Dec. 25, 1962 K. J. TOBIN 3,070,044

FREIGHT LOADING EQUIPMENT

Filed Nov. 20, 1956 4 Sheets-Sheet 1

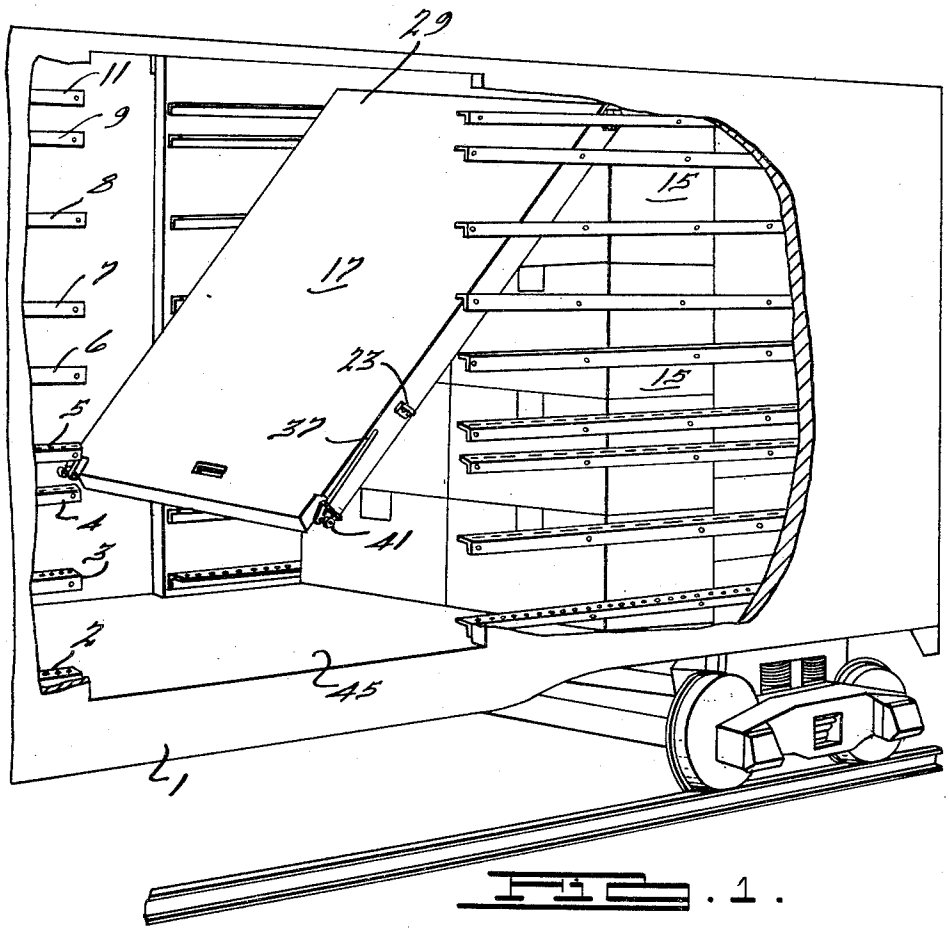


FIG. 1.

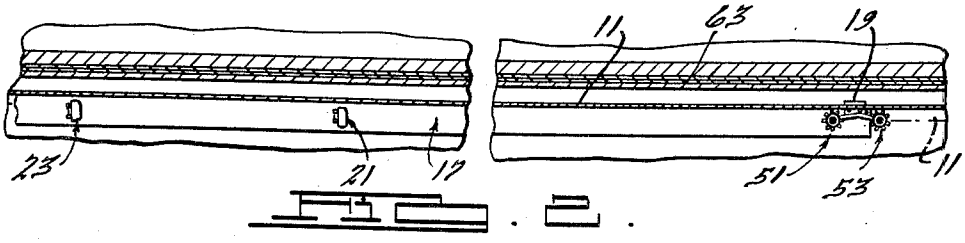


FIG. 2.

INVENTOR.
Kenneth J. Tobin
BY
Harness, Dickey & Pierce
ATTORNEYS.

Dec. 25, 1962 K. J. TOBIN 3,070,044

FREIGHT LOADING EQUIPMENT

Filed Nov. 20, 1956 4 Sheets-Sheet 2

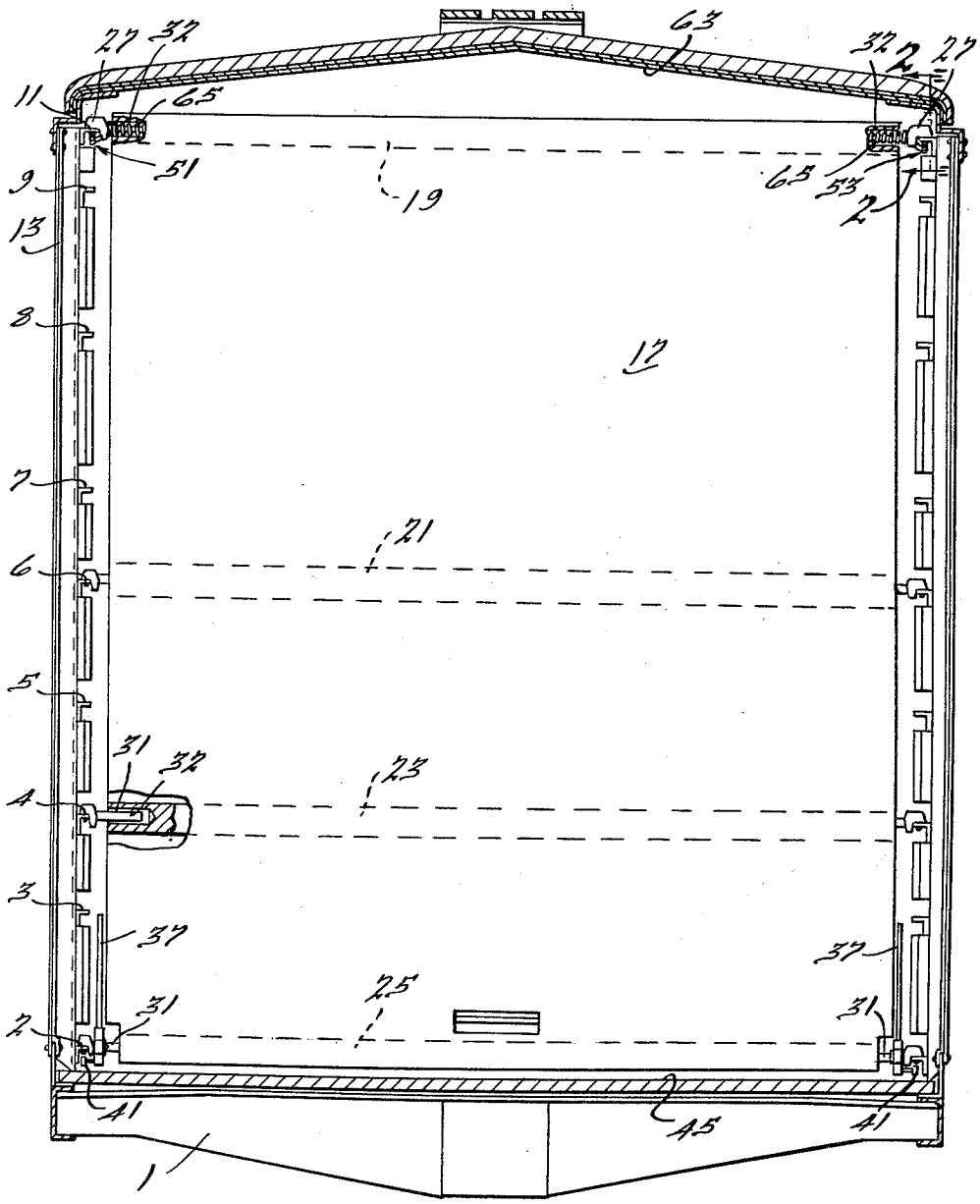


Fig. 3.

INVENTOR.
Kenneth J. Tobin
BY
Harness, Dickey & Pierce
ATTORNEYS

Dec. 25, 1962 K. J. TOBIN 3,070,044

FREIGHT LOADING EQUIPMENT

Filed Nov. 20, 1956 4 Sheets-Sheet 3

FIG. 5.

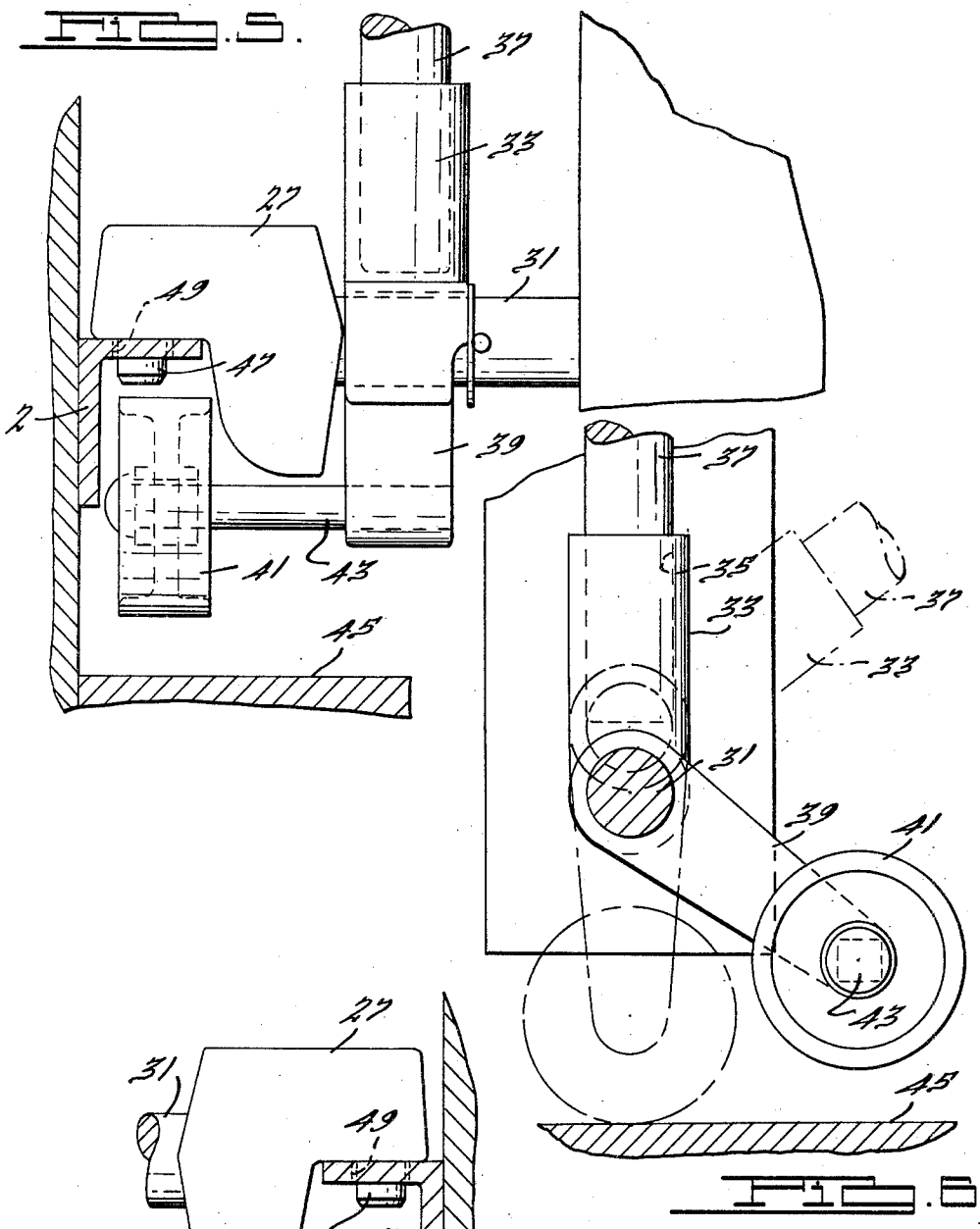


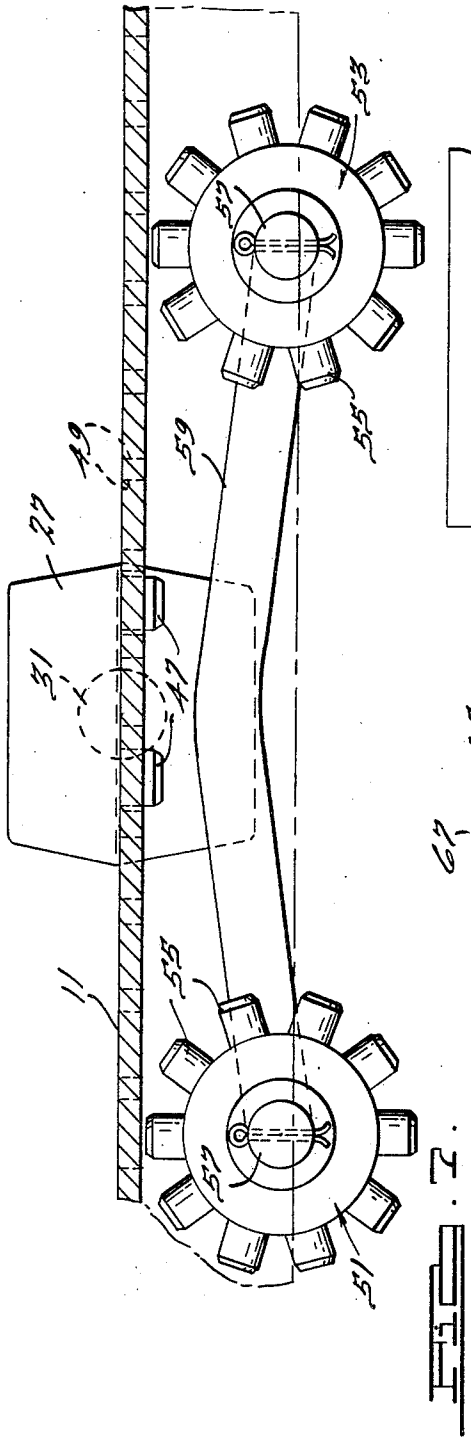
FIG. 4.

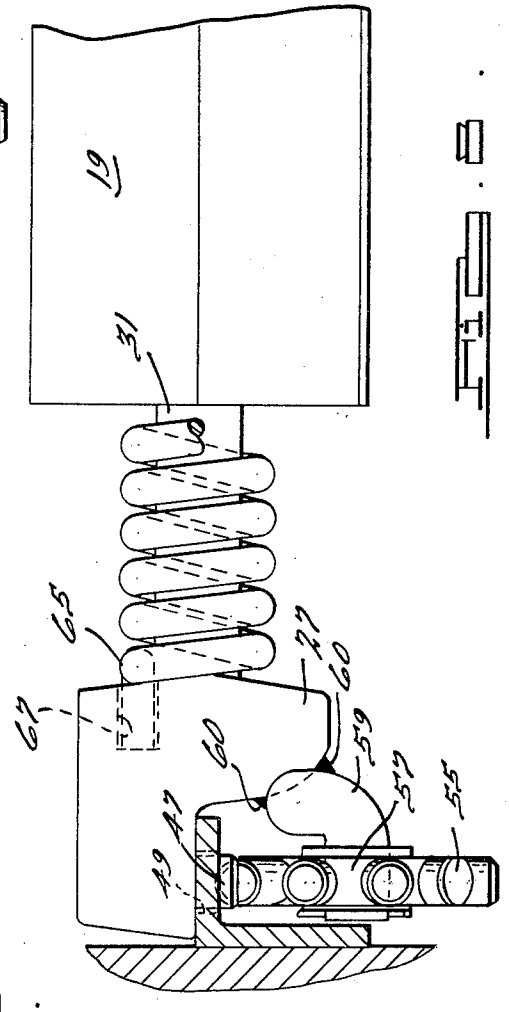
INVENTOR.
Kenneth J. Tobin.
BY
Harness, Dickey & Pierce.
ATTORNEYS.

Dec. 25, 1962 K. J. TOBIN 3,070,044

FREIGHT LOADING EQUIPMENT

Filed Nov. 20, 1956 4 Sheets-Sheet 4





INVENTOR.
Kenneth J. Tobin.
BY
Harness, Dickey & Pierce.
ATTORNEYS.

United States Patent Office

3,070,044

Patented Dec. 25, 1962

3,070,044

FREIGHT LOADING EQUIPMENT

Kenneth J. Tobin, Sarasota, Fla., assignor to Evans Products Company, Plymouth, Mich., a corporation of Delaware

Filed Nov. 20, 1956, Ser. No. 623,332
5 Claims. (Cl. 105—376)

My invention relates to railroad cars and in particular to movable bulkheads that can be used at various positions within the car to divide it into compartments.

For a great many years a need has existed in the railroad industry for a suitable design of bulkhead that could be used to compartmentize freight and secure it in place to prevent damage in shipping. Various proposals have been advanced but they have invariably involved structure that substantially decreased the net cubical capacity of the boxcar, were too fragile for lengthy railroad use, or were too complicated or heavy for the average workman to handle.

I have, by means of my invention, overcome the foregoing disadvantages along with several others that are known to those in the field. In accordance with a preferred embodiment of my invention a bulkhead is constructed upon a series of cross bars, these cross bars preferably being of the type disclosed in Tobin et al. Patent No. 2,725,826, and its related cases, which refer to a well known freight dunnage system sold by my assignee, Evans Products Company, under the trademark "DF." The attaching ends of the cross bars project beyond the edges of the bulkhead and are located at levels which enable them to be secured to the conventional "DF" belt rails as shown in the aforementioned patent.

The cross bars which provide the framework for the bulkhead of my invention furnish means for rigidly securing the bulkhead in operative, compartmentizing position. In order to facilitate movement of the bulkhead from one operative position to another I provide rollers which can be selectively operated to bear the weight of the bulkhead and move it along the floor of the boxcar. In addition, the rollers in operation will serve to move the bulkhead and cross bars in such a way that the cross bars are disconnected from the belt rails. The bulkhead is prevented from canting during its movement from one position to another by means of sprocket guide wheels which I prefer to use at the top of the bulkhead and which will be lifted into engagement with the bottoms of the "DF" belt rails during the course of bulkhead translation. The sprocket wheels have pins which project into the openings in the "DF" rails and since the latter are in correct alignment the bulkhead cannot twist during the course of its movement.

The bulkhead of my invention is stored adjacent the roof of the boxcar where it will not decrease the useful capacity of the car. Movement to a horizontal position at the top of the car occurs about the top cross bar as a pivot axis after the other cross bars have been lifted from their respective belt rails. A suitable spring is arranged so that it is energized by movement of the bulkhead from the horizontal stowed position to the vertical operative position, thus providing energy to assist in movement of the bulkhead back to a stowed position.

The invention is illustrated in its preferred form in the accompanying drawings in which:

FIGURE 1 is a perspective view, partly broken away, diagrammatically showing the use of my improved bulkhead in a boxcar equipped with the "DF" dunnage system;

FIG. 2 is a partial cross section along line 2—2 of FIG. 3 showing the bulkhead in its stowed horizontal position adjacent the roof of the boxcar;

FIG. 3 is a vertical cross section through the boxcar and shows the bulkhead in operative vertical position;

FIG. 4 is an enlarged view showing how the head of a cross member is connected to a "DF" belt rail;

FIG. 5 is a view with parts broken away showing a bellcrank and wheel assembly mounted upon the neck of the cross bar head at the bottom of the bulkhead;

FIG. 6 is a view taken from the right of FIG. 5 with the head of the cross bar omitted;

FIG. 7 is an end view of a cross bar and sprocket guide wheel assembly at the top of the bulkhead; and

FIG. 8 is a view taken from the right of FIG. 7.

In FIGURE 1 the boxcar 1 is equipped with a series of "DF" type angle-shaped belt rails 2 through 9, respectively, located at standard positions in accordance with the aforementioned patent and equipment furnished to the industry. In addition to these belt rails I preferably add at the top of the car a rail 11 which will be attached in the same manner as the other rails, thus being securely welded to the upright frame members 13 which are a part of the side wall of the freight car.

In order to isolate packages of freight 15 into a compartment, a movable wall or bulkhead may be used and in accordance with my invention the bulkhead 17 will perform this function and tie in with the "DF" loader equipment just described. The bulkhead 17 comprises a frame which consists of preferably four "DF" cross bars which, running from top to bottom, bear reference numerals 19, 21, 23, and 25. The exact construction of these cross bars is well known in the field, since they are available on the open market, and also has been described in the aforementioned Tobin et al. patent and cases related to it. The cross bars each comprise elongated bodies having heads 27 at opposite ends. The bodies preferably have vertical faces of wood, or are otherwise adapted so that panels may be rigidly secured to them to form the opposite faces 29 of the bulkhead 17, the faces 29 engaging the articles of freight 15.

The heads 27 of the various cross bars 19, 21, 23, and 25, at opposite ends thereof, are freely telescopic, that is they will slide in and out of the ends of the bodies of the cross bars. For this purpose the heads 27 are rigid with necks 31 which are received within suitable openings 32 in the body of the cross bar as taught in the aforementioned patent, the openings 32, however, being oversize to permit vertical play. The arrangement is also preferably such that the angle which the heads 27 make with the plane of the bulkhead may be varied, i.e. the heads 27 can rotate about the necks 31.

At the bottom of the bulkhead 17 bellcrank assemblies 25 are mounted on the necks 31 of cross bar 25. These include a socket 35 for removably receiving an operating lever 37. The angular depending leg 39 rotatably carries a wheel 41 on an axle 43 that extends transversely from the bottom of the bell crank 33 and preferably is located beneath the head 27 when the bell crank 33 is biased by suitable means to a position wherein the wheel 41 is elevated about three quarters of an inch above the floor 45 of the boxcar. However, when each lever 37 is inserted into the top end of the bell crank 33 and leverage is applied to pivot it about shaft 31, the wheel 41 will move downwardly to engage the floor 45 so that additional pressure will cause the shaft 31 to rise carrying with it the head 27 and the entire bulkhead 17. This movement will enable the lock pins 47 on the bottoms of the heads 27 to be lifted clear of the openings 49 in the various belt rails, thus freeing the bulkhead 17 so that it can be rolled on the floor 45 lengthwise of the car 1.

Twisting of the bulkhead 17 is prevented by means of guide wheel sprockets at the top of the bulkhead. These preferably comprise a pair of wheels 51 and 53 which have a plurality of radially extending pins 55 that correspond to the pins 47 so that they will project through

openings 49 in the bottom of the top belt rails 11. The wheels 51 and 53 are rotatably mounted on stub axle sections 57 which are formed on the ends of a support 59 which is securely attached as by welding at 60 to the head 27 of the uppermost cross bar. When the bulkhead 17 is lifted by pressure applied to bellcrank 33, the upper head 27 will be lifted so that its pins 47 come out of holes 49 but at the same time the pins 55 on the wheels 51 and 53 will be brought up to project through the holes 49 so that the wheels roll on the bottom faces of the belt rails 11 and the pins 55 act to prevent twisting of the bulkhead.

When it is not desired to use the bulkhead 17, it can be stowed in a position adjacent the roof 63 of the freight car as seen in FIG. 2. This is done by pivoting the bulkhead about the necks 31 of the top cross member heads 27. The movement occurs with the assistance of a pair of springs 65 which are coiled around the necks 31 of cross bar 19 and have one end anchored by suitable means to the body of the cross member and the other end anchored by insertion in recess 67 in head 27. In moving the bulkhead from the vertical to the horizontal position, the heads 27 are first disconnected from the respective belt rails, a certain amount of vertical play being provided in the telescopic mounting of necks 31 to permit this, and then they are telescopically moved inwardly toward the side edges of the bulkhead so that the outer faces clear the inside edges of the belt rails. Rods 37 will be removed when this is done. Only the top cross member 19 is left in a fixed position. Then the body of the bulkhead 17 can be pivoted upwardly about the necks 31 of cross bar 19 as a fixed pivot with the assistance of springs 65. A recessed hand grip 67 may be provided near the bottom of the bulkhead to facilitate lifting. When in the upper, horizontal position, the bulkhead may be held in place by a suitable catch (not shown) or by turning one or more of the heads 27 to engage holes in belt rails 11.

I claim:

1. In a freight transporting conveyance such as a railroad boxcar, said conveyance having opposite vertical side walls provided with belt rails adjacent the tops thereof having horizontal perforated flanges, a bulkhead between said side walls and having adjacent the top thereof oppositely extending aligned attachment members for connection to said belt rails, said attachment members including devices on opposite sides of said flange and having pins to project into the perforations of said flanges, one of said devices providing means for anchoring said bulkhead to the belt rails and the other of said devices providing means for rolling of the bulkhead along said belt rails.

2. The invention set forth in claim 1 wherein said device for anchoring the bulkhead to said belt rails includes a pivot providing means for pivotal movement of the bulkhead about an axis defined by said aligned attachment members.

3. In a bulkheading system for a compartment having opposite side walls, a plurality of longitudinally extending belt rails on said side walls having perforated horizontal flanges, a bulkhead to extend between the side walls, said bulkhead having on opposite sides a plurality of freely telescopic members with downwardly projecting pins to fit in the perforations on said belt rails, and means providing a rolling and non-twisting connection between said bulkhead and said rails upon removal of said pins from said rails.

4. In a bulkhead system, transversely spaced horizontally extending belt rails provided with perforated horizontal flanges, a bulkhead extending transversely between said belt rails, said bulkhead having attachment members extending from the sides thereof and provided with pins projecting parallel to the sides of the bulkhead for insertion in the perforations of said belt rails, and means for moving the bulkhead in a direction parallel to said pins to disconnect and connect them and said belt rails.

5. The invention set forth in claim 4 including means associated with certain of said attachment members to engage said flanges on the side opposite to that from which the pins project so as to prevent undesired disconnection of the pins and belt rails.

References Cited in the file of this patent

UNITED STATES PATENTS

223,290	Lang	Jan. 6, 1880
2,201,636	Siess et al.	May 21, 1940
2,226,017	Pixley	Dec. 24, 1940
2,235,413	Westmoreland	Mar. 18, 1941
2,331,197	Johnston	Oct. 5, 1943
2,429,274	Moorman	Oct. 21, 1947
2,612,848	Sowden	Oct. 7, 1952
2,659,319	Herman	Nov. 17, 1953
2,752,864	McDougal et al.	July 3, 1956