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D. C. FISHER.

LOCKING MECHANISM FOR MOTOR VEHICLES, ETC.

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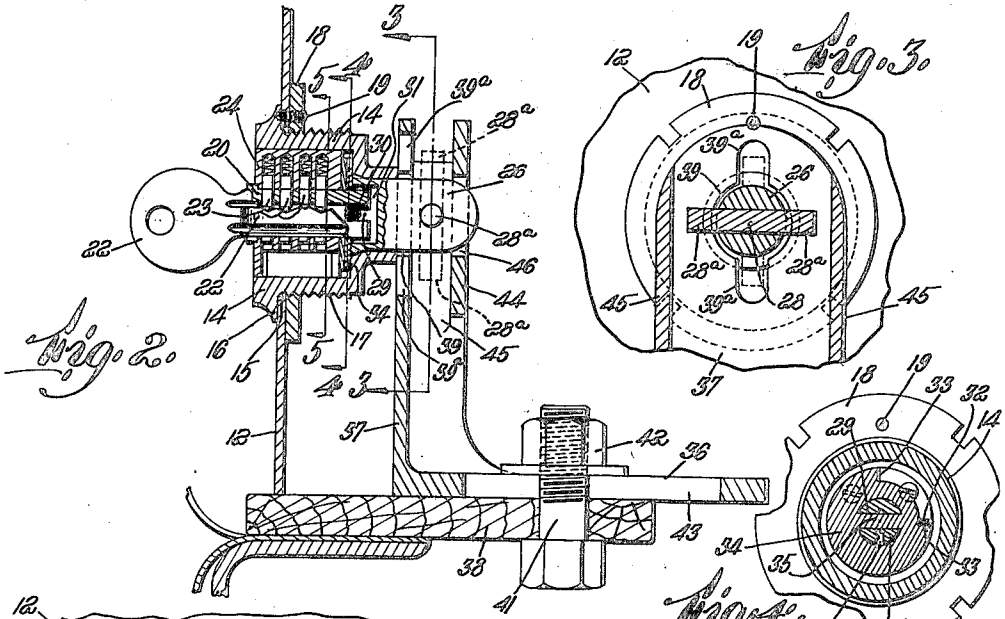

Fig. 2.

Fig. 3.

Fig. 4.

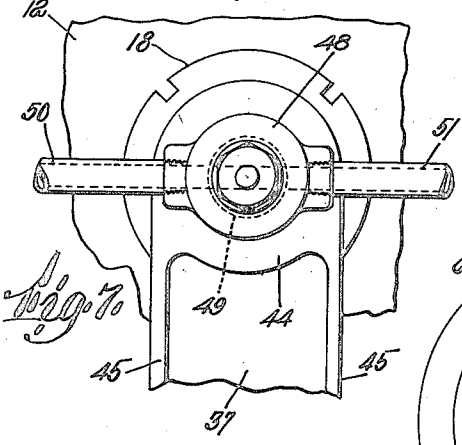

Fig. 7.

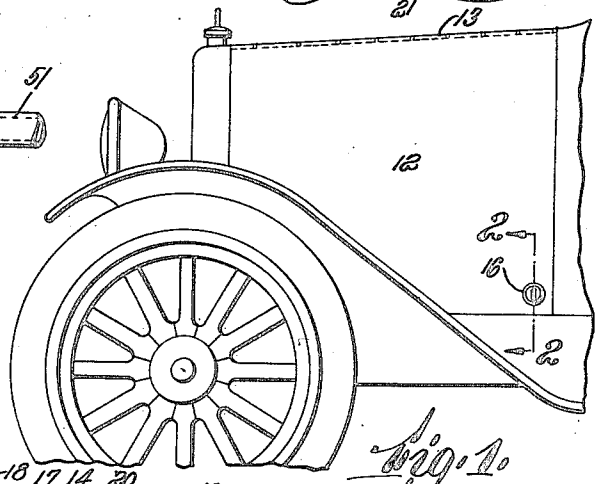

Fig. 1.

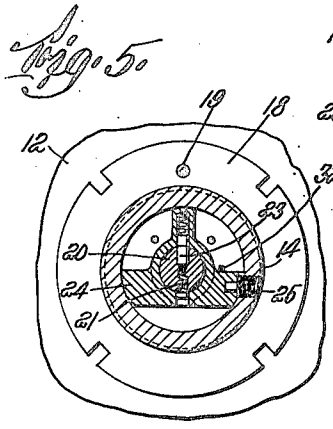

Fig. 5.

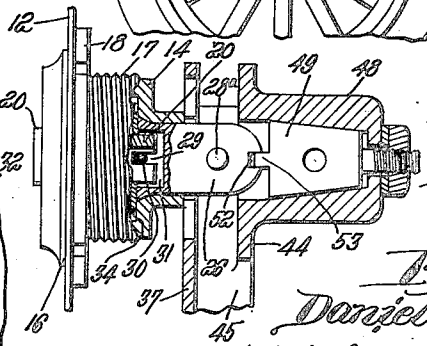

Fig. 6.

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UNITED STATES PATENT OFFICE.

DANIEL C. FISHER, OF BOSTON, MASSACHUSETTS.

LOCKING MECHANISM FOR MOTOR VEHICLES, ETC.

Application filed October 27, 1921. Serial No. 510,760.

To all whom it may concern:

Be it known that I, DANIEL C. FISHER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Locking Mechanism for Motor Vehicles, Etc., of which the following is a specification.

This invention relates generally to means for fastening a swinging closure or cover in its closed position, and particularly, the swinging wall or cover portion of the hood which encloses the engine of a motor vehicle.

The object of the invention is to utilize as an element of said means a pin-tumbler lock, operable only by a key adapted to the form and arrangement of the usual series of pin-tumblers included in the lock mechanism, as in the well known Yale lock, the lock including a barrel adapted to be turned by an appropriate key to either of two predetermined positions, viz., an unlocking and a locking position. I attain the object of the invention by substituting for the usual lock bolt which is moved in a path at an angle with the axis of the lock barrel, by the partial rotation of the latter, a bolt which is coaxial with the barrel, and projects inwardly therefrom, and from the cover, the bolt having a key-like formation, and by providing within the casing a fixed keeper, which is located in the path of the bolt, and has a key-hole shaped opening in the path of the bolt, the arrangement being such that when the lock barrel is in its unlocking position, the bolt is in position to enter said opening, and when the lock barrel is in its locking position, the bolt is prevented from withdrawal through the opening, so that the cover is locked and can be unlocked only by a key having a formation corresponding to the form and arrangement of the pin-tumblers of the lock.

In one embodiment of the invention, I provide the keeper with a stock-cock including a casing formed integrally with, or fixed to the keeper, and a plug valve adapted to turn in the casing and control the flow of gasolene to a carbureter, the valve and bolt being in alinement with each other when the bolt is in the keeper, and provided with complemental coupling members which are interengaged by the entrance of the bolt into the keeper opening.

Of the accompanying drawings, forming a part of this specification,—

Figure 1 is a side elevation of the portion of a motor vehicle which includes the hood, the cover portion of the hood being shown as provided with a lock forming an element of my improved fastener.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a section on line 4—4 of Figure 2.

Figure 5 is a section on line 5—5 of Figure 2.

Figure 6 shows the lock and the bolt, partly in elevation and partly in section, and shows a stop cock supported by the keeper, the cock casing being shown in section, and the plug valve of the cock in elevation.

Figure 7 is an end view of the mechanism shown by Figure 6, looking toward the inner side of the keeper.

The same reference characters indicate the same parts in all of the figures.

Referring first to Figures 1 to 5, inclusive, 12 represents the movable side portion or cover of the hood which encloses the engine of a motor vehicle, said cover being hinged at 13 to the fixed portion or body of the hood. Attached to the cover 12, preferably near the rear lower corner thereof, is a pin-tumbler lock, comprising a circular casing 14, inserted in a circular opening 15, formed for its reception in the cover, and projecting inward therefrom. Any suitable means may be provided for attaching the lock casing to the cover. As here shown, the casing has a marginal flange 16, bearing on the outer side of the cover, a screw-threaded periphery 17, and a nut 18 engaging said periphery, and bearing on the inner side of the cover, the nut being locked by a screw 19, as shown by Figure 2. The lock barrel 20 has a slot 21 (Figure 5), formed to receive a key 22, having a stepped edge adapted to cooperate with the usual pin-tumblers 23, the barrel being partly rotatable in an annular holder 24, fixed to the casing 14, as by a screw stud 25 (Figure 5). There is nothing new in the lock apart from the means hereinafter described for coupling the barrel 20 to a bolt 26, coaxial with the barrel. Although I have shown in

some detail the pin-tumblers, and the usual parts cooperating therewith, I do not consider a description of the operation thereof essential, it being sufficient to say that the barrel is adapted to be turned by the key as usual, to two predetermined positions, one of which is the unlocking position, and the other the locking position, the key being freely insertable in, and removable from the barrel when the latter is in locking position, and confined in the barrel when the latter is turned from the locking position, as in the ordinary pin-tumbler lock.

The bolt 26 is journaled in a bearing in the inner end of the lock casing and projects therefrom, the bolt being coaxial with the barrel 20, as above stated. The projecting portion of the bolt has a key-like formation, which is preferably due to a pin or stud 28 extending through, and tightly fitted in, a transverse orifice in the cylindrical body of the bolt, and projecting from opposite sides thereof, the projecting portions of the pin forming keeper-engaging bits or studs 28^a. The bolt is coupled to the lock barrel 20, to turn in unison with the latter, the preferred coupling means being a slot 29, formed in the inner end of the barrel, and a transverse pin 30 fixed to the bolt and extending through a recess 31 formed in the bolt, the slotted end of the barrel being formed to enter said recess.

The turning movements of the barrel and the bolt are limited by suitable means, such as a stop pin 32 (Figure 4) fixed to the lock casing, and stop shoulders 33 on a disk or washer 34, which is fixed to the barrel to turn therewith. As shown by Figures 2 and 4, the disk 34 is formed to receive the divisions formed by the slot 29, and has a cross-bar 35 in said slot, so that the disk turns with the barrel. When one of the shoulders 33 contacts with the pin 32, the barrel is in its unlocking position, and when the other shoulder contacts with the pin, the barrel is in its locking position.

A fixed keeper, preferably embodied in an angular bracket having a base portion 36, and an upstanding portion 37, is rigidly secured to a fixed part 38, under the hood, and is provided with a keyhole-shaped opening, formed in the upstanding portion 37, and located in the path of the bolt 26. Said opening includes a central portion 39, formed to receive the body of the bolt, and slots or recesses 39^a, formed to receive the projecting bits 28^a of the bolt.

The arrangement is such that when the lock barrel is in its unlocking position, the bits 28^a are adapted to pass through the slots 39^a of the keeper opening, as indicated by dotted lines in Figures 2 and 3. When the bolt has entered the opening, and the lock barrel is turned to its locking position, the projecting bits 28^a are out of alinement with the opening slots 39^a, as shown by full lines in Figure 3, so that withdrawal of the bolt from the keeper is prevented, and the cover is locked, and can be unlocked only by the cooperation of the proper key with the lock mechanism.

The keeper is secured to the fixed part 38 by a bolt 41, having a clamping nut 42. Said bolt passes through a longitudinal slot 43, in the base portion of the keeper, so that the latter may be adjusted toward and from the closed position of the cover 12.

The upstanding portion 37 of the keeper preferably includes an inner wall 44, connected with the portion containing the key-hole-shaped opening by neck portions 45. The inner wall 44 has an opening 46, formed to receive the outer end of the bolt 26, but not the projecting ends of the pin 28, so that the inner wall limits the entrance of the bolt into the keeper. The described construction ensures sufficient strength and stability of the keeper, and enables it to be formed as a casting.

Figures 6 and 7 show a stop cock supported by the keeper. The cock casing 48 is preferably integral with the rear wall 44 of the keeper, and has a tapered bore coaxial with the bolt-receiving opening. The plug valve 49 of the cock is adapted to be turned in the casing to permit or prevent the flow of gasolene through the usual conduits 50 and 51, communicating with a supply tank and with a carbureter within the hood.

The bolt 26 is formed to enter the outer end of the cock casing, the bolt and the valve 49 being provided with complemental coupling members, preferably embodied in a slot 52, in the end of the bolt, and a tenon 53 on the end of the valve. The arrangement is such that when the bolt is in position to interlock with the keeper, it is coupled to the valve, so that the turning of the bolt to its locked position opens the cock and permits a flow of gasolene. When the bolt is turned to its unlocked position the cock is closed, so that no gasolene can flow when the cover is unlocked.

I claim:

1. A locking mechanism of the character stated, comprising a lock casing formed for insertion in an opening in a cover, and provided with attaching means for engagement with the cover, a pin-tumbler lock including a holder fixed to the casing, and a key-operated barrel, partly rotatable in the holder to either an unlocking or a locking position, a bolt journaled in, and projecting from the inner end of the lock casing, and coupled to the lock barrel for turning movement in unison with the latter, and a keeper having means for attachment to a fixed part, and provided with a key-hole-shaped opening in the path of said bolt, the bolt being provided with a projecting portion formed as a

key adapted to enter said opening when the lock barrel and the bolt are turned to the unlocking position, and to be confined by the keeper against withdrawal from the opening when the lock barrel and bolt are turned to the locking position.

2. A locking mechanism substantially as specified by claim 1, the said keeper being a bracket including a slotted base, formed to bear on said fixed part, and an upstanding arm containing said opening, the base portion being adapted to be adjustably secured to said fixed part.

3. A locking mechanism substantially as specified by claim 1, the said keeper including an inner wall spaced from the opening-containing portion, and provided with an opening formed to receive only the projecting portion of the bolt.

4. A locking mechanism substantially as specified by claim 1, the said keeper including an inner wall spaced from the opening-containing portion, and provided with an opening formed to receive only the projecting portion of the bolt, and with a stop-cock casing having a plug-receiving bore in axial alinement with said opening and receiving the projecting portion of the bolt, said portion being formed to engage and turn a plug valve in said bore.

In testimony whereof I have affixed my signature.

D. C. FISHER.