

**June 3, 1958**

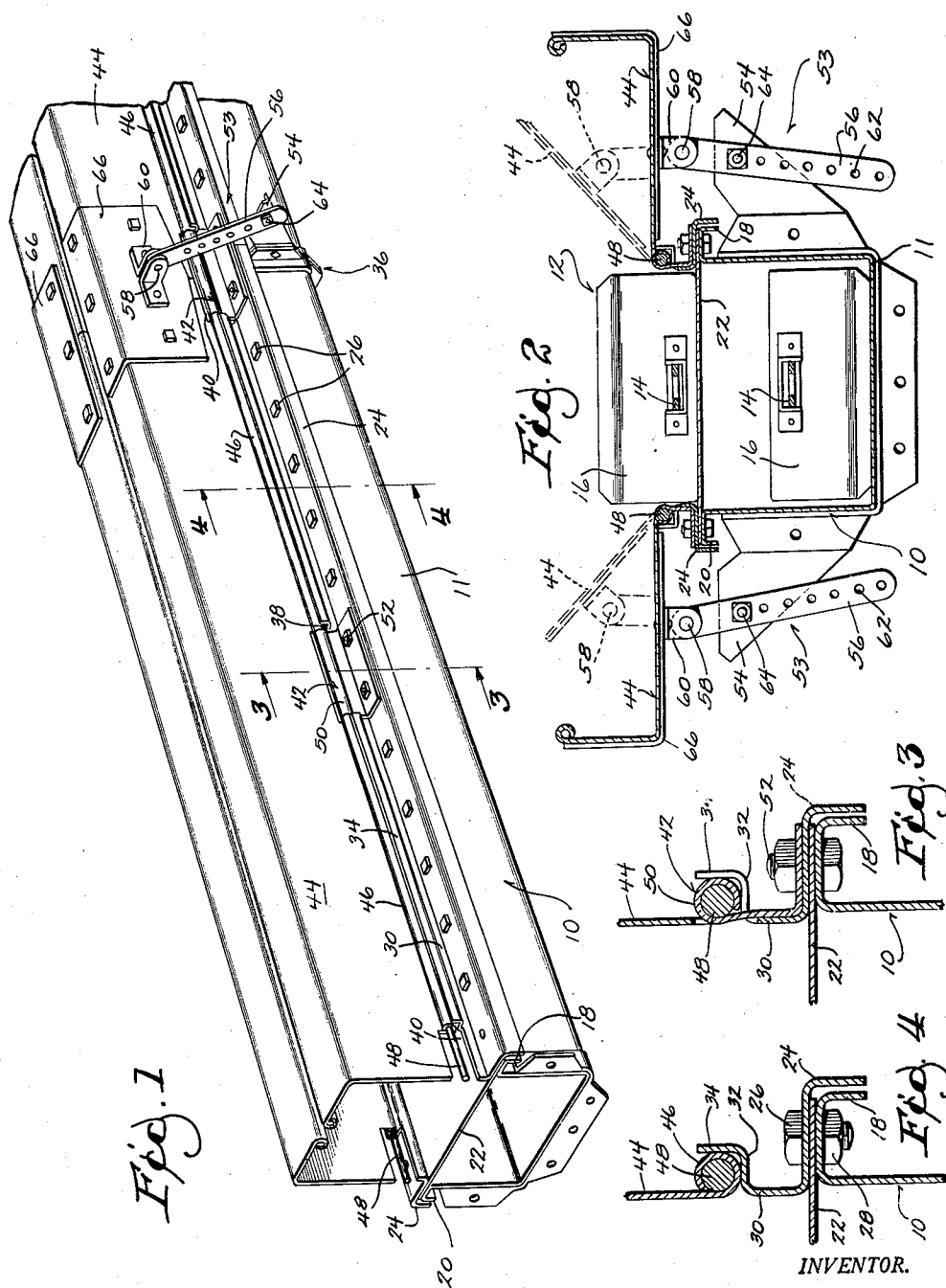
E. M. REESER

**2,837,203**

## HINGE CONSTRUCTION

Filed March 11, 1953

2 Sheets-Sheet 1



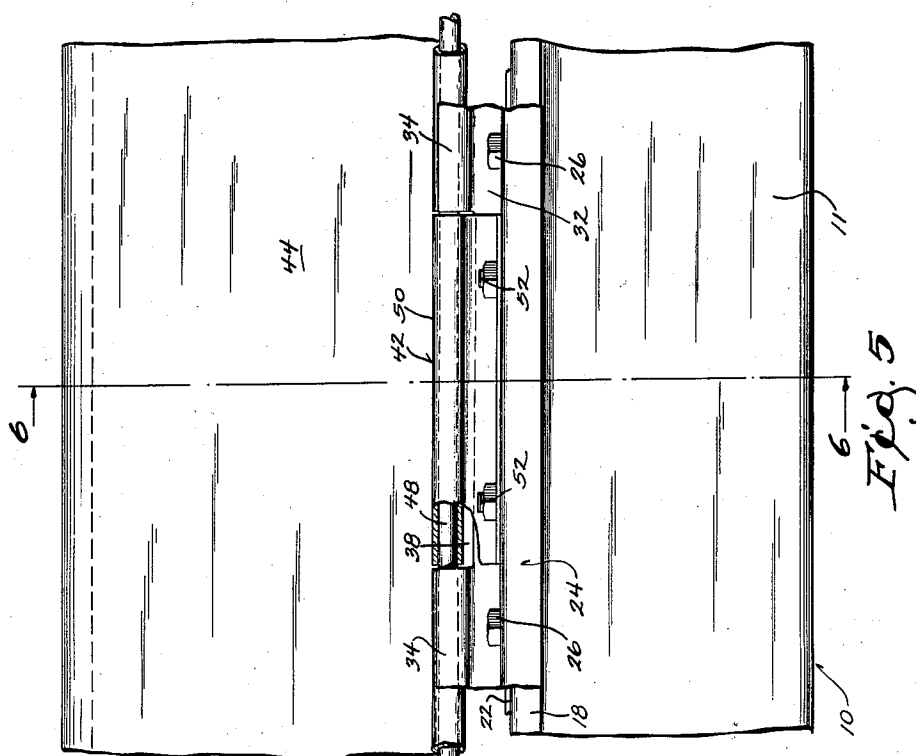
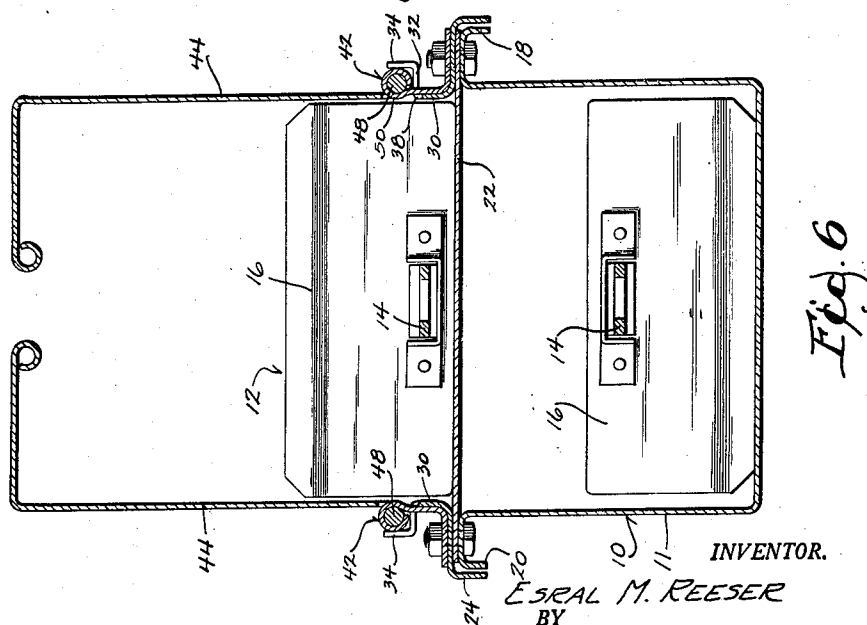
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2 Sheets-Sheet 2



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## HINGE CONSTRUCTION

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5 Claims. (Cl. 198—204)

This invention relates to elevators employed to convey grain, unshelled corn, and baled hay into elevator bins or lofts of farm buildings and the like.

This invention pertains especially to a novel arrangement to hinge the adjustable side sheets to the conveyor trough, so as to accommodate the elevator to various crops.

An object of this invention is to provide a hinge construction that is simple and economical to produce.

Another object is to provide a hinge for elevator side sheets that has a minimum of bearing surface surrounding the hinge pins.

Another object is to provide a hinge for use on elevators so as to permit quick disassembly of the side sheets.

Another object is to provide a hinge for elevator side sheets that will not fail to operate because of rusting or distortion of the hinge.

Other objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings wherein a satisfactory embodiment of the invention is shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention.

The conventional piano-type or continuous hinge for pivoted side sheets is not entirely satisfactory when employed on equipment such as crop elevators, especially those implements that are allowed to remain outside and be exposed to the weather. The conventional piano-type hinge has a tendency to open, or "unwrap" from the hinge pin, if rusting has taken place, and because of its extreme length, trouble also arises because of distortion of the elevator body. The final result being to allow grain being conveyed, to leak through the openings and be lost.

Distortion of the elevator seriously affects the piano-type hinge in that it will refuse to pivot, and if forced will result in bending of the side sheet. The present hinge employs only short portions of actual hinges which are spaced at suitable intervals, the intermediate long portions being merely used to stiffen the side sheets and provide a lateral support for the side sheets.

Referring to the drawings, Fig. 1 is a fragmentary perspective view of a typical portion of an elevator embracing the present invention and showing the side sheets in position for elevating shelled corn or grain.

Fig. 2 is a transverse slightly enlarged section of Fig. 1 with side sheets in position for elevating bales of hay or the like, and having the side sheets also dotted in, in position for conveying unshelled corn and similar crops.

Fig. 3 is a slightly enlarged fragmentary section taken at 3—3 of Fig. 1.

Fig. 4 is a slightly enlarged fragmentary section taken at 4—4 of Fig. 1.

Fig. 5 is an enlarged fragmentary elevational view of the hinge proper.

Fig. 6 is a section taken at 6—6 of Fig. 5.

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Referring to Fig. 1, 10 is the channel-shaped body of the elevator which is made in convenient short sections 11 and accommodates the lower run of a conveyor 12, the latter having the conventional chain 14 and flights 16, the latter being spaced along chain 14 at suitable distances. The sections are assembled to obtain an elevator of the desired length.

Body 10 has laterally extending flanges 18 and 20 which are turned downwardly at their outward edges and which flanges provide a seat for the components which are attached thereto.

A floor 22 extends the length of each section of the elevator and rests upon the flanges 18 and 20 as clearly shown in Figs. 3 and 4. The purpose of floor 22 is to provide a surface upon which flights 16 can travel and also to provide a leak-proof bottom to permit shelled corn and other grain to be elevated without loss. Floor 22 also serves, incidentally, to stiffen the elevator body 10.

It is obvious from Figs. 1 and 2 that a vertical medial plane divides the elevator into two longitudinal similar right and left halves, therefore, only details pertinent to one side will be described.

Lower hinge member 24 rests upon floor 22 and has a downwardly turned outward edge to prevent the entrance of rain into the joint between the various members. A series of bolts 26 are spaced at intervals along the hinge member 24 as shown in Fig. 1. Bolts 26 pass through aligned holes in body 10, floor 22, and lower hinge member 24 in order to secure these three members together. Nuts 28 complete the assembly.

Lower hinge member 24 is provided with an upright portion 30 which terminates in a horizontal saddle 32 and an upwardly extending flange 34. It will be clear upon inspecting Fig. 1 that lower hinge member 24 extends co-extensively with each section 11 of body 10, each section being in abutting relation with an adjoining section, the ends being secured together as shown at 36. Hinge member 24 is provided with notches 38 at the midpoint of each section and end notches 40 at the ends as shown in Figs. 1 and 5. The purpose of notches 38 and 40 is to accommodate hinge connecting strips 42 which will be fully described later.

Side sheet 44 comprises a right angular member that is co-extensive with the section 11 of body 10 shown in Fig. 1. One edge of sheet 44 is provided with a hinge portion 46 formed cylindrically to accommodate a hinge pin 48 which is co-extensive with the section 11 of body 10. Hinge portion 46 is positioned so as to rest in the saddle 32 and against upwardly extending flange 34. This construction permits side sheet 44 to pivot in saddle portion 32 and against flange 34, the outer surface of portion 46 forming the bearing surface.

It is clear that to merely rest the hinge portion 46 in the saddle 32 would not serve to fix the side sheet in place against upward and inward displacement. The connecting strips 42 provide the actual hinge. Strip 42 is relatively short in comparison to the length of saddle 32 and comprises the sole hinge proper at the midpoint and at the ends of each section 11. When the sections 11 are assembled as in Fig. 1 the abutting notches of the adjoining sections 11 combine to form a notch of a length equal to connecting strip 32. Thus a hinge is provided at the middle and at each end of sections 11.

Connecting strip 42 conforms to hinge members 24 and extends upwardly through notch 38 at the middle, and abutting notches 40 at the ends of sections 11. Strip 42 terminates in a hinge portion 50 which surrounds the hinge pin 48 and comprises the actual hinge. The portion 50 is co-axial with the hinge portion 46, therefore, hinge

pin 48 will pass through portions 46 and 50, both having a common axis. A pair of bolts 52 pass through each strip 42 and serve to secure the latter in assembly with the body flange and lower hinge member 24.

It is clear that if hinge pin 48 should rust in relation to portion 46, it may refuse to rotate therein. However, this is immaterial as hinge pin 48 would be free to turn in portion 50 which is the actual hinge. If the pin should refuse to pivot in portion 50, a few drops of oil would easily free it, owing to the shortness of the bearing surface. It is also clear that distortion of pin 48 would not prevent the hinge portion 42 from operating as a hinge, in that the latter is relatively short, and any resistance to turning of hinge pin 48 therein will be easily overcome.

Figs. 1 and 2 show the means 53 for securing the side sheets 44 in the various positions. This means comprises a supporting member 54 secured at one end of each of the various sections of body 10 and comprise an arm 56 pivoted at 58 on a bracket 60. Arm 56 has a series of holes 62 to accommodate a bolt 64. The bolt 64 can be inserted in any desired hole depending on the position of the side sheets 44.

Flange plates 66 are bolted to the side sheets 44 at their juncture so as to provide a continuous leak-proof sheet for the full length of the elevator.

It will be evident that the inventor has provided a novel form of hinge which is not open to the objections usually made to the full length piano-type hinge.

The above being a complete description of an illustrative embodiment of the invention, what is claimed as new and desired to be secured by Letters Patent of the United States is:

1. In an elevator comprising an elongated channel-shaped body portion provided with an outwardly-extending flange, and a floor extending transversely of said body portion and secured to said flange, an improvement comprising an elongated hinge member co-extensive with said body portion and secured uprightly to said floor adjacent said flange, said hinge member provided with a saddle comprising a horizontal portion and an adjoining vertical portion, an elongated side sheet having a rolled portion at the edge thereof co-extensive with said hinge portion and resting in said saddle, said hinge member and said side sheet provided with longitudinally spaced mutually-co-extensive openings in said saddle and said rolled portion, a removable hinge connecting-strip independent of said hinge member and fitted into said openings, secured to said flange and provided with a rolled portion co-axial with said first-mentioned rolled portion, said connecting-strip secured to said hinge member, and a hinge pin co-extensive with said body portion and passing through said rolled portions of said side sheet and said connecting-strip, maintaining said rolled portions in co-axial relationship.

2. In an elevator comprising an elongated body portion, an improvement comprising an elongated hinge member co-extensive with said body portion and secured thereto, said hinge member provided with a co-extensive saddle having a transverse right-angular section, an elongated side sheet having a rolled portion forming the lower edge thereof resting in said saddle and co-extensive there-

with, said hinge member and said side sheet provided with longitudinally spaced mutually-co-extensive openings in said hinge member and said rolled portion, a removable hinge connecting-strip independent of said hinge member and fitted into said openings, secured to said body portion and provided with a rolled portion co-axial with said first-mentioned rolled portion, and a hinge pin co-extensive with said body portion and passing through said rolled portions of said side sheet and said connecting-strip to maintain said rolled portions in co-axial relationship.

3. In an elevator comprising an elongated body portion, and a floor thereon, an improvement comprising a hinge member secured to said floor and having a saddle portion, an elongated side sheet having a rolled portion forming one edge thereof and resting in said saddle, said hinge member and said side sheet provided with longitudinally spaced mutually-co-extensive openings in said hinge member and said rolled portion, a removable hinge strip independent of said hinge member and fitted in each of said openings, secured to said hinge member and provided with a rolled portion co-axial with said first-mentioned rolled portion, and a hinge pin co-extensive with said side sheet and inserted in said rolled portions to maintain said side sheet in pivotal relation in said saddle and said hinge strip.

4. In an elevator having a floor, an improvement comprising a hinge member secured to said floor and having a saddle, a side sheet having a rolled portion formed on one edge thereof, and resting in said saddle, said hinge member and said rolled portion provided with mutually-co-extensive openings, a hinge strip fitted into each of said openings, removably secured to said floor and independent of said hinge member and provided with a rolled portion co-axial with said first-mentioned rolled portion, and a hinge pin inserted co-extensively with and through said rolled portions to retain said side sheet in pivotal relation in said saddle.

5. A means of hinging a longitudinal member to a body, comprising a longitudinal saddle of angular cross section on said body and co-extensive therewith, a rolled portion on said member, co-extensive therewith and resting in said saddle, said rolled portion provided with relatively short spaced interruptions, hinge portions fitted into said interruptions removably secured to said body, independently thereof and having rolled portions, and a hinge pin passing through the aggregate of said rolled portions to maintain a co-axial relationship between said rolled portions.

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