Jan. 28, 1930. L. H. THOEN 1,744,933

ELEVATOR BOX

Original Filed May 16, 1927

FIG. 1.

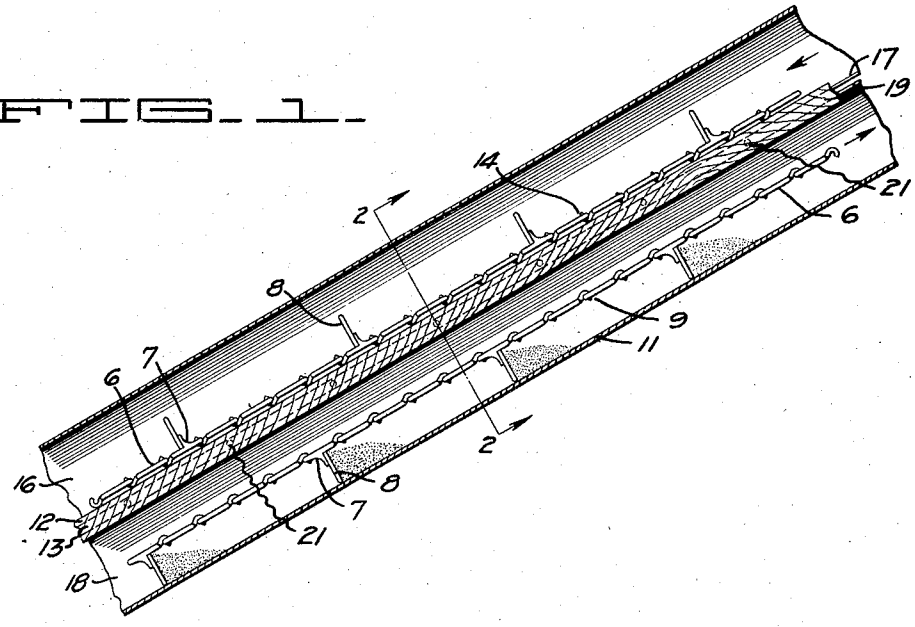


FIG. 2.

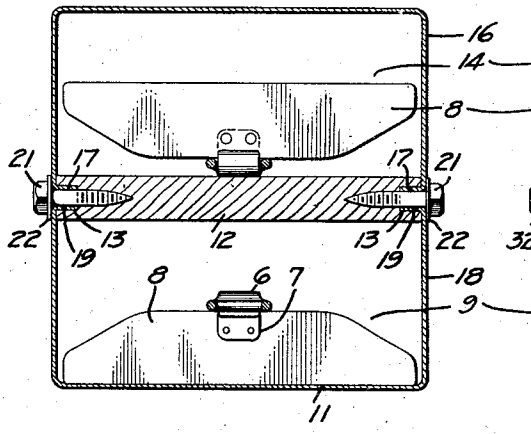
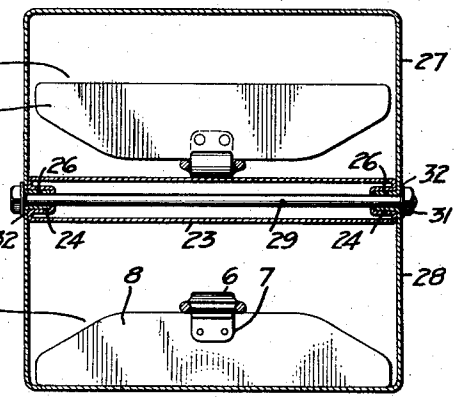


FIG. 3.



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UNITED STATES PATENT OFFICE

LOWELL H. THOEN, OF STOCKTON, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CATERPILLAR TRACTOR CO., OF SAN LEANDRO, CALIFORNIA, A CORPORATION OF CALIFORNIA

ELEVATOR BOX

Application filed May 16, 1927, Serial No. 191,694. Renewed July 17, 1929.

My invention relates to housings for conveyors or elevators for handling grain on harvesting machinery and relates especially to a housing for a chain elevator.

An object of my invention is to provide an easily assembled elevator box.

Another object of my invention is to provide a simple and strong construction for a metal elevator housing.

A further object of my invention is to provide means for taking advantage of the resiliency of a metal elevator housing in securing the housing in assembled position.

My invention possesses other advantageous features, some of which with the foregoing, will be set forth at length in the following description where I shall outline in full that form of the elevator box of my invention, which I have selected for illustration in the drawings accompanying and forming part of the present specification. In said drawings I have shown one form of elevator box embodying my invention, but it is to be understood that I do not limit myself to such form since the invention, as set forth in the claims may be embodied in a plurality of forms.

In the drawings:

Fig. 1 is a longitudinal cross section of an elevator box on a harvester, showing a chain elevator or conveyor therein.

Fig. 2 is a cross section of the elevator box of my invention, the plane of section being indicated by the line 2—2 of Fig. 1.

Fig. 3 is a cross section similar to Fig. 2 of a modified form of elevator box.

In harvesting machinery and particularly in the separator portion of a combined harvester one or more grain elevators are usually employed. The elevators are usually chain conveyors 6 disposed at an angle and supported by suitable sprockets in the ordinary manner. Each conveyor comprises a plurality of chain links including irregular links 7 situated at intervals therein. On the irregular links, impellers 8 are provided which ordinarily are flat plates of metal secured to the irregular links 7 and extending therefrom at right angles. The lower run 9 of the conveyor is the ascending run and as it passes thru a container of grain at its lower end, the impellers 8 encompass a portion of grain and drive it up the lower face 11 of the elevator box. The grain is discharged at the upper end of the box and the empty impellers return to the starting point, completing the circuit of the chain.

In one form of my invention, I preferably provide a center board 12, which can conveniently be made of wood of good quality and which is disposed on the requisite angle for the conveyor. The opposite sides of the center board 12 are provided with indentations which usually are rectangular grooves 13 extending longitudinally of the center board and facing in opposite directions.

To enclose the upper run 14 of the conveyor, I provide a housing 16 preferably of sheet metal. The housing is generally rectangular in cross sectional contour and encloses the upper run of the conveyor with considerable clearance. The lower side of the upper housing 16 is interrupted to provide oppositely turned edges or flanges 17. These flanges are adapted to engage the grooves 13 and to be seated therein. Due to the resiliency of the metal, the housing 16 can be assembled with the center board 12 by spreading the flanges 17 apart and then snapping them into place in the grooves 13. The housing 16 can also be positioned on the center board 12 by engaging the ends of the flanges 17 with the ends of the grooves 13 and relatively moving the housing longitudinally with respect to the center board until the proper position is attained. In either event, it is preferred that the resiliency of the metal comprising the housing 16 be utilized to provide a gripping action of the flanges 17 in the grooves 13.

A similar housing 18 is provided for the lower run 9 of the conveyor and also comprises a generally rectangular case having one side interrupted to provide oppositely turned edges or flanges 19. These flanges likewise are seated in grooves 13 but preferably bear against the lower side of the groove rather than against the upper side of the groove as do the flanges 17. The links of the conveyor ride over the center board 12 on the upper run of the conveyor, while the im-

pellers 8 slide on the bottom of housing 18 on the lower run of the conveyor.

While the resiliency of the housings 16 and 18 may be adequate to retain the flanges 17 and 19 in the grooves, it is preferred to provide additional means for maintaining the cooperative relationship of the housings and the center board. Any suitable devices may be used and I have indicated as a preferable construction the employment of lag screws 21 extending between the flanges 17 and 19 and preferably spreading them apart somewhat and entering the wood of the center board 12. Washers 22 beneath the heads of the lag screws aid in distributing pressure and assist in providing a firm engagement. The lag screws are easily inserted after the housings have been mounted on the grooved center board and are as easily removed when it is desired to dismantle the elevator box. With this construction it is of course possible to remove the upper housing without disturbing the lower housing and vice versa.

As a modified form of my invention, I have illustrated in Fig. 3, a similar elevator box but one which is provided with a center board 23 preferably of metal. Instances arise in which it is desirable to make the entire structure of the housing of metal and in those instances I provide a center board, as indicated, which is fabricated of sheet metal shapes. The center board 23 is provided with grooves 24 which extend oppositely on longitudinal edges thereof. In the grooves the inturned flanges 26 of housings 27 and 28 are seated and occupy the same relative position as do the flanges with the wooden center board. Instead of employing lag screws, thru bolts 29 are inserted between the flanges and preferably extend thru the hollow center board. Nuts 31 secure the center bolts in position while washers 32 aid in distributing the pressure. The upper run 14 of the conveyor slides on the metallic center board 23 while the lower run 9 slides over the bottom of housing 28.

It will be appreciated that with either of the modifications of my invention, a simple and easily assembled elevator box construction is provided and one in which the parts are so designed as to take advantage of the resiliency of the metallic housings to aid in securing the housings to the center board.

I claim:

1. An elevator box comprising a center board having a longitudinal groove therein, a housing having an edge seated in said groove, and means for retaining said edge in said groove.

2. An elevator box comprising a center board having a groove therein, a housing having an edge seated in said groove and means engaging said center board for securely positioning said edge in said groove.

3. An elevator box comprising a center board having a pair of oppositely facing grooves therein, a housing, a pair of oppositely turned flanges on said housing adapted to seat in said grooves, and means for retaining said flanges in said grooves.

4. An elevator box comprising a center board having a pair of oppositely facing grooves therein, a housing, a pair of oppositely turned flanges on said housing adapted to seat in said grooves, a second housing, a pair of oppositely turned flanges on said second housing adapted to seat in said grooves, and means extending between said flanges into said center board for securing said housings to said center board.

5. An elevator box comprising a center board having oppositely disposed indentations therein, a metal housing, and projections on said housing adapted to cooperate with said indentations to secure said housing to said center board.

6. An elevator box comprising a rectangular housing having a portion of one side interrupted, a center board having portions engaging the uninterrupted portions of said side, and means for maintaining the engagement of said center board and said housing.

7. An elevator box comprising a center board having a pair of oppositely disposed grooves therein, a housing enclosing an upper chamber, oppositely turned flanges on said housing adapted to be seated in said grooves, a second housing enclosing a lower chamber, oppositely turned flanges on said second housing adapted to be seated in said grooves, and means engaging said center board at intervals for maintaining said flanges in said grooves.

8. An elevator box comprising a center board having oppositely disposed longitudinal grooves therein, a pair of metal housings, flanges on each of said housings adapted to seat in said grooves, and means extending between said flanges and engaging said center board at intervals for securing said housings to said center board.

9. An elevator box comprising a center board, independently detachable metal upper and lower housings thereon, shoulders on said center board defining grooves in opposite edges thereof, inwardly projecting flanges on the edges of said housings adapted to engage said grooves, and means for retaining said flanges in said grooves.

10. An elevator box comprising upper and lower housings, a center board interiorly of said housings having grooves in the edges thereof, flanges on the edges of said housings adapted to engage said grooves, means for removably retaining said flanges in said grooves, and elevator mechanism within said housings and encompassing said center board.

11. In an elevator, a structure including a longitudinal dividing wall and means enclosing one side of said wall, a housing serv-

ing to enclose the other side of said wall, and tongue and groove means forming a detachable interlocking engagement between said housing and said structure.

12. In an elevator, a structure including a longitudinal dividing wall and means enclosing one side of said wall, a housing serving to enclose the other side of said wall, said housing having a resilient wall, and means utilizing the resilience of said housing wall for detachably retaining said housing to said structure.

13. In an elevator, a structure including a longitudinal dividing wall and means enclosing one side of said wall, a housing serving to enclose the other side of said wall, said housing having resilient side walls, and means utilizing the resilience of said side walls for detachably retaining said housing upon said structure.

14. An elevator box comprising a center board member, a housing member adapted normally to extend longitudinally of the center board member, one of said members having indentations formed in the same, and projecting portions formed on the other of said members, said indentations and projecting portions serving to cooperate to detachably connect the housing to the center board.

In testimony whereof, I have hereunto set my hand.

LOWELL H. THOEN.