Jan. 3, 1956 L. M. DAVIS 2,729,306

OIL FLOW RESTRICTING CONTROL DEVICE

Filed Nov. 1, 1954

Fig. 1.

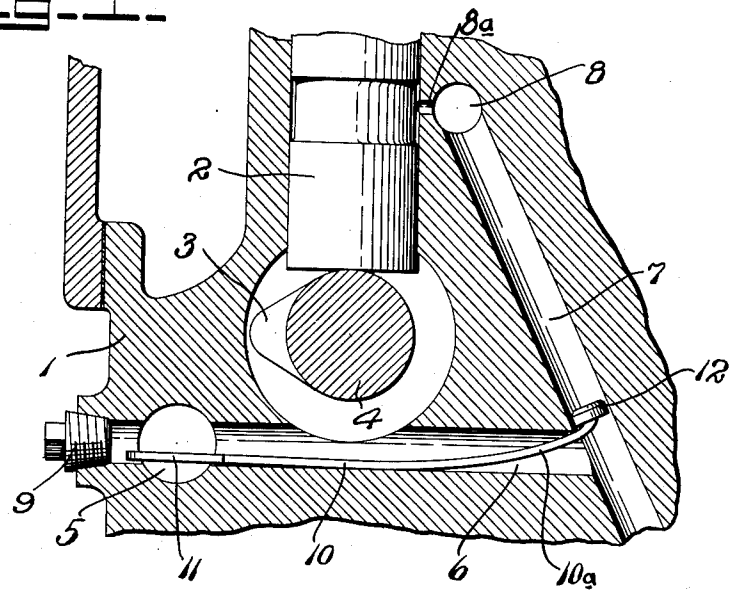


Fig. 2.

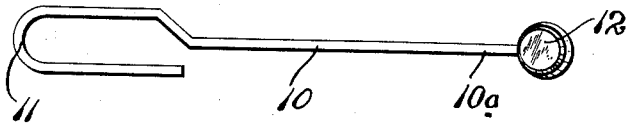


Fig. 4.

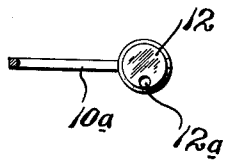


Fig. 5.

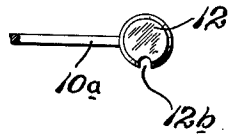
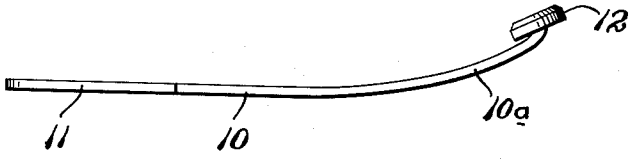


Fig. 3.



INVENTOR

Lewis M. Davis

BY

Frank E. Liverance, Jr.

ATTORNEY

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OIL FLOW RESTRICTING CONTROL DEVICE

Lewis M. Davis, Muskegon, Mich., assignor to Sealed Power Corporation, Muskegon, Mich., a corporation of Michigan

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2 Claims. (Cl. 184—6)

The present invention relates to a particularly simple, inexpensive, novel and practical device which is easily inserted in the conduit line carrying lubricating oil to valve tappets to control the flow of oil thereto, and restricting excessive flow of oil with consequent loss thereof.

In some models of internal combustion engines, after they have been operated for a time with the wear which follows therefrom, excess oil escapes around the engine valve tappets or lifters and not enough oil goes to the main bearings. Such excess oil to the tappets in the form of vapor escapes around the worn tappets creating an unstable oiling condition, excessive oil consumption, poor performance and in many cases the pistons become too oil-wet for the piston rings thereon to properly control.

The usual procedure when such conditions occur it to refit the engine with over-sized tappets, or to attempt to place a restricting plug in the oil line leading to the tappets. Either method followed requires a dismantling of the engine with high expense in time and labor.

With my invention no dismantling is required. All that is necessary is to simply remove an outwardly accessible oil line plug and insert the choke or restrictor of my invention, the time required for insertion being momentary. At any time the choke or oil restrictor is to be removed it can be done very quickly. The device of my invention supports and holds a restrictor head in place in the oil line leading to the tappets which blocks the surge of the oil flow sufficiently to prevent any excess of such flow, properly metering the amount of oil which will go to the tappets. My invention therefore provides a simple solution for what has heretofore been a difficult and expensive solution, requiring little time and the device itself being inexpensive to manufacture.

An understanding of the invention may be had from the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is a fragmentary transverse vertical section through the side of an engine block at which valve tappets or lifters are positioned, and with the oil line choke or restrictor of my invention in place.

Fig. 2 is a plan view of the choke or restrictor.

Fig. 3 is a side elevation thereof, and

Figs. 4 and 5 are fragmentary plan views of modifications of the end of the choke or restrictor at which the oil blocking head is positioned.

Like reference characters refer to like parts in the different figures of the drawing.

The environment in which my invention is used, shown in Fig. 1, is an engine block casting **1** in which generally vertically positioned tappets **2** are mounted for reciprocation in the usual manner being actuated by cams **3** on a horizontal rotatable camshaft **4** in the usual manner. Of course, vertical cylinder engines are not the only ones with which my invention is usable, the V-type engines also needing the invention which may be used therewith.

Lubricating oil is forced under pressure through a conduit **5** made in the casting, from which an inwardly extending conduit or gallery **6** leads to and joins with an inclined gallery **7**, the upper portion of which conducts oil to the tappets, joining with a horizontal conduit **8** which lies alongside the bank of tappets with delivery passages at **8***a* as shown from the gallery **8**, one to each tappet. The downwardly extending portions of the galleries **6** lead to crank or other shaft bearings. At the outer end of the conduit or gallery **6** is a removable screw plug **9** which is accessible at the outer side of the engine block casting **1**.

My invention, for association with the lubricating system described, comprises a shank **10** of spring wire formed at its outer end into a generally shaped U-loop, such as indicated at **11**, and at its inner end curved upwardly in a terminal section **10***a*. At the end of the section **10***a* a head **12** is permanently secured by riveting, welding, brazing or any other equivalent means of connection.

Such oil choke or restrictor device is inserted in the gallery **6**, the screw plug **9** having been removed, by first entering the head **12** and moving the entire device bodily into the gallery **6** until the head **12** is received into the tappet gallery **7**. The loop **11** is of dimensions such that it frictionally bears against sides of the gallery **6** so as to be held in place. The head **12** in the tappet supplying gallery **7** extends above the inner end of the gallery **6** as shown in Fig. 1 so that, normally, the device remains securely in place, as shown in Fig. 1, and does not move outward. The flow past the head **12** may be controlled in different ways. One way is to make the size of the head **12** smaller than the cross section of the gallery **7** leaving a restricted space around the head for oil passage to the tappets. Another is to drill a hole, at **12***a* in Fig. 4, or provide a notch or recess at **12***b* in Fig. 5, in the head for controlling and limiting and thus metering the flow of oil to the tappets. The oil choke or restrictor device may be removed by first removing the screw plug **9** and pulling upon the loop **11** with pliers or any other suitable implement.

It is evident that what has previously been a condition which for correction was expensive in time and labor needed is easily taken care of by the oil line choke or restrictor constructed as described which is exceptionally simple and inexpensive to make. For different models of engines the lengths of the spring members or shanks **10** may be varied and the heads **12** and loops **11** are varied in accordance with the dimensions of the oil galleries or conduits.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. In an internal combustion engine having a block, a reciprocable tappet therein, an oil conducting conduit leading to said tappet, and an oil supplying conduit connected with the first mentioned conduit at a distance from said tappet, and said conduits being at an angle to each other, the supplying conduit having an opening at an outer side of the block, the improvement comprising, an elongated shank of spring material lengthwise of said supplying conduit having an inner end portion of curved form and an oil blocking head at the inner end thereof, said head being located in the first mentioned conduit adjacent the inner end of the supply conduit and maintained in such position by the curved inner end portion of said shank, the area of said head being less than the cross sectional area of the first conduit for passage of a restricted quantity of oil.

2. Construction having the elements defined in claim 1, said head having dimensions relative to the conduit in which placed to restrict oil flow in the first conduit to a generally predetermined quantity.

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