No. 672,641. Patented Apr. 23, 1901.

L. HIRT.

DEVICE FOR CLOSING DISCHARGE ORIFICES OF VESSELS.

(Application filed Oct. 11, 1900.)

(No Model.)

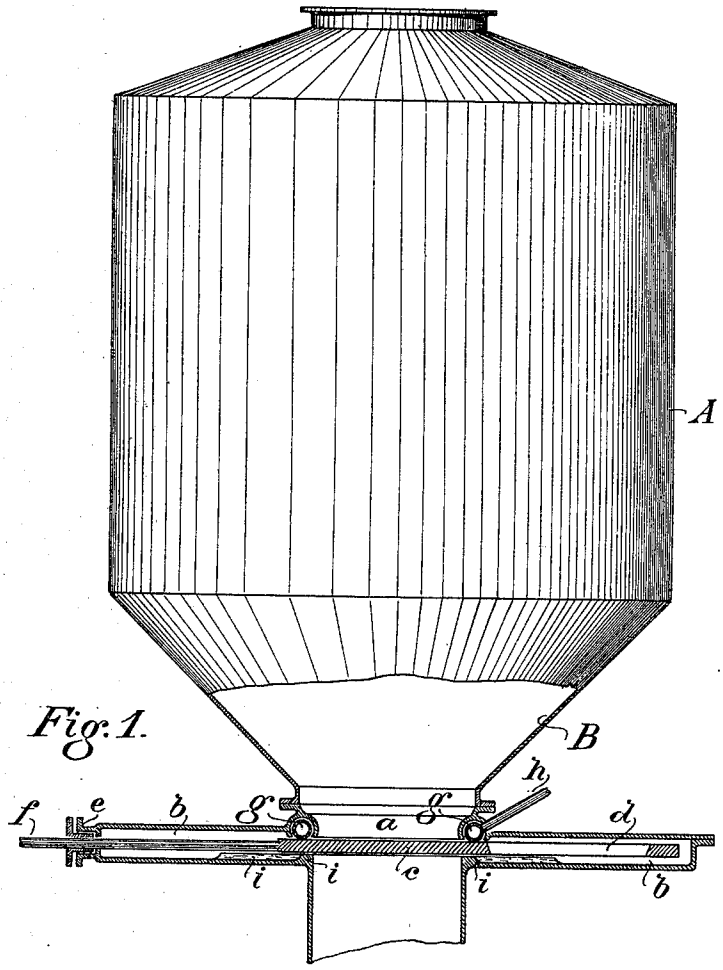


Fig. 1.

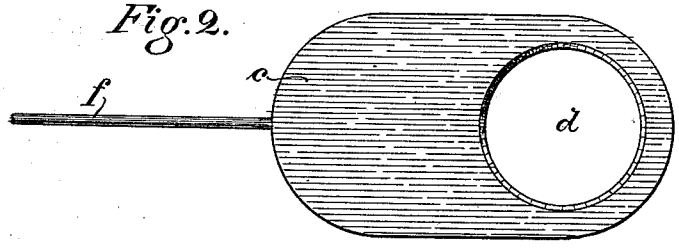


Fig. 2.

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UNITED STATES PATENT OFFICE.

LUDWIG HIRT, OF GREVENBROICH, GERMANY, ASSIGNOR TO MASCHINEN-FABRIK GREVENBROICH, VORMALS LANGEN & HUNDHAUSEN, OF SAME PLACE.

DEVICE FOR CLOSING DISCHARGE-ORIFICES OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 672,641, dated April 23, 1901.

Application filed October 11, 1900. Serial No. 32,786. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG HIRT, engineer, a subject of the King of Prussia, Emperor of Germany, residing at Grevenbroich, Rhine Province, Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Devices for Closing Discharge-Orifices of Vessels, of which the following is a specification.

My invention relates to certain new and useful improvements in devices for closing the discharge-orifices of a diffusion apparatus or other vessels or receptacles; and my invention has for its object to provide a closing device of the type named adapted to allow of an easy and rapid opening and closing of the outlet-opening and to make a perfectly-tight joint when closed.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a vessel fitted with the closing device, and Fig. 2 a plan view of the closing device or slide.

A is a vessel of any suitable form. In the example shown this vessel has a conical bottom B, which facilitates the discharge of the contents of the vessel. A flat slide-casing *b* is fixed in front of the discharge-orifice *a* of the vessel A, in which casing is adjustably arranged a slide *c*, provided with an opening or passage *d*. This slide is connected with a rod *f*, which passes through a stuffing-box *e* outside the casing, by means of which the slide may be moved in a suitable manner, either directly or by means of a screw, lever, or the like. The slide works over guides or slide-bars *i* on the floor of the slide-casing, and its lateral movement is prevented by means of guides. (Not shown in the drawings.) An inflatable tube *g* is permanently located in an annular recess formed in the inner face of the slide-casing cover surrounding the discharge opening or outlet *a* of the vessel. The said tube *g* may be inflated through a connection *h* by means of a fluid under pressure (compressed air, gas, or other fluid) in such a way that the tube is caused to project into the slide-casing.

For closing the opening of the vessel the slide is moved by means of the rod *f* in such a way that its surface comes opposite the outlet *a*. The fluid under pressure is then introduced through *h* into the tube *g*, so that this latter is pressed against the slide and produces a tight joint. If the vessel is to be emptied, the fluid under pressure is allowed to escape, whereby the pressure is removed, and the tube *g* resumes its original contracted form and no longer presses firmly on the slide, and therefore no longer prevents its movement. The slide may then be adjusted so that its opening *d* comes opposite the outlet *a*.

I claim as my invention—

1. In a device of the character described, the combination with the discharge-orifice of a vessel, of a closure-slide provided with an opening adapted to register with said orifice, a rod connected to said slide for operating the same, and an inflatable packing surrounding said orifice and engaging said slide for forming a tight joint when the opening of the slide is away from the orifice.

2. In a device of the character described, the combination with the discharge-orifice of a vessel, of a casing connected to the wall of the orifice, a slide operating in said casing for closing said orifice, guides for the said slide and an inflatable packing arranged in said casing and engaging said slide for forming an air-tight joint when the orifice is closed.

3. In a device of the character described, the combination with the discharge-orifice of a vessel, of a casing connected to the walls of said orifice, a slide operating in said casing and provided with an opening adapted to register with said orifice, a rod connected to said slide for operating the same, and an inflatable packing surrounding said orifice and adapted to form a tight joint when the opening of the slide is away from the orifice.

4. In a device of the character described, the combination with the discharge-orifice of a vessel, of a casing projecting from the wall of said orifice, a slide provided with an opening, operating within said casing and adapted

to open and close said orifice, guides arranged in the casing for said slide, a rod connected to said slide for operating the same, and an inflatable packing arranged in said casing for forming an air-tight joint when the orifice is closed by said slide.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LUDWIG HIRT.

Witnesses:
WM. ESSENWEIN,
LAURA LIEBER.