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FASTENER FOR VAULT CLOSURES.

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To all whom it may concern:

Be it known that I, Sidney Taylor, a citizen of the United States, residing at Galion, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Fasteners for Vault Closures, of which the following is a specification.

This invention relates to closures for burial vaults and has for its object the provision of a simple, easily operated and inexpensive means by which the door or closure may be quickly and securely locked in the open end of the vault. The invention seeks to provide a mechanism for the stated purpose which will apply the closing force along lines substantially parallel with the plane of the door or closure so that buckling or bulging of the door will be prevented, and the invention also seeks to provide a mechanism which, when in locked position, will effectually withstand efforts to release the door.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of a portion of the inner side of the door showing my improved mechanism mounted thereon;

Fig. 2 is a view, partly in elevation and partly in vertical section, of the door and the locking mechanism showing the position of the parts before the door is locked;

Fig. 3 is a similar view showing the locking plates moved to the locking position;

Fig. 4 is a detail end elevation of the operating threaded spindle;

Fig. 5 is a detail side view of the bracket to which the swinging clamp is pivoted;

Figs. 6 and 7 are end views of said clamp.

The door 1 is a metal plate of the usual form and is adapted to fit within the open end of the vault, a portion of which is indicated at 2. As is usual in metallic burial vaults, a flange 3 is secured in the open end thereof and a gasket 4 which may be of rubber or other compressible material is fitted upon the radial web of said flange. Ordinarily, these gaskets are of rubber but by the use of my locking mechanism lead gaskets may be employed and a more durable leak-proof joint thereby effected. The door is provided centrally with an opening through which a spindle 5 is inserted, the outer end 6 of the spindle being angular to be engaged by a turning tool. Intermediate its ends, the spindle is provided with a recessed flange 7 adapted to bear upon the inner side of the door and contain a packing 8 while, at the outer side of the door, a nut 9, housing a packing 10, is fitted upon the spindle. A lock nut 11 is mounted upon the spindle against the nut 9 so that the parts will be firmly secured in place. The inner portion of the spindle is threaded, the threads 12 having a slight pitch so that when the spindle is rotated considerable power will be exerted therethrough and the locking mechanism easily operated.

The ring or carrier 13, engaged upon the inner threaded portion of the spindle, is provided with four pairs of perforated lugs or ears 14 spaced equi-distantly around the periphery and so disposed that one pair of lugs extends upwardly and another pair downwardly at a diametrically opposite point, while the intervening lugs extend toward the opposite vertical sides of the door. Pivoted between the lugs or ears of each pair is a link 15, the outer end of which is pivoted within the bifurcated end 16 of a locking plate 17, the said locking plate having a head portion 18 disposed adjacent an edge of the door and a shank 19 extending inwardly from the said head portion, the bifurcation 16 being formed in the inner end of said shank. Suitable bracing arms 20 extend between the shank and the head at opposite sides of the shank so as to reinforce the structure. Slots 21 are formed longitudinally in the locking plate adjacent the inner end of the shank and at intervals in the head portion, and through each slot a headed guide pin or stud 22 is inserted into the door so that the locking plate will be effectually held to the door and guided in its movement. Upon the inner face of each head 18, I provide a plurality of driving lugs 23 arranged in pairs and projecting inwardly from the respective heads. The free edge of the head, between the lugs of each pair, is notched, as at 24, to span a bracket 25 to which the clamp 29 is pivoted. At the sides of each notch 24, the edge of the head 18 is beveled to provide the wedging or lifting surfaces 30 and the outer edges 31 of the lugs 23 merge into said surfaces 30, the edges 31 being nearly perpendicular to plane of the head. The bracket 25 comprises a fork 32 and a stem 33 projecting centrally from the base of the fork and adapted to be inserted through an opening provided therefor in the door,
the extremity of the stem being upset against the door to rigidly secure the bracket in place. The stem or shank 34 of the clamp 29 fits within the fork 32 and is pivoted thereto by a pin 35 in an obvious manner, one end of the clamp being held in engagement with the head 18 by a spring 36 and the opposite end of the clamp being forced against the flange 3 by the action of the lifters 30 and the driving lugs 23. One end of the spring 36 is secured to the clamp at that end thereof which is engaged by the driving locking plate and the opposite end of the spring is fitted in a groove 37 formed in the base of the fork 32 whereby, when the bracket is secured in place, it will firmly hold the spring and the said base portion or shoulder will fit flat against the door. It will be readily noted, upon reference to Fig. 20, that the spring holds the clamp retracted so that it will clear the flange 3 while the door or closure is being brought into its operative position. In order that the clamp may be effectively engaged by the locking plate, I provide lateral extensions or wings 38 on the end of the clamp which are so disposed as to ride on the surfaces 30 and 31 and set screws 39 are mounted in said wings and are adjustable to project through the working faces of the same so that, notwithstanding irregularity in the formation of the clamp, a working engagement with each lug 23 may be effected and an even easy movement of the clamp obtained.

The locking plates at the two vertical sides of the door have straight outer edges, as will be readily understood upon reference to Fig. 1, while the upper locking plate has an arched edge corresponding to the arcuate formation of the upper edge of the door, and the bottom locking plate is, of course, provided with a straight lower edge corresponding to the straight lower edge of the door. The braces 26 of the bottom locking plate, however, are shorter than the braces 20 of the remaining locking plates and upon the upper edge of the bottom locking plate, I provide a plurality of shoulders or teeth 27 which are adapted to be engaged by a dog 28 pivoted upon the door above the bottom locking plate and held by gravity in engagement with one of the shoulders 27.

In the use of the device, when the vault it to be closed, the door is inserted in the end of the vault so that it will rest against the gasket 4, the locking plates being withdrawn so that the clamps assume the position shown in Fig. 2 and may readily clear the flange 3. A turning tool is then fitted to the outer end 6 of the spindle 5 and the said spindle rotated whereupon the carrier 13 will ride outwardly upon the spindle and the links 15 will be thereby drawn toward the door at their inner ends and their outer ends will be caused to move outwardly parallel with the inner face of the door inasmuch as they are pivoted to the locking plates and the locking plates are held to the door by the pins or studs 22. A slight movement of the locking plates will cause the lifting edges 30 thereof to ride under the ends of the clamps 20 which will be thereby caused to swing inwardly and upwardly, riding upon the surfaces 31 as the movement of the locking plates continues and being thereby forced into binding engagement with the flange 3 to draw the door firmly against the gasket 4 so that a tight joint will be effected. It will also be readily understood that each locking plate moves toward the adjacent edge portion of the door and the bottom locking plate, therefore, moves downwardly. As the said bottom locking plate moves downwardly, the dog 28 will tend to assume a vertical position and will, therefore, ride over the shoulder 27 next the shoulder with which it had been engaged and will thereby aid in holding the locking plate in its projected position. The dog will form a positive means for resisting releasing movement of the plates inasmuch as in order to withdraw the bottom locking plate it will become necessary to disengage the dog 28 therefrom and as the dog is mounted on the inner side of the door it is inaccessible. The remaining locking plates will be likewise held in their projected positions inasmuch as they are all connected to a common actuating member and no one plate can be withdrawn by said member without all the other plates being withdrawn.

My device is composed of very few parts and may be very readily applied to the door at a low cost. It may be quickly and easily shifted to the locking position and after being so shifted will positively resist all efforts to remove the door.

Having thus described the invention, what is claimed as new is:

1. In a vault closure, the combination of a door, a spindle projecting through the door, a flange on said spindle at the inner side of the door, packing between said flange and the door, a nut locked on the spindle at the outer side of the door, packing interposed between said nut and the door, a carrier threaded upon the inner end of the spindle, locking plates slidably mounted upon the inner side of the door, and links each pivot ed at one end to the carrier and at its opposite end to a locking plate whereby upon actuation of the spindle the links will be caused to move toward a position in parallelism with the door and the locking plates will be caused to slide outwardly.

2. In a vault closure, the combination of a door, a locking plate slidably mounted upon the door and provided with slots parallel with the path of movement of the plate,
headed pins fitted through said slots into the door, a spindle rotatably fitted through the end of the spindle and caused to travel by rotation of the spindle, and links each pivoted at one end to said carrier and at the opposite end to a locking plate whereby when the spindle is rotated the locking plates will be caused to ride outwardly under the heads of the said pins toward the free edges of the door.

3. The combination with a burial vault, and a flange secured in the open end of the vault, of a door arranged to bear against said flange, clamps mounted upon the door and arranged to bind upon the said flange, means for holding the clamps normally retracted, and other means on the door for driving the clamps into engagement with said flange.

4. The combination with a burial vault, and a flange secured in the open end of the vault, of a closure insertible in the end of the vault against said flange, swinging clamps mounted on the inner side of the door for movement in a plane at an angle to the plane of the door, yieldable means holding the clamps retracted, and means carried by the door to swing the clamps into binding engagement with the flange.

5. The combination with a burial vault, and a flange secured in the open end of the vault, of a closure insertible in the end of the vault against said flange, swinging clamps mounted on the inner side of the door, yieldable means holding the clamps retracted, slides mounted on the door and having their ends arranged to engage under the clamps as the slides move outward whereby to turn the clamps into binding engagement with the flange, and means carried by the door for actuating the slides.

6. The combination with a burial vault, and a flange secured in the open end of the vault, of a closure insertible in the open end of the vault against the flange, clamps mounted on the inner side of the door for swinging movement, slides on the door having beveled and inclined surfaces at their free ends to engage the clamps and effect swinging movement of the same, and means carried by the door for actuating said slides.

7. The combination with a burial vault, and a flange in the end thereof, of a closure insertible in the end of the vault and against said flange, swinging clamps carried by the door and provided with lateral wings, sliding points adjustable through said wings, operating slides mounted on the door and provided with spaced driving lugs and lifting surfaces aligned with said lugs, said lugs and lifting surfaces being arranged to ride under the sliding points whereby to effect turning movement of the clamps, and means carried by the door for actuating said slides.

8. The combination with a burial vault, and a flange in the open end thereof, of a door insertible in the open end of the vault, a bracket comprising a fork and a stem projecting from the fork and secured in the door, the base of the fork having a groove therein in the side thereof presented to the door, a clamp pivoted within the fork, a spring secured at one end to the clamp and having its opposite end portion seated in the groove in the base portion of the bracket whereby to be secured by and between the bracket and the door, and means on the door acting on the clamp in opposition to the spring to cause the clamp to bind upon the flange.

In testimony whereof I affix my signature.

SIDNEY TAYLOR. [l. s.]