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MANIFOLD LOCK FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED JUNE 25, 1920.

1,377,168. **Patented May 3, 1921.**

Fig. 1

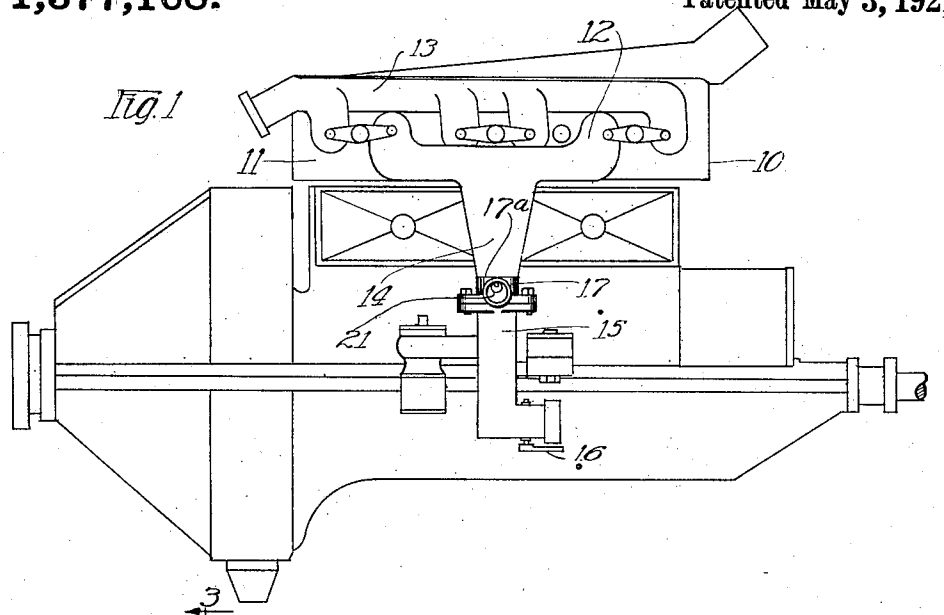


Fig. 2

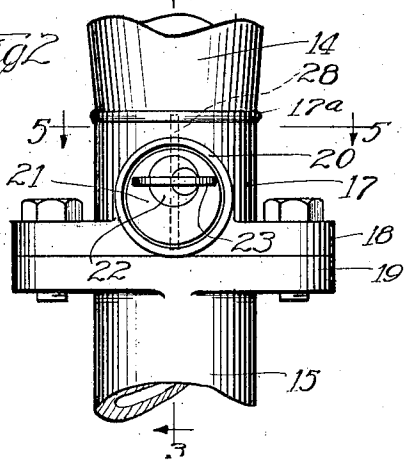


Fig. 5

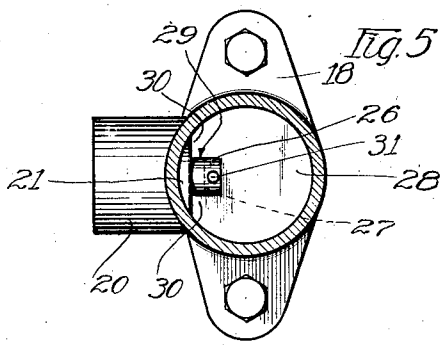


Fig. 3

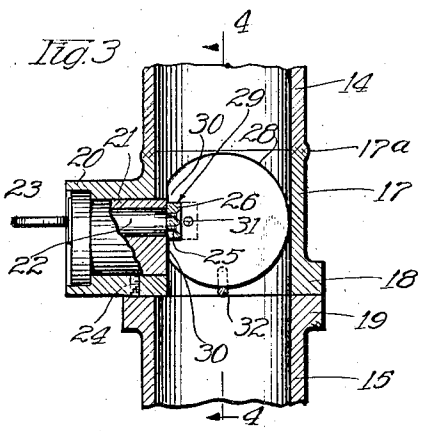
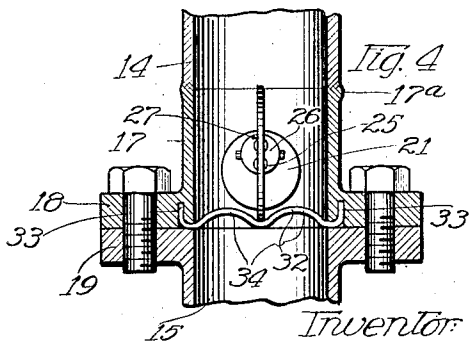


Fig. 4



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MANIFOLD-LOCK FOR INTERNAL-COMBUSTION ENGINES.

1,377,168. Specification of Letters Patent. Patented May 3, 1921.

Application filed June 25, 1920. Serial No. 391,711.

To all whom it may concern:

Be it known that I, WILLIAM F. AWE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Manifold-Locks for Internal-Combustion Engines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in manifold locks for internal combustion engines and more particularly to a device of this kind which is arranged to be inserted in the intake manifold of the engine of an automobile or similar vehicle at a point posterior to the carbureter.

Although my invention may be utilized to prevent the unauthorized operation of any internal combustion engine, it is especially adapted for preventing theft of automobiles and similar vehicles, which have engines of the aforesaid type.

Devices of this kind have been produced in the past but they have invariably comprised expensive complicated mechanisms which rendered them commercially prohibitive. It is the primary object of this invention to provide a universally applicable device of this class, which operates smoothly, is simple and rugged in construction, and economical to manufacture.

These and other objects of this invention will appear in the following detailed description in which reference is made to the accompanying drawings wherein—

Figure 1 is a side elevation of an automobile engine illustrating my improved manifold lock applied to the intake manifold thereof.

Fig. 2 is an isolated elevational detail on an enlarged scale of a portion of the intake manifold showing the manifold lock in its open position to permit passage of a combustible mixture to the engine cylinders whereby the engine may be operated.

Fig. 3 is a vertical section taken on line 3—3 of Fig. 2 looking in the direction indicated by the arrows.

Fig. 4 is a vertical section taken on line 4—4 of Fig. 3, looking in the direction indicated by the arrows, and

Fig. 5 is a horizontal section taken on line 5—5 of Fig. 2, looking in the direction indicated by the arrows, the lock however being shown in its closed position to prevent operation of the engine.

Throughout the views, the same reference numerals designate the same parts.

Referring to the drawings, 10 designates a vertical four cylinder automobile engine of the four cycle internal combustion type. Secured in the usual manner to one side of the cylinders 11 are the intake and exhaust manifolds 12 and 13 respectively. The intake manifold 12 has a depending neck 14 which is provided generally with a flange to which is bolted or otherwise held the carbureter 15. The carbureter 15 is illustrated as a conventional vertical gravity feed carbureter having the usual choke valve 16.

It will, of course, be evident that although I have illustrated my manifold lock as applied to a conventional form of engine and carbureter, I, in no wise, limit the application of my manifold lock to the specific form illustrated or any other particular types or forms.

The manifold lock is conveniently disposed in the intake manifold 12 at the lower extremity of the depending neck 14 thereof. It comprises a fitting 17, having the usual form of flange 18 which coöperates in a well-known manner with a similar flange 19, provided on the carbureter 15.

As illustrated in the drawings, the conventional flanged end of the neck 14 of the intake manifold 12 is preferably sawed off and the fitting 17 secured to the portion 14 in place of the removed portion. I contemplate welding the fitting 17 to the manifold 12 as shown at 17^a, although it will appear that the same may be brazed, soldered, bolted or otherwise secured thereto, or, if desired, this portion may be cast integral with the manifold.

Provided in the fitting 17 is a laterally projecting hollow cylindrical boss 20, in which is cemented or otherwise secured a lock 21. The lock 21 is illustrated as being of the conventional "Yale" type having the usual eccentric rotatable barrel 22 in which is provided a key hole to receive a key 23.

To insure against unauthorized removal of the lock 21, a set screw 24 is preferably provided, which extends upwardly from the

under surface of the flange 18, and projects into a suitable depression provided in the lock 21 as shown in Fig. 3. The set screw 24 is not visible when the carbureter 15 is bolted in position as is most clearly shown in Fig. 3.

Secured to the inner end of the barrel 22 by screws 25—25 is a cylindrical block 26 which is provided in its inner end with a slot 27. The block 26 is slightly larger in diameter than the barrel 22 and when secured thereto, prevents endwise movement thereof.

The butterfly valve 28 has provided in its edge a notch 29, to provide jaws 30—30. The valve 28 is arranged to coöperate with the block 26 in such a manner that the jaws 30—30 embrace the same, the notched portion being received in the slot 27 of the block 26. A pin 31 extends through the slotted end of the block 26, and through a suitable hole provided in the valve 28, adjacent the notch 29, securely to hold the valve 28 in the block 26.

The lock 21 is so arranged with respect to the valve 28 that when the barrel 22 is in the position shown in Fig. 2, the key 23 is not removable; that is, when the engine is capable of being operated, the key 23 cannot be removed from the lock. Conversely, the key 23 may be removed when the barrel 22 is disposed as shown in Fig. 5, in which figure, the valve 28 is illustrated in its closed position to prevent operation of the engine.

A leaf or wire spring 32 extends transversely in the fitting 17 at the lower end thereof, and at right angles to the lock 21, and has its opposite upturned ends 33—33 engaging in holes drilled upwardly from the face of the flange 18 of the fitting 17. The spring 32 is provided with two inwardly bent portions 34—34 which, when the valve 28 is turned from closed to open position, or vice versa, are arranged to engage the edge of the valve 28 and to offer a substantial amount of resistance in turning the valve 28. The operator is therefore sufficiently aware that the valve 28 has not yet been completely opened or completely closed under the circumstances; he will therefore continue to turn the valve until there is substantially no further resistance encountered whereupon the valve is either completely closed or completely opened. The valve 28, as shown in Fig. 4, is yieldingly held in its open position by the spring 32, which prevents accidental closing of the valve 28 due to shock or vibration and it is furthermore necessary to exert a substantial force in turning the same toward closed position as above described.

The operation of the device is as follws: When the owner or chauffeur of the automobile or other vehicle desires to leave the same, he merely turns the key 23 in the lock 21 to rotate the barrel 22 to the position shown in Fig. 5, whereupon he then removes the key. The engine 10 can then not be operated since there can be no passage of a combustible mixture from the carbureter 15 into the intake manifold 12. An unauthorized person attempting to start the engine would, of course, not be successful. The only visible means of turning the valve 28 to open position is the lock 21 which, being of the "Yale" type cannot be opened excepting through the use of the peculiarly formed key 23 which is in the possession of the owner, as aforesaid. The engine may again be rendered operative by simply inserting and turning the key 23 to turn the barrel 22 to the position shown in Fig. 2 in which position, as above stated, the key is not removable. The risk of losing the key is thereby materially decreased.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A manifold lock for internal combustion engines comprising a fitting inserted in and forming a fixed portion of the intake manifold of an engine, said fitting having a flange for securing the carbureter of the engine, a laterally projecting hollow boss on said fitting, a lock therein, a set screw in said fitting for holding said lock, said screw being rendered invisible by the carbureter when the same is secured to the flange of said fitting, said lock having a rotatable barrel, a block secured to the inner end of said barrel, a saw slot in said block, a butterfly valve having a notched edge received in said slot and pinned to said block, and a spring in said fitting extending transversely thereof, for engaging the edge of said butterfly valve to hold the same in open position, the ends of said spring being bent to engage in holes in the flange of said fitting, said spring being rendered invisible and secured in position when the carbureter is secured to the flange of said fitting.

2. In a manifold lock for internal combustion engines comprising a fitting inserted in and forming a fixed portion of the intake manifold of an engine, the combination with a butterfly valve arranged within said fitting, and means for supporting and actuating said valve at its edge at one side, comprising a lock, of a spring in said fitting extending transversely thereof and secured in position and rendered invisible by the carbureter of the engine when the same is fastened to said fitting, said spring offering an initial resistance to the operation of said valve and subsequently holding the valve yieldingly in its extreme open position to prevent accidental closing thereof due to vibration.

3. A device of the character described comprising a fitting, a valve therein for re-

stricting the passage of fluid therethrough, a lock for said valve, a key insertible in said lock for operating said valve, said key being removable from said lock only when said valve has been moved to its closed position whereby said key is insured against loss and the valve is insured of being in its extreme closed position to prevent the passage of fluid thereby, and a leaf spring for engaging the edge of said valve when the same is in the vicinity of its full open position to urge the same toward open position and thereafter having insured its being moved to its extreme open position to insure further that it will retain this position unless operated by said key to another position.

4. In a device of the character described comprising a fitting arranged to be welded to the manifold of an engine to form an integral part thereof, a valve for restricting the passage of fluid through said fitting, a lock for said valve, means for securing said lock in said fitting, said means being rendered invisible by the carbureter when the same is secured upon said fitting and means for holding said valve non-positively in one of its operative positions, said means being secured in position and likewise rendered invisible by the carbureter when the same is secured upon said fitting.

5. In a device of the character described comprising a fitting arranged to be welded to the manifold of an engine to form an integral part thereof, a valve for restricting the passage of fluid through said fitting, a lock for said valve, and means for holding said valve in one of its operative positions, said means being secured in position and rendered invisible by the carbureter when the same is secured upon said fitting.

In witness whereof, I hereunto subscribe my name this 22nd day of June, 1920.

WILLIAM F. AWE.

Witnesses:

ANDREW WINTERCORN,

EDNA V. GUSTAFSON.