J. A. SCHNEIDER.

LOCKING MECHANISM FOR VALVES.

APPLICATION FILED MAR. 7, 1914.

1,108,477.

Patented Aug. 25, 1914.

FIG. 1.

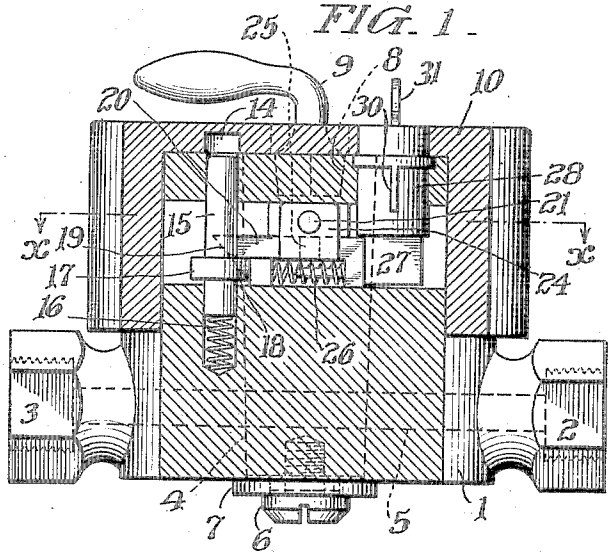


FIG. 2.

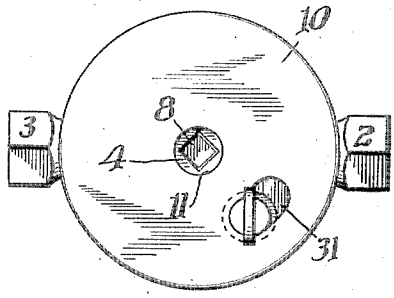


FIG. 3.

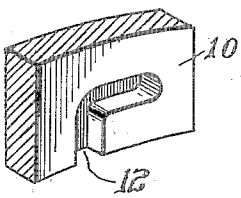
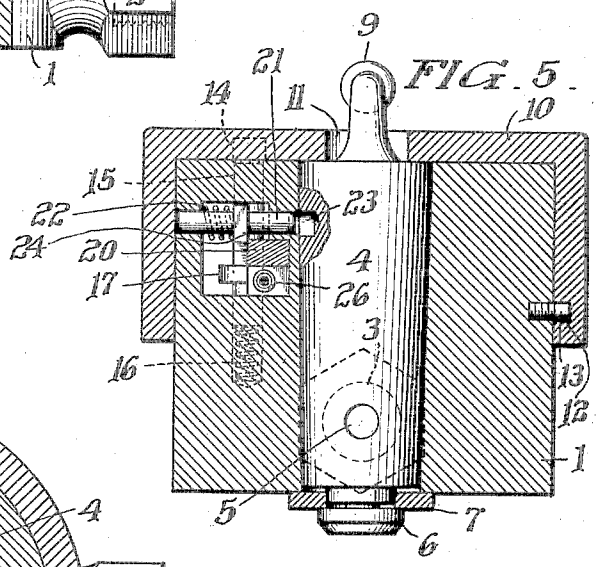


FIG. 5.



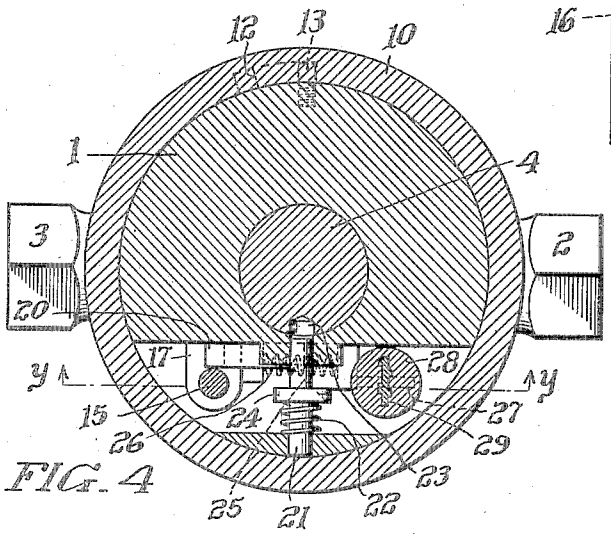
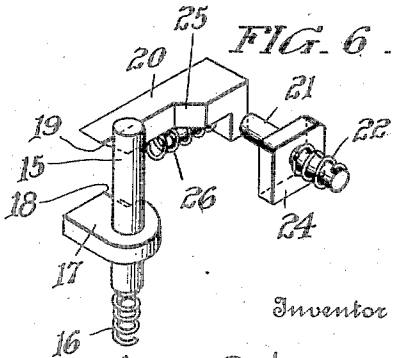


FIG. 4.

FIG. 6.



Witnesses

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LOCKING MECHANISM FOR VALVES.

1,108,477. Specification of Letters Patent. Patented Aug. 25, 1914.

Application filed March 7, 1914. Serial No. 823,069.

To all whom it may concern:

Be it known that I, JOHN A. SCHNEIDER, a citizen of the United States, and resident of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Locking Mechanism for Valves, of which the following is a specification.

My invention has reference to locking mechanism for valves and consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings which form a part thereof.

The object of the invention is to provide an effective means for locking a valve in closed position so that unauthorized persons are unable to tamper with the valve or move it to operative position.

It has for a further object to provide a mechanism for not only locking a valve in a definite position, but also to provide a means for preventing removal of any of the parts contained within the valve or relating to the locking mechanism.

Referring to the drawings:—Figure 1 represents a sectional elevation of a valve mechanism embodying my invention; Fig. 2 represents a plan of the same on a smaller scale; Fig. 3 represents a perspective of a portion of the valve cap showing the locking slot; Fig. 4 represents a section on line *x*—*x* of Fig. 1; Fig. 5 represents a section on line *y*—*y* of Fig. 4; Fig. 6 represents a perspective of the locked parts.

Similar numerals of reference indicate corresponding parts.

1 designates a valve casing having an inlet 2 and outlet 3 communicating with the interior of the casing and interposed between which is the tapered valve plug 4 of customary construction, by means of which the flow of fluid or gas through the valve is controlled. The plug 4 is provided with the transverse opening 5 and is maintained in operative position by means of a suitable fastening device such as the screws 6 and washer 7 as will be readily seen. In the present instance one end of the plug 4 is provided with a square or polygonal opening 8 adapted to receive the wrench or operating lever 9 by means of which the plug may be rotated as desired.

10 designates a cap member adapted to fit over the top of the casing 1 and provided with an opening 11 of sufficient size to admit the wrench member 9, but of less diameter than the diameter of the plug 4 so that the casing overlaps the end of the plug and prevents its removal from the casing when the cap is in position. The cap 10 as here shown is removably connected to the casing 1 by a bayonet joint consisting of the slot 12 and pin 13, and when partially turned to make the bayonet joint effective as a lock it is further held by a locking device comprising the socket 14 and spring pressed plunger 15, the latter being slidably mounted in the casing 1 and normally outwardly pressed by the spring 16. The plunger 15 is provided with a detent member 17 one portion of which is beveled as shown at 18 for coöperation with the beveled portion 19 of a slide block 20. The casing 1 is suitably chambered to receive the block 20 which is mounted for sliding movement while a spring pressed pin 21 is also guided by the walls of the casing 1 and is under control of the spring 22. By reference to Fig. 5 it will be noted that the pin 21 is radially disposed with respect to the plunger 4 and so arranged as to project through the wall of the casing 1 into contact with the plunger 4 and also seat within a socket 23 of the plunger 4 when the latter comes into alinement with the said pin.

24 designates a suitable lug carried by the pin 21 and adapted to be held in contact with the beveled face 25 of the slide block 20. The block 20 is controlled by a spring 26 which holds it outwardly pressed in order to contact with the flat end 27 of a key cylinder 28 which is suitably slotted as shown at 29, to receive a key of predetermined shape.

30 designates an abutment member serving as a stop to limit the turning movement of the cylinder 28. When the key cylinder 28 is in the position shown in Fig. 1 the flat end 27 thereof engages the block 20 and holds it in its rear position against the tension of the spring 26 and consequently the beveled surfaces 19 and 25 respectively coact with the parts of the plunger 15 and pin 21 to withdraw both simultaneously from their sockets so that not only is the plug 4 free to rotate, but the cap 10 may be turned and released. The cap 10 is provided with a suitable slot 31 to permit partial rotation thereof with respect to the cylinder 28 so that the bayonet joint connection may be readily made.

In the operation of the device the key

cylinder 28 is normally in such a position that the block 20 is held in its extreme position by the spring 26 and therefore the plunger 15 is held outwardly pressed within the socket 14 to lock the casing 10 against rotation. The pin 21 is also free of the block 20 and since the plug 4 is at this time in position to establish communication between the inlet and outlets of the casing, the said pin 21 will rest against the surface of the plug 4 without affecting its movement. If it is desired to cut off the supply of fluid or gas the plunger 4 is rotated by inserting and turning the wrench member 9 until the socket 23 comes into alinement with the pin 21. When this occurs the pin 21, being free to move under the action of the spring 22, seats within the socket 23 and thus holds the plug 4 against rotation. All parts of the device are now locked and may only be released by inserting the proper key in the cylinder 28 so that the position of the parts cannot be changed or tampered with by unauthorized parties.

In order to release the plug 4 so that it may be again turned to open position, the key is inserted in the cylinder 28 and the latter partially rotated to bring the end 27 into engagement with the block 20. This movement shifts the block 20 to the left as shown in Fig. 1, and thereby, through the beveled portion 25 coacting with the block 24, retracts the pin 21 to unlock the plug 4. Simultaneously with this action the beveled portion 19 engages the similar face 18 to retract the plunger 15, thus temporarily unlocking the cap 10, though as soon as the cylinder 28 is swung back to its original position the plunger 15 will automatically return to its locking position while the pin 21 will merely rest against the face of the plug 4 as will be understood.

It will now be apparent that I have devised a complete unitary structure, simple and effective in operation, consisting of few parts but all of which coöperate to afford a positive locking means for the valve parts and which in locked position can only be controlled by a particular key. A device of this kind is particularly well adapted for use in connection with motor vehicles where it may be employed as the valve 4 controlling the supply of fluid to the carbureter since by its use owners of a motor vehicle may leave their machine with a feeling of security and the knowledge that no unauthorized persons can open the valve to supply the engine with fuel. As a further safeguard to this end I have provided the cap member 10 which forms an auxiliary lock to prevent any one from releasing the plug 4 by removing the screw 6 so that the plug might be entirely removed and turned to open the valve.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:—

1. In a device of the character stated, a casing having an inlet and an outlet, a plug rotatably mounted in said casing between said inlet and said outlet and having a socket opening therein, a spring pressed pin slidably mounted in said casing in alinement with the path of movement of said opening and adapted to seat in said opening in alined position, a cap for said casing removably secured thereto and overlapping the end of said plug, said cap having an opening therein, a spring pressed plunger slidably mounted in said casing in the path of movement of said cap opening and adapted to seat in said opening in alined position thereof, and means operable by a suitable key for retracting both said plunger and said pin whereby said plug and cap are released.

2. In a device of the character stated, a casing having an inlet and an outlet, a plug rotatably mounted in said casing between said inlet and said outlet and having a socket opening therein, a spring pressed pin slidably mounted in said casing in alinement with the path of movement of said opening and adapted to seat under the action of its spring in said opening in alined position thereof, a spring pressed block adjacent said pin, having a beveled portion adapted to coöperate with a portion of said pin, and means operable by a suitable key for shifting said block to retract said pin and release said plug.

3. In a device of the character stated, a casing having an inlet and an outlet, a plug rotatably mounted in said casing between said inlet and said outlet and having a socket opening therein, a cap removably secured to said casing and overlapping a portion of the end of said plug to prevent removal of said plug, means to lock said cap in assembled condition, a spring pressed pin slidably mounted in said casing in alinement with the path of movement of said opening and adapted to seat under the action of its spring in said opening in alined position thereof, a spring pressed block adjacent said pin and having a beveled portion adapted to coöperate with a portion of said pin, and means operable by a suitable key for shifting said block to retract said pin and release said plug.

4. In a device of the character stated, a casing having an inlet and an outlet, a plug rotatably mounted in said casing between said inlet and said outlet and having a socket opening therein, a cap removably secured to said casing and overlapping a portion of the end of said plug to prevent removal of said plug, said cap having an opening therein, a spring pressed plunger slidably mounted in said casing and adapted to project into the path of movement of said opening, a spring

pressed pin slidably mounted in said casing in alinement with the path of movement of said plug opening and adapted to seat in said opening in alined position thereof, a block slidably mounted in said casing and provided with beveled surfaces for respectively engaging portions of said plunger and said pin, and means operable by a suitable key for shifting said block to retract said plunger and pin whereby said rotatable plug and cap are released for movement.

5. In a valve device, a body portion having a thoroughfare for the passage of the fluid, and a rotary plug for controlling the passage of the fluid through the thoroughfare, combined with a cap detachably connected with the body portion and arranged to prevent the plug from being withdrawn, and a key operated mechanism shielded by the cap and provided with means for locking the cap against removal and the plug against rotation.

6. In a valve device, a body portion having a thoroughfare for the passage of the fluid, and a rotary plug for controlling the passage of the fluid through the thoroughfare, combined with a cap rotatably adapted to the body portion and connected thereto by a bayonet joint and also provided with a portion which prevents the withdrawal of the plug, and key actuated means for locking both the plug and the cap against rotation.

In testimony of which invention, I hereunto set my hand.

JOHN A. SCHNEIDER.

Witnesses:
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HORACE D. REEVE.