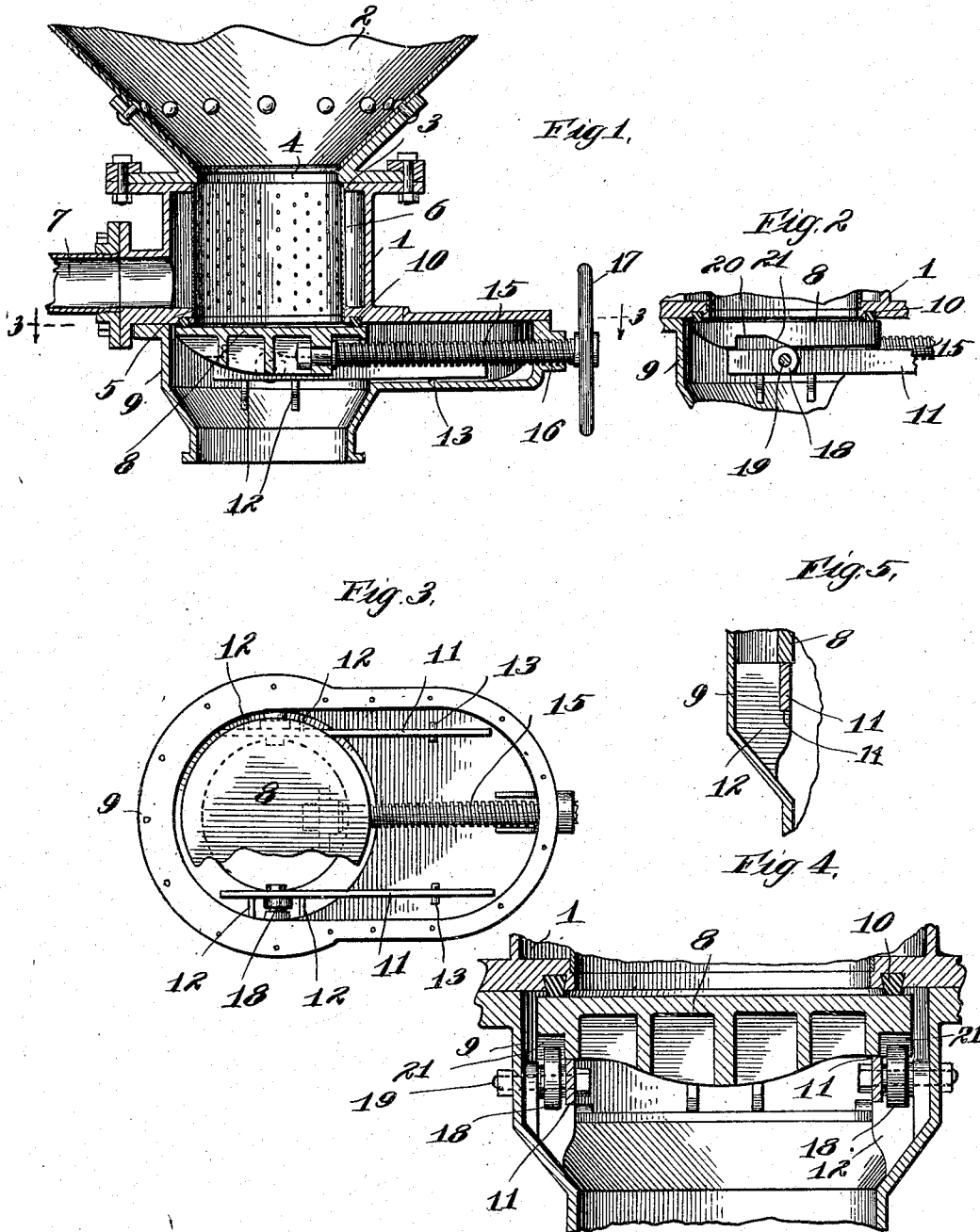


J. F. DORNFIELD.
VALVE FOR STEEP TANKS,
APPLICATION FILED FEB. 1, 1908.

941,442.

Patented Nov. 30, 1909.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN F. DORNFELD, OF CHICAGO, ILLINOIS.

VALVE FOR STEEP-TANKS.

941,442.

Specification of Letters Patent.

Patented Nov. 30, 1909.

Application filed February 1, 1908. Serial No. 413,755.

To all whom it may concern:

Be it known that I, JOHN F. DORNFELD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valves for Steep-Tanks, of which the following is a specification.

The object of this invention is to produce an improved grain-discharge valve for the tanks in which grain is steeped during the malting process.

In the accompanying drawings, Figure 1 is a vertical central section through a valve embodying the features of my invention. Fig. 2 is a fragmental sectional view showing the valve member in elevation. Fig. 3 is a section on dotted line 3 3 of Fig. 1. Fig. 4 is an enlarged fragmental sectional detail, the view being taken in a plane at right angles with the plane on which Fig. 1 is taken. Fig. 5 is a detail view of one of the lugs upon which the valve-supporting rails are mounted.

The embodiment herein shown of my invention comprises a casing 1 adapted to be secured to the lower end of the steep-tank 2. Said casing is substantially cylindrical in form and has an opening 3 in its upper end which registers with the outlet opening 4 of the steep-tank, and in its lower end an opening 5 which is alined with the openings 3 and 4. Extending between the openings 3 and 5 is a perforated strainer cylinder 6. A pipe 7, through which water may be admitted to or withdrawn from the steep-tank 2, communicates with the annular space in the casing 1 surrounding the strainer cylinder 6. The opening 5 is arranged to be closed by a valve member 8 slidably mounted in a casing 9 secured in any suitable way to the lower end of the casing 1. Surrounding the opening 5 is a packing ring 10 of rubber or other suitable material, against which ring the valve member 8 is arranged to seat. The valve member 8, in this instance, is circular in form and is arranged to slide upon two rails 11, which rails are supported upon lugs 12 13 preferably cast integral with the casing 9. The lugs 12 have shoulders 14 thereon upon which the rails 11 are supported. The valve member 8 may be moved into and out of operative position by any suitable means, as, for ex-

ample, a screw 15 rotatably connected at one end to said valve member and extending through a screw-threaded opening 16 in the casing 9. A hand wheel 17 is secured to the outer end of the screw 15.

In order to insure a tight joint between the valve member 8 and the packing ring 10, I provide means whereby said valve member is moved up into close contact with said packing ring near the end of the inward or closing movement of said valve member. Said means, in this instance, comprises two rollers 18 rotatably mounted upon the inner walls of the casing 9, one behind each of the rails 11 and projecting somewhat above the upper edges of said rails. The rollers 18 are mounted upon bolts 19, which bolts also serve to secure the rails 11 in place by drawing said rails against the lugs 12. In the valve member 8 at substantially diametrically opposite points is formed a notch 20 having an inclined wall 21 adapted to ride up on the rollers 18. When the valve member 8 is moved inward into closing position, the inclined wall 21 rides up on the rollers 18, lifting the valve member 8 into liquid-tight engagement with the packing ring 10. Upon the outward movement of the valve member 8 it descends out of contact with the ring 10, in order not to be drawn across said ring, and thus unduly wear it.

In use, when the grain in the steep-tank 2 has been steeped for a sufficient length of time, the water is drawn off through the pipe 7, the strainer cylinder 6 preventing the grain from passing out through said pipe. The hand wheel 17 is then rotated to withdraw the valve member 8 from across the opening 5, whereupon the grain descends through the casings 1 and 9 into any suitable receptacle. When the valve is to be closed the member 8 is moved inwardly upon its rails 11, said member being raised into engagement with the packing ring 10 when the inclined walls 21 ride up on the rollers 18.

I claim as my invention:

1. In a valve, in combination, a structure having a valve opening therein and a seat surrounding said opening; a valve member for closing said opening; means for moving said member in a line substantially at right angles with the axis of said opening; rails for slidably supporting said valve member;

shouldered lugs on which said rails rest; bolts for securing said rails upon said lugs; and rollers mounted on said bolts, onto which rollers said valve member is arranged to ride.

5 2. In a valve, in combination, a structure having a valve opening therein; a packing ring surrounding said opening; a valve member arranged to be seated on said packing
10 ring; means for moving said member in a line substantially at right angles with the axis of said opening; rails upon which said valve member is slidably supported; shouldered lugs for supporting said rails; bolts for
15 securing said rails on said lugs; and rollers mounted on said bolts, said valve member being notched in opposite sides, each of said notches having an inclined wall arranged to ride up on one of said rollers.

20 3. In a valve, in combination, a structure having a valve opening therein and a seat surrounding said opening; a valve member for closing said opening said valve having an inclined surface thereon; means for moving
25 said member in a line substantially at right angles with the axis of said opening; rails upon which said valve member is slidably mounted; and a roller interposed between a rail and the wall of the structure,

said roller engaging the inclined surface to seat the valve member. 30

4. In a valve, the combination with a casing or shell having a valve opening therein; rails carried by and adjacent to the wall of said shell; a valve member having inclined
35 portions; and members interposed between the rails and sides of the shell, said members being adapted to engage the inclined portions of the valve member to cause it to move against the edge of the opening. 40

5. The combination with a casing containing a vertical cylindrical strainer and having an outlet at one side and a valve opening and valve seat at its lower end, of a casing secured to the lower end of the first
45 mentioned casing, a valve horizontally slidable in the second mentioned casing into and out of operative relation to said valve opening, a screw mounted in one end of the second mentioned casing and rotatably connected
50 with said valve, and means in the second mentioned casing arranged for engagement by said valve for raising the latter into contact with the valve seat.

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Witnesses:

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