

No. 612,890.

Patented Oct. 25, 1898.

F. W. WOOD.
VALVE.

(Application filed Feb. 21, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

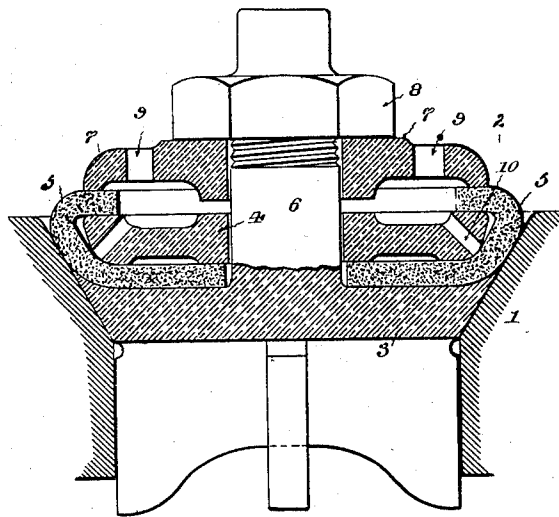
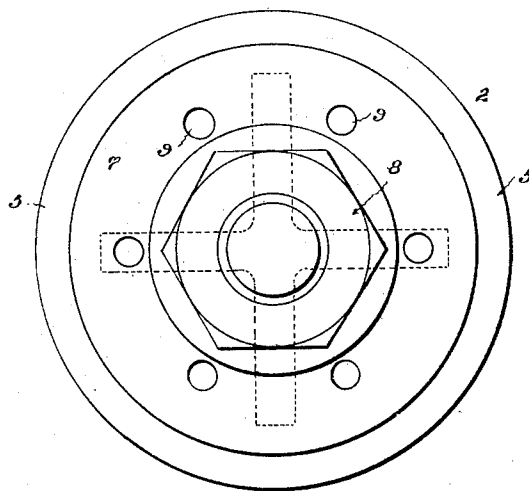


Fig. 2.



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Fig. 3.

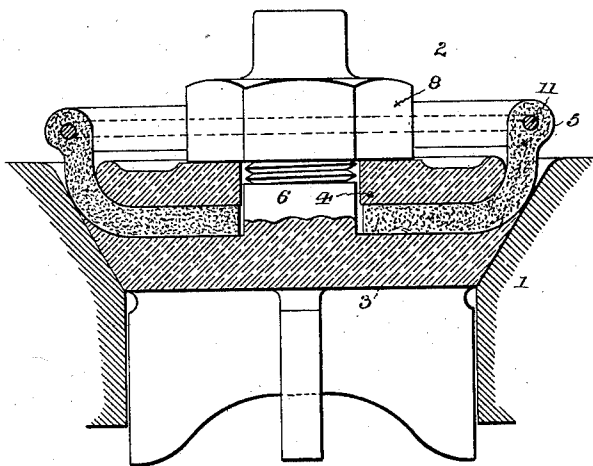
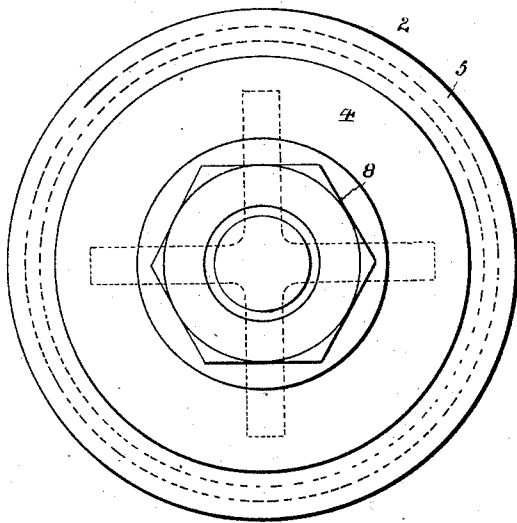


Fig. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK W. WOOD, OF BALTIMORE, MARYLAND.

VALVE.

SPECIFICATION forming part of Letters Patent No. 612,890, dated October 25, 1898.

Application filed February 21, 1898. Serial No. 671,061. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. WOOD, of the city of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Valves, of which the following is a specification.

This invention relates to an improvement in valves designed more particularly, but not necessarily, for use in pumps working at high pressures. Certain valves for use in this connection depend for their efficiency upon the fit of two metallic or rigid surfaces combined with a pliable flap adapted to rest over the intervening joint, the pressure of the fluid serving to hold the flap tightly and firmly over the joint, thereby preventing any leakage. In practice it may happen that during the movements of the valve this flap, when very flexible, may be caught between the valve and its seat, thereby interfering with the proper action of the valve and causing objectionable leakage. The aim of this invention is to overcome the liability of the flap acting in this manner, so as to admit of the use of a flap of very flexible material.

To this end my invention consists in combining with a rigid valve-seat and a rigid valve adapted to close against the seat a pliable strip or flap connected to one of said parts and adapted to rest over the intervening joint and means applied to the free edge of the flap to confine it in place and prevent its being caught between the valve and the seat.

The invention also consists in the details of construction and combination of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a central section through a valve and its seat, showing my invention applied thereto. Fig. 2 is a top plan view of the same. Fig. 3 is a central section through a valve having my invention applied in another form. Fig. 4 is a top plan view of the same.

Referring to Figs. 1 and 2, 1 represents a conical rigid valve-seat, and 2 a rising-and-falling conical valve of the well-known "puppet" type adapted to close tightly against the seat. The valve consists of a conical base 3, constituting the valve proper, an overlying washer 4, and a pliable flap or strip 5, of leather, rubber, or other suitable material,

which is confined between the base and washer 4 and which extends outward over the intervening joint between the valve and its seat. This flap is ring-like in form, its central opening surrounding a vertical stud 6, extending upward from the base, and its outer edge extending beyond the base and upward over the joint between the valve and its seat, then some distance along the conical seat, and finally inward horizontally over the edge of the washer 4, on which its edge is clamped by a clamping-washer 7, slipped over the stud 6 and held by means of a nut 8, applied to the threaded end of the stud. Both the washers are provided with holes 9 and 10 to admit of the pressure of the fluid acting on the flap where it overlies the intervening joint between the valve and the valve-seat, the holes in the washer 4 being arranged opposite the joint, as clearly shown in Fig. 1.

As a result of the above construction and the confining of the outer edge of the flap the latter will be effectually prevented in any manner from turning or folding and being caught between the valve and its seat, as may happen when the edge of the flap is free. Further, the construction and arrangement described admit of the use of a flap of very flexible material, which is advantageous in that its pliability enables the pressure of the fluid to hold it firmly and tightly over the joint.

In Figs. 3 and 4 the construction and arrangement of the parts of the valve are the same as those just described, except as to the manner of confining or retaining the outer edge of the flap. In this case instead of clamping the edge between the washers it is held in place and free of the valve-seat by means of a stiff wire ring 11, embedded in the edge of the flap, as clearly shown. The size of this ring is such that it will hold the edge of the flap over the washer, in which position there will be no liability whatever of its catching between the valve and its seat.

It will of course be understood that various changes may be made in the form of the valve and the flap and other parts without departing from the limits of my invention, the essence of which resides in the combination, with the rigid valve and valve-seat, of a pliable flap fixed to one of said parts and means for retaining its free edge in position to pre-

vent it from catching between the valve and its seat.

Having thus described my invention, what I claim is—

5 1. In a valve the combination of a rigid valve-seat, a rigid valve arranged to close against the same, a pliable flap attached to one of said members and extending over the intervening joint, and means for holding the
10 free edge of the flap.

2. In a valve the combination of a rigid valve-seat, a rigid valve arranged to close against the same, a pliable ring-like flap having its inner edge fixed to the valve and extending out over the intervening joint between the valve and seat, and a device for
15 retaining the outer edge of the flap.

3. In a valve the combination of a rigid valve-seat, a rigid valve arranged to close

against the same, a pliable ring-like flap confined at its inner edge on the valve and extending out over the joint and a washer applied to the valve and binding on the outer edge of the flap and acting to hold the same
20 in position. 25

4. In a valve the combination of a rigid valve-seat, a rigid valve arranged to close against the same, and a pliable flap applied to one of said members to seal the intervening joint, said flap having both its edges confined.
30

In testimony whereof I hereunto set my hand this 16th day of February, 1898, in the presence of two attesting witnesses.

FREDERICK W. WOOD.

Witnesses:

FELIX R. SULLIVAN,
G. D. NEAVITT.