G. F. BLAKE.
Pump and Check Valve.

No. 198,071. Patented Dec. 11, 1877.

Fig. 1.

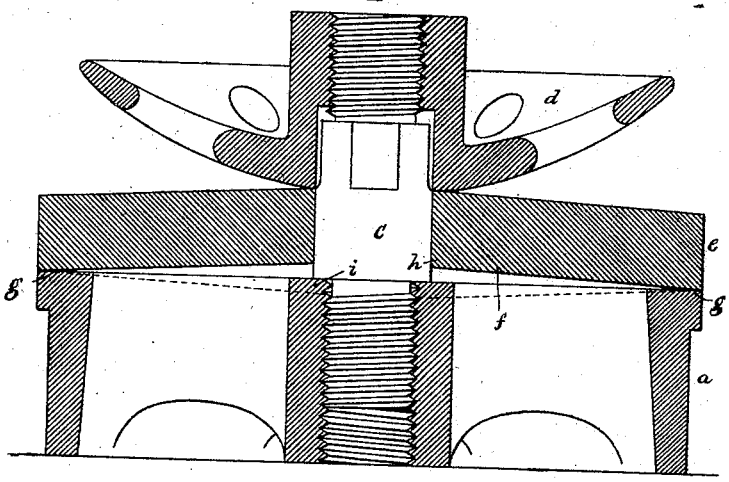
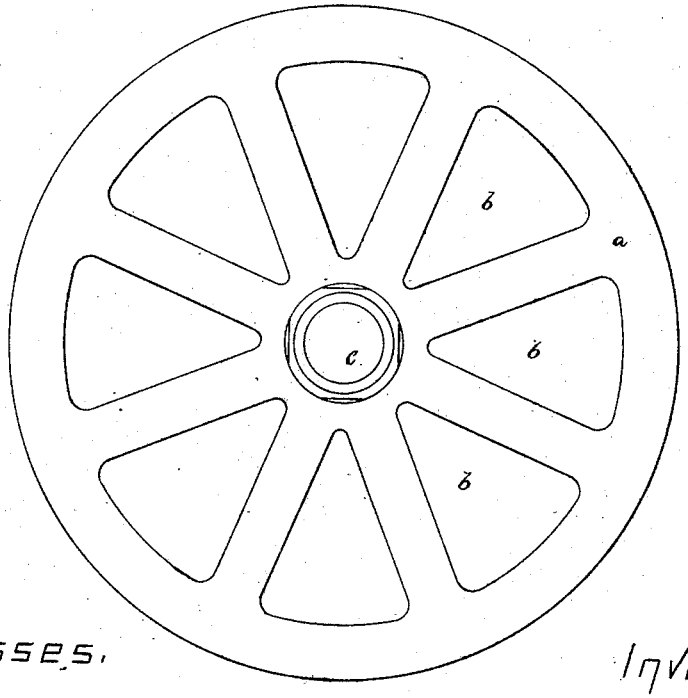


Fig. 2.



Witnesses.
C. C. Perkins.
W. J. Pratt.

Inventor.
George F. Blake
by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

GEORGE F. BLAKE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PUMP AND CHECK VALVES.

Specification forming part of Letters Patent No. **198,071**, dated December 11, 1877; application filed November 13, 1877.

To all whom it may concern:

Be it known that I, GEORGE F. BLAKE, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Valves, of which the following is a specification:

This invention relates to valves for pumps or engines; and consists in an india-rubber valve, having its under surface concaved or made dishing from its edge to its center, substantially as hereinafter described, so that when being fitted to the face of the valve-seat it will bear evenly thereon, and will not be distorted or curled; also, in combination, a centrally held india-rubber valve, and a valve-seat constructed substantially as described, whereby the central portion of the valve, when brought to its seat, moves after the outer portion of the face of the valve, and comes to a seat on the valve-face, all as hereinafter described.

Figure 1 represents in vertical section a valve provided with my invention; and Fig. 2, a top view of the valve-seat.

The valve-seat *a*, of metal, is provided with openings *b*, and has a valve-pin, *c*, and valve-fender *d*, all of usual construction.

The valve *e*, instead of being made flat on its under side, as usual, is concaved, or made dishing, as shown at *f*. When the under edge of the outer portion of the valve *e* rests upon the outer edge *g* of the valve-face the center *h* of the valve is elevated above the central portion *i* of the valve-face. Now, as the fender *d* is turned down from the position shown in Fig. 1, to depress the center of the valve upon its seat in working position, the under concaved face of the valve gradually touches, from near its outer edge toward and to the valve-pin, and when the valve is made to bear upon the whole of the valve-seat face, the substance of the valve is not pinched or squeezed centrally, and therefore the diameter of the valve is not increased, nor is the valve distorted or caused to curl upward at its outer edge.

It is obvious that the same result may be obtained by making the face of the valve-seat concaved, as shown in dotted lines, and the valve a plane surface. This valve is of special advantage when so located that it gravitates away from the seat.

I claim—

1. As a new article of manufacture, an india-rubber valve, having its under surface concaved or made dishing from its edge to its center, substantially as described.

2. In combination, a centrally held india-rubber valve and a valve-seat, constructed substantially as described, whereby the central portion of the valve, when brought to its seat, moves after the outer portion of the face of the valve comes to a seat on the valve-face, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. F. BLAKE.

Witnesses:

G. W. GREGORY,

S. B. KIDDER.