June 1, 1954 H. F. FAGAN 2,679,684

RADIATOR LIFT

Filed June 14, 1951 2 Sheets-Sheet 1

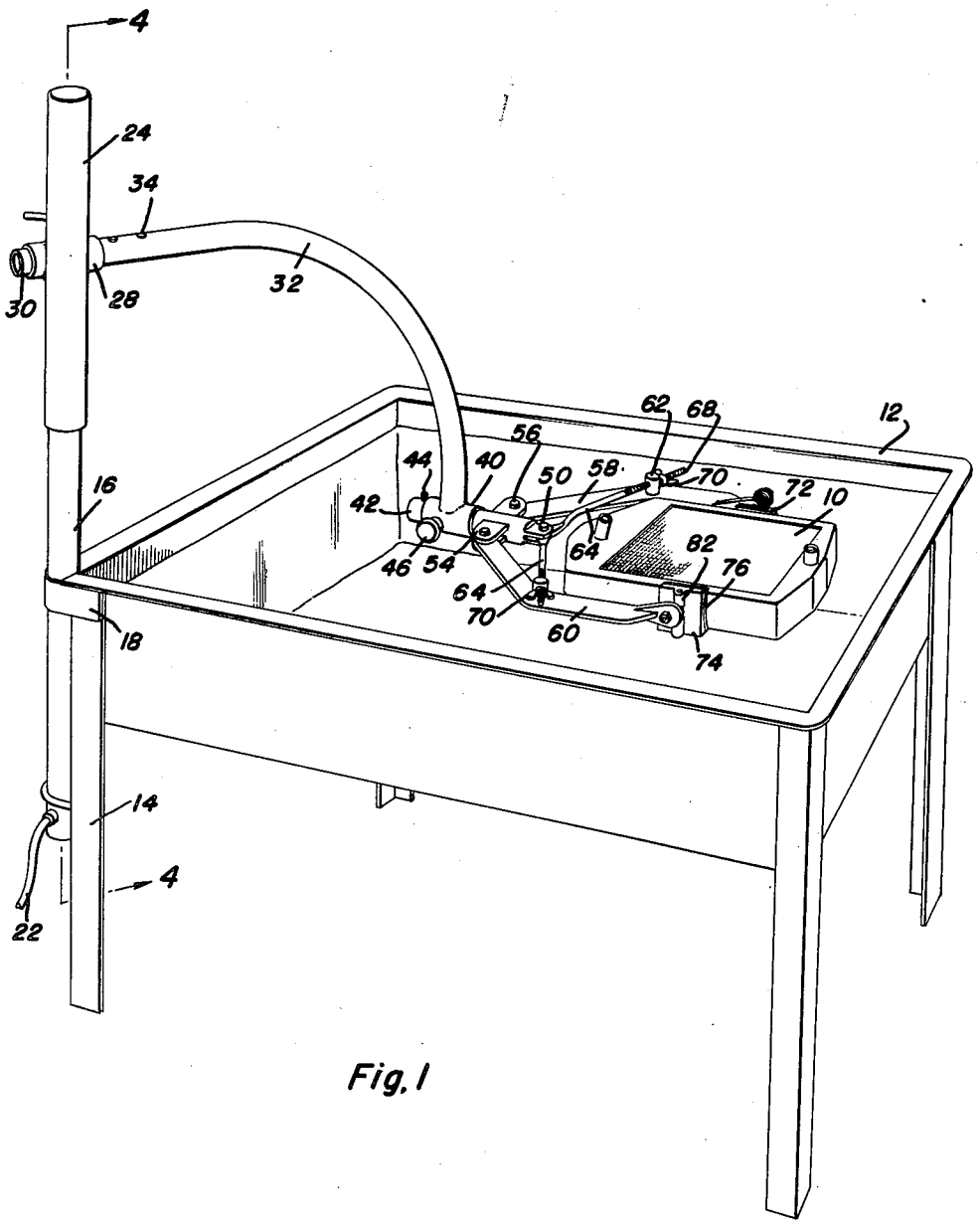


Fig. 1

Harry F. Fagan
INVENTOR.

BY Thomas A. O'Brien and Harvey B. Jackson
Attorneys

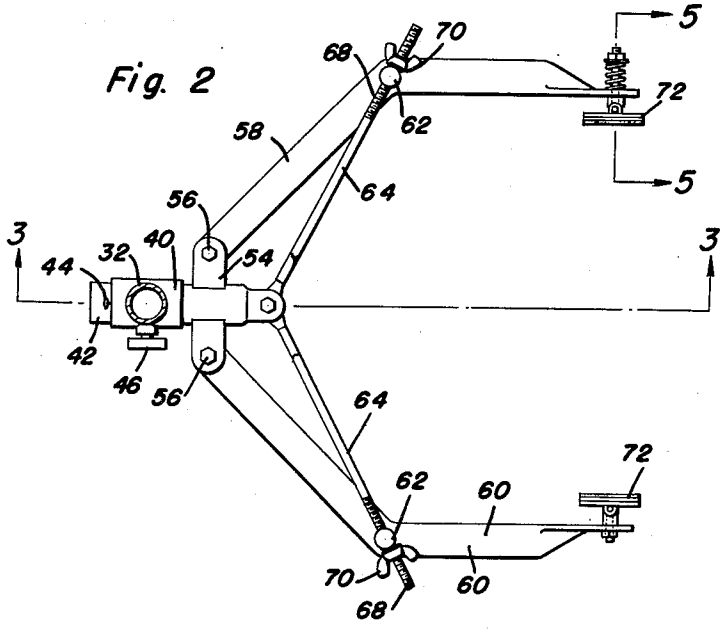
June 1, 1954 H. F. FAGAN 2,679,684

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Filed June 14, 1951

2 Sheets-Sheet 2

Fig. 2



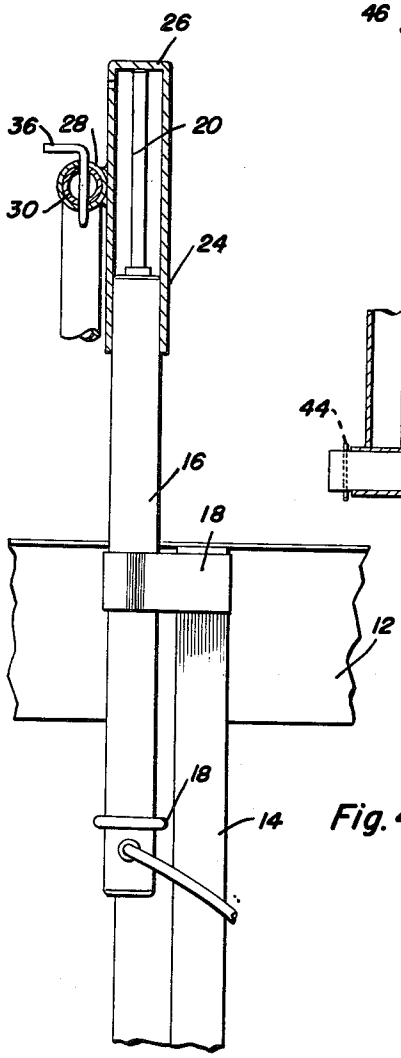


Fig. 4

Fig. 3

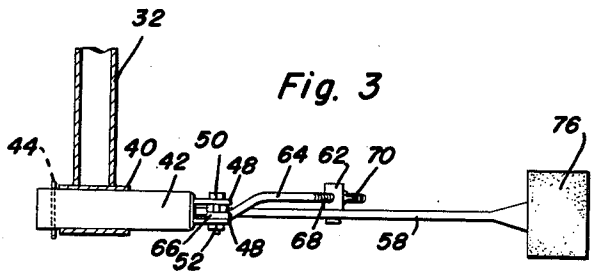
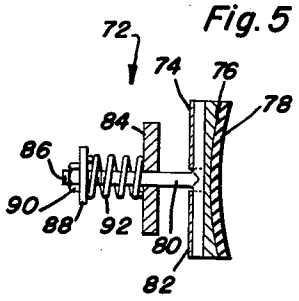


Fig. 5



Harry F. Fagan

INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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RADIATOR LIFT

Harry F. Fagan, Manhattan, Kans.

Application June 14, 1951, Serial No. 231,466

1 Claim. (Cl. 29—290)

1

This invention relates to a lift for use in the repair of radiators, particularly automotive vehicle radiators, the primary object of which is to eliminate the manual handling of the radiator during the process of repair or testing.

An important object of this invention is to provide a radiator support and lift which can be readily and easily fastened to a test tank in any position to suit the repair man, which is provided with a hydraulic raising and lowering means, and which is further provided with various means for supporting the radiator in various adjusted positions to allow proper access thereto for cleaning and repair.

A further important object of this invention is to provide a device of the character described which is relatively simple to operate, inexpensive, and very efficient for its intended purpose.

These, together with various ancillary objects and features of the invention which will later become apparent as the following description proceeds, are attained by the device, a preferred embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a perspective view of the device shown supporting a radiator in a treating tank;

Figure 2 is a top plan view of the clamping arms and frame supporting the same, some parts being shown in section;

Figure 3 is a sectional view taken substantially on the plane of section line 3—3 of Figure 2;

Figure 4 is a sectional view taken substantially on the plane of section line 4—4 of Figure 1; and

Figure 5 is a sectional view taken substantially on the plane of section line 5—5 of Figure 2.

Specific reference is now made to the drawings. In the several views in the accompanying drawings and in the following specification similar reference characters indicate corresponding elements throughout.

Indicated generally at 10 is a conventional automotive radiator which must ordinarily be lifted and supported within an appropriate treating tank 12 for cleaning and repair, the treating tank being provided with the conventional angle iron supporting legs 14. The present device is designed to support the radiator in any desired adjusted position within the tank and also designed to lift the same requiring a minimum of manipulation. The device comprises an hydraulic cylinder 16 supported in vertical position by appropriate ties and clamp 18 to any one of the legs 14, preferably at the corner thereof. Slidable in the cylinder is a conventional piston (not

2

shown) attached at the lower end of a piston rod 20 which extends through the upper end of the hydraulic cylinder 16, the lower end of the hydraulic cylinder having attached thereto a fluid pressure conduit 22 leading to a fluid pressure supply (not shown), it being understood that there will be a conventional valve in the conduit for selectively admitting and releasing fluid pressure in the cylinder to raise and lower the piston rod 20. Rotatably mounted upon the upper end of the hydraulic cylinder 16 is a tube 24 which is open at its lower end and closed at its upper end as at 26, the latter bearing upon the upper free end of the piston rod 20. Thus the raising and lowering of the piston rod will raise and lower the tube 24, the latter being capable of rotary movement about the hydraulic cylinder 16.

Welded or riveted transversely to the tube 24 is a collar 28 which slidably receives one end 30 of an arcuate swing arm 32, the end 30 being provided with longitudinally spaced, vertically aligned pairs of apertures 34. A pin 36 is provided which can be made to extend through a pair of vertically aligned apertures in the collar 28 and a selected pair of apertures 34 in the swing arm 32, as shown clearly in Figure 4, so that the arm can be adjusted laterally of the axis of the cylinder 16 and the tube 24. Thus the arm cannot only be adjusted in this position but, because it is mounted on the rotatable tube 24, can be swung with the tube about the axis of the cylinder 16 towards or away from the treating tank.

A tubular bearing 40 is provided which is integral with or secured to the lower end of the swing arm 32 and extends laterally with respect thereto, the bearing slidably receiving a substantially tubular frame 42 held in position therein by a suitable cotter pin 44. The frame 42 is rotatable in the bearing 40 and may be retained therein in any adjusted position of rotation by an appropriate set screw 46 extending through one side of the bearing adapted to engage the frame as will be readily understood.

The end of the frame opposite the location of the cotter pin is somewhat flattened and includes a pair of integral spaced lugs 48 through which a headed pin 50 extends retained thereon by a suitable closure nut 52. Extending through and perpendicular to the longitudinal axis of the tubular frame 42 is a pair of spaced bars 54 and pivoted between the ends of the bars as at 56 is a pair of angulated opposed clamping arms 58 and 60. To adjustably retain these opposed clamping arms in a desired position towards or

away from each other to accommodate radiators of different size, the following means is provided. At the corner of each clamping arm is appropriately secured an upstanding boss 62 having a diametrical aperture or bore therethrough slidably receiving an elongated rod 64 which has a hook 66 at one of its ends engaging the pin 50 between the lugs 48 of the frame 42. The other end of the rod 64 is threaded as at 68 upon its threaded end is received an appropriate wing nut 70 which can be made to bear against the boss 62. As is evident from the drawings, two rods 64 are employed, one for each clamping arm 58 and 60, so that the adjustment of the wing nuts 70 will retain the arms in any desired adjusted position towards or away from each other.

The free end of the clamping arms 58 and 60 mount spring-tensioned cooperating radiator gripping clamps 72, the detailed construction of which is shown clearly in Figure 5. Each clamp comprises a metallic plate 74 which is appropriately secured to a resilient or rubber gripping pad 76 having a preferably concave outer surface 78. A T-shaped pin 80 is hinged for horizontal movement in an appropriate sleeve 82 in the metallic plate 74, the longer arm of the T-shaped pin extending through the free end 84 of each clamping arm 58, 60. The free end of the longer arm of the T-shaped pin is threaded as at 86 and receives an appropriate washer 88 and a closure nut 90 behind the washer, a coil spring 92 being provided which is wound about the longer leg of the T-shaped pin and is disposed between the end portion 84 of the clamping arm and the washer 88. Obviously, the tension of the coil spring 92 can be adjusted as desired by the closure nut 90.

Thus it will be seen that a novel and efficient, hydraulically operated radiator support and lifting device is provided which includes a rotatably mounted swing arm to allow the supported radiator to be positioned within or easily removed from a treating tank and which is also provided with several means for adjusting the angular position of the radiator in the treating tank so that access may be had to every part of the radiator for the cleaning and repair thereof with a minimum of effort and interference.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claim.

Having described my invention, what is claimed as new is:

In a radiator lift including a swing arm having a transverse tubular end, a cylindrical frame member rotatably journaled in said end, clamping arms having ends pivotally secured to opposite sides of said frame member and having spaced apart free ends terminating remotely from said frame member, adjusting means secured intermediate the ends of said clamping arms and extending therebetween for varying the distance between the spaced apart free ends, gripping members pivotally and hingedly mounted on the free ends of said clamping arms for securing a radiator therebetween, said adjusting means including a pair of rods having adjacent ends pivotally secured to said frame member and diverging from said frame member, threaded remote ends on said rods, bosses extending from the intermediate portions of said arms and slidably receiving the remote threaded ends of said rods, and an adjusting nut received on the threaded ends of said rods.

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