

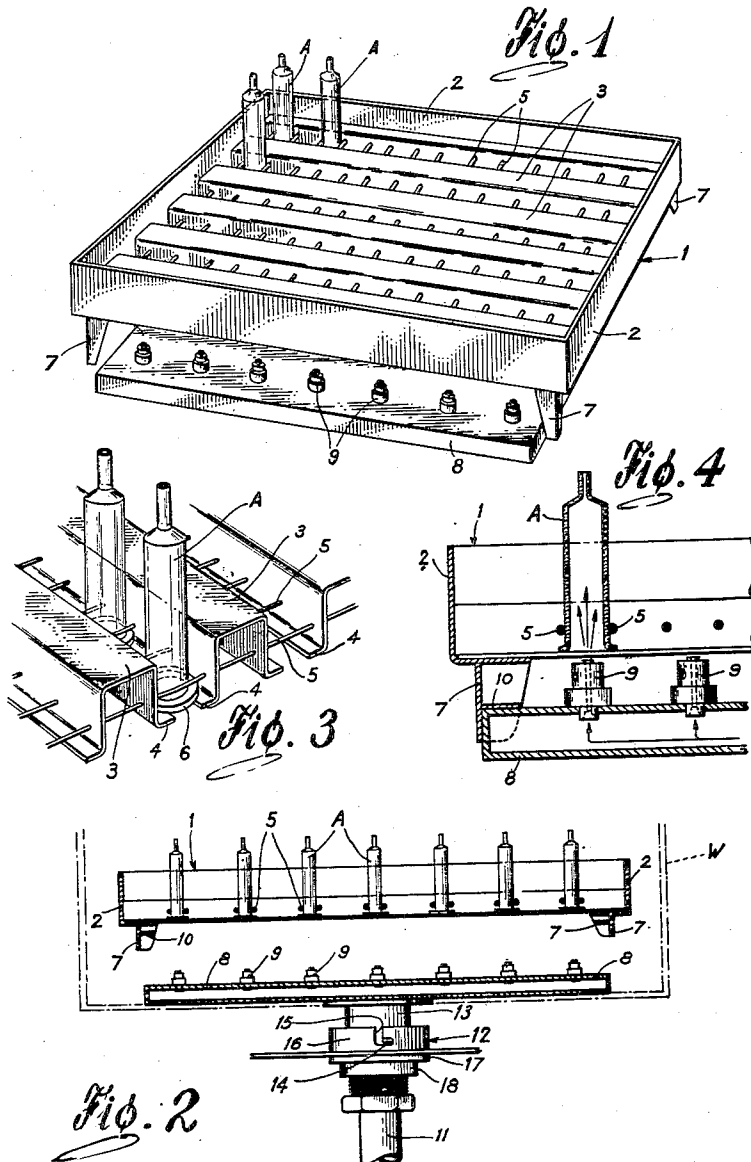
March 18, 1958

W. ROY
APPARATUS FOR WASHING HYPODERMIC SYRINGES
AND OTHER MEDICAL EQUIPMENT

2,827,063

Filed Feb. 2, 1955

2 Sheets-Sheet 1



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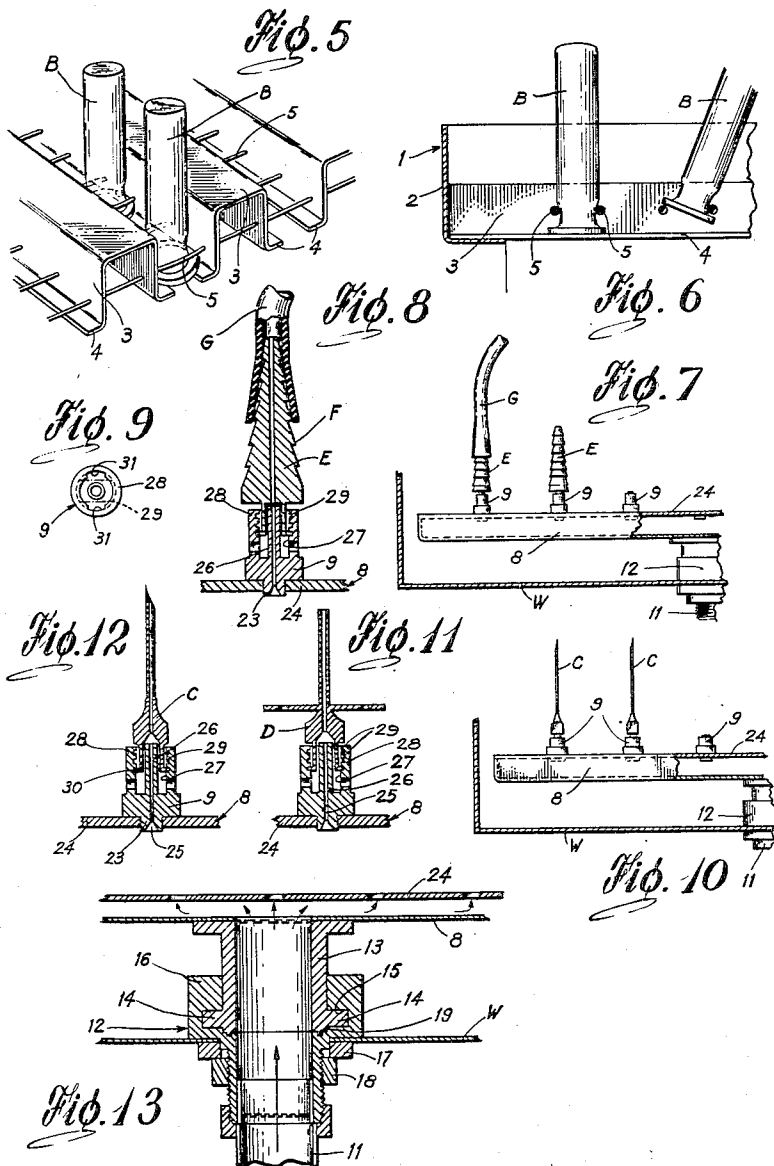
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APPARATUS FOR WASHING HYPODERMIC SYRINGES AND OTHER MEDICAL EQUIPMENT

Willie Roy, Quebec, Quebec, Canada

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3 Claims. (Cl. 134—171)

The present invention relates to an apparatus for washing syringes and other medical equipment such as tubing, various types of needles and the like.

The conventional washing one by one of hypodermic syringes and the like medical equipment in hospitals is a time consuming operation requiring a relatively large personnel: for instance, in a 500 bed hospital, around 1,500 syringes and their needles and about 500 tubes of various types have to be washed daily.

Accordingly, the main object of the present invention is the provision of an apparatus for washing syringes and other medical equipment which will considerably decrease the amount of work involved.

Still another important object of the present invention is the provision of an apparatus of the character described which has a large capacity whereby the washing of all the syringes, needles, tubes and the like medical equipment of a hospital may be centralized in a sterilization area.

Yet another important object of the present invention is the provision of an apparatus of the character described in which individual manipulation of the component parts of the syringes is reduced to a minimum.

Still another important object of the present invention is the provision of an apparatus of the character described having a minimum of parts and which is, therefore, relatively inexpensive and simple to manufacture.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings in which:

Figure 1 is a perspective view of the tray for supporting the pistons and cylinders of syringes in operative washing position over a series of fluid projecting nozzles;

Figure 2 is a cross-sectional view of the elements shown in Figure 1;

Figure 3 is a partial perspective view of the tray showing the syringe cylinders in position thereon;

Figure 4 is a partial section of the tray in operative position over the nozzles;

Figure 5 is a partial perspective view of the tray showing the syringe pistons in position thereon;

Figure 6 is a cross-sectional elevation of the tray showing how the syringe pistons are inserted thereon or removed therefrom;

Figure 7 is a sectional elevation showing how the nozzles are used for washing tubing;

Figure 8 is a longitudinal section of a nozzle and associated coupling for washing tubing;

Figure 9 is a top plan view of a nozzle;

Figure 10 is a sectional elevation showing how the nozzles are used for washing needles;

Figure 11 is a longitudinal section of a nozzle on which a special type of needle is mounted for cleaning;

Figure 12 is a longitudinal section of a cleaning nozzle on which is mounted a hypodermic needle;

Figure 13 is a longitudinal section of the coupling

2

means for connecting the manifold of the cleaning nozzles to a supply of cleaning or drying fluid.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, the reference numeral 1 indicates a rectangular tray which consists of a frame 2 of L-shaped cross-section, and of a plurality of spaced parallel inverted U-shaped spacer elements 3 supported on the frame 2 and provided with horizontal outward flanges 4. The cylinders A of the hypodermic syringes are supported in inverted upright position and in rows by the flanges 4 of adjacent spacer elements 3, and the cylinders A of each row are maintained at equal distances apart by means of wires 5 which extend across the spacer elements 3 near the flanges 4 and which engage opposed portions of the cylinders A near the flange 6 of said cylinders A.

The cylinders A are tilted with respect to the tray 1 for their insertion between or removal from the wires 5, in a manner similar to that shown in Figure 6, with respect to the pistons B of the syringes.

The frame 2 of the tray 1 is provided with corner legs 7 adapted to engage the corners of a box-like manifold 8 on which is supported a plurality of nozzles 9. The legs 7 are provided with a horizontal flange 10 adapted to engage the upper face of the manifold 8. When the tray 1 engages the manifold 8, the nozzles 9 are in registering relationship with each of the cylinders A mounted on the tray 1; thus, cleaning or drying fluid may be injected directly into the syringe cylinders A.

The manifold 8 is disposed at the bottom of a wash basin, generally indicated at W, and is removably connected to a supply pipe 11 by means of a bayonet joint 12, shown in Figures 2 and 13. The joint 12 comprises a nipple 13 connected to the manifold 8 and having opposed lugs 14 adapted to engage L-shaped slots 15 made in a sleeve 16 which is connected to the pipe 11 and is in liquid tight engagement with the bottom of the wash basin W by means of washer 17 and threaded collar 18. Nipple 13 and sleeve 16 are in interengagement at 19. There are several basins W and manifolds 8, the supply pipes 11 of which are connected to a source of washing solution, plain water, distilled water and hot compressed air respectively. Thus for cleaning the cylinders A of the hypodermic syringes, the tray 1, supporting a plurality of such cylinders A, is lowered into the bottom of a first wash basin W and made to register with the manifold 8 of said basin for washing the cylinders with the washing solution under pressure for about three minutes. Then the tray 1 is transferred successively to a second, third and fourth basin for rinsing the cylinders A with plain water and distilled water, and finally for drying with hot air.

The pistons B of the syringes are mounted in the tray 1 in the same manner as the cylinders A and the tray is disposed at the bottom of a wash basin W which is filled with cleaning liquid for cleaning said pistons B. The tray containing the pistons B is then successively transferred to basins containing plain water and distilled water, and it is finally transferred to a heated compartment for drying said pistons B.

The hypodermic needles C may be directly connected to the nozzles 9, as shown in Figures 10 and 12. The nozzles 9 consist in a block having a threaded projection 23 screwed in the top wall 24 of the manifold 8. Each nozzle 9 has a central bore 25 communicating with a central tube 26 extending in the middle of a cavity 27 which is formed by an upstanding circular wall 28. The wall 28 has inner grooves 29 for receiving the opposed end flanges 30 of the hypodermic needle C. The inside face of the wall 28 is provided with two diametrically

3

opposed recesses 31 to allow insertion of the needle flanges 30. The needle is locked in position on the nozzle 9 by rotating said needle a quarter of a turn. When the needle C is in position on the nozzle 9, the tube 26 extends well within the needle head and the streams of cleaning, rinsing or drying fluids can be directed into the bore of the needle C.

The nozzle 9 may also support a tube coupling device E, shown in Figures 7 and 8, said coupling device having a tapered section and provided with ridges F for engagement with a tube G whereby cleaning of said tube may be easily effected.

While preferred embodiments according to the present invention have been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

I claim:

1. An apparatus of the character described comprising in combination, a manifold having a box-like shape, a plurality of upwardly directed nozzles in communication with and supported on said manifold, a tray having supporting legs adapted to removably engage said manifold for supporting said tray in a predetermined position above said nozzles, said tray being open at the bottom and including a plurality of spaced parallel spacer members having flanges projecting into the space between said

4

members, below the tops of said members for supporting in inverted upright position a plurality of hypodermic syringe cylinders in a plurality of rows between said spacer members, and slightly elastic cross wires extending through said spacer members above said flanges for maintaining the syringe cylinders of each row at a predetermined distance apart and in a position in which each syringe registers with a nozzle whereby said syringe cylinders are treated simultaneously by fluid streams ejected from said nozzles.

2. An apparatus as claimed in claim 1, wherein said spacer members consist of inverted U-shaped elements, said flanges projecting outwardly from the free ends of said elements.

3. An apparatus as claimed in claim 1, wherein said manifold is removably connected to a fluid supply pipe and is disposed at the bottom of a wash basin.

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