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PIN TUMBLER LOCK CYLINDER ASSEMBLY

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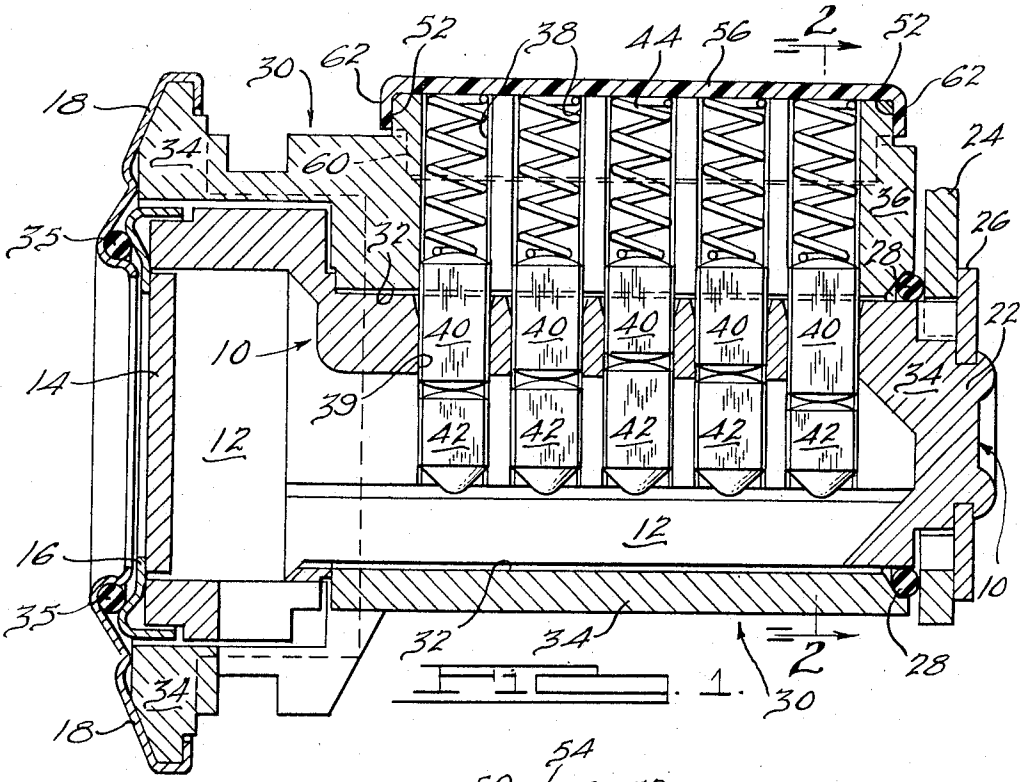


FIG. 1.

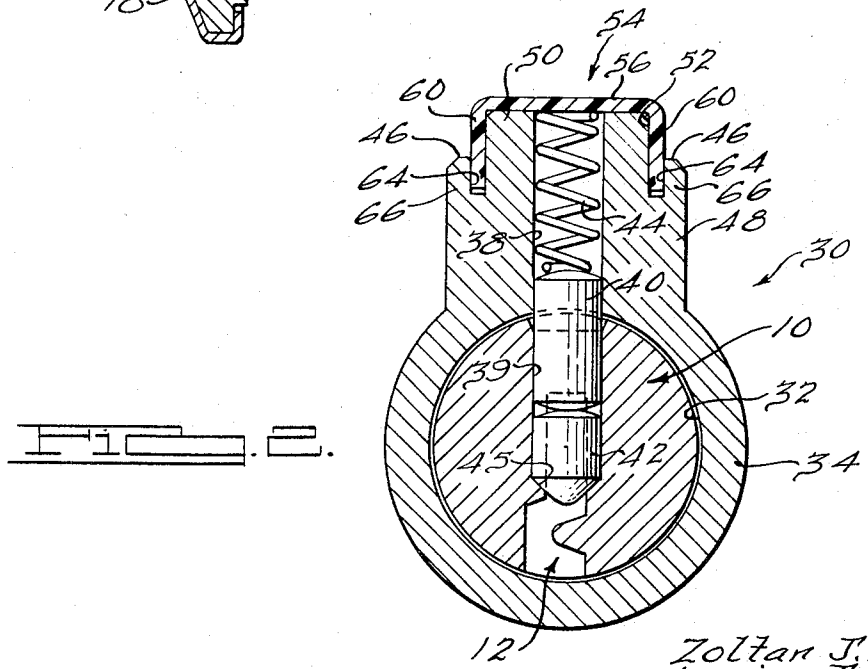


FIG. 2.

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PIN TUMBLER LOCK CYLINDER ASSEMBLY

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This invention relates to a pin tumbler lock cylinder assembly; more particularly, it relates to such an assembly for use as the door lock for an automobile.

It is an object of the present invention to provide an improved pin tumbler lock cylinder assembly.

A further object is to provide an improved door lock for an automobile.

A more specific object is to provide a door lock for an automobile having improved water sealing, whereby to substantially preclude freezing of the pin tumblers.

These and other objects, features and advantages of the invention will be apparent from the following detailed description of a preferred embodiment of the invention and from the accompanying drawing wherein:

FIGURE 1 is a longitudinal cross-sectional view of a pin tumbler lock cylinder assembly embodying features of the invention, and

FIGURE 2 is a view taken on line 2—2 of FIGURE 1.

The illustrated lock cylinder is of the pin tumbler type and includes a cylindrical plug **10** and a case **30**. Plug **10** is rotatably received in a horizontal cylindrical bore **32** provided in a main body portion **34** of case **30**. A shutter **14** yieldably blocks access to a vertical keyway **12** provided in plug **10**. Shutter **14** is maintained in its position at the entrance to the keyway **14** by a ring shaped cover member **16** fitted over the left end of plug **10**, as viewed in FIGURE 1. An escutcheon plate **18** suitably secured to main body portion **34** of case **30** prevents axially displacement of plug **10** relative to case **30**. An O-ring **35** is disposed between cover plate **16** and the adjacent portion of escutcheon plate **18** to prevent the entrance of water into the interior of the lock.

The right hand end of plug **10**, as viewed in FIGURE 1, has a hub portion **22** mounting the usual lever **24** for actuation of the door latch mechanism (not shown) upon rotative movement of the plug **10**. A washer **26** prevents axial displacement of lever **24** and an O-ring **28** disposed between lever **24** and case **30** prevents penetration of water into the interior of the lock.

Case **30**, in addition to main body portion **34**, includes a column portion **36** upstanding from the main body portion **34**. A plurality of aligned vertical bores **38** are provided in column portion **36**. Bores **38** open at their upper ends at the upper end of column portion **36** and at their lower ends in horizontal bore **32** in alignment with bores **39** in plug **10**. The usual upper and lower tumblers **40** and **42** are slidably disposed in aligned bores **38** and **39**. Coil springs **44**, received in bores **38**, normally press tumblers **40** and **42** downwardly to seat lower tumblers **42** against a shoulder **45** in keyway **12**. When the proper key is inserted in keyway **12**, the tumblers are selectively cammed upwardly in known manner to free plug **10** for unlatching rotative movement relative to case **30**.

Column portion **36** of case **30** is rectangular in plan view and is provided, at a location spaced downwardly from its upper end, with a shoulder **46** extending completely around the column portion, to divide it vertically into a lower portion **48** and an upper, necked down portion **50**. The four side walls of portion **50** will be seen to present an endless substantially vertical surface **52**.

A cup shaped cap **54** fits over upper column portion **50**. Cap member **54** is rectangular in plan view to match the rectangular shape of column portion **50** and includes a base portion **56**, overlying bores **38** to provide a backing for springs **44**, lengthwise side walls **60**, and transverse side walls **62**. Side walls **60** and **62** will be seen to together constitute an endless side wall portion which, with cap **54** in place, completely surrounds, and tightly hugs, endless vertical surface **52** to prevent entry of water into the pin tumbler chambers.

The lengthwise side walls **60** of cap **54** extend downwardly beyond the lower edge of transverse side walls **62** and seat at their lower edges in a pair of upwardly opening lengthwise grooves **64** provided in shoulder **46**. After assembly of cap **54** on case **30**, the lengthwise side walls of column portion **36** are pinched together at **66** to securely clamp cap **54** on column portion **50**.

The present invention will be seen to provide an efficient and simple arrangement for minimizing the entry of water into the interior of a pin tumbler type lock.

While a preferred embodiment of the invention has been illustrated and described in detailed, it will be understood that various changes may be made in the disclosed embodiment without departing from the scope or spirit of the invention as defined by the appended claims.

We claim:

1. A pin tumbler lock assembly comprising:

(A) a cylindrical plug;

(B) a case including

(1) a main body portion having a horizontal cylindrical bore rotatably receiving said plug and

(2) a rectangular column portion upstanding from said main body portion and presenting at its side walls, adjacent its upper end, an endless substantially vertical circumferential surface, said column portion further including a plurality of vertical bores opening at their lower ends in said horizontal bore and at their upper ends at the upper end of said column;

(C) a cup-shaped rectangular cap fitted over the upper end of said column portion and having

(1) a base portion overlying said vertical bores and

(2) an endless side wall portion extending downwardly from said base portion to completely surround said endless vertical surface, the lengthwise sides of said endless wall portion extending downwardly beyond the lower edges of the transverse sides of said endless wall portion; and

(D) means defining horizontal upwardly opening grooves along each lengthwise side of said column portion below said endless surface thereon for receipt of the extended lower edges of the lengthwise sides of said endless wall portion of said cap, whereby to maintain said cap in a sealing position overlying said column portion to preclude entry of water into said vertical bores.

2. A pin tumbler lock assembly according to claim 1 wherein:

(E) said column portion is stepped immediately below said endless surface to define a horizontal shoulder portion at each lengthwise side of said column portion;

(F) said grooves are formed in said shoulder portions; and

(G) the walls of said shoulder portions outwardly of said grooves are pinched together following assembly of said cap to clamp said extended lower edges within said grooves.

References Cited by the Examiner

UNITED STATES PATENTS

2,695,645	11/1954	Tupper	220—42 X
2,877,638	3/1959	Muttart	70—373 X
3,209,568	10/1965	Patriquin	70—373

FOREIGN PATENTS

845,387	8/1960	Great Britain.

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