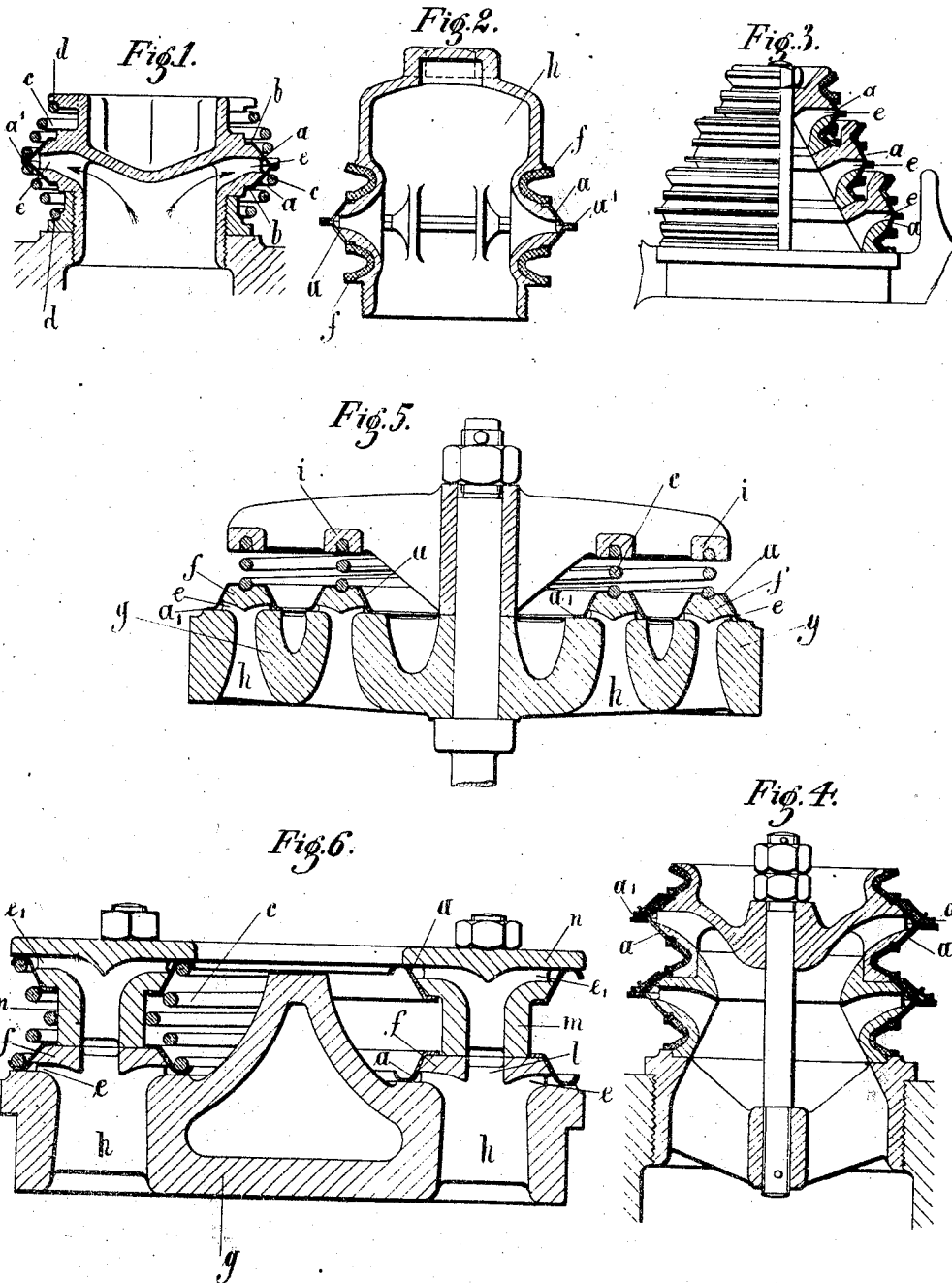


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SELF ACTING VALVE FOR PUMPS AND SIMILAR DEVICES.
APPLICATION FILED DEC. 31, 1908.

1,027,587.

Patented May 28, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

PAUL BRENNER AND OTTO HOFFMANN, OF DUISBURG, GERMANY.

SELF-ACTING VALVE FOR PUMPS AND SIMILAR DEVICES.

1,027,587.

Specification of Letters Patent.

Patented May 28, 1912.

Application filed December 31, 1908. Serial No. 470,146.

To all whom it may concern:

Be it known that we, PAUL BRENNER and OTTO HOFFMANN, citizens of the German Empire, both residing at Walzenstrasse No. 52, Duisburg, in the Province of Rhineland and Kingdom of Prussia, Germany, have invented new and useful Improvements in Self-Acting Valves for Pumps and Similar Devices, of which the following is a specification.

The object of the present invention is a self-acting valve for pumps, blowing machines and compressors the closing-member of which is arranged and shaped in such a manner, that its free play is not checked by the current of the liquid passing through, that it is light, that is to say, practically non-bulky and requires but a slight spring-load, offering consequently only a minimum of resistance to the passage of the liquid.

In the accompanying drawing, in which similar letters refer to similar parts throughout the several views, different forms of embodiment are represented in the Figures 1 to 6, all of which show the new valve in longitudinal section.

In the form of construction of the Fig. 1, the closing-member consists of two rigid ring-shaped organs or lips *a* made of thin sheet-metal, such as brass- or steel plate. Rings *a*, are flaring in cross section and are provided with upper and lower flanges *a'*, extending in opposite directions, each ring engaging a corresponding annular shoulder or abutment *b* of the valve casing. The organs are pressed by means of coil-springs *c*, which on the one hand bear against flange *d* or a similar contrivance of the valve chamber or pump body and on the other hand against the rims *a'* of the organs *a*, on the surfaces *b*, and their rims *a'* are pressed into close engagement, by which means they shut up an annular slit *e* provided in the valve chamber. The annular slit *e* is shaped in such a way, that the current of the liquid, passing in the direction of the arrow, is caused to pass, practically without friction nor contraction, from the axial into the radial direction, and the current of the liquid is not subject to any further turning aside, when issuing between the rims *a'* of the parts *a* because of the fact that these, yielding in upward and downward direction, allow the disk of the liquid to traverse unchecked.

In the form of embodiment, shown in Fig.

2, the closing capacity of the bipartite closing member *a* is effected by two india rubber rings *f* of V-shaped cross section, which are inserted, so as to exert a slight strain into correspondingly fashioned slots of the valve chamber and the two members are closely pressed with their rims *a'*, against each other. The upper part of the valve chamber forms an air cap *h*. This arrangement has a great influence in view to obtain a steady operation free from shocks of rapidly rotating pumps, increasing their height of suction, as the quantity of water to be accelerated at each stroke, is strongly reduced.

Fig. 3 shows a form of construction of the valve in which the valve chamber is shaped as a cone and carries several annular slits or outlet-passages *e* and closing members *a* arranged above one another.

In the form of embodiment shown in Fig. 4, one part of the closing-member *a* is made at its rim *a'* of leather or similar material which is held in place between two metal rings. This arrangement serves the purpose to secure a tight lock even in the case of dirty liquids.

In Fig. 5 a blower-valve is shown in which ring-shaped members *f* are placed above the exit-passage in such a manner, that between them and the cast body *g* annular slits *e* remain. The members *f*, which can be carried by means of ribs of the cast bodies *g* are embraced by the ring-shaped closing members *a* having an inverted V-shaped cross section and being pressed with their rims *a'* by means of coil springs *c*, which at their top bear on abutments *i*, against the cast bodies *g*.

In the form of construction of the Fig. 6 the ring shaped member *f* arranged above the ring-passage or -chamber *h* is provided with an opening for the passage or a slit *l*, and above it a member *m* provided with a passage is arranged and above this a ring plate *n* in such a way, that betwixt the plate and the member *m* annular slits *e'* are left, embraced in the same manner like the annular slit *e* by ring-shaped closing devices *a* above the correspondingly fashioned body *m*. The closing-devices *a* are pressed against the body *g* and the plate *n* by means of springs *c*, which on the one hand bear against the bottom and on the other hand against the top closing members.

We claim:—

1. A device of the character described,

comprising a casing having an axially disposed inlet port and an annular circumferential outlet port, said casing being provided with a beveled flange at said outlet
5 port, a rigid annulus freely movable in an axial direction and adapted to engage said flange, and a spring encompassing the casing and made in a separate piece from said annulus, said spring engaging said casing
10 and also said annulus, whereby said annulus is adapted to be projected across the outlet port and to recede therefrom without being subjected to bending strain.

2. A device of the character described, comprising a grooved valve casing having a 15 discharge slit, a pair of annular lips projecting beyond said slit and movable substantially at right angles to the outflowing liquid current, and flexible rings seated in the casing-grooves and engaging the lips.

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