

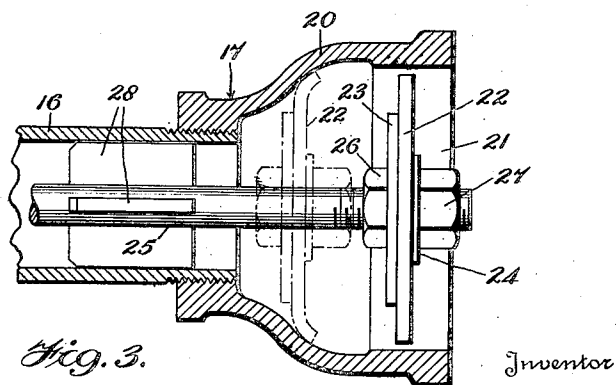
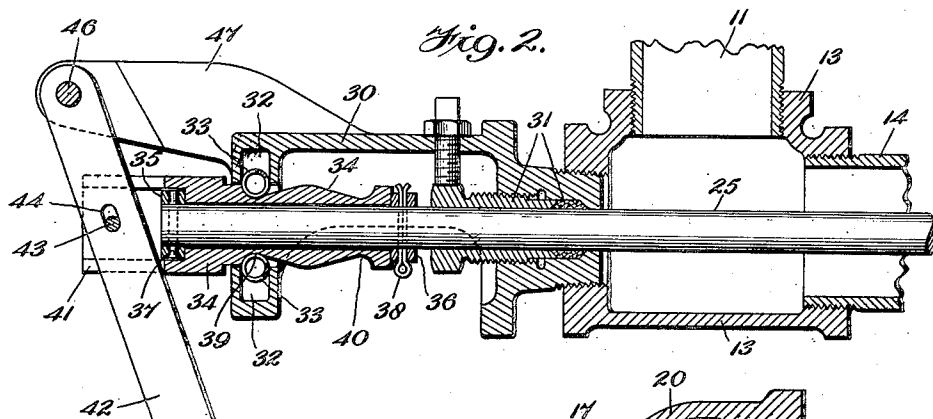
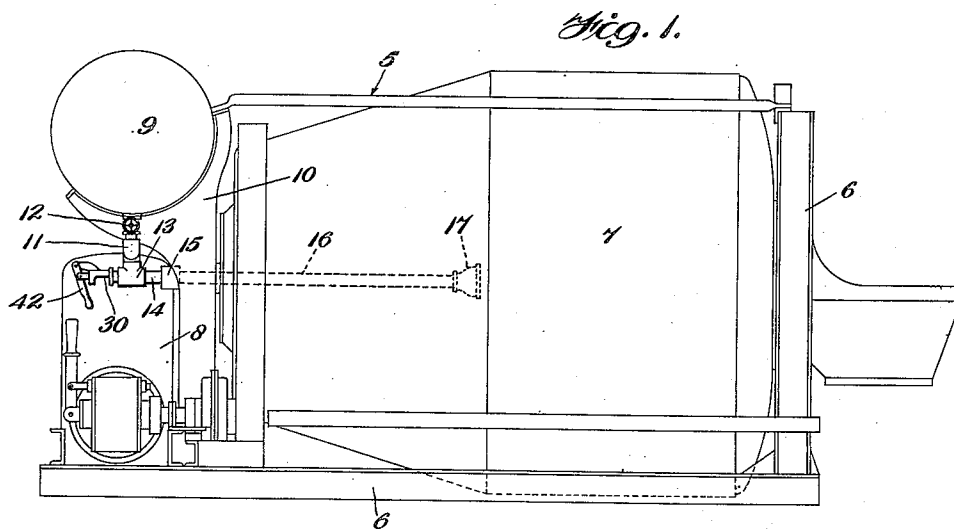
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WATER SUPPLY SYSTEM FOR CONCRETE MIXERS

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WATER SUPPLY SYSTEM FOR CONCRETE MIXERS

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The invention relates to water supply systems for concrete mixers, and has for one of its objects to provide mechanism of this character which will be simple in construction, comparatively inexpensive to manufacture and install, and more efficient in use than those which have been heretofore proposed.

In certain types of concrete mixers, such as the well known truck mixers, it is the usual practice to provide a mixing or agitating receptacle in the form of a drum mounted for rotation about a horizontal axis and having charging and discharging openings provided with hatches or doors which are tightly closed during the mixing operation. The discharging opening is usually an axial opening in one end wall of the drum, but by closing this opening during the mixing operation, it is possible to charge the drum with the coarse and fine aggregates and cement, constituting the solid constituents of the concrete mixture, to a level materially above the rotative axis of the drum.

For supplying the water necessary to complete the concrete mixture, a reservoir or tank is customarily provided exteriorly of the drum, with a conduit or pipe leading therefrom to the interior of the drum. Such pipe is ordinarily provided with a manually operable valve whereby the passage of water to the drum may be controlled at the will of the operator, and the said pipe generally passes axially through the front wall of the drum and extends to a point approximately midway between the drum ends. Since as above indicated the aggregates and cement are charged into the drum to a level above the drum axis, the water pipe is buried therein, and it is therefore common practice to provide the discharge port of the pipe with some form of device designed to prevent the aggregates and/or the mixture from working back into the pipe and clogging the same.

The present invention relates primarily to the prevention of the entry of the aggregates and/or mixture into the water conduit, and has for its principal object to provide a device which will not only positively exclude the solids from the conduit, but will also dislodge any mixture deposits from the discharge port, thereby preventing them from building up therein.

With the above and other objects in view, which will appear as the description proceeds, the invention consists in the novel details of construction and in the novel combinations and arrangements of parts, more fully hereinafter

disclosed and particularly pointed out in the appended claims.

Referring to the accompanying drawing forming a part of this specification, in which like reference characters designate like parts in all the views—

Figure 1 is a side elevational view of the essential parts of a truck concrete mixer unit of a well known type, equipped with one form of water supply apparatus in accordance with the present invention;

Fig. 2 is an enlarged longitudinal sectional view, partly in elevation, of that portion of the apparatus constituting the invention which is disposed exteriorly of the drum; and

Fig. 3 is a view similar to Fig. 2 of one form of protector which is located at the discharge port of the conduit within the drum.

In the said drawing, 5 designates a truck mixer unit, comprising a framework 6, on which a mixing or agitating drum 7 is mounted for rotation about a horizontal axis, the said drum being driven through suitable gearing from a motor contained within a housing 8. A water supply tank 9 is mounted upon a support 10, and a conduit or pipe 11 having a control valve 12 leads therefrom. The pipe 11 communicates with a T fitting 13, from which a pipe 14 leads to a slip joint or coupling 15. A pipe 16 leads from the said coupling, passing through the front end wall of the drum 7 and extending along the rotative axis to a point approximately midway between the drum ends, where its discharge end is fitted with a protector 17. The pipe 16 and protector 17 are rotatable with the drum.

The protector here shown is a modified form of the protector described and claimed in the prior U. S. Patent No. 1,956,521, granted April 24, 1934, on an application filed by Charles F. Ball, although the invention is not necessarily limited to the use of this particular type of protector. Such protectors comprise a bell-shaped housing 20, screw-threaded or otherwise secured to the end of the pipe 16, and having a discharge port 21. Within the said housing 20 is a rubber or other flexible disk 22 mounted between a pair of rigid washers 23 and 24 upon a stem 25, the assembly being longitudinally adjustable upon the said stem by means of the nuts 26 and 27.

In the said prior Ball construction, the stem 25 was a short stem which entered the pipe 16 only a short distance, with its inner end being provided with a spider which was press fitted into the pipe, whereby the stem and the disk assembly were rigidly held in a fixed relation to

the housing 20. In the present case however, this prior construction is modified in that the stem 25 is extended forwardly to extend completely through the pipe 16, the slip joint 15, pipe 13 and T 13, and to project beyond the latter. Also, the spider 28, instead of being a press fit in pipe 16, is a sliding fit therein, so that the disk assembly may be readily moved axially within the housing 20 between the full line and the broken line positions indicated in Fig. 3.

The leg of the T 13 which is opposite that entered by the pipe 14 has a bracket 30 threaded into it, as clearly shown in Fig. 2. The said bracket is provided at one end with a gland or stuffing-box 31 through which the stem 25 passes, and at its other end the bracket 30 is provided with a recess or chamber 32 in which is mounted an annular coil spring 33. The stem 25 extends through this chamber 32, and is provided at this point with a sleeve 34, in which it is freely rotatable. Relative longitudinal movement between the stem and sleeve is prevented however, by the collars 35 and 36 secured to the stem by the pins 37 and 38 respectively. The sleeve is provided with the spaced necks or circumferential grooves 39 and 40, which are adapted to alternately receive the annular spring 33, and constitute a detent for retaining the disk assembly 22, etc., in either of the positions illustrated in Fig. 3 against undesired displacement therefrom.

The outer end of the sleeve 34 is slotted as at 41, for the reception of a manual operating handle or lever 42, there being a pin and slot connection 43, 44 between these two elements. The said lever is pivotally mounted as at 46 on an arm 47 extending from the bracket 30.

The operation of the device will be clear from the foregoing, but may be briefly summarized as follows: Prior to the introduction of the aggregates and cement into the drum 7, the disk assembly 22, etc., which in the present case may be termed a valve member, is moved from the full line position shown in Fig. 3 to the broken line position illustrated therein by moving the lever 45 or handle 42 toward the left as seen in Figs. 1 and 2 to bring the annular spring 33 into engagement with the neck or groove 40. It will be understood that the said spring will retain the parts in this position in which the aggregates and cement are obviously positively prevented from entering and working back into the pipe 16 by reason of the seating of the resilient disk 22 against the inner circumference of the bell-shaped housing 20.

When the time comes for the introduction of the water into the mixing receptacle the handle 42 is returned to the position shown in Figs. 1 and 2 thereby returning the valve member to the full line position of Fig. 3, whereupon if the valve 12 be opened the water from tank 9 will flow through the pipes 11, 14 and 16 and be discharged through the port 21 of the protector 17. The movement of the valve member 22 toward the right as seen in Fig. 3 not only opens communication between the pipe 16 and port 21, but also

has the effect of pushing out of the protector housing any aggregates which may have entered therein.

While one form of the invention has been illustrated and described it is obvious that those skilled in the art may vary the details of construction as well as the precise arrangement of parts without departing from the spirit of the invention and therefore it is not wished to be limited to the above disclosure except as may be required by the claims.

What is claimed is:

1. In control mechanism for the water supply pipe of a concrete mixing receptacle, which pipe extends through a wall of the receptacle and is provided at its inner end with a water-controlling valve and at its outer end with a pipe-fitting communicating with a source of water supply, said valve having an actuating stem extending longitudinally through the pipe and fitting; a bracket member mounted by and extending from said fitting in alignment with the pipe to provide a bearing for the end portion of said valve stem, said bracket member being provided beyond said bearing with an annular recess surrounding the valve stem; a sleeve secured upon the end portion of said stem, provided with a pair of spaced grooves; spring means mounted in said bracket recess, engageable alternatively with said grooves to retain the water-controlling valve in open or closed position; and an operating handle mounted by the bracket member and having connection with the valve stem, whereby the valve may be opened and closed.

2. In control mechanism for the water supply pipe of a concrete mixing receptacle, which pipe extends through a wall of the receptacle and is provided at its inner end with a reciprocating water-controlling valve member and housing therefor, and at its outer end with a pipe-fitting communicating with a source of water supply, said valve member having an actuating stem extending longitudinally through the pipe and fitting; a bracket member detachably mounted by and extending from said fitting in alignment with the pipe to provide a bearing for the projecting end portion of said valve stem, said bracket member being provided beyond said bearing with an annular recess surrounding the valve stem; a sleeve secured upon the end portion of said stem against longitudinal movement relative thereto, said sleeve having a pair of longitudinally spaced circumferential grooves; a coiled-spring annulus mounted in said bracket recess, engageable alternatively with said grooves to retain the water-controlling valve in open or closed position; and an operating handle pivoted on said bracket member and connected to said sleeve, whereby reciprocating movements may be imparted to the stem to open and close the valve, such opening movements serving to dislodge concrete-making constituents which may have collected in the valve housing behind the valve member.

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