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Nov. 2, 1926. 1,605,436

K. HERMAN

VALVE MECHANISM

Filed Jan. 25, 1926 2 Sheets-Sheet 1

Fig. 1.

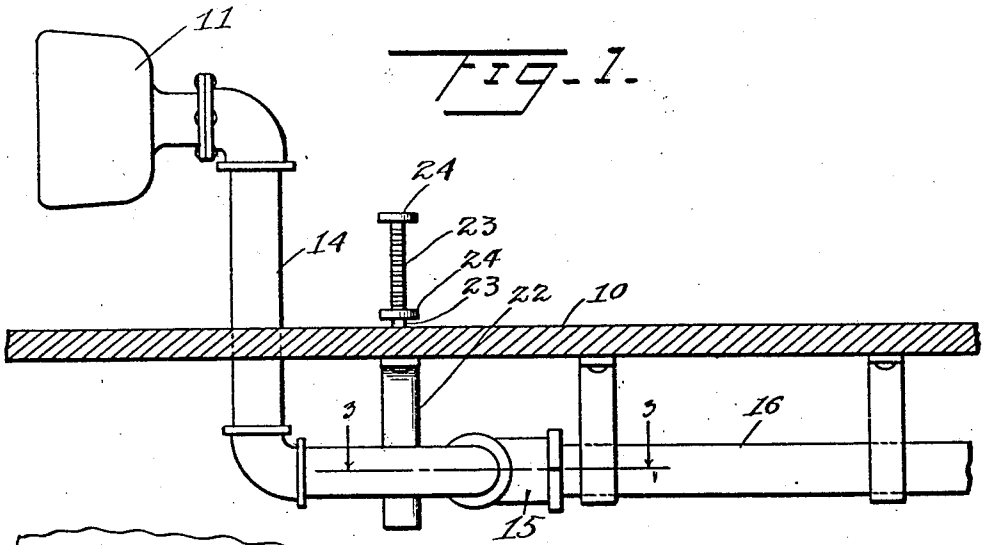


Fig. 2.

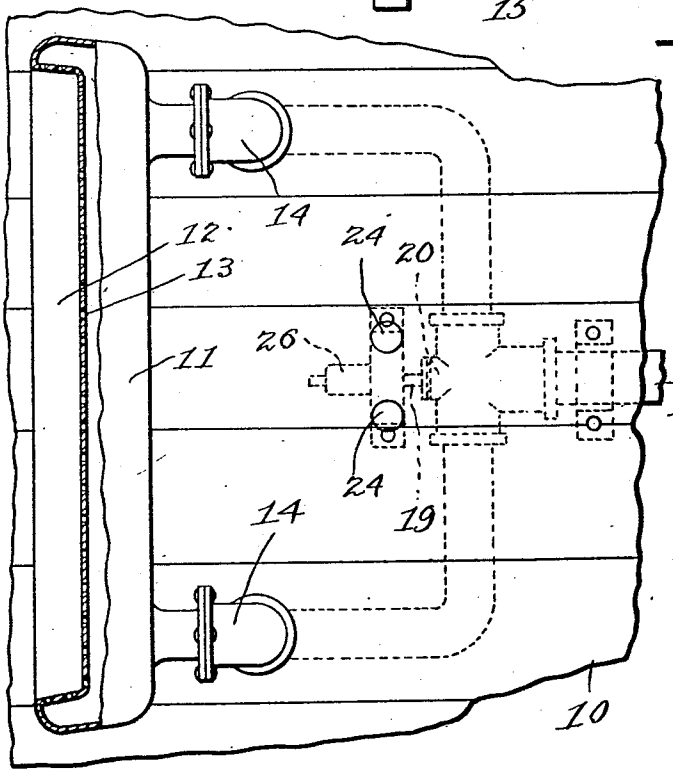
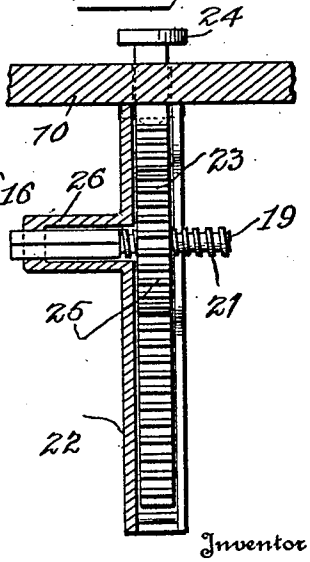


Fig. 3.



Inventor

Karl Herman.

By Knight Brothers

Attorney

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Fig. 3.

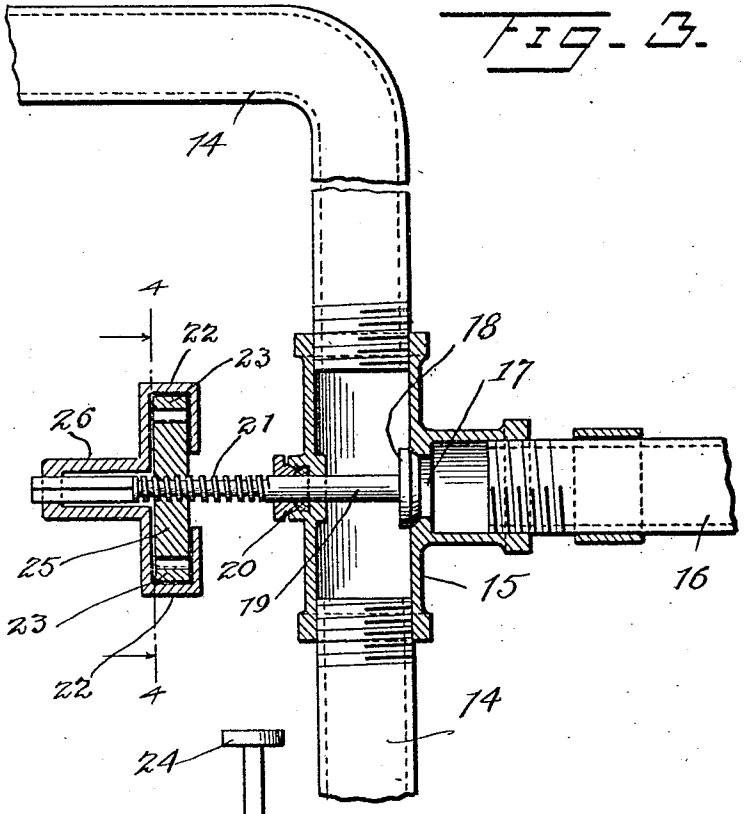
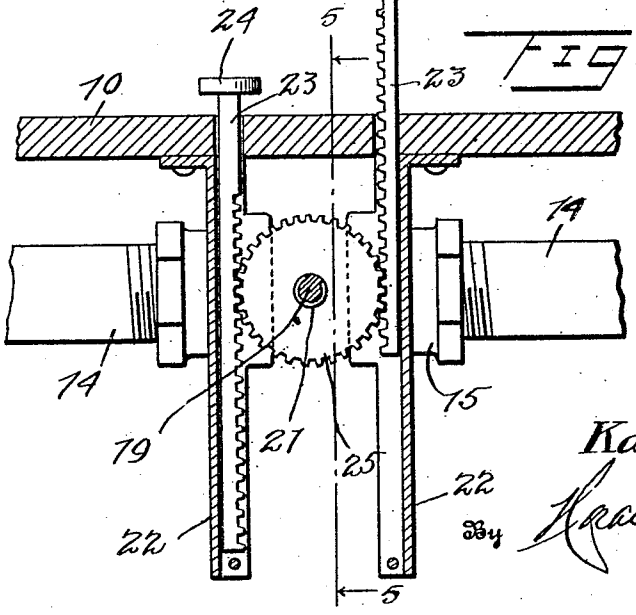


Fig. 4.



Inventor
Karl Herman
By Grace & Hendricks
Attorney

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UNITED STATES PATENT OFFICE.

KARL HERMAN, OF TRENTON, NEW JERSEY.

VALVE MECHANISM.

Application filed January 25, 1926. Serial No. 83,752.

This invention relates to new and useful improvements in drying apparatuses, and particularly to devices for drying cloth, glass, or the like.

The present invention is an improvement on, and is to be used in connection with devices shown in my prior applications for air nozzles, Ser. No. 73,825, filed December 7, 1925, and air pumps, Ser. No. 735,705, filed September 3, 1924.

The principal object of the present invention is to provide a valve for controlling the flow of air to the nozzle, with improved means for actuating the valve into and out of closed position.

Another object is to provide a valve actuating means which is simple in construction, and which is self-setting, so that a portion of the mechanism will, at all times be in extended position for operation by the foot of the operator, or, when mounted overhead, to be in position for operation by a rod or bar, in the hands of the operator.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawings.

In the drawings:

Figure 1 is a side elevation of the valve mechanism, in association with the discharge nozzle.

Figure 2 is a top plan view of the same, the nozzle being partly in section, and the valve mechanism in dotted lines beneath a floor.

Figure 3 is an enlarged horizontal sectional view on the line 3—3 of Figure 1.

Figure 4 is a vertical section on the line 4—4 of Figure 3.

Figure 5 is a vertical section substantially on the line 5—5 of Figure 4.

Referring particularly to the accompanying drawings, 10 represents the floor of a room, car, automobile, or the like, and disposed above the floor is an elongated casing 11, having its outer portion formed with an elongated recess 12, in the bottom and side walls of which are formed the perforations 13, for escape of air onto the object to be dried. Connected to the rear of the nozzle are the pipes 14, said pipes extending downwardly through the floor and being connected with the opposite ends of the head of the T-connection 15. To the outer end of the leg of the T-connection 15 is a pipe 16 which leads to a suitable source of compressed air, such as the air pump in my previously mentioned application. Formed within the said connection is a valve seat 17, and engaged on the seat is the valve 18, said valve being provided with a stem 19 extending through the stuffing box 20, and formed with the spiral rib or screw thread 21. Mounted beneath the floor are the depending parallel guides 22, in which are slidably arranged the vertically reciprocable rack bars 23, said bars extending upwardly through the floor and being provided with the heads 24 for engagement by the foot of the operator. Threaded onto the outer end of the stem of the valve, and meshing with both of said rack bars, is a gear 25, the end of the stem beyond said gear being angular in cross section and fitted within a corresponding opening in a housing 26, which is connected to and bridges the said guides 22.

It will be understood that the pipe 16 may be connected to a suitable tank containing compressed air, if desired, instead of being connected with the pump, previously mentioned, without departing from the spirit of the present invention.

From the foregoing it will be seen that when the operator places his foot on the elevated rack bar 23, and depresses same, said bar will cause the gear to rotate, and because said gear is held against lateral movement by housing 26, it will drive the threaded portion of the stem therethrough, with the result that the valve will be properly seated against the seat 17. At the same time, the gear, by reason of its meshing engagement with the other, or formerly depressed rack bar, will cause said second bar to be elevated into position to be depressed. The depression of this second bar causes the rotation of the gear in the opposite direction, and the valve to be moved from its seat. Thus means for operating the valve into or out of seated position, will always stand in elevated position ready for depression by the foot of the operator.

In some instances this valve may be located overhead, and out of reach of the foot. In such a case the operator can readily move the rack bars by means of a rod or bar pressed against the outer ends of the rack bars.

What is claimed is:

1. The combination with a conduit and a valve therefor having a longitudinally mov-

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able stem, of a wall lying approximately parallel with said conduit, a rotatable actuator for imparting longitudinal movement to said valve stem, and rectilinearly movable operating members for imparting motion to said actuator, said operating members extending through said wall.

2. The combination with a conduit and a valve therefor having a longitudinally movable stem, of a wall lying approximately parallel with said conduit, a rotatable wheel for imparting longitudinal movement to said valve stem, rectilinearly movable operating members engaging the periphery of said wheel at opposite positions so that movement in either direction may be imparted to the wheel, said operating members extending through said wall, and means associated with said rectilinearly movable members for preventing lateral displacement of said wheel during rotative movement thereof.

3. The combination with a conduit and a valve therefor having a longitudinally movable threaded support, of a wall lying approximately parallel with said conduit, a gear wheel having a threaded engagement with the threads of said stem, rectilinearly movable toothed racks engaging the periphery of said wheel at opposite positions so that relative movement in either direction may be imparted to the wheel and longitudinal movement be imparted to the stem, said racks extending through said wall.

4. The combination with a conduit and a valve therefor having a longitudinally movable stem, of a support lying contiguous to said conduit, a rotatable wheel for imparting longitudinal movement to said stem, rectilinearly movable operating members engaging the periphery of said wheel at opposite points so that rotative movement in either direction may be imparted to said wheel, guides for said rectilinearly movable members carried by said support, and means associated with said guides for preventing lateral displacement of said wheel during rotative movement thereof.

5. The combination with a conduit and a valve therefor having a longitudinally movable stem, of a support lying contiguous to said conduit, a rotatable wheel for imparting longitudinal movement to said stem, rectilinearly movable operating members engaging the periphery of said wheel at opposite points, so that rotative movement in either direction may be imparted to said wheel, and guides for said rectilinearly movable members carried by said support, said guides being provided with a housing for preventing lateral displacement of the wheel during rotative movement thereof.

6. The combination with a conduit and a valve therefor having a longitudinally movable stem, of a support lying contiguous to said conduit, a rotatable wheel for imparting longitudinal movement to said stem, rectilinearly movable operating members engaging the periphery of said wheel at opposite points so that rotative movement in either direction may be imparted to said wheel, guides for said rectilinearly movable members carried by said support, means associated with said guides for preventing lateral displacement of said wheel during rotative movement thereof, and means also associated with said guides for preventing rotation of said stem.

7. The combination with a conduit and a valve therefor having a longitudinally movable stem, of a support lying contiguous to said conduit, a rotatable wheel for imparting longitudinal movement to said stem, rectilinearly movable operating members engaging the periphery of said wheel at opposite points, so that rotative movement in either direction may be imparted to said wheel, guides for said rectilinearly movable members carried by said support, said guides being provided with a housing for preventing lateral displacement of the wheel during rotative movement thereof, said housing and said valve stem having complemental means to prevent rotation of said stem.

8. The combination with a conduit and a valve therefor having a longitudinally movable stem, of supporting means lying contiguous to said conduit, a rotatable actuator for imparting longitudinal movement to said stem, and rectilinearly movable operating members engaging said actuator at opposite positions for imparting rotative movement thereto, said operating members having headed portions extending in the same direction from the points of engagement with said actuator, and means carried by said support for guiding said operating members.

In testimony whereof, I affix my signature.

KARL HERMAN.