Sept. 15, 1964 E. N. JACOBI 3,148,526

SWINGING KEY LEVER TUMBLER LOCK

Filed April 6, 1962 6 Sheets-Sheet 1

Fig. 1.

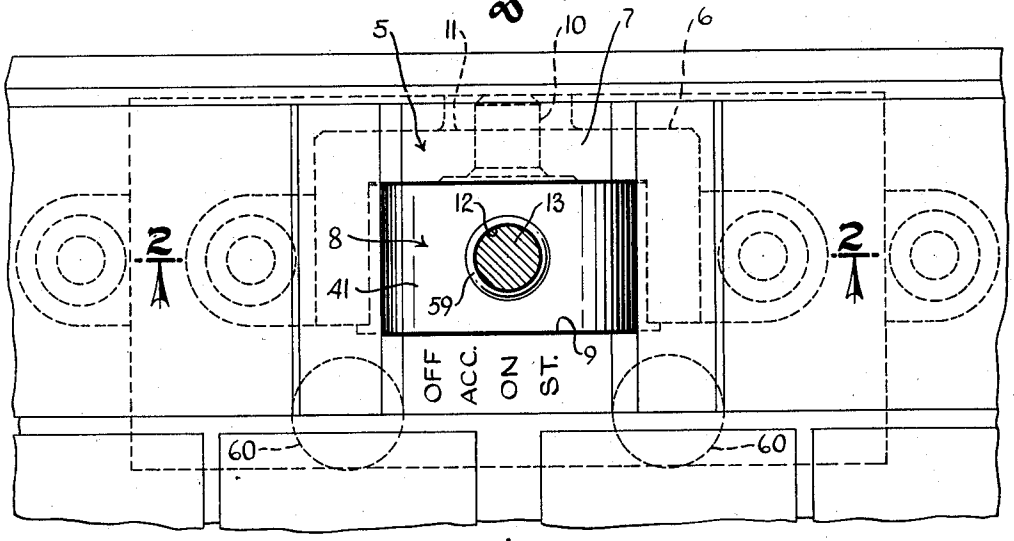
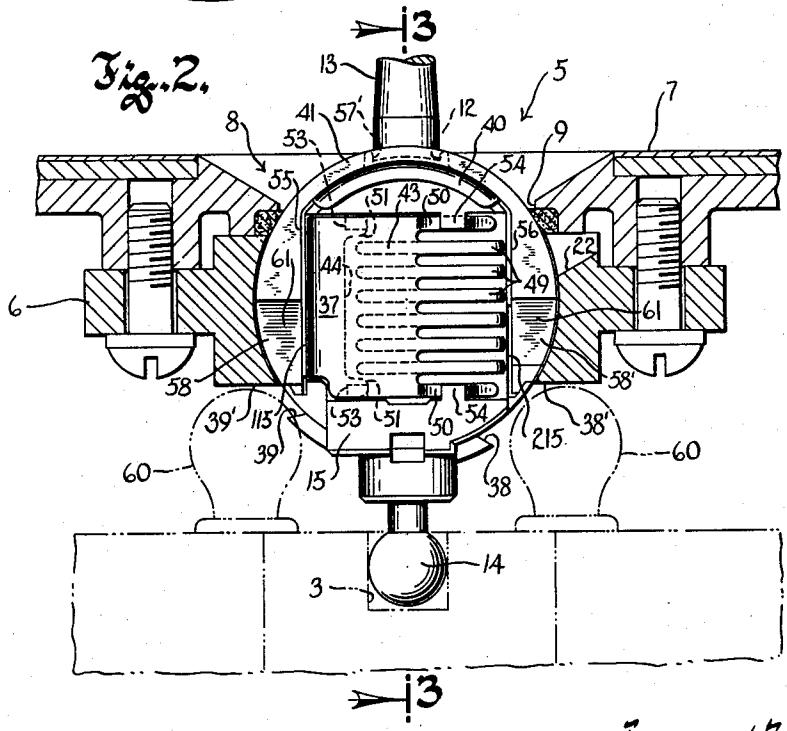


Fig. 2.



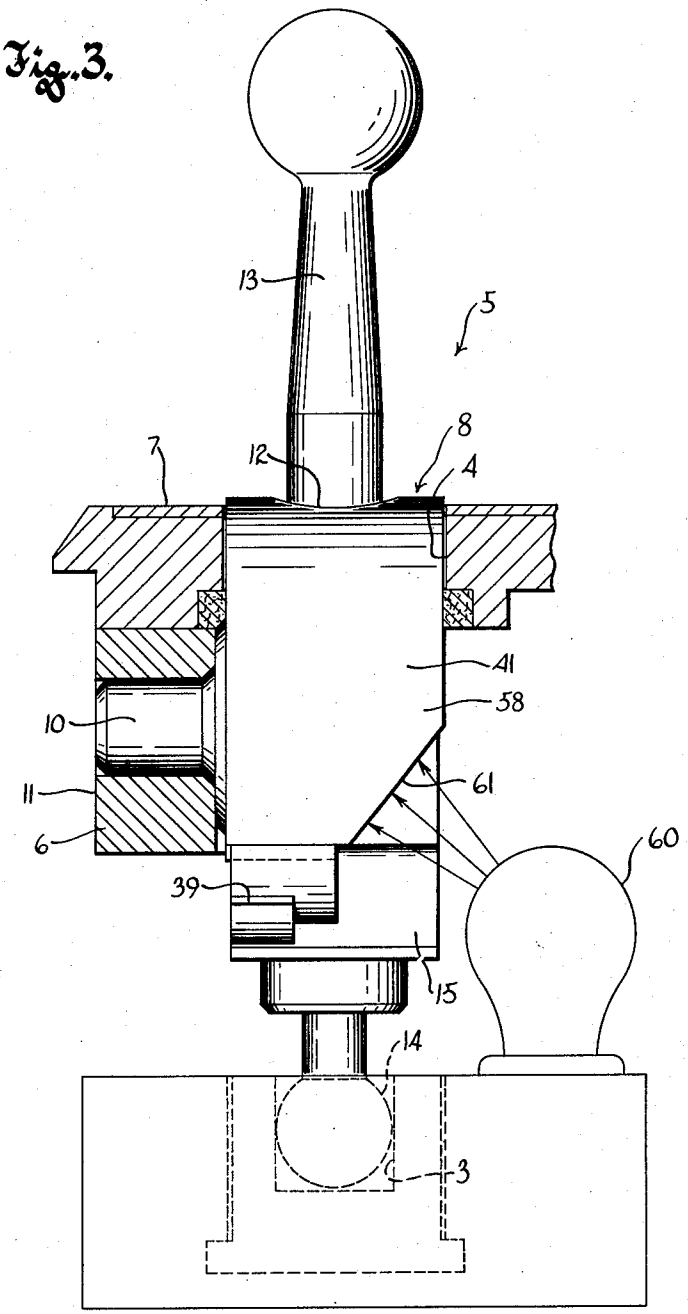
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Sept. 15, 1964 E. N. JACOBI 3,148,526

SWINGING KEY LEVER TUMBLER LOCK

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Fig. 3.



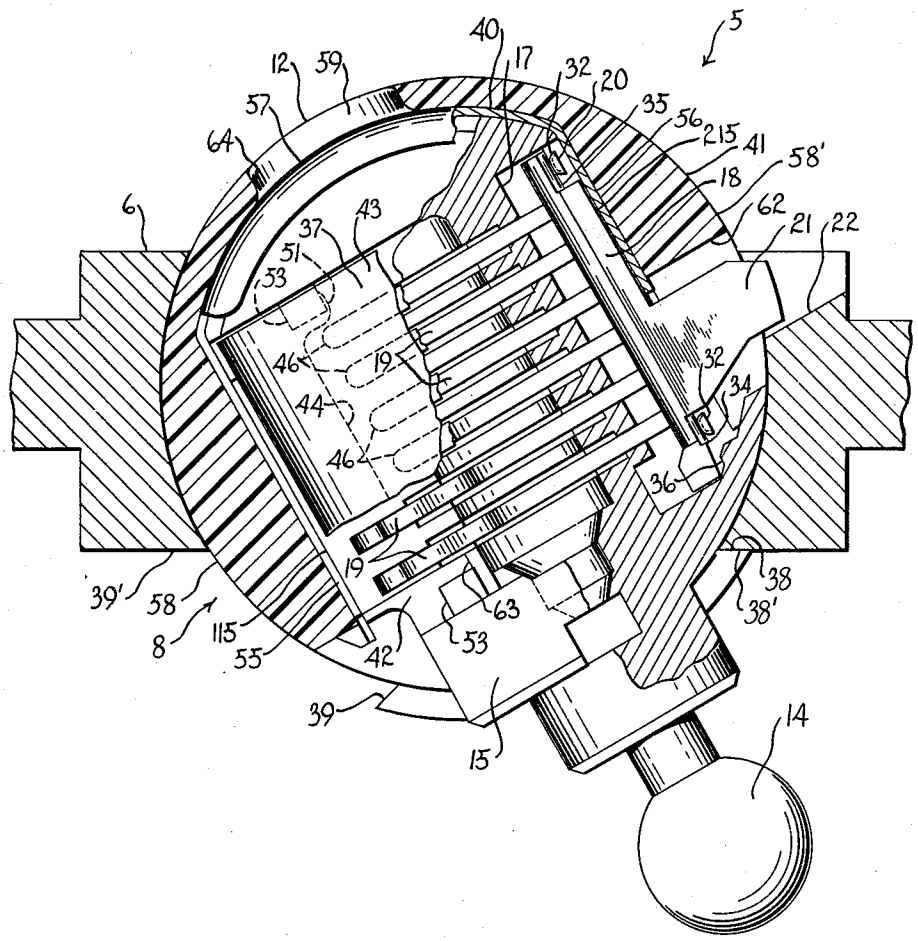
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Sept. 15, 1964 E. N. JACOBI 3,148,526

SWINGING KEY LEVER TUMBLER LOCK

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Fig. 4.



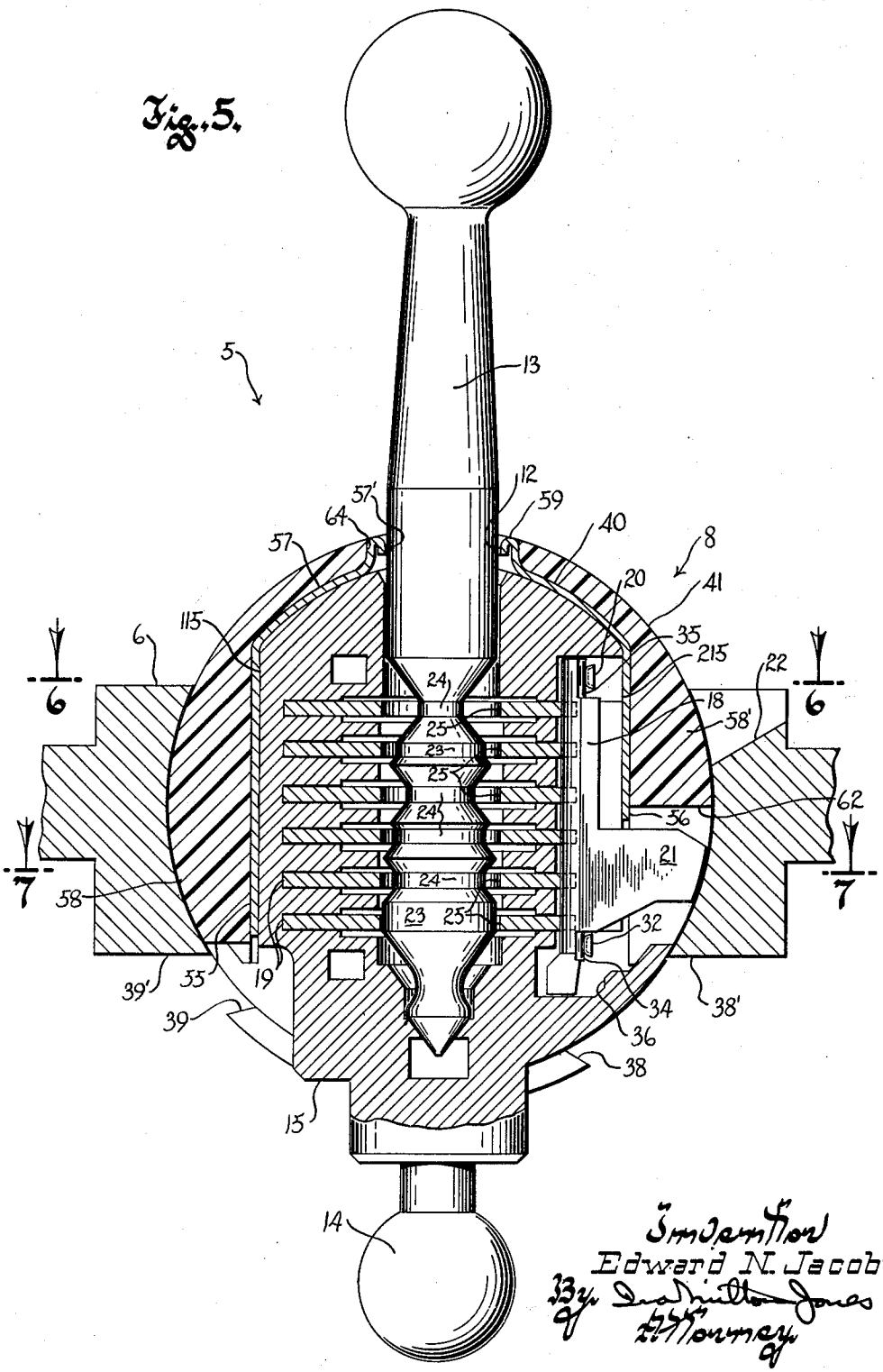
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Sept. 15, 1964 E. N. JACOBI 3,148,526

SWINGING KEY LEVER TUMBLER LOCK

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Fig. 5.



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SWINGING KEY LEVER TUMBLER LOCK

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Fig. 6.

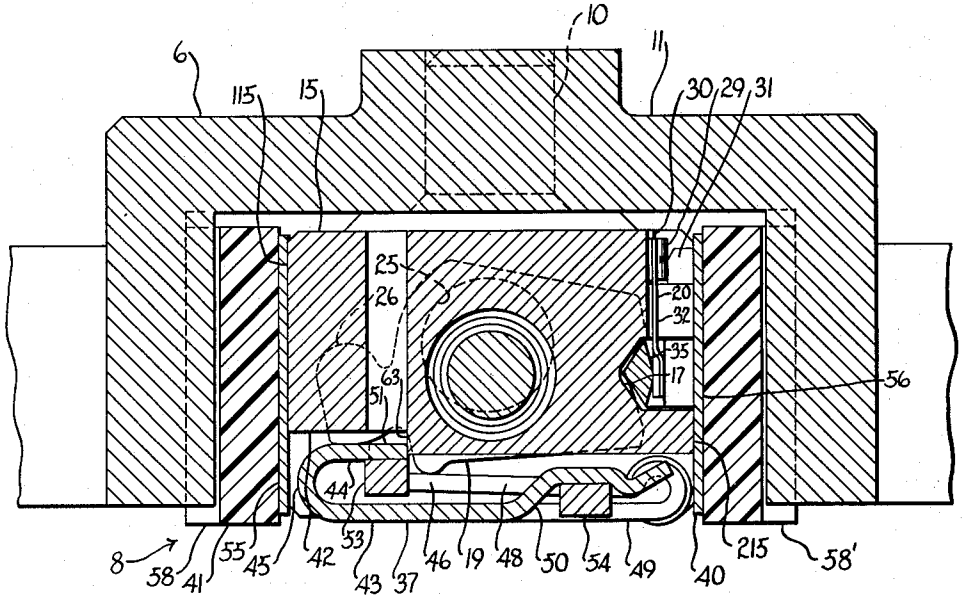
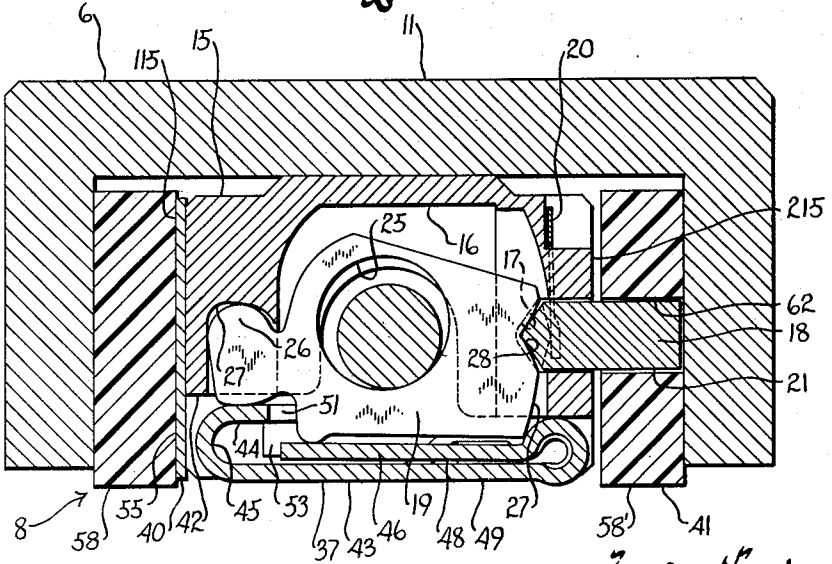


Fig. 7.



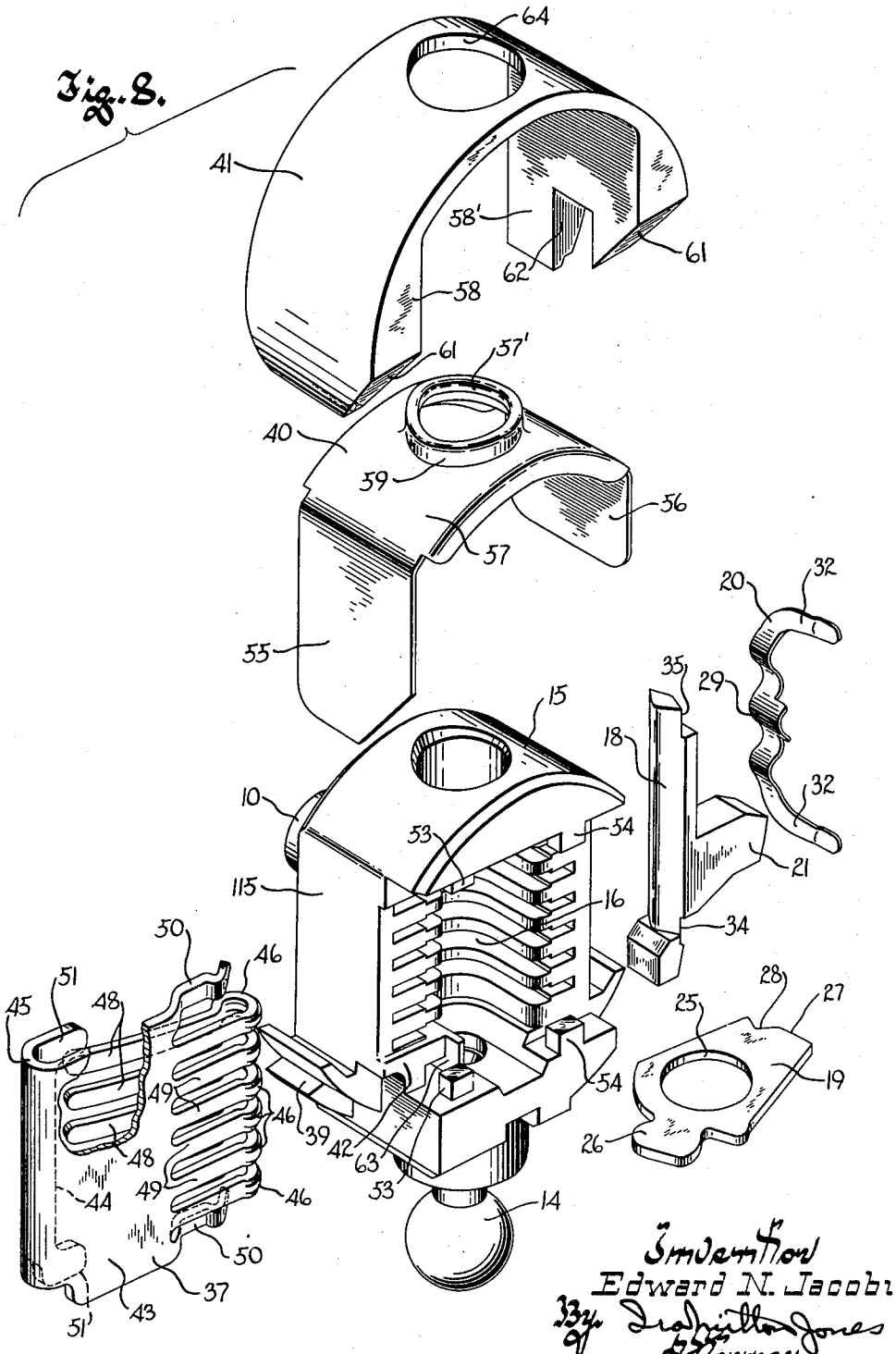
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SWINGING KEY LEVER TUMBLER LOCK

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Fig. 8.



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United States Patent Office 3,148,526 Patented Sept. 15, 1964

3,148,526

SWINGING KEY LEVER TUMBLER LOCK

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

Filed Apr. 6, 1962, Ser. No. 185,541
7 Claims. (Cl. 70—366)

This invention relates to side bar locks with lever tumblers, and refers more particularly to a lock of that type wherein a cylinder that is mounted for coaxial rotation has a key receiving aperture therein that extends substantially perpendicular to its axis and opens to its side surface, so that a proper key inserted into the aperture can be used as a handle by which the cylinder can be swung about its axis, as contrasted with the more conventional cylinder lock arrangement in which the key receiving aperture extends substantially along the cylinder axis and cylinder rotation is effected by imparting a substantially twisting motion to the key.

A lock of the type here under consideration, which may be designated a swinging key lock, has utility, for example, as an automobile ignition switch lock. The swinging motion of the key in such a lock carries the key to nicely definable positions such as "off" (locked), "accessories," "on" and "start," and the position of the key handle in its arc of swinging motion is more readily ascertainable by observation than with those more conventional ignition locks in which the key is rotated to its several positions. A swinging key mechanism is particularly advantageous in an ignition switch lock having a "start" position to which the lock must be moved against bias, since a swinging key lock can be very easily operated by a vehicle driver who is wearing heavy gloves or who would be otherwise handicapped in the performance of the relatively delicate twisting action required with more conventional locks.

However a swinging key type of lock presents certain problems with respect to the attainment of security against defeat by force and compactness of the mechanism carried in the cylinder, and it is the general object of the present invention to provide a swinging key lock structure which solves these problems, and which, among other things, features a very compact rocking tumbler side bar mechanism having a novel one-piece spring member that substantially closes the tumbler cavity in the cylinder, maintains the tumblers rockably seated in their mountings, and biases the tumblers to their locking positions, and which spring member has integral means thereon cooperating with abutments on the cylinder to hold the spring member assembled thereto.

Another object of this invention is to provide a swinging key lock mechanism of the character described wherein the cylinder has a tumbler cavity in which the tumblers are housed and a slot that opens to one side of the cylinder body and to the tumbler cavity, into which slot a locking bar can be inserted from said side of the cylinder body during assembly of the lock mechanism, and wherein an abutment on the cylinder, formed integrally with the body thereof, holds the locking bar against displacement out of the cylinder when an attempt is made to force the lock by swinging the cylinder out of its locked position with other than a proper key.

It is also an object of this invention to provide a swinging key type of lock having a U-shaped reflector embracing the body of its cylinder and providing a trim or bezel for the mouth of the key aperture, and having a U-shaped shell of transparent material which overlies the reflector and cooperates therewith to provide illumination around the key aperture mouth by transmitting light thereto from a concealed light bulb near one end of the cylinder.

From what has just been said it will be apparent that it

is a further object of this invention to provide a swinging key type of lock which presents an unusual and very attractive appearance by reason of the transparent shell and its underlying reflector on the cylinder of the lock.

Still another object of this invention is to provide a lock mechanism of the character described having a cylinder with a tumbler cavity that opens to one axial end of the cylinder and to one side thereof, and groove-like tumbler sockets opening to said cavity and into which rockable tumblers can be slid during assembly of the mechanism, and which mechanism features a unitary spring member having a base plate portion that extends across the cavity at said end of the cylinder to substantially close the cavity, another portion that holds the tumblers in their sockets, still other portions comprising leaf springs that bias the tumblers to their locking positions, and spring finger portions that are detent engageable with abutments on the cylinder body to hold the spring member in place when the latter is slid into the cylinder body from said one side thereof and in a direction edgewise of the base plate.

It is a further object of this invention to provide a lock mechanism of the character described having a cylinder and spring member of the type just outlined and wherein the cylinder body is embraced by a U-shaped reflector such as is described above which enhances the appearance of the mechanism, provides a bushing-like key guide for the mouth of the key aperture, and has one leg that closes the sideward opening of the tumbler cavity in the cylinder body to prevent any possibility of motion of the spring member out of its assembled position.

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 embodiments of the herein-disclosed invention may be made as come within the scope of the claims.

The accompanying drawings illustrate 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 top view of an ignition switch comprising a lock embodying the principles of this invention, installed on an instrument panel of an automobile;

FIGURE 2 is a view of the mechanism shown in FIGURE 1 taken mainly on the plane of the line 2—2 in FIGURE 1, the cylinder of the lock being shown in front elevation;

FIGURE 3 is a view partly in side elevation and partly in section on the plane of the line 3—3 in FIGURE 2;

FIGURE 4 is a view of the lock in its locked condition, the cylinder being shown partly in elevation and partly in cross section;

FIGURE 5 is a cross sectional view showing the lock mechanism in its unlocked condition;

FIGURE 6 is a sectional view taken on the plane of the line 6—6 in FIGURE 5;

FIGURE 7 is a sectional view taken on the plane of the line 7—7 in FIGURE 5; and

FIGURE 8 is an exploded perspective view of the cylinder assembly of the lock mechanism.

Referring now to the accompanying drawings, the numeral 5 designates generally a swinging key lock mechanism of this invention, comprising a substantially U-shaped housing member 6 adapted to be mounted behind an automobile instrument panel 7 or the like, and a cylinder 8 which is received between the legs of the housing member with its axis parallel to the legs, and which is visible and accessible through an aperture 9 in the panel. In this case the lock mechanism is shown

as an automobile ignition switch lock mounted on a horizontal panel that comprises, for example, the top of a console located between the front seats of a pleasure car.

Projecting from the front end of the cylinder is a coaxial pilot or trunnion **10** which is received in a bore in the bight portion **11** of the housing member to mount the cylinder for rotation. The front end of the cylinder is flat and engages a flat rearwardly facing surface on the bight portion of the housing member, while an abutment **4** on the instrument panel engages the rear end of the cylinder to cooperate with the housing member in confining the cylinder against axial displacement.

The cylinder is unusual in having its key receiving aperture **12** perpendicular to its axis and opening radially to its side surface, so that a proper key **13** inserted into the key aperture can be used as a handle by which the cylinder may be swung about its axis toward and from its locking position. Diametrically opposite the mouth of the key aperture there is a radially projecting knob-like protuberance **14** which serves as an actuator that engages in a socket **3** comprising the movable member of a switch or similar mechanism with which the lock cooperates.

The cylinder comprises a body **15** which can be formed as a die casting and with which the pilot **10** and knob-like actuator **14** are integral, a U-shaped reflector **40** that straddles the body, and a U-shaped shell **41** of transparent material that overlies the reflector.

The body **15** of the cylinder has opposite flat sides **115** and **215**, the planes of which are parallel to the axis of the cylinder and to the axis of the key aperture, and the cylinder body also has a substantially rectangular tumbler cavity **16** which opens axially to its rear end. Near the rear end of the cylinder body the tumbler cavity also opens to one of its flat sides **115**, as at **42**. Opening from the tumbler cavity to the flat side **215** of the cylinder body is a locking bar slot **17** that extends lengthwise of the key aperture and radially of the cylinder and in which is mounted a locking bar **18** that cooperates with a plurality of flat, edgewise rockable tumblers **19** in the tumbler cavity. The key aperture **12** likewise opens from the tumbler activity to a concentrically curved side surface of the cylinder body, and of course has its mouth circumferentially spaced from the mouths of the tumbler cavity and of the side bar slot.

As is more or less conventional in lever tumbler side bar locks, a proper key **13** inserted into the key aperture **12** rocks the tumblers **19** to unlocking positions in which they release the locking bar **18** for bodily inward motion to a retracted position toward which the locking bar is biased by a U-shaped spring **20**. When there is no key in the cylinder the tumblers occupy locking positions in which they hold the locking bar projected against the bias of its spring, in a position of the locking bar in which a tongue-like lateral projection **21** thereon protrudes from the cylinder and engages an abutment **22** on one of the legs of the housing member to prevent rotation of the cylinder in one direction out of its locked position, namely clockwise as shown in FIGURES 4 and 5. Counterclockwise swinging of the cylinder beyond its locked position is prevented by a circumferentially facing shoulder **38** on the cylinder body, near the actuating knob **14**, that engages the under side **38'** of the housing leg on which the abutment **22** is formed. When the mechanism is unlockged, clockwise rotation of the cylinder beyond a predetermined angular position is prevented by another stop abutment **39**, facing in the opposite circumferential direction from the shoulder **38** and circumferential direction from the shoulder **38** and circumferentially spaced a short distance to the opposite side of the knob **14**, that engages the underside **39'** of the other housing leg.

In this case the key **13** is preferably elongated and plug-like, and its bitting is formed by circumferential lands **23** and grooves **24**. Each of the tumblers has a

circular hole **25** in its medial portion through which the key can pass, and the edge portion of said hole is engageable by the bitting of the key to cooperate therewith in cammingly swinging the tumbler to its unlocking position as the key is inserted. Each tumbler is pivoted for such swinging motion by means of a rounded bearing projection or fulcrum **26** on one end of the tumbler that is received in a correspondingly rounded groove-like socket **27** in the cylinder body, opening to the tumbler cavity **16** therein. The tumblers are thus swingable edgewise about an axis which is parallel to the axis of the key aperture and which is at the side of the key aperture axis remote from the side bar. The faces of the flat tumblers are of course normal to the key aperture axis and parallel to the axis of the cylinder. It will be evident that during assembly of the lock mechanism the tumblers can be readily inserted edgewise into the tumbler cavity from its mouth at the rear of the cylinder body.

At its end opposite the bearing projection or fulcrum **26** each tumbler has an arcuate edge **27** concentric with its rocking axis which engages the locking bar to hold the latter projected, and which is interrupted by a notch **28** into which the locking bar retracts when the tumbler is in its unlocking position. The location of the notch **28** along the arcuate edge will of course vary from tumbler to tumbler so that only a key having lands and grooves of the proper diameters, arranged in the proper sequence, can effect unlocking of the mechanism. In other respects the several tumblers can be identical with one another.

The locking bar **18** is substantially elongated and has its length parallel to the axis of the key aperture. The lateral tongue **21** on the locking bar is spaced from both ends thereof but is preferably nearer that end **34** toward which the cylinder rotates when it is swung from its locked to its unlocked positions of rotation. The spring **20** that biases the locking bar toward its retracted position is of the U-shaped type disclosed in Patent No. 2,808,717 to E. N. Jacobi, issued Octbore 8, 1957. It has a relatively wide bight portion **29** which is confined between opposing spaced apart abutments **30** and **31** that are integral with the cylinder body, and has relatively short legs **32** that overlie and flexingly press against the outer face of the locking bar at its end portions **34** and **35**.

The locking bar can be inserted into the cylinder body from the side thereof, through the mouth of the locking bar slot **17**, after the tumblers are in place, and the locking bar is of course confined against displacement out of the cylinder body by its spring **20**, which is inserted between the abutments **30** and **31** after the locking bar is in place. If an attempt were made to force the lock by inserting a tool other than a proper key into the key aperture and swinging the cylinder out of its locked position (i.e., swinging it clockwise from the position shown in FIGURE 4), the engagement of the tongue **21** on the locking bar with the abutment **22** on the housing would produce a resultant swinging force upon the locking bar tending to fulcrum it about its end **35** nearer the key aperture. However the opposite end **34** of the locking bar can be swung to only a limited extent in this manner because of the provision of an integral projection **36** on the cylinder body that extends partway into the mouth of the locking bar slot and defines a radially inwardly facing abutment against which the end portion **34** of the locking bar engages when it is thus swung. The projection **36** thus insures against forcible defeat of the lock.

The several tumblers in the tumbler cavity are biased to their normal or locking positions by means of a unitary spring member **37** that also serves to maintain the fulcrum projection **26** on the tumblers seated in their bearing sockets and provides a cover that substantially closes the mouth of the tumbler cavity. In general the spring member **37** is substantially U-shaped having a substantially rectangular longer leg **43** that serves as a base plate and a substantially rectangular shorter leg **44** which is disposed inside the tumbler cavity in engagement with the fulcrum

projections 26 on the several tumblers to prevent them from coming out of their sockets. The bight portion 45 of the spring member, with which the legs 43 and 44 are of course integral, is disposed in the sidewardly opening portion 42 of the cavity.

Extending from the free end of the longer leg 43 of the spring member and integral therewith are a plurality of laterally spaced apart leaf springs 46, one for each of the tumblers, each bowed into the cavity and back over the base plate 43. Each of the leaf springs engages an edge portion of its tumbler intermediate the ends thereof and yieldingly biases its tumbler to its locking position. It will be noted that each of the leaf springs is thus bent to a substantially U-shape, having a longer leg 48 that lies inside the tumbler cavity and a shorter leg 49 which is integrally joined to the base plate 43 and substantially coplanar therewith. It will also be noted that the base plate 43 and the shorter legs 49 of the several leaf springs cooperate in substantially closing the mouth of the tumbler cavity. The spring member 37 is however spaced axially inwardly from the rear end of the cylinder body by a small distance so as to clear the abutment 4 on the panel, or its equivalent, and thus not interfere with rotation of the cylinder.

The spring member is retained in position in the cylinder body 15 by means of a plurality of integral spring fingers located laterally outwardly of the row of leaf springs 46 and which engage over abutments formed integrally with the cylinder body. Specifically there are a pair of spring fingers 50 that project from opposite end edges of the base plate and another pair of spring fingers 51 that project from the shorter leg 44 of the spring member at the end edge portion thereof.

The several spring fingers all extend substantially parallel to the base plate 43 and project away from the bight portion 45 of the spring member. The spring fingers 51 that project from the shorter leg 44 of the spring member engage behind integral protuberances 53 on the cylinder body that project radially into the tumbler cavity and provide axially inwardly facing abutments. The fingers 50 engage behind similar projections 54. The fingers 50 are bowed to an outwardly concave hook shape so that they engage behind their cooperating abutments with a detent action as the spring member is slid into the cylinder body through the lateral opening 42 of the cavity, with the spring member being moved in the direction edgewise of the base plate and toward its free end. The biasing reaction for such detent engagement of the spring fingers 50 is of course derived from the engagement of the leaf springs 46 with their tumblers as the spring member is slid into place. Outwardly facing abutments 63 on the cylinder body, at each end of the cavity, provide stops engageable by the free ends of the spring fingers 51 to define the inner limit of sliding motion of the spring member during its assembly into the cylinder body.

Further assurance against displacement of the spring member out of the cylinder body is provided by the securement of the reflector 40 to the body. The reflector is substantially U-shaped, with flat, parallel legs 55 and 56 that overlie the opposite flat sides 115 and 215 of the cylinder body, and with a bight portion 57 that is curved on an arc coaxial with the cylinder and which overlies the curved side portion of the cylinder body to which the key aperture opens. The longer leg 55 of the reflector is long enough to close the sidewardly opening portion 42 of the tumbler cavity, which is occupied by the bight portion 45 of the spring member and it thus blocks any possible sliding motion of the spring member out of assembled relation to the cylinder body. The shorter leg 56 of the reflector closes most of the locking bar slot 17 in the cylinder body but terminates just short of the latera ltongue 21 on the locking bar so as not to interfere with projection of said tongue to its locking position.

The bight portion of the reflector 40 has a hole 57' therein that registers with the mouth of the key receiving aperture in the cylinder body and around which there extends an outturned flange or lip 59 that provides a trim or bezel for the key aperture and a bushing for guiding a key thereinto.

The reflector cooperates with the transparent shell 41 in picking up light from one or more bulbs 60 that are concealed under the panel 7, just behind the rear end of the cylinder, and in transmitting such light to the neighborhood of the key aperture mouth so as to produce a glow around the keyhole that facilitates finding it at night. For this reason the reflector preferably has a highly polished exterior surface whereby it also imparts an attractive appearance to the lock.

The transparent shell 41 is preferably formed of a suitable plastic material. It is substantially U-shaped, and its inner surface is so formed that it fits snugly over the legs and bight portion of the reflector. As viewed from either end of the cylinder the exterior surface of the shell is curved concentrically with the cylinder axis. Unlike those of the reflector, the two legs 58 and 58' of the shell are both the same length. Opening to the free end of the leg 58' of the shell that overlies the shorter leg 56 of the reflector there is a notch 62 through which the tongue 21 on the locking bar projects when the locking bar is in its locked position. The bight portion of the shell of course has a hole 64 therein which registers with the key receiving aperture and through which the annular lip or flange 59 on the reflector projects. The rear surfaces of the legs of the shell have portions 61 behind the panel 7 that are inclined obliquely to the cylinder axis to receive lights from the bulb or bulbs 60 and transmit it through the legs of the shell to its bight portion. Obviously the shell cooperates with the polished reflector 40 therebeneath in providing a very attractive appearance for that portion of the cylinder which is visible through the aperture 9 in the panel.

From the foregoing description taken together with the accompanying drawings it will be apparent that this invention provides a lock mechanism of the swinging key type which is unusually attractive in appearance, very compact, and highly resistant to defeat by force. It will also be apparent that the lock mechanism of this invention features a novel unitary spring member that substantially closes the tumbler cavity in the cylinder body and holds the tumblers rockably in their bearing sockets while biasing them to their locking positions, and which is held in place by integral spring fingers that engage over abutments formed integrally with the cylinder body.

What is claimed as my invention is:

1. In a lock mechanism of the character described:

(A) a cylinder mounted for rotation about its axis and having

(1) a tumbler cavity opening to one of its axial ends, and

(2) an aperture opening from the tumbler cavity radially to one side of the cylinder for receiving a key that unlocks the mechanism and which can serve as a handle whereby the cylinder can be swung about its axis;

(B) a locking bar mounted in the cylinder for motion radially relative to the cylinder between an outward locking position in which a part on the locking bar projects beyond the side surface of the cylinder and a retracted unlocked position to which the locking bar is biased;

(C) a plurality of flat tumblers in the cavity in the cylinder, each having a rounded projection at one end thereof, received in a socket in the cylinder that opens toward the mouth of said cavity, by which the tumbler is pivoted for swinging motion transversely to the key aperture axis between a normal position in which the tumbler holds the sidebar in its locking position and an unlocking position to which the

tumbler can be swung by a proper key inserted into the key aperture and in which the tumbler allows the locking bar to move to its retracted position;

(D) a spring member having a body portion bowed to a substantially U-shape,

(1) one leg of the U providing a base plate which extends across the mouth of the cavity in the cylinder to substantially close the same, and

(2) the other leg of the U being shorter and being disposed within the cavity and engaged with the projecting end portions of all of the tumblers to maintain the same seated in their sockets,

(3) said spring member also having a plurality of laterally spaced apart leaf springs, one for each tumbler, extending from the free edge of the longer leg of its U-shaped body portion, each bowed into the cavity and over the base plate and engaged with the medial portion of its tumbler to bias the tumbler to its normal position, and

(4) said spring member also having spring fingers integral with its U-shaped body portion and projecting therefrom at the ends thereof; and

(F) means on the cylinder, near the mouth of the cavity providing abutments that face into the cavity and behind which said spring fingers are engageable to receive the reaction of the springs and to hold the spring member assembled with the cylinder.

2. In a lock mechanism of the character described:

(A) a cylinder mounted for rotation on its axis and having

(1) a tumbler cavity opening to one of its axial ends, and

(2) an aperture opening radially from the tumbler cavity to the side of the cylinder for receiving a key that unlocks the mechanism and which can serve as a handle by which the cylinder can be swung about its axis;

(B) a locking bar in the cylinder mounted for lateral movement between projected and retracted positions and biased to its retracted position;

(C) a plurality of spaced apart tumblers in the cavity in the cylinder extending across the axis of said aperture and movable in directions parallel to the cylinder axis between locking positions, in which the tumblers allow the locking bar to occupy its retracted position, and unlocking positions, to which the tumblers can be actuated by a proper key inserted into the aperture and in which the tumblers cooperate to hold the locking bar in its projected position;

(D) a spring member having

(1) a base plate that extends across the mouth of the cavity in the cylinder to substantially close the same,

(2) a plurality of elongated laterally spaced apart leaf springs integral with the base plate and extending from one edge thereof, each bowed into the cavity and engaging one of the tumblers to bias it to its locking position, and

(3) a plurality of spring fingers integral with the base plate and extending from other edge portions thereof; and

(E) means on the cylinder, near the ends of the cavity, providing abutments that the spring fingers engage under flexing bias to hold the base plate in a position in which it lies across the mouth of the cavity.

3. In a lock mechanism of the character described:

(A) a cylinder body mounted for coaxial rotation and having

(1) a tumbler cavity opening to one of its axial ends and laterally to one side portion of the cylinder body near said axial end thereof, and

(2) a key aperture opening to the tumbler cavity and to another side portion of the cylinder body and extending substantially radially to the axis of the cylinder body so that a key received in said aperture can be used as a handle by which the cylinder body can be swung about its axis;

(B) a locking bar mounted in the cylinder body at one side of the key aperture for bodily movement between a retracted cylinder releasing position and a projected cylinder locking position;

(C) a plurality of tumblers in the cavity in the cylinder body, each having a rounded projection at one end thereof, received in a socket in the cylinder that opens axially with respect to the cylinder body toward the mouth of said cavity and by which the tumbler is pivoted for swinging motion transversely to the key aperture axis between a locking position in which the tumbler holds the locking bar projected and an unlocking position in which the tumbler frees the side bar for retraction;

(D) a unitary spring member having a substantially U-shaped body portion comprising

(1) a bight portion disposed in the laterally opening portion of the cavity,

(2) a longer leg integral with the bight portion which provides a base plate that extends across the mouth of the cavity and the cylinder body at said one end thereof to substantially close the same, and

(3) a shorter leg integral with the bight portion and inside the cavity that engages said projections on the tumblers to hold them rockably seated in their sockets,

(4) said spring member also having a plurality of integral, elongated, laterally spaced apart spring leaves, one for each tumbler, projecting from the free end of the longer leg and bowed into the cavity, each engaged with its tumbler to bias the same to its locking position,

(5) and spring fingers integral with the body portion of the spring member and projecting from the same;

(E) means on the cylinder body providing abutments facing into the cavity and over which said spring fingers are engaged to secure the spring member to the cylinder member; and

(F) a U-shaped trim member having

(1) a bight portion overlying the side portion of the cylinder body to which the key aperture opens and in which there is an aperture that registers with the key aperture, and

(2) a pair of legs extending from said bight portion and embracing the cylinder body, one of said legs closing the laterally opening portion of the cavity and opposing the convex surface of said bight portion of the spring member to prevent displacement of the spring member relative to the cylinder body in the direction lengthwise of the spring member legs and toward said bight portion thereof.

4. The lock mechanism of claim 3 wherein said spring fingers on the spring member extend substantially in the direction of the legs of the U-shaped spring member and are bowed to have concave surfaces which face outwardly of the cavity and engage over their cooperating abutment means on the cylinder body with a detent action as the spring member is slid into the cylinder body from said lateral opening of the cavity and in a direction parallel to the spring member legs; the biasing force for such detent action being provided by the reaction upon the spring member of the leaf springs engaging their tumblers.

5. In a lock mechanism of the character described:

(A) a cylinder body mounted for rotation about its axis and having therein an outwardly opening tumbler cavity and a key receiving aperture;

(B) a locking bar mounted in the cylinder body for bodily motion relative to the cylinder body between projected and retracted positions;

(C) a plurality of tumblers in the cylinder body, each having a rounded projection on one end portion received in a socket in the cylinder body that opens to said cavity by which the tumbler is mounted for swinging motion across the key aperture between locking and unlocking positions, said tumblers cooperating with the locking bar to hold the latter in its projected position when the tumblers are in their locking positions and to release the locking bar for movement to its retracted position when the tumblers are swung to their unlocking positions by a proper key received in the key aperture;

(D) a unitary spring member having portions providing

(1) a base plate which extends across the mouth of the cavity in the cylinder body to substantially close the same,

(2) tumbler retaining means comprising an extension of one side of the base plate bowed into the cavity and engaging said projection on each tumbler to hold the same swingably seated in its socket, and

(3) a plurality of elongated, laterally spaced apart leaf springs, one for each tumbler, extending from the opposite side of the base plate, each bowed into the cavity and over the base plate and engaging its tumbler to bias the same to its locking position; and

(E) cooperating means on the cylinder body and the spring member for securing the latter to the cylinder body.

6. The lock mechanism of claim 5, wherein said means for securing the spring member to the cylinder body comprises bowed spring fingers on the spring member integral with the base plate and projecting from the opposite ends thereof; and means of the cylinder body providing abutments that face into the cavity and behind which the spring fingers can engage with a detent action as the spring member is moved into place in a direction edgewise of the base plate and away from the first designated side thereof, the biasing force for such detent action being provided by reaction upon the spring member to the engagement of the leaf springs with their tumblers.

7. In a lock mechanism of the character described:

(A) a cylinder body mounted for rotation about its axis and having

(1) a tumbler cavity,

(2) a key aperture opening from the tumbler cavity through one side portion of the cylinder body with its axis substantially transverse to that of the cylinder body, said aperture being adapted to receive a proper key by which the cylinder body can be swung about its axis, and

(3) an elongted locking bar slot extending parallel to the axis of the key aperture and opening from the tumbler cavity to another side portion of the cylinder body;

(B) a plurality of tumblers in the tumbler cavity mounted for motion in opposite directions substantially parallel to the cylinder body axis between defined normal and unlocking positions;

(C) an elongated locking bar received in the locking bar slot in the cylinder body and extending lengthwise parallel to the key aperture axis, said locking bar having a lateral tongue spaced from one of its ends and which provides an abutment facing said end of the locking bar, and said locking bar being movable in the cylinder between a locking position in which the tongue projects substantially radially from the cylinder body and in which the locking bar is normally held by the tumblers, and a retracted position to which the locking bar can move under bias when the tumblers are in their unlocking positions;

(D) means fixed with respect to the cylinder body providing a shoulder engageable by said abutment on the tongue when the locking bar is in its locking position and which thus prevents rotation of the cylinder body in one direction beyond a predetermined angular position; and

(E) means on the cylinder body providing a radially inwardly facing abutment that overlies said one end portion of the locking bar and which the locking bar can engage to be thereby held against displacement out of the cylinder body when force in said rotational direction is applied to the cylinder body and the tongue on the locking bar is engaged with said shoulder.

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