H. W. HELLER.

BURGLAR PROOF SAFE OR VAULT.

APPLICATION FILED JULY 17, 1917.

1,258,567.

Patented Mar. 5, 1918.

4 SHEETS—SHEET 1.

Fig. 1.

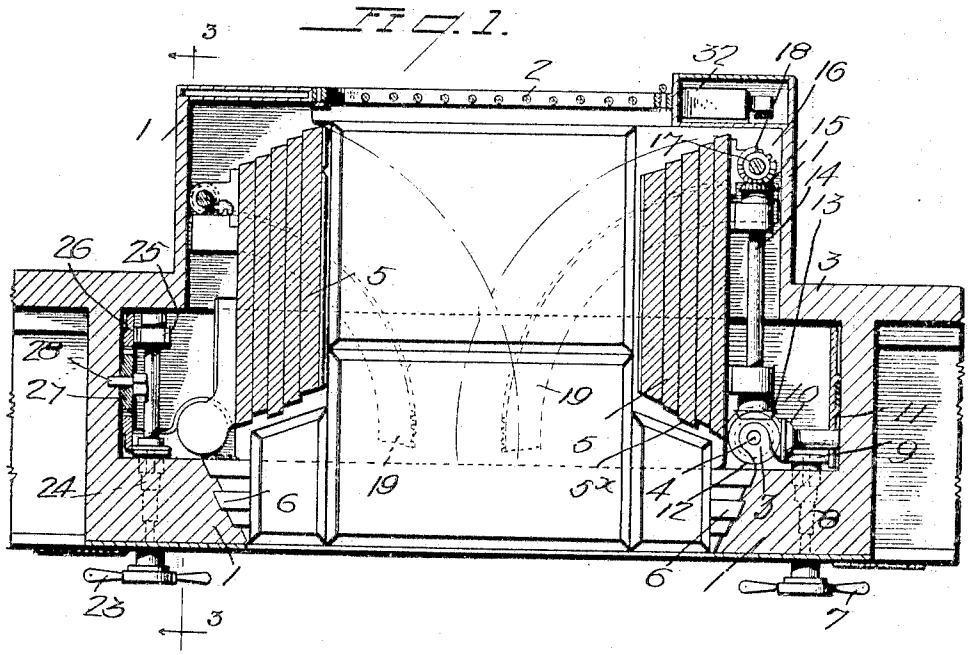
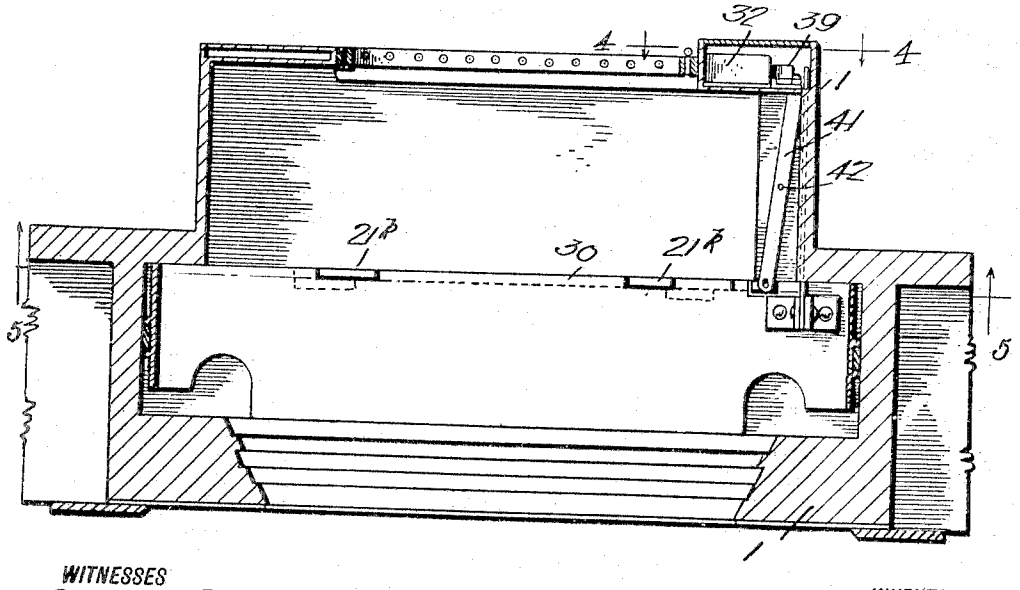


Fig. 2.



WITNESSES

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4 SHEETS—SHEET 2.

Fig. 3.

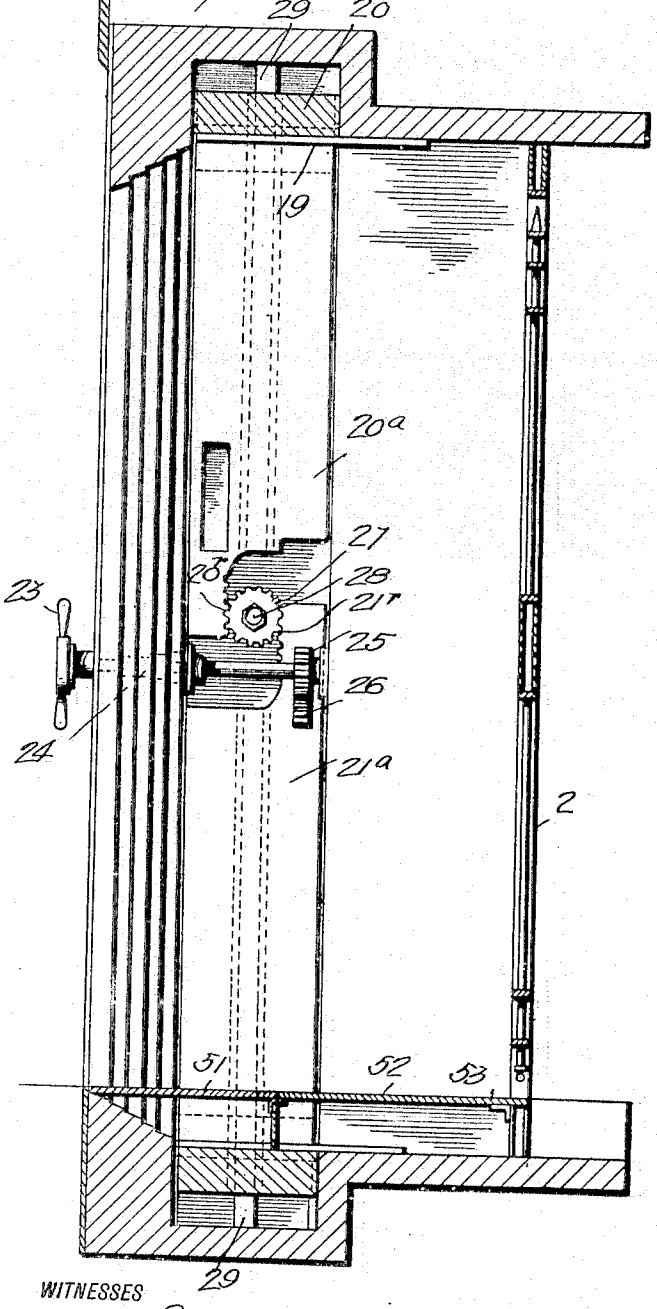
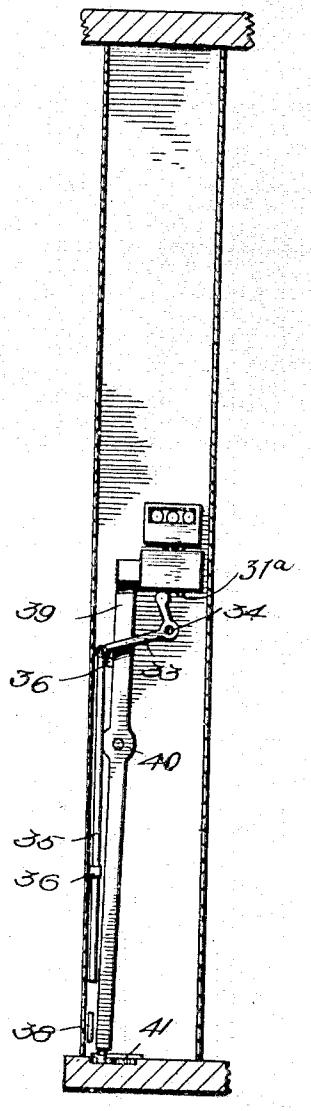


Fig. 4.



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4 SHEETS—SHEET 3.

Fig. 5.

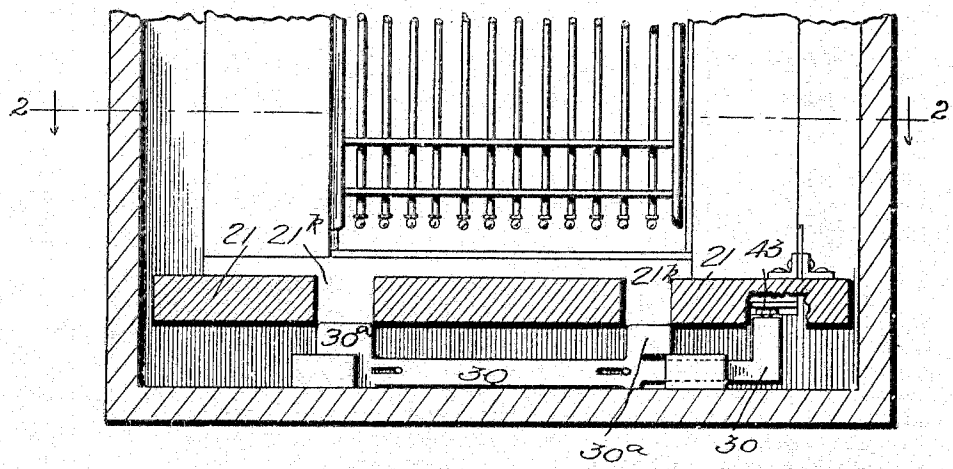


Fig. 6.

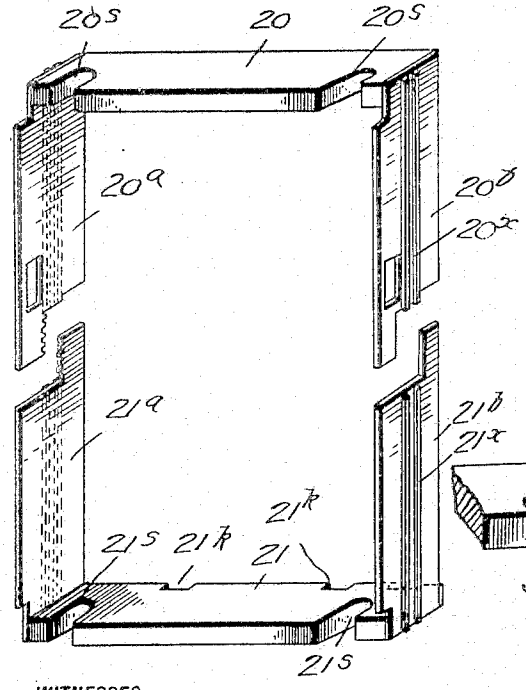
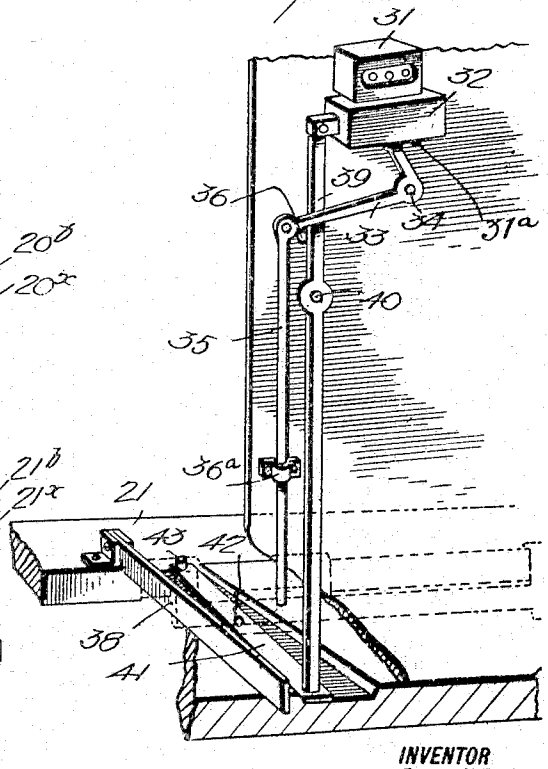


Fig. 7.



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1,258,567. Patented Mar. 5, 1918.

4 SHEETS—SHEET 4.

Fig. 8.

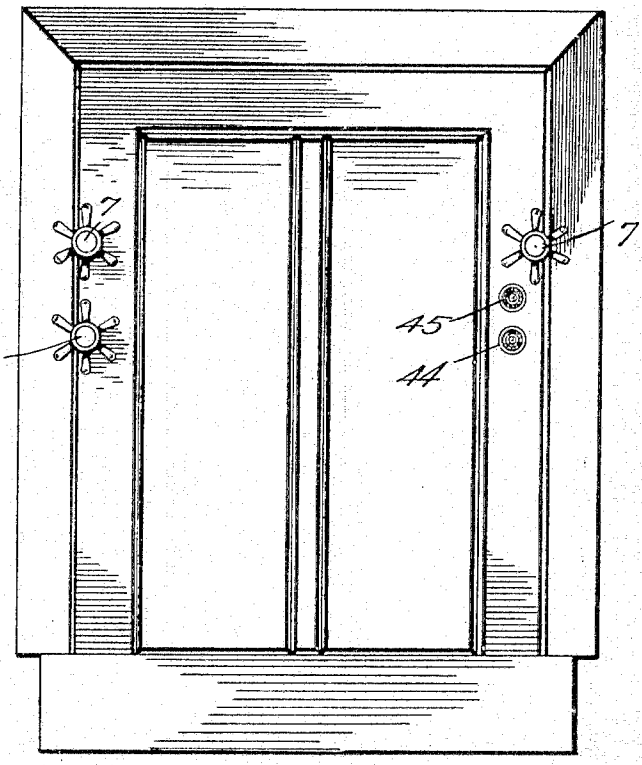


Fig. 9.

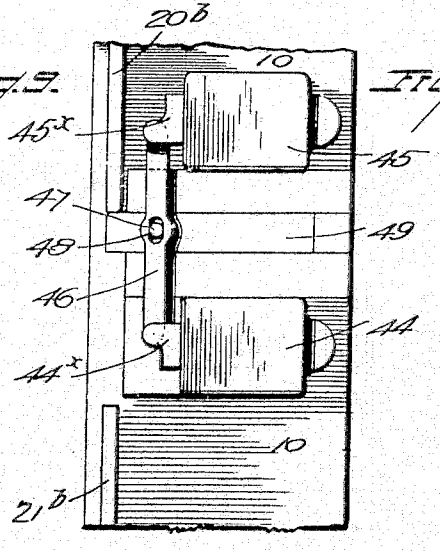
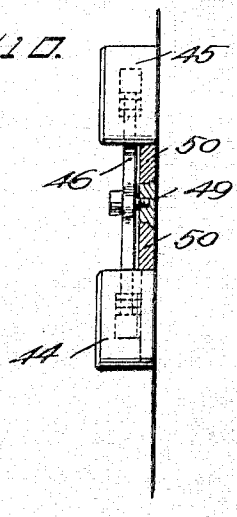


Fig. 10.



WITNESSES

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BURGLAR-PROOF SAFE OR VAULT.

1,258,567. Specification of Letters Patent. Patented Mar. 5, 1918.

Application filed July 17, 1917. Serial No. 181,038.

To all whom it may concern:

Be it known that I, HARRY W. HELLER, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have made certain new and useful Improvements in Burglar-Proof Safes or Vaults, of which the following is a specification.

My invention relates to improvements in burglar proof safes or vaults and consists in the combinations, constructions and arrangements hereinafter described and claimed.

The present invention is a division in part of a prior application Serial No. 51997 filed September 22, 1915. In said prior application means was disclosed for locking the doors of the safe or vault and the present invention is an improvement in the specific form of locking means as well as in the provision of auxiliary dead locking means which are controlled by combination locks.

An object of my invention is to provide means which is dependent upon a time lock and an "automatic" device for dead locking the means which prevents the opening of the doors of the safe or vault.

A further object of my invention is to provide an auxiliary means for dead locking the door retaining means when the time lock and "automatic" device are in position to permit the release of the door retaining means. A further object of my invention is to provide a novel means for operating certain counter-weight door retaining means

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application in which—

Figure 1 is a horizontal section through the device.

Fig. 2 is a horizontal section on the line 2—2 of Fig. 5.

Fig. 3 is a vertical section on the line 3—3 of Fig. 1.

Fig. 4 is a vertical section on the line 4—4 of Fig. 2.

Fig. 5 is a section on the line 5—5 of Fig. 2.

Fig. 6 is a perspective view of the counterweights.

Fig 7 is a perspective view of the time lock and "automatic" device and the locking means connected therewith.

Fig. 8 is a face view of the safe or vault.

Fig. 9 is a rear view of the combination locks and

Fig. 10 is a section on the line 10—10 of Fig. 9.

Referring now particularly to Fig. 1, I have shown therein a casing 1, which may be made of steel or any suitable material and which has at the rear thereof a hinged grating or door 2. At 3 I have shown brackets carried by the casing. These brackets form journals for the hinges of the doors 5. The latter are stepped at their edges as shown at 5^x to engage recesses 6 in the walls of the casing or jambs when the doors are in their closed position. These doors swing inwardly in the interior of the casing 1 as shown. The means for operating the doors are alike for each door and a description of one will suffice for both. It will be noted, that on the exterior of the casing are hand wheels 7. Each hand wheel has a shaft 8 which is provided with a bevel gear 9 arranged to engage a gear 10 on a stub shaft 11. The gear 10 engages in turn a gear 12 which meshes with a bevel gear 13 on a shaft 14. This shaft 14 has a gear 15 meshing with a gear 16 on a shaft 17. It will be obvious that when the hand wheel 7 is turned the shaft 17 will also be turned. On the shaft 17 is a pinion 18 which is arranged to engage a rack 19 which is secured to movable counter-weights 20 and 21 in the manner hereinafter described, the arrangement being such that when the hand wheel 7 is turned the pinion 18 will also be turned and the door 5 will be closed or opened by the movement of the pinion along the rack 19 depending upon which way the wheel is turned. This feature was set forth in my prior patent application aforesaid

Referring now to Fig. 6, I have shown therein an upper member 20 already mentioned, and a lower member 21. Secured to the upper member 20 are side members 20^a and 20^b, while secured to the lower member 21 are side members 21^a and 21^b respectively. The members 20 and 21 together with side members 20^a and 20^b form counterbalance weights. The side members are provided with guides 20^x and 21^x respectively for guiding the two sets of weights in their movements. In Fig. 3, I have shown the means by which these weights may be moved. This comprises a hand wheel 23 which is disposed on a shaft 24 bearing a

pinion 25. This meshes with a rack 26 on one of the side members 21^a. The pinion 27 is carried on a shaft 28 secured in the casing wall. It is arranged to engage rack members 20^r and 21^r, see Fig. 3, so as to move these counter-weights simultaneously and in opposite directions when the hand wheel 23 is turned. The counter-weighted portions 20 and 21 have slots 20^s and 21^s respectively arranged to clear the hinges. A bar 29 is fastened to the casing and forms a guide for the counter-balance parts when they go up or down.

The lower member 21 has a pair of slots 21^k which are arranged to receive the lugs 30^a of a slidable locking bar 30 which is disposed beneath the member 21 as shown in Fig. 5. The slidable locking bar 30 is for the purpose of dead locking the members 20 and 21 which in turn serve to retain the doors 5 in their locked position as will be explained later. The locking bar 30 is controlled by means of a time lock and "automatic" device. The time lock and "automatic" device are of any suitable type. In Fig. 7, I have shown the time lock at 31 and the "automatic" device at 32. The trigger 31^a of the "automatic" device is arranged to be engaged by a bell crank lever 33 which is pivotally mounted at 34, and which is connected with a link 35. A stop 36 limits the movement of the bell crank lever. The link 35 extends downwardly through a guide 36^a, see Fig. 7, and terminates immediately above an arm 38 carried by the lower counter-balanced member 21. The "automatic" device controls a lever 39 which is pivoted at 40, and whose lower end engages a lever 41 pivoted at 42 and connected at 43 with one end of the slidable locking bar 30.

In Figs. 8, 9 and 10 I have shown two combination locks 44 and 45 respectively. The lock 44 is provided with an inwardly movable member 44^x, while the lock 45 has a similarly inwardly movable member 45^x, these being common in locks of this type. These two movable members 44^x and 45^x are connected by means of a link 46 which is slotted at 47 to receive a pin 48 carried by a slidable locking bar 49. The latter is designed to extend underneath the upper side member 20^b of the counter-balance weights so as to prevent the movement of the counter-balance weights together until such time as the bar 49 is withdrawn. As will be seen from Fig. 10, this bar 49 is held by plates 50 on each side thereof.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

Fig. 1 shows the doors in their open position in which they are swung inside of the casing. Prior to the closing of the doors a foot bridge consisting of three hinged sections 51, 52 and 53, see Fig. 3, may be folded, the section 51 upon the section 52 and the two latter being swung back and resting against the grating or door 2 as disclosed in my prior patent aforesaid. The members 20 and 21 are in the position shown in Fig. 3, that is to say, out of the way of the doors. The time lock and "automatic" device are wound and the wheels 7 are manipulated to close the doors in the manner described. The wheel 23 may now be operated so as to bring the members 20 and 21 in position behind the doors, these positions being shown in dotted lines in Fig. 3, so as to prevent the opening of the doors. The forward movement of the counter-weight 21 causes the arm 38 to engage the rod 35 thus swinging the bell crank lever against the trigger 31^a and tripping the "automatic" device which thrusts the slidable locking member 30 into its locking position, that is to say, out of registration with the openings 21^k thus dead locking the counter-weights and preventing the opening of the safe or vault until such time as the time lock 31 sets off the "automatic" device which will shift the slidable locking member 30 into the position shown in Fig. 5, thereby permitting the unlocking of the vault or safe.

At times it may be desirable to close and lock the vault for a few minutes or for a few hours during the day, without setting the time lock and automatic device, and this may be done by means of the combination locks, for when these are set the slidable bar 49 is brought beneath the member 20^b thus dead locking the counter-weights which retain the doors in their closed position until such time as the locks are manipulated to withdraw the slide 49 as already explained.

It will be noted, that the time lock and "automatic" device are located within the vault. The drilling of the outer casing of the vault is ineffective as far as opening the vault is concerned, because of the fact that these devices are not in a position to be tampered with even should the burglars manage to drill through the outer casing.

I claim:

1. In a safe or vault construction, a casing, a pair of doors hinged to the casing and arranged to swing inwardly into the casing, a pair of opposed counter-weights disposed within the casing and movable toward and away from each other, the movement toward each other serving to bring them in position to lock the doors and means for dead locking the movable counter-weights, said means comprising a slidable locking member disposed underneath one of said counter-weights and adapted to be brought into position for preventing the movement of the latter.

2. In a safe or vault construction, a casing, a pair of doors hinged to the casing and arranged to swing inwardly into the casing,

a pair of opposed counter-weights disposed within the casing and movable toward and away from each other, the movement toward each other serving to bring them in position to lock the doors and means for dead locking the movable counter-weights, said means comprising a slidable locking member disposed underneath one of said counter-weights and adapted to be brought into position for preventing the movement of the latter, and means for moving said slidable locking device automatically, said means comprising a time lock and "automatic" device, and levers connecting said "automatic" device with said slidable locking device.

3. In a safe or vault construction, a casing, a pair of doors hinged to the casing and arranged to swing inwardly into the casing, a pair of opposed counter-weights disposed within the casing and movable toward and away from each other, the movement toward each other serving to bring them in position to lock the doors and means for dead locking the movable counter-weights, said means comprising a slidable locking member disposed underneath one of said counter-weights and adapted to be brought into position for preventing the movement of the latter, and means for moving said slidable locking device automatically, said means comprising a time lock and "automatic" device, levers connecting said "automatic" device with said slidable locking device, and means carried by one of said counter-weights for tripping the "automatic" device.

4. In a safe or vault construction, a casing, a pair of doors hinged to the casing and arranged to swing inwardly into the casing, a pair of opposed counter-weights disposed within the casing and movable toward and away from each other, the movement toward each other serving to bring them in position to lock the doors and means for dead locking the movable counter-weights disposed underneath one of said counter-weights and adapted to be brought into position for preventing the movement of the latter, and means for moving said slidable locking device automatically, said means comprising a time lock and "automatic" device, levers connecting said "automatic" device with said slidable locking device, means carried by one of said counter-weights for tripping the "automatic" device, said tripping means comprising an arm carried by said counter-weight, a slidable rod arranged to be engaged by the arm and a lever connected to said rod and arranged to engage a portion of the "automatic" device during the movement of the rod.

5. In a safe or vault construction, a casing, a pair of doors hinged to said casing and arranged to swing inwardly into the casing, means for locking the doors, said means comprising a pair of counter-weights, means for moving said counter-weights toward and away from each other, said means comprising a pinion and rack portions carried by each of said counter-weights and arranged to engage said pinions on opposite sides thereof, and means for operating said pinions, the movement of said counter-weights serving to bring them behind the closed doors thereby locking the doors in position.

6. In a safe or vault construction, a casing, a pair of doors hinged to said casing and arranged to swing inwardly into the casing, means for locking the doors, said means comprising a pair of counter-weights, means for moving said counter-weights, toward and away from each other, said means comprising a pinion and rack portions carried by each of said counter-weights and arranged to engage said pinions on opposite sides thereof, means for operating said pinions, the movement of said counter-weights serving to bring them behind the closed doors thereby locking the doors in position, a dead locking device, and a time lock and "automatic" device for actuating said dead locking device to permit the movement of the counter-weights at a predetermined time.

7. In a safe or vault construction, a casing, a pair of doors hinged to said casing and arranged to swing inwardly into the casing, means for locking the doors, said means comprising a pair of counter-weights, means for moving said counter-weights, toward and away from each other said means comprising a pinion and rack portions carried by each of said counter-weights and arranged to engage said pinions on opposite sides thereof, means for operating said pinions, the movement of said counter-weights serving to bring them behind the closed doors thereby locking the doors in position, a dead locking device, and a time lock and "automatic" device for actuating said dead locking device to permit the movement of the counter-weights at a predetermined time, and means for dead locking the counter-weights independently of said last named dead locking means.

8. In a safe or vault construction, a casing, a pair of doors hinged to said casing and arranged to swing inwardly into the casing, means for locking the doors, said means comprising a pair of counter-weights, means for moving said counter-weights, toward and away from each other, said means comprising a pinion and rack portions carried by each of said counter-weights and arranged to engage said pinions on opposite sides thereof, means for operating said pinions, the movement of said counter-weights serving to bring them behind the closed doors thereby locking the doors in position, a dead locking device, and a time lock and

"automatic" device for actuating said dead locking device to permit the movement of the counter-weights at a predetermined time, means for dead locking the counter-weights independently of said last named dead locking means, said last named dead locking means comprising a pair of combination locks, a slidable bar actuated by the movement of said locks and arranged to engage one of said counter-weights to prevent the movement of said weights until withdrawn by the manipulation of the locks.

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Witnesses:
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E. B. SEABROOK.

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