May 8, 1923. 1,454,240

O. A. KNEELAND

GRAIN DOOR FASTENER

Filed March 7, 1922

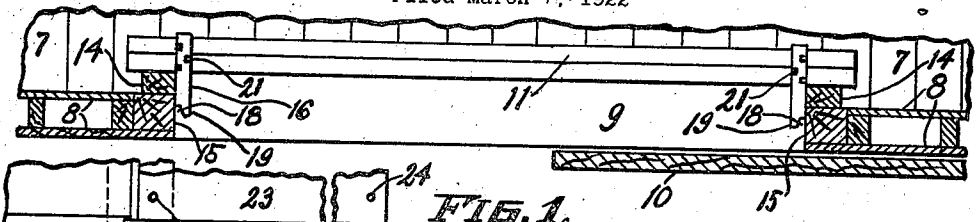


FIG. 1.

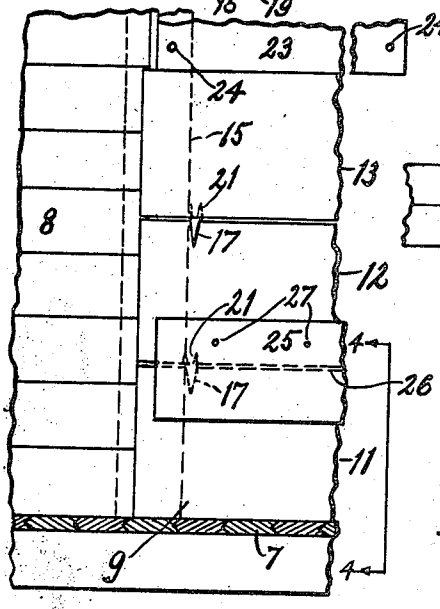


FIG. 3.

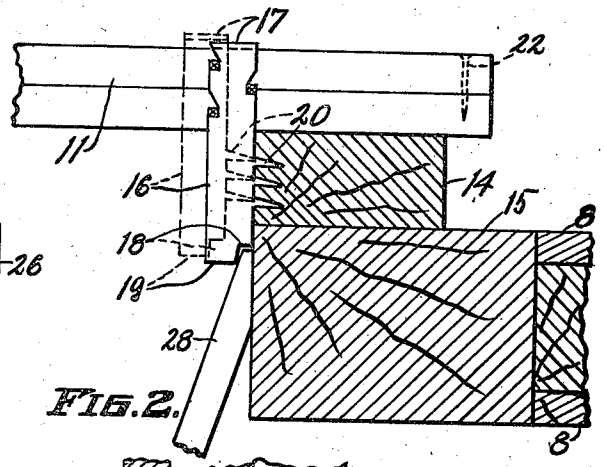


FIG. 2.

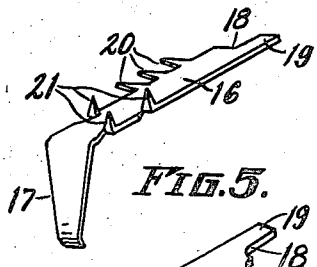


FIG. 5.

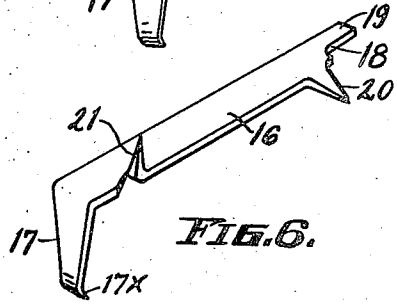


FIG. 6.

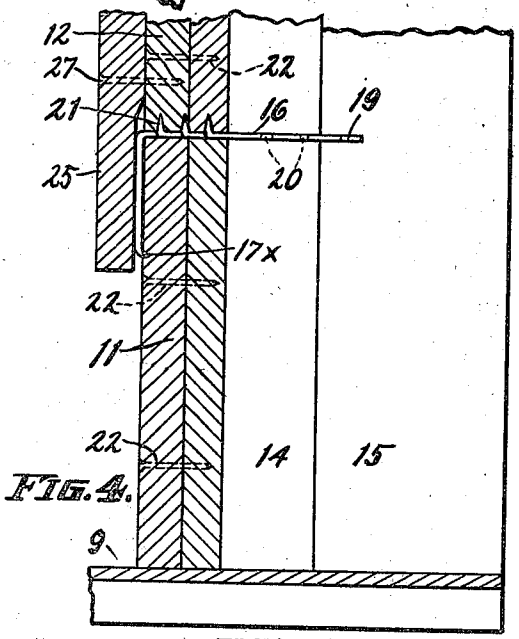


FIG. 4.

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UNITED STATES PATENT OFFICE.

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GRAIN-DOOR FASTENER.

Application filed March 7, 1922. Serial No. 541,843.

To all whom it may concern:

Be it known that I, OSCAR A. KNEELAND, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Grain-Door Fastener, of which the following is a specification.

My invention relates to door fasteners for grain cars and other inclosures the contents of which is allowed to press against the inner side of the door, and the object is to provide an efficient means for holding the sections of such a door in place in a safe but detachable manner without injury to the parts.

In the accompanying drawing:

Fig. 1 is a horizontal section through one side of a grain car and one of its door openings and the outer and inner doors for such opening, the inner door embodying my invention.

Fig. 2 is an enlargement of the right hand end of Fig. 1 with the sliding outside door omitted.

Fig. 3 is an inside elevation of the right hand end of Fig. 1.

Fig. 4 is an enlarged view of the broken edge and adjacent portion along the line 4—4 of Fig. 3.

Fig. 5 is a perspective detail view of one of the metallic fasteners involved in my invention.

Fig. 6 is a modified form of Fig. 5, showing also that the device is made in pairs of two members, each of which has its horizontal prong or prongs in the opposite direction to that of the other member.

Referring to the drawing by referenee numerals, 7 designates the floor and 8 the double wall of a common box car in which grain is hauled. 9 represents one of several door openings of the car. Such openings are usually provided with an outer sliding door 10, to be sealed, and an inner door composed of sections 11 put edge to edge upon each other and nailed to vertical strips 14, which are usually of soft wood and permanently secured on the posts 15 of the door frame and the grain or similar goods in bulk filled against them when the car is loaded. To open such inner door it has heretofore been the practice to use axes and sledge hammers from the outside until at least the lower section has been destroyed or rendered unfit for further use and all the sections have required costly time and labor to have their nails pulled out so they can be piled away for future use.

To overcome this trouble and expense I provide metallic anchors or fasteners 16 of the nature shown in Figs. 5 and 6, each formed with a flat elongated body having at its inner end an angular hook 17 and its outer end formed with a lateral notch 18 forming a projection 19. The edge of the body having the notch 18 is provided with one or more lateral prongs 20, preferably slanting toward the notch 18, as best shown in Fig. 2. The body is also provided with one or more upwardly pointing sharp prongs 21.

The sections 11, 12, 13, are usually three or four to a door and are each made up of two boards nailed together as by nails 22, in Fig. 4, but each section may also be an integral piece of lumber.

My device is applied as follows:

The section 11 is put on the car floor 9 close to the strips 14, one of my anchors 16 is placed across the upper edge of each end of it and driven with its prongs 20 into one of the strips 14 on post 15. In some cases one of the prongs may reach the post, and if there is no strip 14 then they all go into the post. The prongs 21 slanting as stated, they draw the tooth 17^{x} of hook 17 into the section 11. Section 12 is now placed upon the anchors applied to section 11 and after being pressed or driven down upon the prongs 21 its upper edge is secured by two other anchors applied in the same manner as described for section 11. When all the sections have been thus secured, a slop board 23 is secured to the strips 14 by two nails 24 close above the top section of the door, so as to prevent possible upward movement of the anchored sections. Horizontal strips 25 may also be secured over each joint 26 of the door. In Fig. 3 such a strip 25 is shown upon the lower but not on the upper joint. Each strip is secured by two or more short nails 27 which are easy to remove with the strip. The strip is intended as an absolute closure to prevent small grain from entering the joint if the boards have uneven edges or the anchors should be thick enough to materially enlarge the opening in the joint.

When the inner door thus built up of sections is to be opened the operator ap-

plies a crow bar or similar tool 28 in the manner shown in Fig. 2, prying the anchors away from the strips 14. He then removes the slop board 23 and can let out the grain by removing one section at a time from the top down, or if he so prefers may put a crow bar under the lowest section and force all the sections upward and let the grain escape from under the lowest section. Such sliding of the sections either upward or endwise being impossible where all the sections are nailed to the inside of the door posts or strips 14 fixed thereon, the aforesaid demolishing of the door being a condition which my device will obviate.

I have shown my device as applied to a grain car door but it is obvious that it is just as applicable to similar doors used in silos, bins and other structures.

What I claim is:

1. The combination with a structure having a door opening, of a door closing the opening from inside the structure, said door composed of horizontal sections placed edge to edge one upon another and metallic anchors fastening the ends of the sections together and to the door posts, in a detachable manner, each of said anchors consisting of a flat bar adapted to rest across the top edge of one of the sections and having its inward end formed with a downwardly extending arm, its outward end formed with a lateral prong adapted to be driven into the part of the structure adjacent the door opening and its upper side provided with a prong adapted to engage in the next higher door section, and means preventing upward movement of the sections.

2. The structure specified in claim 1, each of said anchors having its outer end formed with a series of lateral prongs adapted to be driven into the adjacent part of the structure, and its upper side having a series of vertical prongs arranged to engage in the edge of the next higher section, the outward end of the anchor having also a lateral notch forming a clearance for a tool by which to disengage the anchor, and detachable means preventing upward movement of the sections.

3. The structure specified in claim 1, said downwardly extending arm having a tooth engaging in the inner side of the section.

4. The structure specified in claim 1, said lateral prong being inclined toward the outer end of the anchor.

5. The structure specified in claim 1, and strips covering the joint between each two sections and detachably secured to the inner side of the section above each joint.

6. The structure specified in claim 2, each of said lateral prongs leaning toward the outer end of the anchor, and the downward arm at the inner end of the anchor having its end sharpened and bent toward the section so as to engage in the same.

In testimony whereof I affix my signature.

OSCAR A. KNEELAND.