

956,050.

C. DICKINSON.
PUMP VALVE.
APPLICATION FILED JAN. 2, 1909.

Patented Apr. 26, 1910.

Fig. 1.

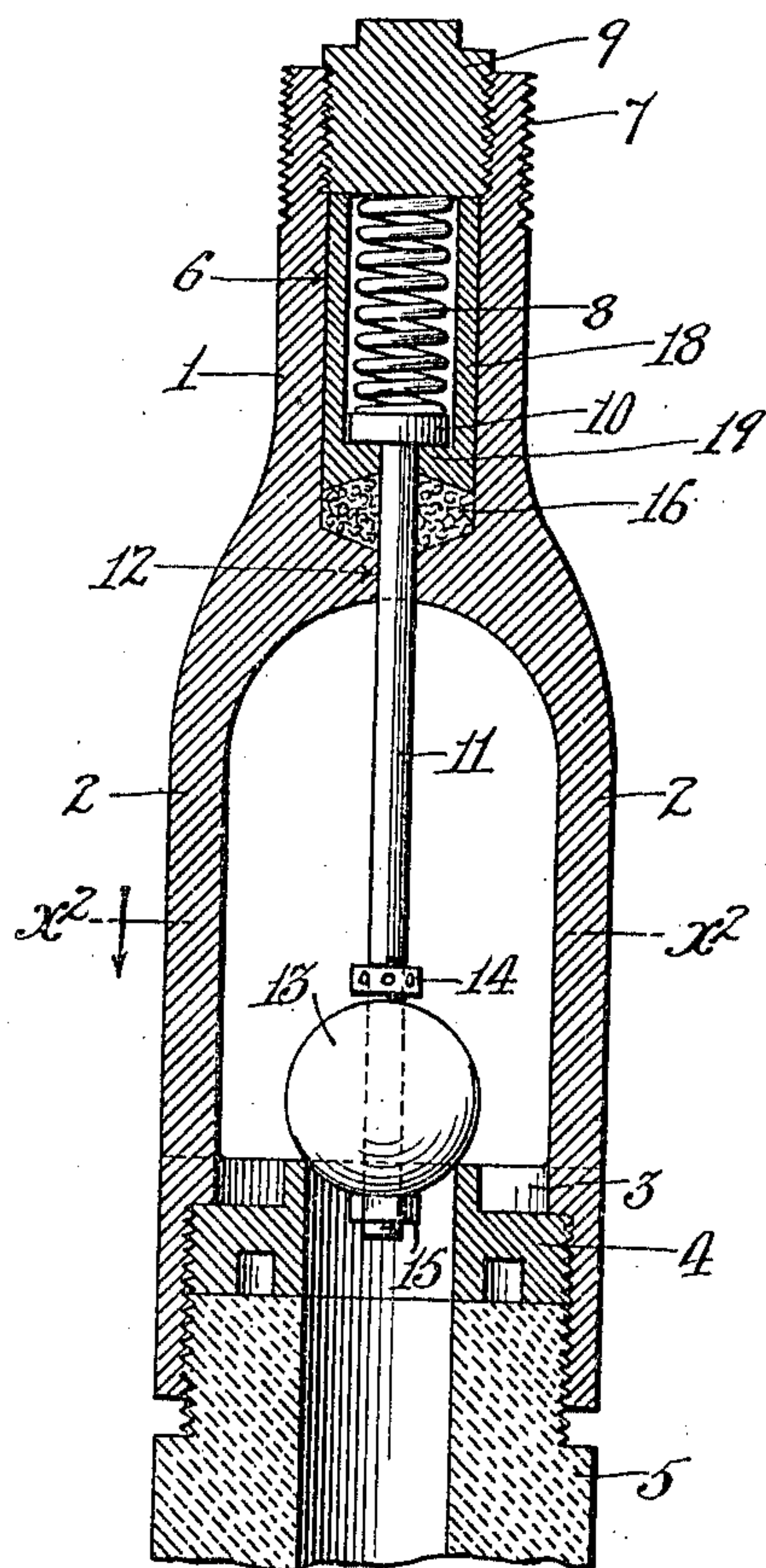
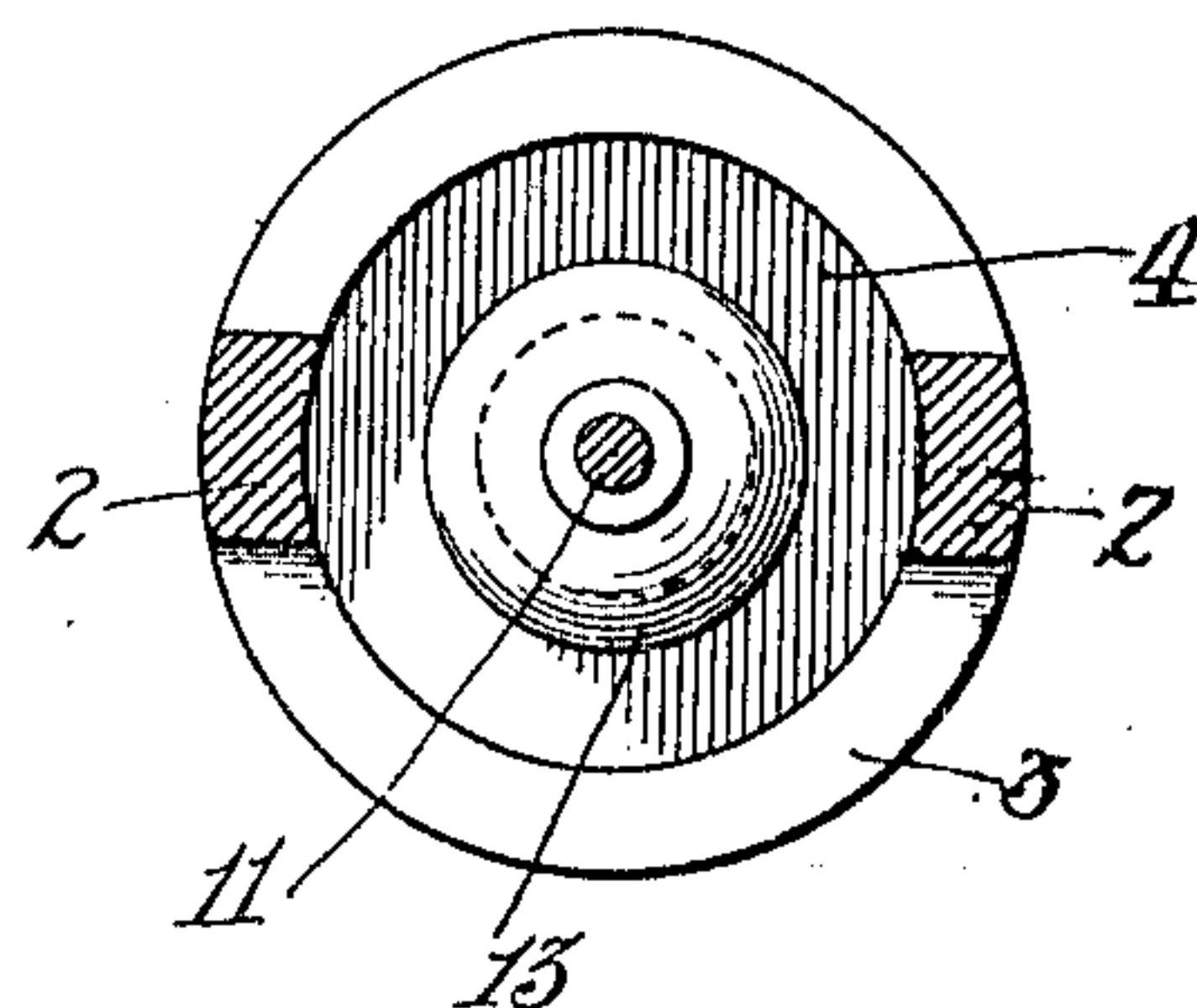


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

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PUMP-VALVE.

956,050.

Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed January 2, 1909. Serial No. 470,534.

To all whom it may concern:

Be it known that I, CHARLES DICKINSON, a citizen of the United States, residing at Maricopa, in the county of Kern and State of California, have invented a new and useful Pump-Valve, of which the following is a specification.

This invention relates to a valve particularly intended for use in oil pumps and deep well pumps and the main object of the invention is to provide a valve for this purpose which will not be liable to clog or stick under conditions of practice.

It frequently occurs in pumping oil that there is so much sand mixed with the oil that with the usual free ball valve the sand keeps the ball from coming to its seat, or in other words interferes with the free movement of the valve or fluid, for example, by clogging the valve outlets.

The presence of paraffin or heavy matter in the oil is also liable to interfere with the operation of the valve by causing the valve to stick or to be held in open position.

The present invention provides a valve which is forced to its seat in such manner that the operation thereof is not liable to be interfered with by the presence of sand, or of paraffin, etc. in the oil or liquid being pumped, nor is the valve liable to be clogged or obstructed by the accumulation of solid matter in the valve openings.

The accompanying drawings illustrate the invention, and referring thereto: Figure 1 is a vertical section of the valve. Fig. 2 is a transverse section of the valve on the line x^2-x^2 in Fig. 1.

The valve comprises a body member or head 1 formed with a cage consisting of two opposite bars or wings 2 extending from the body 1 and joined at their lower ends by a ring 3, into which screws the valve seat 4. The lower end of said ring 3 is adapted to screw onto the plunger or onto the cup barrel or onto the standing valve, as the case may be, according to the application which is made of the valve.

5 designates the member onto which the valve is screwed. The upper end of the body 1 is also provided with screw means indicated at 7 to connect onto the sucker rod, etc., and is internally recessed at 6 to receive a valve operating spring 8, the upper end of which bears against a plug 9 screwing into the top of member 1, the lower end of said

spring bearing against a head 10 on a stem 11, which extends through a contracted bore 12 at the lower end of the recess 6 and carries at its lower end the valve ball 13, said ball being held between nuts 14, 15 on said stem. To prevent access of grit, etc. to the working parts, packing 16 is provided at the lower part of recess 6, said packing being held in place by a liner 18, having an inwardly extending flange 19 at its lower end surrounding the stem of valve 11.

The operation is as follows: Nuts 14 are so adjusted as to hold the valve ball in proper position. At each down-stroke the valve rises and allows passage of fluid between the valve and its seat 4, the spring 8 being compressed in this operation and then on the next up-stroke said spring forces the valve to its seat. As the valve is guided by its stem 11, the valve being attached to said stem and moving therewith, it follows that the cage means 2 is not relied on either to guide the valve or to hold it from dislodgment. For this reason only two wings or bars 2 need be provided in the cage so that an opening of maximum size, namely, the full inside diameter of the cage, is provided for discharge of fluid and there is no liability of the device clogging even with the maximum amount of sand, etc. in the liquid. Moreover, as the valve is forced to its seat by the spring 8 there is no liability of the valve sticking by reason of the presence of paraffin.

What I claim is:

1. A pump valve comprising a valve seat, a cage supporting the same, a body member supporting said cage and formed with a recess, a screw plug closing the upper end of said recess, a valve stem slidable in the body member below said recess, a valve ball carried by said stem, a spring confined between said plug and the top of said stem to depress the valve, packing at the bottom of said recess around the valve stem, and a liner within said recess and holding said packing in place.

2. A pump valve comprising a cage provided with two opposite bars forming wings, said cage having an upper portion connecting said wings, and having a lower portion provided with a valve seat, said upper portion being provided with a recess, a valve stem extending in said recess, a valve on the bottom of said stem and operated by the

stem, a spring in said recess engaging said
stem to press the valve to its seat, packing
around the stem, a follower for compressing
the packing, and an adjustable plug closing
5 the upper end of said recess and engaging
said follower and said spring.

In testimony whereof, I have hereunto

set my hand at Maricopa, California, this
24th day of December 1908.

CHARLES DICKINSON.

In presence of—

W. J. SCHULTZ,

R. V. DORN.