No. 609,096.

Patented Aug. 16, 1898.

C. H. GILKERSON & DE CLOISE GLASBY.

AUTOMATIC MEASURING TANK.

(Application filed Sept. 10, 1897.)

(No Model.)

Fig. 1.

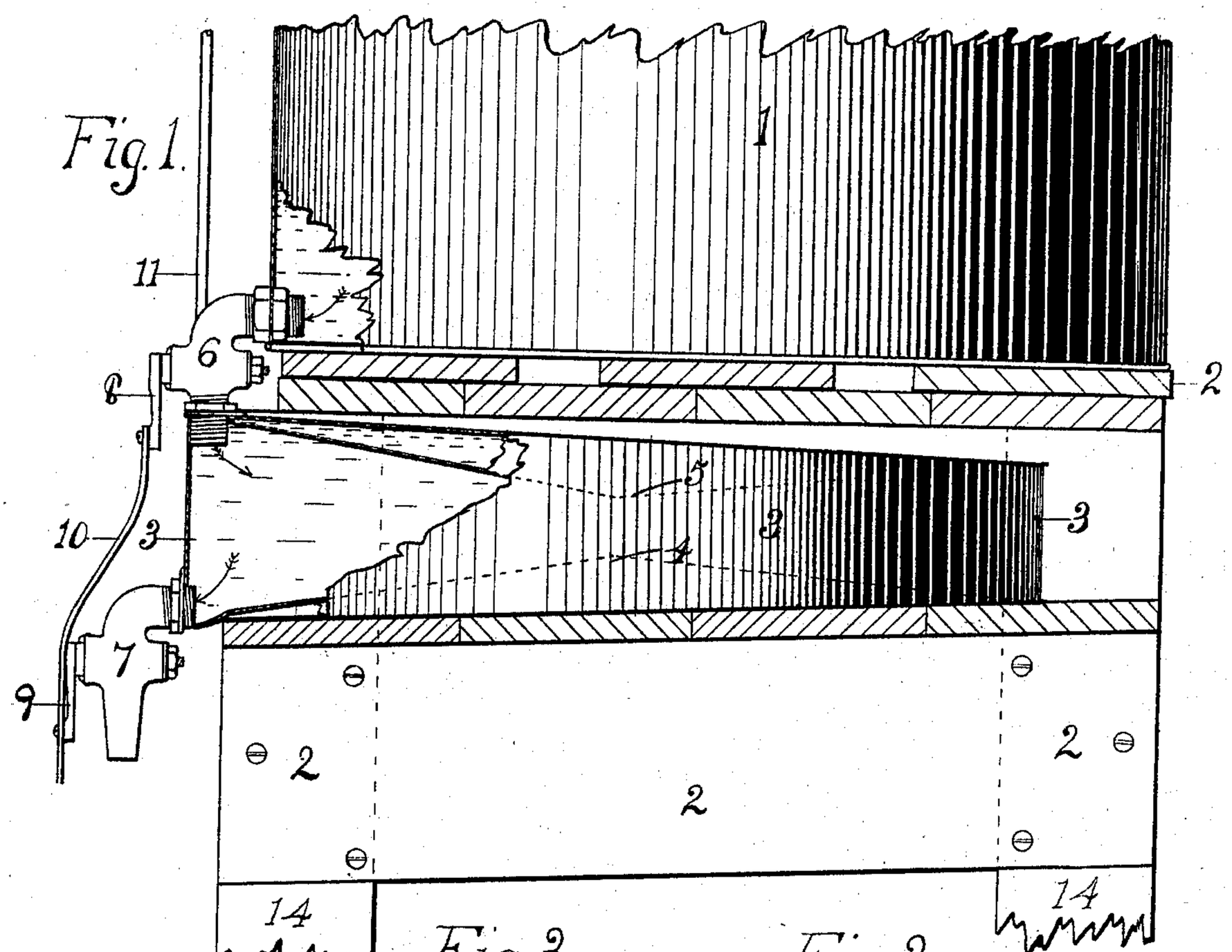


Fig. 3.

Sec. on A. B.

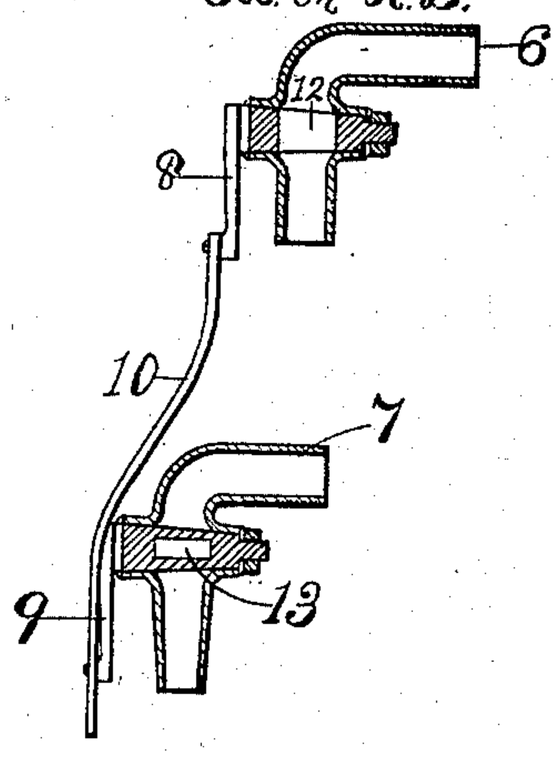
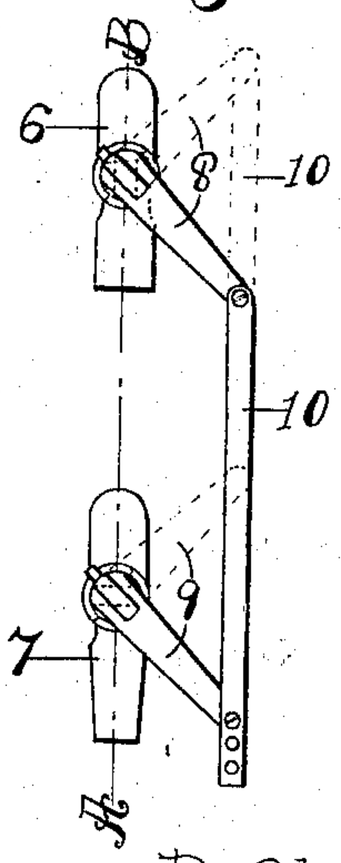


Fig. 2.



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UNITED STATES PATENT OFFICE.

CURTIS H. GILKERSON AND DE CLOISE GLASBY, OF MINNEAPOLIS, MINNESOTA.

AUTOMATIC MEASURING-TANK.

SPECIFICATION forming part of Letters Patent No. 609,096, dated August 16, 1898.

Application filed September 10, 1897. Serial No. 651,250. (No model.)

To all whom it may concern:

Be it known that we, CURTIS H. GILKERSON and DE CLOISE GLASBY, both citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Measuring-Tanks, of which the following is a specification.

Our invention relates to measuring-tanks for the purpose of measuring liquids, and more particularly oil, in which a measuring-chamber is placed beneath the tank proper; and the objects of our improvement are to provide simple, economical, and practical means for accomplishing the automatic measuring of liquid without the same requiring the attention of any person throughout the measuring and discharge of the liquid.

By our invention we seek the accomplishment of the aforesaid and other objects, as herein indicated, the invention comprising the combination shown in the drawings and which is fully described herein and contained in the claims.

Reference being made to the drawings, Figure 1 is a side elevation of our automatic measuring-tank with portions broken away to disclose the interior; Fig. 2, a front elevation of the filling and discharge cocks; Fig. 3, a sectional view of said cocks through the line *a b*, Fig. 2.

Similar numerals refer to similar parts throughout the several views.

The tank 1 rests upon any suitable base or stand 2.

In the drawings, Fig. 1, is shown a sectional side elevation of a square form of stand, one-half thereof being removed and its legs 14 broken off. Within the base or stand 2 and preferably beneath the tank 1 is placed a measuring-chamber 3, which may be of any desired form; but we prefer to make the same in the form shown in the drawings, Fig. 1, in which it appears as a round or circular reservoir, having the bottom head 4 rising at its central portion in the form of a cone and its top head 5 extending downward at the center in the form of an inverted cone. This form adds great strength to the measuring-receptacle. Such a chamber is preferably made of sheet metal and is subject to great hydrostatic pressure in filling by virtue of the quantity of liquid in the tank above. It will be seen, therefore, that a form of chamber which would permit the springing outward of the sheet metal comprising the measuring-receptacle when subject to such pressure would increase the amount of liquid contained in such receptacle and destroy the accuracy of its measurement.

A cock 6 leads from the tank 1 into the measuring-receptacle 3, while a cock 7 provides a discharge-opening from the measuring-chamber. The arms 8 9 of said cocks are loosely connected by means of a link 10.

An air-vent tube 11 communicates with the measuring-chamber 3 at the highest point of said chamber, opening therefrom into the air, and said tube preferably rises to the height of the tank 1.

We prefer to have the base of the measuring-chamber slope from all points toward the front or outer face of said chamber, where the discharge-cock 7 is located, as shown in the drawings, so as to facilitate the discharge of all liquids from the measuring-chamber, and likewise to have the top of said chamber rise from all points toward the air-vent tube 11, so as to facilitate the escape of all air from the measuring-chamber when the same is being filled, as is also shown in the drawings. The chamber 3 is then of greater height in front than at the rear. The link 10 is so connected to the arms 8 9 of the cocks that when said link and arms are down in the position shown in Fig. 3 the port 12 of cock 6 is open, while the port 13 of cock 7 is closed. On the other hand, when the link 10 and arms 8 9 are raised to the positions shown in dotted lines, Fig. 2, the port 12 will be closed and the port 13 open.

Such articles as kerosene-oil retailed by grocers are usually sold in quantities of five gallons at a time. In such case the measuring-chamber 3 will be made with a capacity of five gallons. In measuring this by the old method much time is consumed, during which the grocer must give his full attention to that work. If a pump is used for removing the oil from the tank to the measuring-can or to the customer's receptacle, the oil is caused to foam and the grocer must either wait for the

foam to pass away or fail to give full measure. Likewise, if the oil is removed from a tank containing considerable oil by means of a cock directly to the ordinary measuring-can or to the customer's receptacle the great pressure caused by the height of the liquid will also cause the oil to foam. By either of such methods, too, the grocer soils his hands and must take time to wash them before waiting on another customer or attending to any business. Besides, by the old methods oil is spilled or spattered upon the floor and often upon the clothes. No apparatus heretofore devised has met these difficulties and produced a satisfactory and practical automatic measuring contrivance.

The operation of our measuring-tank is as follows: The link and arms of the cocks 6 7 being left down, as shown in Figs. 1 and 3, the oil or other liquid passes from tank 1 through the cock 6 into the measuring-chamber 3, the air escaping from the latter through the vent-tube 11. The measuring-chamber 3 being made of five gallons capacity, for instance, the customer brings to his grocer his can for the purchase of that quanty of kerosene. The grocer has only to step to our automatic measuring-tank, place the can directly beneath the cock 7, and lift the link 10, with the arms 8 9, to the position shown in dotted lines, Fig. 2. No oil can now escape from tank 1 into chamber 3, and the contents of chamber 3 pour out into the customer's can through the cock 7 in an even steady stream. In the meantime the grocer has gone about his business waiting on customers and may at his leisure return for the customer's oil-can, as no more than five gallons can escape. He has now only to catch hold of link 10 and throw it to the position shown in full lines, Fig. 2, when the measuring-chamber 3 refills, ready for the next customer, all of which he can do without soiling his hands or his clothes in the least.

If a customer desires less quantity than the measuring-chamber 3 holds, (one gallon of kerosene, for instance, where the chamber has five gallons capacity,) it will be necessary to use an ordinary measuring-can placed beneath the cock 7, provided the customer's receptacle is not of known capacity or is not to be entirely filled.

We find in practice that the time consumed in drawing one gallon, for instance, from the tank by means of a cock is not so great as to call for two trips to the oil-tank—that is, no time can be saved by going away from the tank while the measure or can is filling. We therefore find it best to make the measuring-chamber of the larger capacity for measuring the larger quantity usually called for by the customers; but by the use of our device, even where the measuring-can is used, into which a portion of the contents of the measuring-chamber 3 is discharged, we find that much advantage is gained. Since the flow of liquid from the measuring-chamber is subject only to hydrostatic pressure from the top of said chamber, it will not foam in the measuring-can or in the customer's receptacle, insuring accurate measurement and no loss of time for the foam to disappear. Practically this foam is a great difficulty and annoyance in connection with the pump, as stated, or in connection with liquid being discharged from a cock while subject to a much greater hydrostatic pressure from the old-fashioned oil-tank. Moreover, our measuring-chamber is readily attachable beneath any oil-tank or oil-barrel and may be readily disconnected from one and connected to another. It insures a smooth stream or outflow without any break therein, avoiding all spattering or foaming. It insures accurate measurement, saves time, and presents a most simple and practical device for accomplishing the purposes suggested.

What we claim as new, and desire to secure by Letters Patent, is—

1. In an automatic measuring-tank, a suitable framework upon which it is placed, and the measuring-chamber 3 placed below the tank, and which measuring-tank is deepest at its front edge and shallowest at its rear one, and provided with a top and bottom which are cone-shaped and which have their central portions to approach each other, combined with the cock 6 which connects the tank and the measuring-chamber, the discharge-cock 7, and connection between the handles of the two cocks, whereby when one is opened, the other is closed; and the vent-pipe, the parts being combined and arranged to operate, substantially as shown.

2. In an automatic measuring-tank, a measuring-chamber which is deepest at its front edge and shallowest at its rear one, and which is provided with a cone-shaped top and bottom, and which top and bottom approach each other at or near their centers, combined with a suitable cock which connects the measuring-chamber with the measuring-tank, and a cock for drawing off the fluid from the measuring-chamber, substantially as described.

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