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DELIVERY CHUTE FOR MIXING MACHINES.

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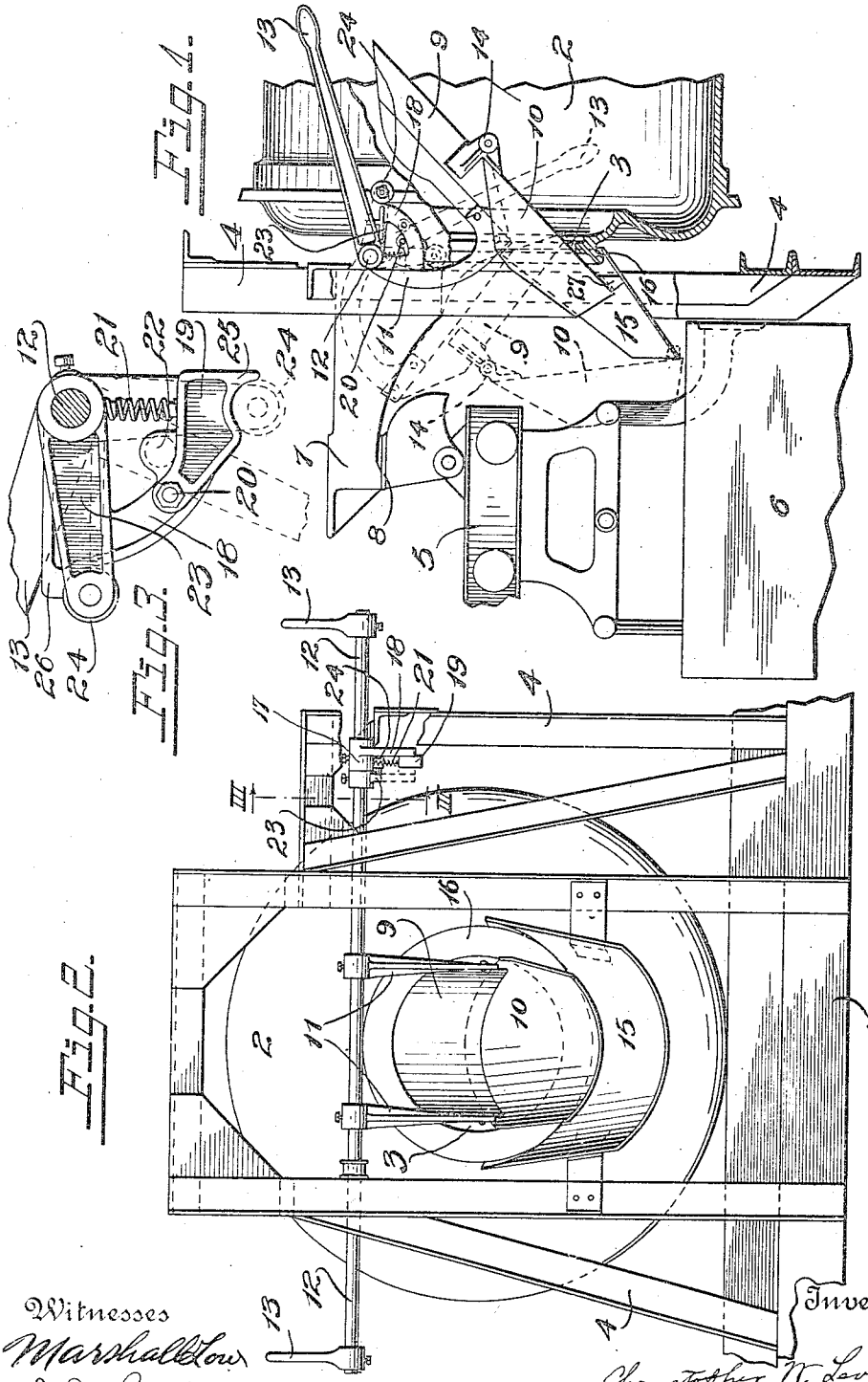


Fig. 1.

Fig. 3.

Fig. 2.

Witnesses

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DELIVERY-CHUTE FOR MIXING-MACHINES.

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To all whom it may concern:

Be it known that I, CHRISTOPHER W. LEVALLEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Delivery-Chutes for Mixing-Machines, of which the following is a specification.

My invention relates to chutes for delivering material, and has been devised with especial reference to being used in connection with a concrete mixing machine and a delivery bucket mounted upon a swinging boom which is supported adjacent to the concrete mixer, the chute operating in combination with these devices as the means by which the mixed concrete is directed into the bucket, which in turn conveys it to the place where it is to be used.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of an apparatus such as just referred to, parts thereof being shown in section, and other parts being broken away or omitted entirely;

Fig. 2 is an end view, the receiving bucket and its supporting frame being removed;

Fig. 3 is a vertical section, taken on the line III—III of Fig. 2.

In the drawings, 2 represents the revolving cylinder of a concrete mixing machine, but a portion of the delivery end thereof being shown. In the end of the cylinder there is formed an axial opening 3.

Stationary framework 4 is erected near the end of the cylinder and serves as a support for the delivery chute, its operating mechanism and an adjustable boom 5 on which travels a bucket 6 that conveys the concrete to the place where it is to be used. The boom is supported by a bracket 7 extending outward from the framework 4, and is free to be adjusted about a vertical pivot 8 in such bracket. The means for adjusting the boom and for operating the bucket are not shown, since they may be of any approved construction and form no part of the present invention. Suffice it to say, the bucket is adapted to be brought close to the end of the mixing drum, as represented in Fig. 1, where it is in position to receive material delivered from the drum through the delivery chute. The chute, when in operating position, that is, when delivering material from the mixing drum outward, extends through the axial opening 3 and well into the interior of the drum; and when in inoperative position, is withdrawn from the interior of the drum and occupies an inverted position, that is, one inclining inwardly, or from the outside toward the interior of the mixing drum, when it serves as a guard or shield to direct back into the drum such of the material being mixed as may be thrown out through the opening 3 of the drum.

One of the objects of the invention is to so devise a delivery chute that it will serve the two purposes just indicated, and shall not, when moved out of the drum, interfere with the movements of the boom, the bucket which it supports, or the means employed for adjusting and supporting the boom, which parts must be brought as close as possible to the end of the mixing drum. The chute consists essentially of two parts, 9 and 10, hinged together and arranged, when in operating position, to be in line with one another, but when in inoperative position, to be folded relative to each other.

The inner section 9 is supported by a pair of curved arms 11, 11, mounted upon a cross shaft 12 supported in bearings in the framework 4, and provided at its ends with operating handles 13. The outer section, 10, of the chute, is united with the inner section by hinges 14. The positions occupied by the two parts of the chute when in working relation, delivering from the drum 2, are indicated in full lines in Fig. 1, while their inoperative, non-delivering, positions are indicated in dotted lines in the same view.

15 indicates a supplemental stationary chute supported by the framework and employed to receive the material from the adjustable delivery chute and convey it to the bucket 6. It is not necessary under all circumstances to employ this supplemental chute, but in a concrete mixing apparatus it has been found advantageous. Its inner end extends close to the end of the drum 2, lying under the drip rim 16 that surrounds the opening 3.

The arms 11 hold the section 9 of the chute at some distance away from the shaft 12 so that such chute section, as it is oscillated, moves in a path concentric to the said shaft but at some distance therefrom. The other section, 10, of the chute is pivotally

connected with the section 9 near its end to which the arms 11 are connected, and the two adjacent ends of the section overlap when they are brought into alinement with each other.

17 designates one of the bearings for the shaft 12. It is suitably secured to the framework 4 and is formed with an attachment 18, preferably segmental in shape. A yielding stop, in the form of a latch 19, is pivoted, at 20, to the segment 18, and a spring 21 bears upon this latch and holds it in working position, while a stop, in the form of a projection 22, carried by the latch, limits its outward movement, the projection being arranged to bear upon the segment 18.

23 is an arm keyed fast to the shaft 12, close to the bearing 17. It carries a roller 24 adapted, when the shaft is rocked so as to carry the parts of the chute into the position shown in dotted lines in Fig. 1, to engage with the curved end 25 of the latch 19, thus holding with yielding force the parts of the chute in this inactive position. When the parts are in the other position,—indicated in full lines in Fig. 1,—the roller 24 engages with the fixed stop 26 formed by the upper end of the segmental portion of the bearing 12.

The operation of the apparatus may now be set forth. When a batch of material within the drum has been thoroughly mixed and it is desired to deliver it, the chute is brought into the position indicated in full lines in Fig. 1 by properly operating the rock shaft 12. As shown, the two parts, 9 and 10, of the chute are then in alinement with each other, the inner section being held in place by its supporting arms 11, and the outer section being supported by its hinges 14 and supports 27 which it carries, arranged to bear upon the stationary supplemental chute 15.

As will be seen, the chute extends relatively far into the drum, and hence operates to quickly discharge the mixer, and delivers well beyond the end of the drum, in the present case, upon the supplemental chute 15 that discharges the material into the bucket 6. As soon as the bucket is loaded, the lever 13 is operated, rocking the shaft 12, and carrying the chute into the position indicated in dotted lines in Fig. 1, when, as will be seen, the inner section, 9, lies almost entirely outside the drum 2 in a position inclining downwardly and inwardly, while the outer section, 10, hangs in a substantially vertical position suspended from its hinges 14. When the parts are in this position they are not only outside the drum, but are also not in the way of the bucket, the boom, or the parts by which the boom is supported and adjusted. When the parts are in these last mentioned positions, the roller 24 carried by the arm 23, engages with the spring latch and securely, though yieldingly, holds the parts of the chute thus, until it is desired to again bring them into operation.

While I have described in some detail one use to which my invention may be put, it is evident that is adapted for other uses. For instance, it might be used as a feed chute, in which event it would occupy the position shown in dotted lines in Fig. 1. Then when material was to be fed through it to the drum, the outer section 10 could be brought into alinement with the inner section 9, and when the chute was not in use the outer section could be allowed to fold down, as represented in the drawings.

What I claim is:

1. A delivery chute formed of two sections pivotally connected together near their ends whereby they are adapted to be brought into alinement with each other or to fold relative to each other, and arms rigidly connected with one of the chute sections and pivotally supported, the arms holding such section at a distance from the pivotal center about which the arms oscillate.

2. A delivery chute formed of two sections pivotally united to each other near their ends and adapted to be moved into alinement with each other, or to be folded at an angle to each other, and a pair of pivoted arms connected with one of the sections near that end that is pivotally united with the other section, the said arms holding the chute at a distance from the center about which the arms oscillate, and means by which the said arms may be oscillated.

3. The combination of a chute formed of two sections pivotally united and adapted to be brought into alinement with each other or to be folded relative to each other, pivoted arms connected with one of the said sections and arranged to hold it at a distance from the pivotal center about which the arms swing, means for oscillating the arms so as to carry the chute section from a position at one side of the vertical plane passing through the axis of oscillation to the other side of the said plane, and means for causing the sections of the chute to be brought into alinement when the chute section supported by the arms is swung to one side of the said vertical plane, the free pivoted section being adapted to fold relative to the supported section when the latter is turned to the other side of the said vertical plane.

4. A chute pivotally supported so that when swung into one position it inclines in one direction and when swung into another position it inclines in the opposite direction, a chute section pivoted directly to the first mentioned chute so as to be free to swing about its pivotal connection and arranged to fold relative thereto when the said chute is swung into one of the aforesaid positions,

and means for bringing the chute section into alinement with the chute to which it is connected when the latter is swung into the other of the aforesaid positions.

5. The combination of a delivery chute formed of two sections pivotally connected to each other and arranged either to be moved into alinement or to be folded relative to each other, pivoted arms connected to one of the sections and holding it at a distance from the center about which the arms oscillate, the arms being connected with the chute section so that when they are turned to carry such section to one side of the vertical plane passing through the axis of oscillation of the arms the said section inclines in one direction, and when turned to carry the section to the other side of the said plane the chute section inclines in the opposite direction, and a stationary chute adapted to be engaged by the free end of the freely swinging chute section and arranged to be engaged by the latter as the supported chute section is moved to one side of the said vertical plane, whereby the chute sections are caused to be brought into substantial alinement with each other and into position to deliver to the said stationary chute.

6. A delivery chute for a mixing machine, consisting of two sections pivotally connected and adapted to be brought into line with each other, a rock shaft, arms connecting the rock shaft with the inner section of the chute and arranged to cause the chute to be inclined in one direction when the shaft is turned to one position, and to be inclined in the opposite direction when turned to a different position, the outer section of the chute being pivotally connected with the inner section near the outer end of the latter, whereby it is free to fold relative thereto when the chute is inclined in one of the said directions.

7. The combination of a delivery chute, a rock shaft, arms connecting the rock shaft and the chute arranged to permit the chute to incline in one direction when the shaft is rocked to one position, and in the opposite direction when rocked to another position, an arm carried by the rock shaft, stops for arresting the movements of the said parts when the chute assumes the said positions, one of the stops being a yielding spring latch with which the arm carried by the rock shaft engages and by which it is arrested, arranged to hold the parts of the chute in position and against movement beyond such position, but to permit return movement of the parts upon sufficient force being applied to cause the latch to yield.

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