G. F. ROWE.

ESCAPE VALVE FOR PULP DIGESTERS.

APPLICATION FILED DEC. 3, 1908.

921,741. **Patented May 18, 1909.**

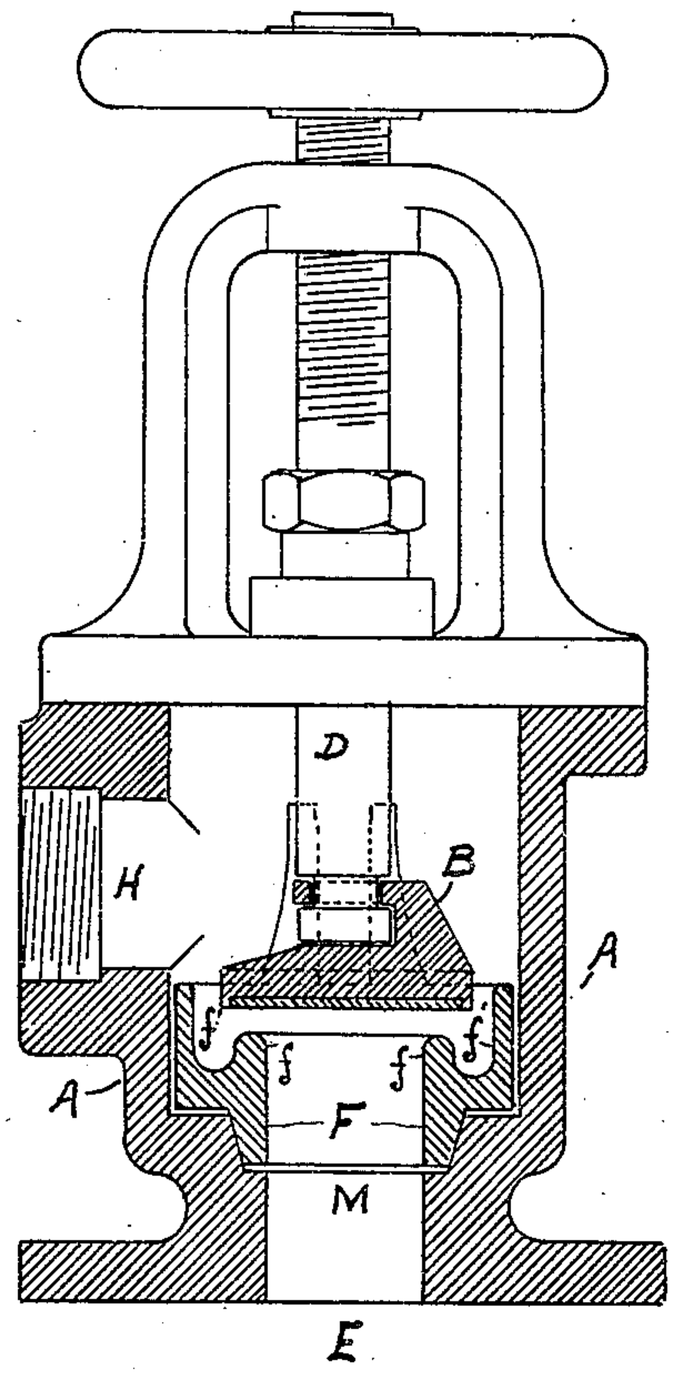

Fig. 1.

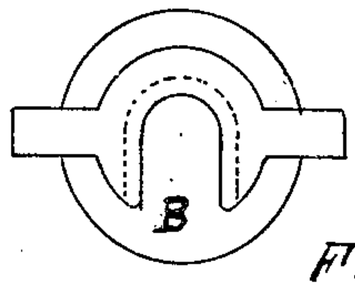

Fig. 2.

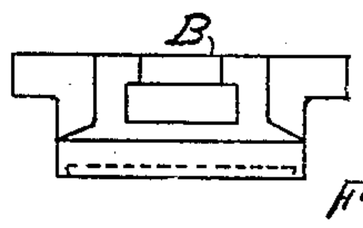

Fig. 3.

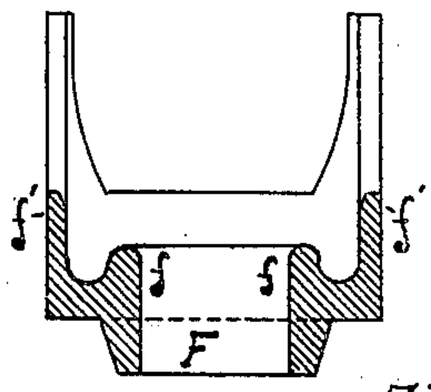

Fig. 4.

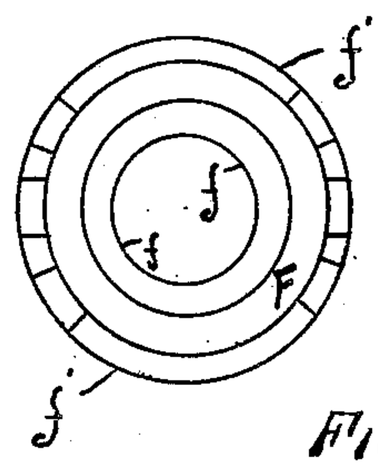

Fig. 5.

Witnesses.

J. F. Johnstone.

G. F. L. Noble

Inventor.

George F. Rowe.

UNITED STATES PATENT OFFICE.

GEORGE F. ROWE, OF BANGOR, MAINE.

ESCAPE-VALVE FOR PULP-DIGESTERS.

No. 921,741. Specification of Letters Patent. Patented May 18, 1909.

Application filed December 3, 1908. Serial No. 465,768.

To all whom it may concern:

Be it known that I, GEORGE F. ROWE, citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented new and useful Improvements in Escape-Valves for Pulp-Digesters, of which the following is a specification.

My invention consists of an improved escape-valve for pulp digesters and is fully illustrated in the accompanying drawing in which—

Figure 1 is an elevation of valve partially in section. Fig. 2 is a plan of disk. Fig. 3 is a side view of disk. Fig. 4 is a section of valve-lining. Fig. 5 is a plan of lining

Similar letters refer to corresponding parts throughout the figures.

The object of my invention is to protect the interior of the body of the valve from attrition and corrosion caused by the action of steam and sulfurous-acid gas escaping under a pressure normally of about ninety pounds to the square inch. It is apparent that under such conditions the valve rapidly wears and deteriorates and that frequent renewals become necessary, which as the valves are constructed of expensive bronze metal, becomes a heavy item of expense. I have therefore provided an attachable and detachable valve-lining so constructed, fitted and placed as to receive the full force of the initial impact of the discharge of the steam and gases from the digester and to relieve the body of the valve proper from the erosion and corrosion necessarily incident thereto. And this lining when too much worn can be knocked out and replaced by another, thus indefinitely extending the life of the valve proper.

In the figures A represents the valve-body; B the valve-disk. D the spindle—all as commonly.

E is the inlet of the valve and at the mouth M thereof I place the valve-lining F which constitutes my invention. This consists of a bottomless bronze cup having its lower edge turned up inwardly to form the seat *f* for the valve-disk B and having its upper rim *f'* extended upward to a point substantially flush with the bottom of the valve-outlet H, the whole being countersunk in the valve-inlet E. The lower portion of the exterior of the valve lining F is formed smooth and tapering or conical to fit tightly in a corresponding bore in the valve-inlet when hammered or driven in, or may be, together with the bore, screw-threaded and screwed in, while the upper portion conforms only generally to the bore in the inlet and is preferably of sufficiently less diameter than the bore of the valve-body as not to be in contact therewith.

In operation when the valve is opened to regulate the circulation in the digester during the process of cooking pulp the steam and gases under powerful pressure as before stated impinge first upon the bottom of the valve-disk B whence they are deflected laterally upon the upwardly extending sides of the valve-lining F, whence they pass into the main body of the valve at a point substantially flush with the bottom of the valve-outlet. But here the violence of the pressure is instantly relieved through the valve-outlet and the body of the valve is then spared the action of the escaping steam and gases which has previously been borne by my device.

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

1. In an escape-valve for pulp-digesters an inner lining consisting of a bottomless bronze cup having its lower edge turned inwardly and upward and forming the valve-seat, and having its upper rim extended upward to a point substantially flush with the outlet of the valve—the whole being countersunk within the valve-inlet.

2. In an escape-valve for pulp-digesters an inner lining consisting of a bottomless bronze cup having its lower edge turned inwardly and upward and forming the valve-seat, and having its upper rim extended upward to a point substantially flush with the outlet of the valve; and having its lower end formed tapering to fit a corresponding bore in the valve-inlet—the whole being countersunk within the valve-inlet.

GEORGE F. ROWE.

Witnesses:

RUBY I. NASON,

REBECCA M. SNYDER.