July 30, 1957 J. HERTRICH 2,801,035

POWER-OPERATED LOADING GATE FOR CENTRIFUGAL MACHINES

Filed Sept. 17, 1953 3 Sheets-Sheet 1

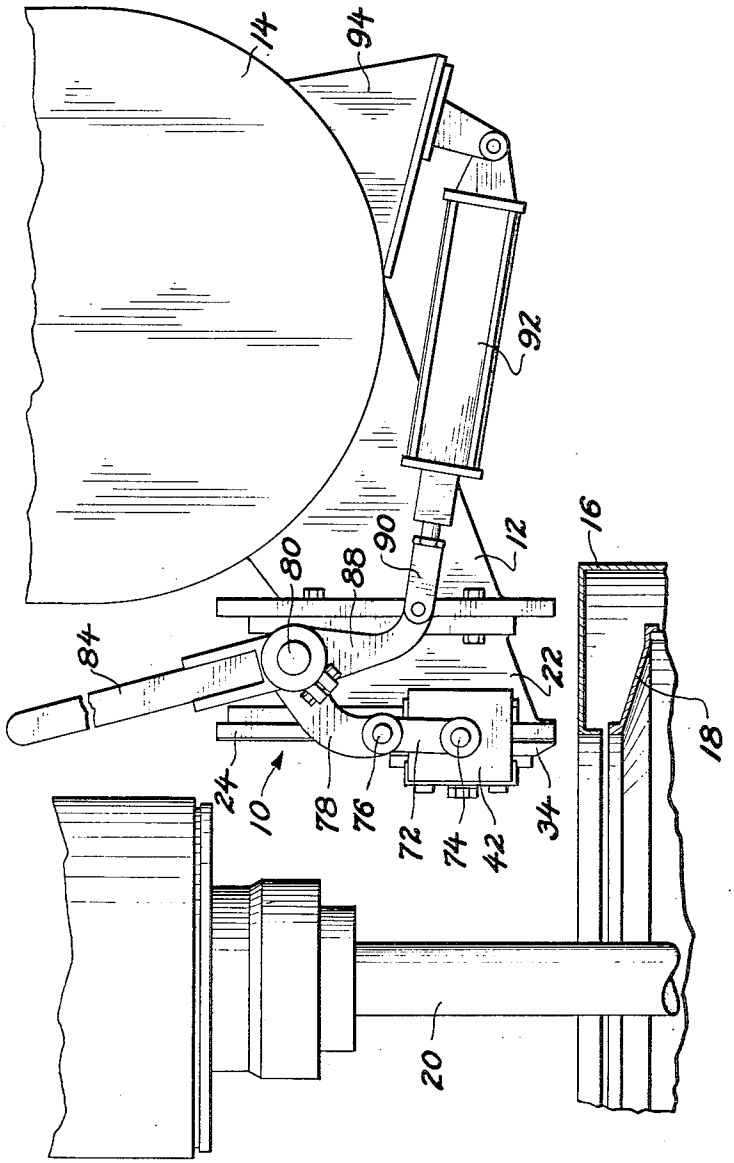

Fig. 1

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Filed Sept. 17, 1953 3 Sheets-Sheet 2

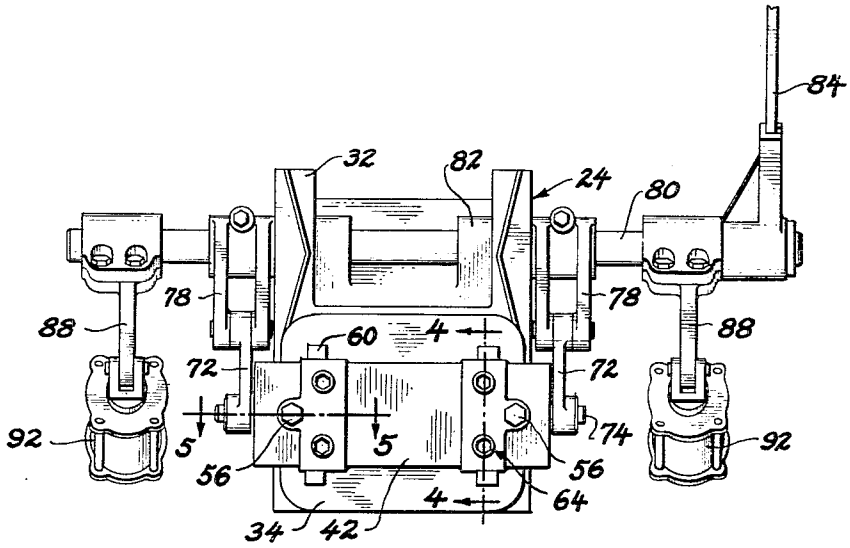

Fig. 2

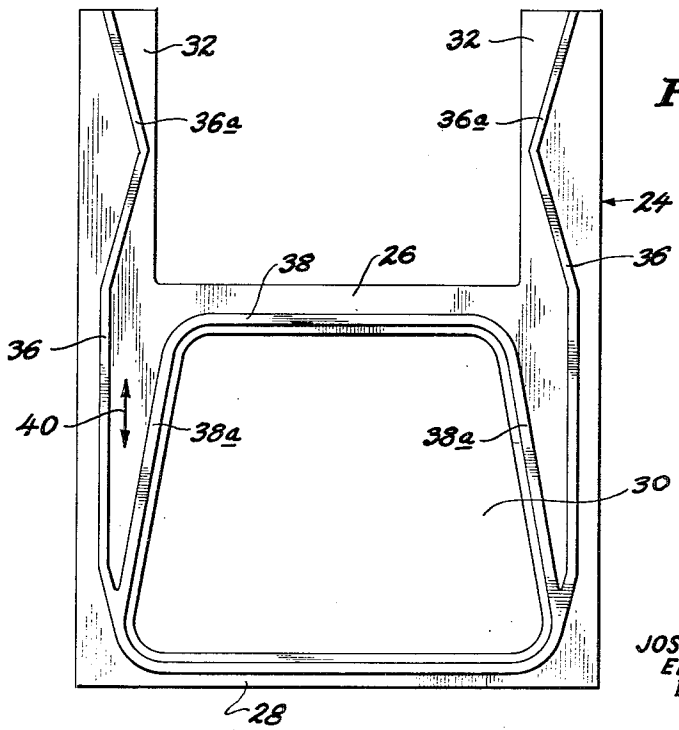

Fig. 3

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Filed Sept. 17, 1953 3 Sheets-Sheet 3

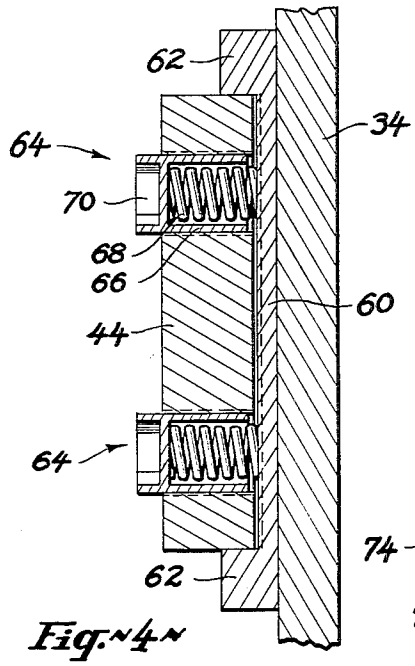

Fig. 4

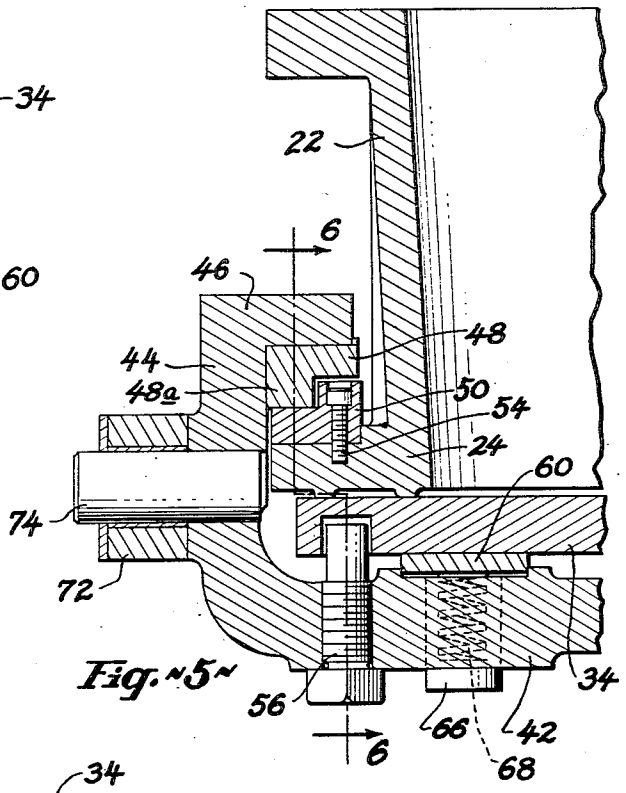

Fig. 5

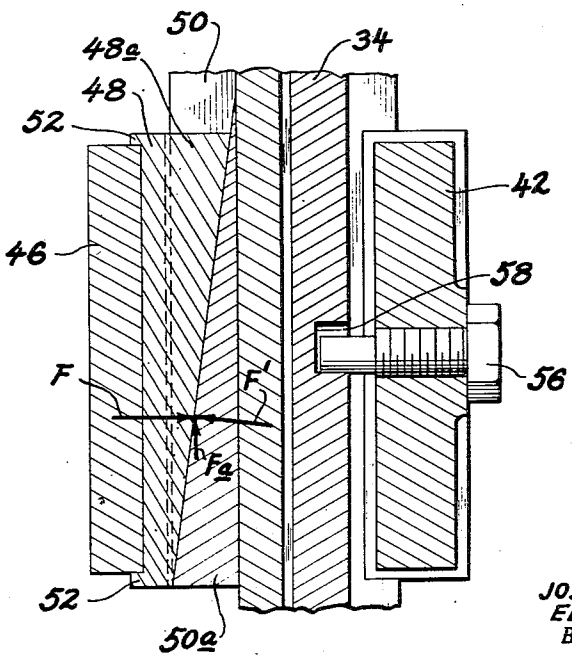

Fig. 6

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2,801,035

POWER-OPERATED LOADING GATE FOR CENTRIFUGAL MACHINES

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Application September 17, 1953, Serial No. 380,860

10 Claims. (Cl. 222—504)

This invention relates to improvements in loading gates or spout discharge mechanisms, particularly for loading charges of sugar massecuite or magma into sugar centrifugals.

In the sugar manufacturing industry, the separation of sugar crystals from mixtures of sugar crystals and syrup is carried out by treating charges of the mixture in centrifugal machines of the filtering type. A supply tank, or "centrifugal mixer," is usually provided adjacent to a group of centrifugal machines to hold a comparatively large quantity of the mixture, and loading spouts or chutes extend from the bottom of the supply tank to positions permitting charges of the mixture to be discharged from the spouts and loaded into the baskets of the respective centrifugals. Each loading spout is equipped with a loading gate for controlling the loading operations. In order to minimize the manual labor involved in operating the loading gates associated with the centrifugal machines grouped around a supply tank, such actuation is preferably performed automatically, for example, by pressure fluid operated devices.

Accordingly, an object of the present invention is to provide a fluid pressure operated loading gate construction, for centrifugal mixer tanks and the like, which will operate more efficiently than known constructions and is particularly suitable for automatically controlled operation supervised from a remote control center.

Another object is to provide a loading gate construction of the described character wherein the gate body, through which the material flows from the related loading spout, has an improved facing at one end against which the gate slidably bears, with the facing being formed to minimize the frictional resistance to sliding movement of the gate and to provide a wiping action for avoiding scoring of the slidably contacting surfaces and for preventing the build-up of crystal and syrup deposits on such surfaces thereby to ensure proper sealing of the gate against the facing when the gate is in its closed position.

Another object is to provide a loading gate construction of the described character, wherein the initial portion of the gate movement from its closed position is automatically effected upon relaxation of the pressure fluid applied force urging the gate toward its closed position so that the pressure fluid applied force needed for opening the gate is minimized and the gate opens, at least partially, in response to failure of the fluid pressure operated actuating means to afford a visual indication of such failure.

A further object of the invention is to provide means for urging the gate against the facing with a substantially constant yieldable force during movement of the gate toward and away from its closed position and a wedging action on the gate at the conclusion of its movement toward the closed position thereof for tightly seating the gate against the facing of the gate body, and wherein, upon release of the pressure fluid applied force urging the gate to its closed position, such wedging action results in a component of that force which acts parallel to the facing in the direction of movement of the gate toward its open position and has a magnitude greater than the frictional resistance to movement of the gate toward its open position so that the gate then automatically opens, at least partially, to assist in opening of the gate and to afford a visual indication of the release of the pressure fluid applied force.

In accordance with the invention a loading gate construction is provided with a facing on the gate body having relatively narrow bearing strips thereon for sliding contact with the gate and formed of a hard, wear resistant material, with the bearing strips being inclined relative to the direction of travel of the gate between the open and closed positions of the latter so that the bearing strips produce a wiping action on the contacted surface of the gate to avoid scoring of the latter and the build-up of accumulated crystal and syrup deposits, and means urging the gate against the bearing strips with a yieldable force to ensure sealing of the gate against said strips during movement of the latter to and away from its closed position. Further, the movements of the gate between its open and closed positions are guided by contacting guide members on the gate and gate body having inclined or wedging portions engageable during the concluding portion of the movement of the gate toward its closed position to then clamp the gate against the facing of the gate body, with the wedging portions being inclined sufficiently relative to the path of movement of the gate so that the component of the above mentioned yieldable force acting parallel to that path of movement and in the direction tending to open the gate is greater than the frictional resistance to movement of the gate in said direction whereby the gate automatically opens, at least partially, upon release of the pressure fluid applied force used for closing the gate.

The foregoing and other objects, features and advantages of the invention and a suitable manner of practicing the same will be apparent from the following description of an illustrative embodiment of the invention, when considered in connection with the accompanying drawings, wherein:

Fig. 1 is a fragmentary side elevational view, partly in section, showing portions of a centrifugal mixer having a loading spout extending therefrom, portions of a centrifugal machine arranged to be loaded from the spout, and a gate construction embodying the present invention and associated with the loading spout;

Fig. 2 is a front elevational view of the gate construction shown in Fig. 1;

Fig. 3 is a front elevational view, on an enlarged scale, of a facing included in the gate construction of Figs. 1 and 2;

Fig. 4 is a fragmentary sectional view taken along the line 4—4 of Fig. 2, but on an enlarged scale;

Fig. 5 is a fragmentary sectional view taken along the line 5—5 of Fig. 2, but on an enlarged scale; and

Fig. 6 is a fragmentary sectional view taken along the line 6—6 of Fig. 5.

Referring to the drawings in detail, and initially to Fig. 1 thereof, a gate construction embodying the present invention is there illustrated and generally identified by the reference numeral 10. The gate construction 10 is shown associated with a loading spout or chute 12 extending laterally and downwardly from the lower portion of a mixer tank 14 to a position overlying the curb or casing 16 and rotatable basket 18 of a sugar centrifugal. The basket 18 is suspended in the usual manner from a centrifugal spindle 20, which is adapted to be rotationally driven at high speed by suitable means (not shown) in order to separate syrup from each charge of sugar massecuite or magma in the basket and expel the

syrup or liquid content of the charge through the usual perforate side wall of the basket.

In the illustrated arrangement, spout 12 is of generally rectangular cross-sectional shape and has a gate body 22 bolted thereto and forming an end portion upon which the loading gate and its actuating mechanism are mounted. The forward end wall or facing 24 of gate body 22, as seen in Fig. 3, may be described as being of generally H-shaped configuration with an intermediate cross-member 26 overlying the upper margin of the spout outlet and the lower ends of the H being connected by a lower cross-member 28 underlying the lower margin of the spout outlet which is defined by the opening 30 in the gate body. The upper legs 32 of the forward end wall or facing project above the gate body and provide a slideway for a gate 34 in movement of the latter away from and to closed position across spout outlet opening 30.

As seen in Fig. 3, the forward end wall or facing 24 has narrow bearing strips 36 and 38 thereon and against which the smooth rear face of closure or gate 34 is slidably engaged. Bearing strips 36 and 38 are formed of hard, wear resistant metals which are welded to the forward face of end wall 24. For example, bearing strip 38, which extends around the opening 30, is preferably formed of a weld of high speed cutting tool metal, such as, Stellite which is an alloy of steel with cobalt, chromium and tungsten, while bearing strips 36, extending upwardly from the lower corners of strip 38, are preferably formed of stainless steel weld. It will be noted that the upper portions 36*a* of bearing strips 36 and the side portions 38*a* of bearing strip 38 are angled or inclined relative to the direction of movement of gate 34 away from and to its closed position, as indicated by the arrow 40 (Fig. 3). Thus, while the bearing strips are narrow to minimize the area of the gate contacted at any time by such strips and hence the frictional resistance to movement of the gate, the angled or inclined character of portions 36*a* and 38*a* of the bearing strips provides a wiping action across the rear face of gate 34 during movement of the latter and transfers the area of contact laterally across the rear face to prevent scoring of the latter along lines extending parallel to the direction of movement of the gate. The above mentioned wiping action further serves to remove accumulated crystal and syrup deposits from the rear face of gate 34 which, if left on the gate, might interfere with smooth seating of the gate against bearing strip 38 in its closed position across opening 30 and thereby cause leaking of the mixture past the imperfectly seated gate. The removal of accumulated deposits by the wiping action also prevents such deposits from interfering with, or resisting, movement of the gate toward and away from its closed position.

Sliding movement of the gate 34 on the bearing strips 36 and 38 away from and back to its closed position is effected by gate actuating mechanism including a cross head 42 which extends transversely across the outer or front side of the gate and has rearwardly turned or directed end portions 44 (Fig. 5) embracing the opposite side edge of end wall 24 of the gate body. The rear edges of end portions 44 are inwardly flanged, as at 46, behind end wall 24, and guide members 48 and 50 (Figs. 5 and 6) are interposed between each of the flanges 46 and the rear face of the related side edge portion of end wall 24. The top and bottom ends of guide member 48 are formed with lips or rims 52 overlying and underlying, respectively, the upper and lower edges of the adjacent end portion 44 and flange 46 at the related end of cross-head 42 so that each guide member 48 is constrained to move vertically with the cross head relative to gate body 22 and the adjacent guide member 50 which is secured to end wall 24 of the gate body, as by machine screws 54.

Each guide member 48 is formed with a forwardly directed and wedge shaped extension 48*a* having an inclined forward surface, while each guide member 50, over a portion of its length, is formed with a laterally directed and wedge shaped extension 50*a* having an inclined rear surface which is parallel to the inclined front surface of wedge shaped extension 48*a*. The inclined surfaces of extensions 48*a* and 50*a* (Fig. 6) are shown to incline forwardly in the upward direction so that, when such inclined surfaces slidably engage each other as a result of downward movement of cross head 42, the latter is urged rearwardly toward gate 34 for increasing the pressure of the latter against the bearing strips on end wall 24. Further, extensions 50*a* are vertically disposed to engage extensions 48*a* when the cross head, and with it the gate 34, move through the concluding portion of their downward movement effective to cover the spout outlet opening 30.

In order to cause gate 34 to move vertically with cross head 42, bolts 56 extend through suitable pads at the opposite ends of the cross head (Fig. 2) and are loosely received in vertically elongated recesses 58 (Fig. 6) formed in the front face of gate 34. Thus, the cross head 42 is free to move through a limited distance independently of gate 34 before bolts 56 impact against the walls of the corresponding recesses 58, and such impact is helpful in achieving initial movement of the gate toward or away from its closed position.

In order to adjust the pressure of gate 34 against bearing strips 36 and 38 on end wall 24, pressure exerting shoes 60 are received in suitable vertical grooves in the rear surface of cross head 42 adjacent the opposite ends of the latter. Lugs 62, at the top and bottom ends of each shoe 60, embrace the upper and lower edges of the cross head (Fig. 4) to constrain the related shoe to move vertically with the cross head. The cross head carries adjustable devices, generally identified by the numeral 64, for exerting variable, rearwardly directed pressures against the related shoes 60 for transmission, by the latter, to the gate 34. Each of the pressure exerting devices 64 preferably includes a tubular member or sleeve 66 threaded into a suitable tapped bore in the cross head and accommodating a compression spring 68 bearing rearwardly against the related shoe 60. Each of the sleeves 66, at its forward end defines a tool receiving socket 70 for facilitating screwing of the sleeve, more or less, into the cross head to vary the compressive force of the related spring.

Vertical movement of cross head 42 is achieved by structure which includes links 72 pivotally mounted, at their lower ends, on stub shafts 74 extending laterally from the opposite ends of the cross head. The upper ends of links 72 are pivotally connected, as at 76, to the free ends of related bifurcated arms 78 which extend radially from, and are fixed to, a rock shaft 80 journalled in suitable bearing brackets 82 formed on the top of gate body 22. Thus, angular displacement or oscillation of rock shaft 80 is translated by the arms 78 and links 72 into vertical displacement of cross head 42. At one end, shaft 80 is provided with a handle 84 for use in rocking that shaft in an emergency. However, during normal operation, rocking of shaft 80 to displace the cross head and, with it, gate 34 toward and away from the closed position of the latter is effected by pressure fluid, preferably hydraulic, operated means.

Such pressure fluid operated means preferably includes actuating arms 88 fixed to shaft 80 adjacent the opposite ends of the latter and each connected pivotally, at its free end, to a fitting 90 provided on the end of a piston rod extending from a piston (not shown) within a related cylinder 92. Each cylinder 92 is rockably mounted at one end on a suitable fixed support bracket, for example, a support bracket 94 depending from the mixer tank (Fig. 1) so that, as pressure fluid is admitted to one or the other of the ends of the cylinder from a suitable source

(not shown) the related fitting **90** is displaced longitudinally to rock the corresponding actuating arm **88**.

In accordance with the present invention, the engageable surfaces of wedge-shaped extensions **48***a* and **50***a* are inclined sufficiently relative to the front face of end wall **24** so that the component F*a* (Fig. 6), parallel to that front face, of the force F', which is the normal reaction of the wedge-shaped extension **50***a* to the force F exerted by wedge-shaped extension **48***a* in response to the action of springs **68**, is greater than the frictional resistance to movement of gate **34** away from its fully closed position.

The above described device operates in the following manner:

In closing the illustrated gate construction, pressure fluid is supplied to cylinders **92** in the direction producing a pull on fittings **90** to effect counter-clockwise rocking of shaft **80**, as viewed in Fig. 1. Such rocking lowers cross-head **42**, and with it the gate **34**, while springs **68** urge the gate against bearing strips **36** and **38**. When the cross head and gate have been lowered to the position in which the wedge-shaped extensions **48***a* moving with the cross head engage the relatively fixed wedge-shaped extensions **50***a*, further downward movement of the cross head, by the continued action of the cylinders **92**, causes movement of the cross head laterally toward gate **34** to further compress springs **68** until the inner surface of the cross head directly contacts shoes **60** and urges the latter against the gate with a force greater than that normally exerted by the spring **68**. Thus, a relatively great force acts against gate **34** in its closed position to urge the gate against bearing strips **36** and **38** and thereby to provide an effective seal about the spout outlet opening **30**.

When the supply of pressure fluid to cylinders **92**, in the direction causing closing of gate **34**, is interrupted, either intentionally or as a result of a failure in the pressure fluid supplying system, the force acting downwardly on the cross head is removed, yet the springs **68** still act to produce the force F (Fig. 6) and the upward component F*a* of the reaction F' to that force is sufficient to overcome the frictional resistance to movement of the gate away from its fully closed position and to cause initial upward movement of the gate to the point where the gate is loose and sufficiently open to allow a limited flow of material through the gate opening **30**. In the event of a failure of the pressure fluid supplying system, this automatic opening movement will give a visual indication of the failure so that a person supervising the centrifugal operation from a remote control station may notice the failure and immmediately take steps for its correction.

The above described steeply sloped relation of the surfaces of extensions **48***a* and **50***a* also facilitates the opening of the gate by the normal action of the fluid pressure cylinders **92** in the event of sugar material crystallizing so as to freeze the gate in closed position. Further, its desired visual indicating function is promoted through the conjoint provision of the thin bearing strips **36** and **38** on end wall **24**, for these strips, by limiting the frictional resistance to movement of gate **34**, make it feasible to produce through the inclination of the extensions **48***a* and **50***a* a force component or reaction fully sufficient to overcome the inertia of the closed gate including such frictional resistance to its movement. By virtue of the present invention, the gates associated with a plurality of loading spouts may be safely and efficiently controlled or operated from a remote control center from which the gates are visible, and the visible discharge of material under a supposedly closed gate provides an indication of improper functioning in the pressure fluid operated control system associated with that gate.

Although the illustrated embodiment of the invention is a loading gate adapted especially for a mixer or loading spout of the so-called "refinery" type, it will be apparent that the invention may be embodied in other forms and designs of apparatus without restriction to either the details or the specific arrangements of the illustrated embodiment. In the case of a tank and spout of the so-called "plantation" type, the gate body and actuating mechanism may be mounted so that the cross head and gate move in a substantially horizontal plane, to allow material to flow almost vertically downward from the tank and spout. It is therefore desired that the invention be accorded a scope fully commensurate with its novel contributions to the art, as intended to be set forth in the appended claims.

What is claimed is:

1. A loading gate assembly comprising a hollow body adapted to form an end portion of a loading spout, said body forming a spout outlet and a face at the end of said outlet, said end face surrounding said outlet and having a portion extending to one side thereof, said end face being formed with narrow bearing strips of a hard wear-resistant metal elevated from its surface and extending around said outlet and along said side portion, a gate fitted to slide on said bearing strips from a fully closed position covering said outlet to an open position in which it is displaced to said side thereof, yieldable means for pressing said gate against said end face, means connected with said gate for moving said gate along said bearing strips between said positions, power operated means operative to apply a powerful force through said gate moving means in the directions of the gate movements, means including inclined surfaces engaged by said gate moving means during a terminal part of the path of closing movement of said gate, whereby said gate moving means when moved by said force in said terminal part of said path, clamp said gate against said bearing strips under an extreme localized pressure to prevent leakage between said facing and said gate.

2. A loading gate assembly according to claim 1; wherein portions of said bearing strips are angled relative to the path of travel of the gate to wipe the contacted surface of the latter and distribute the wear over said surface.

3. A loading gate assembly comprising a hollow, open ended gate body adapted to form an end portion of a loading spout and having an end wall with an opening therein to define a spout outlet, said end wall having parallel, opposite longitudinal edges and an end face surrounding said spout outlet with a portion extending to a side of the latter; raised, narrow bearing strips of hard, wear resistant metal on said face of said end wall and extending around said outlet and along said side portion, a gate rectilinearly slidable on said bearing strips in a direction substantially parallel to said longitudinal edges between a fully closed position covering said outlet and an open position at said side of the outlet, a crosshead extending across said gate and loosely embracing said parallel longitudinal edges for movement therealong, said crosshead being connected to said gate and carrying yieldable means that constantly press said gate against said bearing strips, and actuating means for effecting rectilinear sliding movement of said gate and crosshead away from and to said fully closed and open positions of the gate.

4. A loading gate assembly according to claim 3; wherein parts of said bearing strips extending along said side portion are angled relative to the latter to wipe the contacted surface of said gate during sliding movement of the latter and distribute the wear over said contacted surface.

5. A loading gate assembly comprising a hollow body adapted to form an end portion of a loading spout, said body forming a spout outlet and a face at the end of said outlet, said end face surrounding said outlet and having a portion extending to one side thereof, said end face being formed with narrow bearing strips of a hard wear-resistant metal elevated from its surface and extending around said outlet and along said side portion, a gate

fitted to slide on said bearing strips from a fully closed position covering said outlet to an open position in which it is displaced to said side thereof, yieldable means for pressing said gate against said end face, means connected with said gate for moving said gate along said bearing strips between said positions, power operated means operative to apply a powerful force through said gate moving means in the directions of the gate movements, means including inclined surfaces engaged by said gate moving means during a terminal part of the path of closing movement of said gate, whereby said gate moving means when moved by said force in said terminal part of said path, clamp said gate against said bearing strips under an extreme localized pressure to prevent leakage between said facing and said gate, the angle of said inclined surfaces and the force of said yieldable means when said gate sliding means are in engagement with said surfaces being such that they produce a component of the last mentioned force in gate opening direction sufficient in itself to move said gate sliding means and the gate away from said fully closed position in the event of a failure of the power supply to said power operated means.

6. A loading gate assembly comprising a hollow body adapted to form an end portion of a loading spout, said body forming a spout outlet and having a face at the end of said outlet, said end face surrounding said outlet and having a portion extending to one side thereof, a gate fitted to slide on said face from a fully closed position covering said outlet to an open position in which it is displaced to said side thereof, yieldable means for pressing said gate against said end face, means connected with the gate for moving said gate along said end face between said positions, means including inclined surfaces engaged by said gate moving means during a terminal part of the path of closing movement of said gate for clamping said gate tightly against said end face, the angle of said surfaces and the force of said yieldable means when said gate moving means are in engagement with said surfaces producing a component of said force in gate opening direction sufficient in itself to move said gate moving means and said gate away from said fully closed position, whereby the gate will be automatically displaced to a partially open position in the absence of a gate closing force applied through said gate moving means.

7. A loading gate assembly comprising a hollow body adapted to form an end portion of a loading spout, said body forming a spout outlet and having a face at the end of said outlet, said end face surrounding said outlet and having a portion extending to one side thereof, said end face being formed with narrow bearing strips of a hard wear-resistant metal elevated from its surface and extending around said outlet and along said side portion, a gate fitted to slide on said bearing strips from a fully closed position covering said outlet to an open position in which it is displaced to said side thereof, yieldable means for pressing said gate against said bearing strips, means connected with the gate for moving said gate along said bearing strips between said positions, means including inclined surfaces engaged by said gate moving means during a terminal part of the path of closing movement of said gate for clamping said gate tightly against said bearing strips, the angle of said surfaces and the force of said yieldable means when said gate moving means are in engagement with said surfaces producing a component of said force in gate opening direction sufficient in itself to move said gate moving means and said gate away from said fully closed position, whereby the gate will be automatically displaced to a partially open position in the absence of a gate closing force applied through said gate moving means.

8. A loading gate assembly comprising a hollow body adapted to form an end portion of a loading spout, said body forming a spout outlet and having a face at the end of said outlet, said end face surrounding said outlet and having a portion extending to one side thereof, a gate fitted to slide on said face from a fully closed position covering said outlet to an open position in which it is displaced to said side thereof, yieldable means for pressing said gate against said end face, means including a crosshead connected with the gate for moving said gate along said end face between said positions, parallel elongated guides fixed on opposite sides of said body behind margins of said end face and extending in the direction of movement of said gate, said crosshead extending across the front of said gate and having backwardly and inwardly turned opposite end portions formed to engage and slide along said guides, said guides including inclined surfaces engaged by said end portions during a terminal part of the path of closing movement of said gate for displacing said crosshead toward said end face to clamp said gate thereagainst, the angle of said surfaces and the force of said yieldable means when said end portions are in engagement with said inclined surfaces producing a component of said force in gate opening direction sufficient in itself to move said crosshead and said gate away from said fully closed position, whereby the gate will be automatically displaced to a partially open position in the absence of a gate closing force applied through said gate moving means.

9. A loading gate assembly comprising a hollow gate body adapted to form an end portion of a loading spout, a facing mounted on, and surrounding the opening at, one end of said body to define a spout outlet, said facing having portions extended laterally away from said outlet to one side of said body, narrow bearing strips of relatively hard wear resistant material fixed to said facing with parts of said strips surrounding said outlet and other parts thereof extending away from said surrounding parts and along said laterally extended facing portions at opposite sides of said outlet, said strips having top surfaces elevated from said facing and lying in a common flat plane, a gate fitted to bear and slide on said strip surfaces, means for pressing said gate tightly against said surfaces, and means for sliding said gate on said surfaces in the direction of said extended portions between a closed position in which said gate closes said outlet and a position in which it is displaced to said one side thereof, parts of said strips at said opposite sides of said outlet having top surfaces extending at angles to said direction to wipe and distribute wear over contacted surfaces of said gate.

10. A loading gate assembly comprising a hollow gate body adapted to form an end portion of a loading spout, a facing mounted on, and surrounding the opening at, one end of said body to define a spout outlet, said facing having portions extended laterally away from said outlet to one side of said body, narrow bearing strips of relatively hard wear resistant material fixed to said facing with parts of said strips surrounding said outlet and other parts thereof extending away from said surrounding parts and along said laterally extended facing portions at opposite sides of said outlet, said strips having top surfaces elevated from said facing and lying in a common flat plane, a gate fitted to bear and slide on said strip surfaces, means for pressing said gate tightly against said surfaces, and means for sliding said gate on said surfaces in the direction of said extended portions between a closed position in which said gate closes said outlet and a position in which it is displaced to said one side thereof, both said surrounding parts and said other parts of said strips at opposite sides of said outlet having top surfaces extending at angles to said direction to wipe and distribute wear over contacted surfaces of said gate.

References Cited in the file of this patent

UNITED STATES PATENTS

1,018,552	Cooke	Feb. 27, 1912
2,337,817	Hertrich	Dec. 28, 1943
2,517,408	Olcott	Aug. 1, 1950
2,663,468	Morrison	Dec. 22, 1953