

Sept. 21, 1954

E. H. SUESS

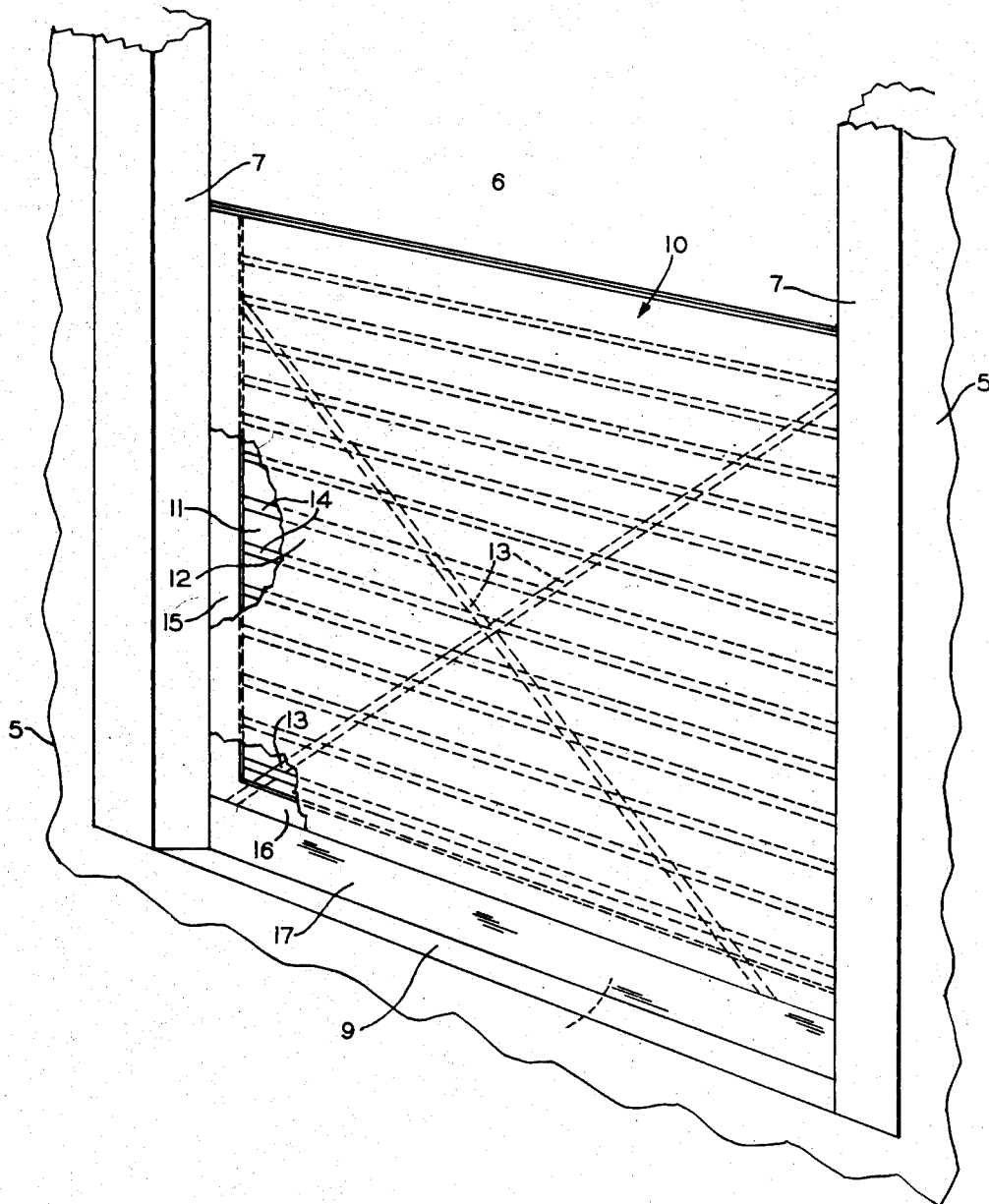
2,689,608

FLEXIBLE GRAIN DOOR FOR CLOSED CARS

Filed Oct. 10, 1951

3 Sheets-Sheet 1

FIG. 1



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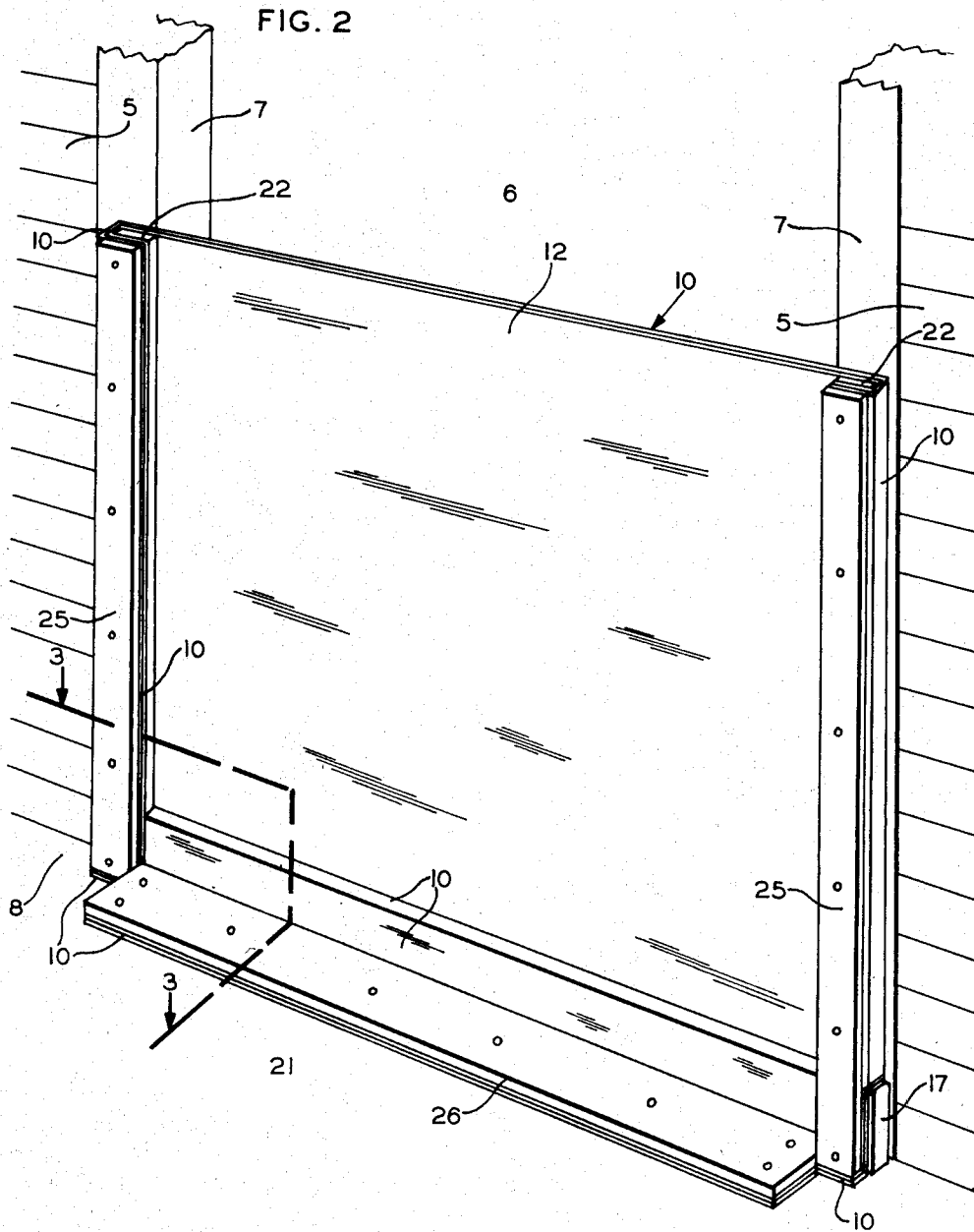
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FIG. 4

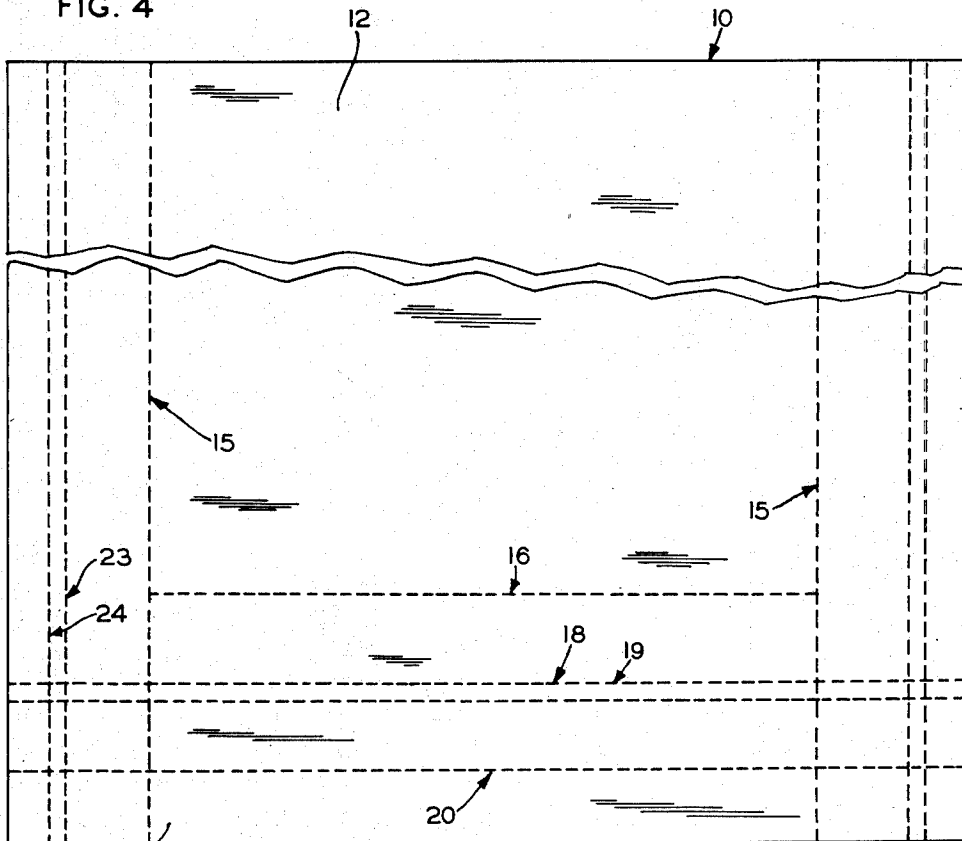
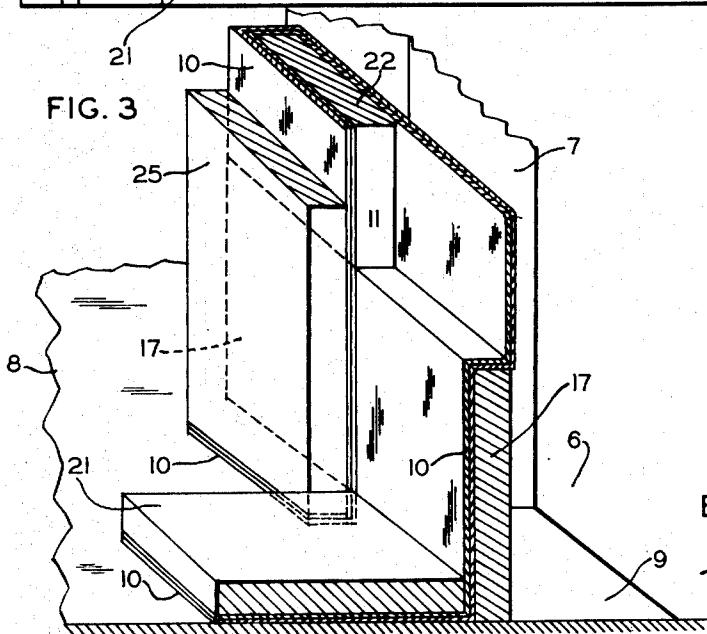


FIG. 3



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FLEXIBLE GRAIN DOOR FOR CLOSED CARS

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1 Claim. (Cl. 160—368)

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My invention relates to improvements in grain doors for application to closed cars for transporting bulk grain and, more particularly, this invention relates to a flexible or disposable grain door.

An object of this invention is to provide a novel flexible grain door.

A further object of this invention is to provide a novel flexible grain door having non-metallic reinforcing members.

A still further object of this invention is to provide a novel method and means for securing a flexible grain door to the door posts and floor of a closed car to close the doorway between said posts.

Other objects of the invention will be apparent from the following description, reference being had to the drawings.

To the above end, generally stated, the invention consists of the novel construction and arrangement and the novel devices and combination of devices hereinafter described and defined in the claim.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a fragmentary perspective view of the improved grain door applied as a closure for a doorway in one side of a closed car;

Fig. 2 is a view corresponding to Fig. 1, except that it is viewed from the inside of the car;

Fig. 3 is a perspective view in section taken on the irregular line 3—3 of Fig. 2, on an enlarged scale; and

Fig. 4 is a view of the outside of the improved grain door spread out flat and showing, by means of broken lines, where the grain door is to be folded as the same is being applied to a closed car, an intermediate portion of the grain door being broken away.

In the drawings is shown a fragment of one side 5 of a closed car having a doorway 6 between door posts 7. The floor and the door sill of the car are designated by the numerals 8 and 9, respectively. For the purpose of this case it will not be necessary to show the conventional storm door slidably mounted on the outside of the car.

The improved flexible or disposable grain door 10 is, as shown, two-ply formed of an inner rectangular sheet 11 of tough paper or other suitable material and a similar outer sheet 12. In forming the grain door 10, two non-metallic reinforcing tapes 13 are attached to the inner side of the inner sheet 11 by a suitable adhesive,

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extend diagonally to opposite corners and cross at the center of said sheet. A plurality of similar horizontally spaced reinforcing tapes 14 are likewise secured to the inner side of the inner sheet 11. A wide reinforcing strip of burlap, plastic, jute or other suitable material 15 is cemented to the inner side of the inner sheet 11 over the tapes 13—14 at each side portion thereof. A similar wide strip 16 of the same material as the strips 15 is cemented to the inner sheet 11 between or overlapping the strips 15 at the bottom of the grain door 10. In actual commercial practice, the order in which the strips are applied to the inner sheet 11 is immaterial; the reinforcing strips 16 may either underlie or overlie the reinforcing strip 15. Finally, the outer sheet 12 is cemented to the tapes 13—14, the strips 15—16 and the inner sheet 11. In place of the strips 15—16, a single sheet of the same material the size of the grain door 10 may be substituted therefor.

Before the grain door 10 is mounted to close the lower portions of the doorway 6, a pry or fulcrum board 17 is placed edgewise on the floor 8 in the doorway 6 with its end portions overlapping the posts 7 on the inside of the car and secured by nails to said posts.

In mounting the grain door 10, the same is held up on the inside of the car and secured at its upper portion by nails to the door post 7, with its side portion overlapping said posts equidistantly. Before attaching the grain door 10 to the door posts 7, the same is positioned with the folding line 18 at the upper edge of the pry board 17. The grain door 10 is attached to the posts 7 by sufficient nails to hold the same flatwise against the inner side of said posts. From the folding line 18, the grain door 10 is turned inwardly on the upper edge of the pry board 17 and then folded downwardly on the line 19 on the inner side of said pry board to the floor 8. At the floor 8 the grain door is again folded inwardly on the line 20 to afford a floor flap 21.

An upright cleat 22 is placed against that portion of the grain door 10 overlapping each door post 7 and nailed to said post. The side portion of the grain door 10, outwardly of the outer edge of the cleat 22, is folded on the line 23 onto said cleat. This same side portion of the grain door 10 is again folded on the line 24 onto the inner side of the cleat 22. The lower end of the cleats 22 rests on those portions of the grain door 10 folded over the upper edge of the pry board 17 and form a grain-tight joint therebetween.

A second cleat 25 is placed over each cleat 22 with the respective side portion of the grain door therebetween, and with its lower end portion overlapping the pry board 17 and its lower end resting on the floor flap 21. These second cleats 25 are nailed to the cleat 22 and the door posts 7. In mounting the grain door 10, the same is pulled taut between the door posts 7 before the same is secured thereto.

A floor board 26 is placed endwise between the door post 7 over the floor flap 21, pressed edgewise against the grain door 10 on the inner side of the pry board 17 and nailed to the floor 8. Obviously, the pry board 17 and the floor board 26 with the grain door 10 therebetween, afford a grain-tight joint between the grain door 10 and the floor 8 of the car. The primary object of the strips 15 is to prevent the grain door 10 from tearing at the nails fastening the cleats 22 and 25 to the posts 7.

In actual installation of the grain door 10, a protection board which is a duplicate of the pry board 17 will be nailed to the door posts 7 on the inner sides thereof at the top portion of said grain door. The purpose of this protection board is to permit workmen and inspectors to enter and leave the car above the grain door 10 without damaging said grain door. This protection board also affords a support for a ladder or a grain spout through which bulk grain is discharged into the car.

To open the storm door of a car, the point of a pry bar is jabbed into the pry board 17 and used as a lever.

The initial step to unload a car of bulk grain, after the storm door is opened, is to cut the grain door down from the top with a knife or other edged tool at the door posts 7, and when the tension of the weight of the grain is released by such cutting, no danger is involved to the workmen, as in the case of steel reinforcing strips which snap and whip their jagged edges when released from tension. Also the use of my improved disposable grain door eliminates all danger to the workmen before and during disposal of the same; whereas with steel reinforcing strips, there is the danger of workmen being cut by the jagged steel edges.

While the drawings and the specification illustrate and describe a grain door for use in connection with the handling of bulk grain, it will

be understood that a closure of the type disclosed is equally adaptable for application to a closed car in the handling of any materials shipped in bulk form.

While there are herein disclosed but a limited number of embodiments of the structure, process and product of the invention herein presented, it is possible to produce still other embodiments without departing from the inventive concept herein disclosed, and it is desired, therefore, that only such limitations be imposed on the appended claims as are stated herein, or required by the prior art.

What I claim is:

In a structure of the class described including a floor, two posts having a passageway therebetween, a pry board resting edgewise on the floor with its end portions overlapping the posts on the inside thereof and secured thereto, a flexible non-metallic closure for the passageway, overlapping the posts on the inside thereof, folded over the upper edge portion and inner side of the pry board and onto the floor to afford a floor flap, a cleat resting on the upper edge of the pry board with the closure therebetween and secured to each post on the inner side thereof with the closure therebetween, said closure being folded over each cleat, a second cleat resting on the floor, overlapping the pry board and the first-noted cleat and secured thereto with the closure therebetween, a floor board abutting the pry board, resting on the floor and secured thereto with the closure between the floor board and the pry board and between the floor board and the floor.

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