

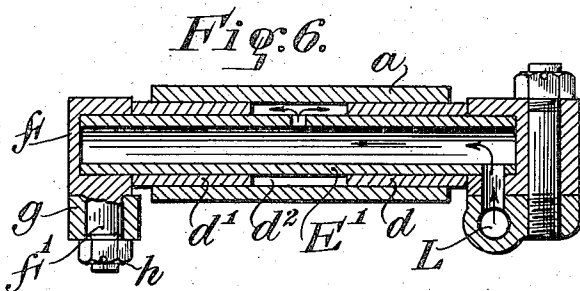
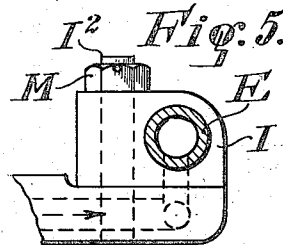
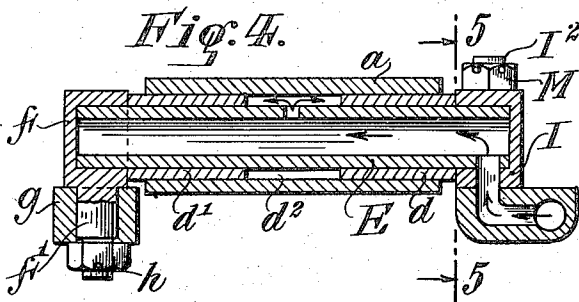
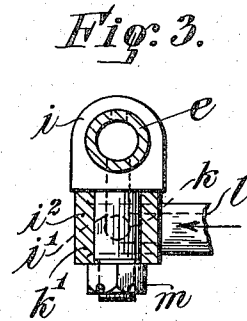
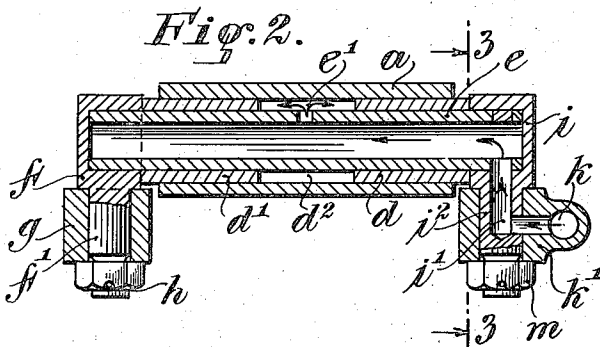
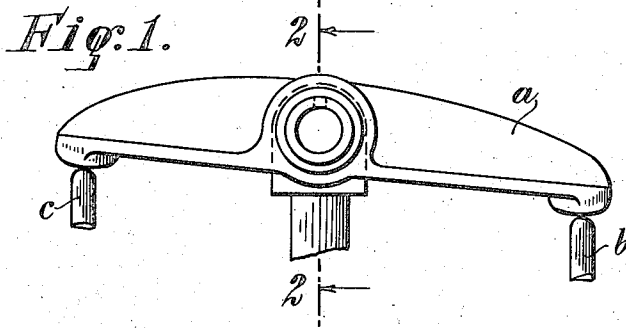
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K. R. MANVILLE

ROCKER ARM MOUNTING FOR INTERNAL COMBUSTION ENGINES

Filed Dec. 6, 1922



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UNITED STATES PATENT OFFICE.

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ROCKER-ARM MOUNTING FOR INTERNAL-COMBUSTION ENGINES.

Application filed December 6, 1922. Serial No. 605,315.

To all whom it may concern:

Be it known that I, KEITH R. MANVILLE, a citizen of the United States, residing in the borough of Brooklyn, of the city of New York, in the State of New York, have invented certain new and useful Improvements in Rocker-Arm Mountings for Internal-Combustion Engines, of which the following is a specification, reference being had to the accompanying drawing, forming a part hereof.

This invention relates to an improved mounting for rocker arms for actuating the valves of internal combustion engines, such arms being ordinarily used in connection with over-head valves. A force-feed lubrication is required for such rocker arms and heretofore it has been the practice to mount all of the arms for a given set of valves on a single tubular shaft through which oil might be forced to each one of them. The objection to this practice is that no one of the arms may be dismounted without dismounting the entire shaft and, in case of any of the intermediate arms several have to be removed. The object of the present invention is to provide a simple and efficient self-contained mounting for each such rocker arm which provides for a force-feed and permits the ready demounting of any one of the arms and its supporting shaft without disturbing any of the other mountings or the common supply line for the lubricant.

The invention will be described with reference to the embodiment thereof in several practical units shown in the drawings wherein:

Figure 1 is a view in side elevation of a rocker arm illustrating conventionally its relation to valves to be actuated.

Figure 2 is a view in longitudinal vertical section taken through the mounting shown in Figure 1 and taken on the plane indicated by the line 2—2 of Figure 1 and looking in the direction of the arrows.

Figure 3 is a transverse sectional view taken on the plane indicated by the line 3—3 of Figure 2 and looking in the direction of the arrows.

Figures 4 and 6 are longitudinal vertical sections of modified forms of mountings embodying the invention.

Figure 5 is a transverse sectional view through the embodiment shown in Figure 4

and taken on the plane indicated by the line 5—5 of Figure 4 and looking in the direction of the arrows.

The rocker arm *a* illustrated conventionally in Figure 1 is adapted to actuate a valve lifter such as *b* and be actuated by a lifter rod *c* in accordance with well known practice. The problem is to mount the arm *a* in such manner that it may be lubricated through a force-feed and be removed when required without disturbing any of the other rocker arms or their mountings or the supply pipe for the lubricant. One suitable embodiment is illustrated in Figure 2. As shown there the rocker arm *a* is formed with a circular bearing in which may be inserted spaced bushings *d*, *d'*, through which passes the supporting tubular shaft *e*. An annular space *d*² left between the proximate ends of the bushings *d*, *d'*, communicates through an opening *e'* in the shaft *e* and serves to receive a lubricant which is conveyed thereto under compression through the tubular shaft *e* and the opening *e'* for lubricating the arm *a* in its oscillations. The shaft *e* may be journaled by many different means all permitting its ready dismounting without disturbing the lubricant supply line. For instance, as shown in Figure 2, a simple journal *f* may receive one end of the shaft and constitute a cap therefor this journal being provided with a shank *f'* mounted removably in a suitable supporting bracket *g* and secured therein by means of a nut *h*. The other end of the shaft may be similarly mounted and the supporting journal *i* therefor may have its shank drilled as at *i'* to form a channel for the lubricant which may communicate with a channel *k* formed in the supporting bracket *k'* for the shank *i*², the last named channel being connected to the oil supply line *l*. A nut *m* may be threaded onto the lower end of the shank *i*² for securing it in the bracket *k'*. From the description given it will be evident that the lubricant may be supplied under forced-feed from the oil pipe *l* through the tubular shaft *e* to the bearing for the arm *a*. If it is desired to dismount the arm *a* for any purpose the nuts *h* and *m* may be removed and the shanks *f'*, *i*², lifted out of their respective supports thereby permitting the removal of the arm and its entire mounting as a unit. This removal will not

disturb the connection of the oil supply line 7 nor will it disturb any of the other rocker arms which may be associated with the engine. When thus removed the mounting 5 may quickly be disassembled by taking off the journals *f*, *z*, and slipping the shaft *e* out of the central bearing for the arm.

The modification in Figure 4 is substantially similar except that the shaft *E* is 10 supported at one end in a journal block *I* which is secured detachably in place by means of a stud *I*² and bolt *M* disposed wholly at one side of the shaft *E'* and forming no part of the lubricant channels as in 15 the embodiment shown in Figure 2.

In the embodiment shown in Figure 6 the construction is again substantially similar except that the lubricant supply pipe *L* is 20 disposed in a little different relation to the axis of the shaft *E*.

The different embodiments shown merely illustrate the latitude in practicing the invention with its attendant advantages and are not to be considered as limiting but 25 merely as illustrative. Changes in relations of parts will suggest themselves to one skilled in the art and other arrangements of the oil ducts may be made without departing from the spirit of the invention.

30 What I claim is:

1. In combination with a rocker arm for valves a tubular shaft on which the arm

is mounted and through which a lubricant is supplied under forced-feed to the arm, 35 journals for supporting the shaft and means for dismounting the shaft with the arm as a unitary structure.

2. In combination with a rocker arm for valves a self-contained unitary mounting therefor including a hollow shaft on which 40 the arm is mounted, journals in which the ends of the shaft are supported, one of said journals being provided with a duct through which a lubricant may be led into the bore of the shaft, a supply line for the lubricant 45 permanently connected with said last named journal and means for securing the journals removably.

3. In combination with a rocker arm for valves spaced bushings on which the arm 50 is mounted, a tubular shaft extending through the bushings, journal blocks in which the ends of the shaft are mounted, said blocks constituting caps to close the 55 shaft, a lubricant supply line communicating with one of said journal blocks, and means for securing the journal blocks detachably in place independent of said lubricant supply line the elements being provided 60 with ducts to lead the lubricant from the lubricant supply line to said bushings.

This specification signed this 4th day of December, A. D. 1922.

KEITH R. MANVILLE.