July 26, 1938. E. R. JACOBY 2,124,702

ENGINE

Filed April 17, 1937

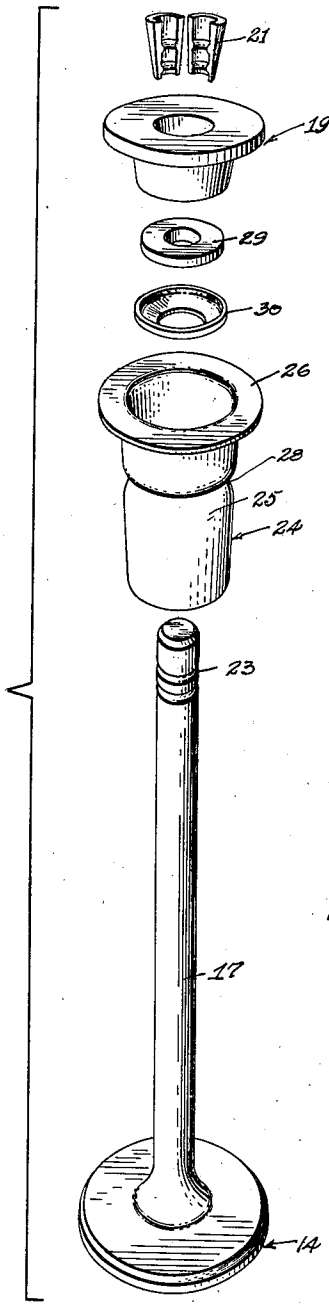


Fig. 2.

Fig. 1.

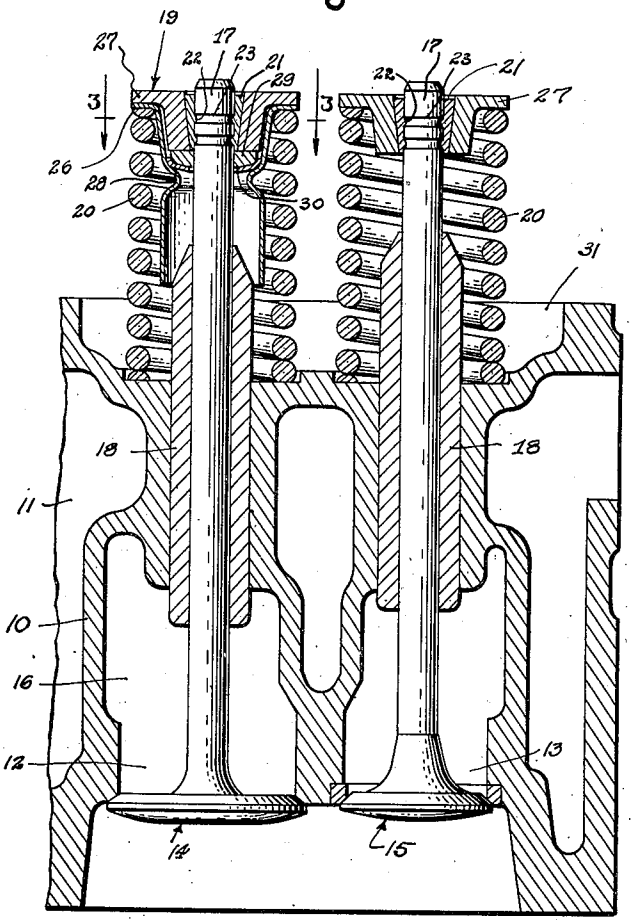
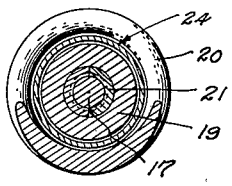


Fig. 3.



INVENTOR.
Enos R. Jacoby

BY

ATTORNEY.

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2,124,702

ENGINE

Enos R. Jacoby, Muskegon, Mich., assignor to Continental Motors Corporation, Detroit, Mich., a corporation of Virginia

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8 Claims. (Cl. 123—188)

This invention relates to engines and more particularly to valve construction for internal combustion engines and to an improved means for shielding the exposed portion of the valve stem in order to decrease the tendency of oil accumulations on said valve stem.

It is an object of the present invention to shield and/or protect the valve stem of an internal combustion engine and more particularly a valve of the type and construction embodied in an overhead valve engine by providing a shield for that portion of said valve stem which projects from the valve guide.

A further object of my present invention is to provide an efficient and economically constructed shield for a valve stem by providing a shield which is securely carried in such a manner as to shield the exposed portion of the valve stem at all times during engine operation.

A still further object of the invention is to provide a novel and improved construction whereby a valve stem shield is embodied in the assembly without affecting the operation of various component elements necessary to obtain valve actuation and which may be very readily assembled and which is of such a construction as to permit ready and economical servicing of the parts aforesaid.

For a more detailed understanding of the invention reference may be had to the accompanying drawing illustrating a preferred embodiment of the invention in which:

Fig. 1 is a fragmentary sectional view through an engine illustrating valve construction,

Fig. 2 is a distended perspective view of a valve showing the various elements assembled therewith and illustrating the construction of the valve stem shield, and

Fig. 3 is a detailed sectional view taken substantially on the line 3—3 of Fig. 1.

The present invention has been preferably illustrated with an engine of the overhead valve type but it will be apparent that the principles of the invention may be involved in other types of engines as well.

In the drawing, referring to Fig. 1, there has been illustrated a fragmentary portion of an engine, particularly the engine cylinder head 10 provided with the conventional cooling jackets 11 and which are arranged for supporting the intake and exhaust valves of the engine which in this case are valves which open downwardly or toward the cylinder block. The cylinder head structure is provided with an intake port 12 and an exhaust port 13 which ports are controlled in a conventional manner by the intake and exhaust valves 14 and 15 respectively.

It is particularly important to prevent any leakage of oil into the intake passage 16 from around the valve stem. This intake valve 14 includes a stem 17 which is suitably guided in the valve guide 18, the upper end of said valve stem projecting from this valve guide and carrying a valve spring retainer 19 against which the valve spring 20 acts to yieldingly urge the valve toward its seat. This valve spring retainer is locked to the valve stem by means of the split lock member 21 which is provided with inwardly extending grooves 22 arranged to lock in the grooves 23 carried on the valve stem in the conventional manner.

In order to shield the valve stem portion which projects above the valve stem guide for the purpose of preventing oil from being splashed on the valve stem or otherwise accumulated thereon, there is provided a shield member 24 which is preferably constructed of a tubular section comprising a skirt portion 25 and a flange portion 26. This flange 26 is adapted to seat against the underside of the flange 27 of said valve spring retainer 19 and to depend therefrom in such a manner as to shield the exposed portion of said valve stem. It will be noted that the skirt 25 is of such a length as to overlap the valve guide even when the valve is in closed position and is arranged to telescope over the valve guide when the valve opens. A mid portion of said shield 24 is inwardly grooved as at 28 in order to support the gasket or washer 29 which seals around the valve stem immediately below the valve spring retainer. This washer 29 is carried within the gasket seat cup member 30 and it will be noted that the shield member securely supports this sealing structure. That portion of the shield member intermediate the groove 28 and flange 26 is outwardly tapered to conform with the taper of the valve spring retainer and is substantially complementary thereto.

It will be noted that the shield structure is embodied in the assembly in such a way as to be positioned inside of the valve spring and telescopically positioned with respect to the valve stem and valve guide. Any oil splash which might have a tendency to accumulate on the valve stem and which may be splashed up from the oil pocket 31 or squeezed out from between the coils of the spring 20 is thus effectively prevented from getting on the valve stem from where it may eventually leak into the intake pas-

sage 16 by creeping down the valve stem in said valve stem guide.

Although I have illustrated but one form of my invention and have described in detail but a single application thereof, it will be apparent to those skilled in the art to which my invention pertains that various modifications and changes may be made therein without departing from the spirit of my invention or from the scope of the appended claims.

What I claim as my invention is:

1. In a device of the character described, a valve including a stem portion, a valve guide for said stem portion, a valve spring, a valve spring retainer secured to the end of said valve stem portion, and a valve stem oil guard secured to said retainer by said valve spring and depending from said retainer, said guard constructed to shield the valve stem portion projecting from said guide.

2. In a device of the character described, a valve including a stem portion, a valve guide for said stem portion, a valve spring, a valve spring retainer secured to the end of said valve stem portion, and a substantially tubular valve stem oil guard having a flange portion clamped between said retainer and spring, the body portion of said guard depending from said retainer and constructed to shield the valve stem portion projecting from said guide.

3. In a device of the character described, a valve including a stem portion, a valve guide for said stem portion, a valve spring, a valve spring retainer secured to the end of said valve stem portion, and a substantially tubular valve stem oil guard having a flange portion clamped between said retainer and spring, the body portion of said guard depending from said retainer and moving together with said valve, said tubular guard body portion extending substantialy below the top of said guide intermediate the spring and guide and shielding the entire valve stem portion projecting from said guide.

4. In a device of the character described, a valve including a stem portion, a valve spring, a valve guide for said stem portion, a valve spring retainer secured to the end of said valve stem portion, a tubular valve stem guard having an outwardly extending flange seated against the underside of said retainer, and a valve spring seated against the flange of said guard and clamping same to said retainer, said tubular guard being thereby supported to depend from said retainer and providing a body portion arranged to shield the valve stem portion projecting from said guide.

5. In a device of the character described, a valve including a valve stem portion, a valve guide for said stem portion, a valve spring retainer secured to the end of said valve stem, a tubular valve stem oil guard depending from said retainer and shielding the valve stem portion projecting from said guide, and a sealing washer abutting said retainer, said tubular guard having an inwardly extending annular rib engaged with said washer to support same.

6. In a device of the character described, a valve including a valve stem portion, a valve guide for said stem portion, a valve spring retainer secured to the end of said valve stem, and having a valve spring seat and a tapered shank portion, and a tubular valve stem oil guard depending from said retainer flange and shielding the valve stem portion projecting from said guide, said tubular guard having a tapered portion substantially complementary to the tapered shank of said retainer.

7. In a device of the character described, a valve including a valve stem portion, a valve guide for said valve stem portion, a valve spring acting on said valve, a valve spring retainer carried adjacent the end of said valve stem portion, and a valve stem oil guard of substantially tubular construction having a flange and a depending body portion, said flange clamped to the underside of said retainer by said valve spring, said body portion supported to lie intermediate the valve spring and said valve stem portion to shield the valve stem portion projecting from said guide, a sealing washer, and means carried by the body portion of said guard and urged into spring contact with said sealing washer, whereby to retain the said washer in place against the underside of said retainer.

8. In a device of the character described, a valve including a valve stem portion, a valve guide for said valve stem portion, a valve spring acting on said valve, a valve spring retainer carried adjacent the end of said valve stem portion, and a valve stem oil guard of substantially tubular construction having a flange and a depending body portion, said flange clamped to the underside of said retainer by said valve spring, said body portion supported to lie intermediate the valve spring and said valve stem portion to shield the valve stem portion projecting from said guide, a sealing washer, said body portion of said guard having an inwardly extending annular rib engaging said washer to retain said washer in place.

ENOS R. JACOBY.