

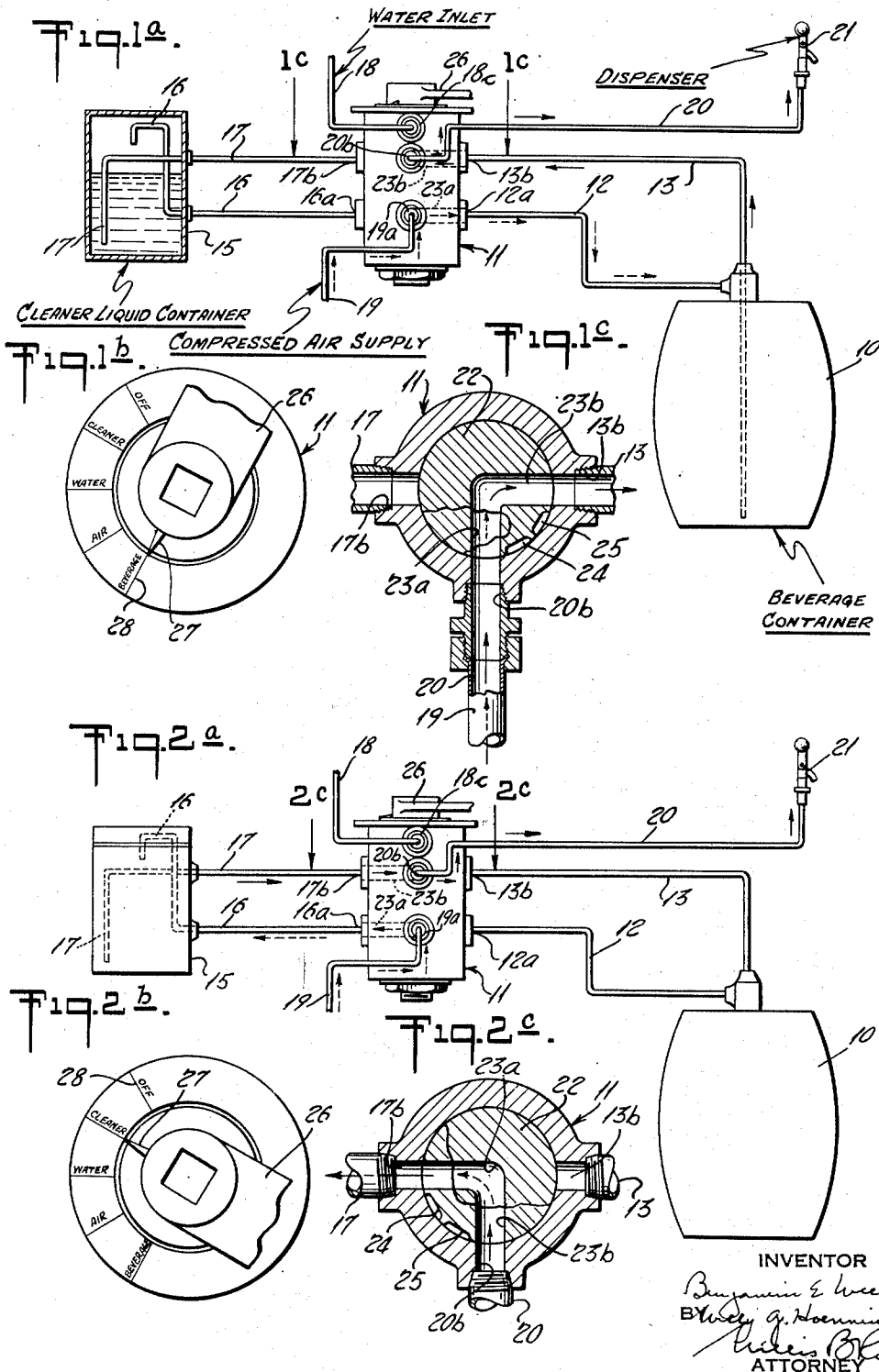
Dec. 2, 1952

B. E. WEEKS ET AL
 DEVICE FOR CONTROLLING, OPERATING, AND CLEANING
 VARIOUS FLUID OPERATED SYSTEMS

2,620,106

Filed Aug. 2, 1950

2 SHEETS—SHEET 1



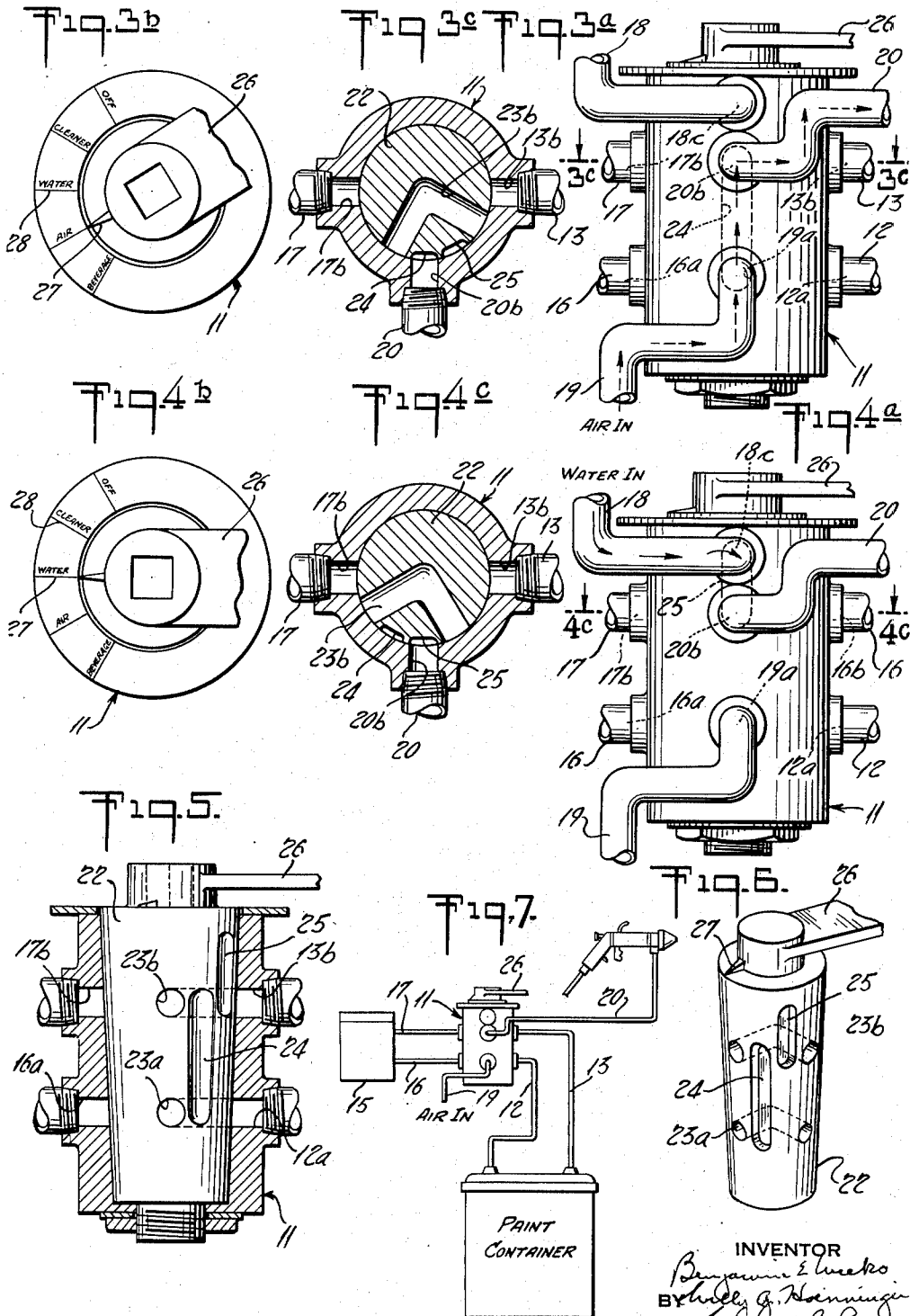
Dec. 2, 1952

B. E. WEEKS ET AL
 DEVICE FOR CONTROLLING, OPERATING, AND CLEANING
 VARIOUS FLUID OPERATED SYSTEMS

2,620,106

Filed Aug. 2, 1950

2 SHEETS—SHEET 2



INVENTOR
 Benjamin E. Weeks
 BY *Walter G. Steininger*
 Charles B. Rice
 ATTORNEY

UNITED STATES PATENT OFFICE

2,620,106

DEVICE FOR CONTROLLING, OPERATING,
AND CLEANING VARIOUS FLUID OPER-
ATED SYSTEMSBenjamin E. Weeks, Valley Stream, and Willy G.
Hoenninger, St. Albans, N. Y.

Application August 2, 1950, Serial No. 177,182

6 Claims. (Cl. 225—12)

1

This invention relates to a device for controlling, operating and cleaning various fluid operated systems, such for example as paint spray guns, beer dispensing systems and the like, which require flushing and cleansing as soon as any period of use is over.

It is an object of this invention to provide an apparatus by which the system may be connected to the fluid pressure for operation, or may be flushed and cleansed, easily and rapidly.

It is a further object to produce an apparatus by which by a simple operation of a handle the system may be cleansed and then shut off.

It is a further object, where the system is a beer dispensing system to provide an apparatus which will permit the cleansing of the system by an appropriate detergent and then by a rinse water, before the apparatus is again put into operation, all by the operation of a single handle.

The invention accordingly comprises a device possessing the features, properties and the relation of elements which will be exemplified in the device hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Figs. 1a, 1b and 1c show the system connected for the dispensing of beer; Fig. 1a is a diagrammatic elevation of the system connected to dispense beer; Fig. 1b is a plan of the valve mechanism; Fig. 1c is a section partly on the line 1c of Fig. 1a through the upper ports and partly broken away to show the lower ports.

Figs. 2a, 2b and 2c are similar to Figs. 1a, 1b, and 1c, but with the apparatus connected for using the detergent.

Figs. 3a, 3b and 3c are corresponding views with the apparatus connected to blow air through the system.

Figs. 4a, 4b and 4c are similar to Figs. 3a, 3b and 3c, but connected to rinse out the system.

Figs. 5 and 6 are details of the valve mechanism; and

Fig. 7 is an elevation of the system applied to paint sprayers.

In the drawings, the numeral 10 designates the supply or container for the dispensable liquid connected to a valve chamber 11 by air conduits 12 and a liquid conduit 13. The numeral 15 designates a container for a liquid detergent or cleaner connected to the valve chamber 11 by an air conduit 16 and a liquid conduit 17.

2

The liquid conduits 13 and 17 are each connected to tubes extending to the bottom of the containers 10 and 15 respectively, whereas the air conduits 12 and 16 connect to these containers above the liquid level.

A water supply conduit 18 and a compressed air conduit 19 lead respectively from a source of water and compressed air (not shown) to the valve chamber, while a discharge or dispensing conduit 20 leads to the final dispensing apparatus, in this case the dispensing spigot 21.

In the apparatus as shown seven ports are provided in valve chamber 11 which are connected to the seven conduits to which we have referred. Three of these are in one plane *a* and three in an upper plane *b*, while the seventh is in a still different plane *c*. The valves in the lower plane are designated with the number of the conduit with which they are connected with a subscript *a*, those in the next plane are designated with the corresponding conduit number with the subscript *b*, while the seventh has the number of the conduit 18 with the subscript *c*. Ports 16a and 12a, as shown, are in alignment on opposite sides of the chamber, ports 17b and 13b are in alignment on opposite sides and port 20b is at right angles to both. Port 18c is in vertical alignment with ports 19a and 20b.

Within the chamber is a valve cylinder 22 having passageways affording communication between the ports and serving to close the ports when desired. Two of these passageways 23a and 23b each comprises two radial bores at right angles to each other extending from the surface to the axis of the cylinder. One of these passageways 23a is in the lower plane *a*, while the other 23b is in the upper plane *b*, so that by turning the cylinder, ports 19a and 20b may be connected to either container 10 or 15 at will.

The valve cylinder 22 also has a vertical channel 24 adapted, when properly turned to connect port 19a with 20b. This port is at such an angle that the passage 24 will register with its ports only when all other ports are closed. The valve cylinder has a second vertical channel 25 adapted when turned to its position to connect ports 18c and 20b when all other ports are closed. Valve cylinder 22 is operated by a handle 26 with an indicator 27 moving over legends 28.

In the drawings the movement of air is shown by dotted arrows, and the movement of liquid by solid arrows.

In Figs. 1a, 1b and 1c the valve is turned to connect ports 19a and 12a to impose air pressure on the liquid in container 10 and to connect ports 13b and 20b to connect the liquid in the container

3

with dispensing valve 21. Thus the beer in the container is carried to valve 21 under pressure. This is the normal position for dispensing liquid, that is, for example beer.

When it is desired to cleanse the dispensing system, the handle 26 may be turned to blow out all liquid from conduit 20 by compressed air, the valve 21 being of course held open during the entire cleaning operation. Handle 26 is then turned to force the detergent or cleansing solution through the conduit. This in turn may be blown out and the fresh water admitted to rinse it out. Then the water may be blown out, ready for service next day.

Thus the line may be emptied of fluid, then flushed with detergent, emptied of detergent, rinsed with water and again supplied by air pressure at will.

In the construction of Fig. 7 the apparatus may be used to clean a paint spray gun or the like, except that in this case the water port 18c and passageway 25 may be omitted.

As will readily be understood valve chamber 11 may be mounted directly upon detergent chamber 15 if desired, to form a single piece of apparatus for convenience of handling.

The parts in this construction have the same numerical designations as in the beer system already described. Its operation also will be similar, except that normally a hydrocarbon cleaning fluid rather than an aqueous solution, and rinsing with water will not be used.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

What is claimed is:

1. A device for cleansing and controlling a dispensing apparatus for use with a system, which includes a liquid container for liquid to be dispensed having a liquid outlet below the liquid level therein and an air inlet and having a supply of compressed air, said device including a detergent container for cleansing liquid having a liquid outlet below the liquid level therein and an air inlet, a compound valve mechanism comprising a cylindrical casing having a port connected with the air supply and two other ports in the same plane transverse to the axis of the cylinder therewith connected respectively to the air inlets of the two containers, said casing also having a discharge port connected to the dispensing system in another plane and two other ports in said second plane connected respectively to the liquid outlets of said two containers, a valve drum within said casing having an angular passage in each plane terminating in ports positioned to register with the ports in said casing to control the flow of air from said air supply to the air inlet of either container and the discharge port with the liquid outlet of the same container.

2. A device in accordance with claim 1, in which said valve drum is also provided with a channel extending from one of said planes to the other, whereby the compressed air may be ad-

4

mitted directly to the dispensing system and whereby said system may be fed with either the liquid to be dispensed or with the cleansing fluid, or emptied of both fluids, or with compressed air as well.

3. A device in accordance with claim 1, in which the valve casing has also a fresh water port and in which the valve drum has a vertical channel extending between the two planes, whereby the compressed air may be connected directly to the dispensing system and having also a second vertical channel out of alignment with the first mentioned vertical channel extending from the upper of said planes to a position to register with the fresh water port, whereby fresh water may be admitted directly to said dispensing system.

4. A device for controlling and cleansing a beer dispensing system for use with a supply of liquid to be dispensed and a dispensing system therefor, said device comprising a detergent container and a compound valve mechanism including a casing having a port adapted to be connected to a compressed air supply and having two air ports in a position to be alternatively connected to said compressed air port, one of said air ports being connected by a conduit to the liquid supply above the liquid level therein and one to the cleansing supply above the level of the liquid therein, said casing having also a port connected to the dispensing mechanism and two other liquid ports adapted alternatively to be connected to said dispensing mechanism port, one of said liquid ports being connected by a conduit to the liquid container below the liquid level thereof and the other to the detergent container below the liquid level thereof, said valve mechanism having a valve member provided with passageways in a position simultaneously to connect said compressed air port with said air port leading to the upper portion of said liquid container and to connect the dispensing port with the liquid port leading to the liquid container below the liquid level thereof or in a different position of said valve member, to connect said compressed air supply and said dispensing mechanism to the corresponding air and liquid ports leading to the liquid cleansing container.

5. A device for controlling and cleansing a beer dispensing system for use with a supply of liquid to be dispensed and a dispensing system therefor, said device comprising a container and a compound valve mechanism including a cylindrical casing having a port in one transverse plane adapted to be connected to a compressed air supply, two air ports in a position to be alternatively connected to said compressed air port, one of said air ports being connected by a conduit to the liquid supply above the liquid level therein and one to the cleaning supply above the level of the liquid therein, said casing having also a port in a second transverse plane connected to the dispensing mechanism and two other liquid ports adapted alternatively to be connected to said dispensing mechanism port, one of said liquid ports being connected by a conduit to the liquid container below the liquid level thereof and the other to the detergent container below the liquid level thereof, said valve mechanism having a valve member provided with passageways in a position simultaneously to connect said compressed air port with said air port leading to the upper portion of said liquid container and to connect the dispensing port with the liquid port leading to the liquid container below the liquid level thereof

5

or in a different position of said valve member, to connect said compressed air supply and said dispensing mechanism to the corresponding air and liquid ports leading to the liquid cleansing container, said valve member having another pas-
 5 sageway independent of said first mentioned pas-
 sageways for connecting the air port connected to the compressed air supply with the port con-
 10 nected to the dispensing mechanism when the valve is at a different position from that required to connect said ports with either container.

6. A device in accordance with claim 5, in which said valve drum is also provided with a channel extending from one of said planes to the
 15 other, whereby the compressed air may be ad-
 mitted directly to the dispensing system and whereby said system may be fed with either the liquid to be dispensed or with the cleansing fluid, or emptied of both fluids, or with compressed air

6

as well, in which said valve casing has also a port leading to a water inlet and said valve member has a passageway independent of all of said pre-
 5 vious passageways for directly connecting said water inlet port to said dispensing mechanism port.

BENJAMIN E. WEEKS.
 WILLY G. HOENNINGER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

15	Number	Name	Date
	932,284	Jones -----	Aug. 24, 1909
	1,979,219	Bodine -----	Oct. 30, 1934
	2,066,397	Fogarty -----	Jan. 5, 1937
	2,129,231	Parker -----	Sept. 6, 1938