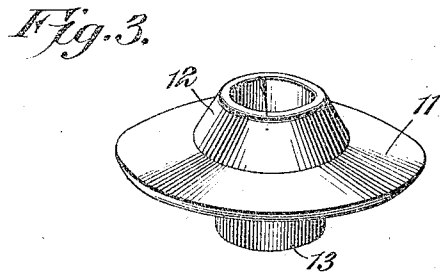
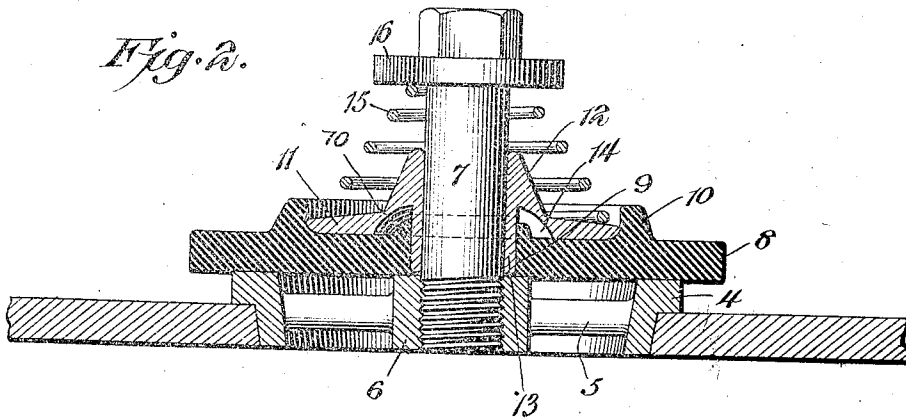
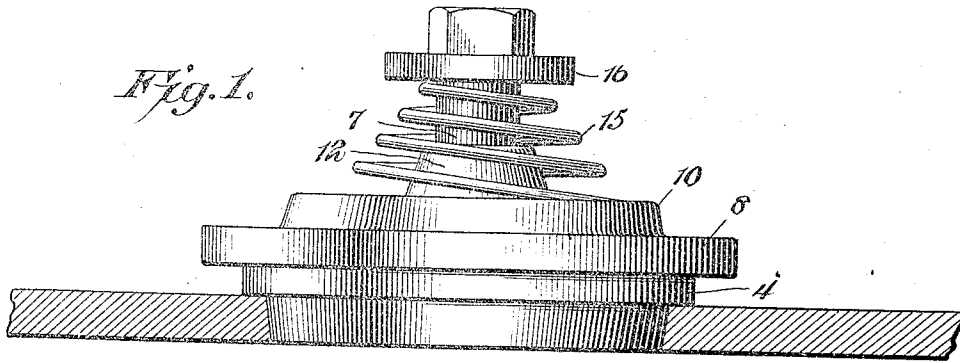


No. 828,036.

PATENTED AUG. 7, 1906.

R. F. LINDSAY.
VALVE PROTECTOR.
APPLICATION FILED JUNE 24, 1905.



Witnesses

Howard D. Orr

B. A. Fort

R. F. Lindsay, Inventor,

By

E. G. Siggers

Attorney

UNITED STATES PATENT OFFICE.

ROBERT F. LINDSAY, OF GREENVILLE, SOUTH CAROLINA, ASSIGNOR OF
ONE-HALF TO J. M. HOGAN, OF GREENVILLE, SOUTH CAROLINA.

VALVE-PROTECTOR.

No. 828,036.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed June 24, 1905. Serial No. 266,786.

To all whom it may concern:

Be it known that I, ROBERT F. LINDSAY, a citizen of the United States, residing at Greenville, in the county of Greenville and State of South Carolina, have invented a new and useful Valve-Protector, of which the following is a specification.

This invention relates to improvements in valves for condensers, pumps, and the like.

The principal object is to provide a novel protector for the valve member, said protector being a simple article of manufacture which will eliminate the wearing of the valve by the spring and guide-stud and providing an elongated bearing for said stud in order to procure an easier action for the valve; said protector, moreover, being associated with the valve in such a manner that it will not materially interfere with the resilience and proper seating qualities thereof.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the valve and its mounting. Fig. 2 is a sectional view therethrough. Fig. 3 is a detail perspective view of the protector.

Similar reference-numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated a valve-seat 4 is employed having a spider 5, provided with a central boss 6, in which is threaded the usual guide-stud 7. Coöperating with the valve-seat is a valve 8, slidably mounted on the stud and comprising a rubber or yielding disk having a central opening 9, through which the stud 7 passes, being furthermore provided on its outer side with annular ribs 10, concentric to the opening.

A protector for the valve 8 is employed and comprises a discal body 11, of brass or other suitable metal, said body being arranged against the outer face of the valve and fitting within the outer annular rib. The outer side of the said discal body is provided with an integral outstanding conical projection 12, which is hollow, said projection carrying an integral collar 13, which collar extends axially beyond the side of the body 11 opposite to the said projection 12. As a result an annular groove or seat 14 is formed in the inner side of the protector-body 11, said seat receiving the inner annular rib 10 of the valve 8, the

projecting portion of the collar 13 being located in the opening 9 of the valve. Said collar and projection 12 have a common bore that receives the guide-stud 6, forming an elongated slide-bearing therefor. A conical coiled spring 15 surrounds the outer portion of the stud, its outer end bearing against the annular flange 16 thereof, its inner end bearing against the outer face of the protector-body 11.

It will be observed by reference to Figs. 2 and 3 that the protector is a simple article of manufacture that can be readily and cheaply made and easily applied to the valve. At the same time it thoroughly protects the valve against wearing by the guide-stud and spring, also providing an elongated bearing on the stud that secures an easier movement of the valve. The protector, furthermore, as it terminates short of the outer margins of the valve does not materially interfere with the yielding action and proper seating qualities thereof. Experience has demonstrated that the valves which have heretofore been discarded as worn out can be reemployed in connection with the protector and will operate as satisfactorily as new valves. Consequently it will be apparent that the lives of the valves are greatly prolonged.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. As an article of manufacture, a valve-protector comprising a spring-abutment disk body having an outstanding centrally-disposed conical projection on one side and a guide-collar projecting from the opposite side, said conical projection and collar having a common bore to receive a guide-stud and thereby forming an elongated bearing for the same and said collar being arranged to engage in the opening of the valve, the under side of the body being furthermore provided with an annular valve-rib-receiving

groove or seat that surrounds the collar and extends into the conical projection.

2. In a valve-protector, the combination with a valve-seat, of a guide-stud projecting therefrom, a yielding valve cooperating with the seat and having an opening through which the stud passes, said valve having an annular rib on its outer side around the opening, a protector comprising a discal body arranged against the outer side of the valve, a central outstanding hollow conical projection carried by the outer side of the disk, a guide-collar carried by the inner portion of the projection and extending beyond the inner side of the disk, said projection and collar sur-

rounding the guide-stud and constituting an elongated bearing therefor, and said collar fitting in the valve-opening and the rib of the valve engaging in the hollow portion of the conical projection, and a spring mounted on the stud, said spring surrounding the conical projection and bearing against the outer side of the protector-body. 20

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 25

ROBT. F. LINDSAY.

Witnesses:

J. B. BURGARD.

C. H. ROBERTSON.