

J. N. B. BOND.
 APPARATUS FOR DISPENSING CLEANING FLUIDS.
 APPLICATION FILED NOV. 18, 1909.

984,187.

Patented Feb. 14, 1911.

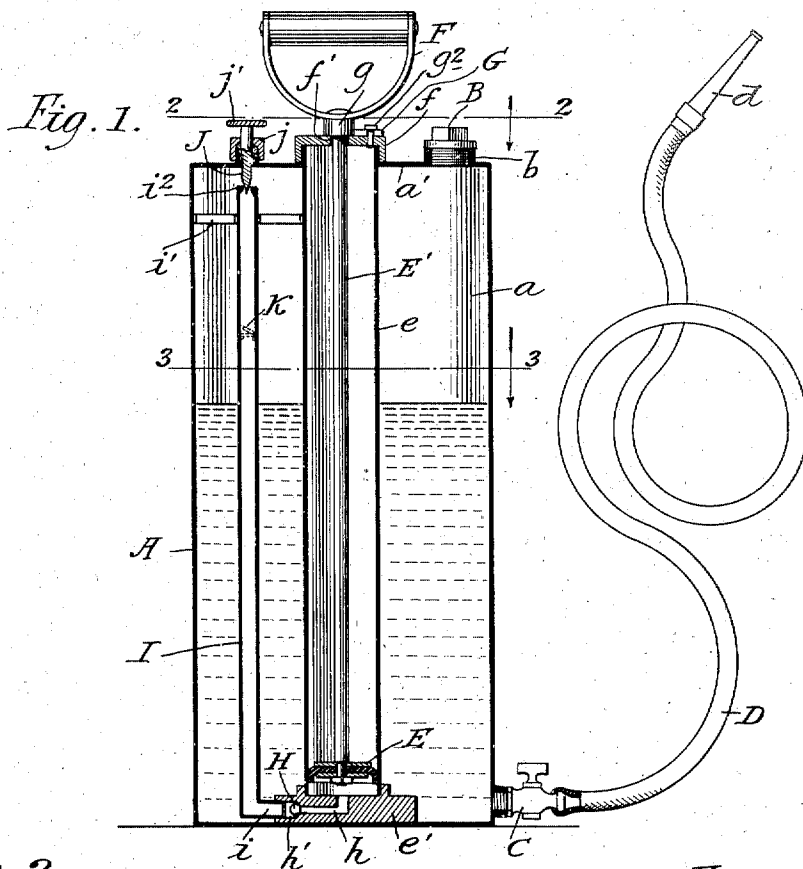


Fig. 2.

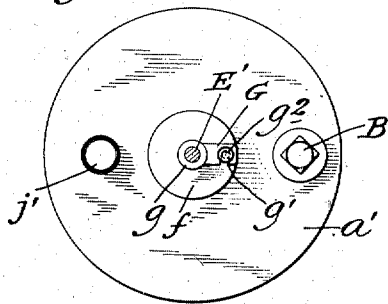
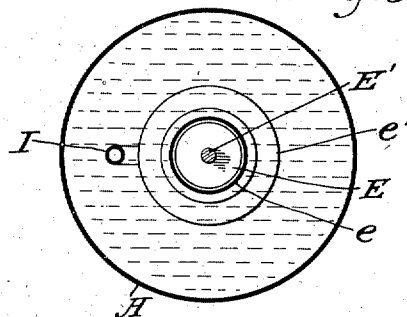


Fig. 3.



WITNESSES:

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APPARATUS FOR DISPENSING CLEANING FLUIDS.

984,187.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed November 18, 1909. Serial No. 528,640.

To all whom it may concern:

Be it known that I, JOSEPH N. B. BOND, a citizen of the United States, residing in the city of New York, borough of Manhattan, in the county and State of New York, have invented a certain new and useful Apparatus for Dispensing Cleaning Fluids, of which the following is a specification.

This invention is an apparatus for dispensing cleaning fluids.

It is well known that motors and other machinery require thorough overhauling and cleaning at certain intervals. According to the present practice, the parts composing the motor or machine are separated or taken apart for such purposes, an operation which involves considerable time and labor, and, in many instances, expert skill is necessary for the proper re-assembly of the parts.

The object of my invention is to obviate, in many cases, the foregoing objections, and to this end I provide an apparatus adapted to be easily carried by a workman and capable of dispensing, under pressure, a cleaning fluid which will reach or penetrate into the crevices of the machine or motor for the purpose of flushing out the dust, oil, dirt and other matter which tends to clog up the working parts.

In a preferred embodiment of the invention, my apparatus comprises a closed tank constituting a chamber for the storage of the cleansing fluid, a pipe or hose at the bottom part of said tank, a nozzle on said pipe, a faucet or like device for controlling the flow of fluid through said pipe, an air compressor or pump, and a pipe leading from said compressor or pump to the tank above the fluid level therein.

The invention will be hereinafter described more fully in connection with the accompanying drawings.

In the accompanying drawings I have illustrated one practical embodiment of the invention, but the construction shown therein is to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a vertical longitudinal section, partly in elevation, of a dispensing apparatus embodying my invention. Fig. 2 is a cross section, partly in plan, the plane of the section being indicated by the dotted line 2-2 of Fig. 1. Fig. 3 is a horizontal section on the line 3-3 of Fig. 1.

A designates a tank which may be composed of sheet metal or any other suitable material. Said tank is provided with a substantially closed chamber, *a*, wherein a cleaning liquid of any desired character may be deposited. The upper head, *a'*, of tank, A, is provided with a filling orifice, *b*, which is normally closed by a cap, B, whereby the cap may be removed so that the cleaning liquid may be poured into chamber, *a*, up to any desired level therein.

Attached to the bottom part of tank, A, is a cock or faucet, C, and connected to this faucet is a pipe or hose, D. Said pipe is, preferably, in the form of a flexible tube, and at the free end of the tube is a nozzle, *d*, of any suitable construction.

In connection with the tank I employ an air compressor or pump, the cylinder, *e*, of which is positioned substantially centrally within tank, A. The lower part of the cylinder is fastened to a foot piece, *e'*, by a liquid and air tight joint so that cylinder, *e*, will not communicate with chamber, *a*, of the tank, whereby the liquid in the tank is precluded from flowing into the pump cylinder. Within the pump cylinder operates a piston, E, which may be of any suitable or preferred construction, and attached to said piston is a rod, E', the latter extending upwardly above the head, *a'*, of the tank. The pump cylinder is substantially closed at its upper part by a cap, *f*, the latter being, preferably, screwed upon a projecting part of cylinder, *e*, and said cap, *f*, is provided with an aperture, *f'*, through which freely passes the piston rod, whereby the piston may be reciprocated, and air is free to flow through the aperture, *f'*, into the pump cylinder. Suitable means are provided for the operation of the piston by hand, and in Fig. 1, the piston rod is shown as having a handle, F, said handle being provided with a collar, *g*, the latter being attached to piston rod, E'. The collar, *g*, is provided with a locking plate, G, shown in Fig. 2, and opening through one edge of this plate is a notch, *g'*, in which is adapted to fit a headed locking stud, *g*², said stud being attached fixedly to the head or cap, *f*, of the pump cylinder. The handle, F, and rod, E', may be rotated by hand as well as moved endwise, and should it be desired to lock the handle and piston in fixed relation to the tank, the handle may be turned in order to engage the notched plate, G, with headed stud, *g*², whereby the entire

apparatus may be easily carried by the handle, F. In order to reciprocate the piston, however, handle, F, and plate, G, must be turned in order to disengage the notched plate from the headed stud, and at this time the handle may be operated for the purpose of reciprocating the piston rod and the piston.

Foot plate, *e'*, is provided with an air passage, *h*, one end of said air passage opening upwardly so as to communicate with the lower part of piston cylinder, *e*. The other end of the air passage opens into a check valve chamber, *h'*, which is provided in foot plate, *e'*, and communicating with this check valve chamber is the lower bent part, *i*, of an air tube, I. A check valve, H, preferably of the ball variety, is fitted loosely in chamber, *h'*, so as to open in one direction when air is compressed by a downward movement of piston, E, thus permitting the air to flow through the piston cylinder into and through tube, I.

The air tube is positioned, preferably, within chamber, *a*, of the tank and it lies adjacent and parallel to piston cylinder, *e*. The upper part of the air tube is held firmly in position by suitable means, such as the brace, *i'*, and at its upper extremity the air tube is provided with a valve seat, *i''*. This upper part of the air tube communicates with chamber, *a*, of the tank above the liquid level therein, and the air compressed in pump cylinder, *e*, is free to flow from the pump cylinder through the foot plate, and through tube, I, into the upper part of chamber, *a*.

J designates a needle valve, the lower tapering end of which is adapted to operate in the orifice provided in the valve seat, *i''*, at the upper extremity of tube, I. The needle valve operates in a suitable stuffing box, *j*, attached to head, *a'*, of the tank, and said valve is provided with a thumb wheel, *j'*, for conveniently operating the same. Should it be found that the check valve, H, leaks, the needle valve, J, may be operated to tightly close the exit at the upper end of tube, I, thus precluding the air stored under pressure in the upper part of chamber, *a*, from leaking through tube, I, and into the pump cylinder. In lieu of employing a ball check in the air passage of foot plate, *e'*, I may employ a hinged check valve at any suitable point in air tube, I, as shown by dotted lines at K in Fig. 1.

The operation may be described as follows:—Cap, B, is unscrewed from tank, A, and a suitable cleaning fluid is poured through opening, *b*, into chamber, *a*, of the tank, after which cap, B, is replaced. Faucet, C, being closed, the pump or compressor is operated by hand for the purpose of establishing air pressure upon the liquid contained in chamber, *a*. To this end, handle,

F, is turned in a direction to release notched plate, G, from headed stud, *g''*, and said handle is then operated to reciprocate rod, E', and piston, E. The air below said piston is compressed and forced through passage, *h*, and tube, I, the air escaping from the upper part of the tube into chamber, *a*. The piston is operated a proper number of times to establish the required pressure of air upon the cleaning liquid in the tank, and after this operation the handle, F, may be turned in order to engage notched plate, G, with stud, *g''*, for the purpose of locking the handle and the piston in fixed relation to the tank. The apparatus may be carried by the handle, F, or it may be placed beneath the arm of the operator. In using the apparatus, faucet, C, is opened and the liquid is expelled from chamber, *a*, by air pressure so as to flow through tube, D, and nozzle, *d*. The cleansing liquid is ejected under pressure through the nozzle, and it will find its way into the cracks, crevices and other inaccessible places of a motor and various other kinds of machinery which it is desired to clean. The cleaning liquid will flow out of the motor or other machine, and carry with it the dust, oil, grease, dirt and other impurities which tend to clog the working parts of the machine and interfere with its working operation.

The employment of a check valve, such as H or K, precludes the air under pressure in chamber, *a*, from flowing through pipe, I, passage, *h*, and piston cylinder, *e*, but should it happen that the check valve, H, is defective, valve, J, is operated to tightly close the opening in the upper part of tube, I, whereby air under pressure in chamber, *a*, is precluded from escaping through tubes, I, and, *e*.

Any suitable cleaning liquid may be employed, such as kerosene, and this cleaning liquid may be easily introduced when cap, B, is removed. Under some circumstances I may omit the use of a cleaning liquid and dispense air from the chamber, *a*, the air being forced under pressure into the tank by the operation of the pump, the air being retained under pressure in said chamber, *a*. When using the apparatus for cleaning purposes with air as the cleaning agent, valve, J, is adjusted to tightly close the opening in the upper part of tube, I, so as to preclude the air under pressure in chamber, *a*, from escaping through the tube, I, and passage, *h*, into the piston cylinder, and then it is only necessary to open the faucet, C, and direct the current of air into the places to be cleaned by moving the nozzle, *d*, as required.

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

1. In a portable apparatus for dispensing

cleaning fluids under pressure, a storage tank, a pump cylinder positioned therein, a piston operable in said cylinder, an air tube communicating with the lower part of the cylinder and leading to the upper part of the tank, a check valve for precluding the back-flow of air into the pump cylinder, a manually operable valve adapted to close the communication of the air tube with the tank, an eduction tube leading from the lower part of the tank, and a separate manually operable valve for controlling the flow of fluid through said tube, whereby air may be retained under pressure within the tank when both manually operable valves are closed and compressed air may be discharged as a cleaning fluid upon opening the valve which controls the outflow through the eduction tube.

2. A portable apparatus for dispensing cleaning fluids under pressure comprising a storage tank having a chamber adapted to contain a cleansing liquid, a pump cylinder, a piston operable within said cylinder, an air tube communicating with the lower part of said pump cylinder and leading to the upper part of said tank for communication

with the chamber thereof above the level of liquid to be contained in said chamber, said air tube having a valve seat at the upper end thereof, a check valve positioned to preclude the back flow of air into the pump cylinder, a manually operable needle valve mounted in a head of said tank and adapted to occupy said seat in the upper end of the air tube, whereby the chamber of the tank is adapted to be cut off from the pump cylinder, a flexible eduction tube attached to the lower part of the tank, said tube having a nozzle, and a separate valve for controlling the flow of fluid through said eduction tube, whereby liquid may be dispensed under air pressure from the tank, and air may be retained under pressure within the tank when the needle valve and the separate valve are closed.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH N. B. BOND

Witnesses:

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