Nov. 27, 1962 J. F. REGAN 3,065,623

LOCK CONSTRUCTION

Filed Dec. 30, 1958 2 Sheets-Sheet 1

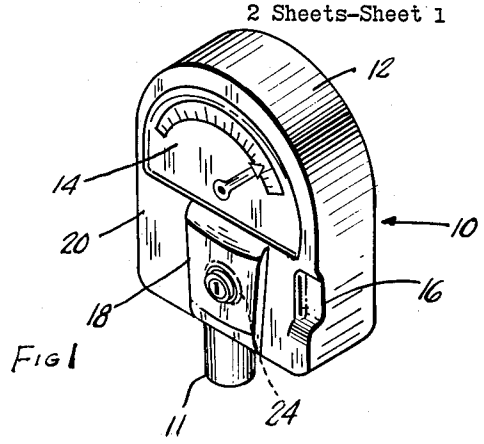


FIG 1

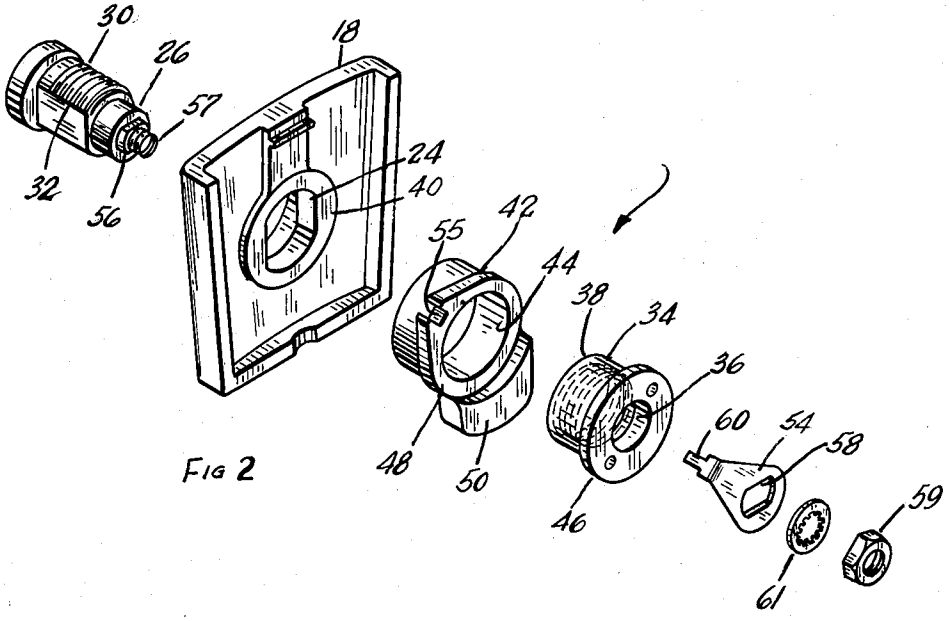


FIG 2

INVENTOR.
John F. Regan
BY Albert L. Jeffers
ATTORNEY

Nov. 27, 1962 J. F. REGAN 3,065,623

LOCK CONSTRUCTION

Filed Dec. 30, 1958 2 Sheets-Sheet 2

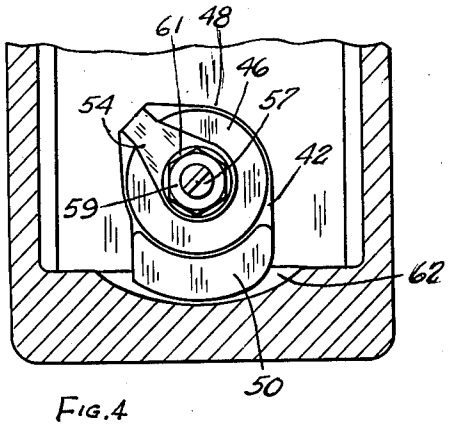


FIG. 4

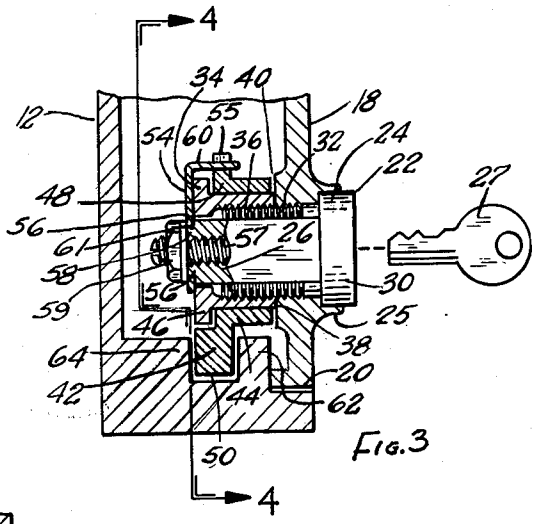


FIG. 3

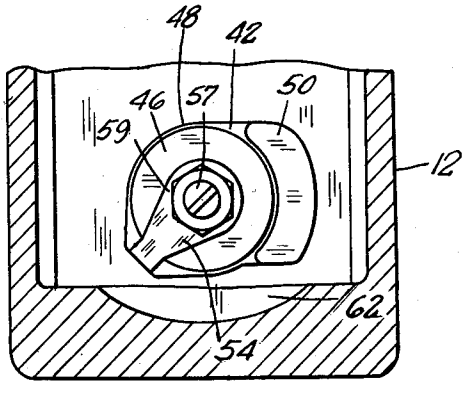


FIG. 5

INVENTOR.
John F. Regan
BY Albert L. Jeffers
ATTORNEY

United States Patent Office 3,065,623 Patented Nov. 27, 1962

3,065,623

LOCK CONSTRUCTION

John F. Regan, Plantsville, Conn., assignor to Eagle Lock Corporation, Terryville, Conn., a corporation of Delaware

Filed Dec. 30, 1958, Ser. No. 783,865
4 Claims. (Cl. 70—77)

This invention relates to a lock construction and is particularly adapted for use with a parking meter such as the ones commonly used by municipalities for exacting a parking charge.

While the lock construction invention will be described in conjunction with a parking meter, it is capable of general usage and is not limited in application to the field of parking meters.

The lock constructions being presently used in parking meters are not sufficiently strong to resist forcible entry. When prying and hammering is directed against the door of the meter, providing access to the coin chamber, the two parts of the lock forming the latch and its mounting structure will fracture and fail so that their positive connection with an interior portion of the parking meter becomes disrupted. Once this occurs the door can be opened and the money contents of the meters are pilfered.

It is one of the objects of the present invention to provide a lock construction having a latch and mounting structure therefor which is of greater strength and will successfully withstand prying, hammering and such other forces directed against the locked door so that a failure of the door or casing will occur before reaching the breaking point of the lock construction.

While it is known that the latch and mounting structure therefor, are the most vulnerable to breakage, it was not just a question of enlarging these members because there is a limited space interiorly of the parking meter, and therefor it is a further object of the invention to provide additional structural strength to the lock construction while maintaining the size of the lock components within the available space provided.

Another object of the invention is to provide a lock construction which may be adapted for usage with presently installed parking meters, requiring only slight structural modifications to adapt it to the present invention.

Other objects of the invention include the economy of manufacture of the lock construction which, in spite of its improved strength properties, may be provided at a cost comparable with the presently used weaker constructions.

Additional objects and features of the invention will become apparent from a consideration of the following description which proceeds in conjunction with the accompanying drawings, wherein:

FIGURE 1 is a partial elevation view of a parking meter of the general type in present usage;

FIGURE 2 is an exploded view of the lock construction showing the manner of assembly thereof;

FIGURE 3 is a side view of the assembled parking meter and lock with the meter casing and portions of the lock broken away to show the inner components of the lock which are in a locked position;

FIGURE 4 is an end view of the lock looking in the direction of the arrows 4—4 in FIGURE 3;

FIGURE 5 is the same view as FIGURE 4 but showing the lock in an open position allowing the door to be opened for access to the coin box at the interior of the meter.

The parking meter referred to generally in FIGURE 1 by reference numeral 10 may consist of the usual post 11 which is supported at the curb and a head 12 including the timer dial 14, coin slot 16 and door 18 which is fitted within a matched opening in the wall of the casing 20, the opening being recessed so that the door 18 is flush

with the casing 20. The door 18 may be opened for periodically emptying a coin box at the interior of the meter casing 20 and also providing access to the various working parts of the meter when they need to be serviced.

A lock construction 22 is fitted to the door 18 through an opening 24 therein having a surrounding slightly flared section 25 which minimizes exposure of the lock 22 to discourage tampering.

The opening 24 is stepped and has flats formed therein for a purpose later to be described.

A lock plug 26 combined with the usual tumblers is rotated by a key 27 which is inserted through a slot formed at the end of the lock plug 26 and accessible at the outer side of the door 18.

The lock plug 26 is mounted for rotation by the key 27 in an adapter 30 which is proportioned to substantially fill the opening 24 and has flats engaging the flats of opening 24 to prevent turning of the adapter 30 within the opening 24. The adapter has a reduced diameter threaded portion 32 extending through the opening 24 to receive thereon a mounting sleeve 34 having an internally threaded opening 36 which is screwed over the threaded portion 32 of the adapter 30 and turned down until the end 38 of the sleeve 34 engages the inner surface 40 of the door 18 thereby clamping the door 18 between adapter 30 and sleeve 34, the adapter 30 being held against the stepped diameter portion of opening 24.

Before attachment of the sleeve 34 to adapter 30, a latch 42 is mounted thereon by means of a hollow cylindrical portion 44 which slips over the sleeve 34 and is adapted for turning movement thereon. The cylindrical portion 44 is of slightly less length than the sleeve 34 so that when the sleeve 34 is fully turned down the substantially rectangular cross section shoulder 46 formed at the end of the sleeve 34 will not press the cylindrical portion 44 against the inner surface 40 of door 18 causing a binding action which would impede free turning movement of the latch 42. The two length dimensions of sleeve 34 and cylindrical portion 44 are proportional, however, to prevent excessive axial movement thereof between inner door surface 40 and shoulder 46.

A flange 48 is constructed integrally with the cylindrical portion 44 of latch 42 and it includes a depending axially thickened tongue 50 which is radially beyond the dimensions of shoulder 46 so that the narrower cross section portion of the flange 48 is in full engagement with the shoulder 46. A peripheral notch 55 is cut in the outer edge of the flange 48 approximately oppositely of the depending tongue 50. Since the cylindrical portion 44 and flange 48 are constructed integrally there is considerable reinforcement therebetween resisting fracturing or breaking off of any portion of the flange 48. Also, the latch 42 may be made as a forging to provide greater durability and strength.

A cam 54 is keyed to the end 56 of rotatable lock plug 26 by means of an irregularly sided boss 56 received through an opening 58 in the center of the cam 54. A stem 57 is threadedly received in the end of plug 26 and a clamping nut 59 together with lock washer 61 holds the cam in position receiving said boss 56. The cam arm 54 extends radially outwardly and has a portion 60 bent backwardly to pass through the notch 55 in the periphery of flange 48 to form a drivable connection between the rotatable key plug 26 and latch 42. Thus, when the plug 26 is key operated it will cause turning of the latch 42 in the direction desired on the associated mounting sleeve 34.

Within the interior of the parking meter casing are two rigid relatively fixed abutments 62 and 64 which are spaced apart by an amount sufficient to receive said depending tongue 50 therebetween with only a slight clearance remaining. Thus, the latch 42 is rotated by the key

plug 26 to bring said tongue 50 into locking relation with said abutments 62, 64 (FIGURE 4) or out of locking relation with said abutments 62, 64 (FIGURE 5) to allow the door 18 to be opened.

When the door 18 is locked and any prying or hammering is directed against the door or exposed lock portions then the casing 20 of the head 12 or the door 18 will fail before the lock components will break.

Because the tongue 50 is of greater cross sectional thickness the failures which heretofore commonly occurred at this location, due to fracturing under shock or torsion loads are now minimized. Because the flange 48 of the latch 42 is integrally joined with the cylindrical portion 44 then this portion is less prone to failure by efforts at forcible entry.

The notch 55 is so located as to cause no weakening effect on the flange 48 so that a drivable connection is obtained with lock plug 26 at no appreciable loss of strength. Another factor contributing to the greater lock strength is that the shoulder 46, being of rectangular cross section develops sufficient resistive force to bending of the latch 42 that failures of this kind are minimized. Also, it will be noted that the enlarged depending tongue 50, being closely fitted between the two spaced abutments derives reinforcement therefrom against breakage.

As a result of the foregoing structure a stronger and more durable lock construction is provided which will resist breakage to the point that failures will occur more readily in the casing and door than the lock proper.

Although a single example embodiment of the invention has been selected for illustration it will be appreciated that numerous modifications and revisions may be made by those skilled in the art. It is intended that such revisions and modifications as incorporate the herein disclosed principles will be included within the scope of the following claims.

What is claimed is:

1. A lock construction for a door and casing comprising means in said door defining a stepped opening having flats therein, a rotatable key plug positioned within said opening and extending therethrough, a stepped diameter adapter for mounting said key-plug therein and proportioned to pass through said opening and to substantially fill said opening, said adapter having a shoulder and flats in engaging relation with the stepped portion and flats of said door opening, a centrally apertured sleeve threadedly connected with the portion of said adapter extended through said opening and adapted to engage the inner side of said door to clamp said adapter against movement within said opening, an annular shoulder of substantially rectangular cross section formed at the end of said sleeve oppositely the door engaging portion thereof, a centrally apertured latch member mounted for rotation on said sleeve and including a cylindrical portion of smaller axial dimension than said sleeve and journalled thereon, a flange integrally constructed with said cylindrical portion and limited in axial movement by abutment with said annular shoulder of said sleeve, a notch in the outer periphery of said flange at the upper portion thereof, and a depending axially thickened section of said flange with an arcuate lower edge, two spaced locking abutments within said casing proportioned to receive therebetween in close fitting relation said axially thickened section of said flange forming a part of said latch member, a cam carried at the end of said rotatable key plug and movable therewith, and a radially extending arm of said cam with a turned back end received within the notch of said flange forming an integral portion of said latch member and providing a driving connection therewith whereby rotation of said key plug produces angular movement of said axially thickened section of said latch member into and out of locking engagement with said spaced locking abutments.

2. A lock construction in combination with a plug mounted for rotation within a surrounding adapter member, comprising a sleeve threadedly secured to said adapter member and having an end shoulder of substantially rectangular cross section, a latch member including a hollow cylindrical portion proportioned to fit slidably over the outer surface of said sleeve for relative turning movement thereon and being of slightly less axial length than said sleeve, a transverse flange constructed integrally with said cylindrical portion and in engagement with said shoulder, a depending axially thickened portion on said flange with an arcuate outer edge thereof adapted to be engageable and disengageable with rigid relatively fixed abutment means by relative turning movement of said latch member on said sleeve, and cam means operatively secured to said rotatable plug and provided with a radially extending arm and a turned back end portion thereof receivable within a notch of said flange located approximately oppositely said depending portion to operate said latch member, responsively to rotation of said key plug.

3. A lock construction comprising a latch having an integrally constructed hollow cylindrical portion and a transverse small flange with a depending portion of enlarged cross section, an internally threaded mounting sleeve adapted to fit slidably within said hollow cylindrical portion and of somewhat greater length than said cylindrical portion, a collar at the end of said mounting sleeve in flush engagement with the small portion of the flange of said latch, a notch formed in the outer periphery of said flange generally oppositely of said depending portion, a cam mounted for turning movement at the axis of rotation of said latch and having a radially extending arm with a portion received in said notch to form a driving connection therewith, a key plug secured at one end to said cam to effect turning thereof, said depending portion being adapted to be received with a relatively close fit between two spaced apart relatively fixed rigid abutment members, said latch being turnable by said key plug through said cam to effect engagement and disengagement of said enlarged depending portion of said latch with respect to said rigid abutment members.

4. The lock structure of claim 3 adapted to be positioned in a door with an opening therein for said lock, nonrotatable threaded means extending through said opening adapted to threadedly receive said sleeve thereby clamping said sleeve to said door, and means defining a passage in said nonrotatable threaded means for receiving said key plug therethrough with the end thereof adapted to receive a key for operation thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

1,232,034	Hick	July 3, 1917
2,255,402	Vile	Sept. 9, 1941
2,629,546	Van Lahr	Feb. 24, 1953

FOREIGN PATENTS

2,405	Great Britain	Feb. 7, 1905