

Sept. 29, 1925.

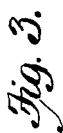
1,555,326

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CRANK CASE DRAINING DEVICE

Filed Aug. 13, 1923

2 Sheets-Sheet 1



By

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2 Sheets-Sheet 2

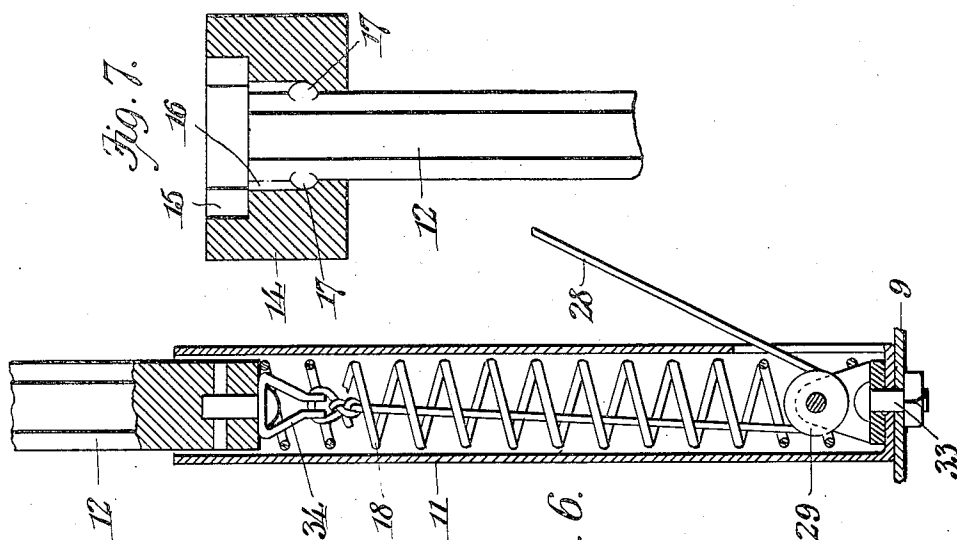


Fig. 6.

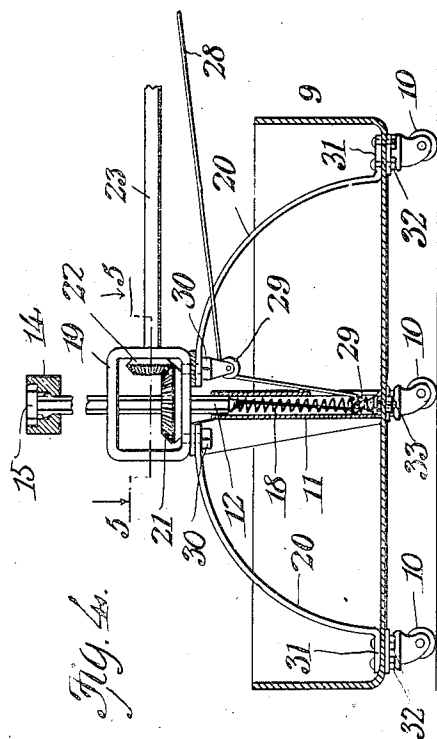


Fig. 4.

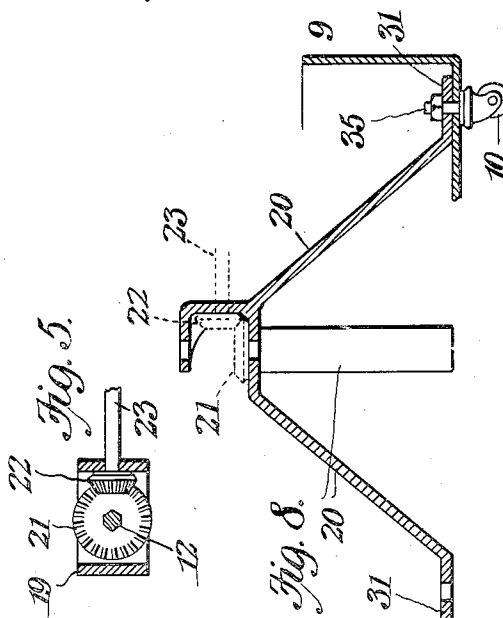


Fig. 5.

Fig. 8.

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UNITED STATES PATENT OFFICE.

ANDREW S. MUMMERT, OF YORK, PENNSYLVANIA.

CRANK-CASE-DRAINING DEVICE.

Application filed August 13, 1923. Serial No. 657,266.

To all whom it may concern:

Be it known that I, ANDREW S. MUMMERT, a citizen of the United States, residing at York, county of York, State of Pennsylvania, have invented certain new and useful Improvements in Crank-Case-Draining Devices, of which the following is a specification.

This invention relates to devices for facilitating the draining of crank cases, or the like, of motor vehicles, the primary object of the invention being to provide means whereby the drain plug of the crank case may be removed for draining purposes and replaced after the operation, without the necessity of an operator or mechanic reaching or crawling beneath the vehicle, or placing the vehicle over a pit.

A further object of the invention is to provide means whereby the drain plug or tap of the crank case may be removed and the oil in the case collected without danger of losing or spilling the same, and without the necessity of the operator or mechanic becoming besmeared with the oil.

A further object is to provide a device of the character and for the purposes generally stated which is of comparatively simple construction, which may be easily and quickly applied in proper position with respect to the vehicle, which is simple in operation, which comprises but few simple parts, all constructed, assembled and operated in such manner as to minimize the opportunity for wear, breakage or derangement, which may be manufactured at small expense, and which will prove thoroughly practical and efficient in use.

With these objects in view, together with others which will appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawings, and particularly pointed out in the claims.

In the drawings:

Fig. 1 is a side elevation of a crank case draining apparatus constructed in accordance with my invention, and showing the same as applied to a conventional type of crank case,

Fig. 2 is a plan view of the device shown in Fig. 1;

Fig. 3 is an end view of the operating rod for the device, and showing the use of a support for the rod,

Fig. 4, is a sectional view taken substantially upon the line 4—4 of Fig. 2,

Fig. 5 is a similar view taken upon line 5—5 of Fig. 4,

Fig. 6 is an enlarged sectional view taken through the center post of the carriage,

Fig. 7, is a detail sectional view showing the manner in which the nut engaging sockets may be applied to the standard, and

Fig. 8 is a sectional view of a slight modification of supporting bracket.

The invention consists generally in a carriage adapted to be positioned beneath the motor vehicle and moved into operative relation to the drain plug in the lower part of the crank case, and this carriage is provided with means for engaging the drain plug or tap. The tap engaging means is operated by a device remote from the same, and in such position that the operator may easily and conveniently manipulate the same to unscrew or remove the tap from a position substantially remote from the crank case. When the tap has been removed, the oil in the case flows therefrom and is caught in a container forming part of the carriage, and no loss or spilling of the oil occurs. After the draining operation, the operator operates the device to replace the plug, whereupon the apparatus in its entirety is withdrawn from beneath the vehicle, and the oil in the collector thereof may be disposed of as desired. All of these operations are carried out without the necessity of the mechanic approaching the under part of the vehicle, and without coming in contact with the oil.

The preferred means for accomplishing the objects set forth include a carriage 9, which may be in the form of a comparatively shallow pan as shown, constructed of light metal and of any desired shape or size. In the present instance this pan or container is of circular shape, and is supported by casters 10, so that the device may be readily moved about. The casters are arranged near the outer edges of the pan and preferably ninety degrees apart, and the casters are preferably swivelled to allow the carriage to be conveniently moved.

The carriage is provided preferably at its center or middle part with an upstanding hollow post 11, within which a standard 12 is slidably supported, and this standard is adapted to engage or grip the tap or plug 13 of the crank case. To facilitate this gripping action, the upper end of the stand-

ard may be equipped with a socket 14, having a recess 15 of a size and shape to receive the plug, and it will be understood that sockets of various sizes, to accommodate various sized plugs or taps, may be applied to the standard. The socket members may be provided with openings extending entirely therethrough to receive the standard, and key-ways 16 formed in the walls of the opening receive keys 17 on the sides of the standard. While this is a preferred method of securing the socket members to the standard, it will be understood that other means may equally as well be employed.

The standard 12 is adapted to move into and out of engagement with the tap or plug, and is therefore slidable within the post 11. The post has arranged therein an expansion spring 18, upon which the lower end of the standard rests, and the tendency of the spring is to force the standard upwardly. The standard is loosely guided through suitable guide openings in a block 19 supported over the post 11, and which, in turn, is supported by the legs 20 of a spider secured to the carriage 9.

The standard is preferably polygonal in cross section, as shown, and slides through an opening of similar shape in a bevel gear 21 housed within the block 19, and this gear is engaged by the teeth of a bevel pinion 22 housed by the block 19 and connected to the inner end of an operating shaft or rod 23. This rod or shaft is relatively long, and is provided at its outer end with a crank or operating handle 24. The outer end of this shaft may be supported by a suitable brace such as indicated at 25, to stabilize the device and hold it firm during operation. This brace in the present instance is formed of a single length of relatively heavy wire, twisted intermediate its ends to form a hand-hold 26, then twisted upon itself to form a post and shaft engaging portion 27, with the ends of the wire diverging from the post down to provide legs, as shown. It will be understood that the operator or mechanic grasps the hand-hold 26 with one hand while he operates the crank with the other.

The means for retracting or lowering the standard 12, as will be required in the application and withdrawing of the device, may comprise a wire cord or cable 28, secured at its inner end to the lower end of the standard 12 and extending out from the carriage to be in convenient reach of the operator. This cable or cord passes over guide pulleys 29; one arranged in the lower end of the post 11 and the other supported by the bracket or spider 20, in order that friction may be reduced to a minimum.

In the preferred embodiment of the invention, the legs of the bracket or spider 20 are pivotally secured at their upper ends

to the under side of the block 19 by the bolts 30, so that the same may be folded in small compass for shipping and storage purposes. The lower ends of these legs have feet 31 provided with apertures to receive the bolts or pins 32 that secure the casters to the base of the carriage, so that the same bolts may serve both purposes.

The pulley 29 in the lower end of the post 11 is carried by a U-bracket, as shown, through which the bolt 33 extends; this bolt serving the purpose of securing the post and the pulley bracket in proper position. The lower end of the standard 12 may be equipped with a bracket 34, pinned in position as shown, to form a connector for the inner end of the cable 28.

In the modification shown in Fig. 8 of the drawings, the spider or bracket is cast in one piece, and combines with it the block or support for the intermeshing gears and the guide for the standard. The feet 31, in this instance, will be formed with one opening to receive the caster post 35 of the caster 10. It will be understood, however, that in this modification casters of the type illustrated in the preferred form of the invention may be equally as effectively used, as the feet of the bracket legs may be provided with one or more openings.

In operation, the carriage with its parts assembled in the manner described, is moved beneath the crank case to be operated upon; the cord 28 having been first pulled to lower the standard 12. When the standard is directly beneath the tap or plug of the crank case, the cord is released, whereupon the spring 18 moves the standard upwardly so that the socket on the upper end thereof will embrace the angular plug. When the socket and plug are thus coupled the shaft 23 is rotated in such direction as to cause the plug to be unscrewed. When the plug is loose from the crank opening, the carriage may be moved slightly so that the oil in the case may drain directly in the container without striking the bracket or other parts of the carriage. When the oil has all passed from the case, the carriage will be moved back in position to have the plug inserted in its opening, whereupon the cord or cable is released. Rotation of the shaft in the reverse direction will cause the plug to be screwed in place. The cord is then retracted to lower the standard, and the carriage with the waste oil may be withdrawn from beneath the vehicle. In instances where different sizes or types of case plugs are used, it will be understood that the mechanic will apply to the standard such socket as will be required for use in such connection.

From the foregoing it will be apparent that I have provided a device for removing

and applying the case plugs and collecting oils from the case which will prove fully capable of obtaining the several objects set forth. The use of a device constructed in accordance with the invention will render it wholly unnecessary for the mechanic to crawl beneath the motor vehicle to drain the motor case, as this may be done from a position beside or in front of the vehicle.

The means herein shown for the accomplishment of the ends set forth is only one way of carrying forth the inventive idea, as I am aware that the same result may be obtained by mechanical devices other than those shown and described herein, and I reserve to myself the right to depart from the specific structure illustrated and set forth above without departing from the spirit of the invention as defined by the claims.

Having thus described my invention, I claim:

1. In a crank case draining device, a carriage comprising a container, a plug operating standard mounted above said container and adapted to engage with a drain plug, means remote from the carrier for rotating said standard, and means for elevating said standard.

2. In a device of the class described, a pan, rollers supporting said pan, a hollow post rising from said pan, a standard slidably arranged in said post, a spring in said post tending to move said standard in one direction, a gear having a central opening arranged above said post and receiving said standard and being operatively connected therewith, a pinion enmeshed with said gear,

a shaft for rotating said pinion, a socket carried by said standard, and a cable secured to said standard and adapted to move the same against the tension of said spring.

3. In a device of the class described, a carriage comprising a pan, a plurality of casters supporting said pan, bolts passing through said pan and securing said casters thereto, a bracket in said pan, feet on said bracket overlying said casters, the bolts of the casters passing through said feet, and plug operating mechanism carried by said bracket.

4. In a crank case draining device, a pan, a bracket supported directly above said pan and carried by the latter, gearing in said bracket, a post rising from said pan beneath said gearing, a standard slidably associated with said post and operatively connected with said gearing, a plug operating device carried by the upper end of said standard, means for operating said gearing, and means for lowering said standard.

5. In a crank case draining device, a pan, rollers supporting said pan, a bracket carried by and supported directly above said pan, gearing in said bracket, a post rising from said pan beneath said gearing, a standard slidably associated with said gearing, a plug operating device carried by said standard, means for operating said gearing, means for retracting said standard, and a spring normally holding said standard extended.

In testimony whereof I affix my signature.

ANDREW S. MUMMERT.