GATE FOR DIVERTING MATERIALS
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Filed May 23, 1960, Ser. No. 30,888
3 Claims. (Cl. 198—69)

This invention relates to an improved gate for selectively diverting flow of material to either of two receivers.

An object of the invention is to provide an improved diverting gate which can be quickly and easily shifted between its different positions and is free of any tendency to bind.

A more specific object is to provide an improved diverting gate which is rotatably supported on stub shafts and includes side plates for preventing material from lodging where it can bind the gate.

In accomplishing these and other objects of the invention, I have provided improved details of structure, a preferred form of which is shown in the accompanying drawing, in which:

FIGURE 1 is a side elevational view of a pair of receivers equipped with a diverting gate constructed in accordance with my invention;

FIGURE 2 is a vertical section on line II—II of FIGURE 1, omitting the conveyor to clarify the showing;

FIGURE 3 is a vertical section on line III—III of FIGURE 2; and

FIGURE 4 is a view similar to FIGURE 3, but showing the parts in a different position.

The drawing shows a portion of a conventional conveyor belt 10, which runs over a head pulley 12 and a snubber pulley 13 and discharges material into a head chute 14. A transverse vertical partition 15 divides the space below the head chute into two receiver sections 16 and 17. A diverting gate 18 constructed in accordance with my invention is mounted in the head chute above partition 15 and selectively routes material from the conveyor into either of these receivers.

Gate 18 includes a pair of spaced-apart vertical side plates 19, which are preferably circular and carry stiffening ribs 20 on their outer sides. These ribs are fixed to the inner faces of the side plates and extend through openings in the side walls of the head chute 14, where their outer portions are journaled in bearings 22. Three adjoining, angularly related bottom wall sections 23, 24 and 25 are rigidly fixed to the inner faces of the side walls and extend therebetween. The gate has a first position shown in FIGURE 3 in which its bottom wall section 23 is substantially horizontal, and a second position shown in FIGURE 4 in which its bottom wall section 25 is substantially horizontal. In the first position the gate directs material from the conveyor into the receiver 16, and in the second position into the receiver 17. In each instance the intermediate bottom wall section 24 slopes upwardly from an edge of the horizontal bottom wall section to assist in directing material into the intended receiver. Preferably the upper edge of partition 15 carries a lip 26 which slopes away from the conveyor belt 10 to assist in diverting material into the receiver 17. The upper faces of the wall sections 23 and 25 preferably carry wear strips 27 of hard metal, such as manganese steel.

One stub shaft 21 carries a worm gear 28. A housing 29 is mounted on the structural member which supports the bearing 22 at this side. The housing covers the upper portion of the worm gear and provides bearings for a longitudinally extending adjusting shaft 30. Another bearing for this shaft is formed on a bracket 31 fixed to the outside face of the chute wall. A worm 32 is fixed to shaft 30 within housing 29 and meshes with the worm gear 28, whereby rotation of the shaft turns the gate from one position to the other. The worm and worm gear also hold the gate against unintentional rotation. One end of shaft 30 carries a hand wheel 33 on its outer extended end which is connected to a suitable reversible motor for rotating the shaft.

From the foregoing description it is seen that my invention affords a simple diverting gate which is readily shifted from one position to the other. The side plates prevent binding, since any material which happens to lodge in the spaces between these plates and the walls of the head chute merely shears as the plate turns. All wear occurs on the wear strips 27, which are purposely constructed to resist wear.

While I have shown and described only a single embodiment of my invention, it is apparent that modifications may arise. Therefore, I do not wish to be limited to the disclosure set forth but only by the scope of the appended claims.

1. The combination, with a head chute, a pair of receivers extending downwardly from said chute, a partition separating said receivers, and means for discharging material into said chute, of a diverting gate comprising a pair of spaced-apart vertical side plates, means pivotally supporting said plates within said chute in spaced relation above said partition, a central bottom wall section fixed to said plates and extending therebetween, second and third bottom wall sections fixed to said plates and extending therebetween, said second and third sections being located at opposite edges of said central section and separated from each other by the width of said central section and forming obtuse angles therewith, and means for turning said plates between a position in which said second section is substantially horizontal and said central section slopes upwardly therefrom to direct material into one of said receivers, and another position in which said third section is substantially horizontal and said central section slopes upwardly therefrom to direct material into the other receiver.

2. A combination as defined in claim 1 in which the means pivotally supporting said plates includes stub shafts extending from the outer faces of the respective plates outside the walls of said chute, and bearings fixed outside said chute in which said shafts are journaled.

3. A combination as defined in claim 2 in which the means for turning said plates includes a worm gear mounted on one of said shafts and a cooperating worm for holding the plates against unintentional turning.

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