Oct. 21, 1924.

1,512,581

W. L. DEMING

SHOWER DEVICE

Filed Feb. 3, 1921

3 Sheets-Sheet 1

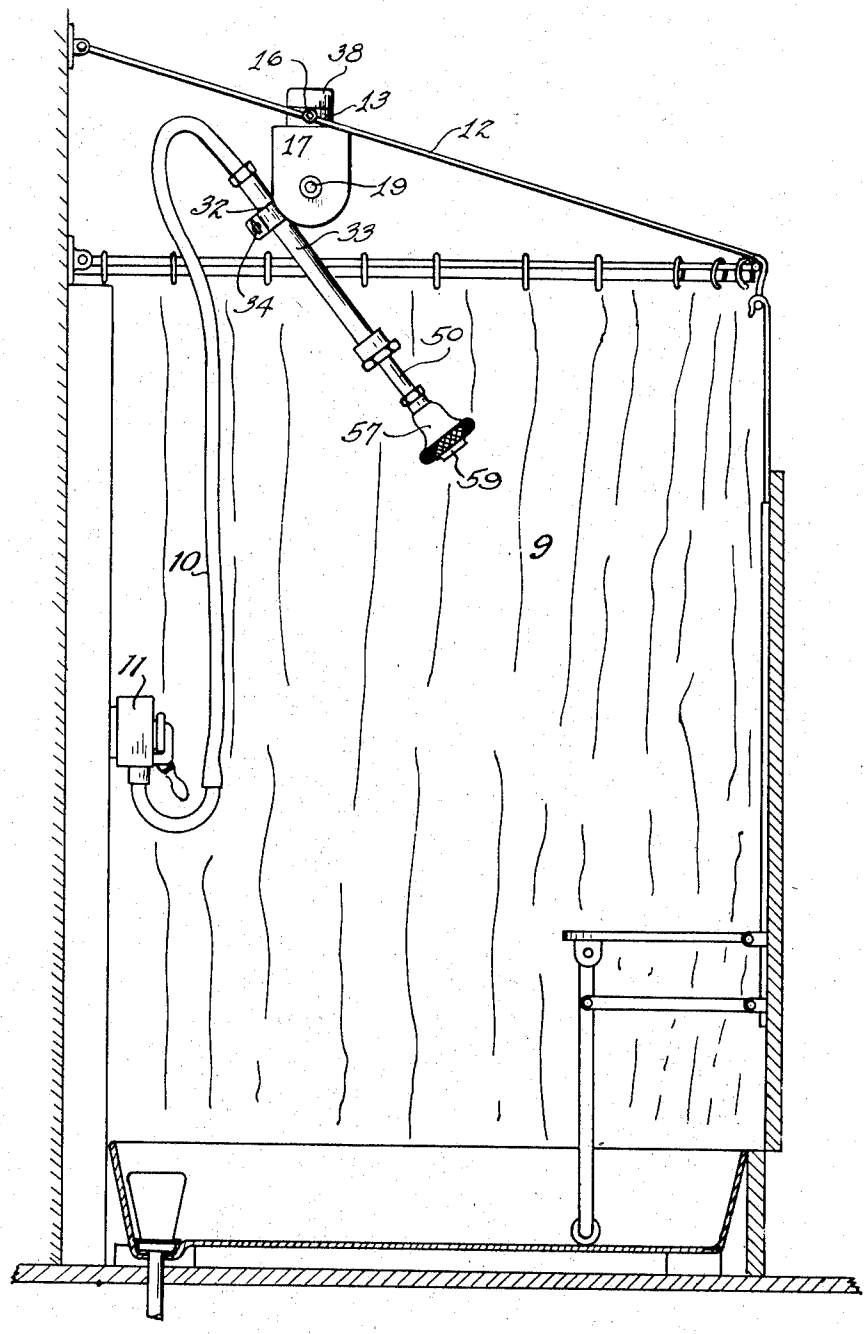



Fig. 1

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1,512,581

SHOWER DEVICE

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3 Sheets-Sheet 2

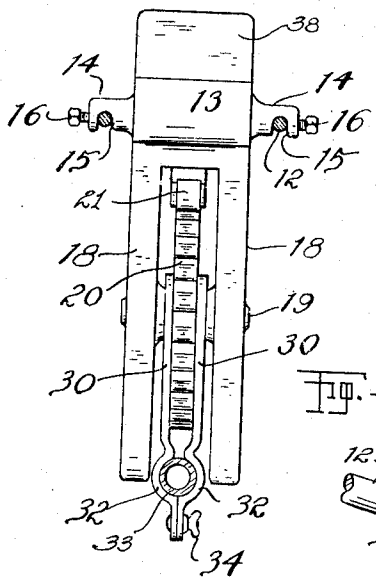



Fig. 3

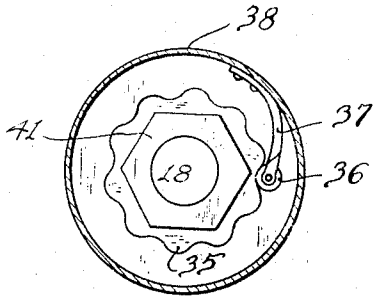



Fig. 4

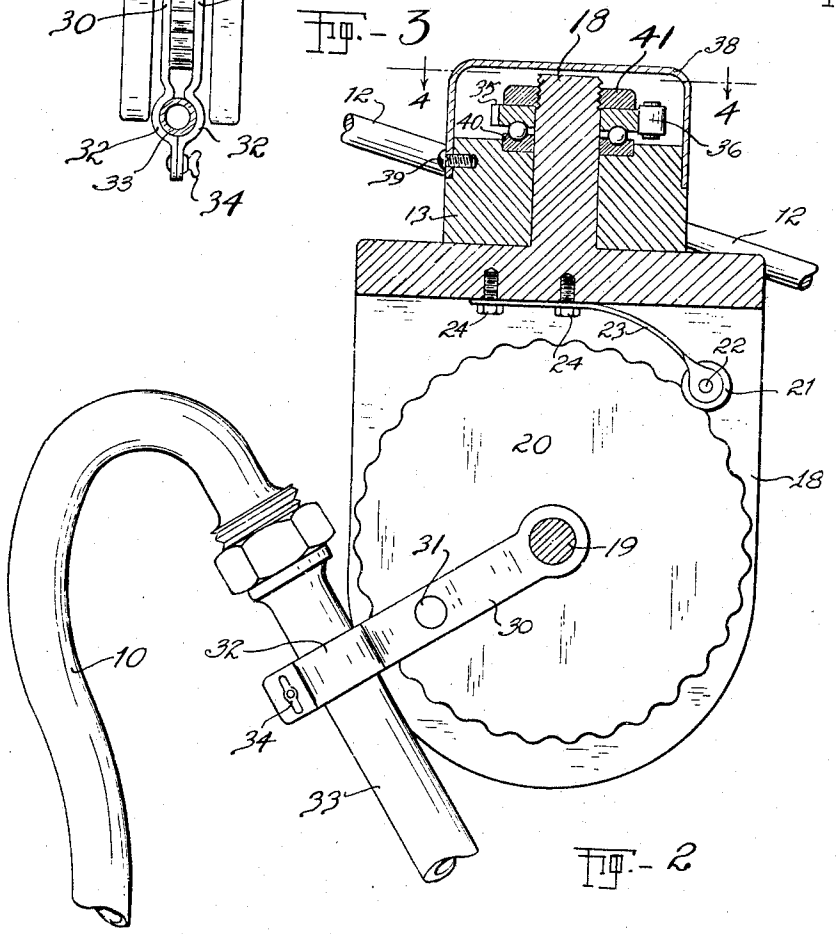



Fig. 2

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Oct. 21, 1924. 1,512,581

W. L. DEMING

SHOWER DEVICE

Filed Feb. 3, 1921 3 Sheets-Sheet 3

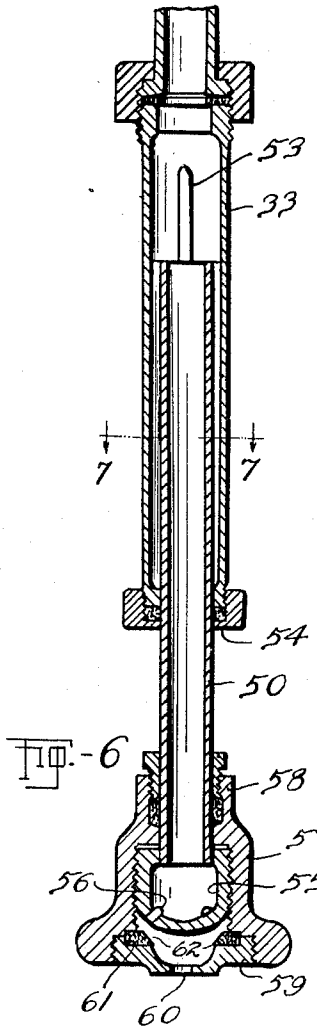



Fig.-6

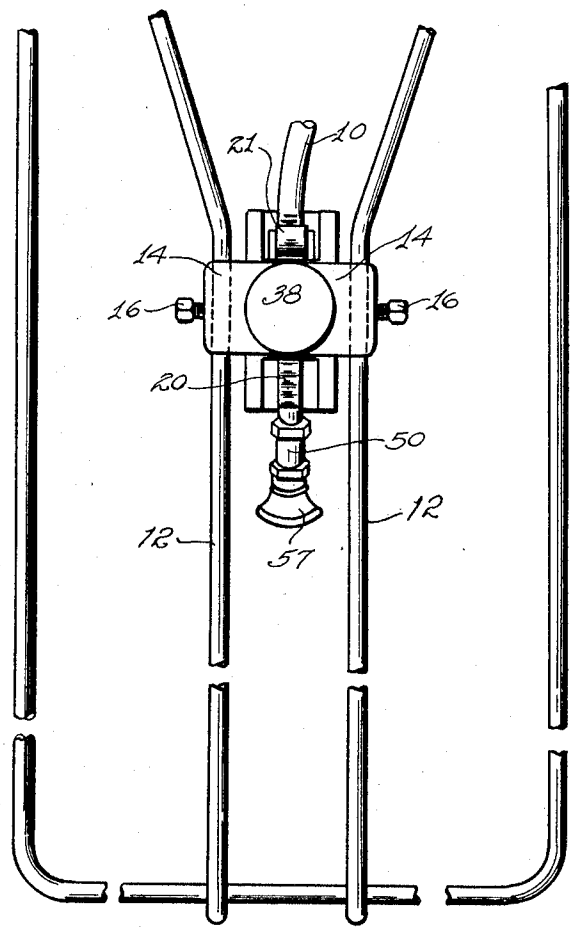



Fig.-5

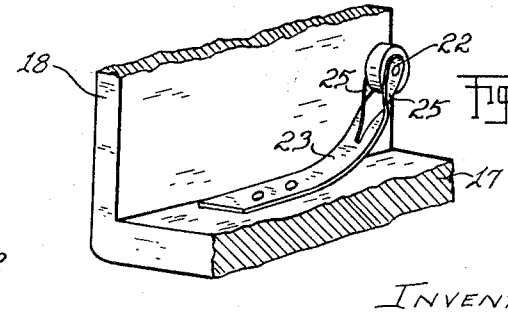



Fig.-8

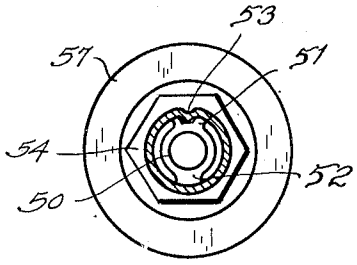



Fig.-7

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Patented Oct. 21, 1924. 1,512,581

# UNITED STATES PATENT OFFICE.

WILLIAM L. DEMING, OF SALEM, OHIO.

## SHOWER DEVICE.

Application filed February 3, 1921. Serial No. 442,038.

*To all whom it may concern:*

Be it known that I, WILLIAM L. DEMING, a citizen of the United States, residing at Salem, in the county of Columbiana and State of Ohio, have invented a certain new and useful Improvement in Shower Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to bathing apparatus and is particularly concerned with shower devices adapted for use in connection with various forms of permanent or portable bathing apparatus.

An object of my invention is the provision of means for supporting a shower device, whereby universal movement of a shower nozzle may be readily obtained. Another object is the provision of means associated with the supporting member, whereby the nozzle may be readily turned and thereafter held in any desired position.

Other objects include the construction of a device which permits the installation, and use thereof, in connection with existing bathing apparatus, as well as the construction of a shower mechanism, which is compact, durable, and capable of being cheaply manufactured.

In accomplishing the above objects I provide a shower nozzle, movable longitudinally of its axis, and I provide means for supporting the nozzle, so that it may be oscillated in either a horizontal or vertical plane. Furthermore I provide ratchet means, which permits the nozzle to be readily oscillated on either a horizontal or vertical axis, and to be thereafter held in such desired position.

The means for accomplishing the above and other objects will be more fully set forth in the following description which relates to the drawings. The essential characteristics will be set forth in the claims.

In the drawings Fig. 1 is a section through a bathing apparatus, showing in elevation a shower device embodying the features of my invention; Fig. 2 is a vertical section taken through the middle of the shower device; Fig. 3 is an end elevation thereof; Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2; Fig. 5 is a plan showing the apparatus secured to a support; Fig. 6 is a longitudinal section taken through the nozzle and conduit therefor; Fig. 7 is a section taken on the line 7—7 in Fig. 6; Fig. 8 is a perspective showing the manner of securing the pawl to the supporting bracket.

In general, my invention contemplates the construction of a shower device, which is very flexible, in that it is capable of being manipulated in three directions to provide universal movement for a shower nozzle. In carrying out my invention, I may employ detent means for retaining the nozzle in such desired position. In Fig. 1 the device is shown as connected by a tube 10 to a mixing device 11, and supported overhead by the inclined bars 12, which bars constitute means for supporting a curtain 9. The bathing apparatus shown in connection with my shower device is more fully set forth in my co-pending application, Serial No. 319,718, filed August 25, 1919.

While I have shown supporting means for this shower device as inclined rods, which constitute a part of a curtain holding apparatus, it is to be understood that the device may be secured to the wall, and adapted for use in connection with bath tubs or other permanent bathing structures.

Supported on the rods 12, I provide a bracket 13, having a body portion and laterally disposed arms 14. These arms may be provided with recess 15 for receiving the rods 12 and may be equipped with set screws 16 for retaining such rods in position. This bracket constitutes a supporting device for the shower nozzle.

Rotatably mounted within the bracket 13 I provide a bifurcated member 18 having a shank, which extends through the body portion of the bracket member and which is shown as depending therefrom. The depending portions of this bifurcated member 18 constitute supporting means for the shaft 19. The depending portions may be cast on the member 18 or may be plates rigidly secured to the base of the shank.

Supported on the shaft 19, and intermediate the ears 18 I provide a detent wheel 20. This wheel may be free to rotate on the shaft 19 but is normally restrained from rotation by contact with a retaining pawl. The pawl is shown as a roller 21, supported at 22, to the spring arm 23, which may be rigidly secured as at 24 to the member 18. As shown in Fig. 8, the arm 23 may comprise a strip of spring steel having the end thereof, adjacent the roller 21, slit to provide two strips substantially equal in width. These strips may then be twisted, as at 25,

to provide ears in which the shaft 22 is carried. The serrations on the periphery of the detent wheel 20 are such that the roller 21 is adapted to ride over the high portions when the wheel rotates in either direction. The depth of the serrations is such that the roller will positively prevent rotation of the detent wheel when such wheel is brought to a stop.

To secure the nozzle to the supporting device I may provide a spring clamp, which as shown in Fig. 3 comprises arms 30, extending outwardly from the shaft 19, and beyond the periphery of the detent wheel 20. These arms may be free to rotate on the shaft 19, but are rigidly secured to the detent wheel preferably by a pin 31. The ends of the arms may be bent to form circular clamping jaws, as at 32, to receive the discharge tube 33, and the extreme ends of the arms may be brought into abutting engagement by means of a thumb screw 34. Since the arms 30 are rigid with the detent wheel it follows that any rotation of the wheel 20, causes the discharge tube 33 to be rotated in a vertical plane.

The mechanism heretofore described, provided for rotation of the discharge tube in a horizontal plane, as well as rotation in a vertical plane. To retain the tube in any desired position after having rotated it about the axis of the shank 18, I provide detent means which may be positioned in a horizontal plane. This mechanism comprises, as shown in Figs. 2 and 4, a detent wheel 35, rigidly secured to the shank 18, and a retaining roller 36 supported in the spring arm 37. The manner of supporting the roller 36 is substantially similar to the manner above set forth for supporting the roller 21. The arm 37, however, is rigidly secured to the housing member or dust cap 38, which cap may be rigidly secured to the bracket 13, as by a set screw 39.

To support the discharge conduit and detent mechanism I provide a ball bearing at the upper portion of the shank 18. One race of this bearing may comprise the detent wheel 35 and the other race may comprise a member 40 set into the bracket 13. The upper race or detent may be locked into position by a lock nut 41, or may be shrunk upon the shank 18 and thereby rigidly secured thereto. The dust cap 38 permits the bearing to be packed with grease and provides a mechanism which may be readily oscillated without any binding action between the rotating and stationary members.

The mechanism heretofore described provided for movement of the nozzle in a vertical and horizontal plane. To permit the nozzle to be moved longitudinally of its axis, I provide a tube 50 slidable within the tube 33 as shown in Figs. 6 and 7. The tube 50 may be provided at its upper portion with lugs 51 and 52 to maintain the axis thereof in alignment with the axis of the tube 33. The lug 51 may have a notch therein to receive the inwardly bent portion 53 of the tube 33. This inwardly bent portion extends substantially the entire length of the tube 33 and is adapted to prevent the tube 50 from rotating, but permits it to move longitudinally of its axis. A suitable stuffing box 54 is provided at the lowermost end of the tube 33, the gland of the stuffing box being arranged to alter the pressure between the packing and the tube 50, whereby the passage of water along the tube 50 may be readily prevented, while the tube 50 may be free to move within the tube 33.

The outer end of the tube 50 may be equipped with a shower nozzle of any approved type. I have shown, however, a nozzle embodying novel features of construction (claimed in my co-pending application mentioned) which permits the water to be shut off by rotation of the nozzle cap. As shown in Fig. 6 this nozzle comprises a chamber head 55, rigidly secured to the tube 50. This head has a closed outer end, except for oblique discharge orifices 56, which extend from the interior to the exterior of the head, which head is shown as cylindrical in form and is provided with a threaded exterior surface. A nozzle 57 engages the threaded portion and carries a stuffing box 58, which engages the tube 50. The discharge end of the nozzle is threaded to receive the cap 59. This cap may be provided with a discharge aperture 60 and is adapted to receive a gasket 61. This gasket is so positioned that the interior surface 62 thereof, will cover the apertures 56 in the head, when the nozzle 57 is turned on the head 55.

When the nozzle parts are in position as shown in Fig. 6, the gasket 61 is away from the aperture 56 and water will flow through the tube 33, the tube 50, head 55 and out the aperture 60 in the cap 59. When the nozzle is turned inwardly the force of the discharge decreases as the gasket approaches the aperture. It will be seen, therefore, that the quantity of water discharged may be conveniently controlled without effecting the temperature regulation at the mixing valve.

In the use of the apparatus for a shower bath the nozzle may be deflected downwardly and the temperature of the water regulated by the mixing device 11, it being understood that the nozzle 57 is turned to the open position. When the desired temperature and force of discharge is attained then the nozzle 57 may be moved in any plane by grasping the nozzle and manually moving it about the vertical axis 18 or about the horizontal axis 19. The detent mechanism retains the nozzle in any desired position relative to the horizontal and vertical

plane. If it is desirable to bring the spray closer to the operator then the nozzle may be moved longitudinally of its axis until the end of the tube 50 provided with the lugs 51—52 is in abutting engagement with the lowermost portion of the tube 33.

From the foregoing description, it will be seen that I have provided a shower device which is very flexible, in that it is capable of being readily manipulated for universal motion. Furthermore, I have provided means for retaining the nozzle in any desired position, which means constitutes a compact device that is adapted for use in connection with existing forms of bathing apparatus.

Having thus described my invention, I claim:—

1. In combination, a stationary support, a bracket carried thereby, a horizontally disposed detent wheel rigidly connected to said bracket, a thrust bearing between the wheel and support, means associated with the bracket for engaging and clamping a conduit and a pawl having a yieldable connection with said support and cooperating with said wheel for yieldably resisting movement of the bracket and conduit engaging means in a horizontal direction.

2. In combination, a stationary block, having an opening therein, a bracket having a shank extending through the opening and projecting above the top of the block, a detent wheel rigidly mounted on said shank, a thrust bearing disposed between the block and the wheel, a closure for the wheel and bearing, said closure being removably connected to the block, means associated with the block and engaging the wheel for yieldably resisting movement of the bracket in a horizontal plane, said bracket having depending arms, a vertically disposed detent wheel mounted within said arms, means carried by the last mentioned wheel for engaging and clamping a conduit, and means associated with the bracket for engaging the vertically disposed wheel, whereby movement of the conduit in a vertical plane may be yieldably resisted.

3. In combination, a support, a bracket carried thereby, said bracket having detent wheels carried thereby and disposed in planes at right angles to each other, means associated with the support for engaging one of said wheels and for yieldably resisting movement of the bracket in a horizontal plane, means associated with the bracket for engaging the other of said wheels and for yieldably resisting movement of said member in a vertical plane and a member carried by the last mentioned wheel for engaging and clamping a conduit.

4. In combination, a pair of guide members, a block movable on said members, said block having an opening therethrough, a bracket having a shank extending through the opening, means associated with the block for yieldably resisting movement of said bracket with reference to the block in a horizontal plane, a member carried by the bracket and adapted to engage and clamp a conduit, and means associated with the bracket for yieldably resisting movement of said member in a vertical plane.

5. In a combination, a support, a bracket carried thereby, detent means rotatably mounted on said support, other detent means rotatable in said bracket and on an axis at right angles to said first mentioned means and a member carried by said last mentioned means for engaging and clamping a conduit, whereby said detent means may yieldably resist movement of said member either in a horizontal or vertical direction.

6. In combination, a support, a bracket carried thereby a detent wheel carried by the bracket on each side of said support, a member carried by one of said wheels for engaging and clamping conduit, and means associated with each of said wheels for yieldably resisting rotation thereof, whereby movement of said member either in a horizontal or vertical plane is yieldably resisted.

7. A shower device, having in combination a movable member, a horizontally disposed detent wheel, a vertically disposed detent wheel, said wheels being mounted on said member, a stationary bracket intermediate said wheels, the bracket comprising a bearing for said member, a pawl yieldingly mounted on said bracket and adapted to engage the horizontal wheel, a pawl yieldingly mounted on said member adapted to engage the vertical wheel, and means for clamping a conduit to one of said wheels.

In testimony whereof, I hereunto affix my signature.

WILLIAM L. DEMING.