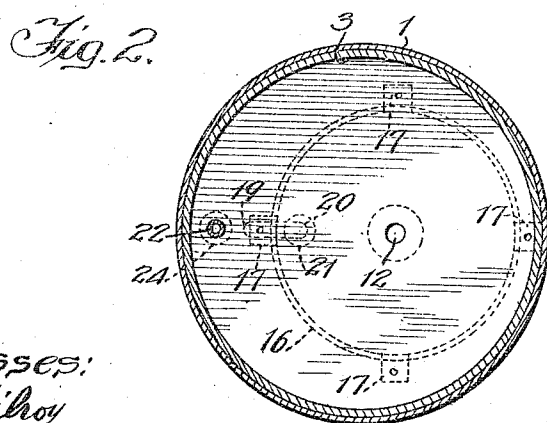
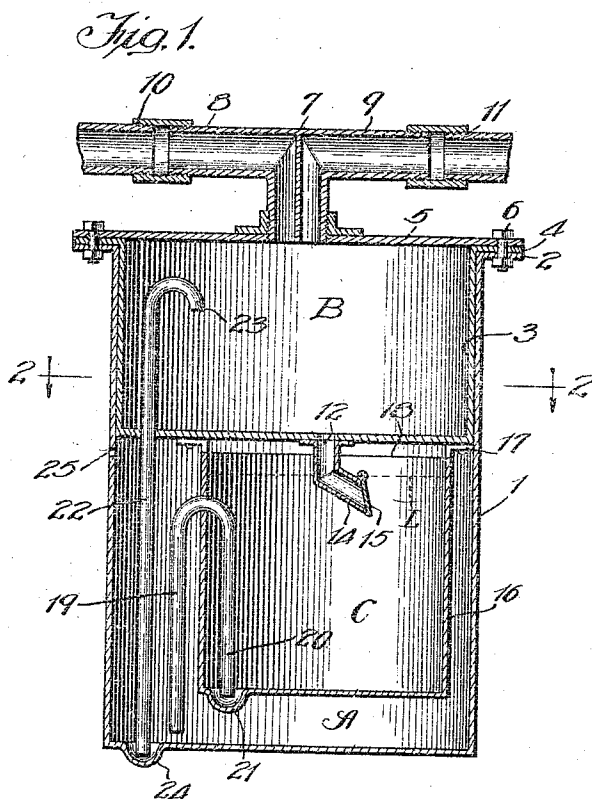


F. R. PERRY.
 AUTOMATIC CONTROL FOR VACUUM PUMPS OR THE LIKE.
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1,297,005.

Patented Mar. 11, 1919.



Witnesses:
 W. L. Kihon
 Harry R. L. White

Inventor:
 Frank R. Perry
 By *Shie & Shie*
 Attys

UNITED STATES PATENT OFFICE.

FRANK R. PERRY, OF CHICAGO, ILLINOIS.

AUTOMATIC CONTROL FOR VACUUM-PUMPS OR THE LIKE.

1,297,005.

Specification of Letters Patent.

Patented Mar. 11, 1919.

Application filed October 30, 1917. Serial No. 199,250.

To all whom it may concern:

Be it known that I, FRANK R. PERRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Controls for Vacuum-Pumps or the like, of which the following is a description.

My invention belongs to that general class of devices known as automatic controls for vacuum pumps and relates particularly to an apparatus adapted to be used in connection with the pumping or causing a flow of a liquid or fluid by means of a vacuum. It is customary in the case of combustion engines where the fuel tank is below the carbureter so that the fuel will not flow by virtue of gravity to the carbureter, to provide means for producing a flow of the fuel. In some cases this is done in what is known as the pressure feed, and more commonly it is done by employing what is known as the vacuum feed system. In the latter system the fuel is drawn by means of a vacuum into an auxiliary tank and fed by gravity to the carbureter. A vacuum is produced in the system by means of a vacuum pump or by tapping on to the manifold or to one of the cylinders. My apparatus particularly relates to a simple mechanism for periodically breaking or controlling the vacuum so that the pumping is intermittent and not continuous. The invention has among its objects the production of an apparatus of the kind described that is simple, compact, durable, efficient and satisfactory for use wherever found applicable. It has especially as an object the production of a device of the kind described that does not require a float or numerous springs, levers and the like necessitating consequent fine adjustments. It also has as an object the production of a device that will not become inoperative in case all of the fuel is pumped out of the main tank and which does not at any time require priming. Many other objects and advantages will be obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described and more particularly pointed out in the claims.

In the drawings, wherein like reference

characters indicate like or corresponding parts,

Figure 1 is a sectional view through my improved device; and

Fig. 2 is a cross sectional view taken substantially on line 2—2 of Fig. 1.

Referring to the drawings, 1 represents a casing of suitable size, shape and material which is preferably flanged at 2 about the top. Arranged within the casing 1 is a shell 3 also of suitable size, shape and material formed with a bottom and also preferably flanged about the top at 4. A closure 5 is provided and the parts 1, 3 and 5 secured together by bolts 6 or equivalent means for the purpose, suitable packing or gaskets, however, being arranged between the flanges 2 and 4 and closure 5 so as to provide a tight fit. The parts 1 and 2 form substantially chambers A (vacuum chamber) and B (fluid chamber). As shown, I provide a part 7 having the branch pipes 8 and 9, the same being constructed so that the same communicate with the chamber B. One part 8 is arranged to be connected to a pipe 10 and the other to a pipe 11, the pipes being connected one to a vacuum pump or the equivalent and the other to a vacuum tank or auxiliary receptacle as it may be termed for the storing of a supply of fuel or the like.

As most clearly shown in Fig. 1, the chambers A and C are connected by an opening or port 12. In the preferred construction the discharge part 14 is provided, extending down below the bottom of the shell 3 and a check valve 15, or its equivalent, arranged at the lower end. Within chamber A is arranged a cup shaped shell or container 16 which is shown secured to the bottom of the shell 3 by means of brackets 17, there being a space 18 between the top of the cup shaped part 16 and the bottom of shell 3, which is substantially the top of chamber A. The cup shaped shell 16, constituting a chamber C, is provided with a pipe 19—20, the same constituting a siphon pipe with the end 19 below the end 20. I prefer to provide a pocket at the ends of pipe 20 by forming the bottom of 16 as most clearly shown in Fig. 1, so that the end of pipe 20 projects below the bottom of the shell 16. I also provide a pipe 22 extending from the bottom of the chamber A up into the chamber B, the upper end 23 being bent

down as shown if desired. The bottom of part 1 is also depressed at 24 to form a pocket so that the end of pipe 22 is substantially below the bottom of the chamber

5 A. Chamber A is provided with a vent opening 25 through which air may enter or be discharged from the chamber.

I consider it unnecessary to show or describe in detail the auxiliary receptacle with
10 which my apparatus is connected as this may be of any desired construction. I might say, however, that I prefer to make the same substantially similar to my apparatus shown in Fig. 1, except that the piping
15 19—20 and 22—23, as well as the cup shaped shell 16 are omitted. Also, the chamber corresponding to chamber A is provided with a discharge outlet from which a pipe extends to the carbureter. The construction will be
20 obvious. The upper end can be connected with the main gas tank and with one of the pipes 9 or 8 of the apparatus shown in Fig. 1.

The operation of the apparatus shown
25 herein may be briefly described as follows:—The desired amount of glycerin, lubricating oil or the equivalent is placed in my device as shown in Fig. 1, so that the same if confined in the chamber C or container of the
30 part 16 would come substantially to the level indicated by the dotted line L. Assuming that the same is originally poured in chamber B, it will flow through the opening 12 past valve 15 and into container 16
35 until it reaches the bend in pipe 19—20, through which it will siphon over into chamber A. If a vacuum is now produced in chamber B, for example by connecting pipe 10 to a vacuum pump or to the engine manifold, the oil or fluid in chamber A will be
40 drawn up through pipe 22 and discharged into chamber B, but the vacuum in chamber B will also maintain valve 15 closed. The lower end of pipe 22 being in the fluid, the
45 same forms a seal about the end of the pipe so that the air entering vent 25 cannot pass up pipe 22 into chamber B until all of the fluid in the chamber has been drawn into chamber B, after which air will enter chamber B through pipe 22 and the vacuum will
50 be broken. While there is a vacuum in chamber B there is likewise a vacuum in pipe 11 and in the auxiliary receptacle. As soon as the vacuum is broken in chamber B
55 the fluid flows into chamber C. The times or intervals required for the fluid to make the circuit will of course depend on the quantity of fluid and the proportions and arrangements of the various parts. As soon
60 as the same is siphoned into chamber A the lower end of pipe 22 is sealed and a vacuum is again produced in chamber B. The operations described continue, the fuel being
65 intermittently drawn into the auxiliary fuel tank to be discharged into the carbureter.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction,
70 arrangements and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure
75 by Letters Patent is:—

1. A fluid containing receptacle having two chambers therein, piping connected with and extending to and from one of said chambers, one chamber having a discharge
80 outlet into the second chamber, a valve arranged at said outlet, means for conducting fluid from adjacent the bottom of the second mentioned chamber to the first chamber, said
85 second chamber provided with a vent near the upper part thereof to the exterior of the receptacle; and means arranged between the said outlet and the entrance end of said
conducting means for receiving the contents of the first mentioned receptacle discharged
90 through said outlet and discharging the same into the second chamber.

2. A fluid containing receptacle having two chambers therein, piping connected with and extending to and from one of said
95 chambers, one chamber having a discharge outlet into the second chamber, a check valve arranged at said outlet, means for conducting fluid from adjacent the bottom of the second mentioned chamber to the first chamber, said second chamber provided with a
100 vent near the upper part thereof to the exterior of the receptacle, and means arranged between the said outlet and the entrance end of said conducting means for receiving
105 the contents of the first mentioned receptacle discharged through said outlet and thereafter automatically discharging the same after a predetermined interval into the second chamber.

3. A fluid containing receptacle having two chambers therein arranged one above the other, piping connected with and extending to and from the upper chamber, said upper
115 chamber having a discharge outlet communicating with the lower chamber, a pipe extending from adjacent the bottom of the lower chamber to the upper chamber above the bottom thereof, said lower chamber having a vent opening adjacent the upper part
120 thereof, and means arranged between the said outlet from said upper chamber and the entrance end of said pipe for retarding the flow of fluid from said outlet to the entrance end of said pipe.

4. A fluid containing receptacle having two chambers therein arranged one above the other, piping connected with and extending to and from the upper chamber, said
125 upper chamber having a discharge outlet

communicating with the lower chamber, a pipe extending from adjacent the bottom of the lower chamber to the upper chamber above the bottom thereof, said lower chamber having a vent opening adjacent the upper part thereof, and means arranged between the said outlet from said upper chamber and the entrance end of said pipe for retarding the flow of fluid from said outlet to the entrance end of said pipe comprising a container arranged in the lower chamber provided with means for discharging the contents of the container.

5. A fluid containing receptacle having two chambers therein arranged one above the other, piping connected with and extending to and from the upper chamber, said upper chamber having a discharge outlet communicating with the lower chamber, a check valve arranged at said outlet, a pipe extending from adjacent the bottom of the lower chamber to the upper chamber above the bottom thereof, said lower chamber having a vent opening adjacent the upper part thereof, and means arranged between the said outlet from said upper chamber and the entrance end of said pipe for retarding the flow of fluid from said outlet to the entrance end of said pipe comprising a container arranged in the lower chamber provided with means for automatically discharging the contents of the container when the contents reach a predetermined level in the container.

6. A fluid containing receptacle provided with two chambers arranged one above the other, piping connected with and extending to and from the upper chamber, said upper chamber having a discharge outlet into the lower chamber, a valve arranged at said outlet, means for conducting fluid from the lower chamber to the upper chamber consisting of a pipe extending from adjacent the bottom of the lower chamber to the upper part of the upper chamber, said receptacle provided with a vent opening for said lower chamber, a container for the fluid discharged through said upper chamber outlet, said container arranged within the lower chamber, and means for siphoning out the contents of said container into the lower

chamber when the same reach a predetermined level in the container.

7. A receptacle constructed with a vacuum chamber and a fluid containing chamber and having a valved discharge outlet from the vacuum chamber into the fluid chamber, piping means connected with said vacuum chamber, said receptacle provided with a vent opening from said fluid chamber, a cup shaped container arranged within the fluid chamber below said outlet from said vacuum chamber, and means for periodically completely emptying said chamber when the fluid therein reaches a predetermined level, and a pipe extending from said vacuum chamber to adjacent the bottom of the fluid chamber.

8. In a device of the kind described and in combination, a receptacle substantially constructed with three chambers, a port connecting the first and second chambers provided with a gravity valve normally closing said port and opening into the second chamber, piping means extending to and from said first chamber, a siphon connecting the second chamber with the third chamber, and a pipe connecting the third chamber with the first chamber, said third chamber having a vent opening adjacent the top connecting the interior with the exterior of the receptacle.

9. In a device of the kind described and in combination, a fluid receptacle constructed with two chambers arranged one above the other, piping means connected with the receptacle and communicating with the upper chamber, said upper chamber having an outlet into the lower chamber, a check valve arranged at said outlet normally closing said outlet and opening into the lower chamber, and a discharge pipe from said lower chamber and leading to the upper chamber.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

FRANK R. PERRY.

Witnesses:

ROY W. HILL,
CHARLES I. COBB.