E. E. PYLE.

COIN OPERATED LOCK.

APPLICATION FILED FEB. 25, 1911.

1,051,007.

Patented Jan. 21, 1913.

3 SHEETS—SHEET 1.

Fig. 1.

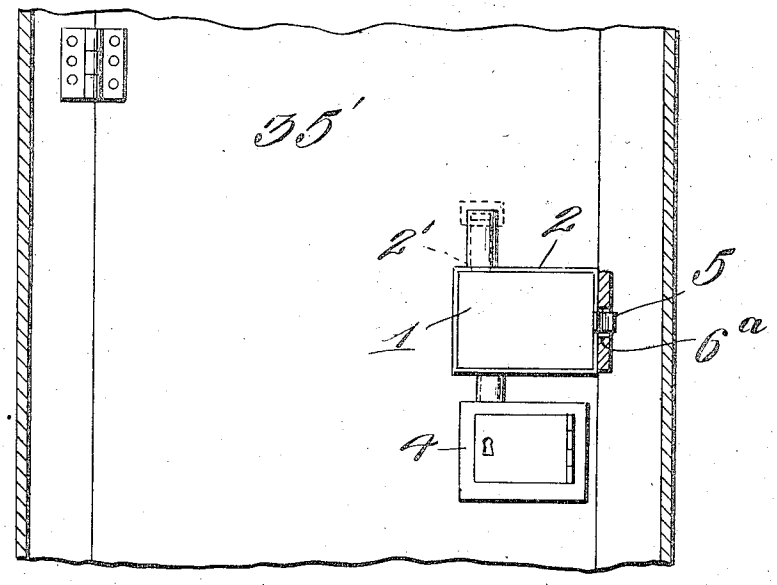


Fig. 4.

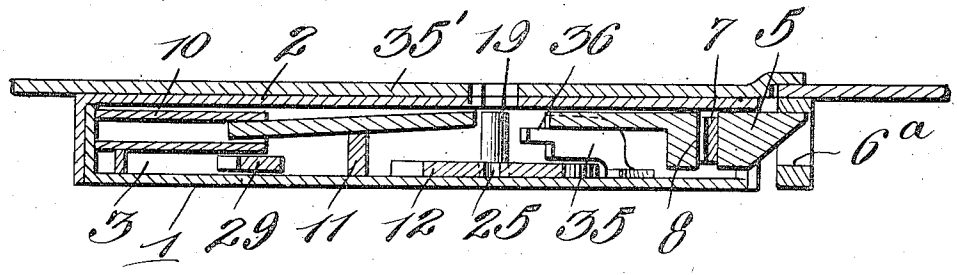
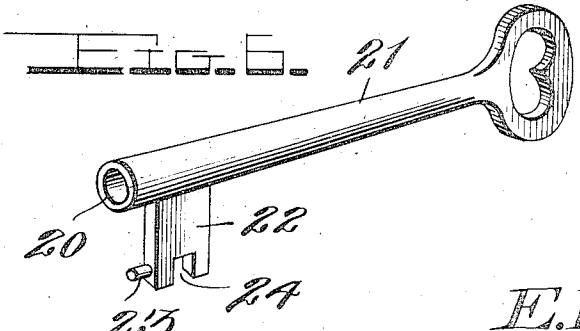


Fig. 6.



Witnesses

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3 SHEETS—SHEET 2.

FIG. 2.

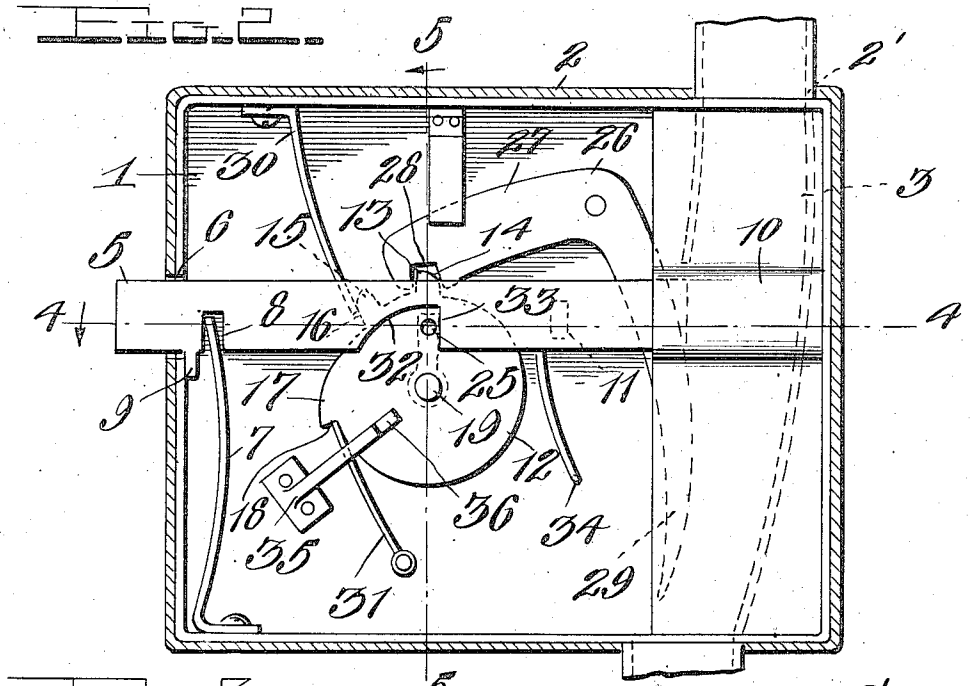
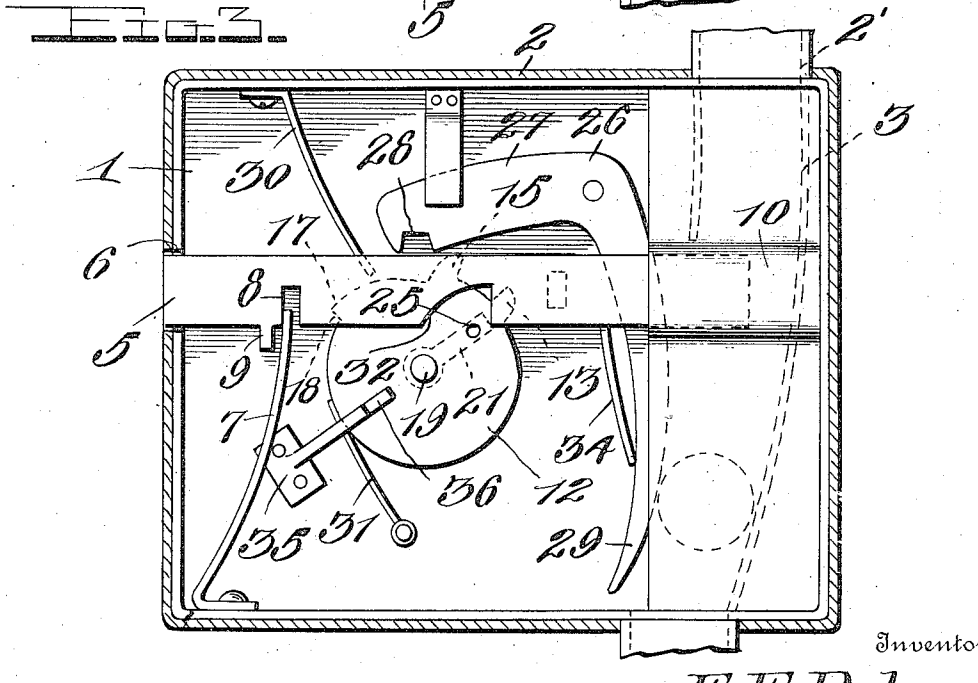


FIG. 3.



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3 SHEETS—SHEET 3.

Fig. 5.

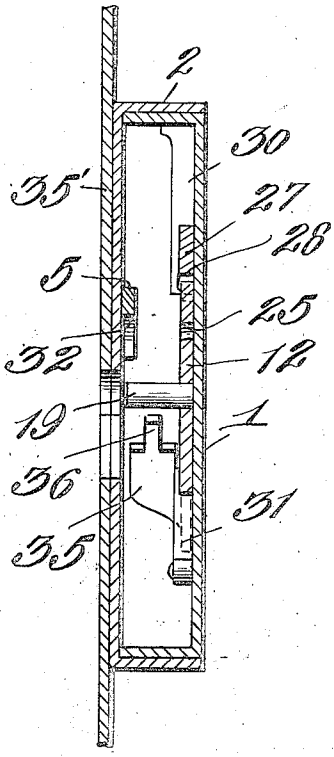


Fig. 7.

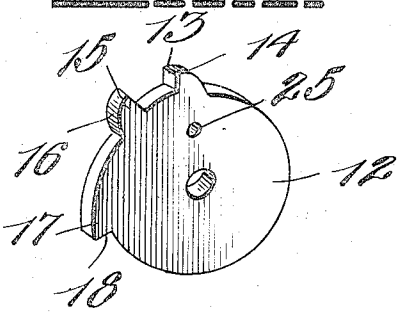


Fig. 8.

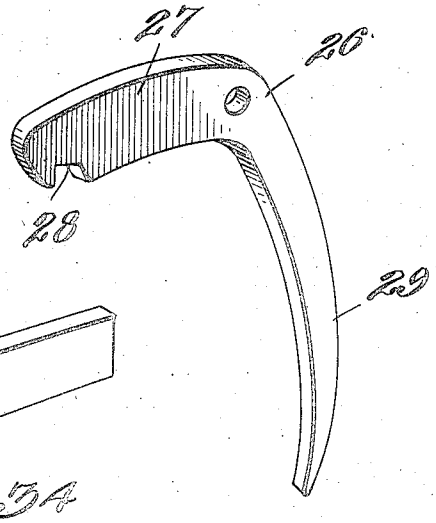


Fig. 9.

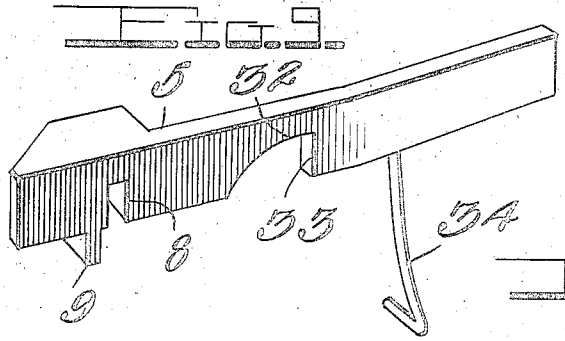
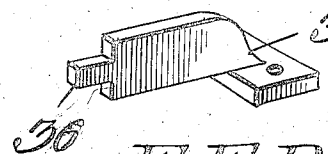


Fig. 10.



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UNITED STATES PATENT OFFICE.

ELMER ELSWORTH PYLE, OF CARMI, ILLINOIS.

COIN-OPERATED LOCK.

1,051,007. Specification of Letters Patent. Patented Jan. 21, 1913.

Application filed February 25, 1911. Serial No. 610,788.

To all whom it may concern:

Be it known that I, ELMER E. PYLE, a citizen of the United States, residing at Carmi, in the county of White and State of Illinois, have invented certain new and useful Improvements in Coin-Operated Locks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to new and useful improvements in devices used to provide for the safety of coats, hats, canes, etc., when the same have been temporarily left, and more particularly to a coin-controlled lock for such devices, and my object is to provide such a lock which is extremely simple in construction, in being composed of few operating parts, but very effective in operation.

A further object is to provide a lock having a single rotative disk, which disk is operable through the medium of a key or knob.

With these and numerous other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts, as will be hereinafter referred to, and more particularly pointed out in the specification and claims.

In the accompanying drawings, forming part of this application, Figure 1 is an elevation showing my improved lock applied to a locker door; Fig. 2 is a top plan view with the top of the casing removed, showing the positions of the various parts of the lock when the locking bolt is in its extended position; Fig. 3 is a similar view showing the positions of the various parts when the locking bolt is at the extreme of its withdrawn position; Fig. 4 is a horizontal section as seen on line 4—4, Fig. 2; Fig. 5 is a vertical section as seen on line 5—5, Fig. 2; Fig. 6 is a detail perspective of the key; Fig. 7 is a similar view of the rotating disk; Fig. 8 is detail perspective of the locking dog; Fig. 9 is a detail perspective of the locking bolt; and Fig. 10 is a similar view of a further detail of the device.

In carrying out my invention, I shall refer to the drawings, in which similar reference characters designate corresponding parts throughout the several views, and in which—

1 indicates a casing of my lock, and 2 a removable top therefor, the upper edge of which casing 1, is provided with the coin-receiving opening 2′, said opening leading to a coin slot 3, within said casing, and extending along one side edge thereof. This coin slot 3 leads to an additional opening in the lower edge of said casing, through which the coin is passed to a coin-collecting box, or the like 4, therebelow. A locking bolt 5 is mounted within said casing and has one end thereof normally extended through an opening 6 in a side edge of said casing, and into engagement with a locking socket 6^a. A leaf spring 7 has one end thereof secured to the lower edge of said casing adjacent the side edge containing the opening 6 therein, and is bent upwardly to allow the free end thereof to engage within a groove 8, adjacent the outer end of said locking bolt, thereby forcing said locking bolt to its extended position normally. In order to provide for the limitation of the outward movement of such locking bolt, a lug or stop 9, is mounted in the lower edge of said locking bolt adjacent the groove 8 therein, and adapted to contact with the inner face of a side wall of said casing. The inner end of said locking bolt is mounted in a slot or the like 10, formed on the outer wall of the coin-receiving slot 3, and an additional lug 11 mounted on the rear wall of said casing, contacts with the rear face of said locking bolt to cause the same to slide in proper alinement throughout the operation thereof.

Rotatably mounted on the rear wall of said casing, in the rear of said locking bolt, is an irregularly shaped disk 12, which disk is provided on its periphery with a locking lug 13, the outer edge of which is beveled, as at 14, and spaced a short distance from said lug 13, is an additional lug 15, the outer end of this locking lug being rounded, as at 16, the purpose of which will be hereinafter described. Adjoining said lug 15, on the periphery of said disk 12, is a cam or the like 17, which terminates at the end, farthest from the lug 15, in a notch 18, and the disk 12 is also provided through its axial center with a stem 19, the object of said stem being to receive thereon the socket 20 of a key 21. Said key is provided with the usual depending portion 22, which depending portion is provided with an outwardly extending lug 23, and a groove 24 in the bottom thereof. The disk 12 is also provided on its outer face, immediately below the lug 13, with an opening 25 adapted to receive therein the lug 23, and it will be seen that when said key is properly positioned on the stem of the disk, and the lug thereof inserted

in said opening, said disk is adapted to be turned with the rotation of said key.

Pivotally mounted on the rear wall of said casing is a dog 26, said dog having the end of the head 27 thereof provided with a notch or the like 28, and when said notch is in effective position, the same receives therein the locking lug 13. The head 27 of said dog 26 being a slight bit heavier than the stem 29, is adapted to normally drop downwardly, and said dog is so positioned within the casing that when said head drops downwardly on the disk 12, the stem 29 thereof, is positioned within the coin slot 3. When properly disposed in locked position the notch 28 of the dog 26 receives the locking lug 13, as above stated, and when in such position, a leaf spring 30 having one end thereof secured to the upper edge of said casing is bent downwardly and into engagement with one side of the lug 15. At such time, an additional spring 31 having one end thereof secured to the lower edge of the casing, is bent upwardly into engagement with the periphery of the disk 12, and disposed within the notch 18. When the dog is in locked position with the disk 12, and the locking bolt in its extended position, a notch 32 in said locking bolt is so positioned as to have the vertical wall 33 thereof immediately adjacent the opening 25 of said disk, so that when the key is properly introduced in said disk so that the lug thereof is engaged with said opening 25, the extended portion 22 of said key is adapted to engage said vertical wall 33, and draw said locking bolt inwardly. As long as the notch 28 of the dog 26 is in locked position with the lug 13, said key cannot be turned, but as soon as sufficient weight has been placed on the stem 29 of the dog to raise the head 27 from its effective position, said key may be turned to withdraw said locking bolt. As the lower end of the stem 29 is disposed within the coin slot 3 when the head thereof is in locked position, it will be seen that any coin, which is of sufficient weight to overcome the weight of the head, will allow the head to be removed from its effective position, whereby the key may be turned to withdraw the locking bolt.

Mounted on said locking bolt, adjacent its inner end is a depending spring 34, which is bent so as to be in the path of the stem 29 of said dog, thereby limiting the movement thereof in one direction, and rigidly mounted on the rear wall of said casing is a member 35 having one end thereof extending over said disk 12, the end of said member 35, extending over the disk, being provided with a lug 36, which is adapted to extend within the groove 24 of the depending portion 22 as the key 21 is truned past the same. It will be seen, therefore, that this member 35 acts as a guide for the proper key 21, and at the same time acts as a stop for other keys, which may be inserted therein maliciously.

In operating the lock, it must be stated that the same is normally in locked position with the key locked therein. To open the lock therefore, a coin, of a predetermined size and amount, is dropped through the coin opening 2′, and as the same falls into the slot 3 it contacts with the lower end of the stem 29 of the dog 26, the weight of the coin being sufficient to overbalance the weight of the head 27, and thereby swing the dog on its pivot, and removing the notch 28 from its effective position, on the lug 13. Then by turning the key 21 the extended portion 22 thereof will engage the vertical wall 33 of the locking bolt 5 and draw the same inwardly to separate the sections of the lock, that is the locking bolt from the locking socket. Should the sections of the lock be upon the door and side wall of a locker or the like 35′, it will be seen that the door of said locker may be then opened and articles desired for checking may be placed therein. A continuation of the turning of said key will, of course, allow the extended portion 22 thereof, to become freed from engagement with the vertical wall 33 of the notch on said locking bolt, and as soon as said key becomes freed from engagement with said bolt, the spring 7 will again force said locking bolt to its extended position, that is to say, the locking bolt may again be engaged with its respective locking socket to lock the door of the care-taker or locker, as the case may be. As the coin is dropped into the slot and comes into contact with the lower end of the stem 29 of the dog, the same is not adapted to drop immediately to the coin box below said lock, as the spring 34 carried by the locking bolt, will limit the movement of the lower end of said dog to retain the coin therein for a short period. At the time, however, that the locking bolt is freed from the key in the turning thereof, the cam 17 of the disk comes into contact with the end of the head of the dog and swings the same slightly on its pivot, thereby allowing the coin to be dropped through to the coin box below. By the coin remaining in the slot for a short period, as stated, the notch in the end of the head of the dog will remain upwardly out of contact with both of the lugs 13 and 15 as the same are being turned through the turning of the disk. As the key is turned half the circuit of its path the same will come into registration with the key-hole 37 in the top 2, whereby the key may be removed from the lock, and as the bolt at this time has been again forced into its extended position, as stated above, to lock with the locking socket, therefor, said lock cannot be opened except with the key which has been removed. Hence

should this lock be applied to a locker or the like for the safe checking of hats, coats, canes, and the like, it will be seen that by first inserting the coin and unlocking the lock, such articles may be placed within said locker, the door locked and the key removed. When it is desired to again open the door of the locker, the key may be inserted through the key-hole and the opening 25 of the disk 12, being in position will receive the lug 23, of the key. By further turning the key, the lug 13 will come into contact with the lower end of the spring 30, and will draw the same upwardly into engagement with the outer end of the head 27 of the dog, and as the spring extends below said outer end the same engages the beveled face 14, of said lug and prevents the notch 28 from engaging said lug. At this time, the key is again in position to engage the vertical face 33 of the notch in the locking bolt, and by further turning the key, said lug 13 will pass the notch 28 in view of the spring 30 at this time, thereby allowing the locking bolt to be again withdrawn. As the locking bolt is withdrawn, however, the lower end of the spring 34 carried thereby, will engage the lower end of the stem 29 of the dog 26 to swing said dog on its pivot and position the head downwardly into engagement with a portion of the disk, that portion of the disk that is adapted to be engaged, being the lug 15. As this lug 15 is engaged by the notch 28 of the dog, it will be seen that the turning of the key is limited at this time, and at the point of limitation, said locking bolt will have been completely withdrawn, allowing the door of the locker containing this portion of the lock, to be opened, and articles therein removed. Upon the release of the hold on the key, however, at this time, the locking bolt will again be forced to its extended position through the spring 7, turning the key and disk therewith, said disk being capable of turning in view of the curved face 16 of the lug 15. As the locking bolt is forced back to its extended position, the spring operated thereby, will, of course, release its engagement with the lower end of the stem 29 of said dog and allow the head 27 to drop to its normal position by means of gravity to again engage the lug 13, which has been moved back to its original position through the turning of the key and disk.

From the foregoing, it will be seen that the locking bolt may be twice withdrawn from its locked position through the introduction of a single coin in the slot, thereby making it possible for a locker or the like, containing such a lock to be first opened to insert articles for checking, then closed to remain locked and the key removed. No other key but the one belonging to the lock is then capable of opening the same, so that when a person desires to remove the articles from the locker, the key may be again inserted and the locking bolt again withdrawn to open the door. As stated this is all accomplished by the insertion of one coin, and when the locking bolt is again extended after its second withdrawal, it will be seen that the key will be held within said lock and cannot be removed until an additional coin has been inserted. It will further be seen that this device is adapted for use in all places wherein it is desired to check articles of wearing apparel or the like, thereby eliminating the necessity of providing an attendant for checking such articles. It will still further be seen that I have provided a lock of the character described in which there are extremely few operating parts, thereby making it less complicated than the usual locks of this character, and it will, doubtless, be appreciated that it is extremely effective in operation.

By changing the member 35 in size and shape; by changing the size, shape and position of the opening 25, and by providing lugs of different sizes, shapes and positions on the disk 12, the style of key for operating the lock may be changed.

Although I have shown and described my improved lock as adapted to be applied to a locker or the like, it must be stated that the same is equally well adapted for use in connection with a door of a theater or other place of amusement wherein a charge is made for entrance thereto. This lock, when used in such a connection, must necessarily omit the lug 15 on the disk 12 and the spring; the cam 17 is positioned nearer the lug 13 and an ordinary knob for a door is used instead of the key 21, thereby converting the device into a single-acting lock. With this construction the locking bolt is allowed to be withdrawn and disengaged but once with the insertion of one coin, as, will be appreciated, is necessary when applied to a pay-as-you-enter door.

What I claim is:

1. A lock of the class described, comprising a casing, a disk rotatably mounted in said casing having lugs and a cam on the periphery thereof, a releasing detent adapted to engage the lugs on said disk, a leaf spring secured within said casing having the free end thereof disposed in close proximity to said disk to coöperate with the lugs thereon, a locking bolt slidably mounted within said casing and disposed normally in its extended position, and means having coöperation with said disk and said locking bolt to withdraw the latter.

2. A lock of the class described, comprising a casing, a disk rotatably mounted therein having lugs and a cam formed on the periphery thereof, a releasing detent

adapted to coöperate with the lugs on said disk, a spring secured within the casing and having the free end disposed in close proximity to the disk to coöperate with the lugs thereon, a locking bolt slidably mounted in said casing and normally disposed in its extended position, an additional spring member carried by said locking bolt and adapted to coöperate with the detent within the casing, and means coöperating with said disk and bolt to withdraw the latter at a predetermined time.

3. A lock of the class described, comprising a casing, a disk rotatably mounted therewithin and provided on its periphery with lugs and a cam, said disk being also provided with an orifice on its outer face, a releasing detent adapted to coöperate with the lugs on said disk, a leaf spring secured within the casing and having the free end thereof disposed in close proximity to the disk to coöperate with the lugs thereon, a sliding bolt mounted within the casing and disposed normally in its extended position, said bolt being provided with a spring adapted to coöperate with said detent, means to normally dispose said locking bolt in its extended position, and a key for said disk having coöperation with the orifice therein, and a portion of said bolt to withdraw the latter at a predetermined time.

4. A lock of the class described comprising a casing, a disk rotatably mounted therewithin and having a pair of lugs and a cam formed on the periphery of the same, spring members secured to said casing above and below said disk and having the free ends thereof disposed in contact with the periphery of the same, means within said casing adapted to coöperate with the lugs on said disk to lock the latter against rotation at predetermined times, a locking bolt slidably mounted in the casing, means to normally dispose the same in its extended position, means coacting with said disk, and bolt to withdraw the latter, and means on said bolt adapted to coöperate with the means coöperating with the lugs on said disk for disposing said latter means to its effective operating position.

5. A lock comprising a casing, a disk rotatably mounted therein and having a pair of lugs and a cam formed on the periphery thereof, a spring member secured to the casing below the disk and having the free end thereof in engagement with the periphery of the same, an additional spring member carried in the casing above the disk having the free end thereof in engagement with said disk to coöperate with the lugs thereon, said disk being also provided with an orifice in its front face, a locking bolt slidably mounted in the casing, means to normally dispose the same in its extended position, pivotal means within the casing adapted to coöperate with the lugs on said disk to lock the latter against rotation at predetermined times, means on said sliding bolt adapted to contact with said pivotal means to dispose the latter in its effective operating position upon the retraction of said sliding bolt, and a key adapted to engage the orifice in said disk and a portion of said sliding bolt to withdraw the latter from its extended position at a predetermined time.

6. A lock of the class described comprising a casing, a disk rotatably mounted therein and provided on its periphery with a cam and a pair of lugs, said lugs being spaced a short distance from one another and having their outer opposed faces convexed, means within the casing adapted to coöperate with said lugs on said disk to lock the latter against rotation at predetermined times, a sliding bolt within the casing, and means adapted to engage said disk and a portion of said bolt to withdraw the latter at a predetermined time.

7. A lock of the class described comprising a casing, a shaft extending transversely thereof and projecting through one wall of said casing, a disk rotatably carried on said shaft having its periphery provided with a cam and a pair of spaced lugs, said lugs having their outer opposed faces convexed, means within said casing adapted to cooperate with the lugs on said disk to lock the latter against rotation at predetermined times, said disk being also provided with an orifice in its outer face, a sliding bolt within the casing disposed normally in its extended position, and a key adapted to be introduced on said shaft to coöperate with the orifice in said disk and a portion of said bolt to withdraw the latter at a predetermined time.

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

ELMER ELSWORTH PYLE.

Witnesses:
JNO. C. STOKES,
JNO. M. CREBS.