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CONCRETE MIXER VALVE
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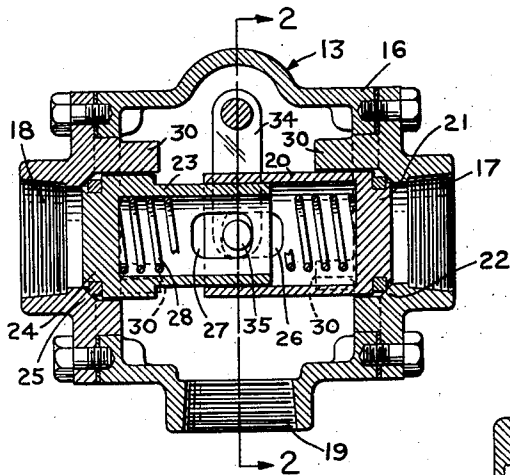


FIG. 1

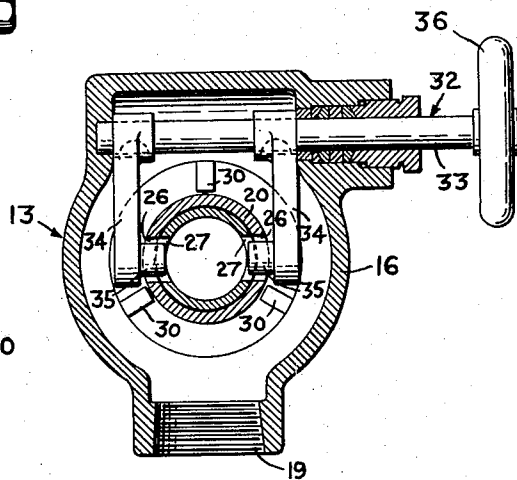


FIG. 2

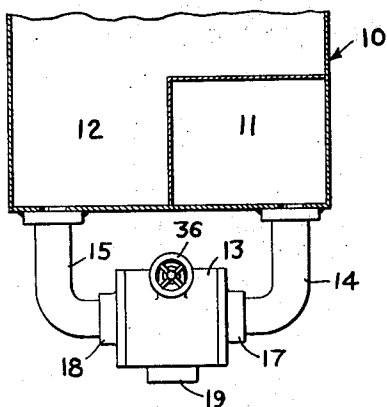


FIG. 3

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CONCRETE MIXER VALVE

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6 Claims. (Cl. 137—266)

The present invention relates to a mixer valve and more particularly to a two-way mixer valve for a truck mixer.

A rotatable truck mixer is generally provided with a dual water tank having separate compartments for containing a quantity of water to be used for mixing a batch of concrete in its mixing drum and for flushing out the drum after the batch of concrete is discharged therefrom. A two-way mixer valve may be provided for discharging the water from either compartment. In a two-way valve of this type, it is necessary to maintain the inlet opening of the valve in communication with the flush water compartment closed or seated when the inlet opening of the valve in communication with the batch water compartment is opened or unseated, to prevent introducing an excess of water into the concrete batch to be mixed to avoid making a weak concrete which will not have the desired strength characteristics.

In accordance with the present invention, a two-way mixer valve is provided for a truck mixer comprising two telescopic sleeve elements, with one sleeve element disposed for slidable movement within the other. The sleeves are arranged within a valve housing and each sleeve is provided with a valve disc formed on the end thereof adapted to engage a valve seat disposed adjacent its respective inlet opening in communication with the dual water tank of a truck mixer. A compression spring is disposed within the sleeve elements to maintain the valve discs normally seated against their respective valve seats. The telescopic sleeve elements are moved by a yoke element which extends outwardly of the valve housing and is connected to an operating handle.

When the yoke is moved in one direction it provides a force opposing the spring force normally urging the valve in a seated position, and unseats one of the sleeve elements from its valve seat while providing an additional force acting in the same direction as the spring force normally urging the other sleeve element in a seated position, and thus positively closes off communication of the other inlet opening in the valve housing in communication with one of the separate water compartments in the dual water tank. Thus, the present invention provides a two-way mixer valve for a truck mixer which prevents the inadvertent opening of the two inlet openings therein simultaneously, and prevents the discharge of an excess quantity of fluid through the discharge outlet of the valve.

The present invention further provides a novel two-way mixer valve for a truck mixer which is self-draining and eliminates the possibility of the fluid flowing there-through freezing in cold weather.

The invention will be better understood from the following description when considered in connection with the accompanying drawing forming a part thereof and in which:

Figure 1 is a side elevational view, in section, of the mixer valve embodied in the present invention.

Figure 2 is a transverse section taken on line 2—2 of Figure 1, and

Figure 3 is a view of a dual water tank for a truck

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mixer embodying the two-way mixer valve of the present invention.

Referring to the drawing, the reference numeral 10 designates a dual water tank for a truck mixer having a flush water compartment 11 and a mixing water compartment 12 therein. Compartment 11 is in communication with a two-way mixer valve 13 by a conduit or pipe 14. Compartment 12 communicates with valve 13 through a conduit 15.

Valve 13 is provided with a body member having flanges bolted on the opposite ends thereof to form a valve housing 16. Housing 16 has an inlet opening 17 in one side thereof in communication with flush water conduit 14 and an inlet opening 18 in the other side thereof in communication with conduit 15. A discharge opening or outlet 19 is provided in the lower portion of the valve housing for discharging water therefrom to a truck mixer drum, not shown. A hollow cylindrical body or sleeve 20 open at one end and having a valve disc 21 formed on the other end thereof is disposed for slidable movement in the housing and is adapted to seat on a valve seat 22 disposed adjacent inlet opening 17. Another hollow cylindrical sleeve 23 similar to sleeve 20 is disposed in the housing adjacent inlet opening 18 and is provided with a valve disc 24 formed on the end thereof adapted to seat against or engage valve seat 25 adjacent the inlet opening 18. The inner or open end of sleeve 23 is disposed for slidable movement within the inner or open end of sleeve 20. Sleeve 20 is provided with longitudinally extending recesses or slots 26 on the opposite sides thereof adjacent the open end thereof while sleeve 23 is provided with similar slots 27 on the open end thereof overlapping slots 26.

A compression spring 28 is arranged within sleeves 20 and 23 with the ends thereof adapted to abut valve discs 21 and 24 to maintain the valves in a normally seated or closed position against their respective valve seats 22 and 25 to close off communication with the flush and mixing compartments of the dual water tank 10. Lugs or guide members 30 are disposed on the interior of the housing 16 for guiding the movement of the sleeves 20 and 23 therein.

A yoke member 32 is provided for moving the sleeves in the housing to unseat the valve discs to permit communication of valve discharge opening 19 with either of the water compartments in tank 10. Yoke member 32 comprises a horizontally extending control rod 33 supported in the upper portion of the valve housing 16 and provided with vertical bars or rods 34 extending downwardly in the housing and having horizontal pin members 35 thereon adapted to extend into the slots 26 and 27 in sleeves 20 and 23. A hand wheel 36 (Fig. 3) is mounted on the end of rod 33 so that when it is turned or rotated clockwise the yoke bars 34 move therewith and pin members 35 engage the inner end of slots 26 and the outer end of slots 27. This moves sleeve 20 to the left, looking at Figure 1, and unseats valve disc 21 from its seat 22 to permit communication of flush compartment 11 with the interior of the valve housing to discharge flush water through discharge outlet 19. The engagement of the pin members 35 with the outer edge of slots 27 in sleeve 23 will provide a force in addition to the force in compression spring 28 that will positively close or maintain valve sleeve 23 in a seated position at this time.

When it is desired to communicate mixing water compartment 12 and the discharge outlet 19 of the valve housing hand wheel 36 is rotated in a counterclockwise direction so that pin members 35 engage the inner end of slots 27 in sleeve 23 to move sleeve 23 to the right, looking at Figure 1, to unseat valve disc 24 from valve seat 25 to permit the discharge of water from compartment 12 through valve 13 and out of discharge outlet 19. Pin

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members 35 also engage the outer end of slots 26 at this time and provide a force in addition to the force in spring 28 which maintains sleeve 20 and its valve disc 21 in positive engagement with seat 22 adjacent inlet opening 17 to close off communication of inlet opening 17 with discharge outlet 19. Thus, the valve of the present invention prevents the inadvertent opening of the two inlet openings therein simultaneously and hence prevents an excess quantity of water from being discharged through the discharge opening of the valve.

What is claimed is:

1. A two-way valve comprising a housing having inlet openings for receiving fluid therethrough and a discharge opening in communication with said inlet openings for discharging fluid therefrom, valve means disposed in said housing between said inlet openings and discharge opening to normally close off communication therebetween said valve means including a first valve in telescopic relation with a second valve, and actuating means operatively connected to said valve means and adapted to move said one valve in one direction to communicate one of said inlet openings with said discharge opening, and to move said second valve in another direction to communicate another of said inlet openings with said discharge opening.

2. A two-way mixer valve comprising a housing having inlet openings therein for receiving fluid therethrough and a discharge opening in communication with said inlet openings for discharging fluid therefrom, valve seats formed in said housing adjacent each inlet opening, valve discs slidably disposed in said housing to seat against each of said valve seats to close off communication between said inlet openings and said discharge opening, one of said valve discs being slidably positioned within another of said discs, tension means for said valve discs for normally maintaining said discs in a seated position, and actuating means operatively connected to said discs adapted to move one of said discs in one direction to communicate one of said inlet openings with said discharge opening and positively seat another of said discs against its valve seat, and to move another of said discs in another direction to communicate another of said inlet openings with said discharge opening and positively seat said one disc against its valve seat.

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3. The valve of claim 2 wherein each of said valve discs comprises a hollow cylindrical body opened at one end and having a disc formed on the opposite end thereof.

4. The valve of claim 2 wherein said tension means comprises a spring member arranged within said valve discs.

5. The valve of claim 2 wherein said valve discs are provided with slots in the sides thereof and said actuating means is provided with pin means extending into said slots.

6. A two-way mixer valve comprising a housing having inlet openings therein for receiving fluid therethrough and a discharge opening in communication with said inlet openings for discharging fluid therefrom, valve seats formed in said housing adjacent each inlet opening, valve discs slidably disposed in said housing to seat against each of said valve seats to close off communication between said inlet openings and said discharge opening, said valve discs comprising hollow cylindrical sleeves opened at one end and having a disc formed on the opposite end thereof, one of said valve discs being slidably positioned within another of said discs, said sleeves having slots in the sides thereof, said slots being disposed therein to overlap one another, a compression spring disposed within said valve discs for normally maintaining said discs in a seated position, and yoke means having pins thereon extending into said slots and adapted to move said discs in one direction to communicate one of said inlet openings with said discharge opening and positively seat another of said discs against its valve seat, and to move said discs in another direction to communicate another of said inlet openings with said discharge opening and positively seat said one disc against its valve seat.

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