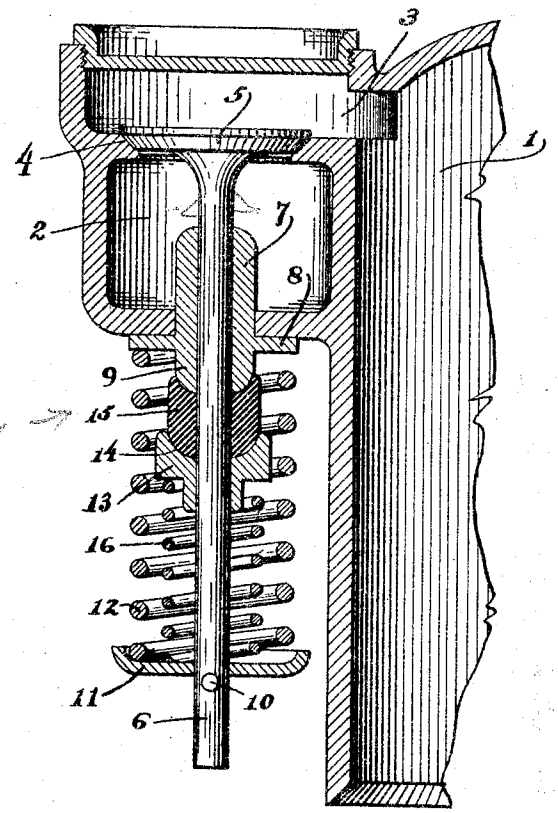
Sept. 22, 1925. 1,554,659

C. F. RUDOLPH

VALVE STEM ATTACHMENT

Filed May 23, 1923



Inventor

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640,878

[redacted]

Patented Sept. 22, 1925. 1,554,659

UNITED STATES PATENT OFFICE.

CLEMMENS F. RUDOLPH, OF CARLYLE, ILLINOIS.

VALVE-STEM ATTACHMENT.

Application filed May 23, 1923. Serial No. 640,878.

To all whom it may concern:

Be it known that CLEMMENS F. RUDOLPH, a citizen of the United States, residing at Carlyle, in the county of Clinton and State of Illinois, has invented certain new and useful Improvements in Valve-Stem Attachments, of which the following is a specification.

This invention relates to a valve stem attachment and has for its principal object to provide a device which is especially adapted for use in conjunction with the valve stem of an internal combustion engine wherein means is provided for preventing the admittance of air into the valve chamber upon the suction stroke of the valve.

Another important object of the invention is to provide a valve stem attachment of the above mentioned character, which will at all times be kept in an operative position and will also act as a lubricant for the valve stem.

A still further object of the invention is to provide a valve stem attachment of the above mentioned character, which is simple in construction, inexpensive, strong, durable and further well adapted for the purposes for which it is designed.

Another important object of the invention is to provide a valve stem attachment of the above mentioned character, which will be entirely automatic in its operation and will thereby prevent a loss of power or the feeding of an improper mixture to the internal combustion engine.

Other objects and advantages of this invention will become apparent during the course of the following description.

In the accompanying drawing forming a part of this invention and in which like numerals designate like parts throughout the same:—

The figure represents a longitudinal section view showing in section a part of the engine cylinder of an internal combustion engine and showing the relative arrangement of my invention thereon.

In the drawing wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates generally an internal combustion engine cylinder which is provided with the usual inlet valve chamber 2. The valve chamber 2 communicates with the engine cylinder 1 through the medium of the port or channel 3 as more clearly shown in the drawing.

A valve seat 4 is provided in the upper portion of the valve chamber 2 for the purpose of receiving the valve 5 which is provided at the upper end of the elongated valve stem 6. A suitable guide sleeve is mounted in the lower portion of the valve chamber 2 and has its lower portion extending beyond the bottom of the valve chamber for the purpose hereinafter to be more fully described. This valve guide 7 is adapted to receive the valve stem 6 which is operable therein and will furthermore be supported in the valve chamber 2 in any suitable manner. An annular flange 8 is also provided on the outer face of the outwardly extending portion 9 of the guide sleeve 7 and is adapted to abut the bottom of the valve chamber as more clearly shown in the drawing.

Adjacent the lower end of the valve stem 6 and directly above the pin 10 and extending transversely through the valve stem is the valve spring seat 11. This spring seat 11 is adapted to support the valve spring 12 which is of the usual construction and the upper end of this valve spring 12 engages the annular flange 8 provided on the lower portion or the outwardly extending portion 9 of the guide sleeve 7. As the valve spring 12 and the seat 11 therefor are of the usual construction and the operation thereof is well known in the art, it is not thought necessary to further go into detail relative the same.

Slidably mounted upon the valve stem 6 is the cup-shaped member 13. This cup-shaped member 13 is provided with enlarged grooved cutout portions 14 which form a means for receiving and supporting the lower portion of a suitable packing designated by the numeral 15. This packing 15 is furthermore adapted to be slidably associated on the valve stem 6 and its upper end is adapted to abut and engage the lower portion of the outwardly extending portion 9 of the guide sleeve 7. For the purpose of holding the packing 15 in engagement with the outwardly extending portion 9 and preferably the lower bottom face thereof, I provide a suitable coil spring 16 the lower end of which is fastened to the spring seat 11

and has its upper end in engagement with the cup-shaped member 13 in the manner as more clearly shown in the drawing.

By providing an arrangement of the above mentioned character, it will be seen that the packing 15 will at all times be in engagement with the bottom portion of the guide sleeve 7 and will prevent the possibility of air entering into the valve guide sleeve 7 and the chamber 2 and finally entering the engine when the mixture is being admitted. Furthermore this will prevent any leak from occurring around the valve stem and a tight joint between the end of the valve guide sleeve 7 and the cup-shaped member 13 is provided. The coil spring 16 will at all times keep the packing in its operative position and upon the compression of the springs 12 and 16 when the valve 5 is open will furthermore aid in preventing the possibility of air entering into the valve chamber.

The simplicity of my invention enables the same to be attached to any construction of engine and does not require the loss of considerable time or labor in applying my invention to use. Furthermore the same may be easily attached without a number of complicated tools and the packing will also act as a lubricant for the valve stem insofar as the packing may be formed of any suitable absorbent material.

From the foregoing description of the construction of my improved apparatus, it will be seen that I have provided a simple, inexpensive and efficient means for carrying out the objects of the invention, and while I have particularly described the elements best adapted to perform the functions set forth, it is obvious that various changes in form, proportion and in the minor details of construction may be resorted to, without departing from the spirit or sacrificing any of the principles of the invention.

What I claim as new and desire to secure by Letters Patent is:—

In a valve stem attachment, a packing comprising a tubular body of relatively great thickness and designed circular in cross-section and having its upper end concaved and adapted to form a seat for a guide sleeve, and its lower end convexed and adapted for reception in a concaved supporting seat, as and for the purposes described.

In testimony whereof I affix my signature.

CLEMMENS F. RUDOLPH.