May 31, 1960 H. C. FRIEND 2,938,517

APPARATUS FOR GIVING HYDROTHERAPEUTIC TREATMENTS

Filed Feb. 11, 1954 3 Sheets-Sheet 1

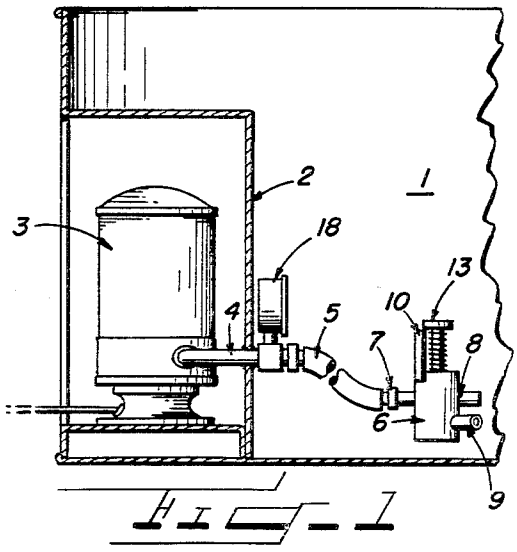


FIG. 1

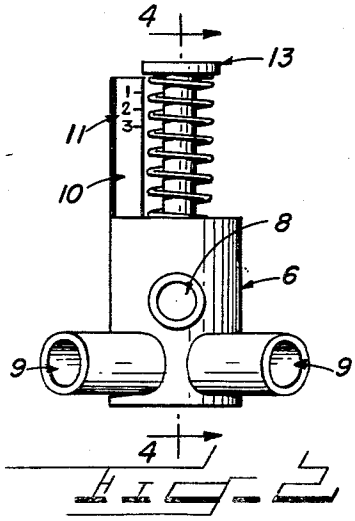


FIG. 2

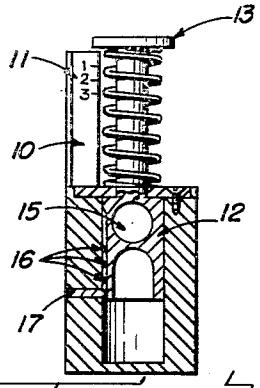


FIG. 3

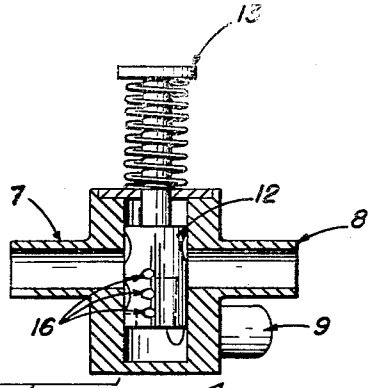


FIG. 4

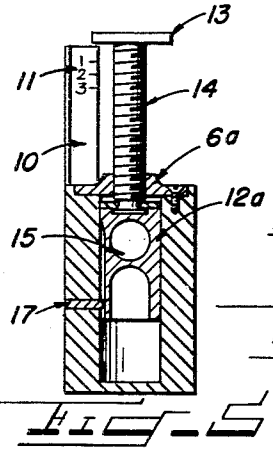


FIG. 5

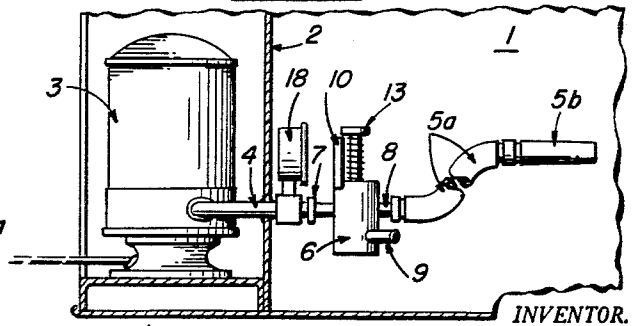


FIG. 11

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APPARATUS FOR GIVING HYDROTHERAPEUTIC TREATMENTS

Filed Feb. 11, 1954 3 Sheets-Sheet 2

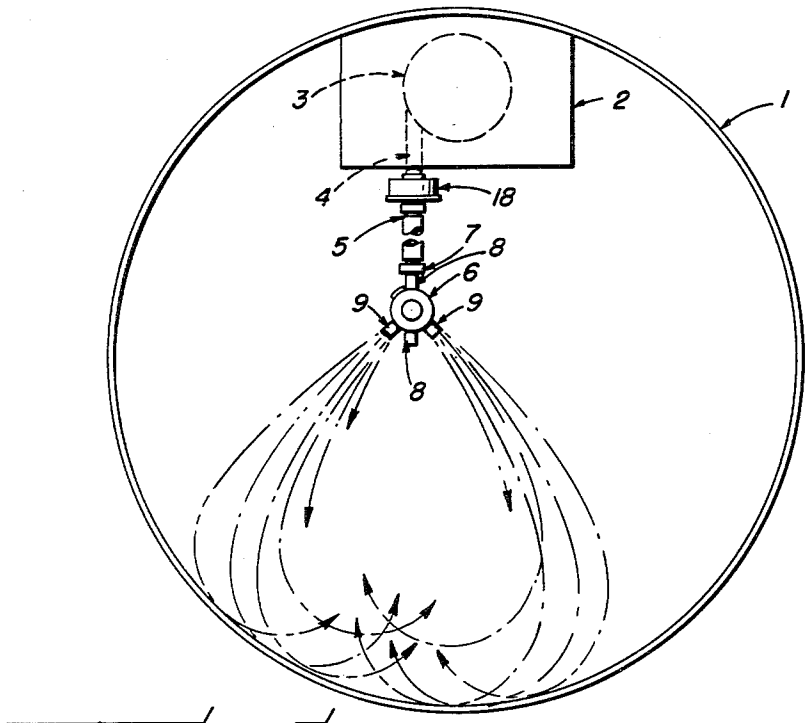


FIG. 6

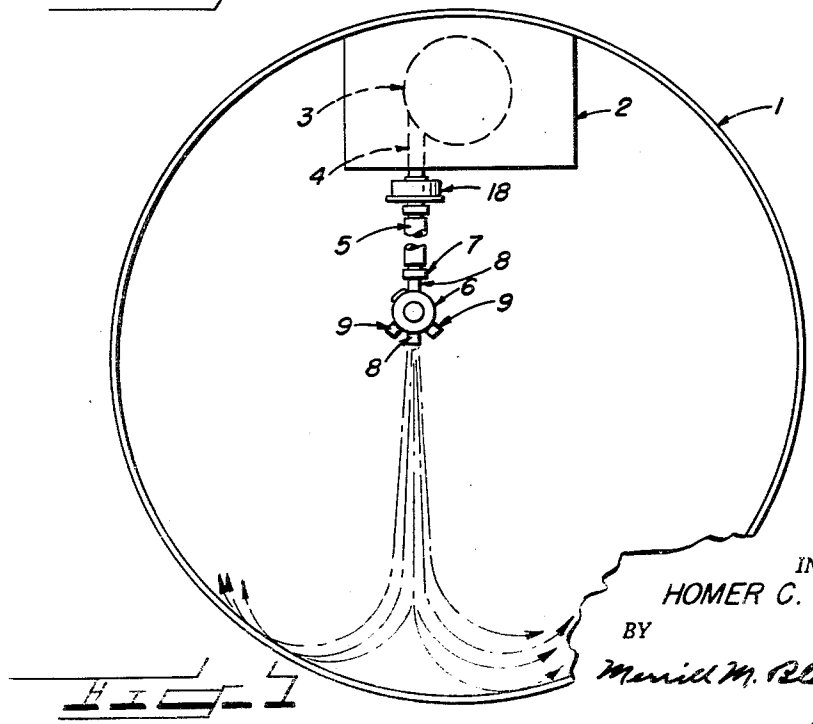


FIG. 7

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APPARATUS FOR GIVING HYDROTHERAPEUTIC TREATMENTS

Filed Feb. 11, 1954 3 Sheets-Sheet 3

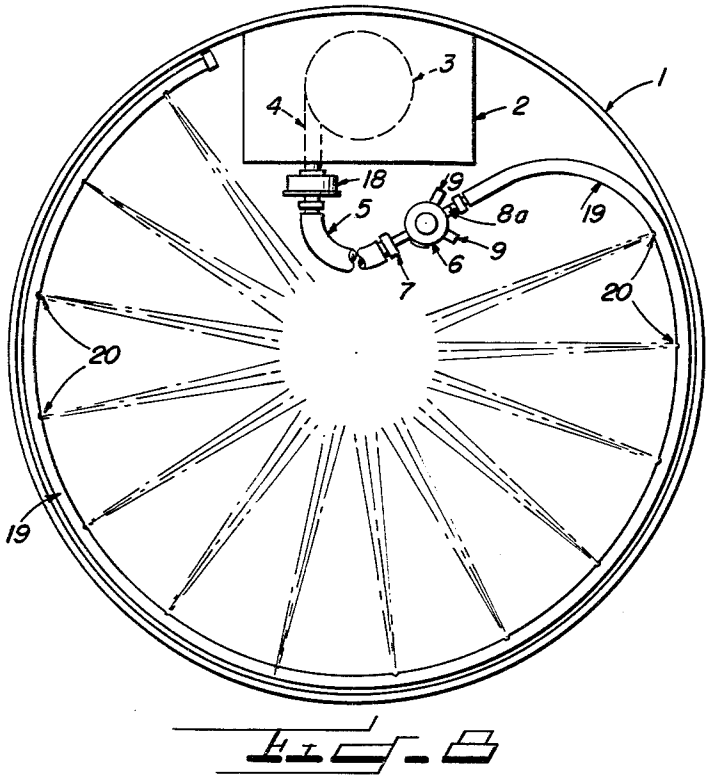


FIG. 9

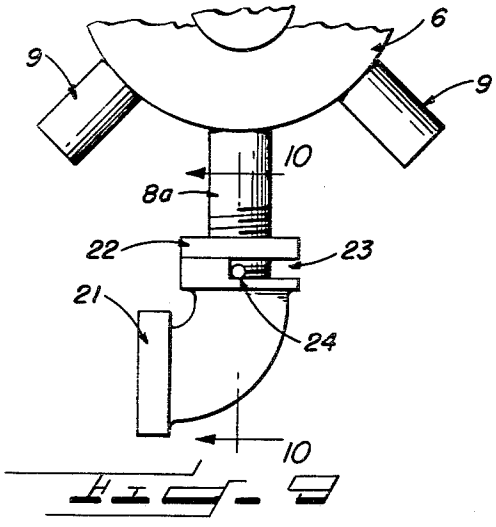


FIG. 11

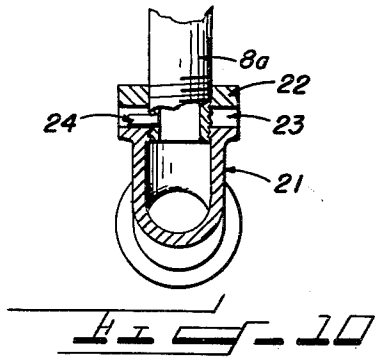


FIG. 10

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APPARATUS FOR GIVING HYDROTHERAPEUTIC TREATMENTS

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Filed Feb. 11, 1954, Ser. No. 409,707

5 Claims. (Cl. 128—66)

The present invention relates to the art of hydrotherapeutics and comprises, among its objects, the provision of improved apparatus for giving hydrotherapeutic treatment with a new method of treating patients.

In the drawings annexed hereto and forming a part hereof,

Fig. 1 is a partial elevational section of a tub in which a valve of this invention is mounted and is shown as connected to a pump;

Fig. 2 shows an elevation of a valve provided with means for indicating the percentage of pressure utilized;

Fig. 3 shows a valve in section, taken at a right angle to the passageway through the valve;

Fig. 4 shows a section similar to that in Fig. 3 but taken substantially along the plane indicated by the line 4—4, in Fig. 2;

Fig. 5 is a longitudinal section of a valve embodying means for screwing the valve member in for adjusting the flow of water;

Fig. 6 shows the use of two streams of water;

Fig. 7 shows the application of a single stream of water directly upon the patient;

Fig. 8 is a plan view of a tank or tub with a spray extending substantially all the way around and shooting the spray toward the center of the tank or tub;

Fig. 9 shows a modified head which is rotatable about the axis of the supporting pipe;

Fig. 10 is a section of the head shown in Fig. 9, taken substantially along the plane indicated by the line 10—10, in that figure; and

Fig. 11 is a partial elevational section similar to Fig. 1 but showing the valve in a different position from that shown in Fig. 1.

Reference will now be made in greater detail to the annexed drawings for a more complete description of the invention. In hydrotherapeutics, it is common practice to rub or massage the patent with water, customarily heated. However, it is preferable to have the water shot as a stream, or multiple streams, against the skin of the patient, thereby giving a massage treatment. In order for this massage treatment to do the greatest amount of good, the water should have a specific pressure when applied to the patient, although the pressure should be varied for different patients.

For convenience in the application of this treatment, I prefer a tank or tub 1 containing a housing 2 for the reception of a pump 3, which tank does not communicate with the interior of the housing 2. For easy access to the pump 3, located within the housing 2, this housing 2 has a door leading through the wall of the tank and into the room in which the tank is located.

The housing 2 has an opening for a pipe 4, which pipe is welded in place to the wall of the housing, water tight, to prevent leakage of water from the tank 1 into the housing 2. At the end of this pipe 4, which leads from the pump 3, is a pressure gauge 18 to indicate what the pressure of the flow of water from the pump

3 is, and to which pressure gauge is attached a flexible tube 5. At the end of said flexible tube 5 is a valve 6, and this tube should be long enough to reach the patient, wherever he may be in the tank.

The valve 6 is of the type shown in my Patent No. 2,669,233, but it may be modified therefrom, as will be explained hereinafter. This valve 6 is provided with a water inlet 7, a water outelt 8, and one or more by-pass outlets 9. Instead of the valve 6 being connected to the pipe 5, as shown in Fig. 1, the pipe 5 may be omitted entirely and the valve 6 connected to the pipe 4, as shown in Fig. 1, with the pressure gauge 18 therebetween to measure the pressure of the water from the pump 3, as shown in Fig. 11. Then a flexible tube 5*a*, to perform the same function as the flexible tube 5, may be attached to the water outlet 8, and this tube, also, should be long enough to reach to the patient, wherever he may be in the tank. On the end of this flexible tube 5*a* is a nozzle 5*b*, as shown in Fig. 11. At one side of the valve 6 is a post 10, on which are markings 11 to indicate the relative pressure or speed of the water emitted from the outlet 8 and the flexible tube 5*a* attached thereto.

Within the valve 6 is a valve member 12, as shown in Fig. 4. If the valve member 12 is pushed clear down, the valve is then open for the stream of water to go straight through the valve and the outlet 8, and the water can then be applied with its entire force to the person in the tank. If the valve member 12 is pushed only part of the way down, only a proportional part of the stream of water will be allowed to go through the outlet 8, the rest being forced to escape through the by-pass outlet 9. The valve member 12 has a vertical groove 12' which acts as a keyway to receive a housing-carried pin 17 for preventing rotation of the valve member except to a limited extent afforded by the provision of three circumferentially directed grooves 16, whereby the valve member may be depressed to any of the three positions indicated on the post 10 at 11 and then turned slightly to become releasably retained against return by the spring. When the valve member 12 is pushed a part of the way down, it may be turned until the notches 16 engage the pin 17 in that position. Then, for the valve member 12 to return, it is necessary only to reverse the direction of rotation thereof.

The valve member 12 can be pushed downwardly by manual pressure on the head 13, as shown in Figs. 2, 3, and 4, while valve member 12*a* can be advanced by screwing the stem 14 inwardly, as shown in Fig. 5. In the latter method, the adjustment is more accurate than by manually forcing the valve member 12 downwardly. Consequently, the screw type of stem 14, with the post 10, is the preferred structure. The head 6*a* has a screw-threaded opening for the reception of the screw type of stem 14. In this case, the valve member 12*a* has a groove 12*b* like the groove 12' but notches like 16 are not necessary since the screw threads hold the selected position and the pin rides the groove 12*b* merely to keep the valve member 12*a* from turning. Therefore, valve member 12*a* may be forced downwardly to adjust the size of the opening 15 for the flow of water. When the valve member 12 or 12*a* is clear up, the outlet 8 is closed and the by-pass outlet 9 is open, but when the valve member 12 or 12*a* is clear down, the outlet 8 is open and the by-pass outlet 9 is closed.

As shown in Fig. 6, the discharge may be in a plurality of directions through the by-pass outlets 9. In Fig. 6, the discharge is about forty-five degrees (45°) from straight ahead, both to the right and left.

In Fig. 7, the direction of discharge is shown as through the outlet 8, and is straight ahead. This may be adjusted to throw three or more streams of water out simultane-

ously so that the patient may be treated in substantially any way desired.

In the construction shown in Fig. 8, a circular tube 19 may be placed inside of the tub 1 and suspended in elevated position. This tube 19 is shown as provided with a series of openings 20 for discharge of water against a person sitting in the center of the tub. This arrangement makes it possible to treat a patient from nearly all directions simultaneously.

The structure of Figs. 9 and 10 shows a screw-threaded outlet 8*a* having a direction-changing nozzle 21 having a flange 22 which is provided with a slot 23 through which extends a pin 24 to limit the rotation of the nozzle. The discharge of the nozzle may be in either direction, horizontal or straight down, or in any direction between them, covering a full half circle below the nozzle.

This apparatus is intended to cover the treating of a patient with a stream or streams of water flowing in various directions. The purpose of the controlled pressure is to enable the operator to apply the fluid stream to any part of the human anatomy, as, for example, the ear, or for vaginal flushing, or any other bodily cavity or surface, including the rectum or colon.

It is of course understood that the specific description of structure set forth above may be departed from without departing from the spirit of this invention as disclosed in this specification and as defined by the appended claims.

Having now described by invention, I claim:

1. Hydrotherapy apparatus, comprising: a patient-receiving tank having opposed spaced apart wall portions; fluid discharge means adjacent to one wall portion and having a central outlet aimed directly at the opposite wall portion to cause a fluid stream to impinge on said opposite wall portion, and a pair of lateral outlets arranged in divergent relation and respectively flanking the central outlet to cause a pair of fluid streams to diverge toward said opposite wall portion; and valve means in said discharge means for selectively connecting the central outlet to the inlet exclusively of the lateral outlets and for connecting the lateral outlets to the inlet exclusively of the central outlet.

2. The invention defined in claim 1, in which: said opposite wall of the tank is curved so that it is concave to the outlets whereby the streams from the lateral outlets swirl circumferentially toward each other when directed toward said curved wall portion.

3. The invention defined in claim 1, in which: at least the central outlet is flexibly arranged for selective lateral positioning to vary the direction of its aim.

4. The invention defined in claim 1, in which: the entire discharge means is flexibly arranged for selective lateral positioning to vary the direction of the streams emitting by said outlets.

5. The invention defined in claim 1, in which: the discharge means comprises a valve body of such size as to be conveniently held by a patient in the tank, the valve means is carried by said body and includes a manual control portion for shifting the valve means between its position by manual pressure applied by the hand in which the valve body is held.

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