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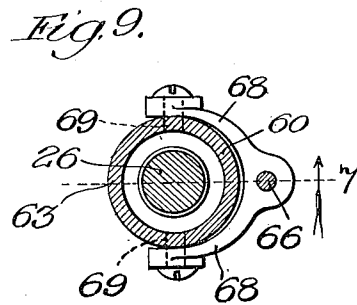
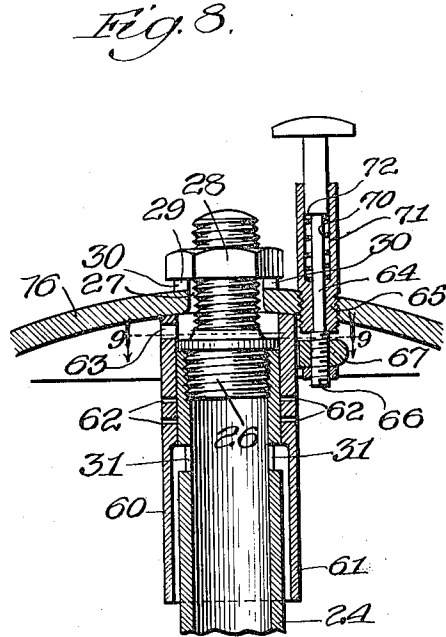
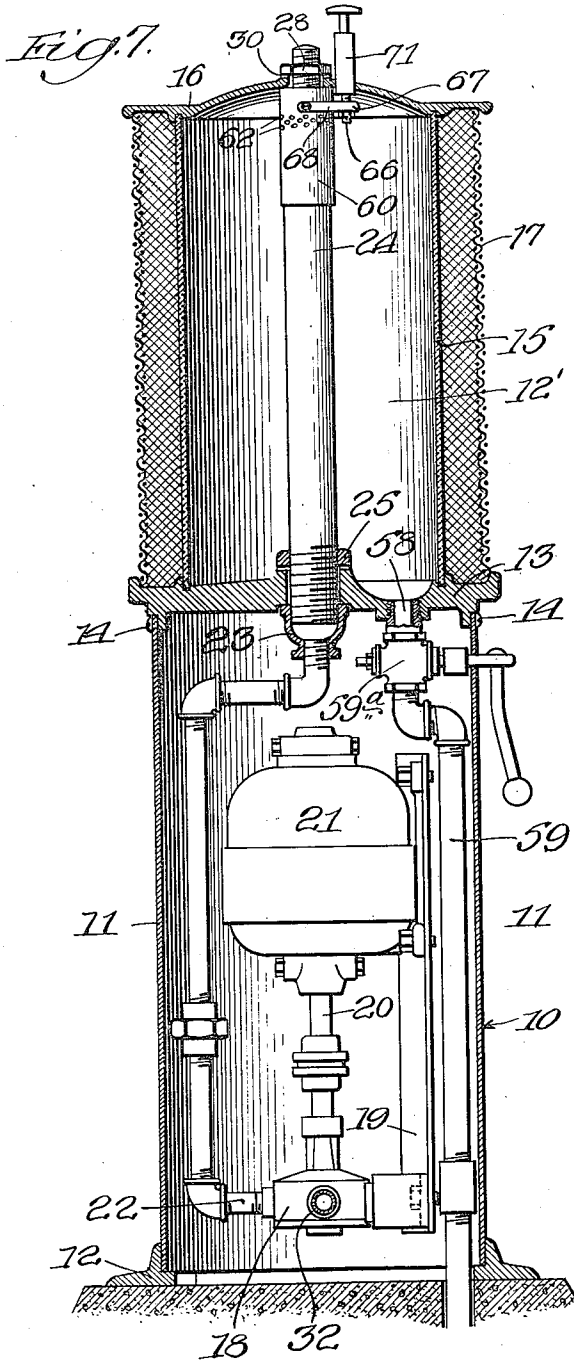
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RECEPTACLE EVACUATING APPARATUS

Filed Oct. 25, 1926

2 Sheets-Sheet 2



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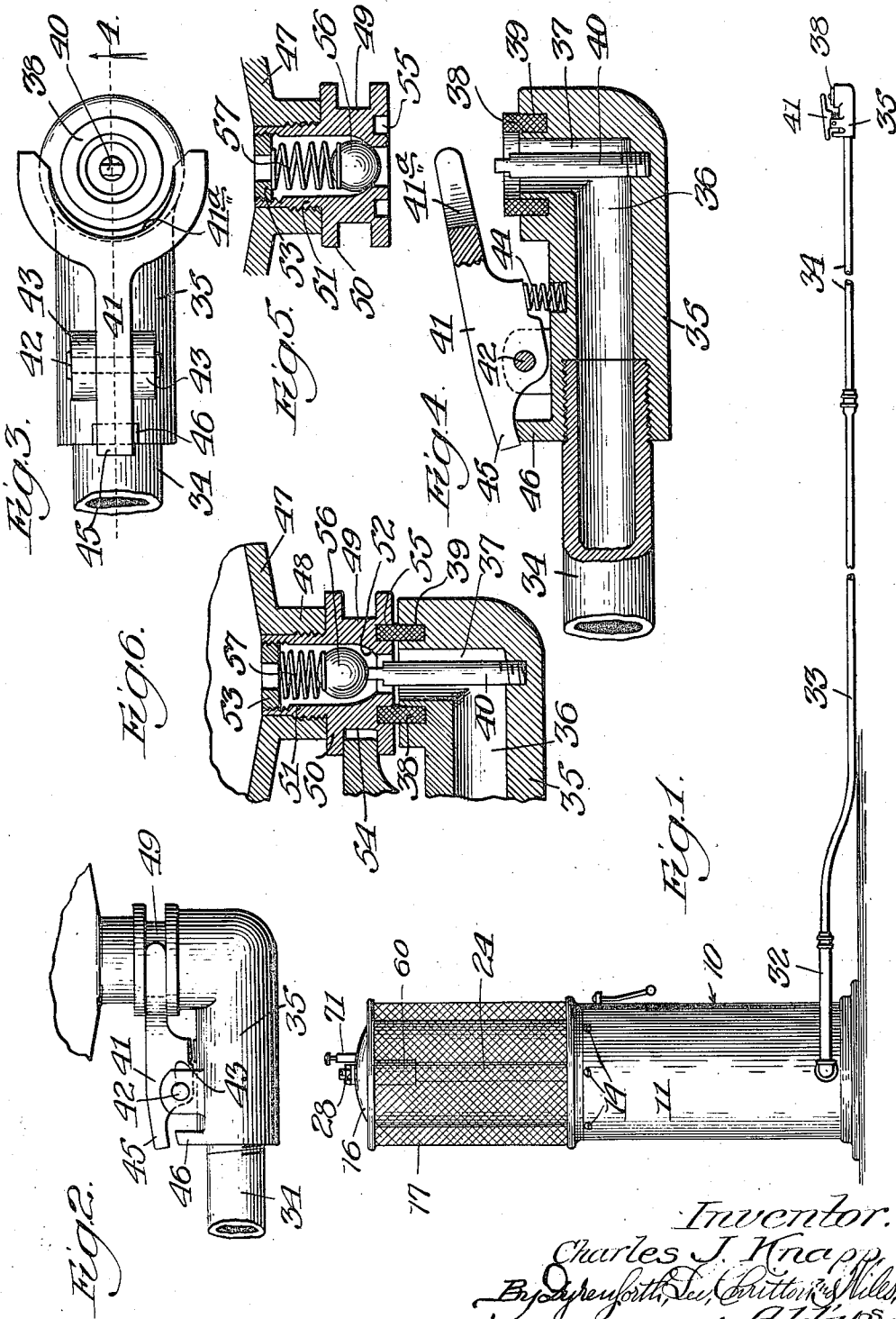
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2 Sheets-Sheet 1



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RECEPTACLE EVACUATING APPARATUS

Application filed October 25, 1926. Serial No. 144,040.

My invention relates to apparatus for evacuating, under the control of an operator, the contents of receptacles, as for example and more particularly, the crank-cases of automobiles, preparatory to the recharging thereof with fresh oil.

My primary objects are to provide a novel, simple, and positively operating construction of apparatus of the character stated, by which the liquid may be quickly evacuated from the container and preferably discharged into a receiver, accessible to view; to provide novel, simple, and economical means for cleansing the interior of the receptacle into which the liquid is discharged and which is of particular advantage where the liquid is used oil from a crank-case; to provide a simple and economical coupler means for connecting with the valve-equipped outlet of a crank-case, the pipe of the apparatus through which the oil is conveyed away from the crank-case, preferably to the receiving receptacle referred to.

Referring to the accompanying drawings:—

Figure 1 is a view in side elevation of an evacuating apparatus constructed in accordance with my invention. Figure 2 is a broken elevational view of the lower, outlet, portion of the crank-case of an automobile and the terminal portion of the coupler-equipped pipe of the evacuating apparatus showing the latter positioned on the drain outlet of the crank-case for receiving the oil therefrom. Figure 3 is a broken plan view of the coupler portion of the pipe shown in Fig. 2. Figure 4 is a longitudinal sectional view of the structure shown in Fig. 3, the section being taken at the line 4 on Fig. 3 and viewed in the direction of the arrow. Figure 5 is a vertical sectional view of the drain-outlet-equipped portion of the crank-case shown in Fig. 2. Figure 6 is a view like Fig. 5 and of the structure therein shown, with the coupler portion of the pipe applied thereto to the position shown in Fig. 2. Figure 7 is a view in vertical sectional elevation of the apparatus shown in Fig. 1, with certain of the parts shown in elevation, the section being taken at the line 7 on Fig. 9 and

viewed in the direction of the arrow. Figure 8 is a view in vertical sectional elevation of the upper portion of the apparatus of Fig. 7 disclosing certain details of this part of the apparatus; and Figure 9, a plan sectional view taken at the line 9—9 on Fig. 8 and viewed in the direction of the arrows.

The apparatus, in accordance with the preferred illustrated embodiment of my invention, comprises a hollow column 10 shown as formed of a cylindrical wall portion 11 mounted in a base 12 at which the column is supported on any suitable foundation, the column being surmounted by a receptacle 12' for receiving the oil drained from the crank-case of the automobile engine, this receptacle comprising a plate 13 forming the bottom thereof and mounted upon the upper end of the wall portion 11 and secured thereto as by the screws 14, a cylindrical wall portion 15, preferably of glass, mounted on the bottom plate 13 with a fluid-tight joint between these parts, and a top, or cover, portion 16 mounted on the upper end of the wall 15, the wall portion 15 being shown as surrounded by a protecting member 17, as for example of wire mesh, spaced from the wall portion 15 and confined between the plate 13 and the cover portion 16.

The column 11 contains the power means for drawing the oil from the crank-case and forcing it into the receptacle 12, these means comprising a pump, as for example a gear pump as shown, secured to a bracket 19 located within the column 11 and secured to a wall of the latter, the rotor of the pump being connected with the armature shaft 20 of an electric motor 21 located in the column 11 above the pump 18 and secured in place by the bracket 19. The discharge port of the pump 18 communicates with a pipe 22 which leads upwardly in the column 11 and opens into a hollow fitting 23 screwed upon the lower end of a pipe 24 which opens at its lower end into the fitting 23 and extends upwardly in the receptacle 12' and centrally thereof. The pipe 24 is clamped to the base plate 13 through which it extends by a nut 25 screwed upon the lower threaded end of this pipe and against the upper surface of the base

plate 13. The upper end of the pipe 24 is internally screw threaded and has screwed therein a plug 26 which extends loosely through an opening 27 in the cover plate 16.

5 A nut 28 is screwed upon the outer, upper, end of the threaded extremity of the plug 26 and against an upwardly extending flange 29 on the cover 16 and surrounding the opening 27, this flange containing openings 30 forming vents. The nut 28 serves as a means
10 for rigidly securing the upper end of the pipe 24 against displacement.

In the operation of the apparatus the liquid delivered to the pump 18, as hereinafter described and pumped thereby through the pipe 22, passes upwardly through the pipe 24 from which it discharges through lateral openings 31 in this pipe adjacent to, but below, the plug 26.

20 The inlet of the pump 18 is connected with a pipe 32 which is formed with an intermediate flexible hose-line portion 33 and a rigid terminal pipe-portion 34. The outer end of the pipe-portion 34 is provided with a
25 head 35 containing a horizontal passage 36 which communicates with the passage of the body-portion of the pipe 34, and a vertical passage 37 which opens through the upper side of the head 35, the terminus of this passage being surrounded by a gasket 38, preferably of flexible material, located in an annular groove 39 in the head 35. The head 35 is also provided with a rigid fixed pin 40 which extends upwardly through the passage
35 37 and terminates a slight distance above the upper edge of the gasket 38, for a purpose hereinafter set forth. The head 35 is also provided with a lever member 41 pivoted between its ends at a point to the rear of the
40 pin 40, on a shaft 42 supported in ears 43 on the head and between which ears the lever 41 is located. The forward end of the lever 41 terminates in a yoke 41^a, this lever being normally spring-pressed to the position shown in Fig. 4 by a coil spring 44 interposed
45 between the head 35 and the lever 41, the upward swinging of this lever to the position shown being limited by the engagement of the tail-portion 45 of the lever 41, with an abutment-lug 46 provided on the upper surface of the head 35 at the rear end of the
50 latter.

The head portion 35 with the parts carried thereby, as described, is provided of a form
55 adapting it for cooperation with an automobile crank-case the discharge outlet of which is provided with an automatically downwardly-seating valve which in normal condition maintains the drain outlet closed against
60 escape of oil from the crank-case, but which when elevated from its seat opens the drain outlet, the head-structure of the pipe 32 being provided to automatically open this valve
65 and effect a substantially air-tight joint be-

tween the head and the outer end of the drain outlet, upon application to the latter.

In the particular construction illustrated the lower end of a crank-case is represented at 47, its depending hollow boss-portion, located at the lowermost point of the crank case, being represented at 48 and internally screw threaded in accordance with common practice. The drain outlet is shown as provided with an adapter 49 of a particular form and comprising a body-portion 50 the upper, reduced, end 51 of which screws into the threads of the boss 48. The body-portion 50 contains a passage therethrough which is constricted at 52 and of such contour as to form a seat for a ball-valve, the upper end of the reduced portion 51 of the body-portion 50 being internally threaded and having screwed therein an apertured disk 53. The body portion 50 of the adapter contains a peripheral groove 54 adapted to receive, and interlock with, the yoke portion 41^a of the lever 41, as illustrated in the drawings, said groove 54 thus provides spaced apart shoulders which are simultaneously engaged by the lever 41 to the end that the latter when pushed in the groove is held rigidly against movement axially of the drain opening of the crank case. The bottom surface of the adapter 49 contains a circular groove 55 adapted to receive the upper protruding edge portion of the gasket 38, when the head 35 is applied to operating position on the crank-case.

The adapter contains the ball-valve above referred to and represented at 56, this valve being normally held against the seat 52 to close the outlet of the crankcase as shown in Fig. 5, by a coil-spring 57 interposed between the valve 56 and the disk 53.

When it is desired to evacuate a crank-case, the operator, grasping the rear end of the rigid pipe section 34, which is preferably of such length that the operator may position the head 35 at the drain outlet of the crank-case while remaining at the side of the car, positions the yoke-portion 41^a of the lever 41 in the groove 54 of the adapter to the position shown in Figs. 2, 3 and 6, and thereupon swings the pipe-section 34 on the pivot 42 to move its outer extremity toward the adapter to a position in which the upper edge of the gasket 38 enters the groove 55 in the adapter and the pin 40 unseats the valve 56, as shown in Fig. 6, the lever 42 thus forming a fulcrum for the head 35. The pump 18 being operated the oil is quickly evacuated from the crank-case and delivered to the receptacle 12'. Upon removing the head 35 from the adapter 49, the valve 56 automatically closes and the crank-case is then conditioned to retain fresh oil introduced into it in any desirable way.

The receptacle 12' is shown as provided with a drain outlet 58 which communicates with a pipe 59 provided with a manually con-

trollable valve 59^a and leading to any desired point of discharge, as for example a sewer.

Provision is made in the construction shown for deflecting downwardly from the outlets 31 of the pipe 24, the oil pumped therethrough and also for cleansing the inner surface of the tank when its side wall becomes so befouled as to obscure to view the contents of the receptacle, both of these purposes, in the particular construction shown, being effected by means of a unitary device comprising a sleeve member 60 which has sliding fit at its upper end with the pipe 24, the lower end of this sleeve being hollowed out to cause its lower end portion to be of enlarged internal diameter and forming a skirt 61 the inner surface of which is spaced from the outer surface of the pipe 24. The sleeve 60 contains, above the skirt portion 61, apertures 62 and at its upper end a vent-aperture 63 in communication with the vents 30 through the space between the upper end of the plug 26 and the wall of the opening 27. The normal position of the sleeve 60 is that illustrated in the drawings in which the apertures 62 are positioned above the openings 31 and the vent 63 is in communication with the vents 29. Thus the oil discharged upwardly through the pipe 24 and discharging through the outlets 31 is deflected downwardly along the pipe 24, and the air in the receptacle, and displaced by the oil entering the latter, vents through the openings 63 and 29.

The openings 62 are provided for use in the operation of cleansing the interior of the receptacle 12, and when this cleansing is to be effected the operator lowers the sleeve 60 to a position in which the openings 62 register with the openings 31 and by pumping cleansing fluid through the pipe 22, as for example by operating the pump 18 while submerging the head 35 in a receptacle containing any suitable cleansing fluid, as for example kerosene, the cleansing fluid is forced out through the openings 62 against the walls of the receptacle with the result of washing away befouling accumulations thereon.

The means shown for controlling the position of the sleeve 60 comprises a rod 64 slidably mounted in a tube 65 screwed into an opening in the cover 16 of the receptacle. The lower end of this rod is provided with an enlarged screw-threaded portion 66 screwed into a yoke 67 the arms 68 of which are provided with inwardly-projecting pins 69 engaged in diametrically-disposed apertures in the upper end of the sleeve 60. A coil-spring 70 located in a recess 71 in the pipe 65 and pressing upwardly against a shoulder 72 on the rod 64 serves to hold this rod and the sleeve 60 in uppermost position, as shown in Figs. 7 and 8, and when it is desired to lower the sleeve 60 to cause the openings 62 to register with the openings 31 the operator

merely presses down on the rod 64, the sleeve and the operating means therefor, returning to the normal position shown in Figs. 7 and 8, when the operator releases downward pressure on the rod 64.

While I have illustrated and described a particular construction embodying my invention, I do not wish to be understood as intending to limit it thereto, as the same may be variously modified and altered without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is:

1. A pipe-device for communication with the discharge outlet of an automobile crank-case to be evacuated of its oil content comprising a pipe-portion having an inlet for registration with said discharge outlet and a member movably supported on said pipe-portion and adapted to engage a stationary part of the automobile adjacent the crank-case with said pipe portion spaced from said outlet whereby when said pipe portion is moved relative to said member its inlet will be guided into registration with said outlet.

2. A pipe-device for the evacuation thereof of the contents of an automobile crank-case having a valved discharge outlet, comprising a pipe-portion having an inlet and provided with means for unseating the valve at said discharge outlet in the positioning of said device to register with said discharge outlet, and a member movably supported on said pipe-portion and adapted to engage a stationary part of the automobile adjacent the crankcase with said pipe portion spaced from said outlet whereby when said pipe portion is moved relative to said member its inlet will be guided into registration with said outlet.

3. A pipe-device adapted to be positioned for communication with the discharge outlet of an automobile crank-case to be evacuated of its oil content comprising a pipe-portion having an inlet for registration with said discharge outlet and a member movably supported on said pipe portion and adapted to engage shoulders on said discharge outlet with said pipe portion spaced from said outlet whereby when said pipe portion is moved relative to said member its inlet will be guided into registration with said outlet.

4. A pipe-device for the evacuation thereof of the contents of an automobile crank-case having a valved discharge outlet, comprising a pipe-portion having an inlet and provided with means for unseating the valve at said discharge outlet in the positioning of said device to register with said discharge outlet, and a member movably supported on said pipe portion and adapted to engage shoulders on said discharge outlet with said pipe portion spaced from said outlet whereby when said pipe portion is moved relative to said

member its inlet will be guided into registration with said outlet.

5. In combination with the crank-case of an automobile having a discharge outlet containing a groove in its outer surface disposed crosswise thereof to provide spaced shoulders, a pipe-device through which the contents of the crank-case are evacuated comprising a pipe-portion having an inlet for registration with said discharge outlet, and a member movably supported on said pipe-portion and adapted to enter said groove to engage said shoulders with said pipe portion spaced from said outlet whereby when said pipe portion is moved relative to said member its inlet will be guided into registration with said outlet.

6. In combination with the crank-case of an automobile having a discharge outlet containing a groove in its outer surface disposed crosswise thereof to provide spaced shoulders, a pipe-device through which the contents of the crank-case are evacuated comprising a pipe-portion having an inlet for registration with said discharge outlet, and a forked member movably supported on said pipe-portion and adapted to enter said groove and to engage said shoulders with said pipe portion spaced from said outlet whereby when said pipe portion is moved relative to said member its inlet will be guided into registration with said outlet.

7. In combination with the crank-case of an automobile having a discharge outlet containing a groove in its outer surface disposed crosswise thereof to provide spaced shoulders, a pipe-device through which the contents of the crank-case are evacuated comprising a pipe-portion having an inlet for registration with said discharge outlet, and a member for fulcruming said pipe-portion pivotally connected with the latter and adapted to extend releasably into said groove and to engage said shoulders with said pipe portion spaced from said outlet whereby when said pipe portion is moved relative to said member its inlet will be guided into registration with said outlet.

8. In combination with the crank-case of an automobile having a discharge outlet containing a groove in its outer surface disposed crosswise thereof to provide spaced shoulders, a pipe-device through which the contents of the crank-case are evacuated comprising a pipe-portion having an inlet for registration with said discharge outlet, and a member for fulcruming said pipe portion pivotally connected with the latter and having a forked portion at which it is adapted to extend releasably into said groove to engage said shoulders with said pipe portion spaced from said outlet whereby when said pipe portion is moved relative to said member its inlet will be guided into registration with said outlet.

9. The combination of an automobile crank case having a lower drain outlet, a separate rigid pipe device for draining therethrough

of the contents of said crank case and having an inlet, said device being of such length that when its inlet is positioned at said outlet said device extends at its opposite end substantially to the side of the automobile, and a member movably connected to said pipe device to support the inlet thereof spaced from the said outlet whereby when said pipe device is moved relative to said member its inlet will be guided to a position for receiving the discharge from said crankcase.

10. The combination of an automobile crank case having a lower drain outlet, a separate rigid pipe device for draining therethrough of the contents of said crank case and having an inlet, said device being of such length that when its inlet is positioned at said outlet said device extends at its opposite end substantially to the side of the automobile, and a member movably connected to said pipe device to support the inlet thereof spaced from said outlet whereby when said pipe portion is rocked about said member as a fulcrum its inlet will be guided to a position for receiving the discharge from said crankcase.

11. The combination of an automobile crank case having a lower drain outlet provided with a valve, a separate rigid pipe device for draining therethrough of the contents of said crank case and having an inlet, said device being of such length that when its inlet is positioned at said outlet said device extends at its opposite end substantially to the side of the automobile, means to unseat said valve when said inlet registers with said outlet and a member movably connected to said pipe device to support the inlet thereof spaced from said outlet whereby when said pipe device is moved relative to said member its inlet will be guided into registration with said outlet.

12. The combination of an automobile crank case having a lower drain outlet provided with a valve, a separate rigid pipe device for draining therethrough of the contents of said crank case and having an inlet, said device being of such length that when its inlet is positioned at said outlet said device extends at its opposite end substantially to the side of the automobile, means to unseat said valve when said inlet registers with said outlet and a member movably connected to said pipe device to support the inlet thereof spaced from said outlet whereby when said pipe device is rocked about said member as a fulcrum its inlet will be guided into registration with said outlet.

13. The combination of a crank case having a drain opening, means about said opening providing spaced apart shoulders, a rigid pipe device separate from the crank case for draining therethrough the contents of the crank case, said device being relatively long and having its inlet adjacent one end and the

other end adapted to be manually grasped for operation of the device, a lever pivoted on said device remote from the last mentioned end thereof and relatively close to said inlet, said lever being simultaneously engageable with said shoulders whereby it will be held rigid with respect to the outlet and will permit movement of the pipe device from its pivotal relation to said opening.

14. The combination of a crank case having a drain opening, means about said opening providing spaced apart shoulders, a rigid pipe device separate from the crank case for draining therethrough the contents of the crank case, said device being relatively long and having its inlet adjacent one end and the other end adapted to be manually grasped for operation of the device, a lever pivoted on said device remote from the last mentioned end thereof and relatively close to said inlet, said lever being simultaneously engageable with said shoulders whereby it will be held rigid with respect to the outlet and will permit movement of the pipe device from its pivotal relation to said opening, a valve normally closing the outlet of the crank case, an element on the pipe device extending above the inlet of the latter for engagement with said valve to release it, and means normally maintaining the end of said lever adjacent said inlet in spaced relation to said element.

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