

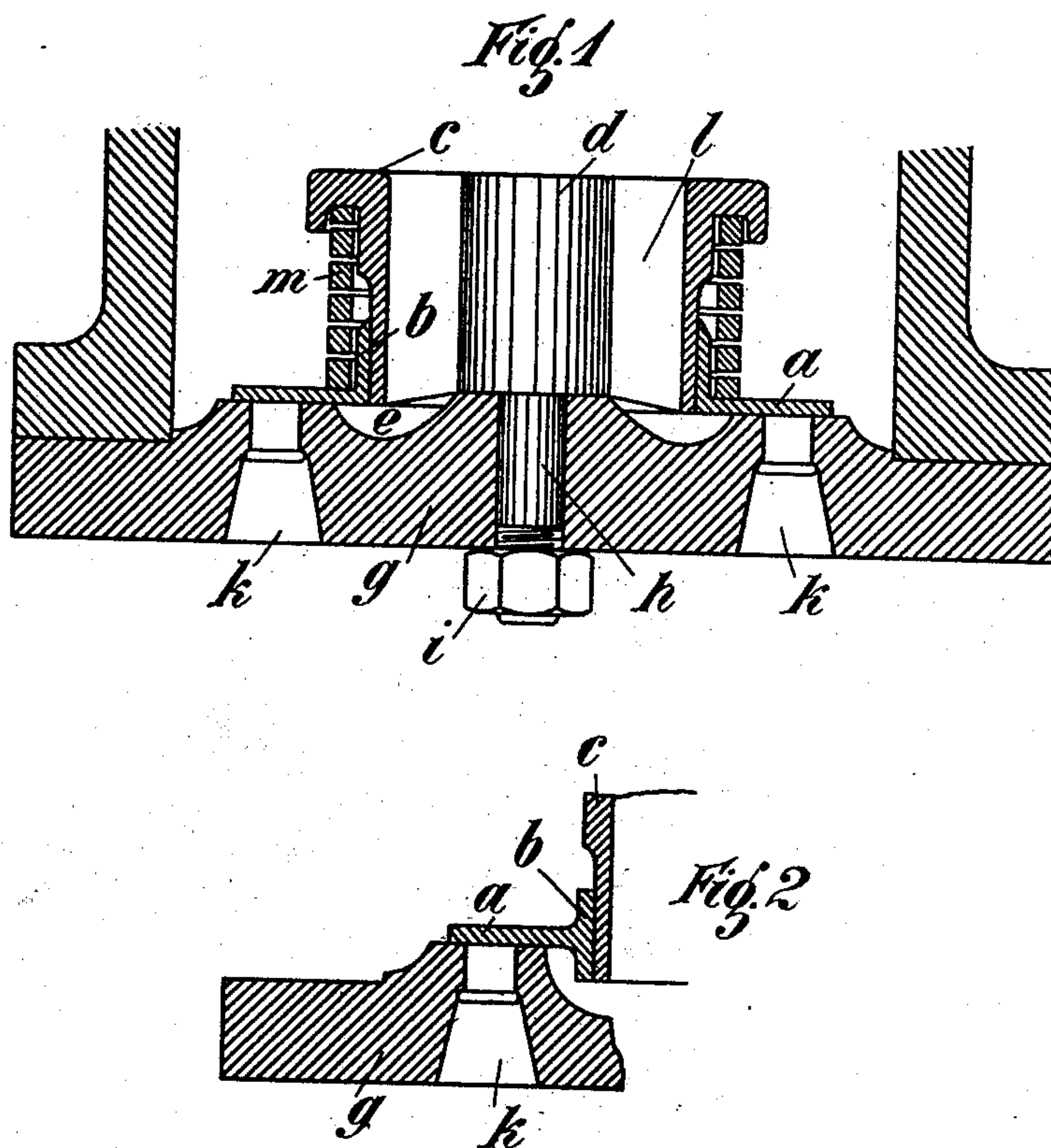
No. 717,365.

Patented Dec. 30, 1902.

L. EHRHARDT.
VALVE.

(Application filed Apr. 14, 1902.)

(No Model.)



Witnesses:
E. Krasnash
L. Waldman.

Inventor:
Ludwig Ehrhardt
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UNITED STATES PATENT OFFICE.

LUDWIG EHRHARDT, OF MALSTATT-BURBACH, GERMANY, ASSIGNOR OF
ONE-HALF TO THEODOR SEHMER, OF MALSTATT-BURBACH, GERMANY.

VALVE.

SPECIFICATION forming part of Letters Patent No. 717,365, dated December 30, 1902.

Application filed April 14, 1902. Serial No. 102,872. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG EHRHARDT, civil engineer and manufacturer, a subject of the King of Prussia, German Emperor, residing at No. 50 St. Johannerstrasse, Malstatt-Burbach, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Valves, of which the following is a specification.

10 This invention relates to a valve especially applicable for pumps in which the valve proper consists of an annular plate, the seat for which extends on both sides of an annular row of apertures. In the known valves
15 of this kind the annular valve-plate has been guided either by a central stem or by a number of ribs; but in my novel construction the annular valve-plate is guided by a tube, and its inner edge is also provided with a short
20 perpendicular tube, forming an annular sleeve that takes around said first-mentioned tube or guide-tube and is adapted to glide along said guide-tube. The latter is elongated in downward direction or in the direction of the valve-
25 seat in such a manner that the proper guidance is maintained also when the valve proper is closed. By constructing the valve in this manner I obtain a most perfect guidance for the valve proper or annular valve-plate, irrespective of whether the valve is employed in
30 horizontal or vertical position, and the wear and tear of the parts along which the guidance takes place is practically absolutely uniform, there being no parts—such, for instance, as ribs—which are liable to undergo
35 a one-sided friction.

In order to make my invention more clear, I refer to the accompanying drawings, in which similar letters denote similar parts
40 throughout both views, and in which—

Figure 1 is a cross-section through a valve constructed according to my invention, and Fig. 2 is a section through some parts of a slightly-modified form of construction.

45 The annular valve-plate or valve proper, *a*, has at its inner edge a guide-sleeve *b*, extending either only upward, as in Fig. 1, or upward and downward, as in Fig. 2. The guide-sleeve *b* takes around a cylindrical tubular
50 body *c*, the lower edge of which is in one plane with the seat proper of the valve, and the seat-plate *g*, to which the body *c* is secured by means of a central stem *d*, a bolt *h*, and a nut *i*, is provided below the edge of the guide-body

c with an annular groove *e*, through which 55 the water may pass from the annular row of apertures *k* of the seat-plate *g* to the channels *l* in the guide-body *c d*, the parts *c* and *d* being of course connected with each other by radial ribs or the like. 60

The valve *a* is pressed down upon its seat, which extends on both sides of the mouths of the annular row of apertures *k*, by a spring *m*, which is compressed when the valve is forced off its seat under the action of the 65 pump. The whole arrangement is such that the valve may open and close very quickly, as is necessary in the high-speed pumps of modern construction, in which the stroke of the valve is but short, whereas the number 70 of strokes is great.

Having now described my invention, what I desire to secure by a patent of the United States is—

1. In a pump-valve, the combination with 75 an annular valve-plate, of a guide-sleeve extending perpendicularly to the plane of said plate, a seat-plate and valve-seat, a cylindrical guide-tube and fluid-conduit located centrally with respect to the valve-plate, and 80 having its lower edge terminating in a plane with the valve-seat, an annular row of apertures through the seat-plate, an annular groove provided in the seat-plate directly beneath the lower edge of the guide-tube, and 85 inside of the row of apertures, and means for connecting said tube with the seat-plate, as set forth.

2. In a pump-valve, the combination with 90 an annular valve-plate, of an annular guide-sleeve extending perpendicularly to the plane of said plate upward as well as downward, a seat-plate, an annular groove in the said seat-plate below said annular sleeve, means for connecting said sleeve with the seat-plate, an 95 annular row of apertures through said seat-plate outside said annular groove, a valve-seat extending on both sides of said row, and an annular guide-tube having its lower part extending down to the plane of the valve- 100 seat and terminating centrally of said groove.

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

LUDWIG EHRHARDT.

Witnesses:

GEORG KNAPPE,
JEAN GRUND.