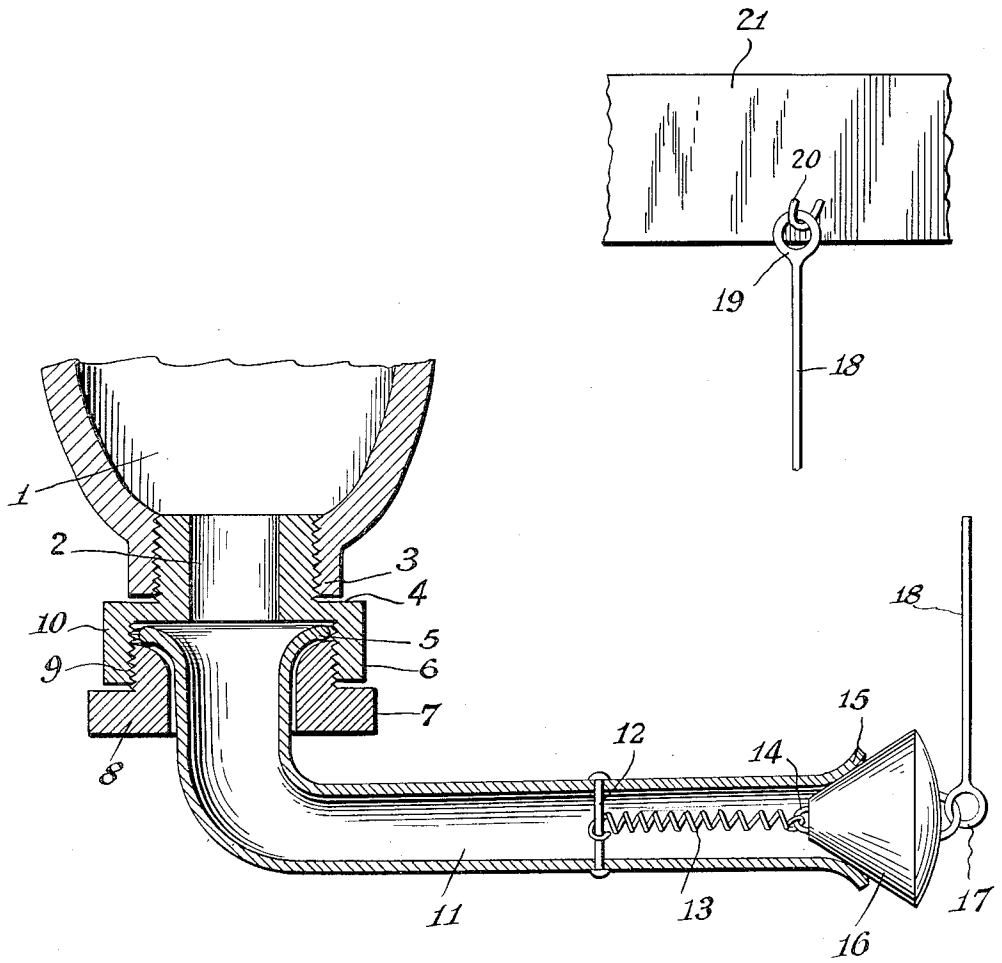
May 8, 1934. W. STREHLER 1,957,736

CRANK CASE DRAIN PIPE FOR AUTOMOBILES

Filed March 22, 1926



Inventor.
William Strehler

Patented May 8, 1934 1,957,736

UNITED STATES PATENT OFFICE

1,957,736

CRANK CASE DRAIN PIPE FOR AUTOMOBILES

William Strehler, Rochester, N. Y.

Application March 22, 1926, Serial No. 96,571

6 Claims. (Cl. 137—34)

This invention relates to means for draining lubricant from crank cases of motor vehicles. Such crank cases are as a rule equipped simply with common screw plugs, difficult to remove and replace when draining, these fittings being at very inconvenient locations and accessible only from beneath the vehicle. Moreover the types or sizes of plugs ordinarily vary with the make of the car, each one requiring a wrench of a certain size, which often involves an additional loss of time when having the crank case drained at a service station or garage. For this reason, and also on account of the difficulty and inconvenience encountered by car owners wishing to do this work themselves, necessary draining is frequently postponed or neglected and inevitably results in excessive wear to the moving parts of the engine.

My invention has for its object to overcome the difficulties noted above and also to improve other draining means such as pet cocks or valves, by enabling said operation to be done in considerably less time, by obtaining a quicker evacuation of the oil and without any tools or the other implements necessary for these devices.

Another object is to provide simple and inexpensive means by enabling all operations incidental to draining to be accomplished without the necessity for crawling under the car, by providing the valve or plug of the drain member with a flexible connection adapted to extend to the dash board or proximity of the seat of the vehicle, or if desired, to any other place accessible to the driver, the draining of the crank case being effected without leaving the seat, or if preferred, while standing alongside the vehicle and without the necessity of driving the car to an oil rack—the draining of the crank case being possible while the tank is being filled with gasoline.

A further object of the invention is to provide a drain member whose valve is relatively distant from its inlet so as to reserve sufficient interior space in the drain member for the accumulation of foreign matter, in the oil or lubricant, as for example the accumulation of water, sand, carbon, metal particles and other abrasives in the lower portion of the crank case of an automobile engine, so that whenever the motor is idle the accumulation of sediments may take place in the interior of the drain member, instead of in the crank case, and in such manner that when the clean oil in the crank case is caused to circulate, the accumulation stored in the drain member will not be carried back into the crank case to injure the moving parts of the motor.

This last object of providing efficiently for the separation of destructive matter accumulating in the drain member from the clean oil above the outlet of the crank case, is of particular importance, especially in the winter time, when condensation in the crank case produces a considerable quantity of water which often causes the formation of ice in or near the lower part of the oil pump and oil gauge, sometimes preventing them from functioning properly, if at all, in which case it may also cause the pump to freeze up, with the result that it or its drive shaft will be broken when the engine is started up.

In the drawing is shown a fragmentary sectional view of a motor crank case, showing the drain member in section with one end of said connection secured to the plug and the other end to the dash board 21, for actuating the plug from either of the accessible places mentioned before.

Referring to the drawing by numerals, 10 indicates a nut, 5 the rim of the drain member 11 and 8 a plug provided with a bore to surround said member below said rim, these parts when assembled together as shown in the drawing cooperating with each other to effect an oil-tight connection between the drain member 11 and the drain opening 3 of the crank case 1.

The nut 10 consists of an externally threaded neck 2 and is provided with a flat surface 4 abutting against the end of the wall of the opening 3 of the crank case 1 when screwed thereto in substitution for the usual plug or pet cock. The internally threaded end 9 of said nut 10 is constructed so as to present a correspondingly larger diameter than at the neck 2, to receive the end of the drain member 11 and the externally threaded plug 8 surrounding the same, the rim 5 of said member 11 being held in position between the nut 10 and the plug 8 when the same are engaged together at 9. Both nut 10 and plug 8 are provided with hexagonal side surfaces at 6 and 7, to which a wrench may be applied when assembling the parts.

Referring now to the drain member 11, it will be observed that the same is elongated and angularly shaped just below the plug 8 and when assembled to the crank case 1 extends toward the confines of the vehicle or in the direction of any one of the four sides thereof, depending on the type of crank case and make of car and also on the location of the drain opening to which the drain member is to be connected. Its length is such that the oil may be drained preferably in proximity of the running board shield or front fender, but may, in certain cases, be considerably

less, while its extreme or outlet end 15 presents a valve seat and is sealed by a plug or valve 16 in cooperative engagement therewith. A spring, inside of the drain member 11, as indicated at 13, is held in place by means of a headed pin 12 and its other end is fastened at 14 to the valve or closure 16 to exert a pull on said closure and normally maintain the outlet end 15 of the drain member closed, but is movable from said position to effect the draining of the oil, as will be presently explained.

A flexible rod, as indicated at 18, is connected to the plug at 17 by means of a loop and is adapted to be passed through a perforation in the floor board where it will not interfere with the comfort of the driver or passenger. It is obvious that by a simple pull of the rod 18 the plug 16 may be brought into such a position as to effect a draining of the crank case anywhere, while standing alongside the car or without leaving the seat, if desired, and without the inconvenience and loss of time resulting from other means of draining.

21 indicates a fragment of the dash board of a vehicle to which a hook or other retaining means 20 is fastened, said hook showing the preferred mode of installing the rod 18 by securing the loop 19 at the end of said rod to the dash board.

Where the construction of the car permits the installation of a drain member of such length that its outer end will terminate at a point near the running board shield or front fender or front axle of the car, as mentioned before, the operating connection may be dispensed with, as the valve or plug will be about within arm's length from the side of the vehicle and the operator may effect the draining of the crank case by simply operating the plug or valve by hand.

In addition to the numerous advantages of this drain arrangement as enumerated in the introduction of the specification, it will be seen that considerable economies in the operation of an automobile will result from the use of this device, as for instance in the purchase of oil in bulk and in the minimizing of wear and repairs due to impurities being kept out of the crank case entirely, in addition to increased efficiency, utmost convenience and saving of time. It is also obvious that maximum efficiency and longer life in a motor, apart from frequent draining at regular intervals, depend upon complete draining of fouled oil from the crank case, an operation which is rarely carried out to completion at service stations and which would require crawling under the car twice, first for removing the plug and then for replacing it, should the driver wish to obtain a complete draining of the crank case himself.

It will be seen that the present invention overcomes the inconveniences noted above, since it enables the driver to effect the draining in the most convenient manner possible, as for instance, when parking the car overnight, the drain member may be operated to open position so as to allow all night for the oil to drip out, it being then only necessary in the morning to return the valve or plug to its normal position before refilling the crank case with clean oil. In such cases, where it is desired to flush the crank case, thus requiring two drainings before refilling with clean oil, the advantages of this device become more apparent, since the complete operation of starting and cutting off the flow of oil for each draining is accomplished without the usual annoyance attending such operation.

By constructing the drain member 11 substantially as described, the draining means of my invention is applicable to all types of motor vehicles without requiring any changes in them. Any suitable connection may be provided or employed for connecting the drain member to different types of crank cases, in such manner that the passage in the drain member communicates with a drain opening in the wall of the crank case, and the drain member is designed so as to facilitate the assembling of its various parts during the process of construction and also, in certain cases, permit easy access to the crank case drain opening, where the construction and location of adjacent parts might otherwise make its installation difficult. When so connected, the member projects in a substantially horizontal plane from the point of connection and extends in the direction most suitable in each case, so as to minimize its interfering with adjacent parts or other mechanism. For instance, the drain member may be directed longitudinally of the vehicle, so as to point either toward the front or the rear of the car, or if preferred, be connected in such a manner, so as to project sidewise and at any angle toward either the left or right side of the vehicle and the claims are accordingly, generally speaking, to be accorded liberal interpretation in this regard.

What I claim is:

1. A device for draining motor vehicle crank cases comprising an elongated drain member having one end adapted to be secured to the drain opening of a motor crank case, said member when so connected having its outer end terminating at a point within arm's length from the side of the vehicle, a liquid passage in said member, a discharge outlet in the outer end of said member establishing communication between said passage and the exterior, and a manually operable plug coacting with said outlet to normally control the liquid passage, whereby said passage is caused to function in the additional capacity of a chamber for receiving and retaining the accumulation of sediments in the oil.

2. A drain device for draining lubricant from motor crank cases comprising an elongated drain member in the form of a pipe shaped body portion, means for connecting one end of said member to the drain opening of a motor crank case, said member having an internal passage, an outlet opening in the other end of said member establishing communication between said passage and the exterior, and a valve means to normally control said passage, the member when connected to the crank case having its outlet end terminating at a point where the lubricant may be drained in proximity of one side of the vehicle.

3. A device for draining motor vehicle crank cases comprising an elongated drain member having one end adapted to be secured to the drain opening of a motor crank case, said member having a liquid passage, a discharge outlet establishing communication between said passage and the exterior, and a closure means to normally control the liquid passage, the drain member being of such length so that the closure means may be readily reached for manual operation from the side of the vehicle, when the drain member is connected to the crank case.

4. A device for draining motor vehicle crank cases comprising an elongated drain member having one end adapted to be secured to the drain

opening of a motor crank case, said member having a liquid passage, a discharge outlet in the other end of the member establishing communication between said passage and the outer air, a valve seat embodied by said outlet, a valve member to coact with said seat, and a spring means to normally maintain said valve member on the seat so as to control said outlet, the drain member when connected to the crank case having its outlet end terminating at a point where the valve member may be readily operated by hand from one side of the vehicle.

5. A device for draining motor vehicle crank cases comprising an elongated drain member having one end adapted to be secured to the drain opening of a motor crank case, said member having a liquid passage, a discharge outlet in the other end of the member establishing communication between said passage and the outer air, a valve seat embodied by said outlet, a valve to coact with said seat, and a spring housed in said member for normally holding the valve seated to control said outlet, the member when connected to the crank case having its outlet end terminating at a point where the operator may operate the valve manually from one side of the vehicle.

6. A device for draining motor vehicle crank cases comprising an elongated drain member having one end adapted to be secured to the drain opening of a motor crank case, said member having a liquid passage, a discharge outlet in the other end of the member establishing communication between said passage and the outer air, a valve seat embodied by said outlet, a valve to coact with said seat, and a tension spring housed in said member for exerting a pull on said valve and normally holding the valve seated to control said outlet, the member when connected to the crank case having its outlet end terminating at a point where the operator may operate the valve manually from one side of the vehicle.

WILLIAM STREHLER.