H. M. SPROSS.

LIQUID TREATING APPARATUS.

APPLICATION FILED MAY 2, 1914.

1,141,282.

Patented June 1, 1915.

3 SHEETS—SHEET 1.

Fig 1

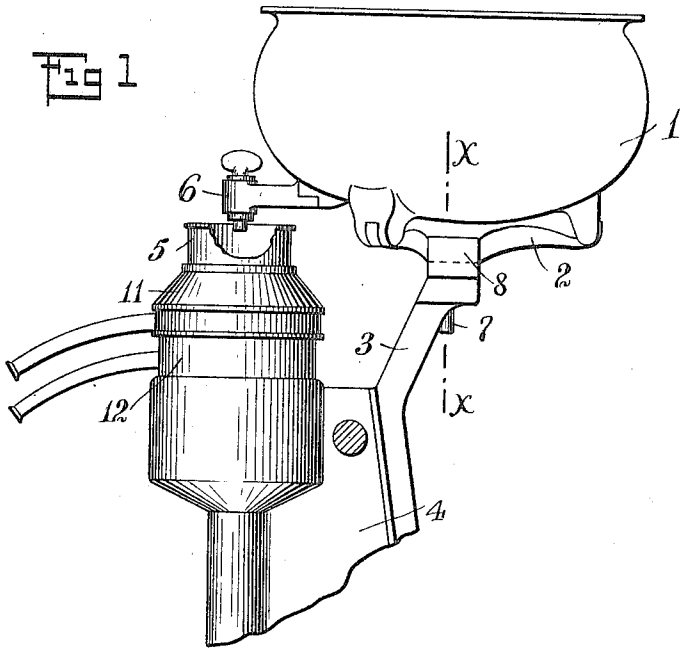
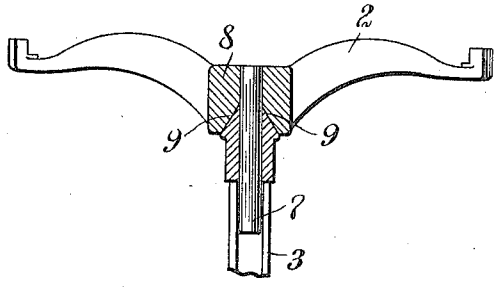


Fig 3



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3 SHEETS—SHEET 2.

Fig 2

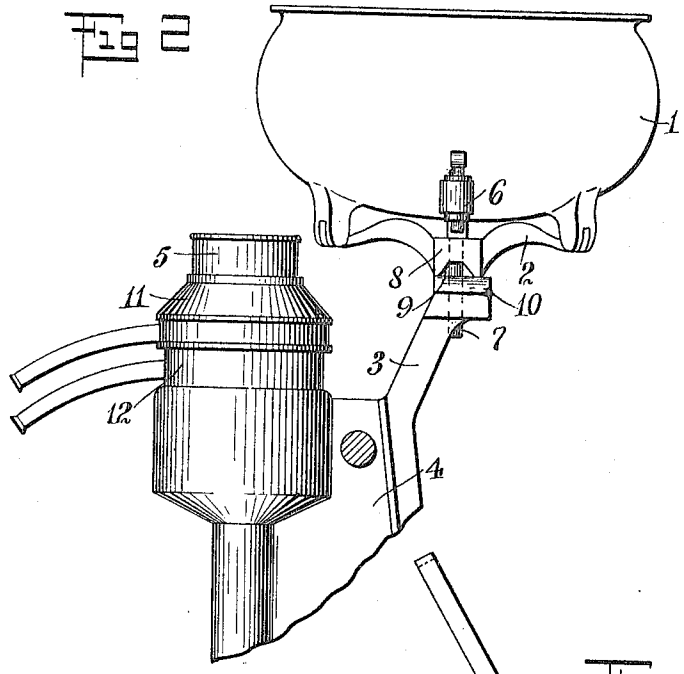


Fig 5

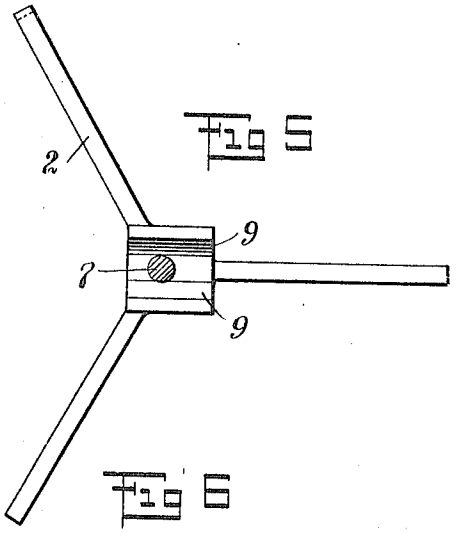


Fig 4

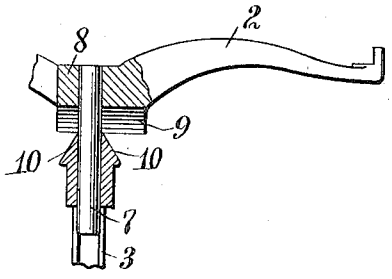
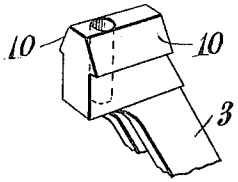


Fig 6



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3 SHEETS—SHEET 3.

Fig 7

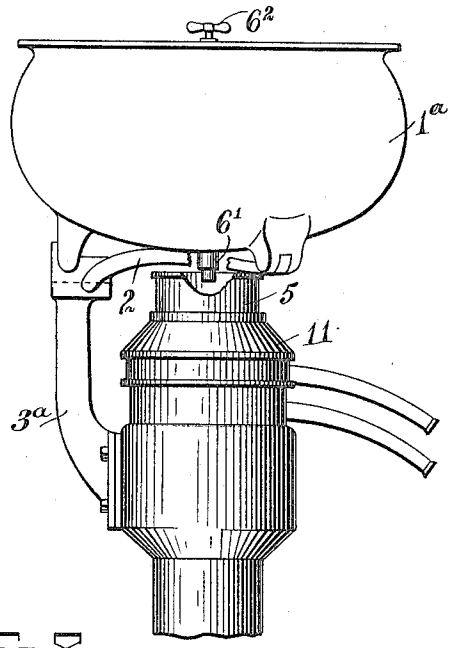


Fig 9

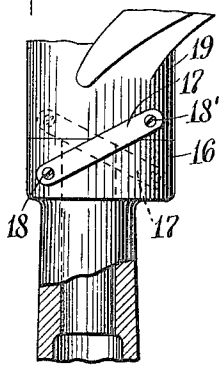


Fig 10

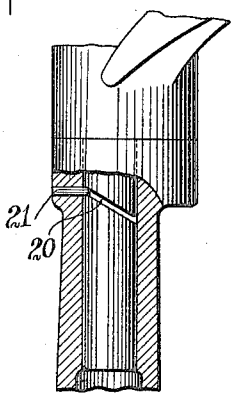


Fig 8

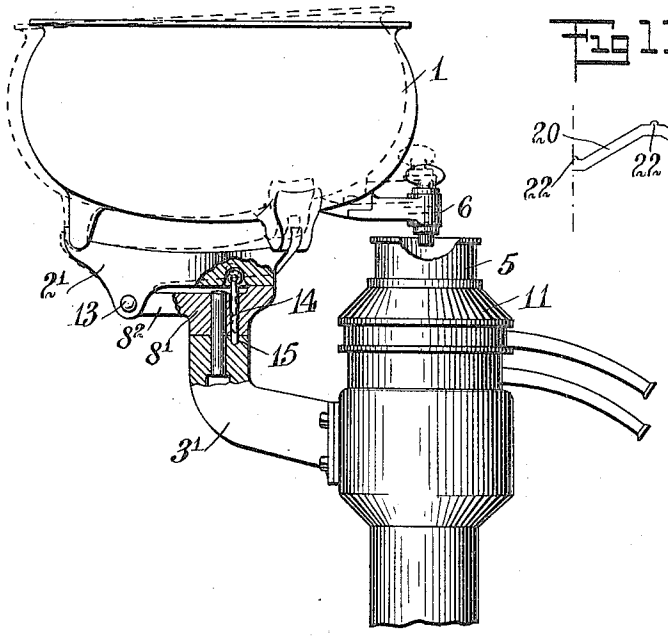


Fig 11

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UNITED STATES PATENT OFFICE.

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LIQUID-TREATING APPARATUS.

1,141,282. Specification of Letters Patent. Patented June 1, 1915.

Application filed May 2, 1914. Serial No. 835,795.

To all whom it may concern:

Be it known that I, HUBERT M. SPROSS, a citizen of the United States, residing at Arlington, Dutchess county, New York, have invented certain new and useful Improvements in Liquid-Treating Apparatus, of which the following is a full, clear, and exact description.

My invention relates to improvements in liquid treating apparatus, and has for its object to provide an apparatus in which the supply can is pivotally mounted so that it can be easily swung over one side to the other; also a machine in which such a supply can shall be locked in normal position; also a machine in which the supply can when swung to one side will be automatically lifted so that its discharge outlet will clear the liquid receiver. It is especially adapted for centrifugal cream separators and clarifiers. With all existing machines of this sort, when the operator desires to remove the caps or covers constituing portions of the receivers for adjustment or cleansing of the apparatus, he must first lift the can and turn it to a new position on the bracket to get the faucet out of the way, or, if the body of the can itself interferes, the can must be entirely removed.

An object of this invention is to provide means for supporting the can so that it can be readily swung to one side so as to allow free removal of the covers and access to the machine.

In carrying out my invention in its preferred form, I make use of a support or a bracket attached to one side of the machine and of a spider to carry the supply can, the spider being pivotally mounted upon the bracket, and where the bottom of the faucet on the supply can is lower than the top of the feed cup, I support the spider from the bracket and provide means such that a turn of the spider sufficient to move the faucet from the center to one side of the feed cup will cause it to rise enough to lift the faucet clear of the edge of the feed cup. With machines having the faucet always above the level of the top of the feed cup, the lifting cam may be omitted entirely or only so much retained as will be useful to hold the bracket in position to keep the faucet central in the cup.

The following is a description of an embodiment of my invention, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the upper part of a centrifugal cream separator embodying my invention. Fig. 2 is a similar view with the supporting spider and supply can swung around ninety degrees. Fig. 3 is a section on the line *x*—*x* of Fig. 1. Fig. 4 is a section on the same line with the spider turned through an angle of 90°. Figs. 5 and 6 are details of the spider arm and its support. Fig. 7 shows the invention embodied in a machine having a supply can provided with a central discharge opening. Fig. 8 is a side elevation with parts broken away, showing another modification. Fig. 9 is an enlarged view of a modification employing links. Fig. 10 is an enlarged view partly in section of another modification. Fig. 11 is a development of a groove shown in Fig. 10.

Referring more particularly to the drawings, 1 is a supply can carried by a spider 2 pivoted on bracket 3 attached to the frame 4 of the machine.

5 is a receiver, the same being the feed or regulating cup on the machine.

6 is the faucet through which the liquid to be treated is delivered from the can to the receiver. The lower end of this faucet when in normal position is surrounded by and lower than the upper edge of the cup 5. The spider 2 is provided with a pivot pin 7 which enters a hole in the top of the bracket 3 and guides and centers the spider on the bracket. On the spider and surrounding the upper end of the pin 7 is a hub 8 which is formed with a groove having cam sides of any desired shape, as at 9—9, and on the upper end of the bracket are formed cam surfaces 10—10 to mate with those in the groove on the spider hub.

I preferably make the cam upon the bracket in the form of an elongated ridge having slanting sides, so that the corresponding cam surfaces upon the spider will cover and protect the same. At 11 and 12 are shown covers of the type ordinarily used on milk separators to catch the cream and milk discharged from the separating device.

In the modification shown in Fig. 7, the construction is the same as that above described, except that the bracket 3ª is of

slightly different shape and the can 1^a is provided with a central discharge opening $6'$ controlled by a handle 6^2.

The operation of the two embodiments just described is as follows: If for any reason the operator desires to remove the covers 11 or 12 or the feed cup 5, he turns the supply can 1 with its spider 2 through an angle of 90° more or less. As the spider begins to turn, the surfaces 9 ride up on the surfaces 10, causing the spider to rise and with it the can 1 and the faucet 6, so that the bottom of the faucet passes above the side of the feed cup 5. This may be done with any quantity of liquid in the supply can. After the covers and feed cup have been removed and replaced, the can is turned back to its working position. The cam surfaces 9 then slide down over the surfaces 10 and lock the spider and can in position against accidental movement. In machines of this sort, the edge of the receiving cup is preferably above the lower end of the discharge faucet, but whether or not that is the case, the cam surfaces 9 and 10 serve the useful purpose of a lock to hold the spider in operating position.

In the embodiment shown in Fig. 8, the bracket $3'$ supports a hub $8'$ which is pivotally mounted thereon and is provided with a rearward extension 8^2. To this rearward extension the spider $2'$ is pivoted at 13. The spider is provided with a locking pin 14 pivoted thereto and extending through the hub $8'$ into a locking hole 15 in the bracket $3'$. To swing this can out of the way, the operator lifts the front of the can 1 slightly and with it the front of the spider $2'$. This will raise the pin 14 out of the hole 15 and allow a free swing of the can, the spider and the hub about the pivotal connection with the bracket $3'$. When the operator desires to replace the supply can in its operating position, he swings it around until the pin 14 enters the locking hole 15.

In the embodiment shown in Fig. 9, the bracket has on its upper end a hub 16 to which one or more links 17 are connected by screws 18. Where two links are used they are preferably on diametrically opposite sides as shown. These links have their other ends connected to a hub 19 on the spider by screws $18'$. As is clearly shown, rotation of the spider in one direction is impossible, and rotation in the other direction will cause the spider to rise so that the bottom of the faucet of the can will clear the top of the said cup.

In the embodiment shown in Figs. 10 and 11, the cam for lifting the spider is in the form of a groove 20 cut in the depending stem of the spider. This groove travels on a pin 21 in the bracket and has notches 22 to lock the spider in a low central position and in raised position respectively.

As will be evident to those skilled in the art, my invention permits of various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. In a liquid treating machine, the combination of a support, a spider rotatably mounted thereon about an axis, means for locking said spider to said support when in normal position so as to prevent accidental rotation, and a can having an outlet which is out of alinement with said axis and normally over the receiver of the machine.

2. In a liquid treating machine, the combination of a support, a spider rotatably mounted thereon about an axis, automatic means for locking said spider to said support when in normal position so as to prevent accidental rotation, and a can having an outlet out of alinement with said axis and normally over the receiver of the machine.

3. In a liquid treating machine, the combination of a support, a spider rotatably mounted thereon about an axis, means permitting the spider to rise relatively to the support, means for locking said spider when in normal position so as to prevent its accidental rotation relative to said support, and a can having an outlet out of alinement with said axis and normally over the receiver of the machine.

4. In a liquid treating machine, the combination of a support, a spider rotatably mounted thereon about an axis, means permitting the spider to rise relatively to the support, automatic means for locking said spider when in normal position so as to prevent its accidental rotation relative to said support, and a can having an outlet out of alinement with said axis and normally over the receiver of the machine.

5. In a liquid treating machine, the combination of a support, a spider rotatably mounted thereon about an axis, means for causing the spider to rise relatively to said support as it is turned aside from its normal position, and a can having an outlet out of alinement with said axis and normally over the receiver of the machine.

6. In a liquid treating machine, the combination of a support, a spider rotatably mounted thereon about an axis, one of said members having a cam of such shape as to cause said spider to rise when turned to one side of its normal position, and a can having an outlet out of alinement with said axis and normally over the receiver of the machine.

7. In a liquid treating machine, the combination of a support, a spider rotatably mounted thereon about an axis, one of said members having a cam adapted to lock said spider to said support when in its normal position so as to prevent its accidental rotation relative to said support, and a can hav-

ing an outlet out of alinement with said axis and normally over the receiver of the machine.

8. In a liquid treating machine, the combination of a support, a spider mounted thereon rotatable about an axis, means for causing the spider to rise relatively to said support as it is turned to one side of its normal position, a supply can on said spider having a depending outlet, said outlet being out of alinement with said axis, and a receiver having its upper edge above and surrounding the bottom of said outlet when said can is in normal position.

9. In a liquid treating machine, the combination of a support, a spider mounted thereon rotatable about an axis, one of said members having a cam of such shape as to cause said spider to rise when turned aside from its normal position, a supply can on said spider having a depending outlet, said outlet being out of alinement with said axis, and a receiver having its upper edge above and surrounding the bottom of said outlet when said can is in normal position.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."