Feb. 7, 1933. S. A. GUTMAN 1,896,358

PUMPING APPARATUS

Filed Aug. 6, 1928

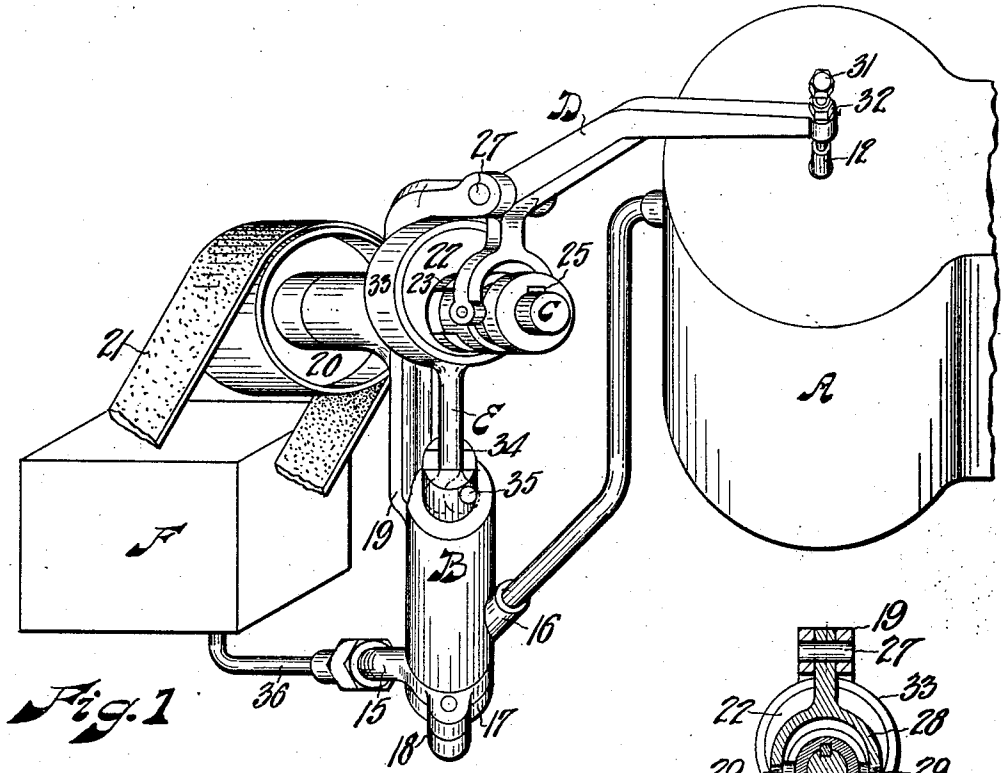


Fig. 1

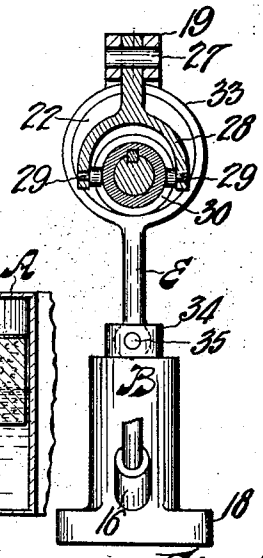


Fig. 3

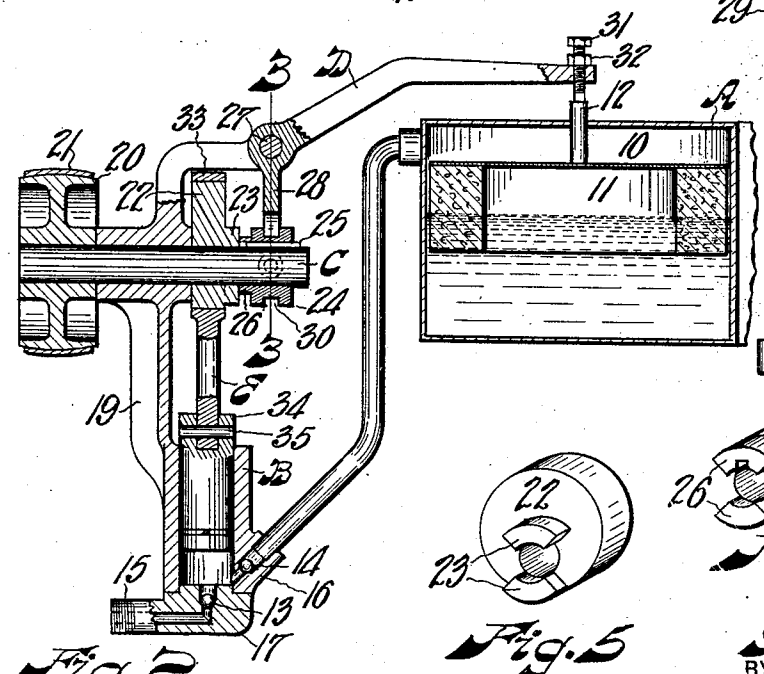


Fig. 2

Fig. 5

Fig. 4

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PUMPING APPARATUS

Application filed August 6, 1928. Serial No. 297,654.

The subject matter of the invention in this application was disclosed in the original application for my Patent #1,614,238 but could not be claimed therein.

My invention relates to pumping apparatuses generally and more particularly to self or automatically controlled pumping apparatuses.

Objects of my invention are a simple and inexpensive pumping apparatus, easily installable as a whole, the members thereof of simple and inexpensive structure and easily installable, economical and efficient in operation, automatic in operation so that the same requires very little or no attention, operable by an easily available source of power, operable to pump various quantities of substance including complete stoppage thereof, automatically controlled by a condition of the pumpable substance or by a condition of substance associated with the pumpable substance, automatically delivering only needed quantities of substance, and adjustable to vary the quantities of substance delivered and to adapt the same to conditions associated with the apparatus. Other objects will become obvious, or will suggest themselves upon an inspection of the accompanying drawing and will be pointed out, or will become apparent or obvious, or will suggest themselves, in the following specification.

In the accompanying drawing I have shown a certain apparatus for illustration purposes only, in which drawing:

Fig. 1 is a general perspective view of a pumping apparatus embodying my invention and shows a pumping means associated with a driving shaft operated by an internal combustion engine and with a carburetor for the engine.

Fig. 2 is a longitudinal section taken in a vertical plane through substantially the middle of the apparatus shown in Fig. 1 and shows relations of elements more clearly.

Fig. 3 is a transverse section taken in a vertical plane indicated by the line 3—3 in Fig. 2 and shows transverse relations of shaft and sleeve and yoke more clearly.

Fig. 4 is a perspective view of the sleeve with one clutch portion thereon.

Fig. 5 is a perspective view of the eccentric with the other clutch portion thereon.

Similar reference characters refer to similar parts throughout the views.

The apparatus shown in the drawing mentioned above is designed as an association of a carburetion liquid supply receptacle and an internal combustion engine and a carburetor and a pump means operable by the engine to move carburetion liquid from the supply receptacle into the carburetor in quantities as required by the carburetor.

The carburetor A is shown as having the carburetion substance receiving receptacle or chamber 10, for gasoline in the present instance, with the float 11 therein and the stem 12 on the float and extending through and above the top of the carburetor.

The pump cylinder B is shown with conventional valves 13 and 14, the inlet 15, the outlet 16, and the cap 17 closing the bottom thereof and having the ears 18 whereby the cylinder can be secured in position.

The shaft C is shown as journaled in the bracket 19 extending from the cylinder and carrying the pulley 20 with the belt 21 over the same and extending to a rotating part of an internal combustion engine not shown in the drawing since the connection appears to be obvious as being the crank shaft or the cam shaft or any other rotating member of the engine and needs not be limited to any particular part.

The eccentric 22 is rotatable on the shaft C and has the teeth 23 forming one portion of a clutch means.

The sleeve 24 is shown as slidable longitudinally on the shaft C and rotates therewith through the spline 25 and has the teeth 26 adapted to the spaces between the teeth

23 and the spaces between the teeth 26 adapted to the teeth 23 forming the other portion of the clutch means.

The arm D is pivoted to the upper end of the bracket 19 by means of the pin 27 so that the same can move on that pivot.

One end of the arm D has the yoke 28 straddling the sleeve 24 and the stud pins 29 in the yoke ends and extending into the groove 30 provided in the sleeve 24 so that a movement of the yoke on the pivot 27 moves the sleeve longitudinally of the shaft C.

The screw 31 is threaded into the other end of the arm D so that the same can be adjusted therein and is in alignment with the stem 12 so that the end thereof can contact the end of the stem 12 and carries the nut 32 whereby the same can be locked in positon.

One end of the pitman E has the eccentric strap 33 over the eccentric 22 and the other end is pivoted to the plunger 34 by means of the pin 35 which plunger operates in the cylinder B in the manner of plunger pumps.

The carburetor A supplies gasoline to the engine and is supplied with gasoline by the pump.

For the purpose of economy and proper operation of the engine mentioned, as well as other devices or apparatuses operating under similar conditions, it is desirable that a certain condition exist in the receiving receptacle of the carburetor shown and described, or in the receiving receptacle of another apparatus, or in the supply receptacle, as the case may be and that condition may be the level of gasoline in the receiving carburetor shown and described, or a pressure in this receptacle, or other condition in this receptacle, or the level of substance, or pressure, or other condition in the supply receptacle, or any of the these conditions in both receptacles.

In the apparatus shown and described herein the engine mentioned operates most economically when the level of the gasoline in the receiving receptacle of the carburetor is at a certain height and the float is moved up and down in the receiving receptacle by the rise and fall of the gasoline level.

When other conditons are at hand or desired such as a pressure condition in one or both receptacles, created by liquid weight or other means, the float, or an equivalent member, or other mechanism, can be modified to meet this pressure or other condition, which modification appears to be obvious.

When the level of gasoline in the receiving receptacle 10 is at proper height, the float is at such a height that the end of the stem 12 thereon contacts the end of the screw 31 and the teeth 23 and 26 are out of engagement with each other and clear each other while the sleeve rotates with the shaft C when the same is rotated by the belt and, since there is now no connection between the sleeve and the eccentric, the eccentric does not rotate and therefore does not operate the pump so that no gasoline is now being moved into the receptacle 10.

As the engine continues to use gasoline from the receptacle 10, the gasoline level therein falls and the float moves downwardly with it. The weight of the arm D causes the end thereof which has the screw to follow the downward movement of the float and, due to the pivoted mounting thereof, moves the sleeve longitudinally on the shaft toward the eccentric until the teeth 23 and 26 engage each other whereupon the eccentric will rotate with the sleeve and with the shaft and thereby operate the pump to draw gasoline from the supply receptacle F to the carburetor, through the pipe 36 and thereby replenish the gasoline in the receptacle 10.

When the gasoline level in the receptacle 10 rises to normal or above, the arm D moves the sleeve back to its former position and the operation of the eccentric and the pump are stopped until the gasoline level again falls below normal.

The adjusting screw 31 can be manipulated so that the clutch members can be brought into and out of engagement at various gasoline levels in the receptacle 10.

Generally speaking, my invention contemplates a variably operable pump means in operable connection with a power means although not necessarily positively connected thereto, and a movable or moving means acting directly on the pump means to cause the variable operation of the pump means and controlled by conditions in one or more receptacles associated with the pump means.

I am aware that my invention is applicable to various apparatuses wherein substance is moved in a pumping manner; I am also aware that changes and modifications can be made in the structure as well as in the arrangement as well as in the combination of elements shown and described within the scope of the appended claim; therefore, without limiting myself to the precise application of my invention as shown and described, nor to the precise structure and arrangement and combination of elements as shown and described,

I claim:

A pumping apparatus including a pump cylinder having a bracket thereon, a supply receptacle in feeding relation to said cylinder, a receiving receptacle in receiving relation to said cylinder, a pump operating shaft journaled in said bracket, an eccentric mechanism rotatable on said shaft and in operative connection with a plunger in said cylinder and having a member of a clutch mechanism thereon, a companion clutch member of said clutch mechanism on said

shaft and rotating therewith and slidable thereon longitudinally thereof, an arm pivoted on said bracket and having one end thereof in operative connection with said companion clutch member and the other end thereof extending over said receiving receptacle, a float in said receiving receptacle having a stem extending above said receiving receptacle and an adjusting screw in said other end of said arm and in contact with the outer end of said stem.

In testimony of the foregoing I affix my signature.

SYLVESTER A. GUTMAN.