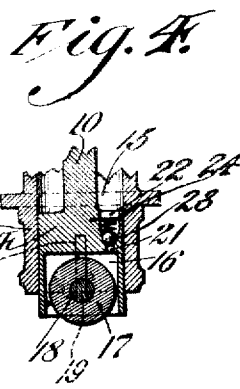
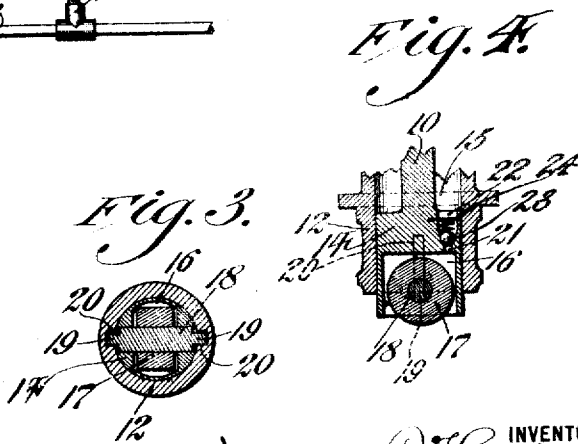
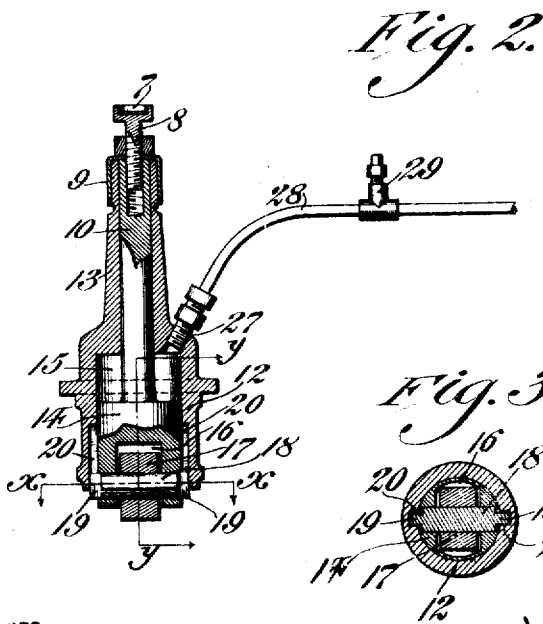
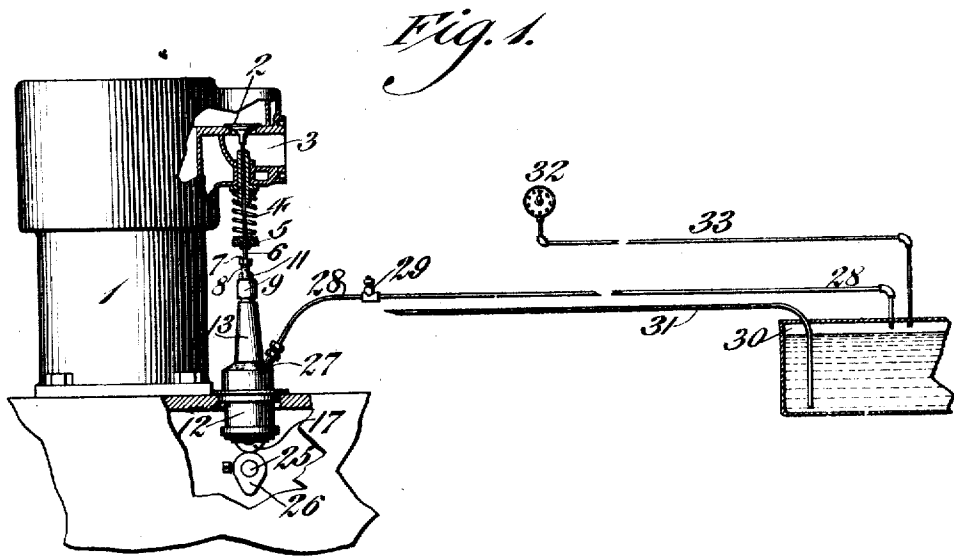


W. P. HERBERT.
AIR PRESSURE CREATING DEVICE FOR GASOLINE SUPPLY TO ENGINES, &c.
APPLICATION FILED MAR. 24, 1911.

1,023,565.

Patented Apr. 16, 1912.



WITNESSES

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WILLIAM P. HERBERT, OF PHILADELPHIA, PENNSYLVANIA.

AIR-PRESSURE-CREATING DEVICE FOR GASOLENE-SUPPLY TO ENGINES, &c.

1,023,565.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed March 24, 1911. Serial No. 616,594.

To all whom it may concern:

Be it known that I, WILLIAM P. HERBERT, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Air-Pressure-Creating Device for Gasolene-Supply to Engines, &c., of which the following is a specification.

My invention consists of a novel construction of an air pressure creating device which is adapted to be automatically operated by a suitable element of the valve operating mechanism of a hydrocarbon explosive engine, which may be of the character employed on motor vehicles or the like, provision being made for conducting the air under pressure to the gasolene supply tank, whereby the gasolene under pressure is caused to flow to the carbureter in a regular and uninterrupted manner, without necessitating any attention on the part of the operator.

To the above ends my invention consists of a novel construction of air pump whose piston rod and piston are located in the line of the engine valve mechanism, said piston being recessed at its lower portion and having a roller therein adapted to be operated in one direction by a cam of the valve mechanism and in the opposite direction by a suitable tension device also forming a part of the valve mechanism, said piston having a valve therein adapted to control the flow of air to the piston chamber and its adjuncts. It further consists of novel means for preventing rotation of the pumping piston and its adjuncts.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

Figure 1 represents a side elevation, partly in section, of a novel construction of an air pressure creating device and its adjuncts embodying my invention. Fig. 2 represents on an enlarged scale, a longitudinal sectional view of the pumping apparatus employed. Fig. 3 represents a section on line *x—x* Fig. 2. Fig. 4 represents a partial section on line *y—y* Fig. 2, showing the position of the valve employed.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—For the purpose of illustrating my invention, I have shown in the accompanying drawings one

form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

In the practical embodiment of my invention, I convert a suitable portion of the valve operating mechanism into a novel and efficient pumping apparatus, whereby I am enabled to utilize the reciprocating movement of the valve operating mechanism to impart the necessary reciprocations to the pumping member without increasing the number of parts to effect the operation of the pumping member, 1 designating the cylinder or casing of a hydrocarbon explosive engine used on motor vehicles, and 2 the valve which regulates the passage of the gases through the opening 3, said valve being held normally to its seat by a spring 4 bearing against the casing or a portion thereof, and against the washer 5 secured to the valve rod 6, the lower end of the latter resting in the seat 7, of the threaded stem 8, which passes through the dust guard 9, and is in threaded or other engagement with the top of the rod 10, said stem 8 being secured in position by the nut 11, the foregoing parts being of the usual construction and requiring no further description.

12 designates the pump cylinder, the upper extension 13 of the same serving as a guide for the rod 10, to the lower end of which is secured the piston 14, which reciprocates in the piston chamber 15. The lower end of the piston 14 has a recess 16 therein, in which is rotatably mounted the roller 17, said roller turning freely on its bearing or pin 18, the ends of the latter being extended and squared to form the tongues 19 which ride freely in the grooves or ways 20 located in the inner periphery of the piston casing 12.

21 designates a port leading upwardly from the recess 16 into the valve chamber 22 (best seen in Fig. 4), said valve chamber being located in the piston 14 and being open at its top into the piston chamber 15, said valve chamber containing the valve 23 which may be a ball valve as in the present in-

stance, or other form of valve if desired, said valve being held in position by the pin 24.

Referring now to Fig. 1, 25 designates a rotatable shaft having thereon the cam 26 which contacts with the roller 17, so that it will be seen that each rotation of said shaft and cam will cause an upward movement to be imparted to the piston 14, whereby the air in the piston chamber 15 will be compressed and forced through the outlet port check valve 27 into the discharge pipe 28 past the safety valve 29 and thence into the gasolene tank 30, the pressure of air in the gasolene tank causing the gasolene to flow through the outlet pipe 31 into the carbureter (not shown), the amount of air pressure in the gasolene tank being indicated by the gage 32 connected to the gasolene tank by the pipe 33. The piston 14 is caused to move downwardly after the upward movement thereof caused by the cam 26, by the tension of the spring 4, so that during each rotation of the shaft 25 there is an upward and downward movement imparted to the piston 14, and the ingress of air will be controlled by the valve 23 of the piston 14, as will be apparent from Fig. 4, so that the necessary air pressure upon the gasolene in the gasolene tank will be always maintained automatically without requiring any attention upon the part of the operator of the automobile or engine, which latter may be of any approved form either stationary or adapted for automobile, aeroplane or other uses.

There have been various devices proposed for creating or causing an air pressure upon the gasolene of the gasolene supply tank of an automobile or hydrocarbon engine, most of which have to be operated manually or by mechanical means requiring attention of the operator, but my present invention differs therefrom, since I utilize a movable element of the valve mechanism to effect the pumping operation and am thus enabled to obtain at all times during the operation of the engine the necessary air pressure to force the gasolene to the carbureter. The action of the safety valve 29 and the pump valve 23 will be apparent to those skilled in the art, and it will be apparent that the roller 17 will be held at all times in proper position with respect to its cam 26 by means of the tongues 19 and the ways 20 therefor, the dust guard 9 preventing the ingress of dust to the piston chamber 15 and the spring

4 performing its dual function of effecting the proper actuation of the valve 2 and the piston 14 and its adjuncts.

My novel device can be cheaply manufactured and does not readily get out of order, and after being once assembled requires no packing, adjustment, or other attention, as is evident.

It will now be apparent that I have devised a novel and useful construction of an air pressure creating device for gasolene supply to engines, etc. which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described a preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, a cylinder having one end open and provided with a valved outlet at its other end and formed with diametrically opposite guide-grooves in its bore, a piston reciprocable in said cylinder and formed with a recess in its outer end having a valved opening into the closed end of the cylinder, a pin transversely secured through the recessed portion of the piston and having projecting ends guided in the grooves of the cylinder, a roller journaled upon said pin within the recess, and a rotary cam engaging such roller.

2. In a device of the character stated, a cylinder having one end open and formed with a guide-extension at its other end, an outlet valve in said latter end, a piston in said cylinder and formed with a recess in its end and a rod at its other end movable in the guide-extension, means for retaining said piston against rotation, a valve in said piston controlling communication between the recess in the same and the interior of the cylinder, a roller journaled in the recess of the piston, and a rotary cam engaging such roller.

WILLIAM P. HERBERT.

Witnesses:

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