L. H. DRAEGER.

DISCHARGE SPOUT FOR CONCRETE MIXERS.

APPLICATION FILED SEPT. 24, 1917.

1,308,148. Patented July 1, 1919.

FIG. 1.

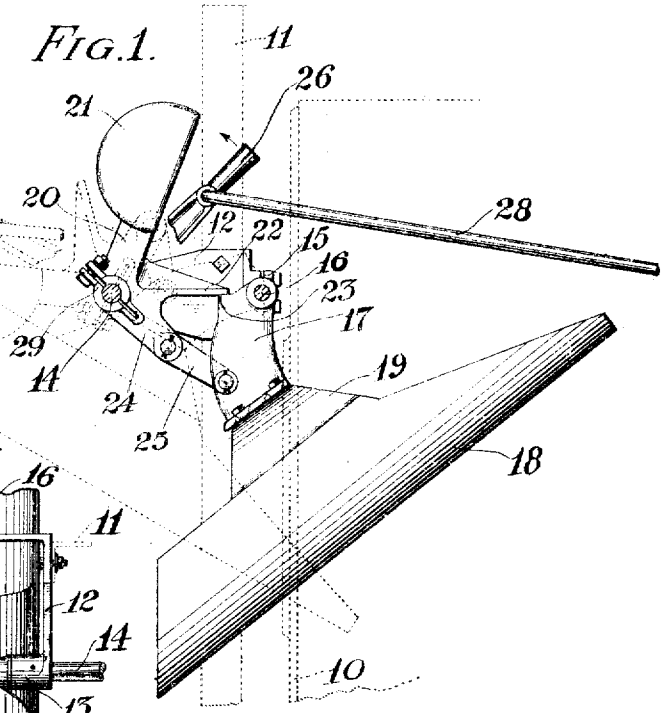


FIG. 3.

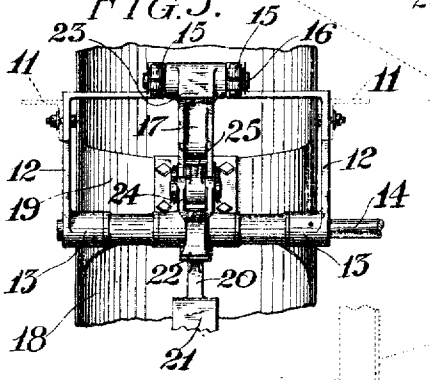
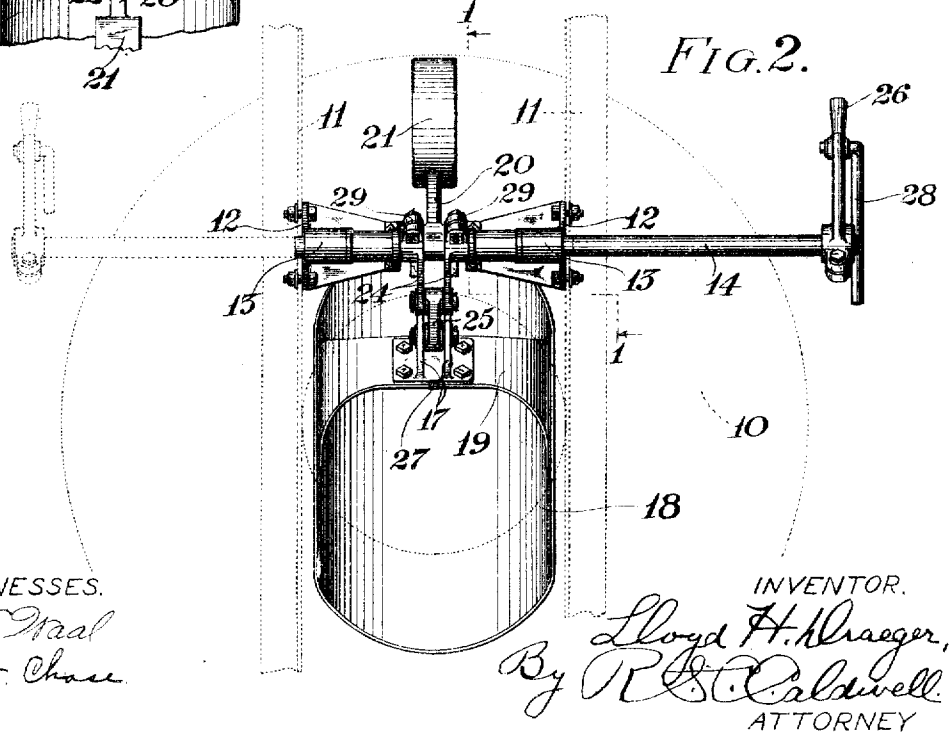


FIG. 2.



WITNESSES.

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DISCHARGE-SPOUT FOR CONCRETE-MIXERS.

1,308,148. Specification of Letters Patent. Patented July 1, 1919.

Application filed September 24, 1917. Serial No. 192,933.

To all whom it may concern:

Be it known that I, LLOYD H. DRAEGER, a citizen of the United States, and resident of Milwaukee, Milwaukee county, Wisconsin, have invented new and useful Improvements in Discharge-Spouts for Concrete-Mixers, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention has for its object to provide a discharge spout for concrete mixers which will be readily changed from its inner discharging position to its outer idle position, but which will become positively locked in its inner position against any tendency to swing owing to the weight of the material dropped therein.

Another object of the invention is to simplify the construction of the discharge spout supporting and operating means whereby it may be inexpensive to manufacture.

Another object of the invention is to so mount the operating shaft that it is capable of sliding through the parts attached thereto in order that the hand lever may be located either on one side of the machine or the other.

With the above and other objects in view, the invention consists in the discharge spout for concrete mixers as herein claimed and all equivalents.

Referring to the accompanying drawings in which like characters of reference indicate the same parts in the different views:

Figure 1 is a side view of a discharge spout constructed in accordance with this invention, one of the supporting brackets having been removed;

Fig. 2 is an end view thereof; and,

Fig. 3 is a plan view.

In these drawings the concrete mixing drum 10 is shown in dotted lines and two angle iron uprights 11 are positioned at the end thereof at either side of the discharge opening.

Angular brackets 12 are bolted or otherwise secured to the uprights 11 and have tubular projections 13 at one end forming bearings for an operating shaft 14, while their other ends extending toward each other terminate in half bearings with caps 15 secured thereto to receive the ends of a pivot pin 16 of a spout hanger 17. The spout member 18 is a trough-like metal chute with an arch 19 connecting its sides and bolted or riveted to the hanger casting 17.

On the operating shaft 14 between the bearings 13 is clamped a casting 20 which preferably consists of radial arms, one bearing a counterweight 21, another constituting a stop 22 for engaging a shoulder 23 on the hanger casting 17, and two others arranged side by side constituting toggle arms 24 with a link 25 pivoted between them. The link 25 is also pivoted between the side cheeks of the hanger casting 17.

The movements of the discharge spout are accomplished by means of a handle 26 on the operating shaft 14, the turning of said shaft by means of the handle serving to swing the hanger 17 and its spout by means of the toggle connections 24 and 25.

The discharge spout 18 is suspended from its pivotal connection with the brackets 12 so as to be capable of swinging from its outer position, shown in dotted lines in Fig. 1, to its inner position, shown in full lines, and in doing so the knuckle joint, in the toggle formed by the arms 24 and the link 25, passes beyond the line connecting the center of shaft 14 with the pivotal connection of the link with the hanger. The tendency of the spout to swing outwardly, due to the weight of the material dropped into the inner end thereof, is resisted by this arrangement of the toggle joint, for, with the knuckle beneath such line of centers, the swinging action of the spout could only be permitted by the arms 24 turning farther in a clockwise direction, as viewed in Fig. 1, but further turning in this direction is prevented by the stop 22 being in engagement with the shoulder 23. The discharge spout is therefore automatically and positively locked in its inner discharge position. There is no likelihood of vibration or jar carrying the knuckle joint of the toggle beyond the line of centers accidentally for the weight 21 passed over its pivotal center in the movement of the parts to the inner position of the discharge spout and is, therefore, in position to hold the stop 22 against the stop shoulder.

The return of the discharge spout to its outer position is effected by a movement of the handle 26 in the direction of the arrow in Fig. 1, thus lifting the weight 21 over its pivotal center and swinging the stop 22

away from shoulder 23 while lifting the arms 24 and the toggle knuckle so as to pull upwardly on the hanger and swing the spout to the position shown in dotted lines. The counterweight 21 swings from the position above its pivotal center to a position of maximum counterweighting effect as the spout swings from its inner position, in which its center of gravity is approximately beneath its pivotal center, to its outer position, in which it requires such maximum counterweighting effect in order to be balanced thereby. This arrangement makes it easy to swing the discharge spout from one position to another. In the outer position of the discharge spout a beveled lug 27 on the edge of the hanger 17 engages the casting 20 to limit the movement of the parts.

The operating shaft 14 is preferably of such a length that at one end it projects beyond the drum in order that the handle 26 may be located in a position which will enable the use of a connecting rod 28 leading therefrom to the other end of the drum. This permits the operation of the discharge spout from the feeding end of the drum and in order that such control may be easily changed from one side of the drum to the other the casting 20 is preferably clamped on said shaft by means of a split collar 29. The handle 26 may thus be removed from one end of the shaft 14 and with the split collar released by loosening its clamping bolts the shaft 14 may be moved endwise through its bearings so that its other end projects beyond the drum and the handle may then be attached to such projecting end.

The discharge spout of this invention is simple in its construction and is strong and durable, with its positive automatic locking engagement accomplished by the simple and effective mechanism for swinging it. The arch connecting the sides of the trough-shaped spout member permits of the use of the single hanger with a corresponding simplification of the structure of the supporting and operating parts.

What I claim as new and desire to secure by Letters Patent is:

1. A discharge spout for concrete mixers and the like, comprising a pivotally suspended spout member, an operating shaft, a toggle connection between the operating shaft and the spout, and a stop on the operating shaft engaging the spout member for limiting the movement of the toggle connection after it has passed its straight line position.

2. In a discharge spout for concrete mixers and the like, a pair of similar bracket members adapted for connection with suitable supports and forming bearings at their opposite ends, a spout member, an arch extending across the spout member, a hanger member on the arch pivotally mounted in and between the bearings at one end of the brackets, an operating shaft mounted in the bearings at the other end of the brackets, means for turning the operating shaft, a crank on the operating shaft, and a link connecting the crank with the hanger member.

3. In a discharge spout for concrete mixers and the like, a pair of similar bracket members adapted for connection with a suitable support and having bearings at one end thereof and their other ends extending laterally toward each other and forming bearings, a spout member, a single hanger member having connection with the edges of the spout member and pivotally mounted in and between the last mentioned bearings of the bracket members, an operating shaft journaled in the other bearings, means for turning the operating shaft, a crank on the operating shaft between its bearings, and a link connecting the crank with the hanger member.

4. A discharge spout for concrete mixers, comprising a pivotally suspended spout member, a suitably mounted operating shaft, a toggle connection between the operating shaft and the spout member, a stop on the operating shaft engaging the spout member, and a counterweight on the operating shaft.

5. In a discharge spout for concrete mixers and the like, a pair of brackets adapted for attachment to suitable supports, each bracket having a sleeve formed on one end thereof and its other end extending toward the other bracket and terminating in a half bearing, caps on the half bearings, a hanger having a pivot pin with its ends mounted between the half bearings and their caps, an operating shaft journaled in the sleeves, a member secured to the operating shaft between the sleeves and provided with radially extending arms, a counterweight on one arm, a shoulder on the hanger engaged by another arm to form a stop, a link pivotally connected to other arms and to the hanger, and a spout member carried by the hanger.

6. In a discharge spout for concrete mixers and the like, a pair of brackets adapted to be attached to suitable supports, a hanger pivotally supported by the brackets, an operating shaft journaled through the brackets, a member releasably clamped on the operating shaft between the brackets and having link connection with the hanger, said operating shaft being slidable through the brackets and the said member so as to project at either end, a handle detachably connected with the projecting end of the operating shaft, and a spout member carried by the hanger.

7. In a discharge spout for concrete mixers and the like, a pivotally mounted spout member adapted to swing from an inner discharge position to an outer idle position, an operating shaft, a toggle connection be-

tween the operating shaft and the spout, a stop limiting the movements of the toggle connection when it has passed its straight line position for locking the spout member in its discharge position, and a counterweight having connection with the operating shaft and extending in an approximately horizontal position to exert a maximum counterweighting effect for counterweighting the spout in its outer position and adapted to pass over its vertical position to hold the stop in its engagement in the inner position of the spout.

In testimony whereof, I affix my signature, in presence of two witnesses.

LLOYD HARRY DRAEGER.

Witnesses:
RAYMOND C. KRUEGER,
FRED J. PURCELL.

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