

Oct. 22, 1940.

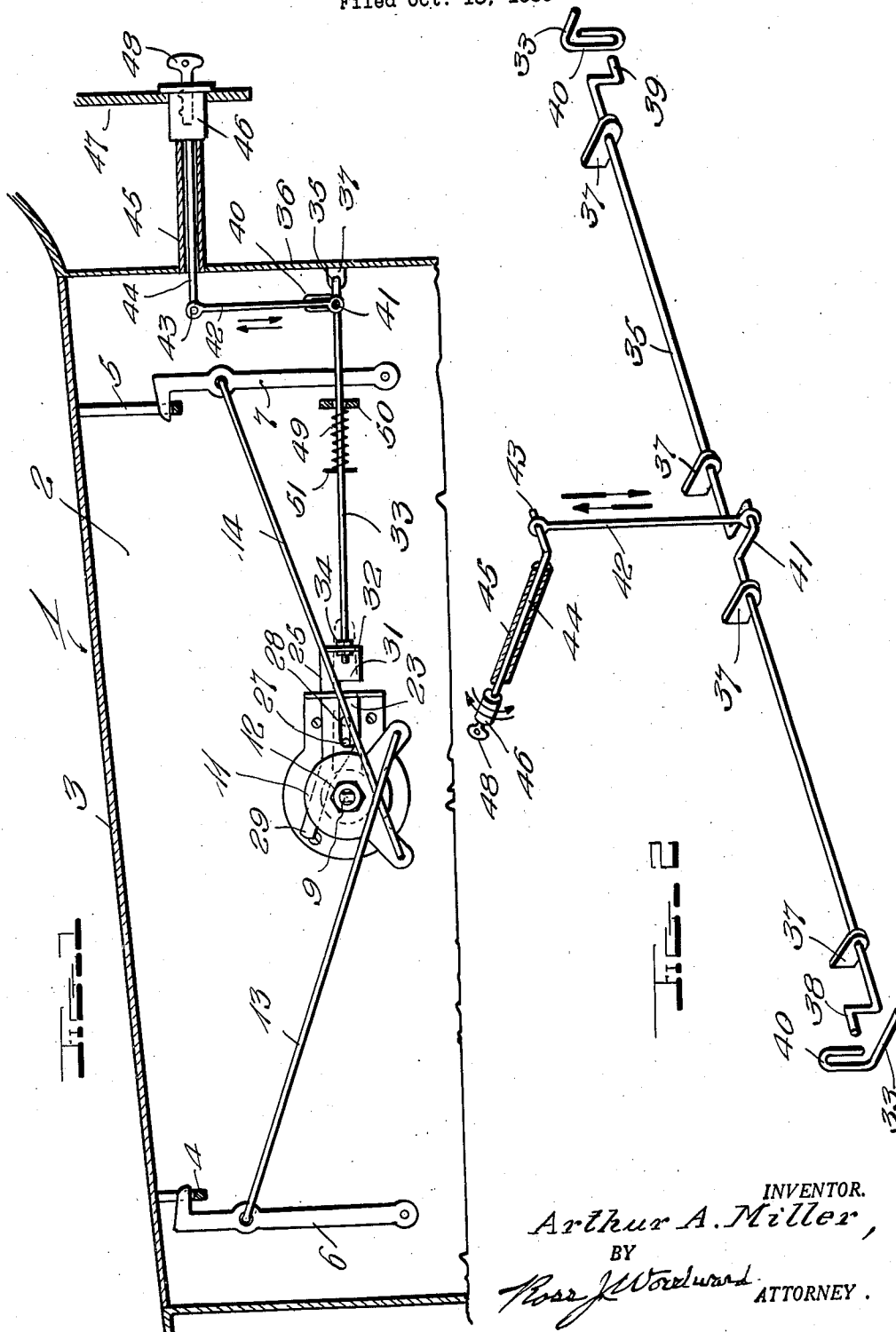
A. A. MILLER

2,218,683

HOOD LOCK

Filed Oct. 18, 1939

2 Sheets-Sheet 1



INVENTOR.
Arthur A. Miller,
BY
Rose J. Woodward
ATTORNEY.

Oct. 22, 1940.

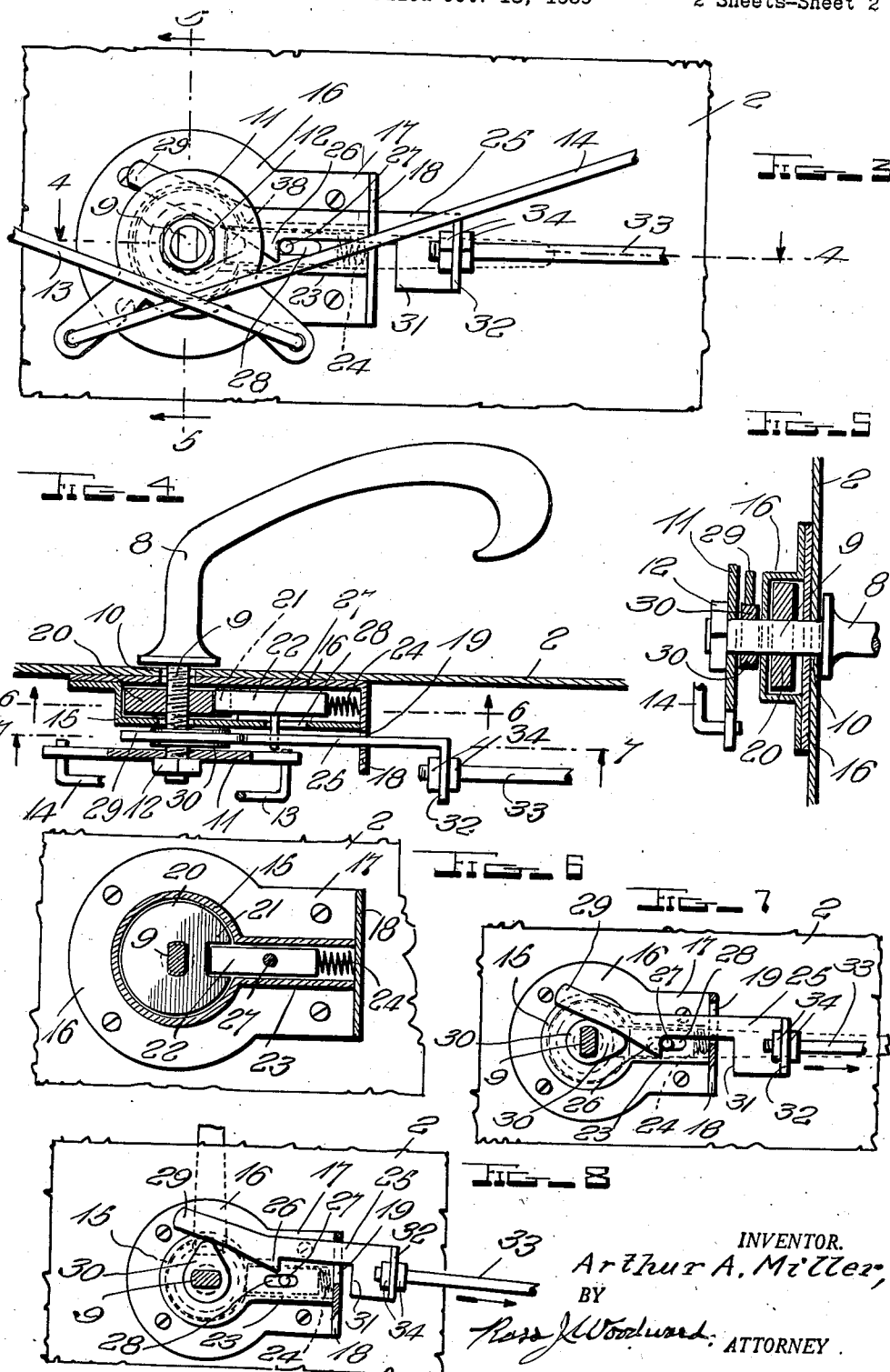
A. A. MILLER

2,218,683

HOOD LOCK

Filed Oct. 18, 1939

2 Sheets-Sheet 2



INVENTOR.
Arthur A. Miller,
BY
Hess & Woodward, ATTORNEY.

UNITED STATES PATENT OFFICE

2,218,683

HOOD LOCK

Arthur A. Miller, McHenry, Ill.

Application October 18, 1939, Serial No. 300,075

9 Claims. (Cl. 70—240)

This invention relates to a lock and more particularly to a lock adapted for use in connection with the actuating mechanism by means of which fasteners for the hood of an automobile are moved to a releasing position when it is desired to raise the hood.

An automobile hood has side portions which are hinged so that they may be lifted when necessary and the hood sections or doors are secured by fasteners in the form of hooks engaged by rods extending from a disk carried by the shaft of a handle by means of which the shank and the disk are to be turned and the rods shifted longitudinally to move the hooks out of engagement with keepers carried by the hood sections.

Often the hoods are released and raised by unauthorized persons and the engine tampered with intentionally or merely through curiosity and it is, therefore, one object of the invention to provide actuating means for the rods having associated therewith improved locking means serving to normally prevent turning of the shank by its handle and thus preventing unauthorized persons from releasing and raising the hood sections.

Another object of the invention is to provide locking means of such construction that when its plunger is moved to a releasing position by a slidable grapple member and then moved to turn the shank and shift the hooks to releasing position, a lug or cam member carried by the shank will move the grapple member out of engagement with the plunger and allow the plunger to move toward a securing position. It will thus be seen that when the handle is again turned to rotate the shank and return the hooks to securing position after closing the hood section or door, the plunger may engage in a seat formed in a keeper plate carried by the shank and there will be no danger of a person forgetting to lock the actuating means for the hood securing hooks.

Another object of the invention is to provide a device of this character wherein the grapple members or hook actuating devices at opposite sides of the hood are both adapted to be actuated from a rocker shaft extending transversely across the dashboard of the automobile, lock controlled means being provided for imparting turning movement to the rocker shaft and including a key actuated lock mounted through the instrument board where it cannot be tampered with when the doors of the automobile are closed and locked.

Another object of the invention is to so connect the draw rods for the plungers with the rocker

shaft that by turning the shaft in one direction the right hand hood section or door may be released and the left hand hood section or door released when the rocker shaft is turned in an opposite direction. It will thus be seen that by inserting a key in the lock upon the instrument board and turning it in the proper direction, the hood section at a predetermined side of the hood may be released and, if so desired, the key then turned in an opposite direction to release the hood section at the other side of the hood.

Another object of the invention is to provide locking mechanism which may be used in connection with hood securing hooks of conventional form and associated with handles having their shanks rotatably mounted through the hood at opposite sides thereof in the usual positions.

Another object of the invention is to provide locking mechanism for hood sections which is simple in construction, easy to install and not liable to get out of order.

The invention is illustrated in the accompanying drawings, wherein:

Fig. 1 is a view partially in elevation and partially in section, showing the improved locking mechanism installed.

Fig. 2 is a perspective view of the crank shaft and associated parts.

Fig. 3 is a view showing the hook actuating means and its lock in elevation.

Fig. 4 is a sectional view on the line 4—4 of Fig. 3.

Fig. 5 is a sectional view on the line 5—5 of Fig. 3.

Fig. 6 is a longitudinal sectional view on the line 6—6 of Fig. 4.

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 4.

Fig. 8 is a view similar to Fig. 7, showing the grapple moved to position to release the plunger as the handle and its shank are turned to move the hood engaging hooks to releasing position.

The engine hood, indicated in general by the numeral 1, has the side walls 2 and the hingedly mounted right and left hand hood sections or doors 3. In order that the movable hood sections may be held closed each is provided with depending loops or anchoring members 4 and 5 for engagement by the bills of hooks 6 and 7 pivoted to the side walls of the hood. When the hooks are in the position shown in Fig. 1, the hood sections will be held closed but when the hooks are swung about their pivots to move their bills out of the anchoring members or loops 4

and 5, the hood sections will be released and may be swung to opened position.

Each of the side walls carries a handle 8 having a threaded shank or shaft 9 rotatably passing through an opening 10 in the wall and having opposite side portions formed with flat side faces. A disk 11 is held upon the shank by a nut 12 and when the handle 8 is grasped and turned to rotate the shank the disk 11 will be turned with the shank and rods 13 and 14 shifted longitudinally to move the hooks into or out of engagement with the loops 4 and 5, according to the direction in which the handle is turned.

The shank 9 passes through a lock casing 15 which has its back plate 16 secured against the side wall 2 formed with an extension 17 having a portion bent outwardly to provide a lip 18 formed with an opening 19. A keeper disk or block 20 which turns with the shank, is mounted about the same within the casing and, at one point about its periphery, is formed with a notch or recess 21 to receive the plunger 22. This plunger is slidably mounted in the tubular extension 23 or auxiliary casing and urged toward the disk 20 by a spring 24 which forces the plunger into the recess or seat 21 when the handle is in the position shown in Figs. 4 and 6 to prevent turning of the handle and its shank. Therefore, the handle may not be turned and the hooks 4 and 5 will be retained in the loops 6 and 7 and the hood section or door held closed.

In order to permit the handle to be turned and the hooks shifted out of the loops by turning of the disk 11 with the shank, there has been provided a grapple plate or strip 25 which is slidably received through the slot or opening 19 and has a hook or bill 26 at its inner end to engage a pin 27 projecting from the plunger 22 through a slot 28 formed in the auxiliary casing 23. The inner end of the grapple is also formed with an elongated nose or arm 29 extending across a cam plate or disc 30 carried by the shank 9 between the casing 15 and the disk 11 and turning with the shank. The outer portion of the grapple plate or strip is widened to form a shoulder 31 normally spaced rearwardly from the flange 18 and adapted to engage the flange for limiting forward movement of the grapple. The rear end of the grapple is bent to form a flange or lip 32 through which a pull rod 33 is passed and secured by nuts 34.

When the pull rod is shifted rearwardly to exert pull on the grapple, the hook or bill 26 exerts pull on the pin 27 to shift the plunger 22 rearwardly in the auxiliary housing 23 and out of the recess or seat 21. The handle and its shank may then be turned to shift the rods 13 and 14 longitudinally and move the hooks 6 and 7 to a releasing position permitting lifting of the hood section secured thereby. During this turning of the shank, the cam disc 30 turns with it and as this cam turns from the position of Fig. 7 to that shown in Fig. 8, the nose of the cam will act against the arm 29 to lift the grapple to the position shown in Fig. 8, and release the pin so that the spring 24 may slide the plunger forwardly into engagement with the periphery of the disc or keeper 20. It will thus be seen that when the hood section is closed and the handle 8 turned in the proper direction to effect engagement of the hooks with the loops or anchors 4 and 5, the plunger will be freed from the grapple and the spring can return it into the seat 21 to lock the shank against turning and thus prevent turning of the handle to release the hooks until

the grapple has been again brought into engagement with the pin and pull exerted to shift the plunger rearwardly to a releasing position.

The rods 33 are to be individually acted upon in order to permit raising of the hood sections. In order to do so there has been provided a rocker shaft 35 which extends across the dashboard 36 transversely thereof and is rotatably mounted in bearings 37. Ends of the rocker shaft are formed with crank arms 38 and 39, the crank 38 extending upwardly and the crank 39 downwardly. The cranks are engaged through vertically disposed loops 40 at rear ends of the rods 33 and, from an inspection of Fig. 2, it will be readily seen that when the rocker shaft is turned in one direction, rearward pull will be exerted on one rod by the crank 38 while turning of the shaft in the opposite direction will cause the crank 39 to exert rearward pull on the other rod. Therefore, by turning the rocker shaft in a predetermined direction, pull may be exerted on a selected rod 33 and the grapple of either the right hood lock or the left hood lock may be effected. Since the shoulders 31 are normally spaced rearwardly from the flanges 18 one rod 33 may be moved forwardly while the other is being drawn rearwardly. It will thus be seen that either hood section 3 may be released and after one has been released, the other may be released by turning the rocker shaft in the opposite direction. A U-shaped crank extends from the rocker shaft midway its length and is disposed horizontally when the cranks 38 and 39 are extending vertically. A link or pitman 42 has its lower end loosely engaged about the crank 41 and its upper end loosely engaged with the side arm 43 of a shaft 44 which is rotatably received through a tube or sleeve 45 carried by the dashboard 36 and extending rearwardly therefrom. The rear end of the shaft 44 is fixed to the rotatable core of a lock 46 mounted through the instrument board and when the core of the lock is turned by a key 48, the shaft 44 will be turned and the link 42 shifted vertically to turn the rocker shaft in a predetermined direction and exert rearward pull on a selected one of the rods 33. As the rod 33 is drawn rearwardly, the grapple to which it is attached is shifted rearwardly to draw the plunger 22 out of the seat 21 of the companion keeper disc 20 and the shank 9 may then be turned by its handle 8. As the shank is turned, the disk 11 turns with it and the rods 13 and 14 will move the hooks 6 and 7 out of engagement with the loops 4 and 5. The bills of the hooks have sufficient play through the loops to allow this movement to take place. The hood section or door 3 may then be raised. During rearward movement of the grapple its bill 26 remains in pulling engagement with the pin 27 of the plunger but when the shank is turned to move the hooks to releasing position, the cam 30 will be turned with the shank to lift the front end of the grapple to the position shown in Fig. 8, and the bill 26 will move out of engagement with the pin. The spring 24 will then shift the plunger forwardly into engagement with the peripheral edge face of the keeper disk and when the hood section is closed and the handle 8 moved to turn the shank and cause the hooks to be again engaged through the loops 4 and 5, the plunger will enter the seat 21 and secure the shank against turning movement out of the position in which the hood section is held closed. It will thus be seen that the actuating means for the hooks will be locked in the position holding

the hood section closed, even if the operator of the automobile should forget to turn the key and shift the rod 33 forwardly after closing and securing the hood section. When the key is turned to shift the rod 33 forwardly, the spring 49 which is disposed about the rod between the guide 50 and the abutment 51 carried by the rods, assists in moving the rod. As the rod moves forwardly, the grapple moves with it and since the sloping lower edge of the bill rests on the pin 27, the grapple will be tilted upwardly and its bill moved forwardly into position to again engage the pin, as shown in Fig. 7. The key is then removed from the lock 45 and the hood section will be held closed until the key is again inserted in the lock and turned to effect rearward pull upon the grapple. In view of the fact that the lock 45 is mounted through the instrument board, access to it will be prevented when the door of the automobile is locked and unauthorized persons will be prevented from releasing and raising the hood sections even if they should have a key which will fit the lock.

Having thus described the invention, what is claimed is:

1. In a device of the character described, a casing, a handle having a shank rotatably received through said casing with one end projecting therefrom, a keeper disk carried by said shank within said casing and turning with the shank and formed with a seat at one point about its periphery, a plunger slidable in said casing and urged toward said keeper, a pin extending from said plunger through a slot in the casing, latch operating means including a member carried by the projecting portion of said shank and turning therewith, a grapple slidably carried by said casing and having a bill for engaging said pin and a portion extending across the shank, means for shifting said grapple longitudinally to exert pull on said pin and shift the plunger out of the seat of said keeper and permit turning of the shank by its handle to actuate the latch operating means, and a cam carried by said shank and turning therewith to shift the grapple out of engagement with said pin and permit movement of the plunger into engagement with the keeper when the shank and the latch operating member carried thereby are turned in a latch-releasing direction.

2. In a device of the character described, a casing having a portion constituting an auxiliary casing, a back plate for said casing having a guide projecting outwardly beyond the rear end of the auxiliary casing and formed with a slot, a handle having a shank rotatably engaged through the casing with one end projecting outwardly therefrom, a disk carried by and turning with the outer portion of said shank, means connected with said disk for moving latches to a releasing position when the shank is turned in one direction, a keeper mounted about said shank within said casing to turn therewith and having a seat at one point about its periphery, a plunger slidably mounted in said auxiliary casing and urged toward said keeper for engaging in the seat and holding the shank against turning with the latches in securing position, a pin extending from said plunger outwardly through a slot formed longitudinally in the auxiliary casing, a cam carried by said shank externally of the casing and turning therewith, and a grapple slidable through the slot of said guide longitudinally of the auxiliary casing with its free forward end resting on said cam, said grapple having a bill normally

disposed in front of said pin for engaging the pin and retracting the plunger when the grapple is shifted rearwardly, said grapple having an abutment for engaging the guide and limiting forward movement of the grapple, a pull rod connected with said grapple for drawing the grapple rearwardly and retracting the plunger to permit turning of the shank and movement of the latches to releasing position, said cam acting on the forward portion of the grapple as the shank is turned in the latch releasing direction to tilt the grapple upwardly and move its bill out of engagement with the pin and permit movement of the plunger forwardly into engagement with the keeper and into the seat thereof when the shank is turned in an opposite direction to its initial position and secure the shank against turning with the latches in the securing position.

3. In a device of the character described, a rotatably mounted shaft, means carried by said shaft for moving a latch from securing position to releasing position when the shaft is turned in one direction, a keeper turning with said shaft and having a seat, a plunger yieldably held in said seat to hold the shaft stationary with the latch in securing position, a grapple slidably mounted and tiltable into and out of operative engagement with said plunger, means for shifting said grapple and moving the plunger to a retracted position out of the seat and permitting turning of the shaft, and a cam carried by said shaft to turn therewith and engaging said grapple to tilt the grapple out of operative engagement with the plunger as the shaft is turned in a direction to move the latch to releasing position and permit movement of the plunger to move into engagement with the keeper for entering the seat and securing the shaft stationary when the shaft is turned to a position for restoring the latch to securing position.

4. A latch operating device including a rotatable shaft, and means for locking the shaft stationary with the latch in securing position, said means comprising a keeper carried by said shaft and provided with a seat, a plunger yieldably held in position to engage the keeper and enter the seat, a grapple slidably mounted and tiltable into and out of operative engagement with said plunger, means for shifting said grapple longitudinally to retract the plunger and permit turning of the shaft in a direction to move the latch to a releasing position, and a cam carried by said shaft and moving therewith to act upon said grapple and move the grapple out of engagement with the plunger as the shaft is turned in a direction to move the latch to a releasing position and permit movement of the plunger into engagement with the keeper for entering the seat and securing the shaft stationary when the shaft is turned to a position restoring the latch to securing position.

5. A latch operating device including a rotatable actuating shaft, and means for locking the shaft stationary with the latch in securing position, said means comprising a plunger shiftable into and out of an extended position for locking the shaft, a grapple for engaging said plunger, said grapple being longitudinally shiftable to retract the plunger and movable vertically into and out of operative engagement with the plunger, means for shifting the grapple longitudinally, and a cam moving with said shaft and adapted to shift the grapple vertically out of operative engagement with the plunger and release the

plunger to permit return of the plunger to extended position for securing the shaft stationary when the shaft is turned to a position restoring the latch to securing position.

5 6. A latch operating device including a rotatable actuating shaft, and means for locking the shaft stationary with the latch in a securing position, said means comprising a plunger shiftable into and out of extended position for locking the
10 shaft and yieldably held in extended position, a grapple shiftable longitudinally to retract the plunger and movable vertically into and out of operative engagement with the plunger, a rocker shaft rotatably mounted and having a vertical
15 crank arm and a horizontal turning arm, a rod extending rearwardly from said grapple and having at its rear end a vertical loop loosely receiving said crank arm, a lock having a rotatable core, a turning shaft extending forwardly from
20 said core axially thereof and having a crank at its front end, a link connecting the crank of the turning shaft with the turning arm of the rocker shaft to turn the rocker shaft and exert pull on
25 said rod to retract the plunger when the core and the turning shaft are turned in a predetermined direction, and a cam carried by the actuating shaft and moving therewith and adapted to shift the grapple vertically out of operative
30 engagement with the plunger and release the plunger to permit return of the plunger to extended position for securing the shaft stationary when the shaft is turned to a position restoring the latch to securing position.

7. In a motor vehicle having a hood provided
35 with door sections at opposite sides thereof mounted for movement into and out of closed position; fastener means for the door sections each having a lock associated therewith including a plunger movable from a locking position to
40 a retracted position, rods for actuating said plungers extending longitudinally of the hood at opposite sides thereof, a rocker shaft extending transversely of the hood and having oppositely
45 extending cranks at its ends, said rods having their rear ends loosely engaged with said cranks, and means for imparting rotary motion to said rocker shaft in a predetermined direction and

shifting a selected one of said rods rearwardly to move a predetermined plunger to a retracted position.

8. In a motor vehicle having a hood provided with door sections at opposite sides thereof
5 mounted for movement into and out of closed position; fastener means for the door sections each having a lock associated therewith including a plunger movable from a locking position to
10 a retracted position, rods for actuating said plungers extending longitudinally of the hood at opposite sides thereof, a rocker shaft extending transversely of the hood and having oppositely
15 extending cranks at its ends, said rods having their rear ends loosely engaged with said cranks, a crank arm extending from said rocker shaft, a pitman link disposed vertically with its lower
20 end engaged with the crank arm, and key controlled actuating means for shifting the link longitudinally in a predetermined direction and turning the rocker shaft to exert rearward pull
25 on a predetermined one of the rods and move the plunger controlled thereby to retracted position.

9. In a motor vehicle having a hood provided with door sections at opposite sides thereof
25 mounted for movement into and out of closed position; fastener means for the door sections each having a lock associated therewith including a plunger movable from a locking position to
30 a retracted position, rods for actuating said plungers extending longitudinally of the hood at opposite sides thereof, a rocker shaft extending transversely of the hood and having oppositely
35 extending cranks at its ends, said rods having their rear ends loosely engaged with said cranks, a crank arm extending from said rocker shaft, a pitman link disposed vertically with its lower
40 end engaged with the crank arm, a lock having a rotatable key-actuated core, and a rod extending from the core of said lock axially thereof and provided with a side arm engaged with the upper
45 end of said link for shifting the link longitudinally and turning the rocker shaft in a predetermined direction to exert rearward pull on a predetermined rod and move the plunger controlled
thereby to retracted position.

ARTHUR A. MILLER.