P. M. WEGE AND E. ANDERSON.

LOCK FOR SAFETY DEPOSIT VAULTS AND THE LIKE.

APPLICATION FILED DEC. 5, 1921.

1,436,925. Patented Nov. 28, 1922.

2 SHEETS—SHEET 1.

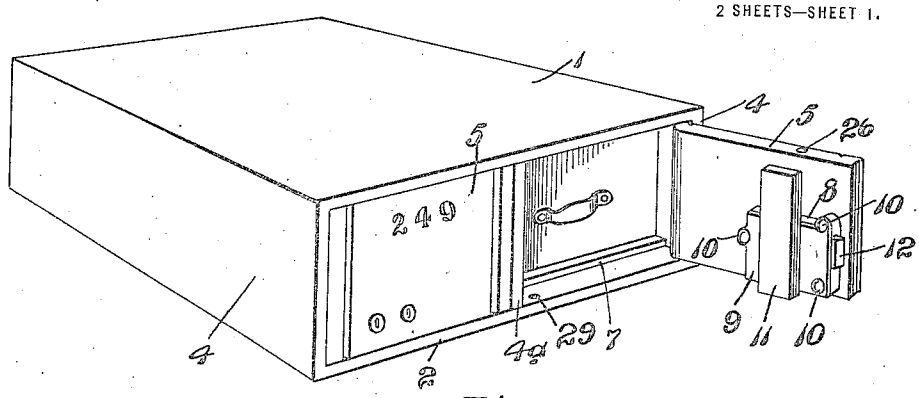

Fig. 1.

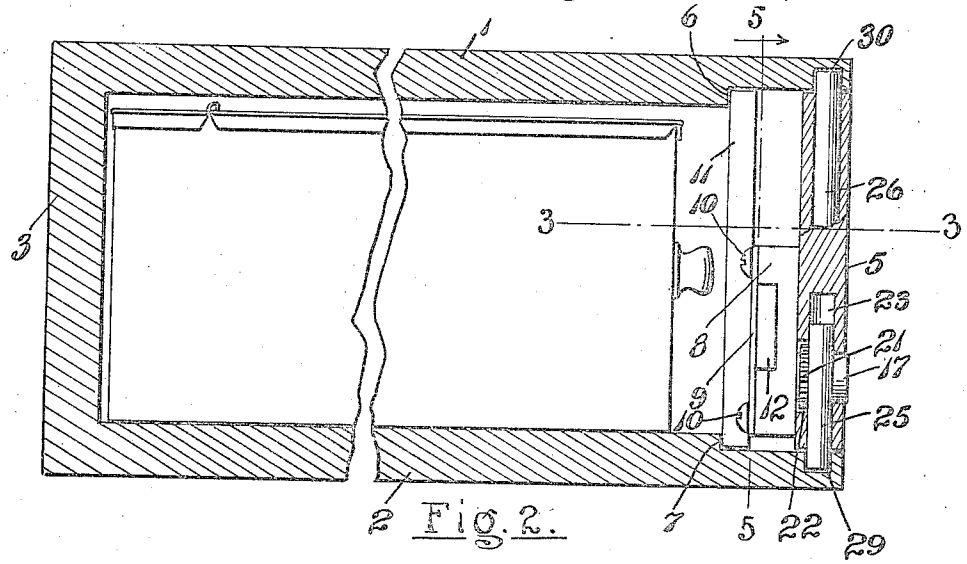

Fig. 2.

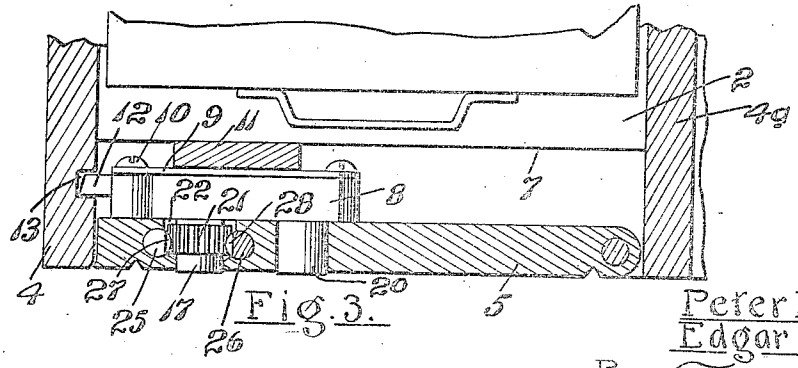

Fig. 3.

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2 SHEETS—SHEET 2.

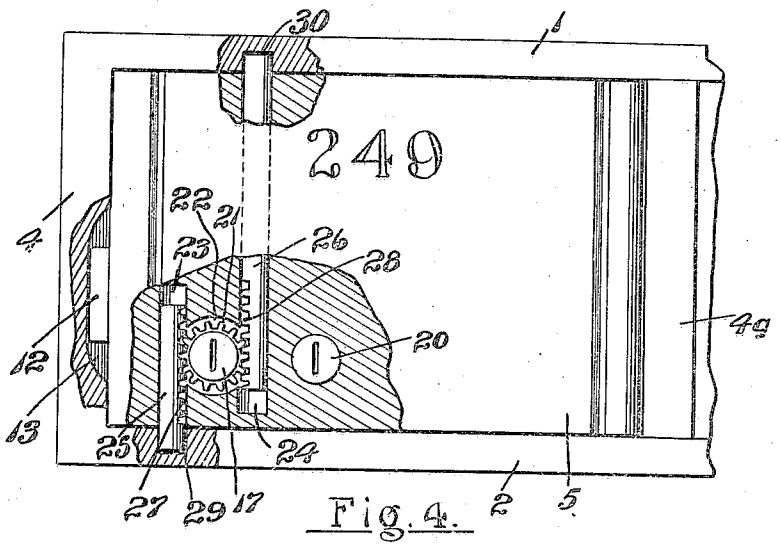

Fig. 4.

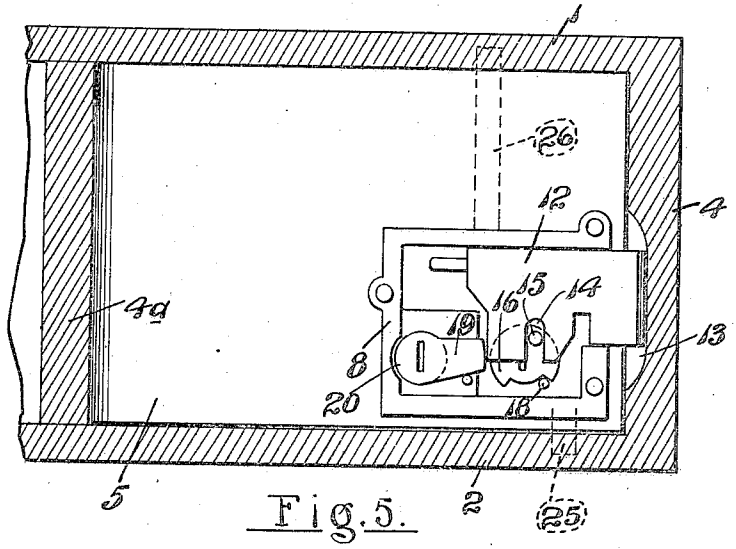

Fig. 5.

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UNITED STATES PATENT OFFICE.

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LOCK FOR SAFETY-DEPOSIT VAULTS AND THE LIKE.

Application filed December 5, 1921. Serial No. 519,350.

To all whom it may concern:

Be it known that we, PETER M. WEGE and EDGAR ANDERSON, citizens of the United States of America, residing at Grand Rapids and Manitowoc, in the counties of Kent and Manitowoc and States of Michigan and Wisconsin, respectively, have invented certain new and useful Improvements in Locks for Safety-Deposit Vaults and the like; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a lock for safety deposit vault doors, primarily, though it is applicable to safes, or other allied structures as well. We have shown the invention used with doors of safety deposit vaults like that shown in United States Patent No. 1,387,818, issued August 16, 1921, wherein the lock on the rear side of the door is safeguarded against being driven from the door. The present invention safeguards the door from being opened forwardly in any manner as by engaging under the side edge thereof and prying it open which can be done in some cases.

It is a primary object and purpose of the present invention to make a comparatively simple and economically constructed lock of this character by means of which the door is locked at both top and bottom simultaneously with the side locking thereof, the locking bolts for such top and bottom locking being located within the body of the door so that the same cannot be easily disconnected therefrom when the door is in locked position, in fact, the locking bolts will have to be broken off in order to get the door open. A further object of the invention is to make a structure of this character which is particularly easy to use with the construction of the patent above noted so that a full safeguard against any unauthorized entrance into a safety deposit vault equipped with the two inventions is made. Many other objects and purposes together with novel constructions for attaining the same will appear fully and in detail as understanding of the invention is had from the following description, taken in connection with the accompanying drawings, in which,

Figure 1 is a perspective view showing the invention in its application to doors of safety deposit vaults.

Fig. 2 is an enlarged vertical longitudinal section through a vault cell, showing the usual lock in side elevation and the auxiliary locking bolts and the means of operating the same in side elevation.

Fig. 3 is a horizontal section substantially on the plane of line 3—3, of Fig. 2, looking downwardly as indicated by the arrows.

Fig. 4 is an enlarged front elevation, with parts of the door and adacent portions of the walls of the vault cell broken away and in section to disclose interior construction, and

Fig. 5 is a transverse vertical section on the plane of line 5—5, of Fig. 2 looking forward as indicated by the arrows.

Like reference characters refer to like parts in the different figures of the drawings.

The invention is shown in Fig. 1 in connection with a vault containing two cells, sufficient for the illustration of the invention, it being understood that the invention is applicable to the door of each cell in a safety deposit vault, irrespective of the number of cells used. It is also applicable to doors used in many other places, as in safes or the like structures. The vault has a top 1, a bottom 2, back 3 and sides 4, a partition 4ª paralleling the sides 4 and dividing the vault into two cells, the front sides of which are open, being adapted to be closed by doors 5 mounted for swinging adjacent one vertical edge in the usual manner. At the front of each cell, a portion of the under side 1, and of the upper side of the bottom 2 is cut away, forming the shoulders 6 and 7, respectively, as shown. A lock casing 8 inside of which the lock mechanism is placed is located against the back of each door 5, a back plate 9 of sheet metal closing the back of the casing 8 and attached by means of screws 10 which, passing into the door, serve to securely attach the lock casing to the door at the same time the plate is secured to the lock casing. A vertical bar 11 is permanently secured to the plate 9, by electric spot welding or otherwise, and when the door is in closed position, the ends of the bar come directly in front of shoulders 6 and 7, thereby making it practically impossible to drive the

lock from the door by stripping the threads from screws 10, as is now done in instances of robbery of safety deposit vaults.

The construction so far described is substantially the same as that disclosed in the patent above mentioned. A proper safeguard is made against driving the lock to the rear from the door but not against prying the door open by insertion of a pry between the free vertical edge of the door and the adjacent side of the vault. Our invention is chiefly concerned therewith.

The laterally movable locking bolt 12 of the lock mechanism within the lock casing is adapted to enter a slot 13 cut to receive its outer end in the side of the side 4 of the vault. The bolt 12 has a slot 14 cut in one side, receiving a pin 15 on a disk 16 secured at the inner end of or formed integral with a key receiving barrel or tumbler 17 rotatably mounted and extending through the door to the front side thereof. The barrel 17 is limited in rotative movement by a pin 18 fixed with respect to the relatively stationary lock casing 8 and received in an arcuate recess cut in a side of the disk 16 as shown in Fig. 5.

An arm 19 secured at the inner end of a second key receiving barrel 20, also rotatably mounted and extending through the door 5 to the front side thereof is adapted in one position to come against the inner end of the locking bolt 12 and prevent inward movement thereof until moved out of the way, this being done by the insertion of a master key into barrel 20, such key being in the possession of the vault attendent. This construction of lock, while practical and operative is not in itself new, nor is it the only type of lock of this character with which our invention can be used.

On one of the barrels, preferably the one indicated at 17 and which is operated by the key in possession of the possessor of the vault cell, a gear 21 is cut, the same being received in a recess 22 therefor cut in the rear side of the door 5. Two cylindrical vertical openings 23 and 24 are bored in the door, the first extending upwardly from the lower edge of the door and the second downwardly from the upper edge of the door, both intersecting the recess 22 but at opposite sides thereof. Additional locking bolts 25 and 26 are slidably received in the openings 23 and 24, having racks 27 and 28 cut on their inner sides at their inner ends to mesh with the teeth of the gear 21. It is obvious that on rotative movement imparted to the barrel 17, the bolts 25 and 26 are simultaneously and equally moved but in opposite directions. Openings 29 and 30 to receive the outer ends of bolts 25 and 26 are made in the upper side of the bottom 2 and in the under side of the top 1, as shown in Fig. 4, being located to freely receive said ends when the same are projected outwardly with the turning of the barrel 17 to move the first locking bolt 12 outwardly to enter the groove or slot 13.

The door of the vault cell thus equipped is insured against opening by outward prying, being locked not only at its side edge but at its upper and lower edges. While prying outward on the door may strip the threads from screws 10 and let access to the cell be gained if only the one bolt 12 is in service, with the bolts 25 and 26 projected outwardly and in openings or recesses 29 and 30, to open the door, such bolts must be broken off, an almost impossible proceeding. In fact, for all practical purposes it cannot be done. The door is positively and absolutely held and the only way to gain access to the vault cell is by use of the proper keys in the barrels 17 and 20.

The construction described is practical, durable and efficient in every particular. While it has been shown in connection with a two-key lock, it is evident that so far as the operation of the three locking bolts are concerned, the barrel 20 may be very well eliminated. Furthermore it is obvious that either or both barrels 17 and 20 may be equipped with the operating gear for the operation of the two bolts 25 and 26, and such bolts associated with the gears, a double set of bolts 25 and 26 being used if desired. Many other variations in constructural detail from the specific disclosure made may be resorted to without departing from the invention which is defined in the appended claims, the invention comprehending all forms of structure that come within the scope of such claims.

We claim:

1. In a device of the character described, a receptacle having an open side, a door for closing said open side, a lock attached to the rear side of the door having a key receiving barrel extending through the door to the front side thereof, a gear on the barrel, two locking bolts slidably mounted vertically between the front and rear sides of the door, one at each side of the gear, and racks on said bolts in mesh with said gear at opposite sides, the upper and lower sides of the receptacle having openings to receive the ends of the locking bolts when the same are moved outwardly with the door in closed position.

2. In a device of the character described, a receptacle having an open side, a door for closing said open side, a lock attached to the rear side of the door having a key receiving barrel rotatably mounted and extending through the door to the front side of the door, two locking bolts slidably mounted vertically between the front and rear sides of the door, and interengaging means between the bolts and said barrel for simultaneously moving the bolts equal amounts in

opposite directions on rotation of the barrel, the upper and lower sides of the receptacle having openings to receive the outer ends of the locking bolts when the same are moved outwardly with the door in closed position.

3. In a device of the character described, a receptacle having an open side, a door for closing said open side, a lock attached to the rear side of the door having a rotatably mounted key receiving barrel extending through the door to the front side thereof, a vertical locking bolt slidably mounted between the front and rear sides of the door, and interengaging means between the bolt and said barrel for moving the bolt in opposite directions with rotative movement of the barrel in opposite directions, said bolt in its outer position projecting beyond the edge of the door for reception in an opening made in the adjacent side of the receptacle when the door is in closed position.

4. In a device of the character described, a receptacle having an open side, a door for closing said open side, a key receiving barrel rotatably mounted and extending through the door for reception of the key at the front side of the door, a gear on the barrel, and a locking bolt formed with a rack at one side in engagement with the gear slidably mounted in the door between the sides thereof and positioned at right angles to the axis of the barrel, projecting at its outer end beyond the edge of the door when in outer position, the adjacent side of the receptacle having an opening made to receive the end of the bolt when the door is in closed position.

5. In a device of the character described, a receptacle having an open side, a door for closing the open side, a lock attached to the rear side of the door, a slidably mounted bolt in the lock, a key receiving barrel operating the locking bolt and rotatably mounted in and extending through the door, a gear on the barrel, two locking bolts slidably mounted in vertical openings made in the door upwardly from the lower edge and downwardly from the upper edge of the door, and racks on said locking bolts in engagement with said gear at opposite sides thereof, said upper and lower side of the receptacle having openings to receive the outer ends of the bolts when the door is closed.

6. In a device of the character described, a receptacle having an open side, a door for closing said open side, a lock attached to the rear side of the door, a bolt slidably mounted to move horizontally forming a part of the lock, a second locking bolt positioned vertically and slidably mounted between the front and rear sides of the door, a rotatably mounted key receiving barrel forming a part of the lock and extending through the door to the front side thereof, and means for projecting said bolt simultaneously outward or withdrawing them inward on rotation of the barrel, the sides of the receptacle having recesses formed for the reception of the outer ends of the bolts on outward projection thereof when the door is in closed position.

7. In combination, a door, a lock associated therewith having a horizontally positioned and slidably mounted bolt, a barrel rotatably mounted on the door and extending to the front thereof, means for moving the bolt in opposite directions on rotation of the barrel in opposite directions, a second locking bolt vertically positioned and slidably mounted between the front and rear sides of the door, and means for simultaneously moving it in opposite directions with the like movements of the first bolt on rotation of said barrel.

In testimony whereof we affix our signatures.

PETER M. WEGE.
EDGAR ANDERSON.