

Feb. 9, 1932.

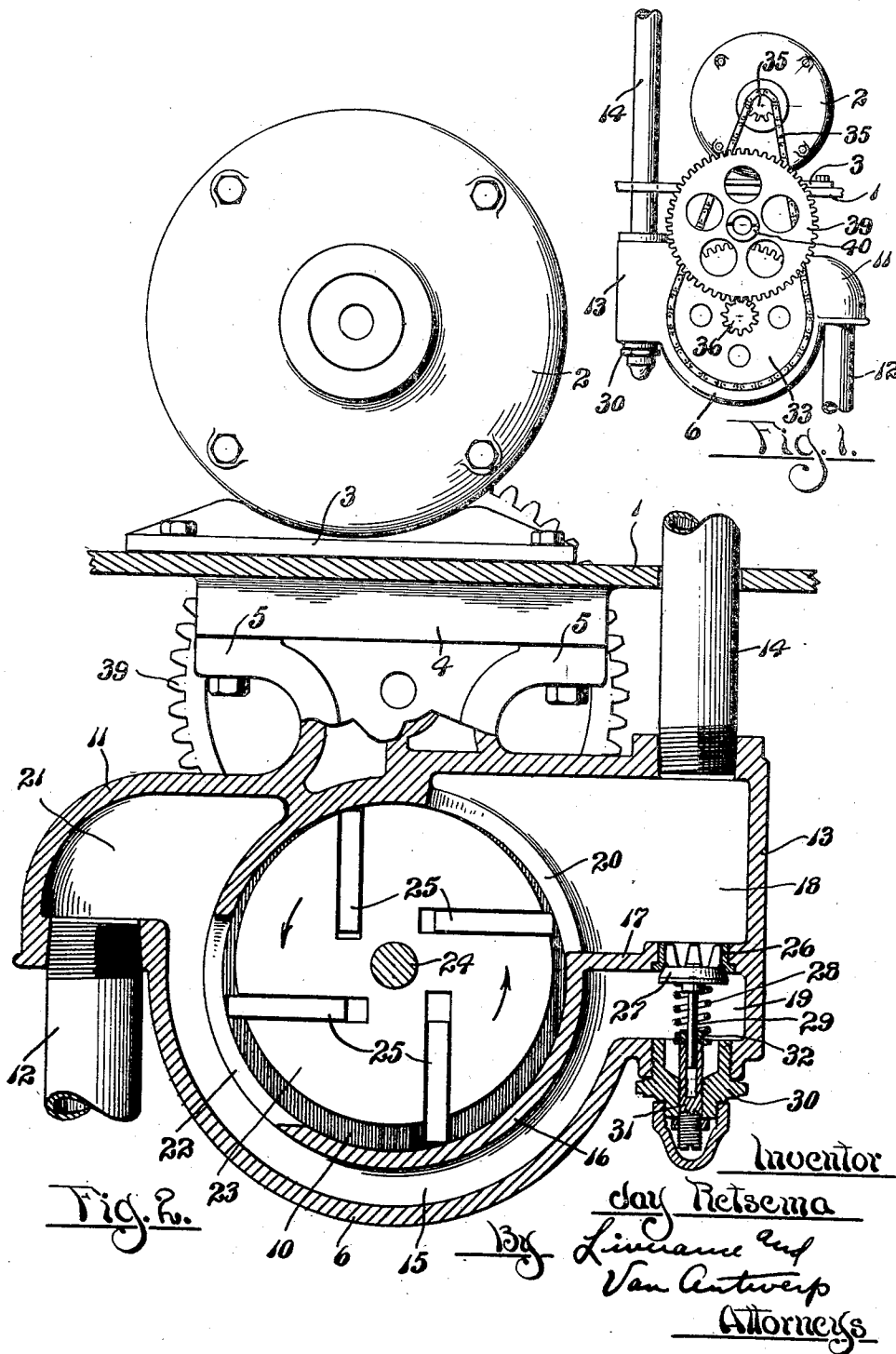
J. RETSEMA

1,844,103

PUMP

Filed May 29, 1929

2 Sheets-Sheet 1



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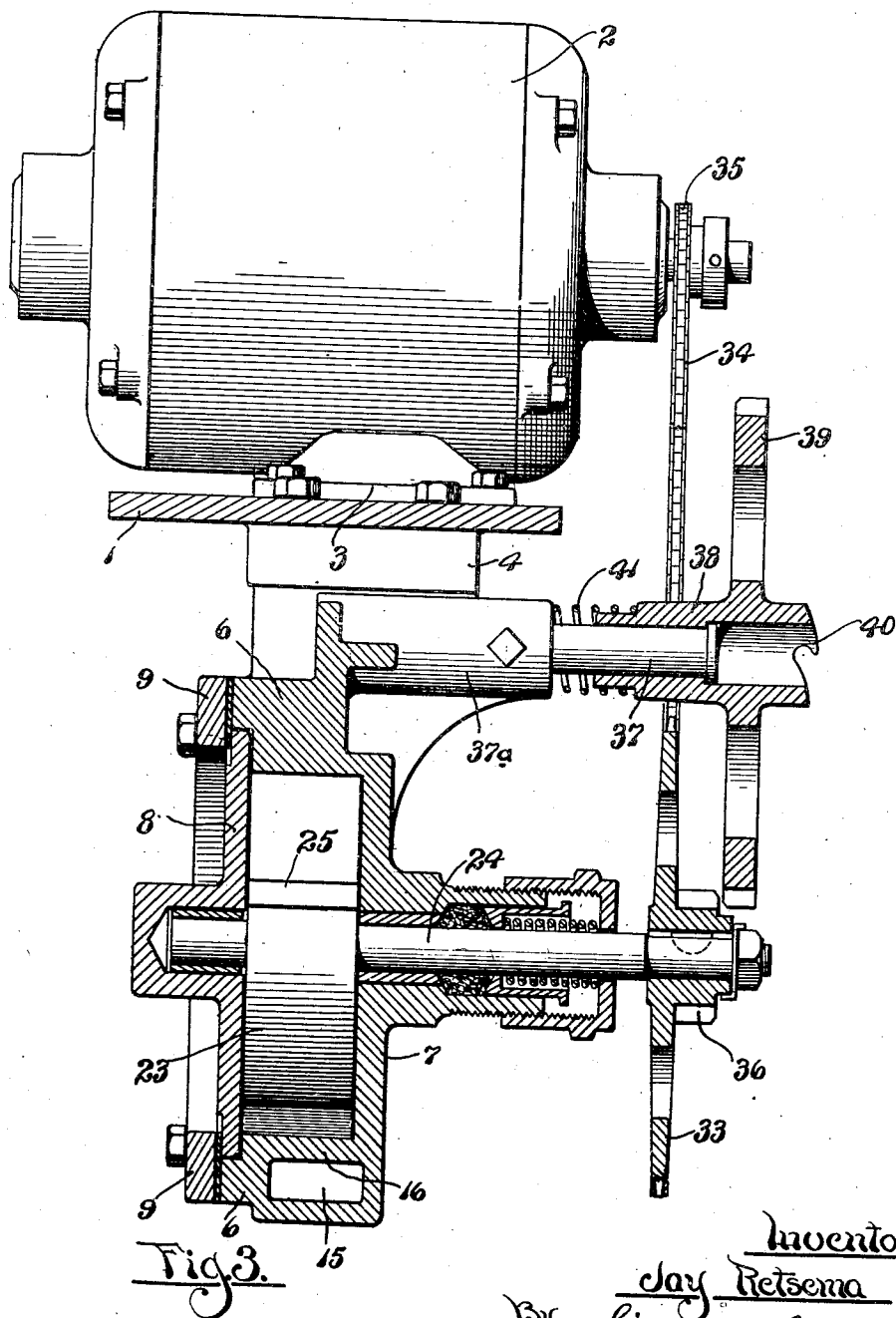
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PUMP

Application filed May 29, 1929. Serial No. 386,824.

This invention relates to a pump and is particularly concerned with a rotary power operated pump for pumping liquids continuously, pumps of this character being used in service stations and garages for pumping gasoline to motor vehicles.

With power operated pumps, it is desirable many times to shut off the flow of the gasoline fuel and yet have the motor continue its operation, or at least such continued operation of the motor may at times take place. One object and purpose of the present invention is to provide a relief construction in the pump whereby the pump may be continued in its operation after flow of liquid to the motor vehicle is stopped without detrimental effect to the pump, the relief mechanism working automatically upon attainment of a predetermined pressure in the pump so that the liquid pumped by the pump is circulated back to position to again pass through the pump, this operation proceeding continuously as long as the pump is operated after stopping delivery flow from the outlet to the pump.

It is further desirable in many cases that the pump may be hand operated, and one feature of the invention consists in a very simple and effective construction for manually operating the pump, said construction being normally held in an inoperative position but which is readily and almost instantly moved to operative position when it is to be used.

A yet further object of the invention is to provide a simple and convenient mounting for the motor and for the pump, with the motor above a fixed horizontal support and attached thereto and the pump below and suspended from the same support. Such construction is very practical and effective from a manufacturing and assembly standpoint.

The invention accordingly consists of the novel constructions, combinations and arrangements of parts for the effective attainment of the ends stated, and for the production of a compact pumping unit of relatively simple construction and assembly and one which is very practical for the purpose for which it is designed.

An understanding of the invention may be had from the following description taken in connection with the accompanying drawings, in which,

Fig. 1 is a front elevation of the pump unit of my invention.

Fig. 2 is an enlarged partial rear elevation and vertical section, the elevation being of the motor and the section being taken through the pump between its front and rear sides and,

Fig. 3 is a partial side elevation and vertical section, the motor being shown in side elevation and the pump in section from front to rear.

Like reference characters refer to like parts in the different figures of the drawings.

In the construction, a supporting platform, shelf or bracket 1 is used which, in gasoline pumps, is rigidly supported in a horizontal plane by vertical posts of the pump construction. At the upper side of this support an electric motor 2 is mounted, its base 3 being securely bolted to the support 1.

The supporting plate or bracket 1, at its under side, has a downwardly extending block 4 integral therewith, to which the pump is securely connected, upwardly extending feet 5 of the pump housing bearing against the under side of the block 4 and being bolted thereto. The pump housing includes an outer circular ring 6 integral with which is a vertical side 7 (see Fig. 3) thereby providing a recess in which the pump rotor operates, the open side of the housing being closed after the rotor is in place by a plate 8 which is clamped in place by clamping ring 9, bolted to the outer ring 6 of the housing. The central recess indicated at 10 in the housing is of slightly eccentric form so that when the rotor is mounted therein, one side thereof becomes closely adjacent an inner side of the housing while the diametrically opposed side of the rotor is spaced from the adjacent side of the housing, as shown in Fig. 2.

The pump housing has a laterally offset hollow inlet section 11 into which an inlet pipe 12 leads, the pipe extending to any main supply of liquid which is to be pumped.

At the opposite side of the housing there is a second hollow extension 13 at the upper side of which an outlet pipe 14 is connected. The lower part of the outer ring 6 of the pump housing has a cored passage 15 (see Fig. 2) around outside an inner web 16 which surrounds the rotor recess 10, and said web is horizontally extended between the upper and lower sides of the hollow extension 13 previously described, making a horizontal partition 17, which divides the space within said extension 13 into two chambers, an upper chamber 18, and a lower chamber 19. An outlet opening 20 from the rotor recess 10 is made to the upper chamber 18. The cored passage 15 connects the chamber 19 with chamber 21 in the inlet section 11 of the housing and there is an opening 22 connecting said inlet chamber 21 and the passage 15 with the rotor recess 10 as shown in Fig. 2.

The pump rotor 23 is of cylindrical form located in the recess 10 of the housing and fixed to a horizontal shaft 24 mounted between the sides of the housing and extending through the side 7, being suitably bushed and packed to prevent leakage. The rotor has a plurality of slots from its outer sides inward in which slots slides 25 are mounted, the same being normally thrown outward by centrifugal force when the pump is operated to bear against the inner curved sides of the recess 10.

An opening is made through the partition 17 in which a suitable valve seat bushing 26 is secured against the under side of which a valve 27 normally seats under the pressure of a spring 28 disposed around a valve pin 29 extending downwardly from the valve 27. The under side of the extension 13 described has an interiorly threaded opening there-through, in which a plug 30 is screwed. A threaded rod 31 is screwed through the plug and has a vertical central opening at its upper end in which the lower end of the pin 29 is received, the lower end of spring 28 bearing upon a collar 32 which seats against the upper end of rod 31. The rod 31 is adjustable by engagement by a screw driven at its lower end to adjust the tension of the spring 28.

At the front end of the rotor shaft 24 a sprocket wheel 33 is keyed, around which a sprocket chain 34 passes, also passing around a small sprocket wheel 35 on the shaft of the motor 2. It is evident that the rotor 23 is, in this manner, driven by the electric motor. The hub of the sprocket wheel 33 is enlarged and formed into a pinion 36 in front of the wheel 33.

A horizontal supporting post or rod 37 is connected to and extends forward from a suitable boss 37a cast integral with the pump housing. The post 37 has an enlarged outer head and on the post the hub 38 of a gear 39

is rotatively and slidably mounted. The hub 38 is hollow, extends to the front of the gear 39 and is formed at its ends with notches, indicated at 40, the construction being similar to that used at the outer end of the crank shaft of a motor vehicle for detachably connecting a starting crank therewith. The gear 39 and hub 38 are normally moved as far forward as the head of the post 37 will permit by a light coiled compression spring 41 between the hub and bushing 37a.

It is evident that, with the motor operating, the liquid coming to the chamber 21 through the inlet pipe 12 is pumped through the inlet opening 22 to the outlet opening 20 and into the chamber 18, and is thence forced outwardly through the pipe 14. This continues as long as there is free passage for the liquid through said pipe 14. It is very common in gasoline service pumps to provide a delivery hose which has a nozzle at its end that can be held in open position but which automatically closes against any further passage of liquid when free to do so. The motor, in such case continues operating and will continue to pump the liquid into the chamber 18. However, a high pressure of liquid in said chamber and in the pipe 14 will not be developed as, when the pressure becomes sufficient to compress the spring 28, the valve 27 opens and the liquid passes from the chamber 18 into the chamber 19 and back through the passage 15 to the inlet opening 22; and there will occur a continuous flow of liquid through chambers 18 and 19 and through the passage 15 with no danger of production of high pressure or stopping and injury to the motor.

The manual operation of the pump is very readily accomplished by attaching a crank to the projecting end of the hub 38 and pressing inward on said hub to bring the gear 39 in engagement with the pinion 36 after which the crank may be turned as is evident. As soon as the inward pressure on the crank is released the gear 39 disengages from the pinion 36.

The assembly of the motor and supporting bracket 1 and suspension of the pump from the bracket is a very practical means for assembling the parts and the manufacture thereof is greatly facilitated and cheapened by reason of such construction.

The construction described is relatively simple and is very economical in the matter of manufacturing cost. It has proved very practical in service. The invention is defined in the appended claim and is to be considered comprehensive of all forms of construction coming within the scope of the claim.

I claim:

A construction of the class described comprising, a rotary pump, including a rotor and a shaft on which the rotor is mounted, a sprocket wheel provided with a hub formed

into a pinion secured on said shaft, an electric motor above the pump, means for driving said sprocket wheel from the shaft of the motor, a post extending from the pump above
5 the shaft, a gear having a hub rotatively and slidably mounted on said post, spring means engaging with said hub to normally move the gear out of engagement with the pinion, and crank receiving means on said hub whereby
10 a crank may be detachably connected therewith to move the gear into engagement with the pinion and thereafter turn said gear.

In testimony whereof I affix my signature.

JAY RETSEMA.

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