(No Model.)

P. C. DU BOIS.

PUMP VALVE GEAR.

No. 259,830. Patented June 20, 1882.

Fig. 1.

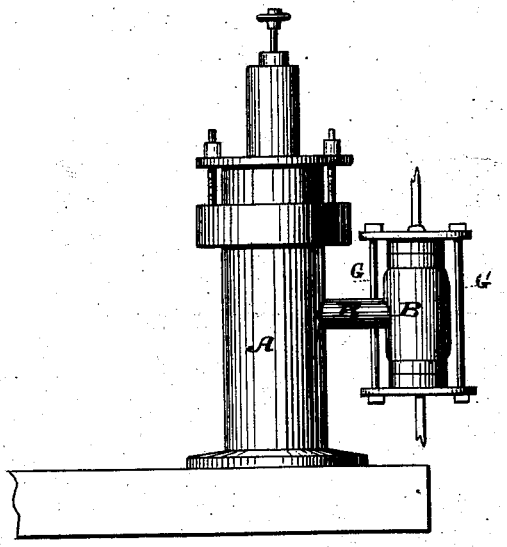


Fig. 2.

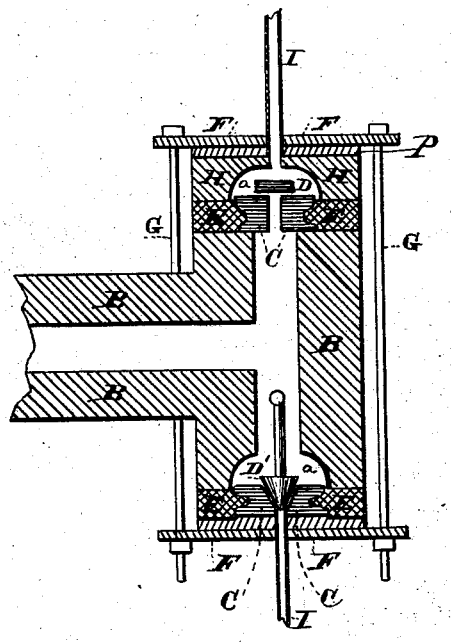


Fig. 3.

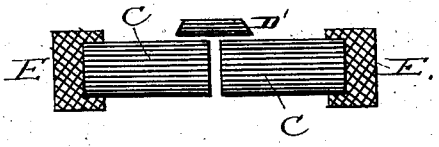


Fig. 4.

Fig. 5

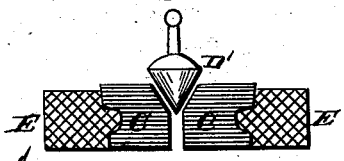
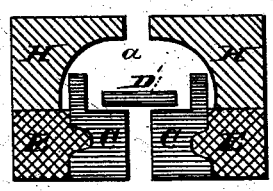


Fig. 6



Witnesses
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UNITED STATES PATENT OFFICE.

PIERRE C. DU BOIS, OF SAN FRANCISCO, CALIFORNIA.

PUMP-VALVE GEAR.

SPECIFICATION forming part of Letters Patent No. 259,830, dated June 20, 1882.

Application filed December 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, PIERRE C. DU BOIS, of the city and county of San Francisco, State of California, have invented a Pump-Valve Gear; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in the valve-chamber, seats, and valves of pumps, which are employed to condense chlorine or other corrosive gases; and it consists of a combined glass and rubber seat and glass valve, in connection with a valve-chamber and connecting-passages formed of lead or other suitable non-corrosive material.

Referring to the accompanying drawings, Figure 1 is a side view of my invention. Fig. 2 is a vertical section, and Figs. 3, 4, and 5 are enlarged views, of the valves and seats. Fig. 6 shows a modification.

In any process for treating ores by chlorination where the chlorine gas is employed under pressure it is necessary to condense it, and the pumps and valve-gear employed to carry it become corroded in a short time, so as not to work, especially where exposed to the action of a strong current of the gas, as when it is passing through the valves.

My invention is intended to overcome this difficulty by the use of glass for valves, and at points where a current of gas impinges against the sides of a valve-opening or the walls of a passage.

A is a pump having piston, piston-rod, stuffing-box, and openings to the valve-chamber, made in the usual or in any suitable manner, and lined with lead or other substance which will resist the corrosive action of the gas.

B is a T-shaped passage, leading from the pump to the valves, as shown. This passage is preferably formed in lead, and at its lower end is formed a chamber, *a*, sufficiently large to receive the lower valve and allow it to work.

A disk, H, of lead, of the same diameter as the vertical portion of the tube, is made to fit upon the top of the valve-seat, as will hereinafter be shown, and it has a similar chamber, *a*, formed in its lower surface to receive the upper valve.

The valve-seats C are formed of glass, as are also the valves D D′. Around each valve-seat C is fitted a rubber ring, E, the edges of the seat being formed in any way to hold the two together, as by tongues and grooves. The glass seats are of such a size that they just fill the diameter of the passage B, while the rubber rings E rest upon the ends of the metal inclosing the passages.

F F are two disks or flanges, having holes through their edges to admit long screw-bolts G, which extend down outside the valve-chamber and serve to bind the whole together.

The upper valve-seat, with its rubber ring, is laid upon the top of the tube. The disk H is placed upon the top of the rubber ring. The packing-disk P is laid on H, and the disk F upon the top of this. The lower valve-seat, with its rubber ring, is held against the bottom of the tube by the lower flange, F, and the valves being in their respective chambers *a a′* the nuts are turned up on the bolts G until the whole is clamped firmly together.

The rubber rings E receive the pressure and protect the glass seats from breakage, but are not sufficiently exposed to the action of the gas to become destroyed.

I I are the inlet and discharge pipes.

The glass valve-seats surround the narrow opening through which the gas passes at considerable speed when pumped, and thus prevent corrosion at this point, while the valves themselves being made of glass will not corrode.

The lead T is sufficiently non-corrosive for the main passage; but if used at the valve-opening the gas would soon cut it so that the valve-seat would leak and become worthless, and this is prevented by my device.

In the modification shown in Fig. 3 the glass valve-seat may be inserted in a depression in the rubber ring. In the modification shown in Fig. 6 the glass seat has an upwardly-projecting rim surrounding the valve.

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

1. In a pump, the glass valve-seats C, perforated in the center, in combination with the inclosing elastic rings E, substantially as and for the purpose herein described.

2. In a pump, the valve mechanism consisting of the inlet and discharge passages B, formed in a T, as shown, in combination with

the glass valve-seats C, inclosed by the elastic rings E, the disk H, and the end flanges, F, and securing-bolts G, substantially as herein described.

3. The improvement in pumps for moving corrosive gases under pressure, consisting of the perforated glass valve-seats C, and the glass valves D D′, in combination with the elastic rings E, surrounding the seats and forming a support and packing, so that the valve-seats may be secured in the chamber without breaking, substantially as herein described.

In witness whereof I have hereunto set my hand.

PIERRE C. DU BOIS.

Witnesses:
FRANK A. BROOKS,
S. H. NOURSE.