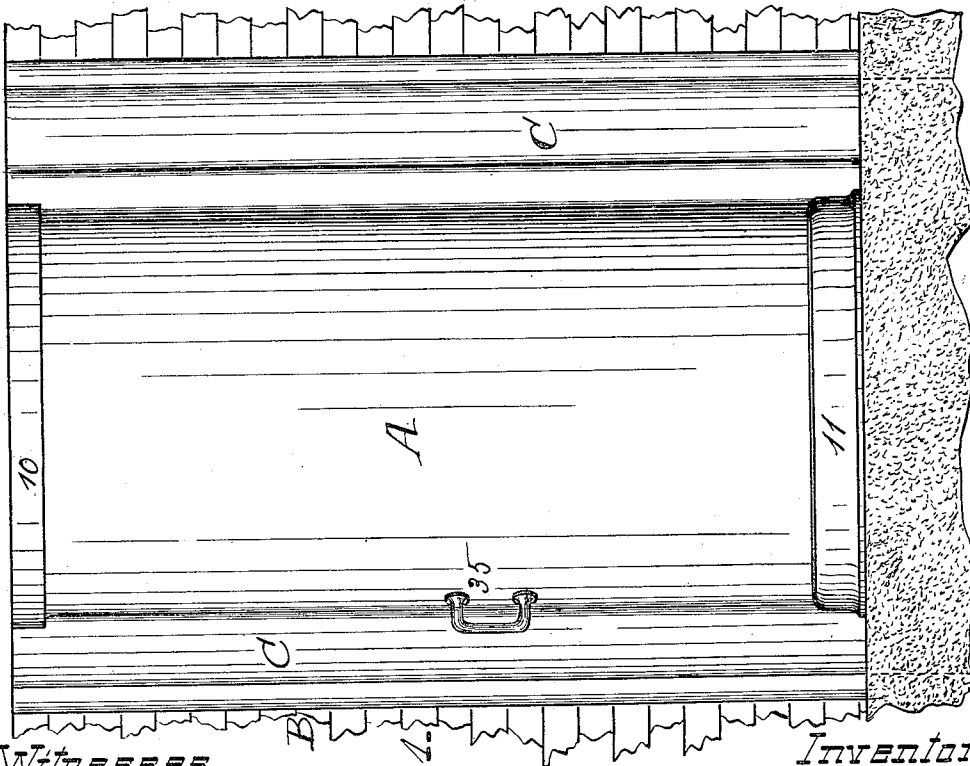
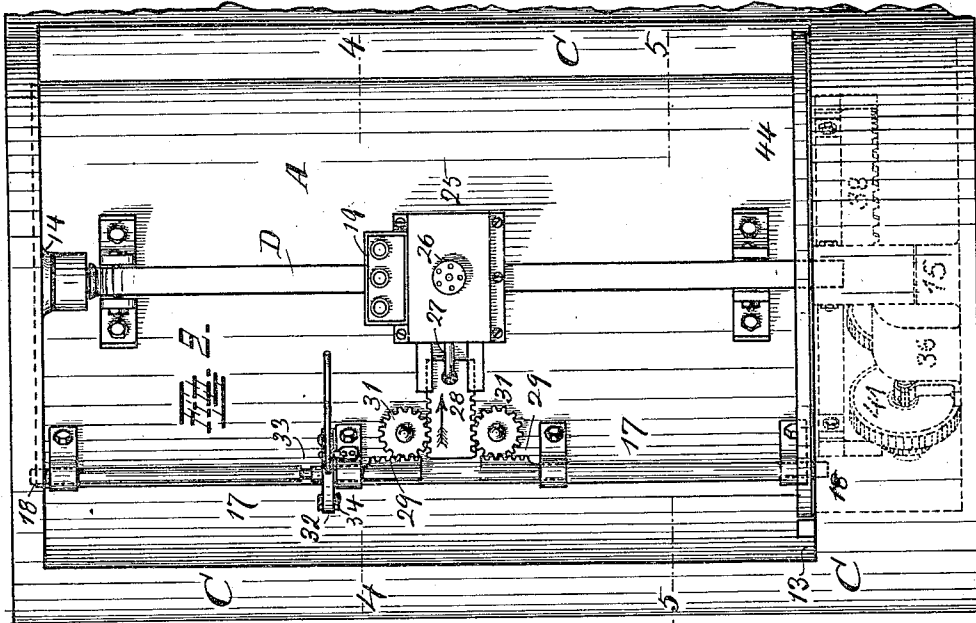


F. W. RODLER.
 MEANS FOR AUTOMATICALLY CLOSING VAULT DOORS.
 APPLICATION FILED SEPT. 16, 1912.

1,139,074.

Patented May 11, 1915.

2 SHEETS—SHEET 1.



Witnesses.
 W. E. Arnold
 N. LeBeau.

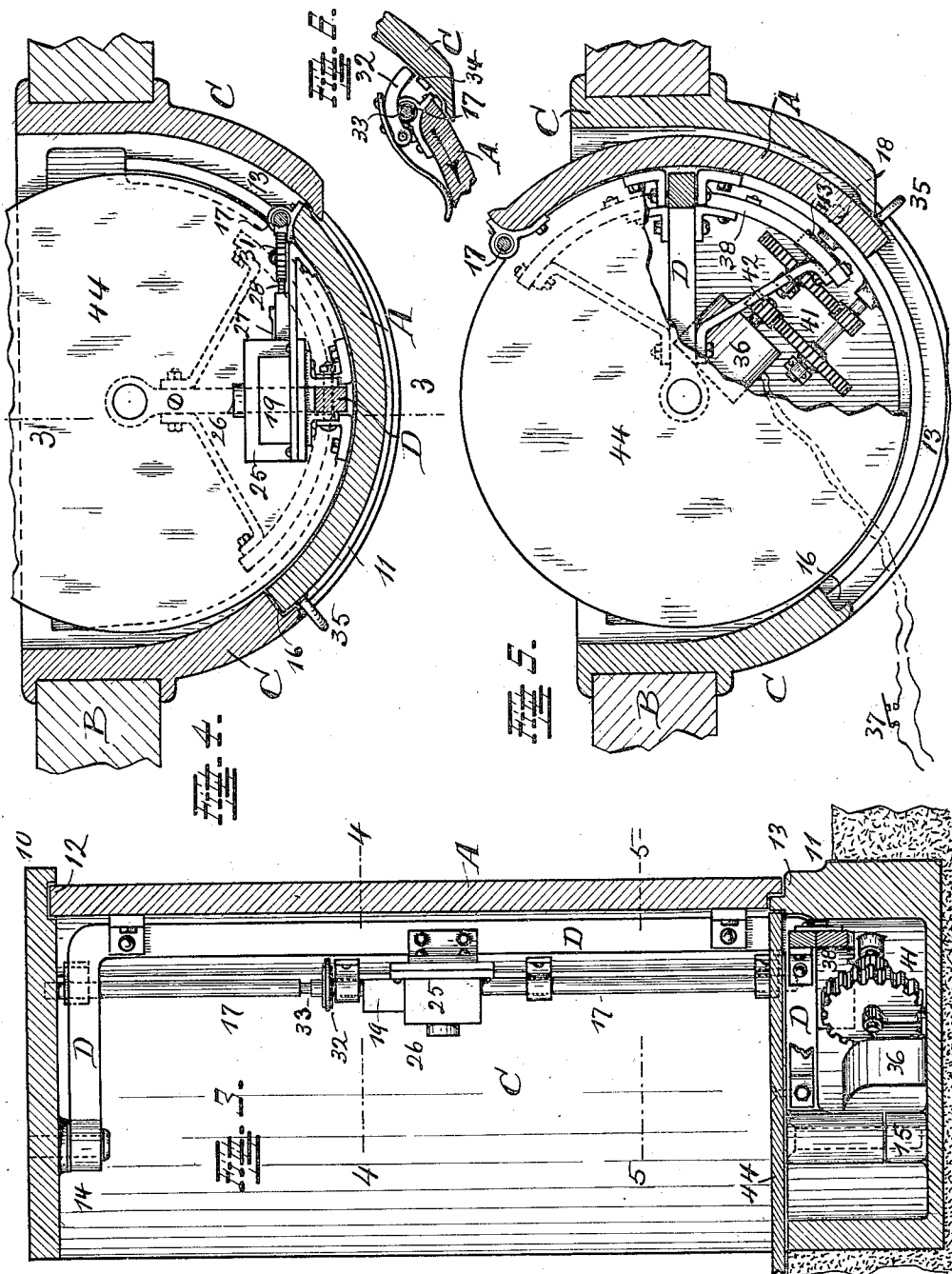
Inventor
 Frederick W. Rodler
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UNITED STATES PATENT OFFICE.

FREDERICK W. RODLER, OF CINCINNATI, OHIO, ASSIGNOR TO VICTOR SAFE & LOCK CO.,
OF NORWOOD, OHIO, A CORPORATION OF OHIO.

MEANS FOR AUTOMATICALLY CLOSING VAULT-DOORS.

1,139,074.

Specification of Letters Patent.

Patented May 11, 1915.

Application filed September 16, 1912. Serial No. 720,460.

To all whom it may concern:

Be it known that I, FREDERICK W. RODLER, a citizen of the United States, and residing in Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Means for Automatically Closing Vault-Doors; and I do declare the following to be a full, clear, and exact description of the invention, attention being called to the two sheets of drawings which accompany this application and form a part thereof.

This invention concerns means for automatically closing doors which control access to vaults, strong-rooms, safety-deposit inclosures, money-depositories etc.

One object of the invention is to provide in connection with such doors certain means whereby they may be closed and locked automatically.

Another object is to provide certain means whereby this closing action may be controlled from a point located at a distance from the door.

The advantage to be obtained by such an arrangement is that in a bank for instance, in case of impending danger from invasion by a mob or by robbers, during business hours, a vault-door may be closed where it is impossible to do so manually by reason of approach to it being forcibly prevented.

The invention is designed for use in connection with doors of the swinging type and of a shape such as shown for instance in Patents Nos. 955,933 and 961,227.

The invention consists of the means whereby these objects are attained, also of the devices provided in connection with such doors for locking them and of features of construction used in connection with these doors and with the devices connected therewith.

In the following specification and particularly pointed out in the claim at the end thereof, will be found a full description of my invention, together with its operation, parts and construction, which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, is a front view of such a door shown in closed position. Fig. 2, is a rear view of it in the same position. Fig. 3, is a central vertical cross-section of the same, taken on a line shown at 3—3 in Fig. 4. Fig. 4, is a horizontal section of the door taken on a line shown at 4—4 in Figs. 2 and 3. Fig. 5, is a similar section taken on a line shown at 5—5 in the same figures. Fig. 6, shows in a sectional detail view certain parts which will be explained hereinafter.

The invention is shown as applied to a door A, in shape of a cylindrical segment and positioned so as to move with respect to a door-opening provided in a wall B, the door being supported in a suitable manner and fitted to a door-frame C set in said opening.

This door-frame is extended outwardly at top and bottom as shown at 10 and 11, so as to meet the upper and lower edges of the door in a manner as shown at 12 and 13 respectively. The door may be supported at its lower edge, or it may be carried by a hinge-frame D, to which it is connected and on which it swings, said hinge-frame being pivotally mounted in the upper and lower parts of the door frame as shown respectively at 14 and 15. When the door is closed, one of its upright edges occupies a pocket 16 in one of the upright parts of the door-frame, its other upright edge occupying a position back of the other upright part of said frame, said parts being likewise extended outwardly for the purpose.

Suitable locking means involving the use of bolts 17 are carried on the inside of the door, preferably at the upright edge last mentioned. They are adapted to be automatically operated for the purpose of moving into sockets 18, provided in the door-frame and located so as to be opposite the ends of these bolts when the door occupies its closed position. The door becomes then locked in this closed position and cannot be opened until the bolts are withdrawn from these sockets. This withdrawal is lock-controlled and may be had, subject to this con-

trol, by manual operation from the outside of the door, or by the automatic action of a time-lock 19 located inside thereof.

Springs or equivalent means are used to
5 move the bolts into locking position, and similar means may be used to retract the bolts in case a time-lock is employed for unlocking them automatically. Springs in case they are used may be in form of a
10 spring-movement contained in a casing 25. This movement is set or wound when the door is open, by means of a suitable implement or key-lever applied to a hub 26, accessible on said casing. Suitable operative
15 connection is provided between this spring-movement and the bolts whereby the former may act upon and move the latter. This connection may be by a link 27, a rackslide 28, rack-teeth 29 on the bolts and gear-pinions 31 interposed between the toothed
20 parts. While the door is open, the bolts are held in retracted position against the action of the spring-movement, by means of a spring-actuated trip 32, while occupying a
25 notch 33 in one of the bolts as shown in Fig. 6. When the door is moved into closing position, this trip contacts with a projection 34 on the door-frame and is automatically displaced thereby, to release the
30 spring-impelled bolts into their locking sockets as shown in Fig. 2. When a time-lock is used to control the unlocking of the locked bolts to make withdrawal from their sockets possible, and a spring-movement
35 serves to move them for the purpose, then time-lock 19 controls also the action of the spring-movement to perform this function.

Whenever the bolts have been withdrawn, either manually or by the spring-movement
40 as controlled by the time-lock and at the proper time and as intended, a handle 35 on the outside of the door may be used to throw the same open. The door may be moved into closed position and subjected to
45 the automatic action of the locking bolts, in the same manner, that is by use of handle 35.

The door and its frame may be constructed from suitable metal, steel, or an alloy, adapted to resist attacks by means of tools.
50

My invention provides also means for moving the door automatically into a position in which it is closed and becomes subject to the action of the locking-bolts, automatically released at the end of the closing
55 movement of the door.

The operation of these means for closing the door is started by devices manipulated from the outside of the door. By preference
60 the arrangement is so as to provide possibility for manipulation from more than one point and more or less distant from the vault-door. These locations may be at or

below the cashiers or tellers window, at or beneath desks and always in a concealed position so that manipulation may be had unnoticed and preferably by knee or foot. 65

As a means for moving the door into closed position, an electric motor is used, the same being shown at 36. One or more switches
70 37, located at a distance and in positions as above mentioned, serve to control the action of the motor by controlling the current supplied for its operation.

A segmental rack 38, is attached to the
75 door or to the hinge-frame, to be actuated by the motor, a gear-train 41 being interposed between pinion 42 on the armature-shaft and pinion 43 in mesh with the rack, to reduce speed. The action of the motor
80 is stopped in due time, that is when the door is closed, by cutting out the current. The controlling switch may be used for this purpose and the actuation is by preference automatic and properly timed. 85

It being understood that it is the usual custom to leave vault-doors open during business hours for the convenience of employees, it will now be seen that a forcible attempt to enter such a door may be frustrated by the timely closing thereof by an employee, this being possible even if he is held up by display of arms or otherwise unable to reach the door in time. The opening of the door is now subject to the lock-
90 controlled withdrawal of the locking-bolts from their sockets and in case this control is by a time lock, such opening may not be had until the proper time has elapsed. It is presumed of course that after opening of
95 the door in the morning the locking bolts and their operative parts are placed in condition ready for automatic action whenever the door is being closed. The door may of course be moved at any time under normal
100 conditions with or without the aid of the motor. 105

A floor 44 is provided to cover the space in which the lower part of the hinge-frame moves. By preference it is connected so as
110 to move with the door. Likewise rack and motor might be transposed, so that the motor travels with the door, instead of the rack, the latter being stationary.

Having described my invention, I claim as
115 new:

In combination, a door frame substantially rectangular and shaped between its upright members in form of a cylindrical segment which contains the door-opening, a door
120 shaped complementary to the segmental part of the door-frame, a hinge-frame pivotally mounted in the door-frame and to which the door is connected for movement with respect to the opening in the door-frame, an electric
125 motor positioned in the door-frame and be-

low the hinge frame mentioned, a segmental rack connected to the hinge-frame, a circular floor attached to the hinge-frame so as to be concentric with the door and movably fitted
5 into the door frame so as to cover the motor, a pinion permanently in mesh with this rack and adapted to be rotated by the motor and a switch to control the operation of the

motor for the purpose of moving the door into closed position.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

FREDERICK W. RODLER.

Witnesses:

C. SPENGLER,
T. LE BEAU.

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