

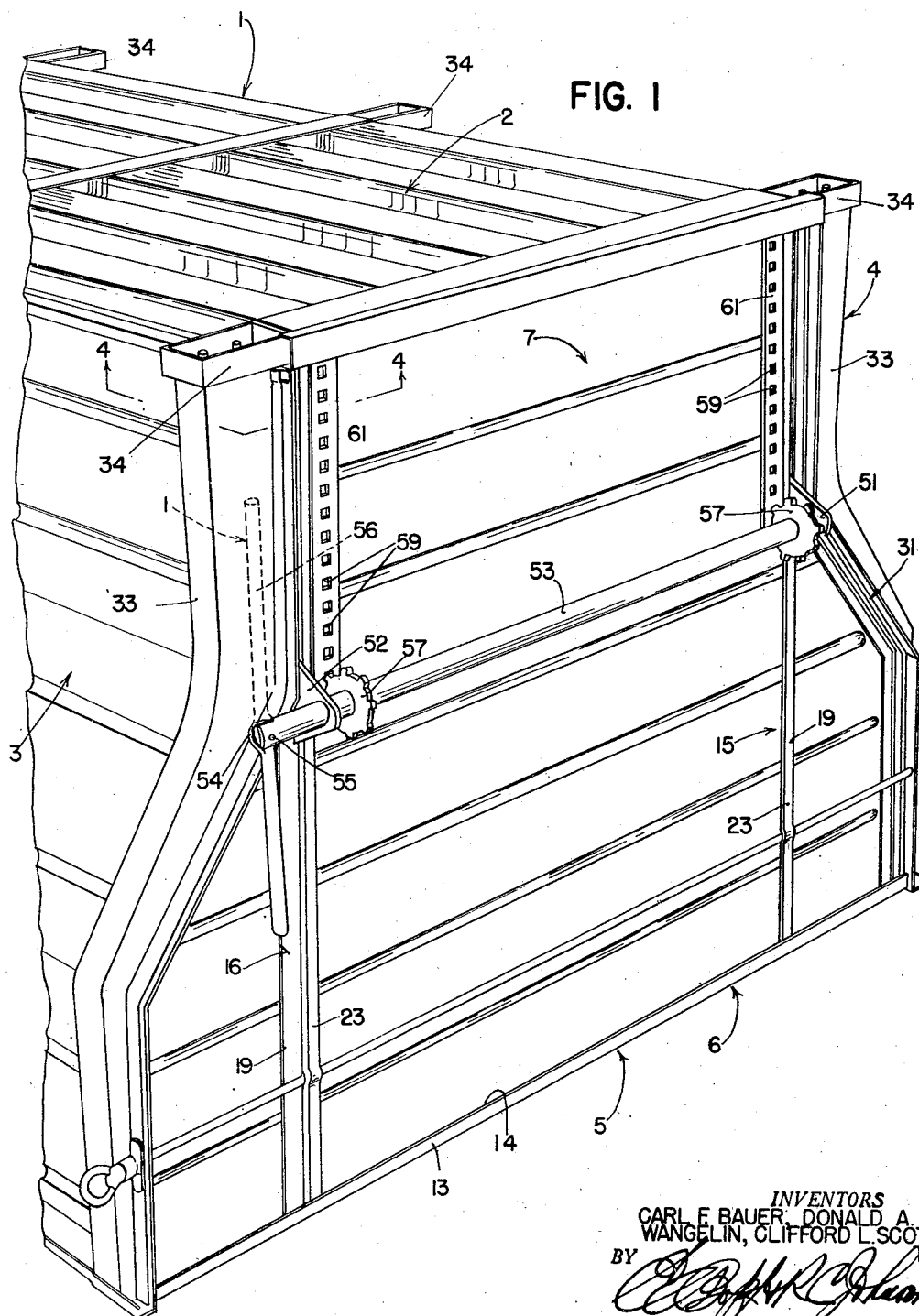
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C. F. BAUER ET AL
ENDGATE CONSTRUCTION

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2 Sheets-Sheet 1



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FIG. 3

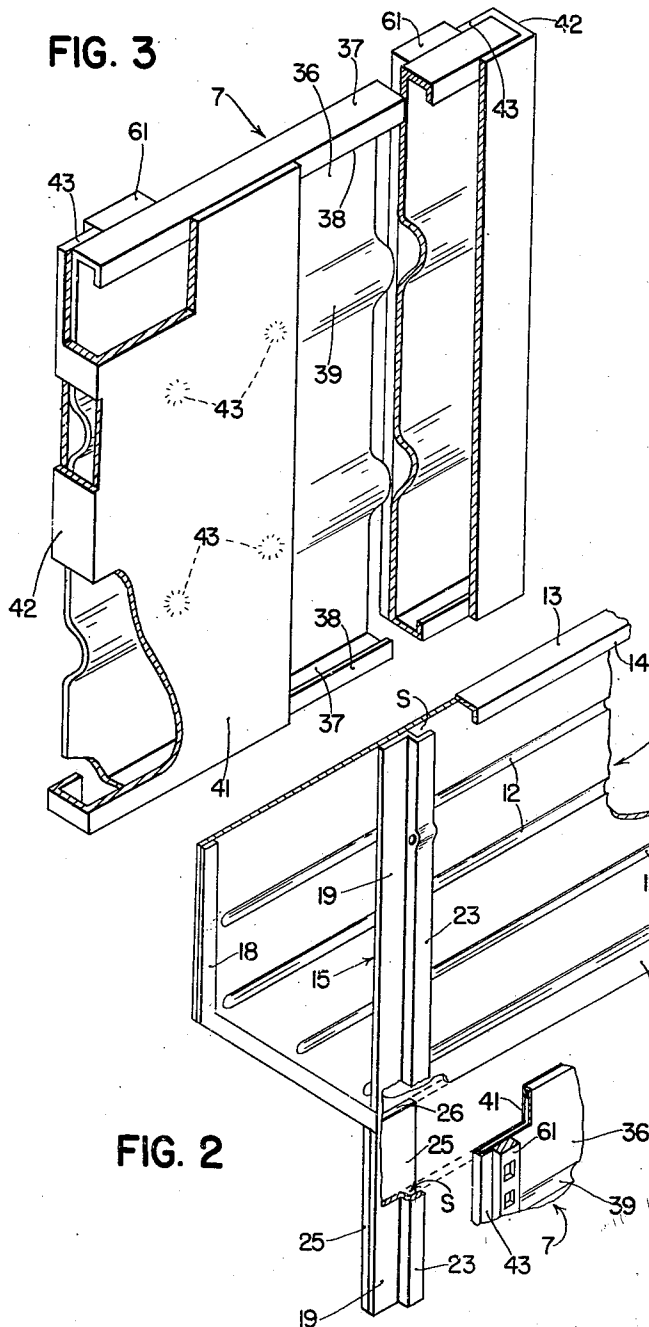


FIG. 2

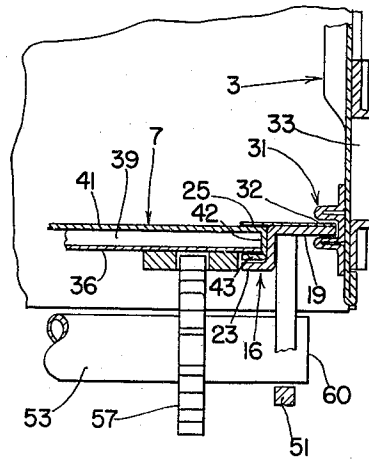


FIG. 4

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ENDGATE CONSTRUCTION

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7 Claims. (Cl. 296—50)

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The present invention relates generally to farm equipment and is more particularly concerned with wagon boxes for farm wagons, trailers and the like.

The object and general nature of the present invention is the provision of a new and improved raising endgate construction for sheet metal wagon boxes, particularly the flared grain tank type. More particularly, it is a feature of this invention to provide a raising endgate construction which not only is strong and rigid but also is particularly adapted for use with the rear endgate of the wagon box of the flared type.

More particularly, it is a feature of this invention to provide a new and simplified means for operating the raising endgate section and for holding the latter in different positions where desired. It is also a feature of this invention to provide a particular construction of raising endgate section, formed of sheet metal parts but so fabricated and connected as to secure exceptional rigidity and light weight. It is also a particular purpose of the present invention to provide an inexpensive mechanism for raising and lowering the raising section of the endgate and for readily removing the raising endgate section from the endgate. This is of particular importance in simplifying the manufacturing operations in the construction of the rear endgate and also simplifies the setting up and assembly of the rear endgate for assembly on the wagon box.

These and other objects and advantages of the present invention will be apparent to those skilled in the art after a consideration of the following detailed description, taken in conjunction with the accompanying drawings in which one preferred embodiment of the present invention has been illustrated.

In the drawings:

Figure 1 is a perspective view showing the preferred form of rear endgate construction.

Figure 2 is a fragmentary detail view showing the construction of the upper endgate section and one of the two slides or guideways in which the lower or raising endgate section is normally disposed.

Figure 3 is an enlarged perspective view of the raising endgate section, certain portions being broken away in order to show the construction of the lower endgate section to better advantage.

Figure 4 is a fragmentary sectional view taken generally along the line 4—4 of Figure 1.

Referring now to the drawings, more particularly to Figure 1, the wagon box is indicated in its entirety by the reference numeral 1 and com-

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prises a bottom member 2, a pair of side members 3 and 4 suitably connected to the bottom member 2 and front and rear endgates. The present invention is particularly concerned with the rear endgate, indicated in its entirety by the reference numeral 5. The wagon box section, exclusive of the rear endgate 5, forms the subject matter of another application, Serial No. 596,163, filed May 28, 1945.

The rear endgate 5 comprises an upper endgate section 6 and a lower or raising endgate section 7. The upper endgate section 6 includes an endgate sheet 11 provided with a plurality of corrugations 12 which, as best shown in Figure 2, terminate short of the edges of the sheet. The sheet 11 is approximately trapezoidal in shape and at its upper edge has a flange 13 which is bent rearwardly, and then downwardly, as at 14, embracing and overhanging the upper ends of a pair of Z bars 15 and 16 which, as will be explained in more detail below, forms a slide or guideway for the lower raising endgate section 7. Opposite side edges of the sheet 11 are reinforced by an angular strip 18, the thickness of which is substantially the same as the thickness of the outer flange 19 on the associated slide angle or Z bar. Each of the Z bars 15 and 16 extend downwardly beyond the lower edge 21 of the sheet 11. Also, each of the Z bars 15 and 16 includes a flange portion 23 which is spaced from the plane of the endgate sheet 11 so as to cooperate therewith in forming a groove or slide indicated by the reference character S. In order that the groove or guideway S at each side of the endgate shall extend downwardly beyond the lower edge 21, we provide at each side a plate or bar 25, the upper end 26 of which lies in abutting relation with respect to the edge 21, at each end thereof. Thus, the bars or strips 25 lie in the same plane as the sheet 11. The flanges 19 of the two Z bars 15 and 16 are secured, preferably by spot welding, at a plurality of points to the sheet 11 and also to the associated strip 25. The rear edge of each of the two wagon box sides 3 and 4 is provided with a channel member 31 which, as best shown in Figure 4, has a pair of ribs 30 that form a groove 32 to receive the associated edge of the endgate 5. The reinforcing strips 18 (Figure 2) are spot welded to the edges of the sheet 11. Each ribbed member 31 is secured, as by spot welding, to the inside of the associated wagon box side member, generally opposite the side member support channel 33. The wagon box sides 3 and 4 are fastened to the bottom member 2 by bolting the lower ends of the several side member sup-

port channels 33 to the bottom sheet cleats 34.

The raising endgate section 7 is a double walled member, as best shown in Figure 3. Referring now to this figure, the rear or outer portion of the raising endgate section 7 includes a corrugated sheet 36 having a flange 37 at its upper and lower edges, the flange 37 being shaped to turn inwardly, as at 38. The sheet 36 is provided with two or more ribs or corrugations 39 which face inwardly. The other part which completes the raising endgate section 7 is a substantially flat sheet 41 having a flange 42 at each opposite edge, each flange including a laterally directed edge portion 43. Each edge portion 43 is spaced from the main body of the sheet 41 by a distance which corresponds to the width of the flanges 37 whereby, when the sheet 36 is slid into place between the flanges 43 and the main portion of the sheet 41, the corrugations 39 and the turned-in portions of the sheet 36 come into engagement with the main body of the sheet 41. The two sheets are secured together by spot welding, as at 43, along the corrugations 39 where they come into contact with the sheet 41. Securing the sheets 36 and 41 together in this manner serves to hold the flanges 43 of the sheet 41 snugly about the ends of the corrugated sheet 36, and no further fastening or attachment is needed other than the spot welds along the corrugations or ribs 39, as shown in Figure 3. However, the overlapping or reentrant flanges 38 and 43, together with the major portions of the flanges 37 and 42, serve to reinforce and strengthen the side and end edges of the raising endgate section. The thickness of the overlapping portions at opposite edges, as at 42, of the raising endgate section is substantially equal to the distance or width of the slide or guideway S, as best shown in Figure 4.

For raising the raising endgate section 7 we provide a pair of lugs 51 welded to the Z bars 15 and 16, each bracket 51 being apertured, as at 52, (Figure 2) to receive a rotatable shaft, preferably in the form of a pipe member 53. One end of the pipe member 53 is slit, as at 54, the two portions being apertured to receive a rivet or flush bolt 55 by which a handle 56 is swingably connected to the pipe member. A pair of pinions 57 are fixed, as by welding, to the pipe member or shaft 53, and preferably the pinions 57 are punched from flat stock. The teeth of the pinions 57 are adapted to mesh with holes 59 punched in flat strips 61, thereby forming racks. The strips 61 are spot welded or otherwise secured rigidly to the corrugated sheet 36, preferably up against the laterally inner edge of the turned over flanged portion 43 of the sheet 41, as best shown in Figure 3.

As will be clear from Figure 1, the shaft 53 may be rotated by turning the same with the handle 56, swinging the latter outwardly sufficient to clear the associated side support 33 which forms a part of the side member, 3 or 4. The raising endgate section 7 may thus be raised to any extent desired and then held in that position by swinging the handle 56 laterally inwardly into a position to engage the adjacent part of the wagon box. After the endgate 5 has been removed from the wagon box, or before it has been assembled thereon, the raising endgate section 7 may be removed from the upper section 6 by turning the shaft 53 an amount sufficient to run the racks 61 beyond and out of mesh with the pinions 57, which disconnects the endgate section 7. The shaft 53 and pinions 57 may then be removed merely by shifting the same toward the

left (Figure 1) until the end 60 (see Figure 4) clears the associated bracket 51. That end of the shaft 53 may then be shifted away from the bracket 51 and laterally outwardly, the shaft 53 fitting with sufficient looseness in the other bracket 52 to accommodate this operation. Then by straightening the handle 56 so that it lies in an axially aligned position with respect to the shaft 53, the latter may be withdrawn from the bracket 52. Normally, when the raising endgate section is in place, as shown in Figure 1, the engagement of the teeth on the pinions 57 with the racks 61 on the section 7 is sufficient to prevent any axial displacement of the shaft 53. The raising endgate section may be assembled with the other endgate section 6, as during manufacture and/or assembly thereof at the factory, by a reversal of the above-mentioned operations.

While we have shown and described above the preferred structure in which the principles of the present invention have been incorporated, it is to be understood that our invention is not to be limited to the particular details shown and described above, but that, in fact, widely different means may be employed in the practice of the broader aspects of our invention.

What we claim, therefore, and desired to secure by Letters Patent is:

1. An endgate section for wagon boxes and the like, comprising an upper endgate sheet having flaring downwardly converging side edges so as to fit a flaring wagon box, a pair of reinforcing members fixed to said endgate sheet and extending downwardly from the lower edge thereof forming slots, a raising endgate movably mounted in said slots and adapted to be raised and lowered therein, a pair of lugs carried by said reinforcing members, said lugs being apertured, a shaft rotatably mounted in said apertures, pinions mounted on said shaft, racks fixed to said raising endgate in a position to receive such pinions, means for rotating said shaft to raise said endgate, said shaft being slidable in said lugs when said pinions are out of mesh with said racks, and an arm pivoted to one end of said shaft and swingable into a position aligned with the longitudinal edge of said shaft to accommodate the passage of said shaft through said lugs.

2. The invention set forth in claim 1, further characterized by the upper portions of said reinforcing members being apertured, and a tie rod disposed in said apertures, the latter being located at such a height above the lower edge of the endgate sheet and above said lugs to accommodate the movement of said raising endgate upwardly beyond said pinions.

3. In an endgate construction for wagon boxes and the like, a raising endgate comprising a pair of sheets, one having transverse reinforcing ribs formed therein and all lying at one side of the plane of the main portion of said one sheet, said ribs extending from one side edge of the sheet to the other, the other of said sheets being substantially flat and having reentrant side flanges formed to embrace the ends of the ribs and to overlap the sides of said first sheet, said sheets being assembled with the main portion of said first sheet spaced from said other sheet but with the reinforcing ribs of said first sheet in substantial engagement with said second sheet, and means for fastening the contacting portions of said sheets together.

4. In an endgate construction for wagon boxes and the like, a raising endgate comprising a pair of sheets, one having transverse reinforcing ribs

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formed therein and extending from one side to the other, the other of said sheets being substantially flat and having reentrant side flanges formed to embrace the ends of the ribs and to overlap the sides of said first sheet, said sheets being assembled with the reenforcing ribs of said first sheet in substantial engagement with said second sheet, the upper and lower edges of said first sheet being formed with flanges dimensioned to fill the space between said sheets along the upper and lower edges and to contact the upper and lower edges, respectively, of said second sheet.

5. In a wagon box construction, a bottom sheet having at its rear end laterally outwardly extending cleats, a pair of side sheets, supports fixed to said side sheets on the outer side thereof, means for fixing the lower ends of said side supports to said cleats, respectively, a pair of channeled members, one fixed to the inside of each of said side sheets adjacent the rear edge thereof and substantially opposite the associated side sheet support, an endgate construction carried by said channeled members and including an upper endgate sheet, a lower raising endgate section, means on said upper endgate sheet forming guideways to receive said raising endgate section, a shaft carried by said endgate construction, means operated thereby for raising and lowering said raising endgate section, said shaft extending adjacent the associated side sheet support at one side of the wagon box, and a handle member pivoted to said extended end of said shaft to provide for manually rotating said shaft said handle being adapted to stop against said associated side sheet support for limiting the rotation of said shaft and serving thereby to hold said raising endgate against movement in at least one direction.

6. In a wagon box construction, a bottom sheet, a pair of side sheets, supports fixed to said side sheets on the outer side thereof, means for fixing the lower ends of said side supports to said bottom sheet, a pair of channeled members, one fixed to the inside of each of said side sheets adjacent the rear edge thereof and substantially opposite the associated side sheet support, an endgate construction carried by said channeled members and including an upper endgate sheet, a lower raising endgate section, means on said upper endgate sheet forming guideways to receive said raising endgate section, a shaft carried by said endgate construction, means operated thereby for raising and lowering said raising endgate section, said shaft extending adjacent the associated side sheet support at one side of the wagon box, and a handle member pivoted to said extended end of

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said shaft to provide for manually rotating said shaft, said handle being adapted to stop against said associated side sheet support for limiting the rotation of said shaft and serving thereby to hold said raising endgate against movement in at least one direction.

7. An endgate section for wagon boxes and the like, comprising an upper endgate sheet, a pair of reenforcing members fixed to said endgate sheet and extending downwardly from the lower edge thereof forming slots, a raising endgate movably mounted in said slots and adapted to be raised and lowered therein, a pair of lugs carried by said reenforcing members, said lugs being apertured, a shaft rotatably mounted in said apertures, pinions mounted on said shaft, racks fixed to said raising endgate in a position to receive said pinions, said shaft being slidable in said lugs when said pinions are out of mesh with said racks, means for rotating said shaft to raise said endgate comprising an arm pivoted to one end of said shaft and swingable into a position aligned with the longitudinal edge of said shaft to accommodate the passage of said shaft through said lugs.

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