

No. 612,627.

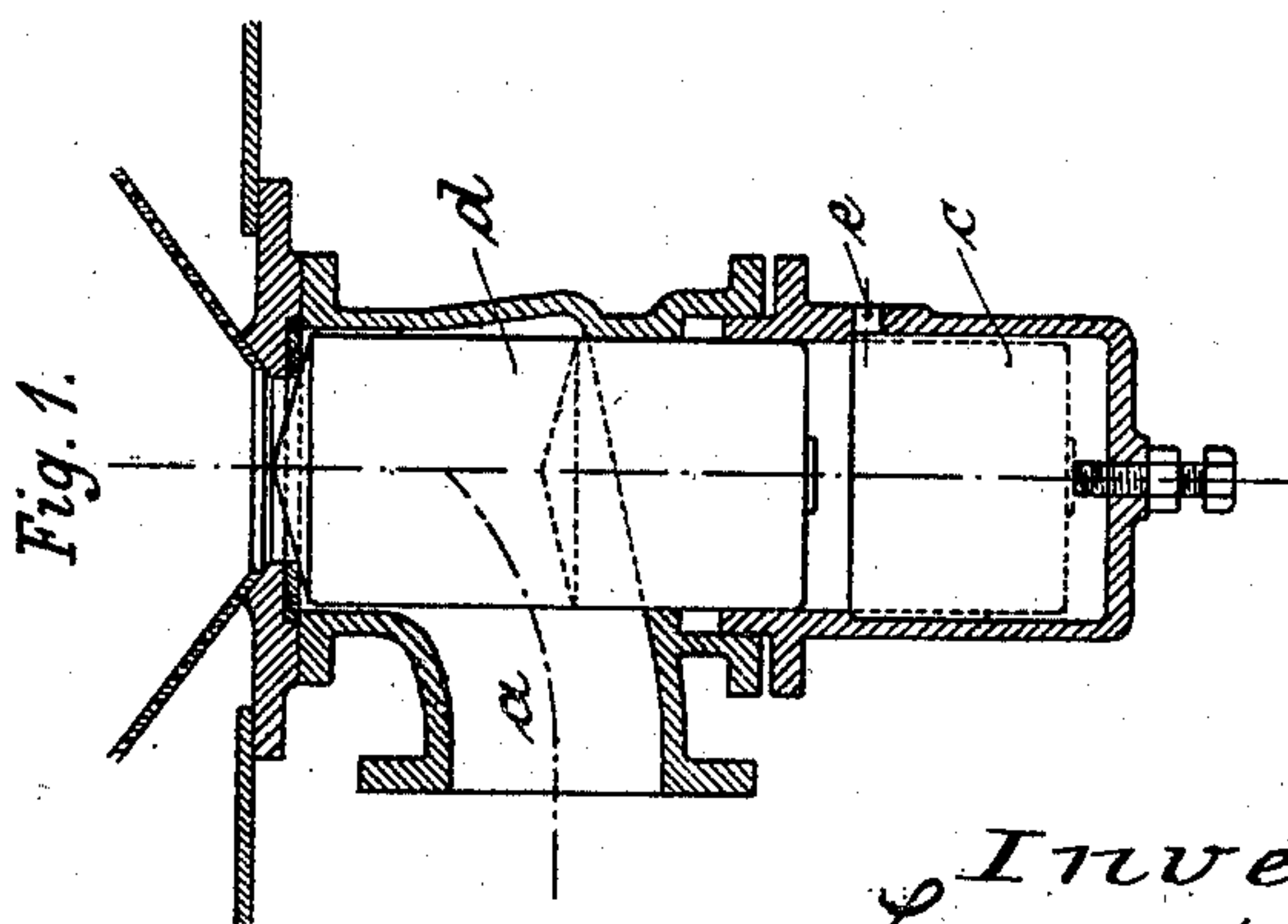
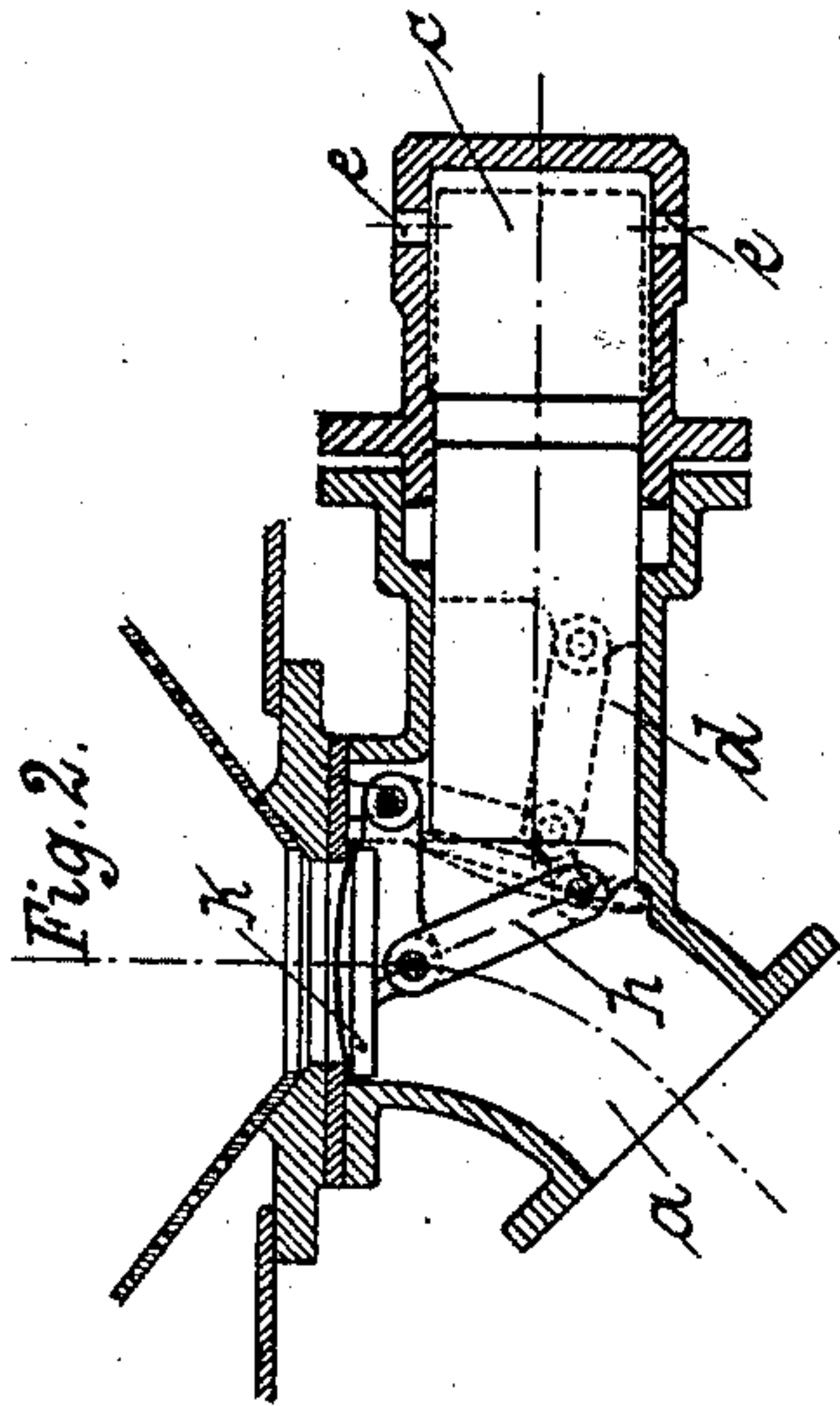
Patented Oct. 18, 1898.

L. HIRT.

CLOSING DEVICE FOR DISCHARGE OPENINGS OF RECEPTACLES.

(Application filed Apr. 26, 1898.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

LUDWIG HIRT, OF GREVENBROICH, GERMANY, ASSIGNOR TO THE MASCHINENFABRIK GREVENBROICH, VORMALS LANGEN & HUNDHAUSEN, OF SAME PLACE.

CLOSING DEVICE FOR DISCHARGE-OPENINGS OF RECEPTACLES.

SPECIFICATION forming part of Letters Patent No. 612,627, dated October 18, 1898.

Application filed April 26, 1898. Serial No. 678,888. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG HIRT, a subject of the Emperor of Austria-Hungary, residing at Grevenbroich, Rhenish Prussia, Germany, have invented Improvements in Closing Devices for Discharge-Openings of Receptacles, of which the following is a specification.

This invention relates to closing devices for the discharge-openings of receptacles.

In providing for the discharge of the contents of receptacles having a lower discharge-opening it is an advantage to so adapt the closing device for the said discharge-opening that the said device will rapidly and thoroughly withdraw from the said opening, and thus completely expose the latter. In the closing devices heretofore generally employed for this purpose the opening and closing of the discharge are usually effected by means of a piston or plunger operated by any suitable pressure medium, such as steam, water, air, and the like. In devices of this class it has been found difficult, however, to prevent the contents of the receptacle from entering the pressure-cylinder. It has been found necessary to provide stuffing-boxes, but these have proven an inconvenience in the practical working of such devices.

The object of this invention is to provide improved means for avoiding these difficulties and inconveniences; and the invention, therefore, consists in a closing device adapted to be operated by the pressure of air, gas, or of some suitable liquid, and so constructed that the pressure-cylinder will be closed so as to prevent the admission of liquid thereinto from the discharge-duct, this being effected by so adapting the flap or valve or other part which closes the discharge-opening of the respective receptacle that the said flap or valve or other part will, in the opened position, cover the mouth of the pressure-cylinder, and thereby keep off the outflowing liquid.

In the accompanying drawings, Figures 1 and 2 are vertical central sections illustrating the improved device.

In Fig. 1, *a* is a short pipe or elbow provided at the bottom of a receptacle for the

discharge of the liquid therefrom. This pipe or elbow has the improved closing device combined with it, the latter, as shown, consisting of the cylinder *c*, having the plunger or piston *d* movable therein and being provided with an inlet *e* for the admission of a suitable pressure medium. By the latter the plunger or piston *d* is normally held pressed against the discharge-opening of the receptacle, so as to directly close the same. A three-way cock in the conduit connected at *e*, but not shown in the drawings, may be employed for controlling the admission and discharge of the pressure medium.

In emptying the receptacle the pressure medium of the closing device is allowed to escape, thus causing the plunger or piston *d* to be automatically lowered and to thereby expose the discharge-opening. The plunger or piston thereby itself fills the space within the cylinder *c*, so that in the position shown in dotted lines the contents of the receptacle will be allowed to freely escape through the pipe *a*, but not to enter the cylinder *c*.

In the construction shown in Fig. 2 the closing part consists of a flap *k*, connected by a lever *h* with the plunger or piston *d* of the pressure-cylinder *c*, the latter here being supposed to extend in a horizontal direction. When the pressure medium is allowed to escape, the excess of pressure acting from within the receptacle will cause the flap, together with the plunger or piston, to be pushed back, thereby opening the discharge. At the same time the flap *k* will arrive in front of the mouth of the cylinder and close the same, as shown in dotted lines in Fig. 2, thus completely locking and separating the cylinder-space from the discharge-duct *a*.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A closing device operated by piston under pressure and intended for use in receptacles having a lower discharge, the said device being characterized in that the closing organ, in the opened position, closes the pressure-cylinder toward the discharge-duct, substantially as and for the purpose described.

2. A closing device operated by piston un-

der pressure and intended for use in receptacles having a lower discharge, the said device being characterized by a piston or plunger movable within a pressure-cylinder and adapted with its end face to close the discharge-opening, the said piston or plunger, even in the opened position, taking up the space within the pressure-cylinder to such an extent as to thereby prevent the entrance therein of any liquid from the discharge-duct, substantially as described.

3. A closing device operated by piston under pressure and intended for use in receptacles having a lower discharge, the said device

being characterized in that the piston is connected by a lever mechanism with the closing organ (such as the flap *k*), the latter in the opened condition of the receptacle acting to close the mouth of the pressure-cylinder toward the discharge-duct, substantially as described.

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

LUDWIG HIRT.

Witnesses:

WM. ESSENWEIN,
JOH. BERKEY.