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PATENTED NOV. 26, 1907.

A. AUFRICHTIG.
DRAIN CONTROLLING APPARATUS FOR MASH TUBS

APPLICATION FILED SEPT. 23, 1907.

3 SHEETS—SHEET 1.

Fig. I.

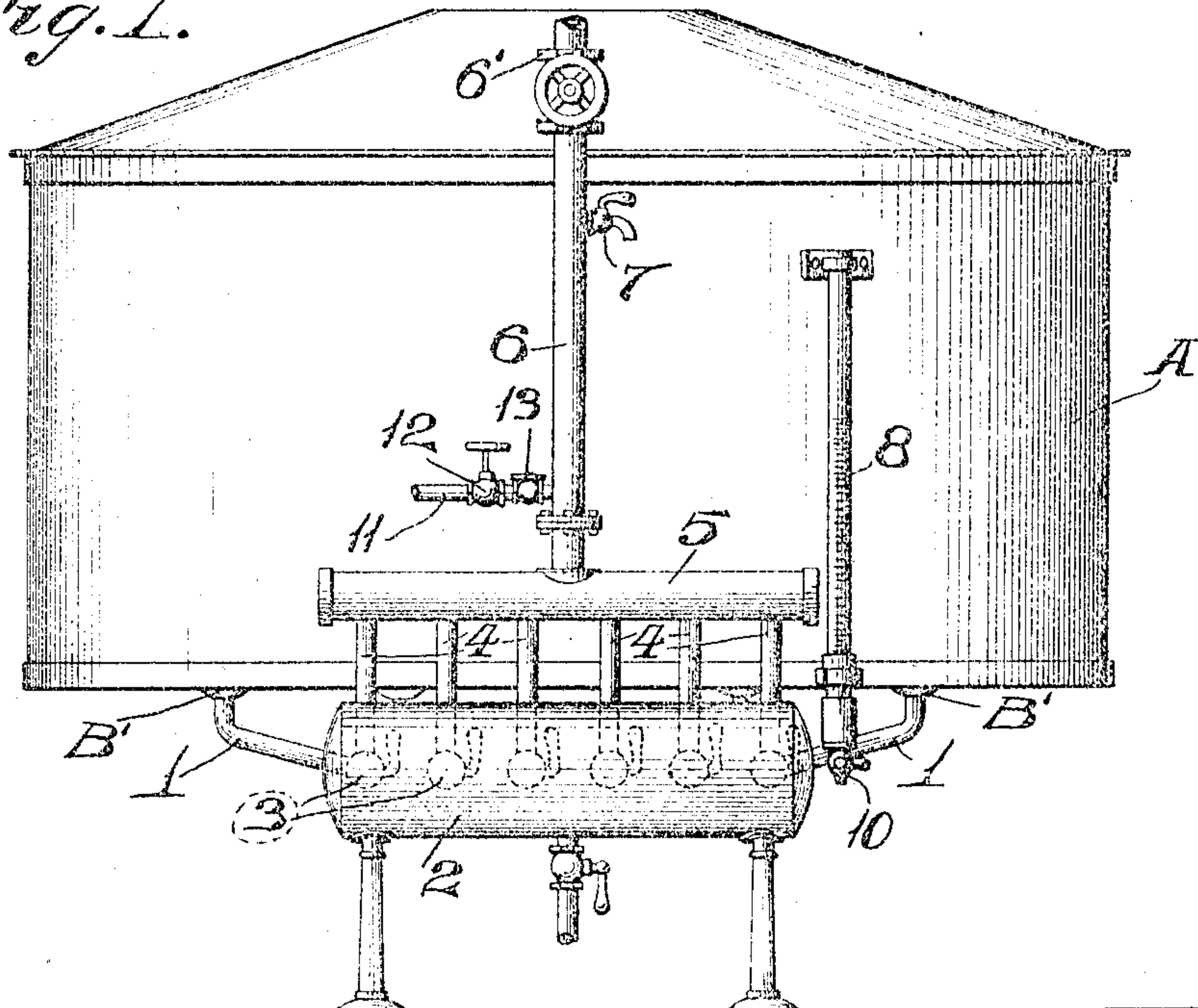
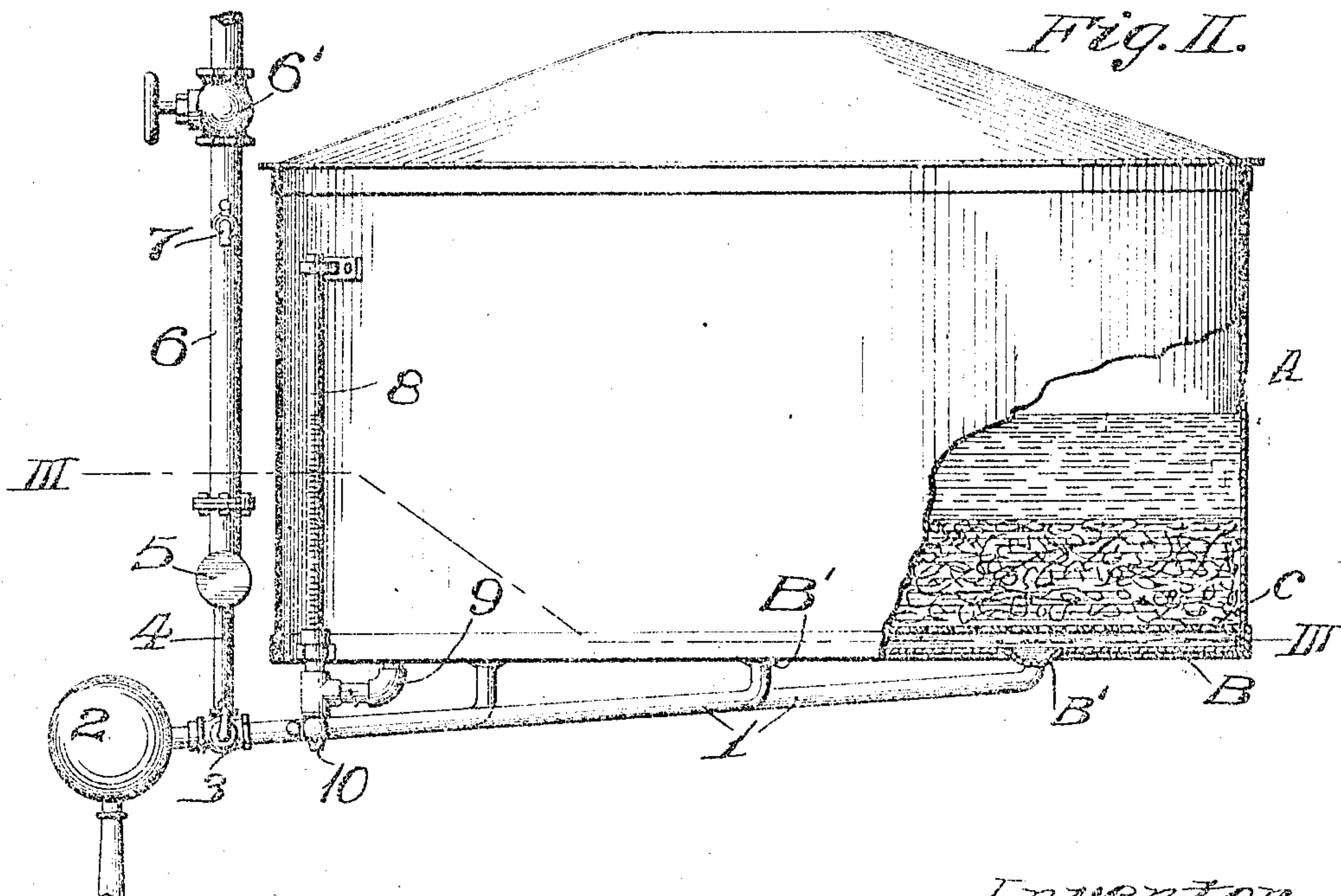


Fig. II.



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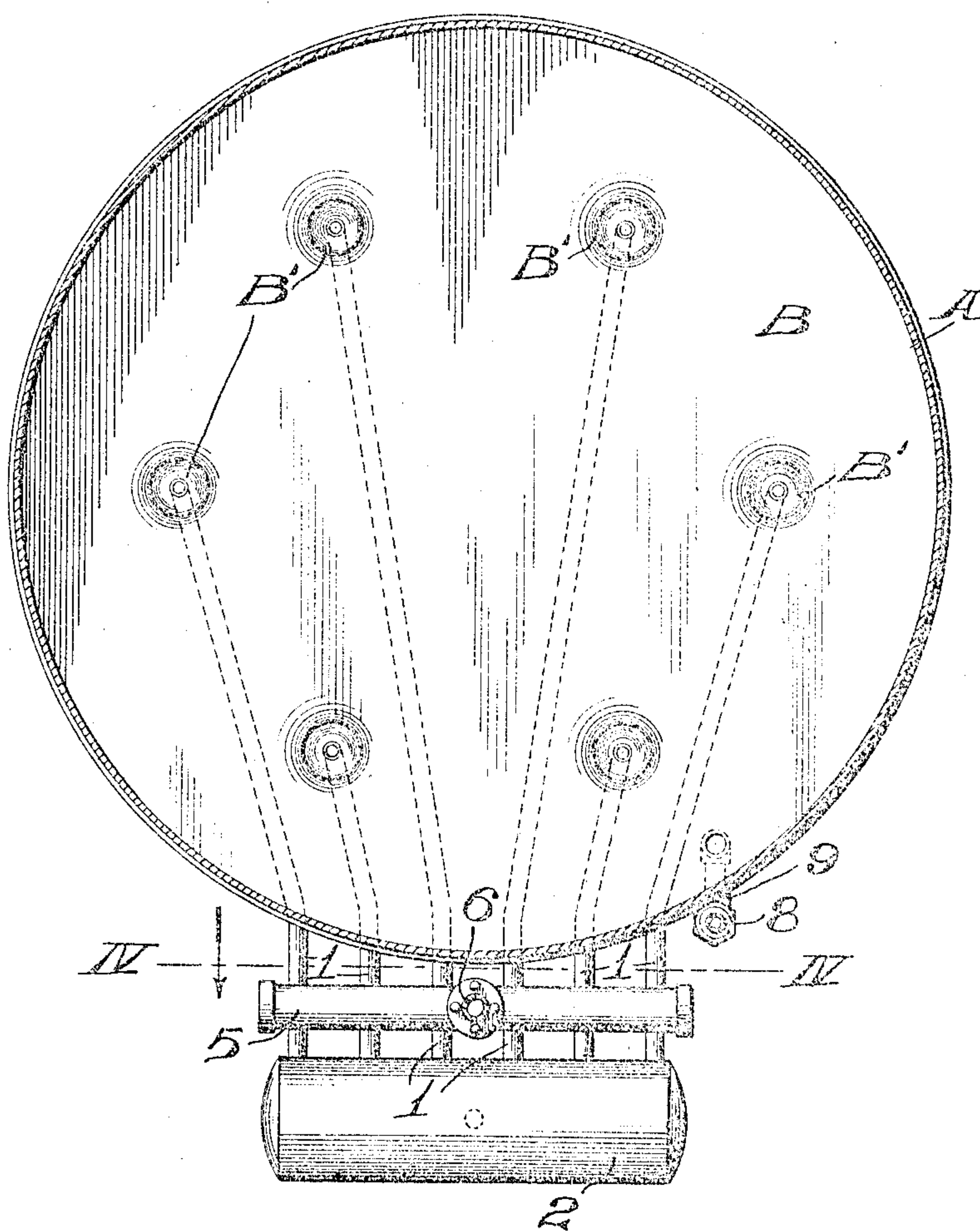
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3 SHEETS—SHEET 2

Fig. III.



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3 SHEETS—SHEET 3.

Fig. IV.

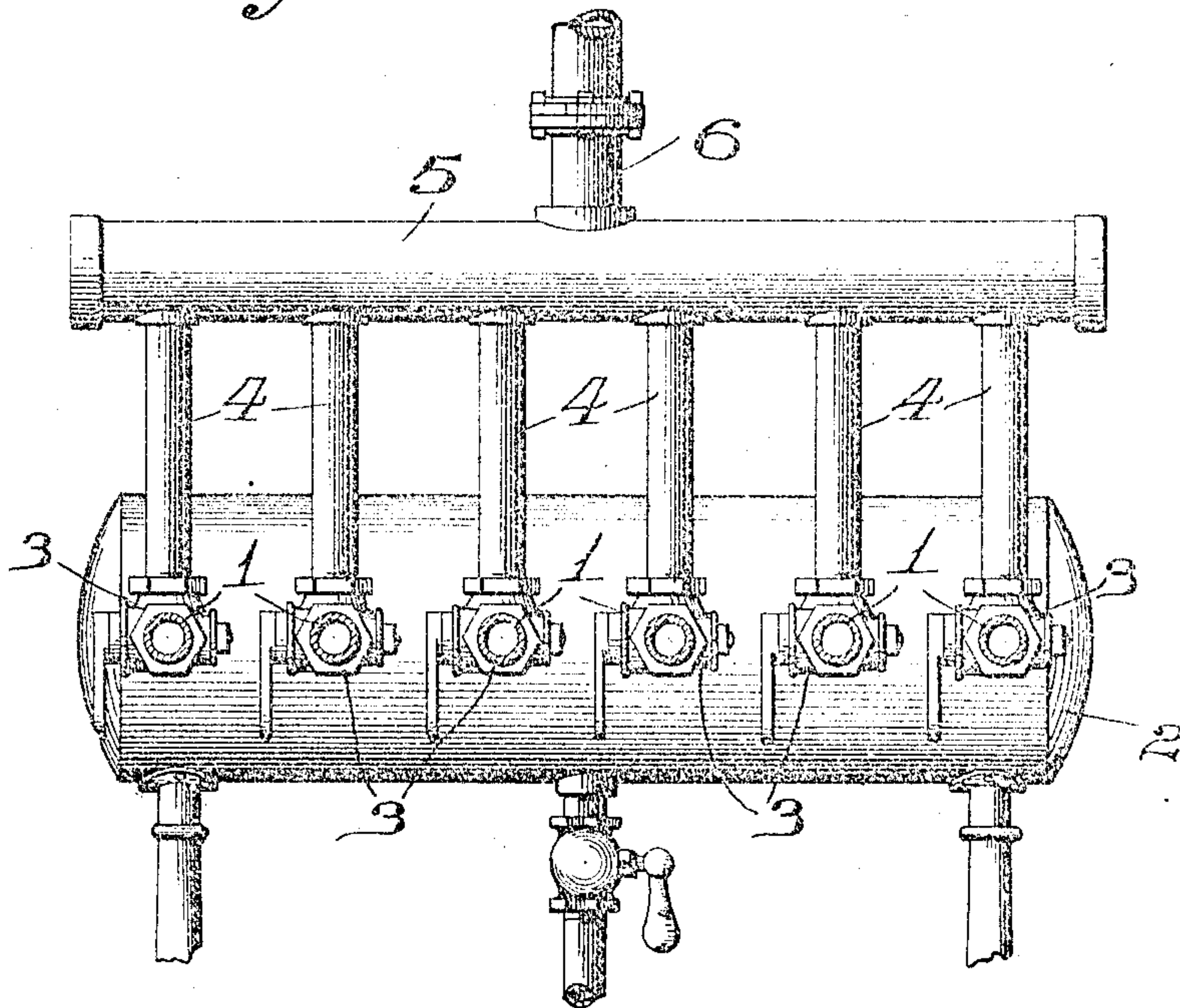
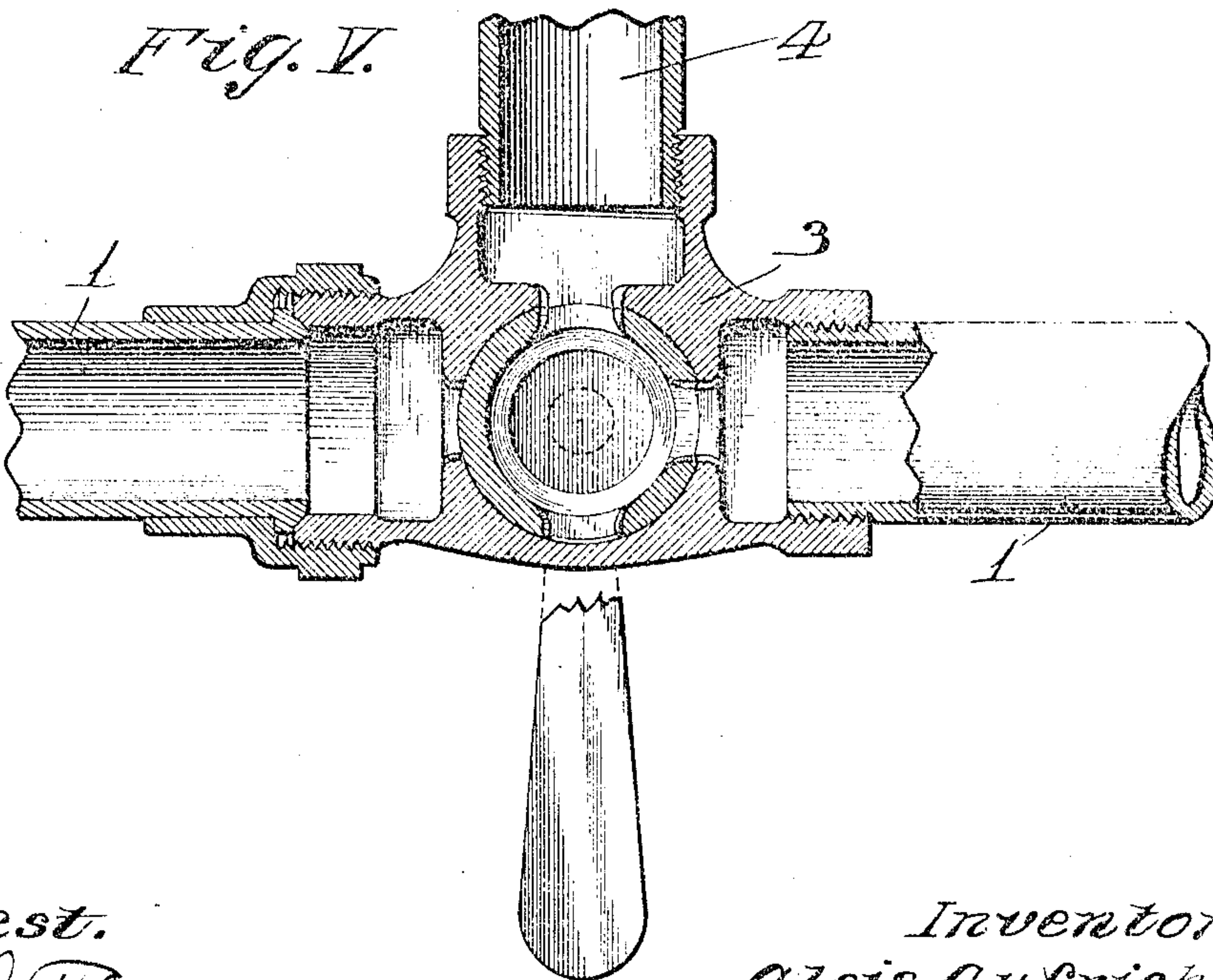


Fig. V.



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ALOIS AUFRICHTIG, OF ST. LOUIS, MISSOURI.

DRAIN-CONTROLLING APPARATUS FOR MASH-TUBS.

No. 872,103.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed September 23, 1907. Serial No. 394,121.

To all whom it may concern:

Be it known that I, ALOIS AUFRICHTIG, a citizen of the United States of America, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Drain-Controlling Apparatus for Mash-Tubs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to means for controlling the flow of wort from mash tubs, and it has for its object to provide an apparatus whereby the flow of wort may be readily regulated in a manner to, at all times, maintain a sufficient quantity of liquid in the mash tub to prevent the flow of the liquid being such that it will be beneath the top of the mash in the tub, thereby obviating the objectionable feature of cracks or fissures occurring in the mash to the detriment of the quality of wort as a result of the water from which the wort is produced when combined with the mash, passing too rapidly through the mash.

Figure I is a front elevation of a mash tub and my drain controlling apparatus. Fig. II is a side elevation of the tub and apparatus with a portion of the tub shown in vertical section. Fig. III is in part a top or plan view of the drain controlling apparatus and in part a horizontal section taken on line III—III, through the mash tub. Fig. IV is an enlarged vertical section taken on line IV—IV, Fig. III, and with parts shown in elevation looking in the direction of the arrows crossing said line. Fig. V is an enlarged section through one of the multiple-way cocks of my apparatus.

A designates a mash tub, which, as seen in Fig. II is provided with a main bottom B, and a perforated false bottom C. The main bottom is provided at intervals with dips B' (see Figs. II and III).

1 designates drain pipes attached to the main bottom of the tub at the location of the dips therein of service to provide for the more ready flow of liquid into the pipes, and which pipes extend outwardly beneath the mash tub to points beyond the wall of said tub. The drain pipes lead to a receiver 2 to which they are fitted, in order that wort

drawn from the mash tub may be, if so desired, emptied directly into said receiver. In each drain pipe is a multiple-way cock 3, clearly illustrated in Fig. V, by which the flow of wort that passes into the drain pipes is controlled.

4 are riser pipes of a number corresponding to the number of drain pipes and multiple-way cocks, and which are connected to the multiple-way cocks and extend vertically therefrom. I have shown six each of the drain pipes, multiple-way cocks, and riser pipes, but it is obvious that these parts may be of series containing other numbers of the parts. 5 is a header to which the upper ends of all of the riser pipes 4 are connected.

6 is a stand pipe extending vertically from the header 5 and having communication therewith. This stand pipe is provided with a cut-off valve 6' and a relief cock 7.

8 is a gage tube for indicating the quantity of liquid present in the mash tub and in the pipe 6, and which has communication through a pipe 9 that leads into the bottom of the mash tub and terminates beneath the perforated false bottom C, provided with a valve 10.

11 designates a steam conducting pipe that leads to the stand pipe 6 and contains a cut-off valve 12 and a check valve 13, the check valve being located between the cut-off valve and the stand pipe.

In the practical use of my apparatus, to produce wort in the mash tub and withdraw it therefrom, the cut-off valve 6' of the stand pipe is opened to permit flow of water conducted from a suitable source of supply through the pipe, the header 5, the riser pipes 4 and drain pipes 1 to the mash tub into which mash has been introduced, it being understood that to provide for this flow of water, the multiple-way cocks 3 are set so that the flow of water will be delivered into the portions of the drain pipes leading to the mash tub. After the desired amount of water has been permitted to enter the mash tub, the cut-off valve 6' is closed to discontinue the flow of water to the tub. The multiple-way cocks 3 are then so set as to prevent flow of water from the riser pipes, the header and the stand pipes into the portions of drain

pipes leading into the mash tub, and also prevent flow of water in a downward direction through said drain pipes. The water is then allowed to stand in the mash tub for a sufficient period of time to produce wort, as is usual. After the wort has been produced, the relief cock 7 is opened to obviate a vacuum in the stand pipe, and the multiple-way cocks 3 of any or all of the drain pipes 1 may be so set that the wort withdrawn through said pipes from the mash tub will be delivered directly from the pipes into the receiver 2, as is the common practice in the use of mash tubs. When however, it is desired to control the draining of wort from the mash tub in a manner to maintain a level of liquid above the mash in the tub, one or more of the multiple-way cocks 3 is so set as to cause flow of wort directly from the mash tub through a drain pipe or drain pipes to one or more of the riser pipes 4 and rise in the riser pipes, header, and stand pipe to a level corresponding to that of the liquid in the mash tub. At the same time one or more of the multiple-way cocks 3, other than those previously set, is set to cause delivery of the wort from the header 5 and the stand pipe 6 to the receiver 2. By this manner of conducting the wort to the receiver, it is possible to always maintain a sufficient amount of liquid in the mash tub to cover the mash therein.

It is obvious that by properly setting any desired number of multiple-way cocks, a greater or less quantity of wort may be delivered into the riser pipes, the header, and the stand pipe of the apparatus and that, when only one of the multiple-way valves is set to deliver wort from the header and the stand pipe to the receiver, the flow of wort will be much more gradual than it would if more than one cock was set to deliver wort to the receiver, whereas, if it is desired to provide for the delivery of a greater quantity of wort to the receiver in a specified time, more than one of the cocks may be set to accomplish delivery to the receiver. By providing the gage tube 8, I furnish means whereby the operator of the apparatus may be constantly in possession of information as to the level of wort in the stand pipe 6 and in the mash tub, thereby enabling the operator to properly regulate the multiple-way cocks in order that the flow of wort to the header and stand pipe, and from said header to the receiver 2, may be controlled as desired, for the purpose of maintaining the conditions contemplated in the use of my apparatus.

The steam pipe 11 serves to conduct steam to the apparatus in order that it may be conveyed into the mash tub to heat the water therein, during the production of wort, and also to permit the introduction of steam into the drain apparatus at a pressure medium to

blow out deposits that may become accumulated in the pipes of the apparatus and the multiple-way cocks, and also at the bottom of the mash tub. The check valve 13 in the steam conducting pipe serves as a means for preventing flow of water or wort from the stand pipe 6 into the said steam conducting pipe in the event of the cut-off valve 12 being accidentally left in an open condition.

I claim:

1. The combination with a mash tub, of drain pipes leading from said tub, a receiver, a plurality of riser pipes, a header fitted to said riser pipes, and a plurality of multiple-way cocks for controlling the flow of liquid from said drain pipes to said header, through said riser pipes, and from said header through said riser pipes to said receiver, substantially as set forth.

2. The combination with a mash tub, of a plurality of drain pipes leading from said tub, a receiver, multiple-way cocks fitted to said drain pipes, riser pipes fitted to said multiple-way cocks, and a header fitted to the upper ends of said riser pipes; said multiple-way cocks being adapted to permit the flow of liquid therethrough to either said header or to said receiver, substantially as set forth.

3. The combination with a mash tub, of a plurality of drain pipes leading from said tub, a receiver, a plurality of multiple-way cocks fitted to said drain pipes, riser pipes fitted to said multiple-way cocks, a header fitted to the upper ends of said riser pipes, and a stand pipe extending upwardly from said header; said multiple-way cocks being adapted to permit the flow of liquid therethrough to either said header or to said receiver, substantially as set forth.

4. The combination with a mash tub, of a plurality of drain pipes leading from said tub, a receiver, a plurality of multiple-way cocks fitted to said drain pipes, riser pipes fitted to said multiple-way cocks, a header fitted to the upper ends of said riser pipes, a stand pipe extending upwardly from said header, and an air cock fitted to said stand pipe; said multiple-way cocks being adapted to permit flow of liquid therethrough to either said header or to said receiver, substantially as set forth.

5. The combination with a mash tub, of a plurality of drain pipes leading from said tub, a receiver, a plurality of multiple-way cocks fitted to said drain pipes, riser pipes fitted to said multiple-way cocks, a header fitted to the upper ends of said riser pipes, a stand pipe extending upwardly from said header, and a steam conducting pipe connected to said stand pipe, substantially as set forth.

6. The combination with a mash tub, of a plurality of drain pipes leading from said

tub, a receiver, a plurality of multiple-way
cocks fitted to said drain pipes, riser pipes
fitted to said multiple-way cocks, a header
fitted to the upper ends of said riser pipes, a
5 stand pipe extending upwardly from said
header, a steam conducting pipe connected
to said stand pipe, and a check valve in said

steam conducting pipe, substantially as set
forth.

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In the presence of—
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H. G. COOK.