This invention relates to a combination adjustable stand and support for use with cleaning and flushing machines of that class which are employed for cleaning and flushing the gear cases and differentials of automobiles and the like.

In the operation of such a device it is customary to place the automobile over a pit or to raise it upon a lift so that access may be had to the parts to be treated, and it is therefore essential that a stand or support be employed that can be varied in height to accommodate the varying distance from the ground to the drain hole of the gear casing, for the purpose of entering the service hose of the cleaning device into the gear casing through the drain hole, and at the same time to catch the old lubricant and cleaning liquid that is discharged from the gear casing through the drain hole.

Also in some cases where a funnel is mounted upon the upper end of a pipe which is attached to a refuse can, there is no provision made for adjusting the height of the funnel and when such a device is used, the service pipe for injecting the cleansing liquid has to be carried up and over the edge of the funnel, thus preventing the funnel from being placed in close proximity to the drain hole where it should be placed for the best results.

While I have here shown and described the invention as relating to both injectors and drainers, it is understood that such a stand or support may be used with either an injecting or draining means or for supporting any other device.

The object of the present invention is to provide an adjustable stand or support for cleaners and flushers whereby the same may be quickly and easily adjusted to the height of the drain hole of the gear casing with respect to the ground level to bring the injecting means in proper relation and the funnel in close proximity to the drain hole of the casing.

Another object of the invention is to provide an adjustable stand whereby the injecting means is mounted within the drain tunnel.

Another object being to provide an adjustable stand wherein both the injecting means and the drain may be brought into close relation with the drain hole of the gear casing and secured in such position.

A further object of the invention being to provide an adjustable stand that may be readily moved from place to place and which will be compact when in a closed position.

Another object of the invention being to provide a drip pan of large surface that will catch all drainage from the gear casing and deliver the same to the drain funnel, and which may also be adjusted to accommodate side as well as bottom drain holes in the casings.

Another object of the invention being to provide means whereby injection nozzles of different shapes and types may be interchanged at will.

With these and other objects in view, my invention consists in certain novel construction and combination of parts as will hereinafter be fully and clearly described and claimed, and further illustrated in the accompanying drawings, which form a part hereof and in which like figures of reference refer to corresponding parts in all of the views, and it is understood that slight changes may be made without departing from the spirit of the invention.

In the drawings:

Figure 1 shows a front elevation of the device, partly in section, and with the injection nozzle entered through the drain hole of the gear casing.

Figure 2 is a top plan view of the drip pan.

Figure 3 shows a detail sectional view of one form of nozzle member.

Figure 4 shows an end view of the same.

Figure 5 shows another form of nozzle in sectional detail.

Figure 6 shows an end view of the same.

Figure 7 shows another type of nozzle member which may be interchanged with the nozzle member, doing away with the drip pan, or with the elbow.

Figure 8 shows a cross sectional view of the part, showing the construction of the guide pin and the stem.

Figure 9 is a front elevation of a modification of the device showing the same with the fitting provided with an adjustable bracket whereby the device may be suspended from an automobile.

Figure 10 is a similar view of the device, but with the bracket arranged for supporting the device upon the edges of a pit, and in dotted lines, the device is shown as being suspended from the edges of the pit.

Figure 11 is a top plan view of the bracket, shown partly in section.

Figure 12 is a side elevation of the bracket.

Referring to the drawings, and particularly to Figures 1 to 6 inclusive, I have here shown an adjustable stand or support composed of the base plate of suitable material and of any desired shape and size, and which is formed with a boss within which is threaded or otherwise secured the lower end of a stand pipe, which is provided at its upper end with a
reducing fitting 13 within which is slidably and adjustably mounted a pipe 14 which is retained in position by a thumb screw 15 which is threaded into the fitting 13; while upon the pipe 14 is secured a T-fitting 16 to which is attached by the fitting 17 and nipples 18 and 19, a fitting 20, to which is detachably secured the feed pipe 21 by the hand-nut 22.

To the upper end of the pipe 14 is secured the lower end of the drain funnel 23 which is formed with a bottom drain hole 24 which is supplied with a fitting 25, to which is secured the drain hose 26 leading to the rail 27, which is supported upon the adjustable arm 28 secured on the pipe 12 by the thumb screw 29.

The pipe 14 projects upward within the funnel 23 and is threaded for a nut 30 by which is attached thereto the pipe 31 which terminates in the elbow fitting 32: while adjustably mounted upon said pipe 31 is a drip pan 33 secured by the thumb screw 34, and formed with a drain hole 35 in the bottom thereof and located over the funnel 23, in any position in which the drip pan 33 may be in.

To the fitting 32 is secured a pipe 36 and a coupling 27, to which is secured the lower end of a flexible nozzle member 38, having a nozzle 39 which is adapted to enter through the drain hole 40 in the gear casing 41.

Referring to Figures 3, 4, 5, and 6: I have shown two forms of nozzles, but many more may be used, and I do not confine myself to the designs herewith shown, as many good types of nozzle may be used that will break up the flow of the liquid into a number of jets or streams.

The type shown in Figures 3 and 4, comprises a body 42 which is bored to receive the flexible cable 38, and which has one closed end 43 formed with a series of holes or ports 44 placed at an angle with respect to its axis; and this closed end is also provided with a central bore within which is mounted the stem 45 which carries the spinner disk 46; the inner end of the stem being guided and retained by a cross pin 47 mounted in the member 42; the stem 45 having mounted thereon in contact with the pin 47 a spring 48 which is held by the nut 49 to normally retain the spinner 46 in close relation with the ports 44.

In Figures 5 and 6, the nozzle is shown as comprising a similar body member 42 having the cable 38 secured therein, and a closed end 43 which has the ports 44; and the stem 45 is mounted in a similar manner in the closed end 43, but the spinner 50 is in the form of a head and does not rotate.

In Figure 7 is shown another form of straight nozzle member 51, which may be interchanged with either the nozzle member 38, or the fitting 32, or the pipe 31, as desired; and this nozzle member 51 is provided with a nozzle end 52 of the cross-slot type.

Referring to Figures 9 to 12 inclusive, I have shown means for mounting the device either directly on the automobile, or supporting the same from the edges of the pit, and without the use of the stand 10 and stand pipe 12, and I have accomplished this by substituting for the fitting 13, a bracket member 60, which is threaded upon the pipe 14 between the lower part of the funnel 23 and the fitting 16; this bracket member 60 being formed with the two arms 61 which are adjustably secured by the bolts 68 which extend through the slots 70 formed in the arms and which are retained by the nuts 69, the short arms 62 which are formed with the bifurcated ends 63 within which are adjustably mounted the eyes 65 of the arms 63 by the bolts 68 and nuts 67 in such a manner that the arms 64 may be swung into any position desired and secured.

It will thus be seen that the adjustable arms 61 and 62 may be adjusted in a longitudinal manner to vary their length depending upon the width of the frame or other part of the automobile to which the device is to be attached, or the width of the pit edges, or distance apart. The swinging arms composed of the hinged part 64 and the adjustable part 15 are slidably secured together by the bolts 61 in the slots 13 which are held by the nuts 72, to vary the length of said arms.

The ends of the adjustable parts 15 are formed with the straight end 30, and the two angular prongs 61 and 62, which are used as shown to engage either the automobile frame 83, or the pit edges 84 of the pit, or any other part of the automobile, or they may also be directed downward and used to support the device upon the ground under the automobile.

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

1. In an adjustable support for a gear case cleaning apparatus, the combination of a bracket member adapted to support a pipe, and a pair of supporting arms adjustably secured to said bracket member, said arms having hooks formed on the ends thereof and adapted to engage with the edges of a pit.

2. In an adjustable support for a gear case 45 cleaning apparatus, the combination of a bracket member, extension arms adjustably secured thereto, a pair of supporting arms adjustably secured to said extension arms, and ends formed thereon for engaging the frame of a vehicle or the side of a pit.

3. An adjustable support for a gear-case cleaning apparatus, comprising a bracket member adapted to hold a tubular connection, radial arms integral therewith and extending therefrom and formed with transverse bolt holes, extension arms formed with transverse slots in registry with the said bolt holes for the reception of retaining bolts, bifurcated ends formed on said extension arms, swinging arm members pivoted therein and means for clamping the same, extension members adjustably secured to said swinging arms, and prongs formed on the ends thereof for engagement with a vehicle frame or pit edge.

JAMES K. DELANO.