July 6, 1943. E. N. JACOBI 2,323,400

LOCK

Filed Jan. 15, 1942

Fig. 1.

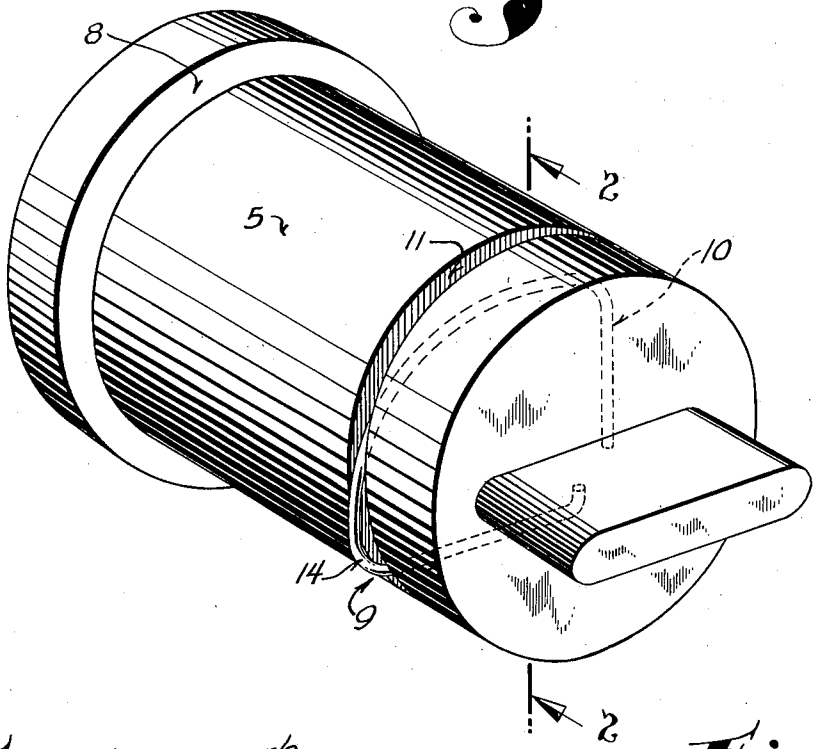


Fig. 2.

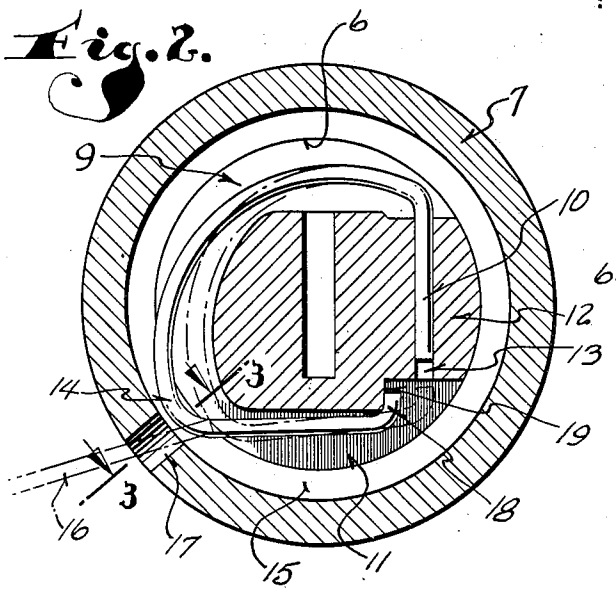
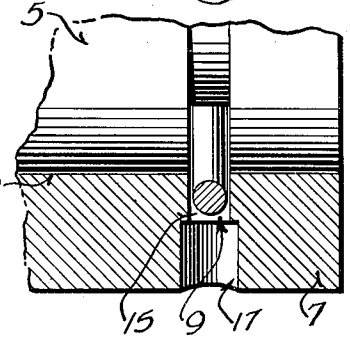


Fig. 3.



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UNITED STATES PATENT OFFICE

2,323,400

LOCK

Edward N. Jacobi, Milwaukee, Wis., assignor to Brigg & Stratton Corporation, Milwaukee, Wis., a corporation of Delaware

Application January 15, 1942, Serial No. 426,827

3 Claims. (Cl. 70—368)

This invention relates to locks and refers particularly to key controlled cylinder locks; and this application is a continuation in part of the application Serial No. 352,266, filed August 12, 1940.

As is well known, it is now common practice to have the cylinder or a cylinder unit consisting of the cylinder and its casing, removably mounted in the mounting member or housing which supports the lock.

Many different schemes have been used in the past for removably securing the cylinder or cylinder unit in the mounting member. Patent No. 1,761,092, issued to W. C. Shinn, June 3, 1930, illustrates one of the more conventional cylinder retaining schemes heretofore in common use.

These earlier retaining devices all have the inherent objection of consisting of at least two separate parts, the retainer per se and its spring. Also they present rather sharp edged contours to the edges of the retaining slot or groove in the housing or mounting member, which is undesirable.

The present invention, therefore, has as its object the provision of an improved retaining device for lock cylinders and cylinders units wherein the functions of the spring and the retainer are performed by a single member.

Another object of this invention is to provide a retaining member which presents rounded contours to the edges of the retaining slot or groove in the mounting member and which is held clear of the bottom of the groove in the mounting member to thereby insure smoother and more agreeable lock action.

With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawing illustrates one complete example of the physical embodiment of the invention constructed according to the best mode so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a perspective view of a lock cylinder equipped with a retainer embodying this invention;

Figure 2 is a cross sectional view through the cylinder taken on the plane of the line 2—2 and also through a mounting member in which the cylinder is disposed; and

Figure 3 is a fragmentary detail sectional view taken through Figure 2 on the plane of the line 3—3.

Referring now particularly to the accompanying drawing in which like numerals designate like parts, the numeral 5 designates the cylinder of a conventional cylinder lock, the tumblers of which are not shown as they form no part of this invention.

The cylinder is adapted to be rotatably mounted in the bore 6 of a mounting member 7 where it is held against axial movement in an inward direction by a flange 8 on the front end of the cylinder and in an outward withdrawing direction by a spring retaining member indicated generally by the numeral 9.

The spring retaining member 9 consists of a single length of spring wire bent substantially into a loop and having a straight end portion 10 by which the retaining member is anchored to the cylinder or cylinder unit.

As best shown in Figure 2 the cylinder or cylinder unit has a transverse groove-like chamber 11 extending around the major portion of its circumference but leaving an uninterrupted portion 12. This portion 12 of the cylinder has a bore 13 therethrough, the axis of which lies in the transverse plane of the groove-like chamber and forms a chord to the cylindrical surface of the cylinder.

The straight end portion 10 of the spring retaining member is anchored in the bore 13 so that the remainder of the retaining member occupies the groove-like chamber. In the normal free condition of the spring retaining member its medial portion 14 projects out of the groove-like chamber and beyond the periphery of the cylinder.

This projecting portion of the retaining member is received in an annular groove 15 in the mounting member opening to its bore at a point contiguous to the groove-like chamber 11. The portion 14 thus crosses the juncture between the cylinder unit and the bore of the mounting member to hold the cylinder against withdrawal from the bore except upon depression of the retaining member portion 14 into the groove-like chamber 11.

Such depression of the retaining member portion 14 may be effected by inserting a tool 16 through a poke hole 17 in the wall of the mounting member in line with its groove 15. The location of the poke hole 17 is such that the cylinder

must be key operated away from its locked position to align the portion 14 therewith.

The spring retaining member is designed so that the projecting portion 14 thereof tends to spring outwardly into contact with the bottom of the mounting member groove. Contact between the projecting portion 14 and the bottom of the mounting member groove, however, is prevented by the engagement of a hook 18 bent inwardly from the end of the spring retaining member opposite its anchorage with a shoulder or abutment 19 formed on the cylinder unit. This hook, therefore, cooperates with the shoulder on the cylinder unit to hold the projecting portion 14 of the spring retaining member clear of the bottom of the mounting member groove against the tension of the spring retaining member and thus insures smooth and agreeable lock action.

The engagement of the hook with the shoulder on the cylinder unit in nowise interferes with release of the spring retaining member for withdrawal of the cylinder unit.

It is also to be noted that this construction enables the loop portion of the spring retaining member to be biased under a substantial spring tension toward the groove in the mounting member. This is desirable as it prevents accidental displacement of the spring retaining member out of the mounting member groove.

Any endwise forces applied to the cylinder unit and translated into retracting forces on the retainer by the cam action developed at the points where the retainer crosses the junction between the cylinder unit and the mounting member bore thus are rendered incapable of effecting accidental displacement of the retainer.

From the foregoing description, taken in connection with the accompanying drawing it will be readily apparent that this invention provides a novel cylinder retainer having the advantages of combining the retaining and spring functions in a single unit and of insuring smooth and agreeable lock action.

What I claim as my invention is:

1. In a lock of the character described: a mounting member having a bore and having a groove providing a shoulder accessible from the bore; a cylinder unit rotatably mounted in the bore and having a transverse chamber opening to the exterior thereof in line with the mounting member groove and adjacent to the shoulder; a looped spring wire retaining member having one end portion thereof anchored to the cylinder unit and having its remainder biased toward the bottom of the mounting member groove with parts of the closed portion of the loop lying in the transverse chamber and at least one other part of the closed portion of the loop projecting beyond the cylinder unit into the mounting member groove to engage behind the shoulder on the mounting member; and a hook on the other end of the spring retaining member engaging with a shoulder on the cylinder unit for holding said part of the closed portion of the loop projecting beyond the cylinder unit clear of the bottom of the mounting member groove against the tension of the spring wire retaining member.

2. In a lock of the character described: a mounting member having a bore; a cylinder unit rotatably mounted in the bore, said mounting member and cylinder unit having contiguous grooves; a ring-like spring wire retaining member having one end portion anchored in the cylinder unit and having its remainder biased toward the bottom of the mounting member groove and lying in the contiguous grooves with a retainer portion thereof crossing the juncture between the bore and the cylinder unit; and interengaging means on the cylinder unit and the other end of the spring retaining member for holding said retainer portion clear of the bottom of the mounting member groove against the tension of the spring retaining member.

3. In a lock: a cylinder unit having a transverge groove-like chamber opening to the periphery of the cylinder unit throughout the major portion of its circumference, that part of the cylinder unit lying between the ends of the groove-like chamber having a bore the axis of which forms a chord to the cylindrical wall of the cylinder unit and lies substantially normal to the axis of the cylinder unit; a substantially ring-like spring wire retaining member disposed in said groove-like chamber, said retaining member having one end portion substantially straight and received in the bore of the cylinder unit to be anchored thereby with the remainder of the ring-like member biased outwardly in a direction away from the cylinder unit and free to be depressed inwardly from a normal position at which a medial portion thereof projects out of the groove-like chamber and beyond the periphery of the cylinder unit; and a hook formed on the other end of the ring-like retaining member engaging with a shoulder on the cylinder unit to define the distance to which said medial portion of the retaining member projects from the groove-like chamber of the cylinder unit.

EDWARD N. JACOBI.

CERTIFICATE OF CORRECTION.

July 6, 1943.

Patent No. 2,323,400.

EDWARD N. JACOBI.

It is hereby certified that the name of the assignee in the above numbered patent was erroneously described and specified as "Brigg & Stratton Corporation" whereas said name should have been described and specified as --Briggs & Stratton Corporation--, as shown by the record of assignments in this office; page 2, second column, line 29-30, claim 3, for "transverge" read --transverse--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of September, A. D. 1943.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)