Oct. 7, 1941. G. F. CONOVER 2,258,203

ENDGATE

Filed Nov. 12, 1940

Fig. 1.

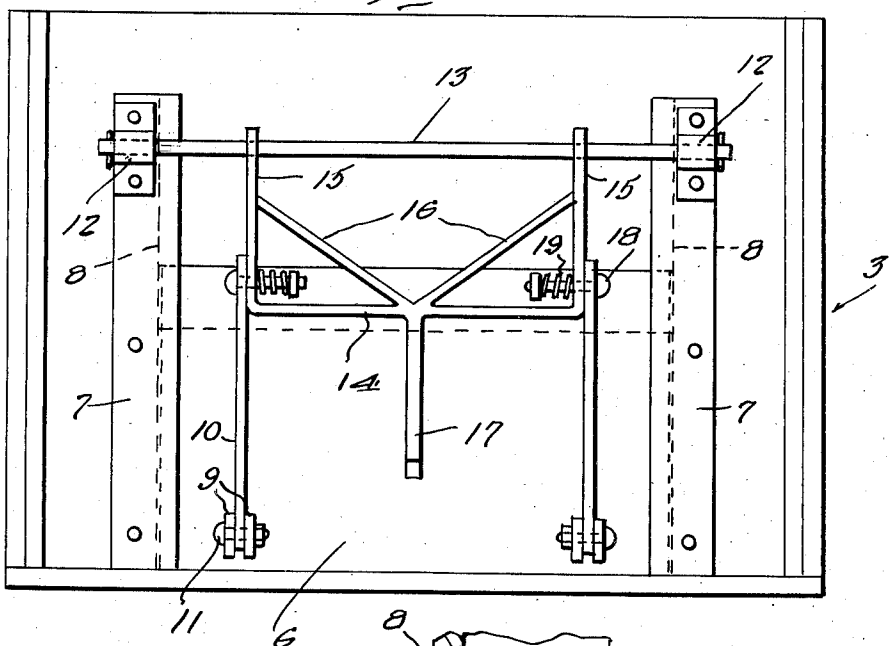
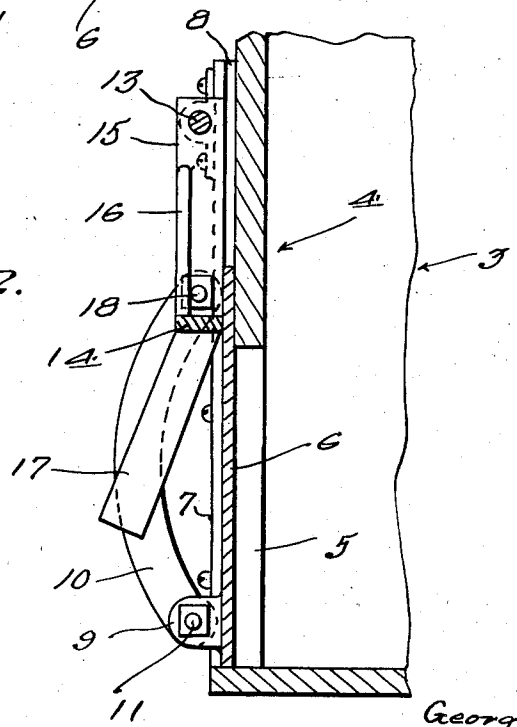


Fig. 2.



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ENDGATE

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Application November 12, 1940, Serial No. 365,340

1 Claim. (Cl. 296—52)

The present invention relates to end gates, particularly those used in association with box-like vehicle bodies and the like, employable to convey and conveniently dispense granular materials, particularly grain.

In reducing to practice the principles of the invention and the preferred embodiment for trade purposes, I have designed and structurally perfected a safety type arrangement wherein the parts are such as to facilitate opening and closing of the gate and dependable locking of the same in both open and closed positions.

I am sufficiently conversant with the prior art to realize that it is old to use vertical guides to accommodate a vertically slidable gate-forming plate. Then too, I am aware that the use of an oscillatory rocker shaft and linkage forming an operating connection between the shaft and slidable gate is not broadly new.

My primary aim is, therefore, to generally improve upon structures of this classification by providing a simple and economical arrangement which is substantially foolproof and susceptible of expeditious operation and control.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawing.

In the drawing, wherein the preferred embodiment of the invention is illustrated and like reference numerals are employed to designate like parts throughout the views:

Figure 1 is a rear end elevation of a wagon body or equivalent receptacle for grain and the like, showing the improved mechanical manually operable gate mounted thereon.

Figure 2 is a vertical central section through the structural assembly seen in Figure 1.

Referring now to the drawing by distinguishing reference numerals, it will be observed that the wagon body, which may be of any size, shape and materials, is denoted by the numeral 3. The rear wall 4 has a discharge opening 5 closable through the instrumentality of a vertically slidable plate 6 forming the so-called end gate. I provide a pair of vertical parallel attaching members 7, these being riveted or otherwise secured to the exterior face of the end wall 4. The inner edges of these members have channels 8 rabbeted therein to function as guide-ways for the end portions of the gate. At its lower end the gate is provided with integral pairs of parallel ears 9 to accommodate the lower ends of the arcuate or curved operating links 10. The links are fastened to the ears removably and pivotally by way of bolts 11. Mounted on the upper end portions of the adapter members 7, are suitable bearing brackets 12 and these accommodate the oscillatory rocker shaft 13. A U-shaped rocker frame 14 is mounted on the shaft by way of the parallel arm or end portions 15. The numerals 16 designate simple diagonal braces and the numeral 17 designates an oblique angled operating handle secured to the bight portion of the frame. The upper ends of the curved arms or links 10 are secured by removable bolts 18 to the arms 15. Coiled springs 19 are interposed between the nuts and arms 15 to provide the free joint action found expedient for this purpose. The springs take up lost motion and prevent needless play. There is sufficient flexibility in this joint construction however, to facilitate proper coordination of the swingable frame 14 and the associated push-pull and locking links 10.

This grain gate is self-locking when closed, and can be closed or opened at will when the grain box is loaded. Most end gates for grain boxes are hard to close after they are opened and the box is full of grain. It is often desirable to close the gate after the load is partly unloaded.

This gate can be used on the largest truck or the smaller horse-drawn wagons. The ones I have found most useful are the size which opens up to leave an opening in the box about twenty-two inches by eleven inches.

The swingably mounted U-shaped frame 14 in conjunction with the curved links, provides a toggle assembly for easily raising and lowering the steel plates 6 forming the end gate. When the parts are in the position shown in the drawing, the gate is locked down in closed position. When the U-frame is swung up (not shown) and the gate is completely opened, the frame passes dead center, so to speak, and through the instrumentality of the curved links 10, locks the gate in open position. The laterally directed handle 17 facilitates this operation.

It is thought that the description taken in connection with the drawings will enable a clear understanding of the invention to be had. Therefore, a more lengthy description is thought unnecessary.

While the preferred embodiment of the invention has been shown and described, it is to be understood that minor changes coming within the field of invention claimed may be resorted to if desired.

I claim:

In an end gate operating device, a horizontal

rotatably supported shaft located above and slightly laterally of a vertically slidable end gate, a substantially U-shaped frame including parallel arm portions secured to said shaft and a straight connecting portion joining said arm portions, a handle formed on said connecting portion and extending angularly to the plane of said arm portions, and arcuately curved link members detachably, pivotally and yieldably connected to the arm portions adjacent to the connecting portion and pivoted on the end gate adjacent the latter's lower edge.

GEORGE F. CONOVER.