E. H. REICHARD & F. H. HARROLD.

HYDRAULIC OPERATING MEANS FOR DUMB WAITERS.

APPLICATION FILED APR. 15, 1916.

**1,219,044.** Patented Mar. 13, 1917.

Fig. 1

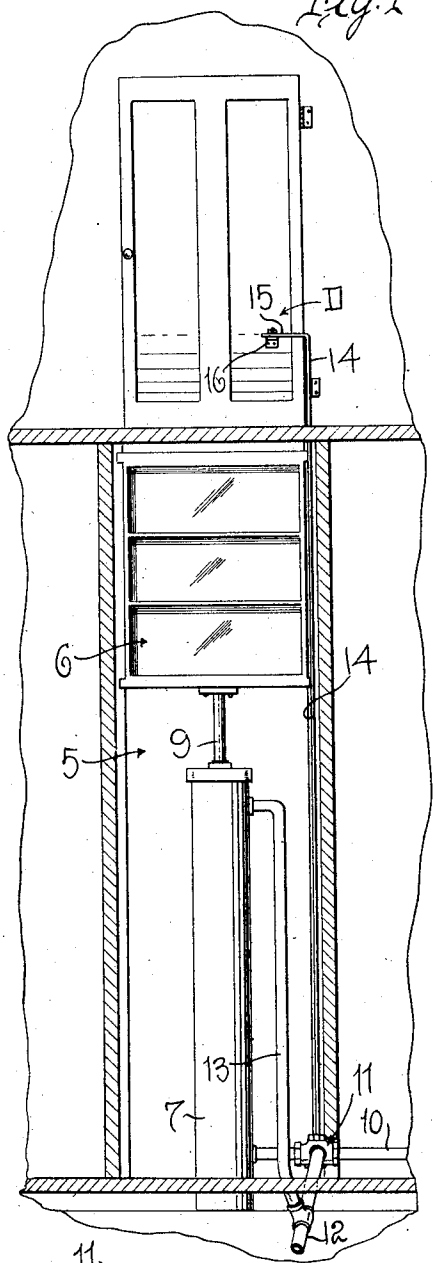
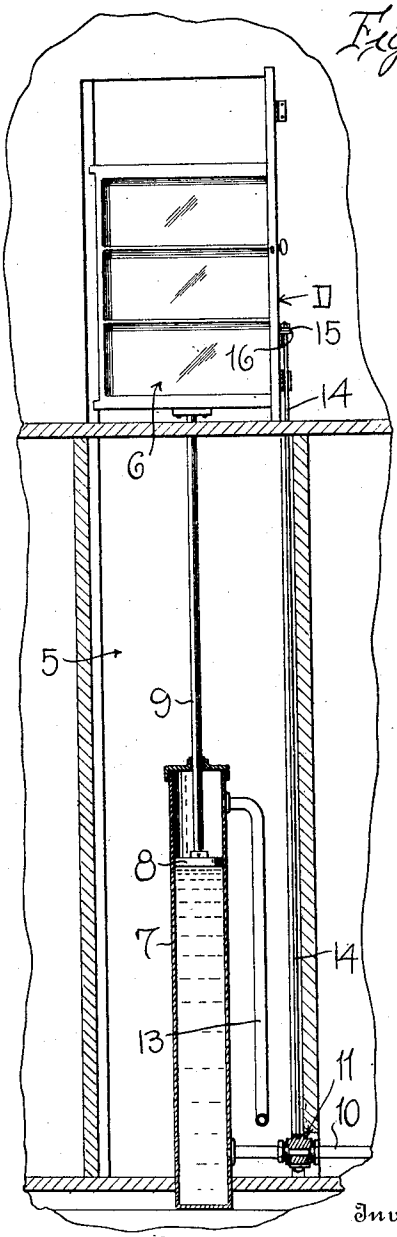



Fig. 2



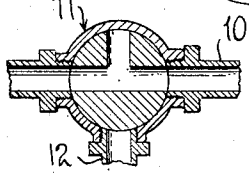




Fig. 3

Inventors

E. H. REICHARD

F. H. HARROLD

By Watson E. Coleman

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

ERVIN H. REICHARD AND FRANCIS H. HARROLD, OF COLUMBIANA, OHIO.

## HYDRAULIC OPERATING MEANS FOR DUMB-WAITERS.

1,219,044. Specification of Letters Patent. Patented Mar. 13, 1917.

Application filed April 15, 1916. Serial No. 91,381.

*To all whom it may concern:*

Be it known that we, ERVIN H. REICHARD and FRANCIS H. HARROLD, citizens of the United States, residing at Columbiana, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Hydraulic Operating Means for Dumb-Waiters, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to hydraulic operating means for dumb waiters and has for its primary object to provide very simple and effective mechanism for the above purpose, which will automatically raise the dumb waiter when the shaft door is opened and permit the waiter to drop or move downwardly to its normal position when the door is closed.

It is another and more particular object of the invention to provide an apparatus for the above purpose including a cylinder arranged in the lower end of the dumb waiter shaft to which the service water pressure pipe is connected, a plunger operating in said cylinder and having a rod connected to the bottom of the dumb waiter, a three-way valve in the service pipe, a discharge pipe connected to the valve, a waste pipe connected to the upper end of the cylinder and to the discharge pipe, and means operatively connected to the door of the waiter shaft and actuated upon the opening of said door to open communication between the pressure pipe and the lower end of the cylinder, whereby water is permitted to enter said cylinder and operate upon the plunger to force the dumb waiter upwardly in the shaft.

It is a further general object of the invention to improve and simplify devices of the above character whereby the same are rendered reliable and positive in operation and of great convenience and serviceability in practical use.

With the above and other objects in view, the invention consists in the novel features of construction, combination and arrangement of parts to be hereinafter more fully described, claimed and illustrated in the accompanying drawing, in which,

Figure 1 is a vertical sectional view through the lower end of the dumb waiter shaft and the plunger cylinder, and illustrating the preferred embodiment of the invention;

Fig. 2 is a similar view, partly in section, showing the shaft door open and the dumb waiter raised; and

Fig. 3 is an enlarged horizontal sectional view through the valve.

Referring in detail to the drawing, 5 designates the vertical dumb waiter shaft which extends from one floor of a building to the floor above, and within this shaft the dumb waiter, indicated at 6, is vertically movable. A cylinder 7 is suitably mounted in the bottom of the shaft 5, and a plunger 8 operates within said cylinder, said plunger being fixed to the lower end of a rod 9, the upper end of which is connected to the base of the dumb waiter 6.

The service water pressure pipe 10 is suitably connected to the lower end of the cylinder 7, and in this pipe at a point within the shaft 5, the three-way valve 11 is interposed, said valve being of the usual construction. To the casing of the valve, the discharge pipe 12 leading to a sewer, is connected, and the lower end of a waste pipe 13 is coupled with this discharge pipe, the other end of said waste pipe being in communication with the upper end of the cylinder 7.

The valve 11 is operated by a rod 14 which is connected thereto and extends vertically and upwardly through the shaft 5 at one side of the dumb waiter 6. The upper end of this rod projects above the upper floor in line with the hinged edge of the shaft door, indicated at D, and is formed with an angular extension 15 slidably connected to a bracket plate 16 fixed upon the face of the door.

In the operation of the device, when the shaft door D is closed, the valve 11 is in position to open communication between the lower end of the cylinder 7 and the discharge pipe 12, communication between said pipe and the service pipe 10 being cut off. When the door is swung to its open position, the rod 14 is turned so that the valve 11 is rotated and communication between the cylinders and discharge pipe 12 is cut off and a passage established through the service pipe 10 to said cylinder. The water under pressure entering the lower end of the cylinder, acts upon the plunger 8 and forces the same upwardly, thereby elevating or raising the dumb waiter 6 to a position above the upper floor line opposite the open shaft door. Any water which may escape around the plunger 8 due to faulty packing, will find an outlet

through the waste pipe 13 to the discharge pipe 12. Immediately upon the closing of the shaft door D, the valve 11 is returned to its former position so that the dumb waiter will drop by gravity, the water being forced out of the cylinder through the discharge pipe 12 to the sewer.

From the foregoing description, taken in connection with the accompanying drawing, the construction, manner of operation and several advantages of our invention will be clearly and fully understood. The device, while exceedingly simple, is positive and reliable in its operation and obviates the necessity of manually operating the dumb waiter by means of ropes or other means usually provided for that purpose. It is apparent, of course, that the dumb waiter may be of any desired construction and the plunger cylinder increased in length as may be requisite in accordance with the desired extent of movement of the waiter in the shaft.

While we have shown and described the preferred construction and arrangement of the several parts of the device, it is to be understood that the same are susceptible of considerable modification therein and we, therefore, reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

Having thus fully described the invention, what is desired to claim and secure by Letters Patent is:—

The combination with a dumb waiter and a door to close the shaft thereof, of a cylinder arranged in the dumb waiter shaft, a piston to reciprocate in said cylinder operatively connected to the dumb waiter, a water supply pipe connected to the lower end of the cylinder, a valve interposed in the supply pipe, a discharge pipe connected to said valve, a rod connected to the valve and extending upwardly in the shaft, the upper end of said rod being angularly disposed, and a bracket fixed upon the door to which the angular end of the rod is slidably connected, said rod being rotated when the door is opened to operate the valve and establish communication between the supply pipe and the cylinder whereby the dumb waiter is moved upwardly in the shaft, such communication being cut off when the shaft door is closed and communication opened between the cylinder and the discharge pipe whereby the water is discharged from the cylinder and the dumb waiter permitted to drop by gravity in the shaft.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

ERVIN H. REICHARD.
FRANCIS H. HARROLD.

Witnesses:
W. E. SMALL,
HAROLD ADAMS.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**