

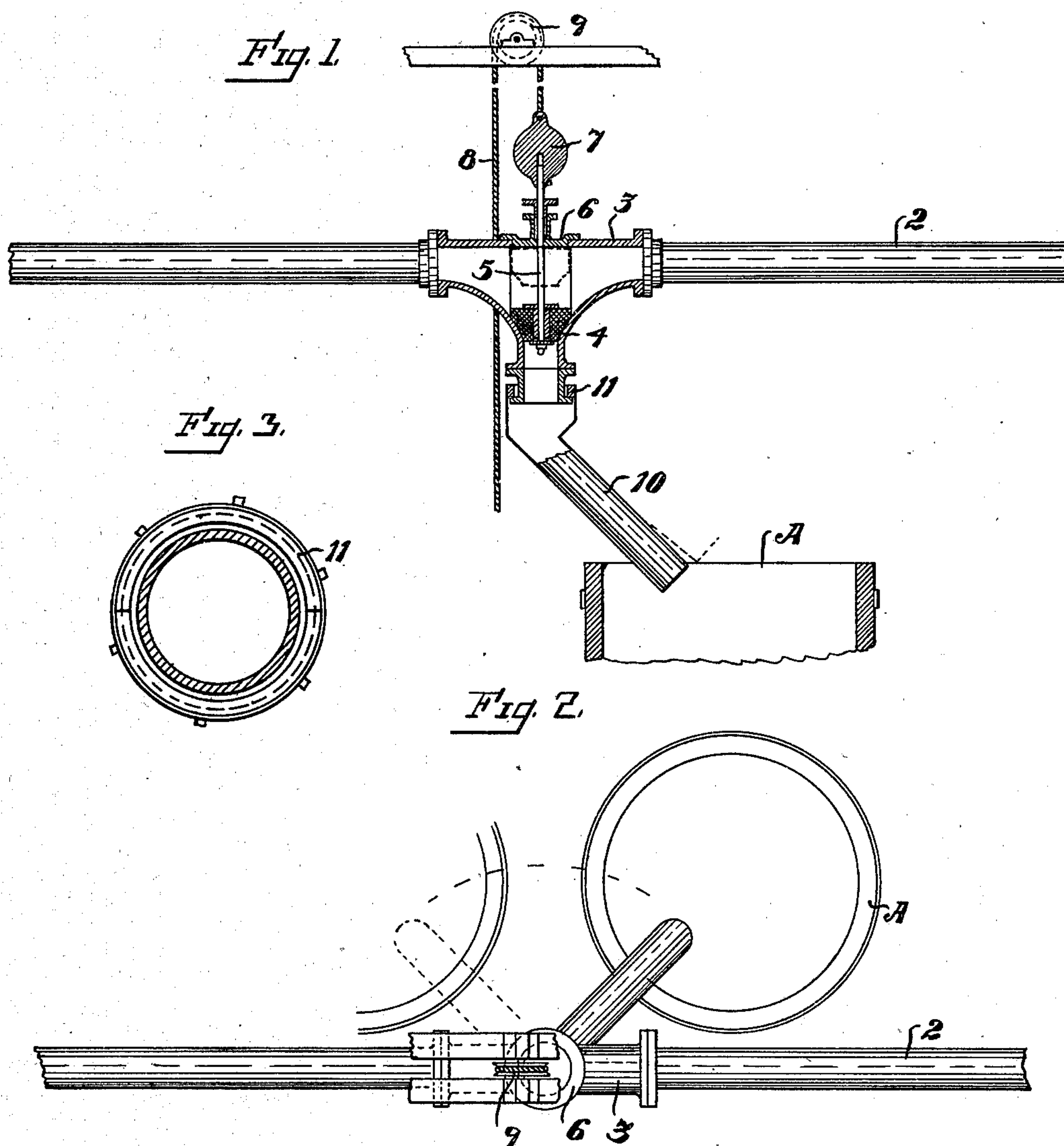
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F. C. BIRCH.
DISTRIBUTING SYSTEM FOR LIQUIDS.

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NO MODEL.



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UNITED STATES PATENT OFFICE.

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DISTRIBUTING SYSTEM FOR LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 731,661, dated June 23, 1903.

Application filed February 18, 1903. Serial No. 143,573. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. BIRCH, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Distributing Systems for Liquids; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in means for distributing liquids into tanks, vats, and the like.

Heretofore it has been usual in distilleries and wineries to run the liquid into the tanks through troughs controlled by slide-gates. Such a system was crude and resulted in more or less loss by leakage and from overflow by reason of the troughs becoming clogged.

My invention resides in arranging the tanks or reservoirs radially in nests, pumping the liquid through mains, and delivering it by a peculiar valve mechanism into swiveled lateral discharge-pipes, whereby each tank in a nest may be filled successively and whereby tanks in succeeding nests may be charged from the same main without interrupting the pumping operations.

Having reference to the accompanying drawings, Figure 1 is a longitudinal central section of my valve. Fig. 2 is a plan view of same. Fig. 3 is a plan view of spout connection.

A represents one of any desired number of tanks or vats arranged in a group or nest.

2 is a main supply-pipe, suitably supported above the nests and carrying the wine or other liquid with which the tanks are to be filled.

Successive nests may be disposed over the floor-space, whereby all the tanks may be filled from the same main.

The flow through the mains may be by gravity, where a sufficient head is obtainable, or may be maintained by a suitable pumping mechanism not necessary here to be shown.

3 is a valve casting or casing disposed in the main 2 centrally of each nest. This casting is provided with horizontal axially-aligned portions, to which the opposite continuations of the main are attached in suitable manner,

and has a downwardly-extending curved valve-seat portion in which a conical plug-valve 4 is adapted to seat.

The valve-stem 5 extends upwardly through a plate or cap 6, fitting into the top of the casting. The stem is suitably packed and carries on its outer projecting end a weight 7, by which the tendency of the valve is always to close.

The valve may be operated from the floor or any other convenient or remote point by pulling a cord or rope 8, connected with the valve-stem and passing around an overhead sheave 9, as shown.

The valve is adapted when lifted to be interposed as a stop or baffle to the straight flow of liquid through the main, to divert the current downwardly into the lateral pipe or spout 10, which is swiveled to the casting in such a manner that it may be swung about the casting as a pivot and lifted from one tank in the nest to another according as that tank becomes full.

The body of the valve-seat is made on a large radius to allow of an uninterrupted flow from the main into the tank. This curve and the interposition of the valve as a baffle across the path of the liquid in the main cooperate to divert the entire volume from the main into the spout, since it is intended that the pumps shall maintain the current at only a limited velocity insufficient ordinarily to project it across the valve-opening. It thus admits of all the vats in one nest being filled before any liquid passes on to those in succeeding nests. The use of pumps also insures against the pipes clogging, since any obstruction would be forced along by the continued action of the pumps.

Any suitable swivel connection or joint between the pipe or spout 10 and casting may be employed. In the present instance I have shown a collar bolted to the casting and having a flange on which rests a split or sectional ring 11. The spout has an enlarged angular portion inclosing and bolted to the ring. The latter fits very loose about the collar, and enough space is left above it to allow the spout

10 not only to be turned about the collar as a pivot, but to have a sufficient vertical movement whereby the end of the spout may be lifted out of one tank into another.

5 The force and the nature of the flow of the liquid through the pipes are such that no leakage takes place at the joint.

It is important that the seat portion of the valve-body should be made on a long radius
10 and that this portion should be of considerable length, so that a funnel construction results below the line of the supply-pipe, whereby the liquid flows naturally from the latter into the spout. Moreover, the use of an en-
15 tirely inclosed distributing system of this type in wineries and distilleries absolutely excludes dirt and foreign substances and prevents germs in the shape of small insects called
20 "vinegar-flies" being brought into the tanks to cause subsequent fermentation, as commonly happens where open mains are used.

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

25 1. In a closed system of distributing liquids, the combination of a plurality of radially-disposed storage tanks or vats; an overhead supply-pipe; a valve-casing let into the length of said pipe and having a downwardly-curved
30 lateral forming a valve-seat in a plane below the bottom of the supply-pipe; a valve having a seat portion made on a long radius to form a funnel-shaped passage when the valve is opened; and a swiveled spout supported
35 upon the lateral of the valve-casing.

2. In a system of distributing liquids, the combination of a plurality of radially-disposed reservoirs; an overhead supply-pipe; a valve-casing let into the length of the sup-
40 ply-pipe and having a lateral member provided with long converging walls; a delivery-spout having a swivel connection with said lateral member; and a valve controlling the flow from said supply-pipe to said spout and
45 operable when opened as a diverting baffle or stop to the continuous flow of liquid through the main, said valve having a seat portion made on a long radius and adapted to form

with the wall of the lateral member a funnel-shaped passage. 50

3. In a system of distributing liquids, the combination of a plurality of radially-disposed reservoirs, a source of supply, valve mechanism communicating with said source of supply, said mechanism including a valve-
55 casing let into the length of the supply-pipe and having a lateral extension with downwardly-curved converging walls and a gravity-actuated valve, having a seat portion made on a long radius and of considerable
60 length to form a wall of a funnel-shaped passage when the valve is open to stand across the main supply-passage, and a discharge-spout having a swivel union with said mechanism by which each reservoir may be filled
65 successively.

4. In a system of distributing liquids, the combination of a plurality of radially-disposed reservoirs, an overhead supply-pipe, a valve-casing interposed in said pipe and cen-
70 trally located in relation to said reservoirs, said casing having a lateral extension with continuous downwardly-curved walls forming a discharge-outlet, a gravity-actuated valve seating in said outlet, and having a seat por-
75 tion made on a long radius to form a directing-wall of a funnel-shaped passage said valve adapted when open to interpose a stop in the path of the liquid flowing through the afore-
80 said pipe, means by which said valve may be operated from a remote point, and a spout having a swivel union with said casing below the discharge-outlet.

5. The combination with a distributing-valve, of a spout or distributing-pipe, a swivel
85 union between said valve and spout, said union including a split ring loosely embracing and supported in an extension of the casing of the valve and said union having a vertical sliding movement on the end of the pipe. 90

In witness whereof I have hereunto set my hand.

FRANK C. BIRCH.

Witnesses:

S. H. NOURSE,

JESSIE C. BRODIE.