R. J. GOULD.

Valves for Pumps.

No. 157,963. Patented Dec. 22, 1874.

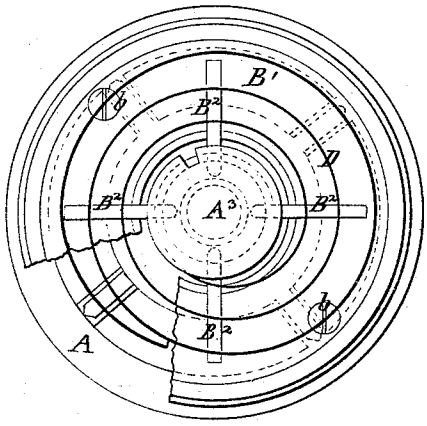

Fig: 1.

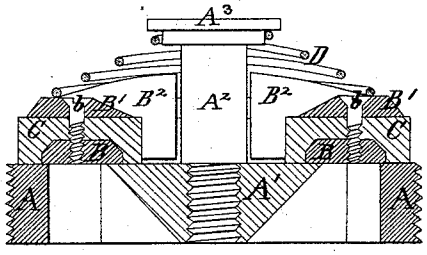

Fig: 2.

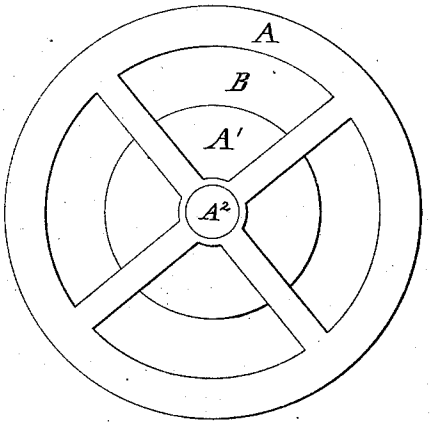

Fig: 3.

Witnesses:

M. A. Van Namee

Inventor:

R. J. Gould,

by his attorneys T. & L. Stetson.

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UNITED STATES PATENT OFFICE.

ROSCOE J. GOULD, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN VALVES FOR PUMPS.

Specification forming part of Letters Patent No. **157,963**, dated December 22, 1874; application filed November 19, 1874.

To all whom it may concern:

Be it known that I, R. J. GOULD, of Newark, in the State of New Jersey, have invented certain Improvements Relating to Valves for Pumps and Analogous Situations, of which the following is a specification:

The valve is more particularly intended for use in steam fire-engines, where a quick action and very heavy pressure are employed, but may be used with advantage in many other situations.

I construct a ring-valve substantially of metal, but with a packing or narrow bearing-surface of elastic material projecting a little beyond the face, and very securely united to the valve, so as to form a part thereof. When the valve is lifted the water passes freely both on the inner and outer edge. The ring works as a puppet-valve, and is guided by four or other number of narrow arms or webs reaching inward from the valve to be guided by a stem, which latter may be fixed on the seat. As I apply the valve in steam fire-engines I have a removable seat, and a stout head on the guiding post or pin set therein, which serves as an abutment for a coiled spring of hard brass or other suitable material.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a plan view of the valve, with its seat, guiding-stem, and spring complete, a portion of the valve being cut away to show the seat. Fig. 2 is a central vertical section through the same parts. Fig. 3 is a plan view from below.

Similar letters of reference indicate like parts in all the figures.

A is the lower portion, and A^1 the central portion, of a seat, which is formed with a screw-thread on its exterior, adapting it to be inserted in a correspondingly-threaded aperture in the pump. (Not represented.) Narrow webs or arms connect the rim A with the center A^1. B is a ring, of brass or other strong and hard material, of a sufficient width to cover the annular water-space between the parts A and A^1. B^1 is a wider ring; and *b* are screws, which fix the rings B and B^1 in the positions represented. C is a ring of vulcanized rubber, held firmly between the rings B and B^1, and presenting its lower edges to touch on the parts A and A^1, respectively, when the valve comes to its seat. B^2 are arms, extending inward from the part B^1, and touching lightly the sides of a fixed pin, A^2, which is set in the part A^1, and has a head, A^3, formed with an offset, as represented, and adapted to serve as an abutment for a coiled spring, D, which presses on the outer surface of the ring B^1.

In the use of the valve nearly the entire annular space between the parts A and A^1 is available for the active flow of the water when the valve is lifted, the current dividing to pass the valve, a portion passing inwardly and up through the aperture between the valve and the stem A^2, while another and larger portion passes up outside of the valve. I refer, as the valve, to the compound ring formed by the parts B B^1 *b*, with the rubber packing C and guides B^2, or some suitable guiding means, equivalent in effect to the arms B^2, which latter are deep but narrow, so as to offer but little resistance to the movement of the water. The valve can rise until the arms B^2 strike the under side of the head A^3. The coiled spring D stands within, in a volute form, with its coils nearly in a plane. When the valve closes the spring D assumes a conical form, as indicated. In striking its seat the rubber packing C touches the seat first, and is compressed or driven upward a little, after which the metal part B strikes and bears firmly. I consider this metal as performing the main functions of the valve. The rubber C is only a packing to increase the tightness, and to somewhat soften the blow upon the seat.

The screws *b* allow the metal rings B and B^1 to be set together with any required degree of firmness. The construction holds the rubber packing C beyond any possibility of displacement.

I claim as my invention—

1. A valve having a metallic face with flexible packing on its edge, adapted to serve therewith as and for the purposes herein specified.

2. The annular-formed valve B B^1 *b* and guiding means B^2 A^2, in combination with the seat A A^1, having an annular water-passage and a rubber packing-ring, C, secured substantially in the manner and for the purposes specified.

In testimony whereof I have hereunto set my hand this 17th day of November, 1874, in the presence of two subscribing witnesses.

ROSCOE J. GOULD.

Witnesses:
WM. C. DEY,
M. A. VAN NAMEE.