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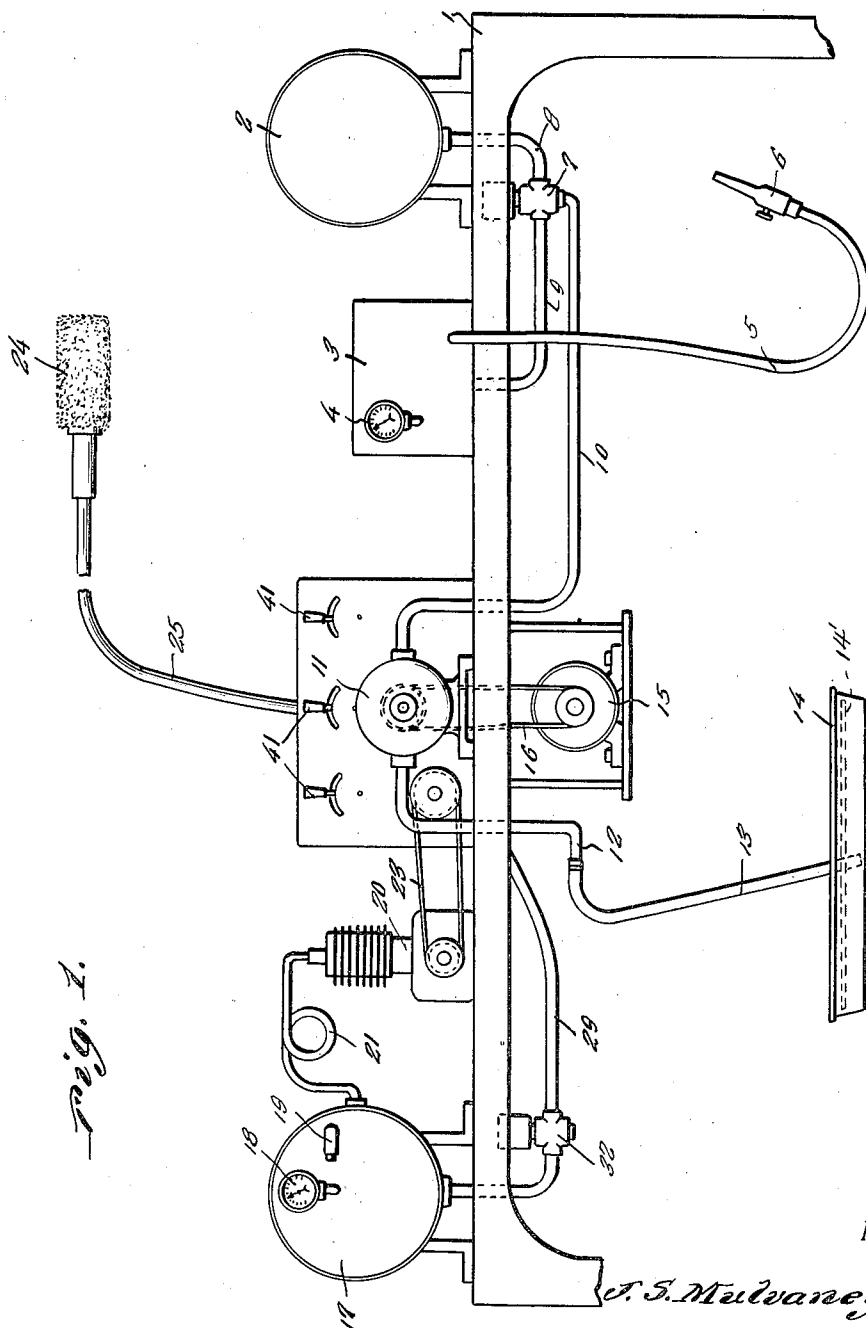
J. S. MULVANEY

2,222,513

MEANS FOR CLEANING MOTORS

Filed May 7, 1937

3 Sheets-Sheet 1



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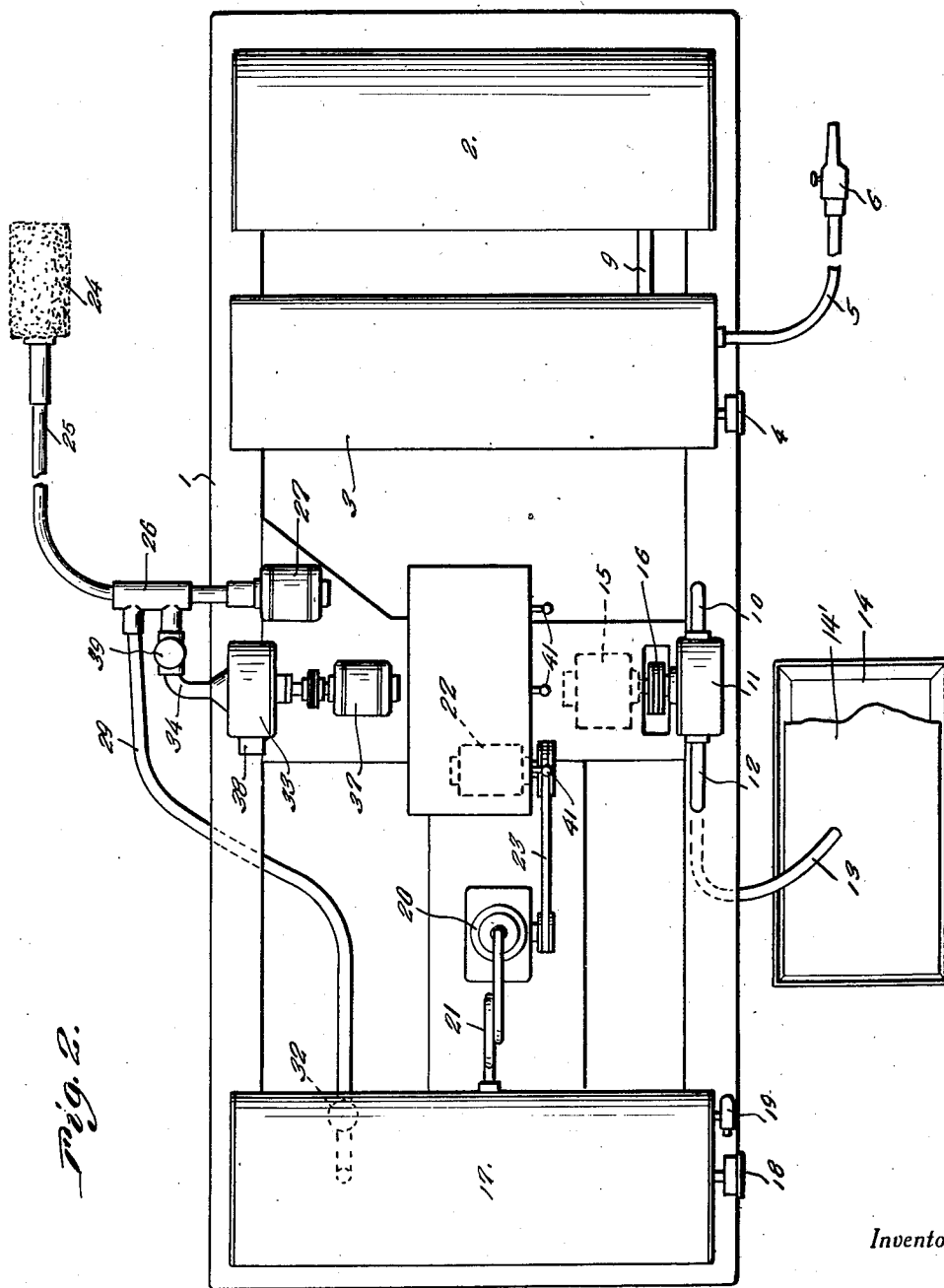
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Fig. 3.

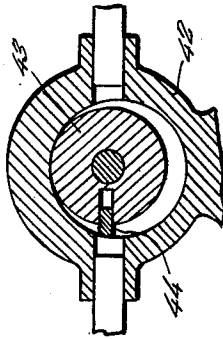
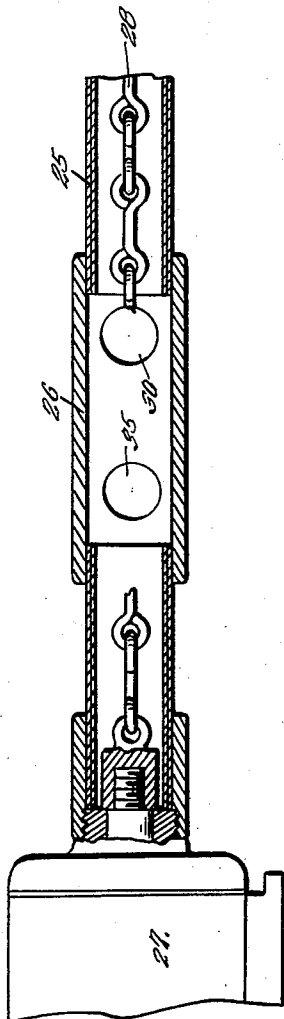
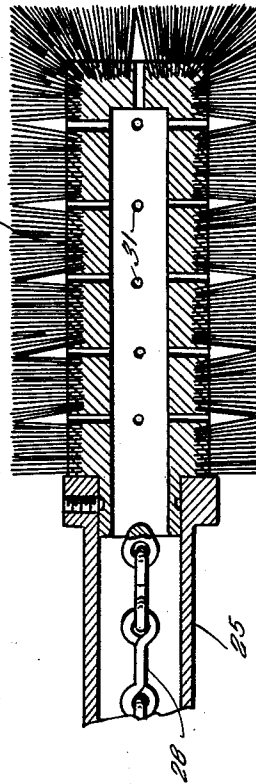


Fig. 5.

Fig. 4.



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UNITED STATES PATENT OFFICE

2,222,513

MEANS FOR CLEANING MOTORS

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Application May 7, 1937, Serial No. 141,337

1 Claim. (Cl. 141-1)

This invention relates to means for cleaning motors, the object of the invention being to clean a motor by the use of fluid similar to that used in dry cleaning plants, both in liquid and in vapor form.

Another object of the invention is to provide means for brushing certain parts of the motor after the same has been subjected to the action of the fluid and also to provide means whereby foreign matter may be removed from certain parts of the motor by a vacuum and to use compressed air with the brushing action.

In the drawings:

Figure 1 is an elevation of an apparatus constructed in accordance with this invention.

Figure 2 is a top plan view of Figure 1.

Figure 3 is a fragmentary elevation of a motor and a sectional view of parts of the drive means for the brush.

Figure 4 is a sectional view through the brush and parts of the shaft and drive means.

Figure 5 is a sectional view through a pump.

In these drawings, the numeral 1 indicates a frame or table for supporting the parts of the apparatus. The numeral 2 indicates a tank for containing the cleansing fluid and the numeral 3 indicates a heating tank which is preferably heated by electricity. This tank 3 is provided with a gauge 4 and a hose 5 is connected to the tank 3 and has attached thereto a nozzle 6. A suitable valve 7 is connected by the pipes 8 and 9 with the tanks 2 and 3 and by a pipe 10 with a pump 11, the inlet pipe 12 of the pump having a hose 13 connected therewith which is adapted to be placed in a tray 14 or the like which catches the fluid passing from the motor after it has been used to clean the motor. Suitable straining and filtering means shown generally at 14' are provided for removing foreign matter from the fluid before it is returned to the tanks by the pump. The pump 11 is actuated from the electric motor 15 by means of the belt and pulleys shown generally at 16.

A compressed air tank 17 is supported on the table and is provided with the usual gauge 18 and the safety valve 19. Air is introduced into this tank from the compressor 20 by means of the pipe 21 and the compressor is actuated from the motor 22 through means of the belt and pulleys shown generally at 23.

A brush 24 is carried by a tubular flexible shaft 25, the shaft including a sleeve part 26 and said shaft is connected with a motor 27 supported on the table 1 and said motor rotates the brush through means of the flexible connecting

means 28 which pass through the member 25. A hose or pipe 29 leads from the air tank 17 through an opening 30 in the sleeve 26 so that air can pass from the tank 17 into the sleeve and then flow through the member 25 into the perforations 31 of the brush and thus escape through the bristles of the brush. The flow of air from the tank 17 is controlled by the valve 32.

A vacuum producing device or fan 33 is supported on the table 1 and has its inlet connected by a pipe 34 with an opening 35 in the sleeve 26. The fan is actuated by the motor 37 and the outlet of the fan, shown at 38, can be connected with a receiver of any description to receive the matter drawn from the motor. A valve 39 is placed in the pipe 34.

Switch means shown generally at 41 control the motors.

While the pumps may be of any suitable form, Figure 5 shows a pump comprising the casing 42, the rotor 43 and the sliding blade 44 carried by the eccentrically arranged rotor.

I prefer to use the heated liquid for cleaning the parts of the motor by directing the liquid from the nozzle against the bottom parts of the motor either through the drain opening in the crank case or after removing the crank case; against the side valve parts and the associated portions by removing the valve assembly side plates and from the top by removal of the spark plugs. This hot liquid will remove oil and sludge and all deposits of foreign matter and the same will be flushed from the motor by the liquid which is caught in suitable receivers, such as shown at 14 and then returned to the tank by the pump 11. By manipulating the valve 7 the liquid can be returned to either the tank 2 or the tank 3 and this valve can be used for controlling the flow of liquid from the tank 2 to the tank 3.

Then the liquid is further heated so as to convert the same into a vapor which when introduced into the motor penetrates between the parts and thoroughly cleans the same. The loosened deposits are then easily flushed out by another application of the liquid. When the metal dries it is usually clean and free from dirt but if there is any residue the brush 24 may be used with the compressed air and then the suction device may be used with the brush to remove the foreign matter.

The brush is so formed that it can be pushed through openings into the various parts of the motor to clean the same and to subject the parts

to the action of the compressed air and the vacuum.

5 The use of the fluid both in liquid and vapor form and the use of the brush with the compressed air and vacuum will thoroughly clean the motor throughout its parts and the fluid used for the cleaning action can be used over and over again.

10 It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

15 It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What is claimed is:

An apparatus for cleaning motors by a cleansing fluid comprising a supporting frame, a heating tank thereon for containing the liquid, a nozzle equipped hose connected with the tank for directing the fluid from the tank against the parts of a motor, a receptacle for catching the liquid passing from the motor, a pump, a hose connected with the inlet of the pump and adapted to be placed in the receptacle, a supply tank, a valve, a pipe leading from the outlet of the pump to said valve, a pipe connecting the heating tank with the valve and a third pipe connecting the supply tank with the valve, said valve permitting the pump to be connected to either tank or the supply tank to be connected with the heating tank.

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