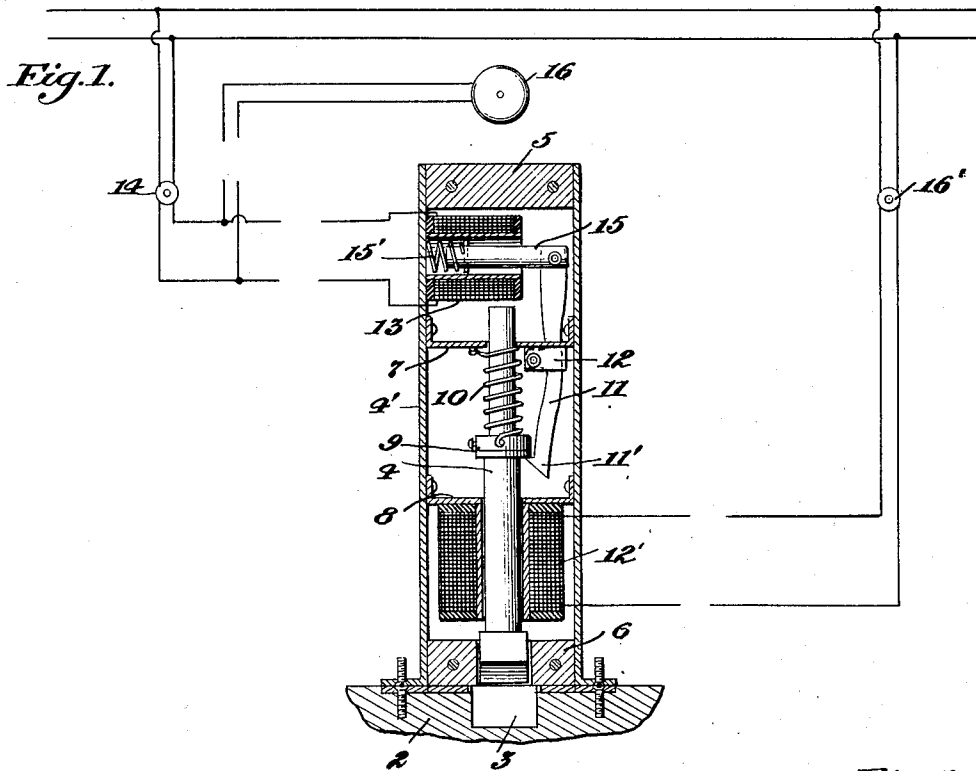
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1,948,217

ELECTRIC LOCK

Filed March 14, 1932

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2.

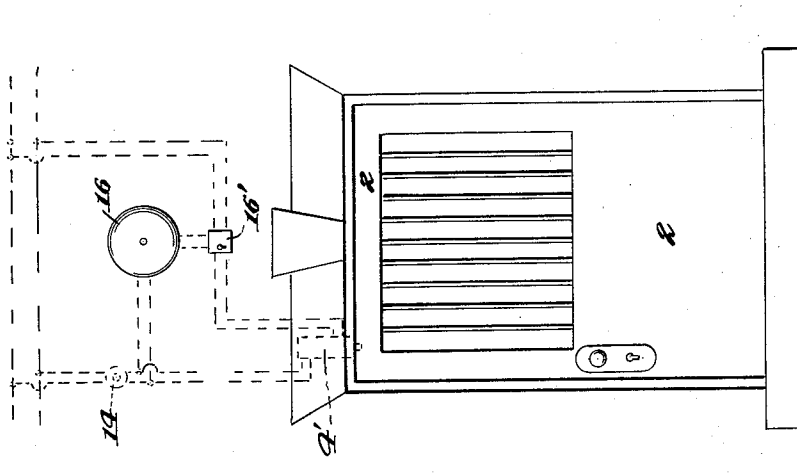
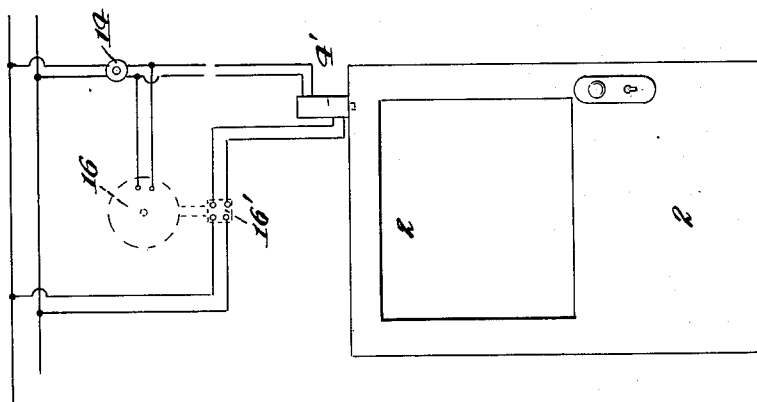


Fig. 3.



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UNITED STATES PATENT OFFICE

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ELECTRIC LOCK

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Application March 14, 1932. Serial No. 598,841

4 Claims. (Cl. 70-50)

This invention pertains to a novel and improved system especially designed for installation in banks and similar institutions.

The prime object of the invention is to provide simple, durable, economical and thoroughly efficient means which includes electrically actuated locking devices for all the doors and exits of the building, so that all of the doors may be simultaneously locked to prevent the exit being used, the device being especially designed to entrap undesirable persons, as robbers, within the building and prevent escape by the exit.

Another object of the invention is to furnish a bank with doors that may be locked by any of the bank tellers or officials of the bank, the door operating mechanism being actuated by hand or foot pressure, so that in the event that robbers enter a bank, and demand the officials to hold up their hands, it is possible for the officials to close all of the exits of the bank and prevent escape of the robbers.

A further object of the invention is to provide electrically operated door locking means disposed within the building, which is actuated by means also disposed within the building at as many suitable points as may be desired, said locking actuated means being adapted to simultaneously actuate an audible signal disposed within the wall of the building at the outer side of said wall.

A still further object of the invention is to provide means disposed within the wall at the outer side of the building, the operation of which is only permissible by a properly authorized person carrying a key for access to said means, and the operation of said means simultaneously causing the doors or exits to be unlocked and stopping the operation of the audible signal.

The foregoing and such other objects as may appear when the nature of the invention is better understood are accomplished by the combination, arrangement, construction and location of the several parts hereinafter more fully described, illustrated by the accompanying drawings, and particularly pointed out in the claims appended hereto, it being understood that minor changes in the form, proportions and details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Reference will now be had to the drawings forming a part of this specification and in which

like designating characters refer to corresponding parts throughout the several views:

Figure 1 is a view showing partly in sectional elevation and partly diagrammatic the system embodying my invention.

Figure 2 is a view in elevation of the outer side of a door, showing the lock releasing box and audible signal in full lines, and the locking means and electric circuits shown diagrammatically by the dotted lines.

Figure 3 is a view in elevation of the inner side of the door and its locking means, showing the electric circuits diagrammatically in full lines, and the audible signal and lock releasing box disposed within the outer wall in dotted lines.

Figure 4 is an elevation, broken away, showing a revolving door in connection with which my improved system may be employed, and

Figure 5 is a transverse section taken in the plane of the dotted lines 5-5, Fig. 4.

In the embodiment of my invention as illustrated, it will be seen that the numeral 2 designates the entrance door of a building, within the upper portion of which is formed a suitable socket or recess 3 adapted to receive the door locking bolt 4. Disposed within a recess formed within the inner wall of a building above the door is a suitable casing 4' for the reception of the door locking and releasing mechanism, said casing having secured therein at its top portion a member 5 and at its bottom portion a member 6, and intermediate of said members is fixedly secured to either side of the casing, partitions 7 and 8, both of said partitions being provided with a central opening formed therethrough for the reception of the bolt 4, said bolt having a collar member 9 formed thereon intermediate its length, and surrounding the upper end portion of the stem of said bolt is a coiled spring 10, one end of said spring being secured to the collar member and its other end to the partition 7. Said partition 7 is provided with an opening therethrough for the passage of a detent member 11 and fixedly secured to the under side of the partition 7 is a member 12 to which said detent member is pivotally secured intermediate its length, while the lower end of the detent is formed with an inwardly extended hook-shaped portion 11' adapted to normally extend beneath the collar member 9 and retain the locking bolt 4 in the unlocked position. Secured beneath the partition 8 is a solenoid 12' which surrounds the locking bolt, 110

and above the partition 7 is fixedly secured a solenoid 13, said solenoids being adapted to operate by electrically controlled circuits the locking and unlocking means, hence when it is desired to lock the door it is simply necessary to press a switch 14 disposed at any suitable point or points within the building, which action will energize the solenoid 13, thus causing the solenoid core 15 to move inwardly against the tension of a spring coil 15' surrounding the inner end portion of said core, with its inner end resting against the inner face of the casing 4' and its outer end secured to the core, said inward movement of the core causing the outer end of the core 15 and the upper end of the detent member 11 to move inwardly, thereby imparting an outward movement to the lower end of the detent, thus releasing the locking bolt, which action causes the locking bolt to immediately shoot downwardly by the tension of the coiled spring 10, and into its locked position within the door, said pressure of the switch 14 simultaneously with the locking of the door causing the operation of the audible signal 16 disposed on or within the outer side wall of the building, and the door will remain locked until the properly authorized person or persons carrying a key to the box or casing 16' also disposed on or within said outer wall, and within which is disposed a suitable switch (not shown), so that, when the key shall have gained access to the box or casing and the switch within, the operation of said switch will cause another electrically conducted current to energize the coil of the solenoid 12', thus causing the locking bolt 4 to move upwardly against the tension of the coiled spring 10 until the collar member shall have passed the detent member 11, when the hook-shaped portion 11' will immediately snap beneath said collar portion of the locking bolt and retain said bolt in its unlocked position until the means for locking the bolt is again operated, the operation of the unlocking switch simultaneously causing the operation of the audible signal to cease.

As is clearly shown in Fig. 1, it will be perceived that both the outer partition 7 and the inner partition 8 are flanged at each end, and are fixedly secured to the inner face of the casing 4' at each of their flanged ends, and both of said partitions are provided with a central opening therethrough forming guideways for the bolt 4, and to the lower face of the partition 8 is fixedly secured the solenoid 12', while the partition 7 is provided with an opening therethrough for the passage of the detent member 11, and to the lower face of said partition 7 is fixedly secured a member 12 to which is pivotally secured the said member 11, the lower face of the partition 7 also serving as an abutment for the outer end of the spring 10.

By reference to Figs. 4 and 5 of the drawings it will be seen that the use of a revolving door 18 is shown to which my electrically operated locking and unlocking means inclosed within a casing 17 may be applied in the manner hereinbefore described, the casing 19 partially surrounding the door 18 being shown in Fig. 5, and it will be readily evident that my improved locking and unlocking means may be employed in connection with any type of doors, such as sliding, swinging, elevated, depressed, and other types, as well as in connection with various types and constructions of windows, also that

the locking and unlocking means may be disposed above, below or at either side of the door for the purpose hereinbefore described.

While I have shown but one operating switch 14 for locking the exit, it will be understood that a series of switches may be disposed within a building located at various desirable points, and that, by the operation of either of the switches, all of the exits to which the locking means shall have been connected will be immediately locked, and the audible signal will be simultaneously operated to cause an alarm on the outside of the building.

Further, it will be readily evident that no one unauthorized and not possessing a key for opening the box and a ladder or other means for reaching the box, since the box 16' is placed in the outer wall beyond the reach of persons, can operate the means within the box which is necessary to cease or stop the alarm and simultaneously unlock the exits.

It will be understood that, although this invention has been described for installation in banks or similar institutions, it will be readily obvious that it may be installed in stores, dwellings and any other type of building wherein its installation may be desired.

From the foregoing description and disclosure of the drawings it will be seen that I have provided a combined door locking, unlocking and signalling system for the purpose of protecting banks and the like, and also to entrap persons attempting to rob the premises, and detain such persons within the bank until it is properly surrounded by the proper authorities to take charge of the robbers when the authorized person shall have caused the exits to be unlocked and the alarm to cease.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. Electrically operated door locking and releasing means, comprising a casing formed with two transverse partitions secured to each side wall of the casing, a locking bolt passed centrally through each partition, a collar formed around the outer end portion of the bolt, a solenoid fixedly secured to the inner face of the casing, a core within said solenoid having a coiled spring secured to its inner end portion adapted to abut against the inner side wall of the casing, a member pivotally secured to the outer end of said core and passed through the outer partition for retaining the bolt in its unlocked position, and a solenoid secured to the lower face of the inner partition for forcing the bolt into its unlocked position.

2. Electrically operated door locking and releasing means, comprising a casing, a pair of transversely disposed partitions within said casing fixedly secured to the inner face of each side wall of the casing, a locking bolt passed centrally through each of said partitions, a collar formed around the outer end portion of the bolt, a solenoid fixedly secured to the inner face of one side of the casing, a core within said casing having a coiled spring carried at one end portion of the core and adapted to abut against the side wall of the casing, a detent member pivotally secured to the outer end of the core passing through the outer partition and pivotally secured beneath said partition with its lower end in engagement with the lower face of said collar for retaining the bolt in its unlocked position, and means secured to the lower face

of the inner partition for forcing the bolt into its unlocked position.

3. Electrically operated door locking and releasing means, comprising a casing, a plurality of partitions within the casing, each partition having flanged end portions fixedly secured to the inner face of each side wall of the casing, a locking bolt passed centrally through each of said partitions, a collar formed around the outer end portion of the bolt, a solenoid fixedly secured to the inner face of the casing at the outer end portion of the casing, a core within the solenoid having a spring secured to its inner end with the outer end of the spring resting against the inner face of said casing, a detent member pivotally secured to the outer end of the core and passed through the outer partition, a member fixedly secured to the lower face of said partition to which said detent member is pivotally secured intermediate its length with the lower end of the detent member in engagement with the lower face of said collar to re-

tain the bolt in its unlocked position, means secured at one end to the collar and its other end in engagement with the outer partition for forcing the bolt into its locked position, and means secured to the lower face of the inner partition for forcing the bolt into its unlocked position. 80

4. Electrically operated door locking and releasing means, comprising a casing, an inner and an outer partition flanged at each end transversely disposed within the casing and fixedly secured to the inner face of each side wall of said casing, a locking bolt passed centrally through each of the partitions, means disposed above the outer partition for releasing the bolt retaining member, means disposed between said partitions and bearing against the lower face of the outer partition for forcing the bolt into its locked position, and means secured to the lower face of the inner partition for forcing the bolt into its unlocked position. 85 90 95

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