J. E. HODGE.

CONCRETE CONVEYER.

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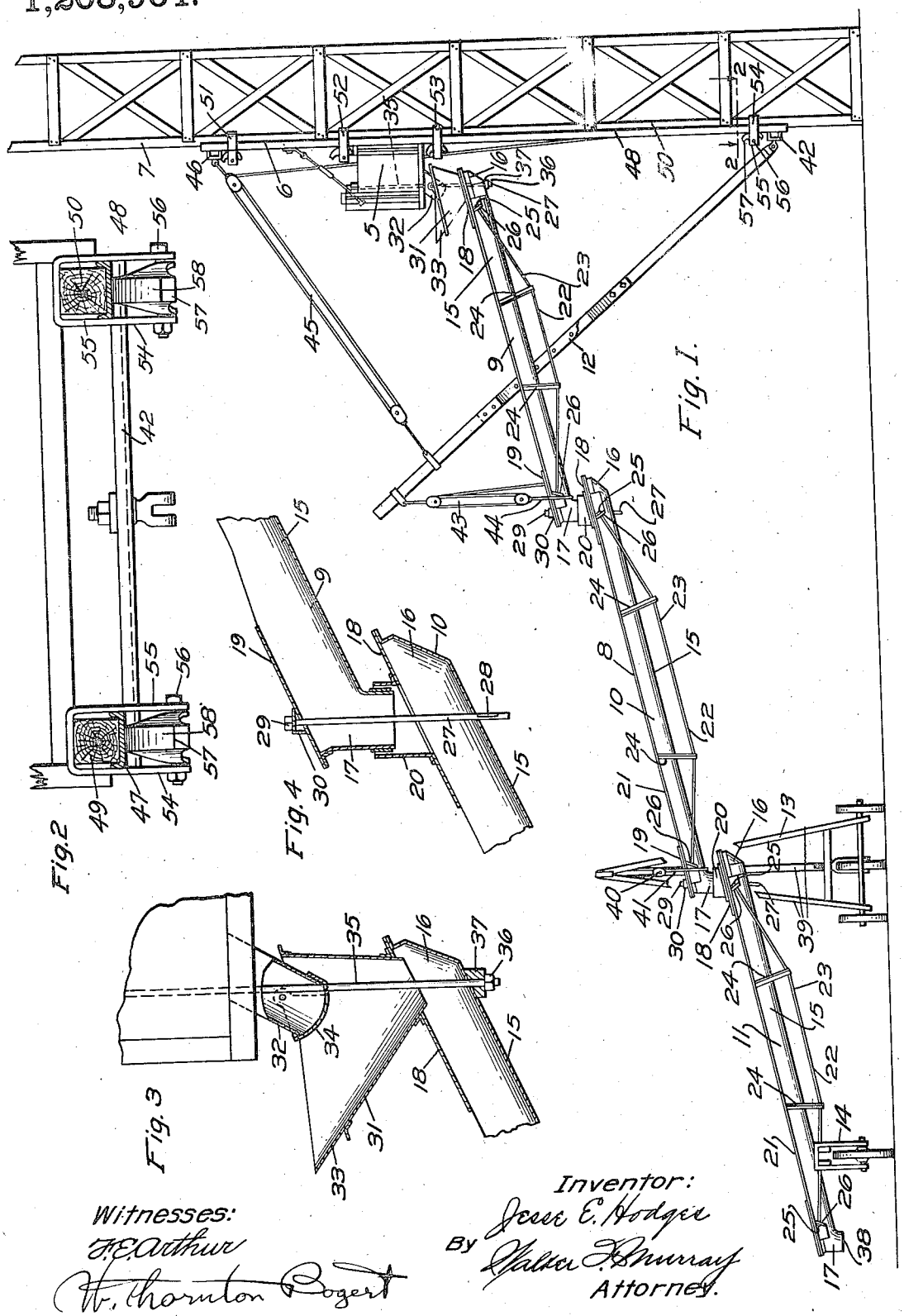


Fig. 1.

Fig. 2.

Fig. 4.

Fig. 3.

Witnesses:

F. E. Arthur

W. Thornton Rogers

Inventor:

Jesse E. Hodge

By Walter J. Murray

Attorney.

UNITED STATES PATENT OFFICE.

JESSE E. HODGES, OF CINCINNATI, OHIO.

CONCRETE-CONVEYER.

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To all whom it may concern:

Be it known that I, JESSE E. HODGES, a citizen of the United States of America, and resident of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Concrete-Conveyers, of which the following is a specification.

This invention relates to improvements in concrete conveyers and particularly to conveyers of the gravity type, in which the liquid concrete is elevated on a tower and poured into a tank, which communicates with the end of a pipe or trough through which it flows to the lower end, where it is discharged onto the molding form work.

An object of my invention is to produce a concrete conveyer which has greater durability, which is less liable to burst or collapse than other structures known to me, but which has the necessary flexibility, both vertically and horizontally.

A further object is to produce a concrete conveyer which is capable of more rapid adjustment to accommodate it to the building as the construction thereof proceeds, and to secure increased elevation and proper inclination of the conveyer troughs without delaying the construction operations.

A further object is to produce a conveyer in which the discharge end of the troughs may be moved about to deposit the liquid concrete on the form work wherever desired, without danger of stopping the flow of concrete.

Figure 1 is a side elevation of a conveyer embodying my invention. Fig. 2 is a section taken on the line 2—2 of Fig. 1. Fig. 3 is a fragmental view of the lower front portion of the tower tank, with a portion of the upper end of the conveyer trough in position to receive concrete therefrom. Fig. 4 is a fragmental sectional view of a joint between adjacent trough sections.

The conveyer embodying my invention consists of a tower tank 5 secured to a frame 6 which is adjustably mounted on the tower 7 through which the concrete is lifted to be poured into the tank, a conveyer trough 8 consisting of a series of sections 9, 10 and 11, communicating with one another at their ends, and means 12, 13 and 14 for supporting the trough sections, the means 12 being suitably secured to the adjustable frame 6 and coöperating therewith in the manner to be hereinafter described. Each trough section consists of a sheet of metal 15 bent to form the body portion of the trough and having a curved bottom to provide an easy passage for the concrete flowing therethrough. The upper end 16 of each section of the trough is closed as shown in Figs. 3 and 4, so that the concrete cannot be accidentally discharged from this end should it be poured too violently into this trough section, and at the lower end of each section a discharge spout 17 is provided, so that the concrete may be discharged directly into the upper end of the trough section located beneath it. For a short distance from the upper end of each section I provide a cover plate 18 to prevent the concrete splashing from the trough of each section as it is poured into it, and at the lower end of each section a cover plate 19 which extends a short distance from the lower end, is provided for preventing the concrete from overflowing the trough before it flows from the spout 17. To further prevent the concrete splashing or becoming accidentally discharged from the spout 17, without having passed directly into the upper end of the trough section beneath it, I provide a flange 20 constituting a short pipe section secured to each plate 18 and of sufficient diameter to receive the spout 17, as shown in Fig. 4. In order to reinforce these trough sections and to prevent their becoming twisted, as well as to prevent their collapse, I have provided flanges 21 and trusses 22. The flanges 21 extend along each side of the trough and around its ends, while the trusses are arranged in bridge like construction beneath each section of the trough. These trusses consist of bars 23 supported at points between their ends by struts 24 and secured at their ends by nuts 25 bearing against angle plates 26 secured to the sides of the ends of each section of the trough. In order to secure adjacent sections together, I preferably pass bolts 27, see Fig. 4, through the center of the spout 17 and pipe section 20, through the plate 19 of each superimposed lower end of each trough section and through the bottom of the upper end of the section beneath. By means of a key 28 passed through the lower end of each bolt beneath the lower trough section, and by means of the bolt head 29 bearing against a reinforcing angle plate 30 at the upper end of the bolt, the sections are secured together in a manner such that they may be moved

angularly, both vertically and horizontally with one another. The upper end of the top section of the trough is constructed somewhat different from the upper end of the other sections, in that instead of the short pipe section 20, a hopper 31 is provided to receive the discharge of concrete from the nozzle 32 of the tower tank 5. A lip 33 is provided on the hopper at its front edge to prevent the concrete splashing over the edge of the hopper. The end of the nozzle 32 is preferably closed by a cap 34 to regulate the discharge of concrete from the tower tank, the cap being so mounted as to be capable of adjustment to regulate the degree of opening in the nozzle.

In order to secure the hopper end of the upper section 9 of the trough in position, a means similar to the means for securing the other sections together, is employed. This means consists of an elongated bolt 35 extending through the tower tank, through the nozzle 32, the hopper 31 and the bottom of the upper section 9 of the trough. Suitable means such as a nut 36 and block 37 are employed for retaining the upper end of the upper section in position, the headed upper end of the bolt bearing against a beam extending transversely of the tank.

The means for supporting the joined trough sections consists of a wheeled truck 14 upon which the lower end of the lower section of the trough is supported, and which is adapted to be rolled about upon the supporting form work of the building to direct the stream of concrete issuing from the discharge end 38 to the point desired. Supporting the joined ends of the sections 10 and 11 is another wheeled truck 13 consisting of support members 39 arranged in the form of a tripod and adapted to support blocks and tackle 40 suspended from the apex of the tripod and having a sling 41 embracing the lower end of the section 10 of the trough. By this means the joined sections may be raised or lowered at this point to adjust the inclination of the sections. The means for supporting the joined ends of the sections 9 and 10 consist of a boom 12 pivotally mounted at its lower end on a cross bar 42 of the adjustable frame 6 and having at its upper end a block and tackle 43 with a sling 44 embracing the lower end of the upper section 9 of the trough and adapted to raise and lower them. In order to adjust the angular position of the boom with relation to the tower, blocks and tackle 45 are employed, the upper block being secured to a cross bar 46 of the adjustable frame 6.

The tank is constructed upon the adjustable frame 6 which consists of two vertically extending side members 47 and 48, preferably of channel iron of a size adapted to permit the corner posts 49 and 50 of the tower occupying the channels of the members. These side members are connected at the top and bottom by transversely extending bars 46 and 42 and at the point where the tank 5 is attached. The construction is such as to permit of the frame thus constructed, being moved bodily up or down the front posts 49 and 50 of the tower, the posts forming tracks for the channel iron side members 47 and 48. In order to secure the frame and consequently the tank and its connected trough section 9 in adjusted positions on the tower, I have provided clamps 51, 52, 53 and 54, each clamp consisting of U-shaped straps 55 embracing each of the front posts of the tower and engaging the sides of the channel iron frame members. The ends of each strap are connected by a bolt 56 upon which a clamp dog 57 is reciprocally mounted. These clamps are preferably located at points at the top and bottom of each side channel iron and at points immediately above and below the tower tank 5, so that each channel iron may be clamped rigidly to its tower post. The clamp dogs are made eccentrically, that is the clamping surface 50 of each dog is eccentric to the pivotal point thereof, so that when the dog is driven in one direction it will clamp the channel iron members to the corner posts of the tower and when driven in the other direction it will release the channel iron members and permit them to be adjusted up or down the tower posts. Because of the connection of the boom at the bottom of the adjustable frame 6, and its connection at the top thereof, it and its connected trough section 9 together with the upper end of the trough section 10 will be raised or lowered as the tower tank mounting frame 6 is raised or lowered. To accommodate the remainder of the trough to such raising or lowering of the upper section 9 and upper end of section 10 of the trough, block and tackle 40 of the tripod 13 have been provided. This permits of all of the trough sections being adjusted to substantially the same inclination so that the concrete will flow just as freely through one section as it will through another section. Any means usually employed for raising the concrete to the tower tank and for emptying it into the tank may be employed, the usual means being an elevator carrying buckets which are tripped adjacent to the tank in order to empty the concrete into it.

Having thus described my invention, what I claim is:

1. A concrete conveyer comprising a tank for concrete, a tower adapted to support the tank, means for adjustably mounting the tank on the tower, a series of trough sections pivotally connected together, and means carried wholly by the first mentioned means, adapted to adjust the sections verti-

cally and to permit horizontal movement thereof to deliver concrete to the points desired.

2. In a concrete conveyer the combination of a tank for concrete, a tower, a frame supporting the tank, clamps for adjustably securing the frame in position on the tower, a trough comprising a series of sections pivotally connected together and adapted to conduct the concrete from the tank to the place where it is to be used, and adjustable means carried wholly by the frame for supporting the trough sections.

3. A concrete conveyer comprising a tank for concrete, a tower, a frame adapted to mount the tank, clamps for adjustably securing the frame to the tower, a trough comprising a series of sections pivotally connected together, and adjustable means consisting of a boom pivotally connected with the frame, blocks and tackle connecting the frame and the boom, and the boom and certain of said trough sections.

In testimony whereof, I have hereunto subscribed my name this 7th day of January, 1915.

JESSE E. HODGES.

Witnesses:
WALTER F. MURRAY,
W. THORNTON BOGERT.