April 21, 1931. I. B. WINSOR 1,801,383

VALVE

Filed Nov. 25, 1927

Fig. 1.

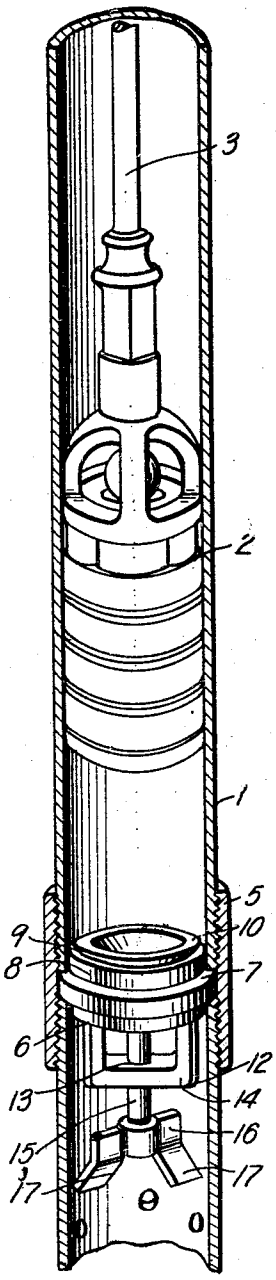


Fig. 3.

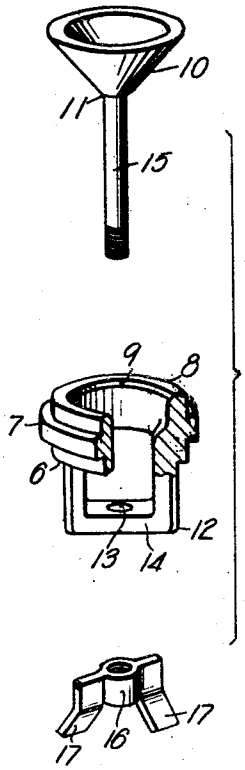
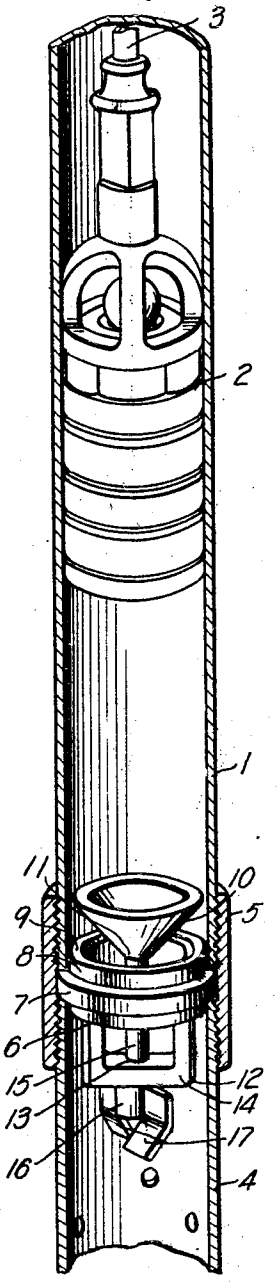


Fig. 2.



INVENTOR
Irwin B. Winsor
BY
ATTORNEY

Patented Apr. 21, 1931 1,801,383

UNITED STATES PATENT OFFICE

IRWIN B. WINSOR, OF TULSA, OKLAHOMA

VALVE

Application filed November 25, 1927. Serial No. 235,561.

My invention relates to valves and more particularly to standing valves of the type employed in connection with oil well pumps; the principal object of the invention being to prolong efficient operation of the valve by automatic cleaning of the valve seat during normal operation of the pump with which the valve is employed.

In accomplishing this and other objects of the invention I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a standing valve embodying my invention, illustrating its relation to a pump barrel and plunger, the pump barrel being in vertical section.

Fig. 2 is a similar view showing the valve in the open position assumed on the upstroke of the plunger and rotated slightly from the position shown in Fig. 1.

Fig. 3 is a perspective view of the disassembled valve members, the valve seat being partly broken away for better illustration.

Referring in detail to the drawings:

1 designates the lower portion of a pump or working barrel in which a working valve plunger 2 of ordinary construction is mounted for reciprocation by sucker rods 3 extending to power applying apparatus (not shown) at the top of the well. A well strainer 4 is suspended from the working barrel 1 by means of a coupling 5, and a standing valve 6, having a flange 7, is mounted within the coupling between the adjoining ends of the barrel and strainer members, with the flange 7 resting on the edge of the strainer against which it is rigidly held by engagement of the barrel with the upper side of the flange.

The annular flange 7 of the standing valve is centrally located on the periphery of a collar 8 having an inwardly beveled seat 9 adapted for cooperation with the inverted cone-shaped head 10 of the movable valve member 11.

Formed integral with the collar 8 and depending therefrom is a U-shaped bracket 12 having an opening 13 in the cross bar portion 14 for receiving the stem 15 of the valve 11 for free sliding movement and guidance therein.

Attached to the lower end of the stem 15 is a nut 16 which serves to limit the opening movement of the valve 11 by its engagement with the cross bar 14, and is provided with opposite, downwardly directed, inclined wings or propeller blades 17.

With the parts constructed and assembled as described, when the pump is in operation, upstroke of the plunger will such the valve off of its seat and flow of fluid upwardly over the blades will rotate the blades and valve so that when the valve reseats upon return of the plunger, different parts of the valve and seat will contact; the intermittent change of contact tending to wear the seat and valve evenly and insure close assembly of the parts, thereby avoiding leakage. With such an arrangement pressure on the moving valve member will tend to crush and dislodge sediment which ordinarily tends to accumulate on the seat.

What I claim and desire to secure by Letters Patent is:

A tubular valve body having end members for engaging respective barrel sections of a pump and an intermediate retaining flange adapted to seat between the ends of said sections, a tapered valve seat at one end of said body, a bracket at the other end of said body, a hollow conical valve cooperative with said seat having a stem slidably projected through said bracket, a nut on said stem engageable with the bracket to limit opening of the valve, and oppositely directed wings on the nut for effecting rotation of the valve under force of fluid flowing in the barrel when the valve is opened.

In testimony whereof I affix my signature.

IRWIN B. WINSOR.