Jan. 9, 1923.

1,441,248

C. R. SHORT.
MOTOR VEHICLE.
ORIGINAL FILED APR. 6, 1917.

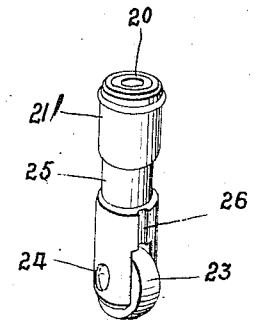


FIG. II.

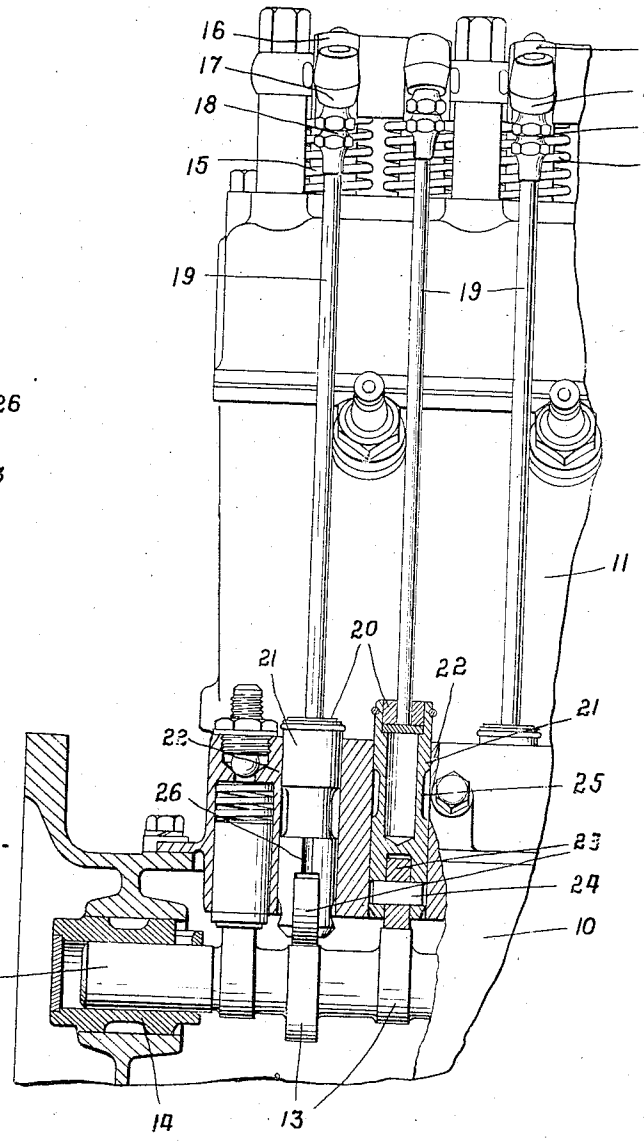


FIG. I.

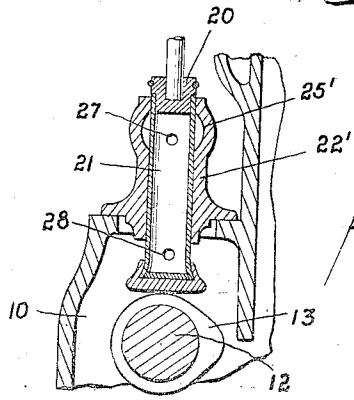


FIG. III.

INVENTOR:
CHARLES R. SHORT,
BY
ATTORNEY.

Patented Jan. 9, 1923. 1,441,248

UNITED STATES PATENT OFFICE.

CHARLES R. SHORT, OF DETROIT, MICHIGAN, ASSIGNOR TO GENERAL MOTORS COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF NEW JERSEY.

MOTOR VEHICLE.

Application filed April 6, 1917, Serial No. 160,132. Renewed April 13, 1922. Serial No. 552,227.

To all whom it may concern:

Be it known that I, CHARLES R. SHORT, a subject of the King of Great Britain, and resident of Detroit, Wayne County, State of Michigan, have invented certain new and useful Improvements in Motor Vehicles, of which the following is a specification.

This invention relates to hydrocarbon motors, and more particularly to a device for preventing the pumping of oil exteriorly of a lubricant casing through which extends a reciprocating plunger.

One of the objects of this invention is to provide simple and improved means between a sleeve and a reciprocable plunger therein, having a lubricant arranged therebetween, for preventing the discharge of the lubricant to a point exteriorly of the sleeve.

A preferred form of my invention comprises in general, a guide sleeve mounted in a motor crank case, with a reciprocable tappet mounted therein, with means adjacent one end of the guide sleeve for preventing the tappet from pumping oil to the exterior of the sleeve.

These, and other objects will clearly appear from the following description, taken in connection with the drawings in which:

Figure 1 is a side elevation, with portions in section, of one end of a hydrocarbon motor power plant, embodying a preferred form of my invention;

Figure 2 is a perspective view of a preferred form of tappet assembly; and

Figure 3 is a fragmentary vertical sectional view of a modified form of my invention.

Referring to the drawings, 10 represents a motor crank case on which may be suitably arranged, a multi-cylinder block 11. A shaft 12, provided with cams 13, may be mounted in bearings 14 in the crank case 10. An overhead valve mechanism 15 may be operated through one end of the rocker arms 16, and the other end 17 of the rocker arms may be connected as by adjustable couplings 18 to the upper end of operating rods 19. The lower end of each of the rods 19 is adapted to be connected to a plug member 20 in the upper end of a tappet 21, reciprocally mounted in a guide sleeve 22 on the crank case.

Referring particularly to Figures 1 and 2, it will be noted that a roller 23 is adapted to be trunnioned in the lower end of the tappet member 21 as by a pin 24. This roller being adapted to ride on one of the cams 13. In the form just referred to, it is to be noted that intermediate the ends of the tappet member is a contracted offset portion or belt 25 which is connected as by a downwardly extending groove or channel 26 with a point adjacent the roller 23.

It will be understood that any oil which is pumped upwardly from the crank case 10 by the reciprocating movements of the tappet member 21 in its guide, will be retained by the pocket which is formed between the contracted portions of the tappet and the guide sleeve 22, and from there it will flow through the channel 26 back to the lower portion of the tappet and is finally returned to the crank case.

Referring particularly to Figure 3, it will be noted that the guide sleeve 22′ is formed with a circumferentially extending recess 25′. The tappet member which is mounted in this guide presents a straight surface from end to end, except for the perforation or ports 27 and 28, which connect the exterior of this tappet member with its interior, adjacent its upper and lower ends respectively. It is to be understood that any lubricant which is pumped upwardly between the tappet and the guide, will be collected in the pocket 25, formed in the upper part of the guide sleeve, from which it will be drained to the interior of the tappet member through the port 27 and discharged therefrom through the port 28 to the crank case 10.

While I have described and will specifically claim what I deem to be a preferred form of my invention, it will be obvious to those skilled in the art, that various modifications and changes may be made without departing from the spirit and scope hereof.

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

1. In an internal combustion engine, in combination, a cam shaft and valve mechanism; a tappet guide member having a cylindrical bore therethrough, and an internal recess adjacent its upper end; a tappet of hollow cylindrical form reciprocably arranged in the bore of said guide member and actuated by said cam shaft, and having an oil drain passage leading from said re-

cess through the same, and discharging below said tappet guide member; and a tappet rod operatively associated with said valve mechanism and resting upon the upper end of said cylindrical tappet.

2. In an internal combustion engine, the combination with a cam shaft and a valve mechanism, of a tappet reciprocably arranged in an imperforate cylindrical guide member adjacent said cam shaft, and which tappet comprises a length of tube having a shoe secured to the lower end thereof and which shoe is operatively engaged by said cam shaft and a plug fitted at the upper end and forming a seat for a tappet rod which is operatively associated with said valve mechanism; said tappet having an oil return means leading from a circumferential chamber formed thereabout intermediate the length of said guide member to the end of said tappet adjacent said cam shaft.

3. In an internal combustion engine and in combination with a cam shaft and valve mechanism, a tappet guide member having a cylindrical bore therethrough, and an internal circumferentially extending recess adjacent its upper end; a tappet of hollow cylindrical form reciprocably arranged in the bore of said guide member and actuated at the lower end thereof by said cam shaft, and which tappet is provided with a hole adapted to communicate with said recess, and with a second hole adjacent its lower end, whereby an oil drain passage from the upper part of said tappet to the lower part thereof below said guide member is established; and a tappet rod operatively associated with said valve mechanism and the lower end of which rests upon the upper end of said cylindrical tappet.

In testimony whereof I affix my signature.

CHARLES R. SHORT.