No. 608,185. Patented Aug. 2, 1898.

J. E. DOLDT.

LOCKING DEVICE.

(Application filed June 16, 1896.)

(No Model.) 3 Sheets—Sheet 1.

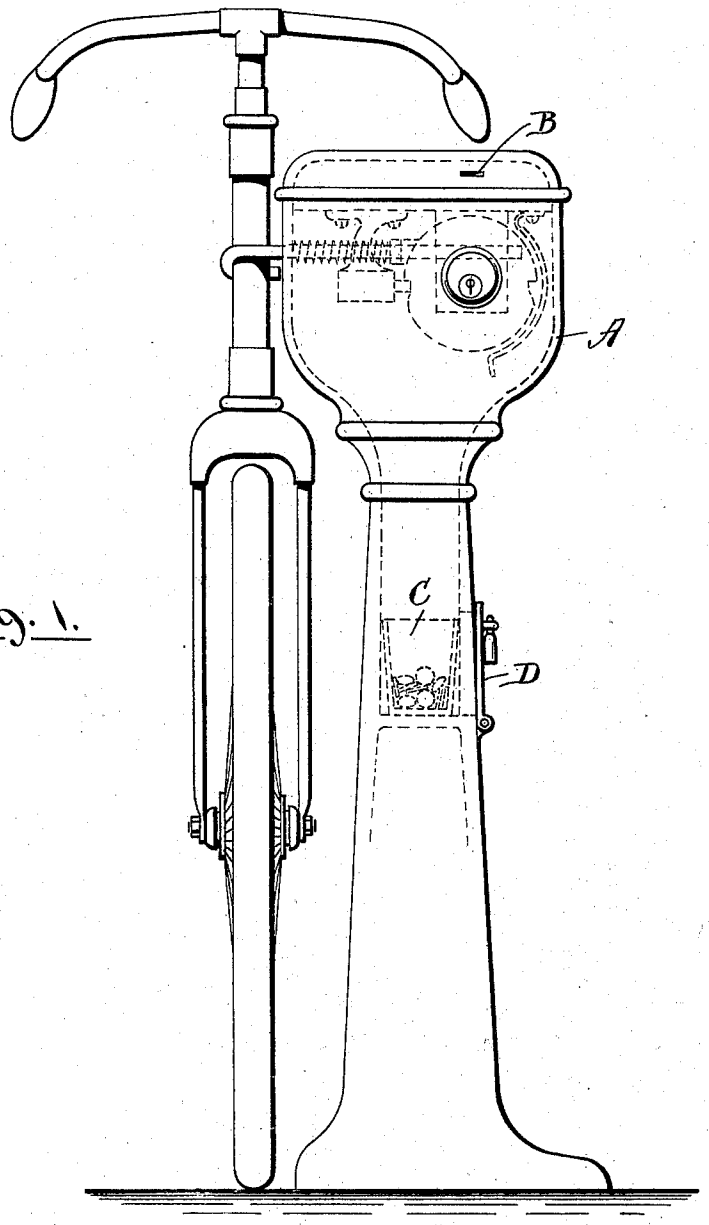


Fig. 1.

Witnesses.

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No. 608,185. Patented Aug. 2, 1898.

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(No Model.) 3 Sheets—Sheet 2.

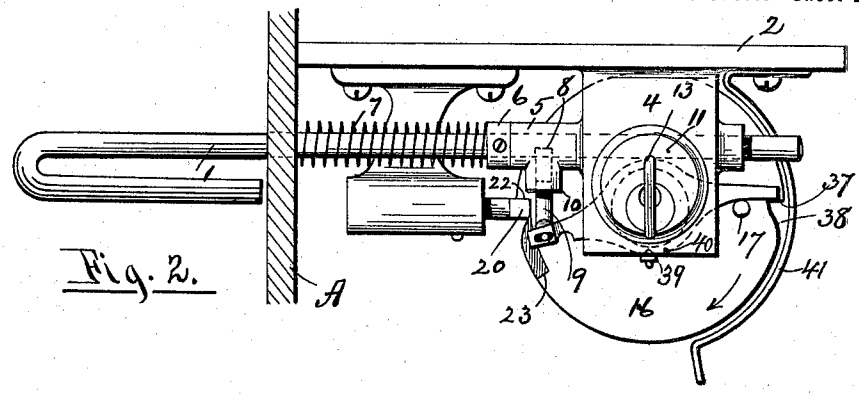


Fig. 2.

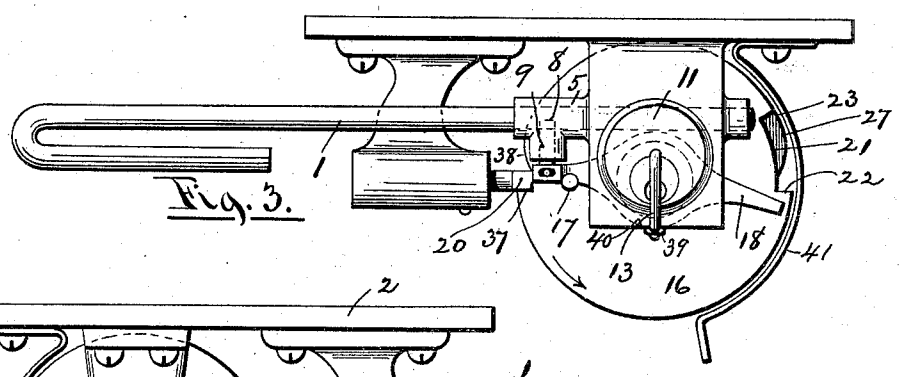


Fig. 3.

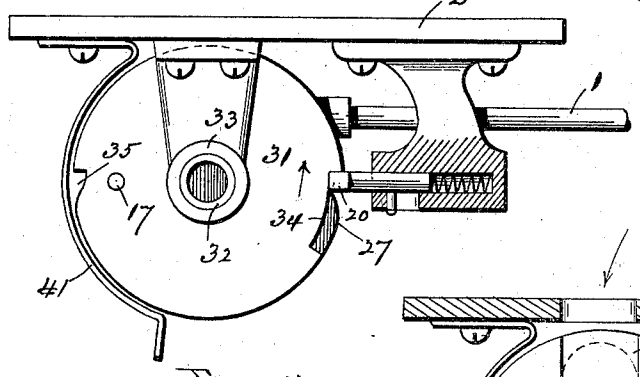


Fig. 4.

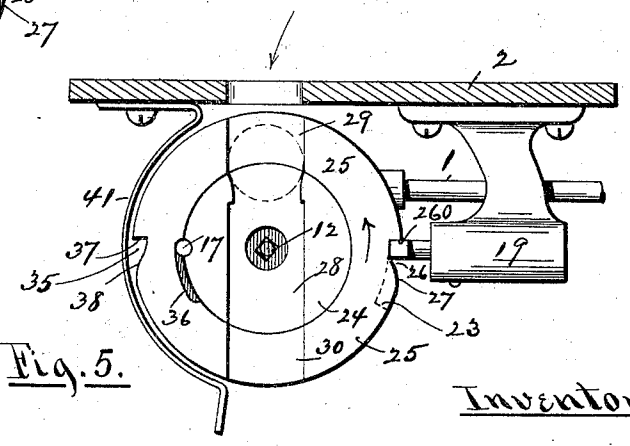


Fig. 5.

Witnesses.

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No. 608,185. Patented Aug. 2, 1898.

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LOCKING DEVICE.

(Application filed June 16, 1896.)

(No Model.) 3 Sheets—Sheet 3.

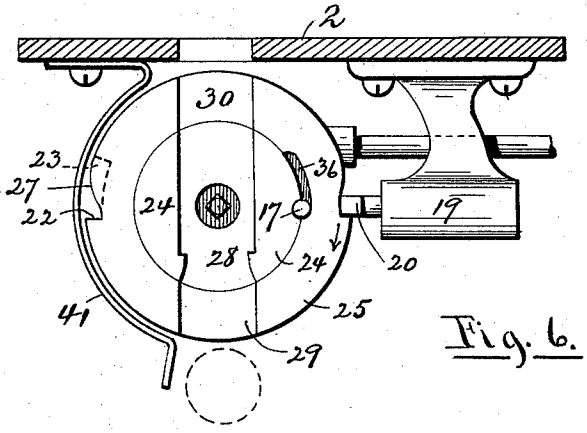


Fig. 6.

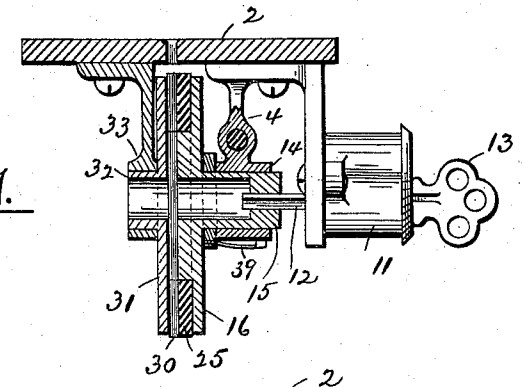


Fig. 7.

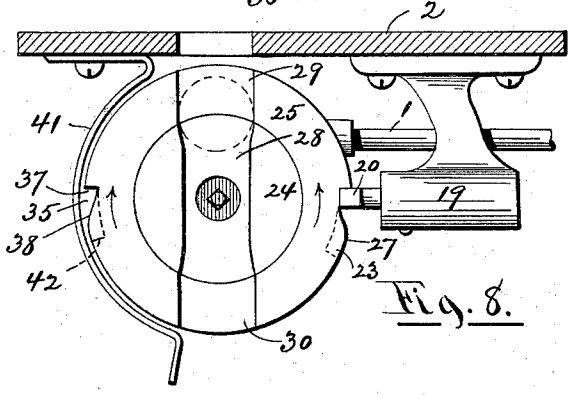


Fig. 8.

Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN E. DOLDT, OF PROVIDENCE, RHODE ISLAND.

LOCKING DEVICE.

SPECIFICATION forming part of Letters Patent No. 608,185, dated August 2, 1898.

Application filed June 16, 1896. Serial No. 595,813. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. DOLDT, of the city and county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Locking Devices; and I do hereby declare the following specification, taken in connection with the accompanying drawings, forming part of the same, to be a full, clear, and exact description thereof.

The object of the present invention is to provide a device whereby a bicycle or any other article may be securely locked in the place where it is left upon the payment of a predetermined fee and without the assistance of an attendant.

To this end one feature of invention comprises a means for engaging and securing the bicycle or other article in place and a device for locking said securing device, which is normally inoperative, but may be moved into operative position upon the insertion of a coin of predetermined value in the proper place.

Another feature of invention relates to means for preventing the removal of the key from a key-controlled locking device until a coin of the proper denomination is inserted.

Each of these features of invention may be embodied in structures in which the other feature is not present, if desired; but the preferred form of locking device embodies both of these features as well as other features of invention which will be set forth in the claims.

In the accompanying drawings, which show a locking device embodying the various features of invention in their preferred forms, the securing device is mounted in a suitable support, which is also provided with a slot or opening for the reception of a coin. Also mounted within the support are means for locking the securing device in position, which means are normally inoperative. The locking means is provided with a key or key-blank which is normally retained in such a position that it is non-removable or inaccessible.

The mechanism shown also comprises two movable parts, one of which is accessible from the outside of the support or is connected with a part which is so accessible—as, for instance, with the key or the securing-bar—said latter part being capable of movement independent of the other part. When a coin is inserted in the slot in the support, it enters a coin-receiver so constructed and arranged that the insertion of the coin serves to connect the two movable parts, so that by moving the accessible part the locking device is operated and the key released or delivered.

Referring to the drawings, Figure 1 is an elevation of a locking device mounted in a post and especially adapted for the securing of bicycles, showing a bicycle in place. Fig. 2 is a front elevation of the locking device, showing the securing device unlocked. Fig. 3 is a similar view showing the securing device locked. Fig. 4 is a rear elevation, with the parts in the position shown in Fig. 2. Figs. 5 and 6 are elevations, with the rear disk removed. Fig. 7 is a vertical transverse sectional view. Fig. 8 is an elevation of a modification.

A represents a post in which the locking device is mounted and which may be located in any locality where bicycles are ordinarily left, as along the sides of streets, at clubs, steamboats, race-tracks, &c. The locking device in the form shown consists of the securing hasp or bar 1, which is of a form to engage the head of the bicycle and support the same and is adapted to be locked in position by coin-controlled means. The post A is provided with a slot B, in which the coin may be inserted, said coin dropping into a suitable receptacle C as the locking means is operated, as will be more fully described hereinafter. A door D is provided through which the receptacle C may be removed, said door being provided with a padlock or other lock. Any suitable coin-controlled means may be employed for locking the securing hasp or bar in position to secure the bicycle, and the preferred form shown in the drawings will now be described.

A plate 2 is secured within the post A and serves as a support for the parts to be described. A bracket 4 depends from the plate 2 and has formed therein a bearing 5, in which the securing-bar 1 slides. A collar 6 is secured to said bar 1, and a coiled spring 7 is interposed between said collar and the side of the post A and serves to hold said bar in position. The bar 1 is provided with a notch 8, which is in position to be engaged by an engaging device in the form of a pin or bolt 9, sliding in a boss 10, projecting from the bearing 5 and operated as hereinafter de-

scribed. Secured to the bracket 4 and extending outside the post A is an ordinary lock 11—a Yale or Corbin lock, for instance—which is provided with bar 12, which is revolved whenever the key 13 is turned. The bracket 4 is provided with a bearing 14, in which is mounted the hub 15 of a disk 16, said hub being secured to the bar 12, so that the turning of the key 13 also turns the disk 16. A pin or lug 17 projects from the face of disk 16 and engages either end of a lever 18, loosely pivoted on the hub 15 between the disk 16 and the bearing 14 and rocks said lever in one direction or the other, according as the disk 16 is turned in one direction or the other by the key 13. The lever 18 is connected with the pin or bolt 9 and serves to move said pin to lock or unlock the bar 1. Rotation of the disk 16 to effect the locking of the bar 1 is prevented by means of a spring-stop 20, which is mounted to slide in a bracket 19, which stop projects into a recess 21, formed in the disk 16. The recess 21 is provided with the two radial shoulders 22 and 23, and said shoulders limit the movement of the disk 16 by engaging the stop 20. When the recess 21 is engaged by the stop 20, the key 13 is in such a position that it cannot be removed from the lock, and the stop 20 thus serves as a means for preventing the removal of the key, since it is necessary to turn the key into the position shown in Fig. 3 in order to remove the same.

In order to render the locking means operative and also to deliver the key on the insertion of a coin of the proper denomination, the following means are provided:

The disk 16 is provided on its rear face with a hub 24, on which is loosely mounted an annular ring 25. A recess 26 is formed in the ring 25 and is provided with the radial shoulder 260 and the cam-surface 27, and said recess is engaged by the stop 20. A slot 28 is formed in the face of hub 24 and is arranged to register with two slots 29 30, formed in the annular ring 25, when the stop 20 is in engagement with the shoulders 22 and 260, as shown in Fig. 5. The slots 29 30 are formed of a size to admit a coin of a certain denomination—as, for instance, a nickel—but the slot 28 is contracted at its upper end, so that the coin will not pass therethrough, although coins of a smaller size may pass through. It will thus be seen that the slot 29 and the recess in the hub 24, formed by the reduced end of the slot 28, form a two-part coin-receiver, one part of which is connected with the disk 16 and the other part with the cam 27. A disk 31, provided with a hub 32, mounted in a bearing 33, covers the face of hub 24 and ring 25 and serves to retain the coin in the slots formed therein, and said disk is preferably secured to the hub 24 and revolves therewith and is provided with a recess 34, corresponding to recess 21 in disk 16. The disks 16 and 31 and the ring 25 are each provided with registering recesses 35, which are engaged by the stop 20 when said parts have been revolved into the position shown in Fig 3. Each of these recesses is provided with the radial shoulder 37 and the cam-surface 38, and the stop 20 acts against the cam-surfaces to hold the shoulders 37 in line, and thus hold the parts in the position shown in Fig. 3, in which position the key 13 may be removed from or inserted in the lock 11. A pin, preferably pin 17, projects from disk 16 through a slot 36 in the ring 25, said slot being long enough to allow the disk 16 to be turned to bring the shoulder 23 against the stop 20 without affecting the ring 25.

The operation is as follows: The parts normally stand in the position shown in Figs. 1, 2, 4, and 5, with the key 13 in such a position that its removal from the lock 11 is prevented and with the bolt 9 withdrawn, so that the securing device 1 is not locked in position. With the parts in this position it is impossible to turn the disk 16 to operate the bolt 9 because of the shoulder 23 and stop 20. When it is desired to secure a bicycle to the post A, the bar 1 is drawn out against the tension of the spring 7 and the bicycle-head inserted in the hook on the end of said rod, the spring serving to return the bar to its normal position, as shown in Figs. 1 and 2. A coin is then inserted in the slot B and passes down through a slot formed in the plate 2 and into slot 29, being arrested by the contraction in the slot 28, as shown in dotted lines in Fig. 5. The coin now serves to connect the disk 16 and ring 25, and if the key 13 is turned in the direction of the arrow, Fig. 2, the ring and disk 16 are revolved, the cam-surface 27 forcing back the stop 20 out of the path of shoulder 23. As the key is turned into the position shown in Fig. 3 the pin 17 engages the lever 18 and slides the bolt 9 into the recess 8, thus locking the bar 1 in position. As the parts reach this position the stop 20 enters the notches or recesses 35, and by its action against the cam-surfaces 38 brings the shoulders 37 against said stop, and thus holds the slots 28 and 29 in alinement and relieves any cramping effect which the side of said slots may have upon the coin, which said coin is now free to drop out of said slots and into the receptacle C. A guard 41 prevents the accidental escape of the coin before the parts reach the position shown in Figs. 3 and 6. The key 13 may now be removed and be retained by the owner of the bicycle. When he desires to remove his wheel, he inserts the key in the lock 11 and turns said key in the direction of the arrows, Figs. 3 and 6. The pin 17 now engages the end of slot 36 and causes the disk 16 and ring 25 to be turned in unison, and the cam-surface 38 acts to force back the stop 20 out of recesses 35, and the parts are returned to the position shown in Figs. 2, 4, and 5, the pin 17 striking the opposite end of the lever 18 and operating the bolt 9 to unlock the bar 1. The lever 18 may be retained in position until engaged by

the pin 17 by the friction of the parts; but it is preferred to use a spring-catch 39, which engages notches 40 in said lever and holds said lever in either of its positions.

By forming the recess 21 on the opposite side of the disk 16 and forming the slot 36 on the other side of pin 17 the coin-controlled locking means will be so changed that the insertion of a coin will be necessary in order to operate said means in unlocking instead of in locking the securing device.

If desired, the means for locking the bar 1 may be so constructed that the insertion of a coin is necessary in order to operate said means in both locking and unlocking said bar, and one means for accomplishing this result is illustrated in Fig. 8. In this modification the slot 28 is contracted at both ends and there is no slot-and-pin connection between the disk 16 and ring 25. The recesses 35 in the disks 16 and 31 are also provided with a second radial shoulder 42 instead of the cam-surface 38. In other respects the parts are as above described. The action in locking the bar 1 in position is the same as above described. When it is desired to unlock the bar 1, however, the presence of a coin in the slot 30 is necessary to connect the disk 16 and ring 25, so that they may turn in unison, and the cam-surface 38 on said ring may force the stop 20 back out of the path of shoulder 42.

While a device has been shown and described which is particularly adapted for use in securing bicycles, it will be understood that the invention is not limited to such use, but may be used for securing other articles in place.

It is preferred to employ a locking means in which a projecting key is used to effect the locking and unlocking of the securing device; but it will be understood that such construction is not essential and that other means could be used for operating the locking means.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with means for engaging and securing an article in place, of a device for locking said securing means, and means made operative by the insertion of a coin for moving said locking device into operative position, substantially as described.

2. The combination with means for engaging and securing an article in place, of means for locking said securing means, and coin-controlled means for governing both the locking and the unlocking of said securing device, substantially as described.

3. The combination with a securing device, of means for locking said securing device, means for operating said locking means embodying two disconnected parts, and means whereby the insertion of a coin connects said parts, substantially as described.

4. The combination with a securing device, of a device for locking said securing device, means comprising a coin-receiver for moving said locking device into operative position, substantially as described.

5. The combination with a securing device, of means for locking said securing device, and means comprising a two-part coin-receiver for moving said locking means into operative position, substantially as described.

6. The combination with a securing device, of a device for locking said securing device, and means comprising a two-part coin-receiver for moving said locking means into operative position, one of said parts being connected with said locking device, substantially as described.

7. The combination with a securing device, of means for locking said securing device, means for preventing the operation of said locking means, and coin-controlled means for operating said locking means, substantially as described.

8. The combination with a securing device, of means for locking said securing device, means for preventing the operation of said locking means, and means comprising a coin-receiver for operating said locking means, substantially as described.

9. The combination with a securing device, of a device for engaging and locking said securing device, means made operative by the insertion of a coin for moving said engaging device into engagement with said securing device, substantially as described.

10. The combination with means for engaging and securing an article in place, of a device for engaging said securing means, means for moving said engaging device into engagement with said securing means, and coin-controlled means for governing said moving means, substantially as described.

11. The combination with means for engaging and securing an article in place, of a device for engaging said securing means, means normally inoperative for moving said engaging device into engagement with said securing means, and coin-controlled means for rendering said moving means operative, substantially as described.

12. The combination with a securing device, of a device for engaging said securing device, means for operating said engaging device, means for preventing the operation of said means, and coin-controlled means for operating said preventing means, substantially as described.

13. The combination with a securing device, of a device for engaging said securing device, means for operating said engaging device comprising a movable member, a stop for preventing the operation of said movable member, a cam for operating said stop, and a two-part coin-receiver one part being connected with said cam and the other part being connected with said movable member, substantially as described.

14. The combination with a locking-bolt, of a disk, means intermediate said bolt and disk for operating said bolt by the movement

of said disk, a stop for preventing the operation of said disk, a cam for operating said stop, and means whereby the insertion of a coin connects said cam and disk, substantially as described.

15. The combination with a locking device, of means for controlling the operation of said locking device comprising a movable coin-receiver, and a stop for limiting the movement of coin-receiver, said stop being operated by the movement of the coin-receiver when a coin is inserted therein, substantially as described.

16. The combination with a device for engaging and securing an article in place, of key-controlled means for locking said securing device, and coin-controlled means for limiting the movement of said key, substantially as described.

17. The combination with a securing device, of means moved into operative position by a key for locking said securing device, and coin-controlled means for governing the removal of the key, substantially as described.

18. The combination with a securing device, of means moved into operative position by a key for locking said securing device, and coin-controlled means for governing the operation of said locking means and the removal of the key, substantially as described.

19. The combination with a key-controlled locking device, of a coin-receiver operated by the key and a stop for limiting the movement of the key, said stop being rendered inoperative by the insertion of a coin in the coin-receiver, substantially as described.

20. The combination with a key-controlled locking device, of a rotary coin-receiver operated by the key, and a stop for limiting the movement of the key, said stop being rendered inoperative by the insertion of a coin in the coin-receiver, substantially as described.

21. The combination with a key-controlled locking device, a disk provided with a coin-receiver operated by said key, and a coin-controlled stop for preventing the rotation of the key, substantially as described.

22. The combination with means for engaging and securing an article in place, of key-controlled means for locking said securing means, means for preventing the removal of the key, and coin-controlled means for operating said preventing means, substantially as described.

23. The combination with a securing device, of means for locking said device, and coin-controlled means for preventing the operation of the key controlling the locking means, substantially as described.

24. The combination with a securing device, of means for locking said device controlled by a key, and coin-controlled means for preventing the operation of said key in locking said securing device, substantially as described.

25. The combination with a securing device, of means for locking said device controlled by a key, and coin-controlled means for preventing the operation of said key in both locking and unlocking said securing device, substantially as described.

26. The combination with a securing device, of means for locking said securing device controlled by a key, means for preventing the operation of said key, means for operating said preventing means comprising a two-part coin-receiver, one part of which is connected with the key, substantially as described.

27. The combination with a movable member operated by a key, of a stop for limiting the movement of said member, a cam for operating said stop, a coin-receiver connected with said cam and said movable member, and a locking device operated by said movable member, substantially as described.

28. The combination with a disk provided with a hub, shoulders on said disk, a stop for engaging said shoulders to limit the movement of said disk, a ring mounted on said hub and provided with a cam engaging said stop, a slot in said ring, and a recess in said hub registering with said slot, substantially as described.

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Witnesses:
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