Oct. 16, 1928. 1,687,980

H. HIGGINS ET AL

CRANK CASE DRAINER

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Fig. 1.

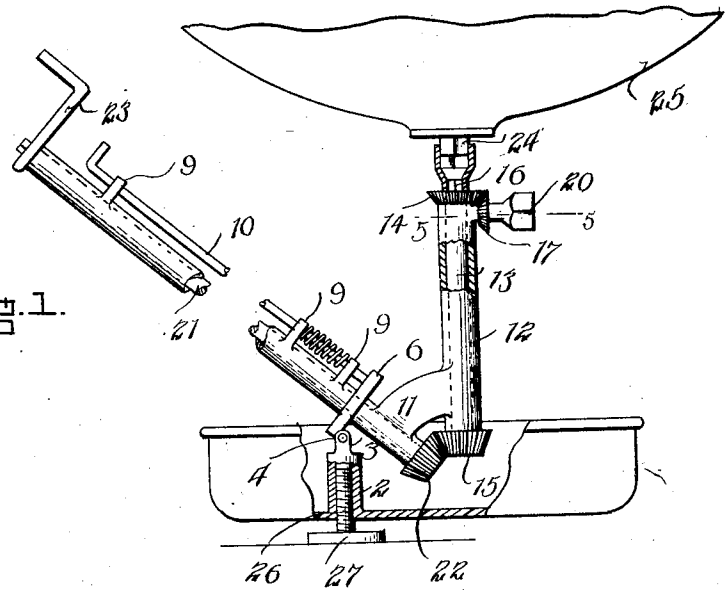
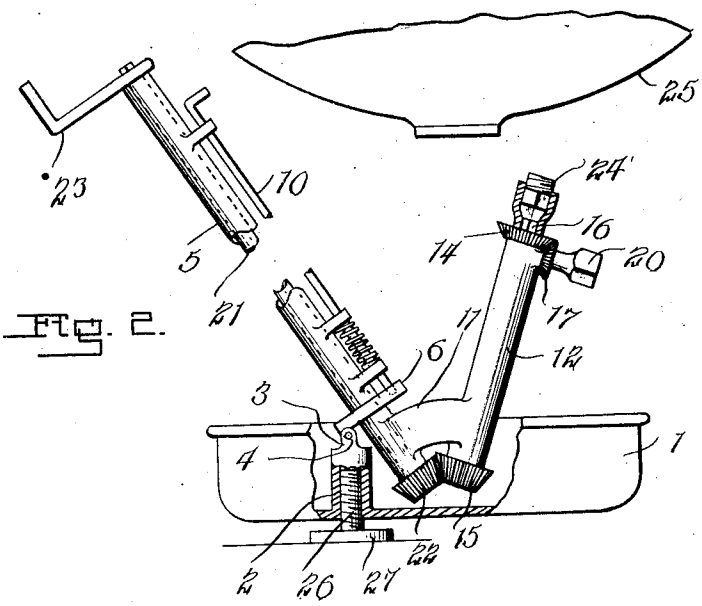


Fig. 2.



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Fig. 3.

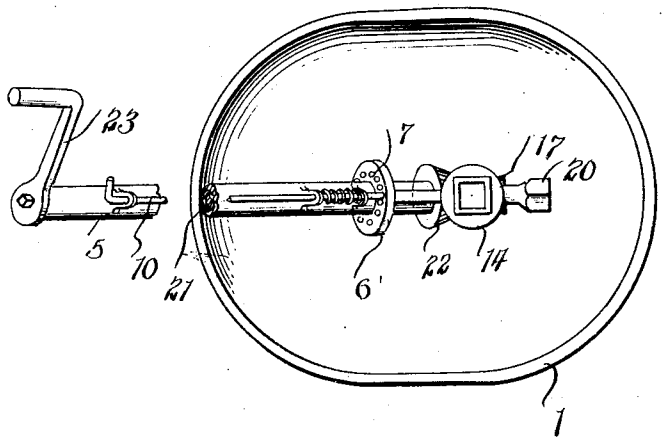


Fig. 4.

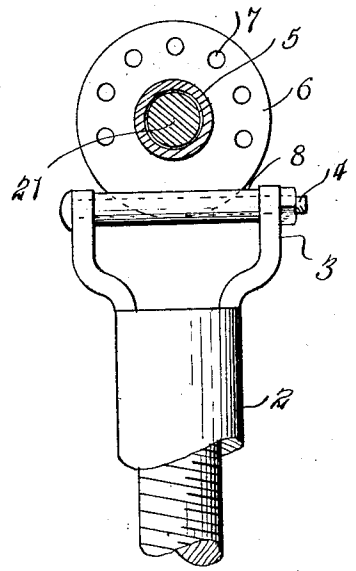
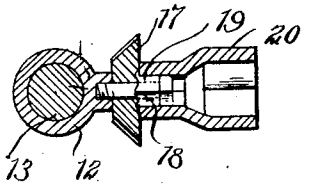


Fig. 5.



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UNITED STATES PATENT OFFICE.

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CRANK-CASE DRAINER.

Application filed October 3, 1927. Serial No. 223,702.

The present invention is directed to improvements in automobile crank case drainers.

The primary object of the invention is to provide a device of this character so constructed that it can be conveniently placed under or along the sides of an automobile crank case and operated to remove the drain opening plug, whether the same is carried in the side or bottom of the crank case.

The invention is an improvement of our copending application filed December 23, 1926, Serial No. 156,672.

In the accompanying drawings:

Figure 1 is a side elevation, partly in section, showing the device in its operative position.

Figure 2 is a similar view showing the device after the plug has been removed.

Figure 3 is a top plan view.

Figure 4 is a detail view of the handle mounting.

Figure 5 is a sectional view on line 5—5 of Figure 1.

Referring to the drawings, 1 designates a pan, preferably oval in shape and having mounted therein an interiorly threaded post 2 rising from the bottom thereof, the upper end of which is provided with spaced ears which support the bolt 4, the purpose of which will be later explained.

A tubular handle 5 is provided and is rotatably engaged adjacent its lower end in a collar 6 in which is formed a plurality of recesses 7, said collar having fixed thereto a transverse sleeve 8 for pivotally engaging the bolt 4.

A pair of brackets 9 are carried by the handle and slidable therein is a spring actuated latch rod 10 which is adapted to have its lower end selectively engage the perforations 7.

To the lower end of the handle is connected in angular relation by a web 11, a tubular housing 12 in which is rotatably engaged a driven shaft 13 having beveled gears 14 and 15 fixed to its upper and lower ends, the upper end of said shaft having a squared head 16. A beveled gear 17 is journaled on the bolt 18 carried by the housing and is adapted to mesh with the gear 14, said gear having a squared head 19 carried thereby for detachably engaging the socket member 20.

A driving shaft 21 is mounted in the handle 5 and has fixed upon its lower end a beveled gear 22 which meshes with the gear 15 in order that when the driving shaft is rotated by the handle 23 carried by the upper end thereof, rotary movement will be transmitted to the driven shaft 13 to simultaneously rotate the socket member 20 and the socket member 24 engaged with the head 15. It will be of course understood that these socket members are removable and vary in size to fit plugs 24′ of various sizes which are employed for closing the drain openings of the crank case 25.

In order that the pan 1 can be elevated when necessary a post 26 is threaded in the bolt 2 and is provided with a base 27 for engagement with the floor.

Briefly, the operation is as follows:

The pan 1 is placed under the crank case 25 should the plug be in the bottom thereof, and the handle is rocked downwardly so that the socket member 24 will engage the plug 24′ and upon rotating the shaft 21 and the shaft 13 the plug will be unscrewed and retained in the socket member, and is then swung upwardly to move the plug from under the drain opening to permit the oil to flow into the pan 1. After the crank case has been drained the handle is swung downwardly to place the plug in a position to be screwed in the drain opening, this being accomplished upon reversing the rotation of the respective shafts.

Owing to the presence of latch rod 10 and the pivotally mounted collar 6 the housing may be swung backwardly and forwardly and laterally in order that the housing 12 may be easily and quickly positioned for removing the plug.

In Figures 1 and 2 of the drawings, the device is shown used in connection with plugs in the bottom of a crank case, but in instances where the plug is located in the side of the crank case the socket member 20 is used.

Having thus described the invention, we claim:

1. A device for removing and replacing drain plugs of crank cases, the combination of a pan, a tubular handle pivotally and rotatably associated with the pan, a driven shaft, a driving shaft rotatable in the handle, and means for operating the driving shaft and thus the driven shaft.

2. The combination of a device for removing and replacing drain plugs of crank

cases, of a pan, a post carried by the pan, a collar pivotally engaged with the post, a handle rotatable in the collar, means carried by the handle for normally engaging the collar to hold the handle against rotation, a driving shaft associated with the handle, and a driven shaft actuated by the driving shaft.

3. A device for removing and replacing drain plugs of crank cases, the combination with a pan, of a post rising from the pan, a collar pivotally connected with the post, a tubular handle rotatable in the collar, a latch rod carried by the handle for interlocking engagement with the collar, a driving shaft rotatable in the handle, a housing supported by the handle, a driven shaft in the housing, and driven by the driving shaft, and means carried by the driven shaft for engaging a plug.

4. A device for removing and replacing drain plugs of crank cases, the combination with a pan, a post carried by the pan, a driven shaft, a driving shaft connected with the driven shaft, said driving shaft being pivotally connected with the post, and a second post threaded in the first named post, as and for the purpose set forth.

In testimony whereof we affix our signatures.

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