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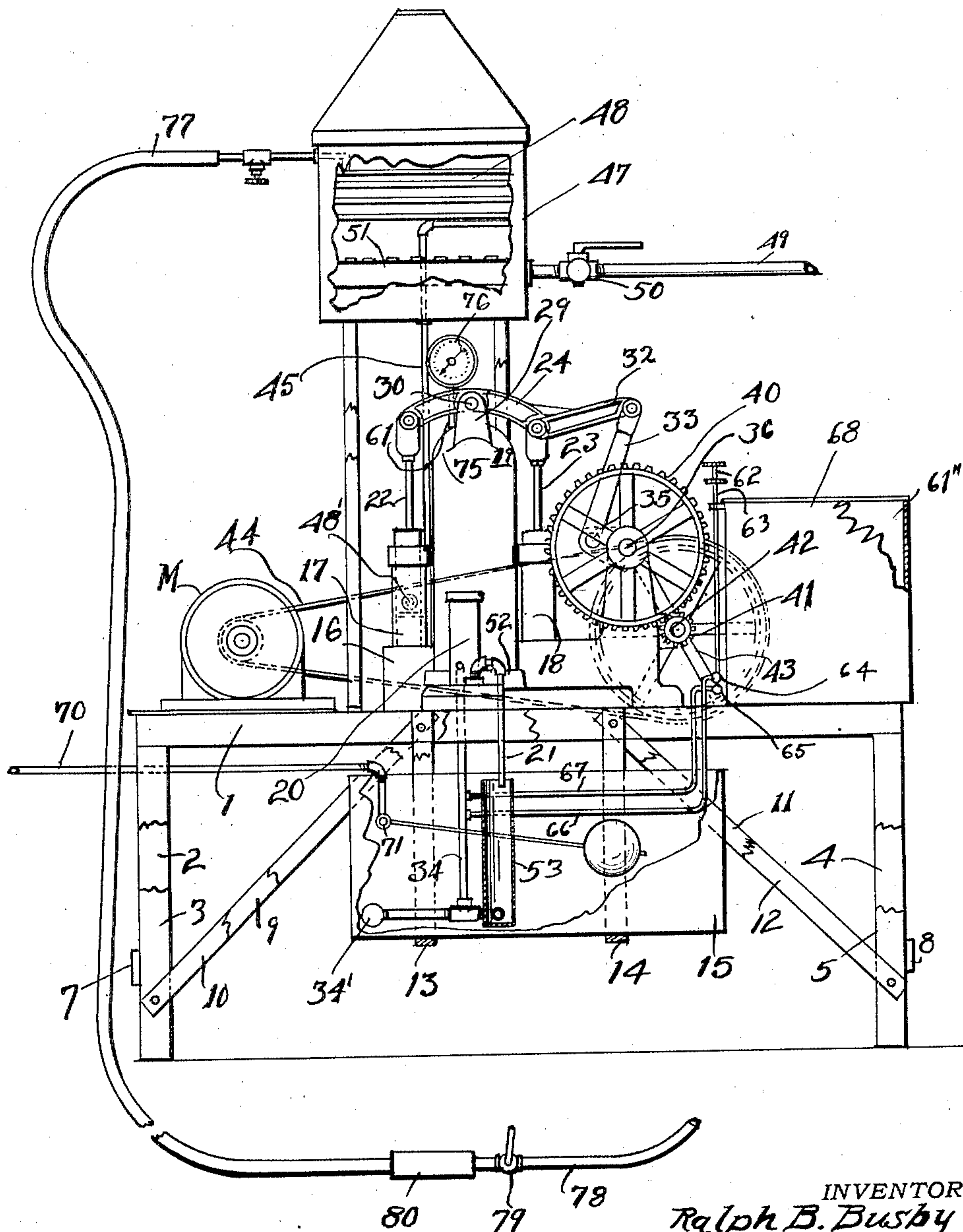
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R. B. BUSBY ET AL
AUTOMOBILE CLEANING SYSTEM

Filed April 8, 1926

2 Sheets-Sheet 1

FIG. 1.



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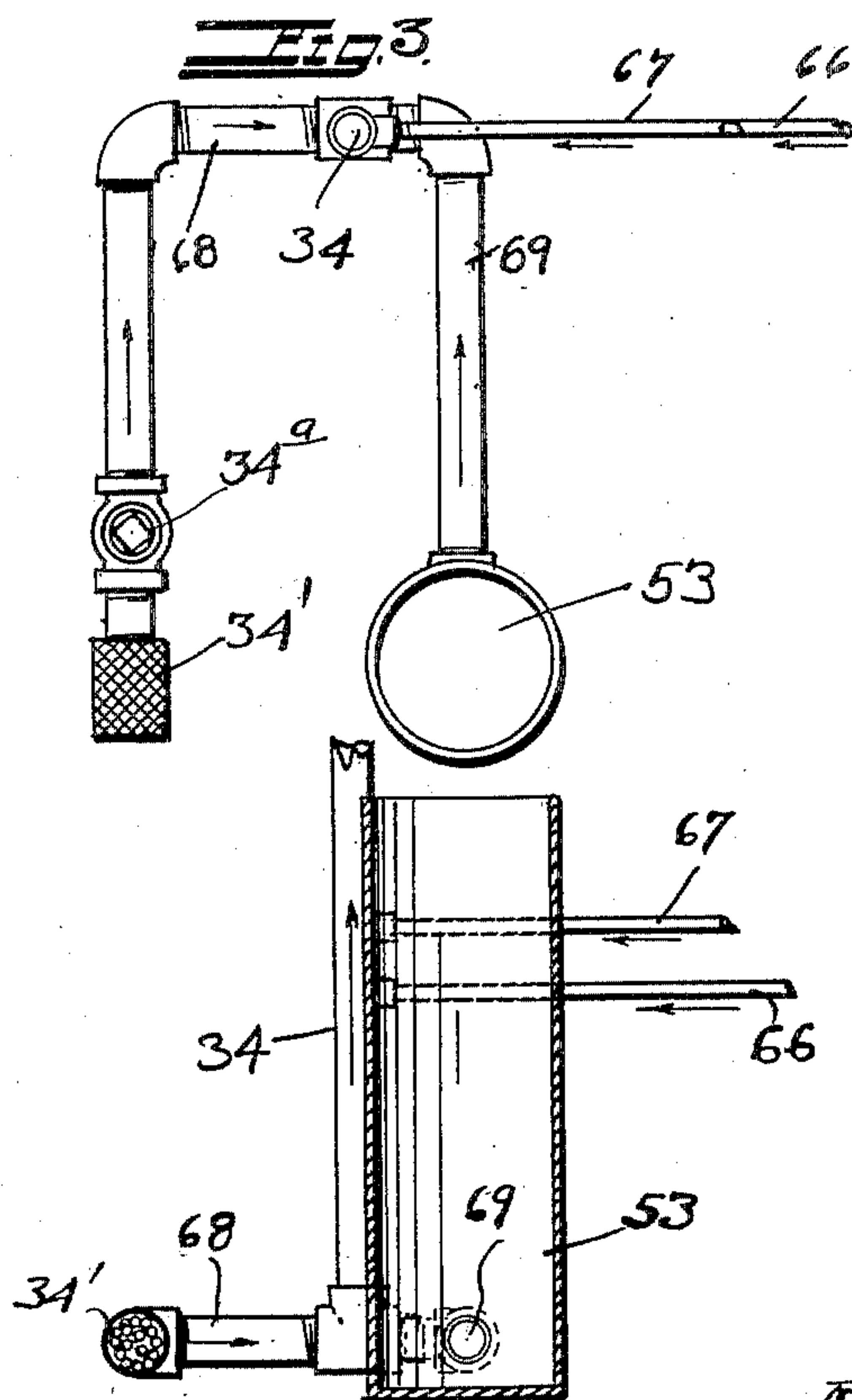
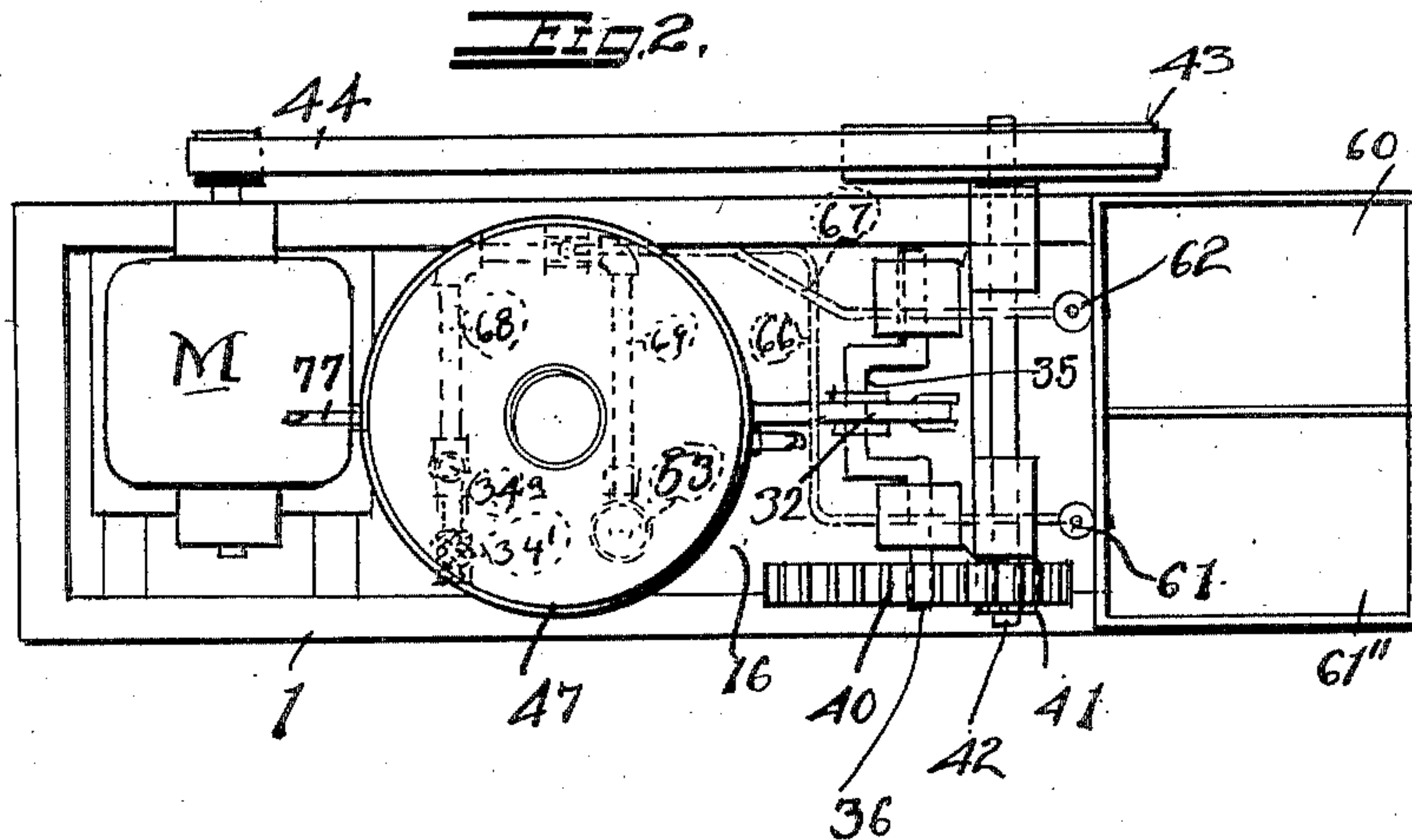


FIG. 4.

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UNITED STATES PATENT OFFICE.

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AUTOMOBILE CLEANING SYSTEM.

Application filed April 8, 1926. Serial No. 100,472.

This invention relates to an automobile cleaning pump and its object is to provide means whereby a small amount of soap and distillate or gasoline may be mixed with the water to blow the dirt and grease off the running gear of an automobile.

Another object of the invention is to provide means whereby the solution used may be heated as it is delivered from the machine whereby the grease is more easily washed away.

Another object of the invention is to provide means whereby the solution used will not be mixed with the fresh water whenever the water supply at the nozzle is cut off. A safety valve being provided to allow all of the water to pass from the pump back into an overflow receptacle without contaminating the fresh water and thereby reducing the fire hazard around the machine as there will only be a few quarts of mixed solution on hand at any time instead of a considerable quantity of mixed solution as would be the case if the overflow went back into the main supply tank.

Other objects of the invention will appear as the description proceeds.

An embodiment of the invention is shown in the accompanying drawings in which the same reference numeral is applied to the same portion throughout, but I am aware that there may be modifications thereof.

Figure 1 is a view in side elevation of the complete machine, portions thereof being broken away for purpose of illustration.

Figure 2 is a plan view of the complete machine,

Figure 3 is a plan view of the pump suction pipe and its associate parts showing the over-flow tank, and

Figure 4 is a vertical sectional view of the over-flow tank showing the suction pipe with the soap and distillate pipes attached thereto.

The machine has a rectangular angle iron frame constituting a rectangular horizontal member 1 which has legs 2 to 5 inclusive at its corners which are connected together by two cross bars 7 and 8, and braced to the frame 1 by means of the four braces 9 to 12 inclusive. Depending from the frame 1 are U-shaped supports 13 and 14 which serve to carry a fresh water tank 15 and which allow the tank to be disassembled from the rest of the apparatus at any moment.

Mounted about the middle of the frame is a pump, the base of which is indicated at 16, said pump being of a well known form of force pump having two cylinders 17 and 18, and an air chamber 19, overflow or safety valve 20, solution return pipe 21, piston rods 22—23 pivotally connected to the walking beam 24, lugs on the air chamber as shown at 29 having a pin 30 supporting the walking beam.

In order to determine the pressure, the gauge 76 is so supported that it receives full pressure from the pipe 61. The walking beam has an overhanging arm 32 which is connected by the pitman 33 to the crank 35.

The pitman 33 has its lower end connected to the crank 35 on the shaft 36. The shaft 36 carries a large spur gear 40 which is in mesh with a small spur gear 41 on the shaft 42, and that shaft is driven by the wheel 43 around which the belt 44 passes from the motor end. A pipe 45 extends from the base upwardly into the tank or cover 47 within which are a series of pancake heater coils 48, and a gas pipe 49, and valve 50 which serve to supply the necessary gas to keep the heater 51 in operation. The pump cylinders 17 and 18 are provided with plungers which have the rods 22—23 pivoted thereto as illustrated at 48'.

On the pump base there is a chamber 52 which serves as a relief valve chamber and allows all of the water passing therethrough at excess pressure to pass down into the overflow can 53 whenever necessary. At the side of the overflow can there is the suction pipe 34 which has the screen 34' at its lower end to prevent the passage into the pump of foreign matter.

At the back of the frame there are two receptacles 60 and 61'', which are for the purpose of storing as much distillate as may be required to operate the apparatus. Valve stems 62—63 on the valves 64—65 afford means whereby the soap or distillate to be carried to the spray nozzle may be regulated, the pipes 66—67 being connected to the pump suction pipe.

In operation a quantity of the materials to be used, liquid soap and distillate, are placed in the two small tanks 60 and 61'', and the two valves 64—65 are regulated to deliver the proper quantity of distillate and soap separately to the suction pipe of the pump as illustrated at 66—67 (Figure 4).

The pump suction pipe has two branches, 68, leading to the strainer 34' and 69 leading to the overflow tank 53.

Attached to the pressure regulating device is the return pipe 21 which discharges into the receptacle 53. The water pipe 70 has a float regulated valve 71 to keep the tank 15 full of water at all times.

The operation of the apparatus is as follows:

Assuming the tank 15 to be put in place on its supports 13 and 14, water is allowed to run out of the valve 71 until the valve is closed by the float. The proper quantities of distillate and soap, or gasoline and soap, are placed in the two tanks 60 and 61, and the corresponding valves which have the pipes 66—67 leading to the suction pipe 34 are opened a small amount so that as the pump takes the water out of the tank 15 it will also take a small amount of soap and distillate, or soap and gasoline, along with it.

The pump is geared to the motor by means of the belt 44, and is operated at a pressure of about 300 pounds to the square inch, the air cushion thereon being maintained within the dome 75, and being indicated by the gauge 76; as the water is pumped the burner 51 heats it practically to boiling and as it is discharged through the pipe 77 and nozzle 78 it is regulated by the valve 79, a non-conducting handle 80 being applied to the pipe adjacent the nozzle to prevent the operator from burning his hands thereon. Since the pressure is so high the quantity of water used is very low because the hole at the end of the nozzle 78 is very small, and whenever the operator shuts the valve 79 the pump will circulate the water containing soap or distillate into and out of the receptacle 53, thereby preventing the fresh water in the tank 15 from becoming contaminated with a considerable quantity of oil. With this machine, the maximum cleaning effect of the spray may be attained

with a minimum of water and soap used, and as the supply is practically in the form of boiling water its cutting effect on the grease is considerable, thereby enabling the operator to clean a machine in a very few minutes.

In order to provide against the escape of water from the small tank 53 into the large tank 15 and to hold the suction of the pump, a check valve, 34^A, is provided adjacent the strainer 34'.

In the use of the nozzle it frequently becomes necessary to close the valve 79, and when closed the overflow from the pump will discharge into the receptacle 53 and thereby prevent the mixed distillate and soapy water from being mixed with the clean water in the tank 15, thereby reducing the fire hazard, since all of this mixed solution is promptly discharged from the nozzle 78 as soon as the valve 79 is again opened.

What we claim as new and desire to secure by Letters Patent of the United States, is as follows:

An automobile cleaning system comprising a frame, a high pressure pump mounted on said frame, an automatic pressure regulating relief valve on said pump, a fresh water tank mounted in said frame below said pump, a suction pipe extending from said pump to the bottom of said tank, a vertical open end overflow pipe connected to said suction pipe, a pipe establishing communication between said automatic relief valve and said overflow pipe, a soap tank mounted on said frame and having a pipe connection to said suction pipe, a distillate tank having a pipe connection to said suction pipe.

In testimony whereof we have hereunto set our hands this 21st day of March, A. D. 1926.

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