

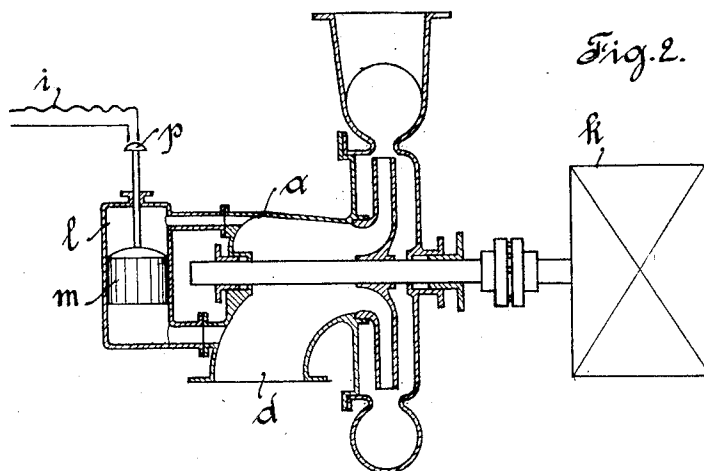
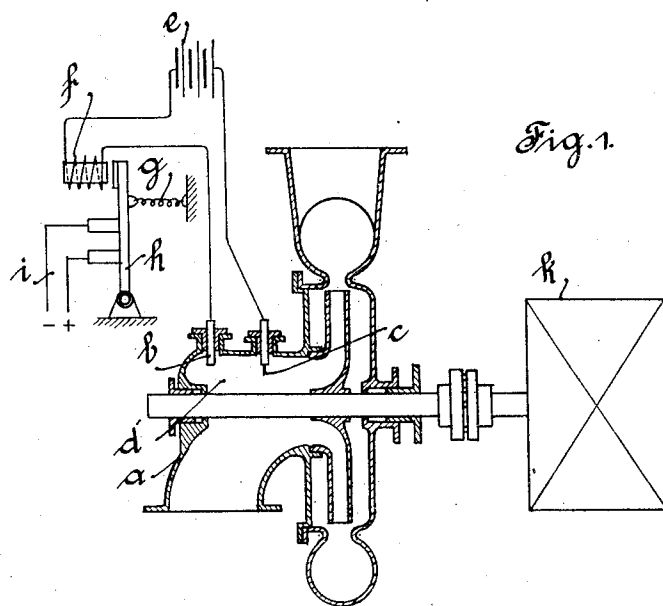
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SAFETY DEVICE FOR CENTRIFUGAL PUMPS

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UNITED STATES PATENT OFFICE.

PETER IBACH, OF KONIGSWINTER, GERMANY.

SAFETY DEVICE FOR CENTRIFUGAL PUMPS.

Application filed October 15, 1921. Serial No. 507,938.

To all whom it may concern:

Be it known that I, PETER IBACH, a German citizen, residing at Konigswinter, Germany, have invented certain new and useful Improvements in Safety Devices for Centrifugal Pumps, of which the following is a specification.

My invention relates to a safety device for centrifugal pumps.

10 In the operation of such pumps, there is the danger of the pumps sticking and being damaged when they get empty owing to an untight suction valve, drawing in of air, too high suction head or the like.

15 According to my invention, the pump is stopped or prevented from starting as soon as this danger occurs. To this end I provide a switching device connected with the engine driving the pump, such as an electro-
20 motor, the position of such engine being controlled by the liquid level in the pump casing. In the casing, or in a subsidiary chamber connected with it, I provide a float or a contacting device which is influenced
25 by the water level. This device, controls the engine driving the pump either directly or indirectly. By means of this device I may close or open the circuit of an electro-
30 motor, operate the starting valve of an engine other than an electromotor, actuate a coupling or a belt shifter and the like.

In the drawings affixed to this specification and forming part thereof, two embodiments of my invention are illustrated
35 diagrammatically by way of example. In the drawings—

Fig. 1 is a section of a pump provided with a contacting device,

40 Fig. 2 is a similar view of a pump provided with a float.

Referring first to Fig. 1 the ends *b*, *c* of two insulated leads are arranged in the casing *a* of a centrifugal pump adjacent to the suction chamber *d*. In the circuit to
45 which the leads are connected, there are inserted a source of current *e* and an electromagnet *f*. The armature *h* of this electromagnet, which is acted upon by a spring *g*, forms a switch for the circuit *i* of the
50 electromotor *k*.

Current will be supplied to the motor *k* only as long as the terminals *b*, *c* are electrically connected by the liquid in casing *a*. As soon as the electromagnet *f* is de-energized owing to the water level in the casing sinking, the armature *h* will be with-
55 drawn by spring *g*, thereby breaking the circuit *i* of the motor.

Referring now to Fig. 2, a float chamber *l* is connected with the suction chamber *d* of casing *a*. In this chamber there is provided a float *m* on the rod *o* of which there is disposed a contact piece *p*. When the casing *a* and the chamber *l* are filled with liquid, the circuit *i* of the motor *k* is closed,
65 whereas when the water in the casing sinks, the circuit will be opened and the current interrupted. The float might also be employed for directly operating a controlling valve of an engine, a coupling or the like,
70 or for releasing a drop weight, which disconnects the engine.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person
75 skilled in the art.

I claim:

1. In a pumping plant in combination, a centrifugal pump and a motor operatively connected therewith, a pump chamber and a switching device adapted to be influenced by the liquid level in said chamber for preventing said motor from running.

2. In a pumping plant in combination, a centrifugal pump and a motor operatively connected therewith, a pump chamber, means for supplying said motor with energy and a switching device adapted to be influenced by the liquid level in said chamber
85 for cutting off said supply.

3. In a pumping plant in combination, a centrifugal pump and a motor operatively connected therewith, a pump chamber and an electric circuit for supplying said motor with current, said circuit being kept closed
90 by the liquid in said chamber.

4. In a pumping plant in combination, a centrifugal pump and a motor operatively connected therewith, a pump chamber, a
100

float in said chamber and means connected with said float for preventing said motor from running.

5 5. In a pumping plant in combination, a centrifugal pump and a motor operatively connected therewith, a pump chamber, a float in said chamber, an electric circuit for

supplying said motor with current and means connected with said float for opening and closing said circuit, respectively. 10

In testimony whereof I affix my signature.

PETER IBACH.