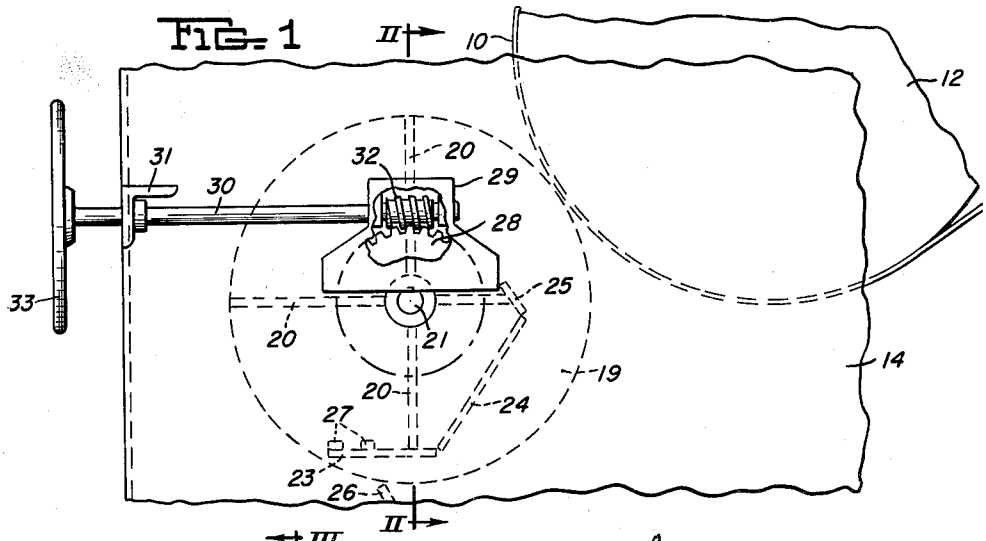
Jan. 30, 1962 W. L. BUNNELL 3,018,874

GATE FOR DIVERTING MATERIALS

Filed May 23, 1960

FIG. 1



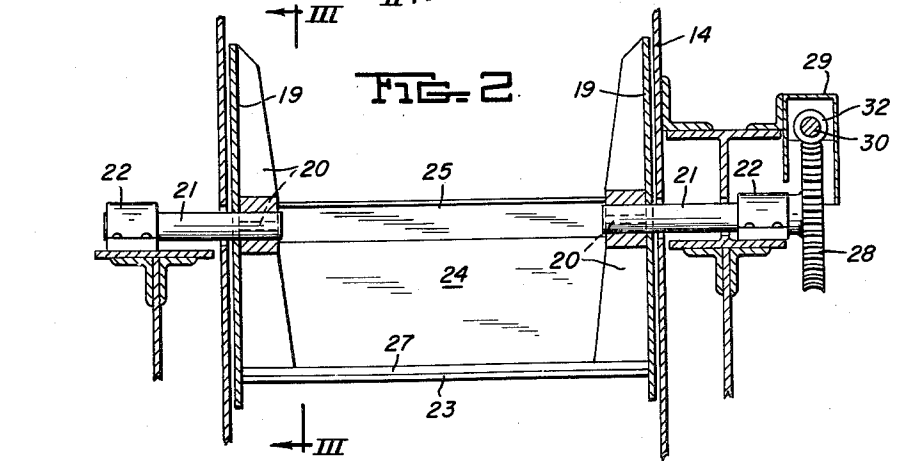


FIG. 2

FIG. 3

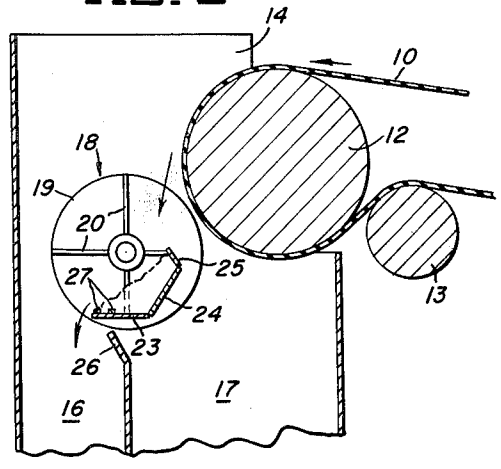
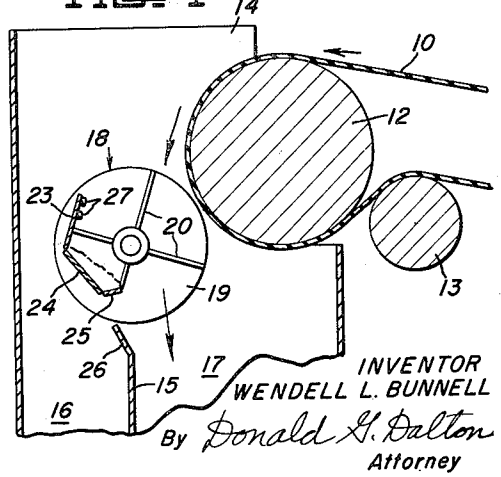


FIG. 4



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GATE FOR DIVERTING MATERIALS

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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 receivers **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 plate **19**, which are preferably circular and carry stiffening ribs **20** on their opposed inner faces. Stub shafts **21** are fixed to the outer faces of the respective 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 unintended rotation. One end of shaft **30** carries a hand wheel **33** or else 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 **19** prevent binding, since any material which happens to lodge in the spaces between these plates and the walls of the head chute **14** 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.

I claim:

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 cooperatiing worm for holding the plates against unintentional turning.

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