

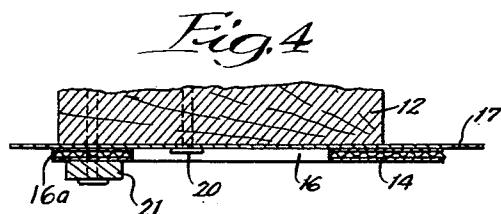
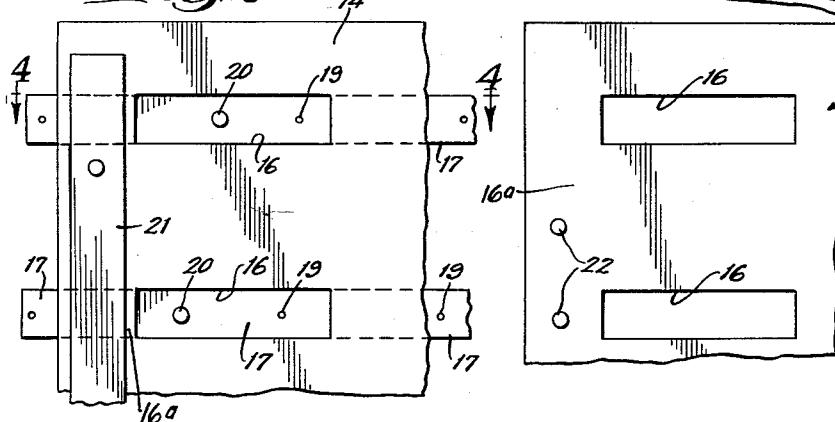
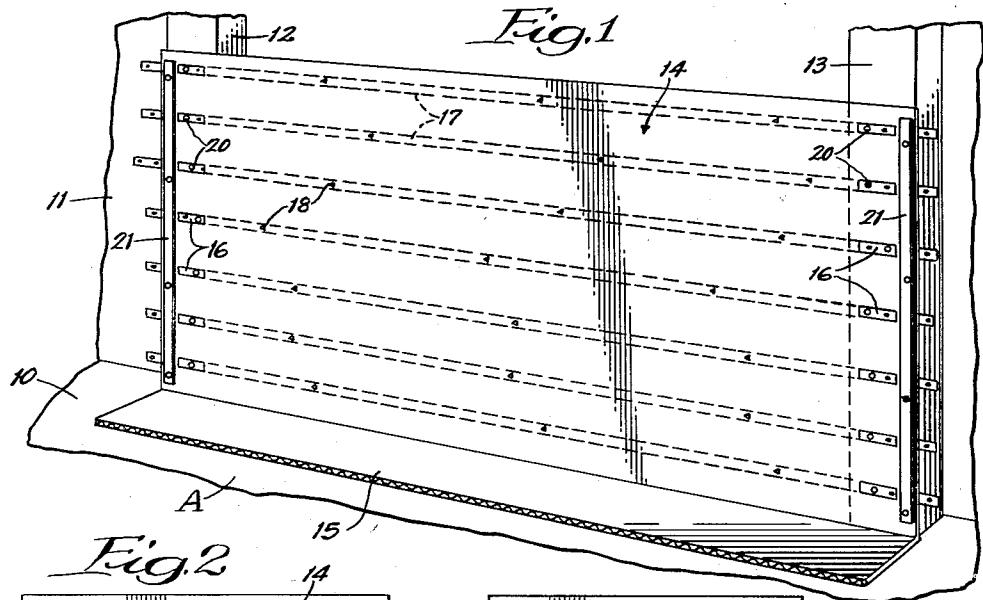
Sept. 20, 1960

B. H. FORD ET AL

2,953,200

APERTURED RETAINER DOOR

Filed May 11, 1955



INVENTORS:
Barton H. Ford and
BY Michael J. Ford,
Dawson, Tilton & Graham,
ATTORNEYS.

United States Patent Office

2,953,200

Patented Sept. 20, 1960

1

2,953,200

APERTURED RETAINER DOOR

Barton H. Ford, Omaha, Nebr., and Michael J. Ford, Wheaton, Ill., assignors, by mesne assignments, of one-half to International Paper Company, New York, N.Y., a corporation of New York, and one-half to The Stanley Works, New Britain, Conn., a corporation of Connecticut

Filed May 11, 1955, Ser. No. 507,522

3 Claims. (Cl. 160—368)

This invention relates to an apertured retainer door. The door is particularly useful in the retaining of bulk material such as grain, sand, limestone, and other bulk granular material. The term "retainer door" is intended to include a grain door, which is relatively high, as well as temporary doors of less height employed for retaining various materials and articles.

An object of the invention is to provide a retainer door which may be readily installed upon the door frame of a car or freight vehicle, while at the same time producing a tight seal which will prevent the escape of granular material about the side edges of the retainer door. Another object is to provide a strap-equipped panel which is adapted to be sealed along its edges while at the same time exposing strap portions for the anchoring of the straps upon the door frame. Yet another object is to provide an improved temporary door or retainer door structure permitting quick installation thereof while at the same time effectively sealing the door opening against the escape of granular material. Other specific objects and advantages will appear as the specification proceeds.

The invention is shown, in an illustrative embodiment, by the accompanying drawing, in which—

Figure 1 is a broken perspective view of a portion of a car door and a retainer door embodying our invention secured to the door frame; Fig. 2, a broken plan view of a portion of the retainer door; Fig. 3, a view similar to Fig. 2 but showing the straps removed from the door panel; and Fig. 4, a detail sectional view, the section being taken as indicated at line 4—4 of Fig. 2.

In the illustration given, A designates a car or freight vehicle having a floor 10, a side wall 11 and vertical frame beams 12 and 13.

Extending across the opening between the beams 12 and 13 is a panel or web member 14 having at its bottom a forwardly-extending sealing flap 15. The panel 14 is provided adjacent the ends thereof with a plurality of spaced windows or apertures 16 which extend generally from the inner sides of the beams 12 and 13 but which terminate at a spaced distance from the edges of the panel or web 14 to leave a retainer edge strap 16a, as shown more clearly in Fig. 3.

At the rear of the panel 14 extend a plurality of straps 17, which may be formed of metal or other suitable material, and the straps may be secured to the board or web 14 by metal segments 18 struck from the straps 17 and extended through the board 14. It will be understood that staples, adhesive, or any other means may be employed for securing the straps 17 to the rear side of the board 14. The straps 17 are so arranged as to just cover the window area 16, as shown more clearly in Fig. 2, and the straps are preferably provided, at least at their ends, with spaced nail openings 19 through which nails 20 may be driven in the anchoring of the straps to the car frame beams 12 and 13. A batten 21, or other suitable means, may be secured across the edge panel 16a to anchor the edge panel tightly against the door frame. With this structure, the panel or web 14 need not be folded along the sides but may extend its full length, while at the same time the end portions of

2

the straps 17 are exposed for nailing. Finally, the inner edge panel 16a of the board is made secure by the use of battens or other suitable means, thus preventing the outer edge portion of the panel 14 from curling inwardly and providing crevices through which grain and the like might escape. The side edge panel 16a provides an area for the reception of the batten 21 or other securing means such as staples, wide-headed flat nails, etc. Such wide-headed nails for the securing of the edge panel are illustrated in Fig. 3 by the numeral 22.

The panel 14 may be formed of corrugated paper board, as illustrated, or it may be formed of paper board, paper sheeting, plastic, or other forms of sheeting, etc. The straps 17 are preferably formed of metal, but it will be understood that other tough supporting material may be employed for this purpose.

Operation

In the operation of the structure, the panel 14 is placed up against the beams 12 and 13 of the door frame, as illustrated, and the metal straps exposed through the windows 16 on one side of the panel are first nailed to the door frame. The other ends of the straps are then nailed to the other beam of the door frame, and in the latter operation it is desired to drive the nails inwardly at an angle so as to draw the straps tight. It will be understood, however, that any means for tightening the straps and securing them to the beams 12 and 13 may be employed. Thereafter, the side edges 16a may be sealed against the beams 12 and 13 by using wide-headed nails 22, staples or battens 21.

The assembly operation is extremely rapid and at the same time the edges of the panel 14 are secured firmly against the door frame to prevent the escape of the granular material.

The retainer door may be formed of a single panel which is relatively high so as to serve as a grain door, or it may be relatively low to serve as a retainer for small articles, granular material, etc. If desired, the door may be formed of a plurality of overlapping panels, as illustrated in Ford Patent No. 2,599,443.

While, in the foregoing specification, we have set forth a specific structure in considerable detail for the purpose of illustrating an embodiment of the invention, it will be understood that such details of structure may be varied widely by those skilled in the art without departing from the spirit of our invention.

We claim:

1. A retainer door for a car opening and a door frame there-about, comprising an elongated rigid board body formed of corrugated paper, metal straps anchored to said board along the rear thereof and having apertured end portions, said board having its side portions provided with a row of vertically-spaced windows aligned with and exposing the end portions of the straps whereby said straps are securable to said door frame in predetermined spaced positions, said windows being spaced inwardly from the side edges of said board to provide an edge-sealing panel, and fastening means extending through said edge panel and into said door frame to prevent the outer edge portion of the panel from curling inwardly.
2. The structure of claim 1, in which battens are secured along said side edges of the board and between the said windows and the outer edges of the board.
3. The structure of claim 1, in which the metal straps completely cover the rear side of the windows.

References Cited in the file of this patent

UNITED STATES PATENTS

2,116,260	Corkran	May 3, 1938
2,595,087	Leslie	Apr. 29, 1952
2,599,443	Ford et al.	June 3, 1952