April 28, 1953 P. S. BUECHEL 2,636,502

APPARATUS FOR CLEANING HYPODERMIC NEEDLES

Filed Sept. 12, 1949

Fig. 1.

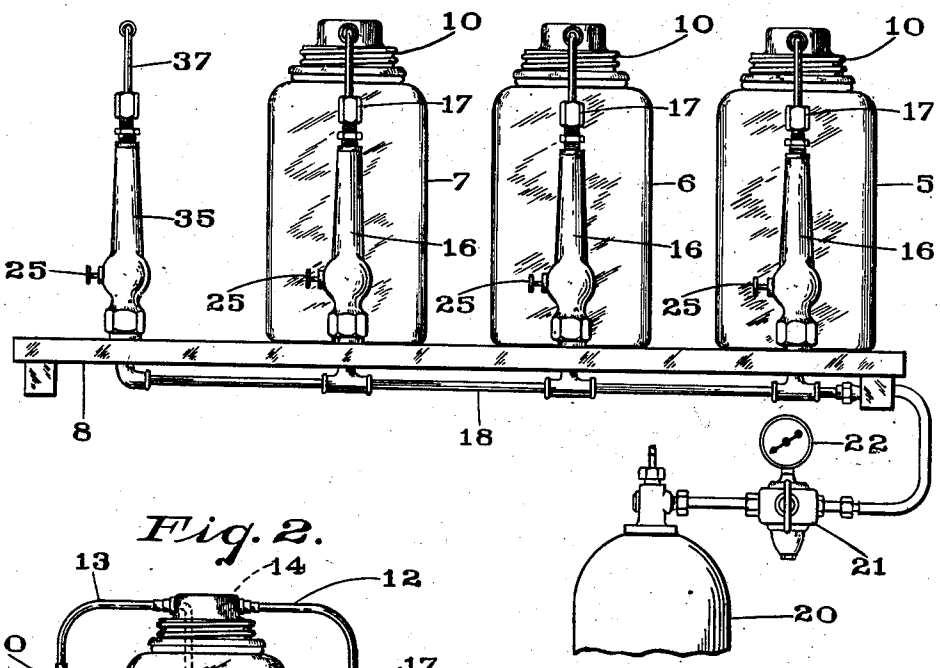


Fig. 2.

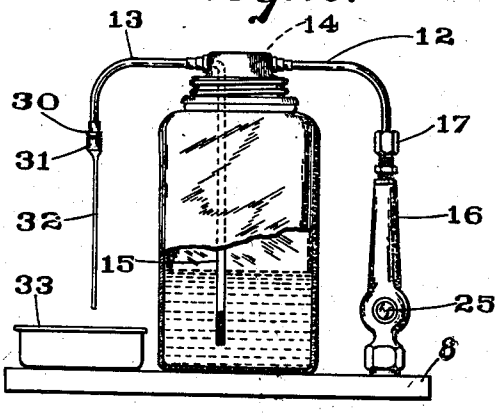
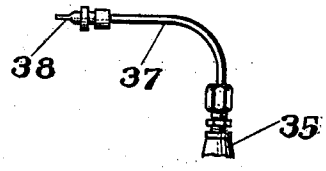


Fig. 4.



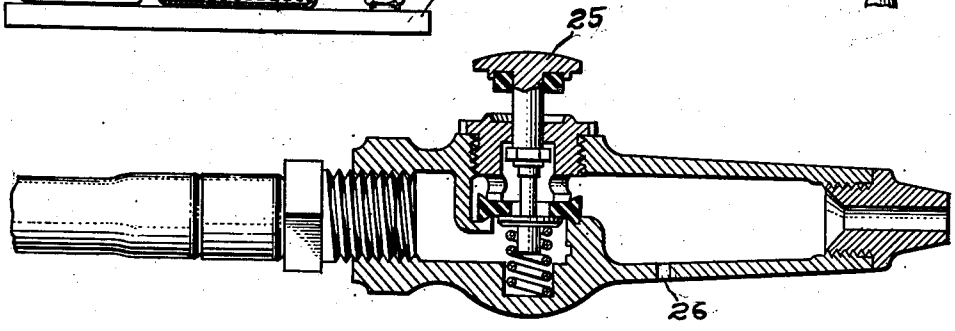


Fig. 3.

INVENTOR.
PAULINE SELMA BUECHEL.
BY Clifford C. Bradbury
ATTORNEY

Patented Apr. 28, 1953

2,636,502

UNITED STATES PATENT OFFICE

2,636,502

APPARATUS FOR CLEANING HYPODERMIC NEEDLES

Pauline Selma Buechel, Richmond, Ind.

Application September 12, 1949, Serial No. 115,295

2 Claims. (Cl. 134—88)

1

This invention relates to an apparatus for cleaning hypodermic needles and the like.

One object of the invention is to provide an equipment by means of which hypodermic needles may be rapidly and thoroughly cleaned with the minimum of effort and the least amount of handling.

Another object of the invention is to provide a cleaning apparatus for subjecting a hypodermic needle to forced streams of different cleaning compounds in rapid succession.

Another object of the invention is to provide a novel and convenient pressure control device adapted for easy and convenient operation by the manipulator.

Another object of the invention is to provide a pressure applying and pressure release connection which may be easily controlled simultaneously by pressure applied by the thumb and forefinger of the hand of the manipulator.

The invention also features the assembly and arrangement of the apparatus for eliminating lost motion in the operation of the apparatus.

My invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a view in front elevation of an apparatus embodying the invention.

Fig. 2 is an end elevational view with a part of a container broken away.

Fig. 3 is a detail sectional view of a connection between the pressure tank and a container, and

Fig. 4 is a detail view of a drying connection.

As shown in the drawings, a plurality of substantially gas tight containers 5, 6 and 7, in the form of glass jars, are mounted upon a supporting platform or base 8. Each of the containers 5, 6 and 7 is screw-threaded on its open end to receive a self-sealing cap 10. A pair of tubes 12 and 13 are sealed through a cylindrical portion of each cap 10. The inner end 14 of the tube 12 opens above the mouth of the container. The inner end 15 of the tube 13 extends downwardly to open near the bottom of the container with which it is associated. The outer end of each tube 12 is joined with a fluid connector 16, by a coupling 17. The fluid connector 16 is supported upon the platform, and connected to a pipe 18, located beneath the platform. The pipe 18 is connected with a pressure tank 20 containing nitrogen through a shutoff valve 21 and pressure gauge 22.

Each of the fluid connectors 16 contains a spring restored valve operable by a plunger 25 located in a position convenient for the thumb of a manipulator. An escape port opening 26 (Fig. 3) is provided through the wall of the fluid connector 16 diametrically opposite but slightly above the plunger 25. The port 26 is located in such position relative to the plunger 25 that the forefinger of the manipulator will naturally fall into position to cover the port 26 when the thumb is applied for manipulation of the plunger 25. The internal details of the valves operated by the plungers 25 are shown in Figure 3.

2

The outer end of each tube 13 terminates in a nipple 30, adapted to receive a thimble 31, of a hypodermic needle 32 (Fig. 2). A catch basin 33 may be supported upon the platform below the discharge end of the needle 32.

An extra fluid connector 35 is mounted at one end of the platform 8. This fluid connector is provided with the inlet valve and plunger 25 but does not contain the escape port opening. A fixture (Fig. 4), comprising a tube 37, equipped with a nipple 38, is connected with the upper end of the fluid connector 35. This fixture is provided for the purpose of forcing a drying stream of nitrogen through the needle after it has been treated with the cleansing fluid from the several containers.

The equipment is so designed that the containers may be spaced apart in alignment to provide the minimum space required for convenient operation of the valves by the manipulator with the least amount of lost motion. One of the containers may be supplied with a soap and water solution, a second with clear water, and the third with alcohol.

In cleaning a needle, it will be treated sequentially with the soap solution, the clear water, the alcohol, and finally the drying stream. The order of the location of the container for the soap solution and the container for the alcohol may be a matter of choice to suit the manipulator.

The operation is simple and obvious. The manipulator applies the needle to the outlet jet of the cleaning unit with one hand and simultaneously presses the plunger 25 with the thumb of the other hand while covering the escape port opening 26 with the forefinger of the same hand. This builds up the pressure in the container to force the liquid through the needle. Releasing the pressure of the thumb and forefinger will shut off the pressure and at the same time provide a release for the pressure in the container. A reasonably dexterous manipulator can run the complete cycle of cleaning a needle in a fraction of a minute.

The advantages of the apparatus in hospitals,

clinics, or in the armed forces, where mass inoculations are required, is obvious.

Although I have shown and described my invention with respect to certain details of construction, it is to be understood that I do not wish to be unduly limited thereto, certain modifications being possible without departing from the spirit or scope of my invention.

I claim:

1. An apparatus for cleaning hypodermic needles comprising in combination a substantially gas tight container for cleaning fluid, an inlet connection for the needle from the container, a source of gas under pressure, a fluid connector from the pressure source to the container, a spring returned plunger valve in the fluid connector operable by the thumb of the manipulator, said connector also being provided with a pressure relief port adjacent the valve to be closed and opened by the finger of the manipulator.

2. An apparatus for cleaning hypodermic needles, a supporting base, a plurality of substantially gas tight containers for cleaning fluid supported upon the base, an outlet for each container, a nipple for each outlet adapted to receive the thimble of a hypodermic needle, a gas pressure source, a connection from the pressure source to the interior of each container supported upon the base, and a spring restored valve in each connection from the pressure tank to a container operable by the thumb of the manipulator to supply pressure to the associated container, each connection also being provided with a gas release port opening adjacent the valve for engagement by the forefinger of the manipulator.

PAULINE SELMA BUECHEL.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,529,168	Cleveland	Mar. 10, 1925
1,820,552	Wooley	Aug. 25, 1931
1,868,893	Gentle	July 26, 1932
1,887,985	Auker	Nov. 15, 1932
1,891,592	Fitzgerald	Dec. 20, 1932
1,892,093	Battistella	Dec. 27, 1932
1,934,826	Shepherd	Nov. 14, 1933
2,035,513	Speranza	Mar. 31, 1936
2,306,926	Allen	Dec. 29, 1942
2,554,389	Stevens	May 22, 1951