Sept. 3, 1940. J. CHASE 2,213,270

MANIKIN

Filed July 1, 1939 2 Sheets-Sheet 1

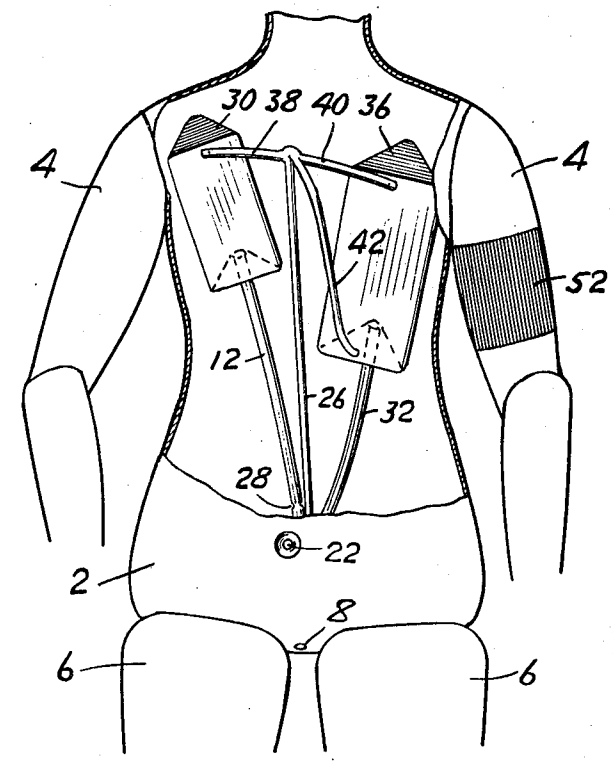


FIG. 1.

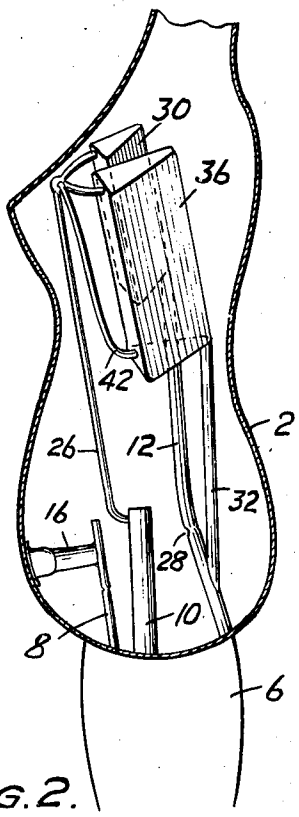


FIG. 2.

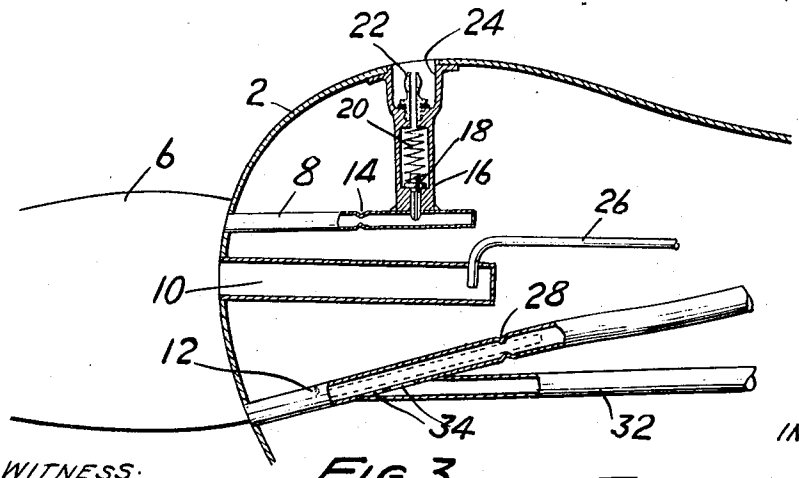


FIG. 3.

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MANIKIN

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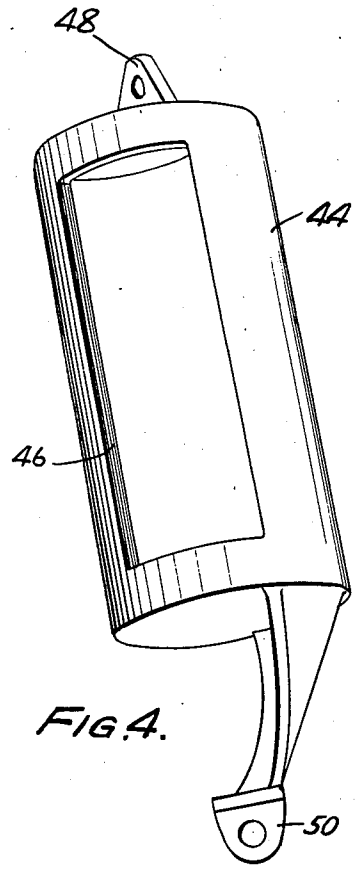


FIG. 4.

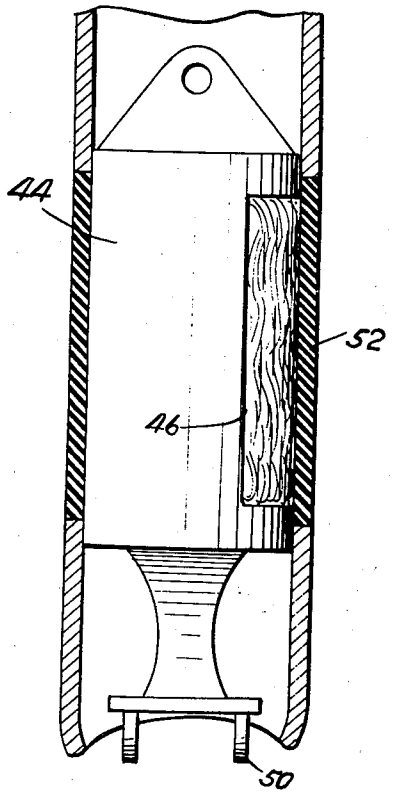


FIG. 5.

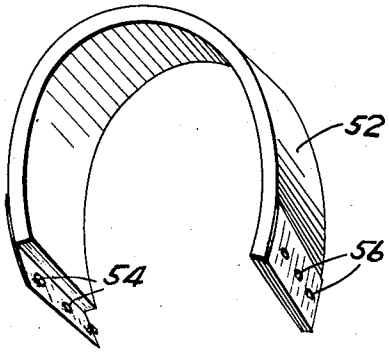


FIG. 6.

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2,213,270

MANIKIN

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Application July 1, 1939, Serial No. 282,371

8 Claims. (Cl. 35—17)

This invention relates to a manikin of the type known as a hospital doll designed for the teaching of various nursing and medical procedures.

It is common practice at the present time to provide in hospitals for the training of student nurses manikins simulating the human body, which manikins may be handled and treated for practical demonstration purposes, particularly in connection with treatments for which patients or volunteers would not be available.

It is the broad object of the present invention to provide a manikin of the type just indicated having improved features for the more realistic carrying out of certain treatments, more specifically involving catheterization, bladder irrigation, colonic irrigation, administration of enemas, and administration of hypodermic injections. With the improved features there may be incorporated in the manikin other well known and conventional features.

The broad object, and other objects of the invention particularly relating to details of construction, will become more apparent from the following description, read in conjunction with the accompanying drawings, in which:

Figure 1 is a fragmentary sectional elevation of the manikin showing various internal parts constituting the improvements;

Figure 2 is a vertical section through the same;

Figure 3 is an enlarged fragmentary section showing details of construction;

Figure 4 is a perspective view of an element incorporated in the upper arm of the manikin for the purpose of simulating the administration of hypodermic injections;

Figure 5 is a longitudinal section through the same; and

Figure 6 is a perspective view of a band arranged to be associated with the element of Figure 4, as illustrated in Figure 5.

The torso 2 of the manikin is fitted with a head (not shown) and jointed arms 4 and legs 6 in conventional fashion. As mentioned above, it may incorporate any of the conventional features, such as external details, of this type of manikin and the description will be confined to those features which constitute the present improvements.

There are provided urethral, vaginal and rectal tubes 8, 10 and 12 respectively, which may be formed of thin walled tubing. The urethral tube 8 is closed at its inner end and is provided with an annular restriction 14 adapted to provide a seal about an inserted catheter. Inwardly of the restriction 14 is a valve housing 16 having a bore communicating with the tube 8 in which bore there is provided a seat for a valve 18 pressed upon the seat by a spring 20. A nipple 22 terminates the bore above the valve and projects into an opening 24 of housing 16 exposed through the abdominal portion of the manikin.

When the manikin is used to demonstrate catheterization, there is connected to the nipple 22 a tube communicating with a suspended tank containing water. The tube may be provided with a clamp or valve under the control of the instructor. When the catheter is inserted into the tube 8, it is sealed by the restriction 14 and then engages the stem of valve 18 lifting it from its seat so that flow of water may take place through the catheter. This flow may be interrupted at the proper time by the instructor's controlling the clamp or valve provided on the tube from the supply tank.

For the demonstration of bladder irrigation, a small tank connected with the nipple 22 may be placed on the doll and the customary technique in administering irrigations followed.

The rectal tube 12 is provided with a restriction 26 approximately seven inches from its open end and communicates with a tank 30 located in the forward right hand side of the chest, desirably partially within the right breast of the manikin so that when the manikin is either on its back or left side the tube 12 will extend upwardly from its external opening to the tank.

Communicating with the tube 12 in advance of the restriction 26, and through openings 34 of restricted size which will prevent passage of an inserted tube, is a second tube 32 which communicates with a tank 36, larger than the tank 30 and located in the left hand side of the chest extending into the left breast of the manikin. This arrangement is such that the tube will extend inwardly and upwardly when the manikin is on its back, but inwardly and downwardly when the manikin is on its left side. The tanks 30 and 36 preferably have the shapes illustrated. The tanks are vented to the atmosphere through tubes 38, 40 and 42 communicating with the vent tube 26 which enters the vaginal tube 10, which is open to the atmosphere.

By the arrangement of parts just described, colonic irrigation and the administration of enemas may be simulated.

By insertion of the colon tube beyond the constriction 26 to any desired extent, the system will function in normal manner when the manikin is on either its left side or back, since the tank 30 is raised above the outlet in both positions.

On the other hand, by administration of an enema when the manikin is on its left side, the liquid will be retained by the lowered tank 36 until the doll is turned on its back when discharge takes place automatically.

Complete drainage of the tanks is insured by the venting arrangement.

Within the arm of the manikin is located a casting 44 in the form of a tube having a side opening 46. This tube is provided with connections 48 and 50 for providing the shoulder and elbow joints, respectively. The casting 44 is provided as an insert in the arm of the manikin, which is cut away to receive a band 52, preferably of sponge rubber, adapted to be secured about the casting by snap fasteners or other means, indicated at 54 and 56. By the removal of the band 52 opening 46 which lies at the outside of the arm is exposed so that the casting 44 may be filled with gauze or other absorbent material. The band 52 may then be replaced, forming a closed, but absorbent, chamber, which may be penetrated by a hypodermic needle. By reason of the gauze within the chamber 44, a large number of hypodermic injections may be made through the sponge rubber 52 before the gauze is saturated and requires replacement.

It will be obvious that various changes in details of the invention may be made without departing from the scope as defined in the following claims.

What I claim and desire to protect by Letters Patent is:

1. A manikin comprising a body portion, a tube within said body portion opening at the exterior thereof, and a tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back or on its left side, the inner end of said tube communicating with said tank.

2. A manikin comprising a body portion, a tube within said body portion opening at the exterior thereof, and a tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back and a position below the level of said opening when the manikin is lying on its left side, the inner end of said tube communicating with said tank.

3. A manikin comprising a body portion having an opening therein, a tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back or on its left side, a second tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back and a position below the level of said opening when the manikin is lying on its left side, and means providing passages between said opening and both of said tanks.

4. A manikin comprising a body portion having an opening therein, a tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back or on its left side, a second tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back and a position below the level of said opening when the manikin is lying on its left side, a passageway between the opening and the first tank, and a second passageway between the second tank and the first mentioned passageway.

5. A manikin comprising a body portion having an opening therein, a tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back or on its left side, a second tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back and a position below the level of said opening when the manikin is lying on its left side, a passageway between the opening and the first tank, a constriction in said passageway, and a second passageway between the second tank and the first mentioned passageway at a location between said opening and said constriction.

6. A manikin comprising a body portion, a tube within said body portion opening at the exterior thereof, and a tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back or on its left side, the inner end of said tube communicating with said tank, and means for venting said tank to the exterior of said body portion.

7. A manikin comprising a body portion, a tube within said body portion opening at the exterior thereof, and a tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back and a position below the level of said opening when the manikin is lying on its left side, the inner end of said tube communicating with said tank, and means for venting said tank to the exterior of said body portion.

8. A manikin comprising a body portion having an opening therein, a tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back or on its left side, a second tank within the body portion arranged to occupy a position above the level of said opening when the manikin is lying on its back and a position below the level of said opening when the manikin is lying on its left side, and means providing passages between said opening and both of said tanks, and means for venting said tank to the exterior of said body portion.

JULIAN CHASE.