

Oct. 21, 1924.

E. W. WEDLICK

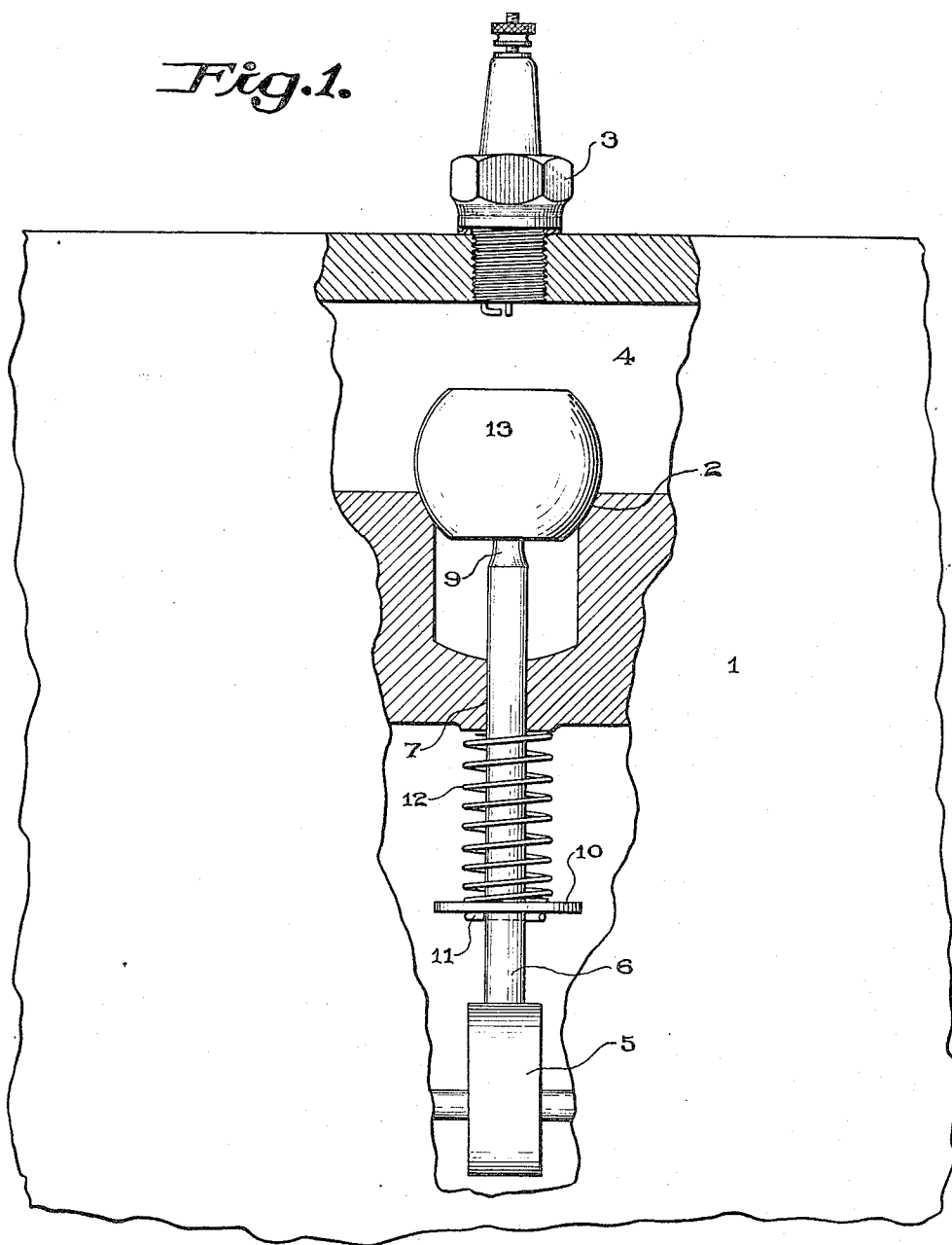
1,512,732

INTERNAL COMBUSTION MOTOR VALVE

Filed Sept. 16, 1922

2 Sheets-Sheet 1

Fig. 1.



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INTERNAL COMBUSTION MOTOR VALVE

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2 Sheets-Sheet 2

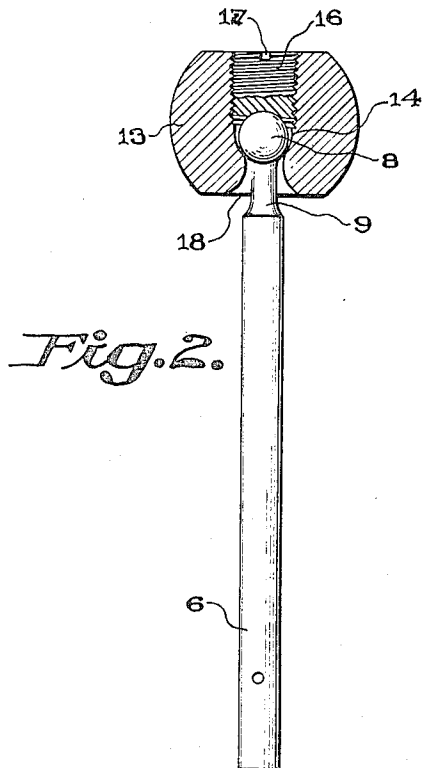


Fig. 2.

Fig. 3.

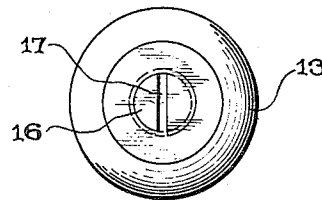


Fig. 4.

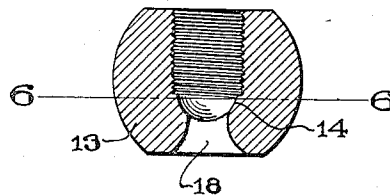


Fig. 5.

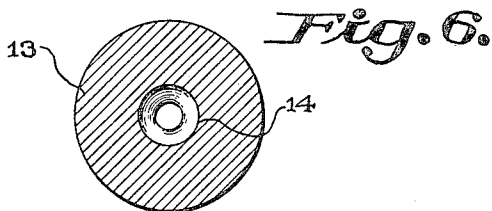
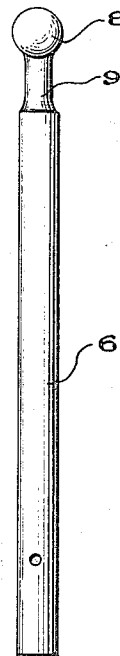


Fig. 6.

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UNITED STATES PATENT OFFICE.

ERNEST W. WEDLICK, OF DETROIT, MICHIGAN.

INTERNAL-COMBUSTION-MOTOR VALVE.

Application filed September 16, 1922. Serial No. 588,568.

To all whom it may concern:

Be it known that I, ERNEST W. WEDLICK, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Internal-Combustion-Motor Valves, of which the following is a specification.

The object of my said invention is to improve motor combustion engine valves by the provision of a universal ball valve possessed of the capacity of closing perfectly against its seat and lapping itself efficiently during use, and one which will assure perfect combustion and the development of increased power while economizing in the use of gasolene and which will not require regrinding or the removal of carbon, the valve wearing itself free from carbon.

To the attainment of the foregoing, the invention consists in the improvement as hereinafter described and definitely claimed.

In the accompanying drawings, forming part of this specification:—

Figure 1 is a view partly in section and partly in elevation showing so much of an internal combustion engine as is necessary to make clear the application of my novel valve.

Figure 2 is a view partly in section and partly in elevation of the valve body and stem.

Figure 3 is a top plan view of the valve body.

Figure 4 is a diametrical section through the body.

Figure 5 is a detail elevation of the stem.

Figure 6 is a section taken in the plane indicated by the line 6—6 of Figure 4.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

In Figure 1, I show the portion 1 of an internal combustion engine, containing a valve seat 2 of concave form in cross section, and equipped with a spark plug 3, the electrodes of which are in communication with an explosion chamber 4, the outlet or inlet of which is surrounded by the said seat 2.

Alined with the seat 2 is a valve actuating cam 5, and opposed to the said cam 5 is one end of a valve stem 6, appropriately guided at 7 for rectilinear movement and provided at its opposite end with a ball 8 and adjacent to the said ball 8 with a re-

duced portion or neck 9. The stem 6 is equipped with a washer 10 held against movement in the direction of the length of the stem by a pin 11, and interposed between the said washer 10 and an abutment afforded preferably by a member of the engine as shown is a spring 12. The said spring 12 surrounds the stem 6 and has for its function to yieldingly maintain the stem in opposed relation to the perimeter of the cam 5 so that upward and downward movement of the stem will attend rotation of the cam 5.

In accordance with my invention I associate with the seat 2 and the stem 6 a ball-like valve body 13, the periphery of the said valve body being rounded as illustrated in conformity to the valve seat 2. In the valve body 13 is a chamber 14 of a form to snugly receive the ball 8, and the said chamber 14 is normally closed by a plug 16 threaded into the body 13 and provided in its outer end with a kerf 17.

The said plug 16 is alined with the opening which receives the spark plug 3 and hence when the spark plug is removed access may be readily had to the plug 16 for the removal and replacement of the same through the medium or with the assistance of an ordinary screw driver. At the opposite side of the round chamber 14 which receives the ball 8, with reference to the plug socket is a flared opening 18 which permits free rocking of the valve body 13 on the stem 6. It will also be noticed that free rocking of the valve body on its stem is promoted by the concavity 19 at the inner end of the plug 16.

It will be apparent from the foregoing that while possessed of all of the practical advantages hereinbefore set forth my novel valve is simple and inexpensive in construction and is well adapted to withstand the usage to which the valves of internal combustion motors are ordinarily subjected.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear and exact understanding of the said embodiment. I do not desire, however, to be understood as confining myself to the specific construction and relative arrangement of parts inasmuch as in the future practice of the invention various changes and modifications may be

made such as fall within the scope of my invention as defined in my appended claims.

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

1. In an internal combustion engine, a circular valve seat, an appropriately-guided rectilinearly-movable valve stem, means to so move said stem, and a body universally mounted on one end of the stem; said stem having a ball end and a reduced portion or neck adjacent thereto, said body being of circular form in cross-section and having a periphery convexly arcuate in the direction of movement of the stem and opposed to said seat and also having a threaded bore with a rounded inner end seating said ball and a flared opening receiving the reduced portion of the stem, in combination with a threaded plug occupying said bore in the body and having a concave inner end opposed to the ball and also having kerfed outer end.

2. A valve for internal combustion engines, including a valve body of ball like form having a small zone removed from diametrically opposite portions thereof having an axial bore provided with a portion of reduced diameter formed into a semi-spherical face, and having the bore beyond said seat at one end flared, and threaded

outwardly from the reduced portion toward the other end, a valve stem extending through the flared end of the valve body having a spherical head thereon engaging the seat in the body, and a plug threaded in the bore beyond the valve stem for retaining the head on the seat.

3. A valve for internal combustion engines including a valve body of ball like form having a small zone removed from diametrically opposite portions thereof having an axial bore threaded in one end portion thereof, and having a portion of reduced diameter provided with a semi-spherical seat in the central portion and having the bore flared outwardly toward the other end, a valve stem extending through the flared end of the bore having a spherical head on the end thereof, of a larger diameter than said stem and engaging said seat in the body, and a plug threaded in the bore in the body beyond the head and the valve stem having a semi-spherical end portion for cooperation with the head for holding it in the seat, said plug being in substantial axial alignment with and beyond the valve stem.

In testimony whereof, I affix my signature.

ERNEST W. WEDLICK