Sept. 30, 1952 E. M. PETERSON 2,612,122

CENTER DOOR BULKHEAD BRACING

Filed Oct. 27, 1948 2 SHEETS—SHEET 1

Fig. 1

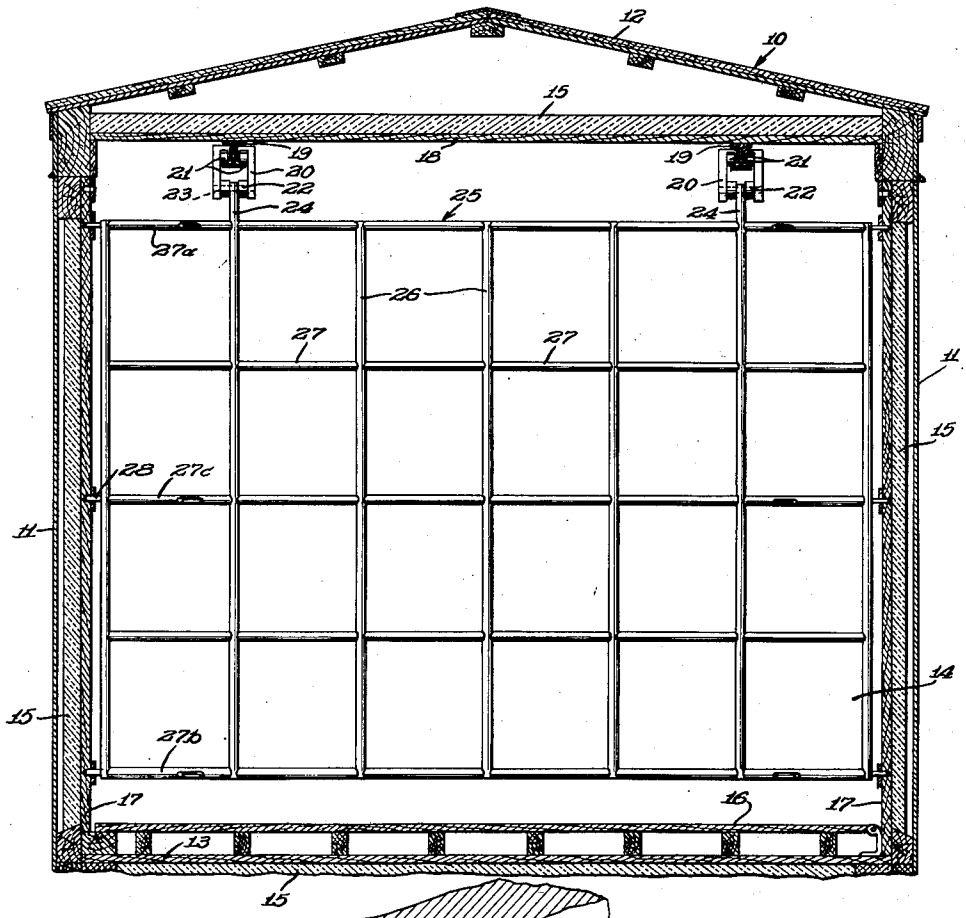
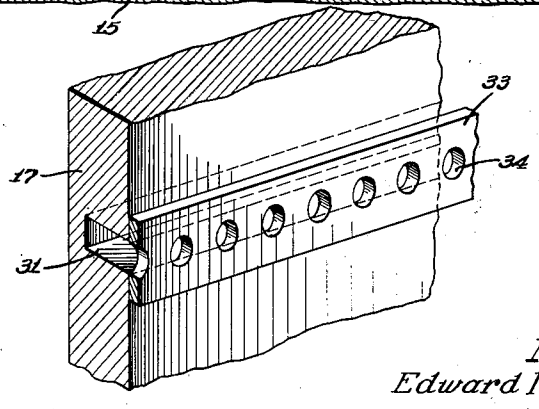



Fig. 4




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CENTER DOOR BULKHEAD BRACING

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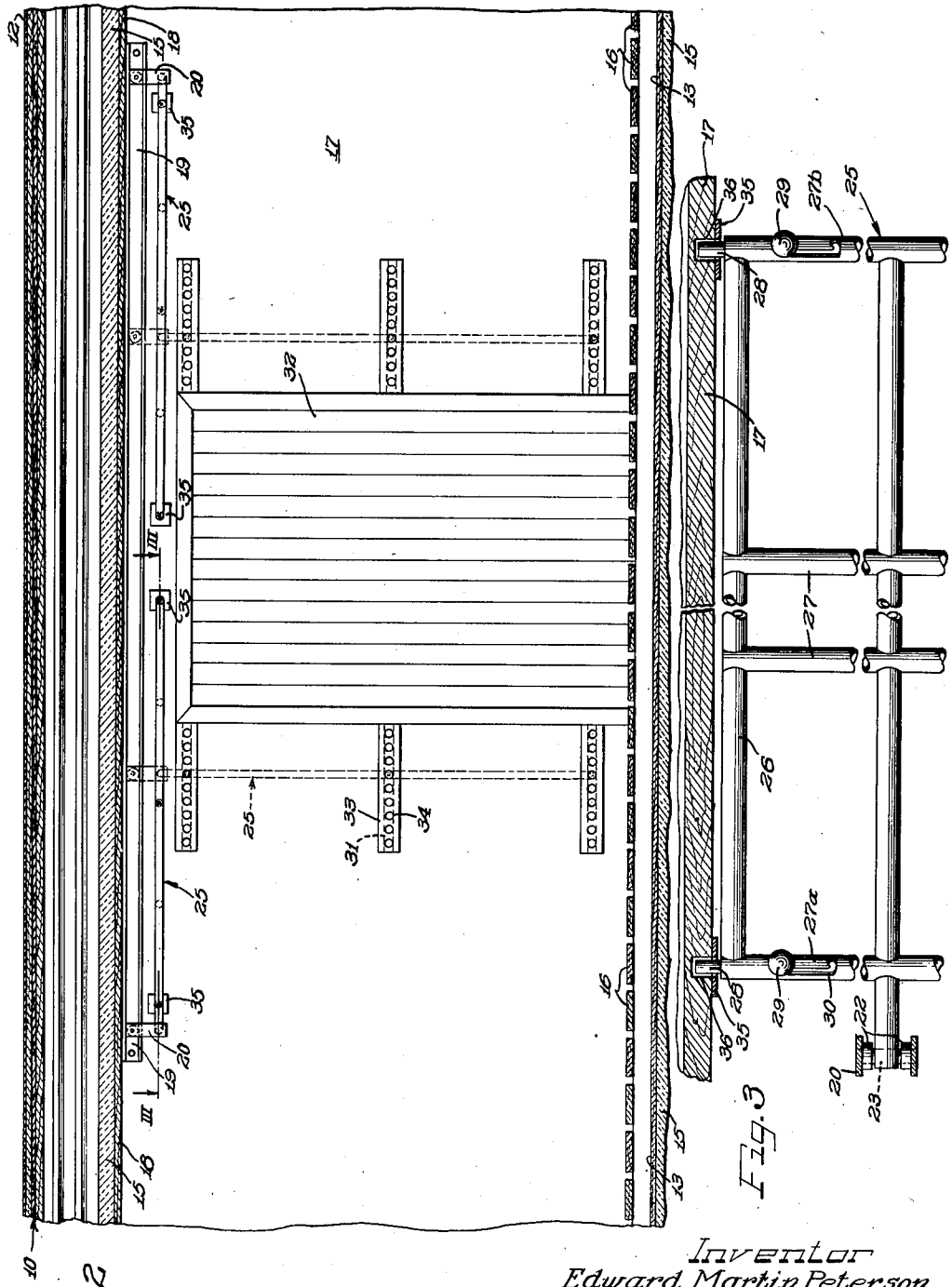


Fig. 2



Fig. 3

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## CENTER DOOR BULKHEAD BRACING

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1 Claim. (Cl. 105—376)

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The present invention relates to a center door bulkhead bracing for railroad cars and the like and more particularly to a bulkhead bracing for maintaining cargo in position in a partially loaded railroad car, the bracing maintaining the cargo against displacement or movement within the car while being pivotally mounted to permit unloading of the cargo.

The problem of maintaining cargo in position within a partially loaded railroad freight car, such as a refrigerator car and the like, has long been appreciated in the art and numerous expedients proposing means for solving this problem have been suggested. However, these proposed expedients have not come into wide-spread use due to their expense and their general inefficiency. Even though numerous expedients have been suggested, cargo typically is still maintained in position within a partially loaded freight car by means of timber bracings, usually formed from planks which must be individually installed upon each loading of the car and individually removed upon each unloading. After one use, the timbers are discarded and this practice, although conventional in the art, has been wasteful of materials, of productive man hours, and of loading space.

The present invention, by providing an improved type of bulkhead bracing, thus solves a problem long felt but, until now, unsolved in the art. The bulkhead bracing of the present invention is adaptable to fit any conventional size railroad freight or refrigerator car. The device, when in use, may be adjustably positioned along the length of the car to extend thereacross so that loads of varying bulk may be maintained in position within the car by mere adjustment of the apparatus. Further, means are provided for retaining the bracing in an overhead position within the car when not in use to prevent interference with unloading and loading. In loading or unloading the car, it is merely necessary to remove the securing means from position and to swing the bracing overhead along a mono-rail track provided for that purpose.

In general the present invention comprises a mono-rail secured to the ceiling of the freight car and a lightweight grid swivelly mounted on the mono-rail for movement therealong and also for pivoting movement to closely underlie the car ceiling. The grid carries adjustable securing pins slidably mounted within the grid and extensible therebeyond to engage receiving apertures formed in the car side walls to secure the grid in adjusted position to abut the cargo contained in the car. The grid may be placed in transversely adjustable position to abut cargos of varying bulk carried by the car.

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I prefer to employ a pair of grids, each provided with its own securing means and mounted on either side of the center door of the railroad car. By the use of two such bracings, the cargo may be maintained in either end of the car while leaving an open loading and unloading aisle extending transversely of the car from and to the car door.

It is, therefore, an important object of the present invention to provide a bulkhead bracing adaptable to maintain cargos of varying bulk in position within a railroad car and also capable of being secured in an out-of-the-way overhead position to facilitate loading and unloading of the car.

It is another important object of the present invention to provide a center door bulkhead bracing for railroad cars in which a relatively open grid is provided to lie on either side of the center door of a railroad car, the grid extending transversely of the length of the car to maintain cargo in position in either end of the car while providing an open loading and unloading aisle to and from the car door.

A still further important object of the present invention is to provide a center door bulkhead bracing for a railroad car comprising a grid carried by an overhead mono-rail for adjustable positioning therealong to maintain cargos of varying bulk properly positioned within the car, the grid also being adapted to be swung upwardly to an overhead position and to be maintained in this position to facilitate loading and unloading of the car.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

On the drawings:

Figure 1 is a transverse section, with parts shown in elevation, of a railroad car equipped with a center door bulkhead bracing of the present invention;

Figure 2 is a longitudinal section of a railroad car similar to that of Figure 1 in which the bulkhead bracing of the present invention is shown in overhead position and in dotted lines in its loaded position;

Figure 3 is a broken, cross-sectional view taken along the plane III—III of Figure 2; and

Figure 4 is a fragmentary enlarged perspective view of the pin receiving means for maintain-

ing the bulkhead bracing of the present invention in position within the car.

As shown on the drawings:

In Figure 1, reference numeral 10 refers generally to a refrigerating car such as that conventionally employed by railroads. It should be understood that the bulkhead bracing of the present invention may also be employed with other types of railroad cars, although its use is particularly desirable in refrigerated cars inasmuch as the employment of a center loading and unloading aisle is particularly desirable in this type of car. Car 10 is provided with side walls 11, a pitched roof 12, and a floor 13, all of which may be formed of wood or sheet metal.

The interior 14 of the car 10 is insulated from the outside atmosphere by layers 15 of suitable insulation, such as rock wool or other fibrous sheet material. The interior 14 of car 10 is defined by an interior false floor 16, interior side walls 17, and ceiling 18 formed of suitable material such as wood.

As best shown in Figures 1 and 3, ceiling 18 carries, on its interior lower surface, a pair of I-beams 19 serving as mono-rails. These mono-rails extend lengthwise of the car while terminating short of the car ends. Brackets 20 are movably supported on said mono-rails by means of wheels or rollers 21 that ride upon the inner flange surfaces of the I-beams 19. The brackets 20 are provided at their lower ends with a pair of blocks 22 mounted on pins 23 extending through the bracket 20. Said blocks 22 serve to support a depending rod or pipe section 24 of a grid 25.

The grid 25 is formed of a plurality of pipe sections or rods 26 extending parallel to members 24 and relatively short transversely extending members 27, extending normally to members 26 and secured thereto as by welding, to form a rectangular open grid 25.

Transverse upper and lower end members 27*a* and 27*b*, respectively, and center transverse end members 27*c* carry pins 28 slidable within each pipe section, the movement of the pins 28 being guided by knobs or guides 29 (Figure 3) extending through bayonet slots 30 formed in each of the pipe sections.

As best shown in Figure 4, each of the opposed side walls 15 is provided with a plurality of vertically spaced elongated slots 31 extending lengthwise of the car adjacent each side of center door 32 (Figure 2). The slots 31 open into the interior 14 of the car and plates 33, of metal or wood, are provided to overlie each slot 31 with apertures 34 formed in the plates 33 communicating with the slots 31 to receive pins 28 therethrough.

It will readily be seen that upon pushing the pins outwardly from the grid 25 by means of handles 29 extending through bayonet slots 30, the pins 28 may be inserted into the apertures 34 and slots 33 to maintain the grid in position extending transversely across the interior 14 of the car 10. It may also be seen that the position of the grid 25 may be adjusted along the length of the car 10 by merely inserting or removing the pins 28 from any one of the apertures 34.

Also, the grid 25 may be easily swung upwardly to maintain the grid in position to overlie the cargo contained in the car 10 without interfering with the loading or unloading procedure. The swinging of the grid upwardly is accomplished by removing pins 28 from aperture 34, moving the grid along rails 19 away from the car door, and pivoting the grid 25 about the pins 23 extending through the bracket arms 20 and blocks 22. The grid 25 is thus elevated upwardly as best shown in Figure 2 to a position horizontal to and underlying the ceiling 18 of the car 10. A pair of spaced plates 35 are provided for each grid 25 in a position adapted to receive the pins 28 carried by the members 27*a* and 27*b* of the grid 25. After the grid has been swung upwardly to its horizontal position, the pins 28 are inserted through apertured plates 35 into cylindrical apertures 36 underlying the plates 35 and adapted to receive the pin 28, as best shown in Figure 3. The grid, thus secured in position to underlie the ceiling 18, does not interfere with the loading or unloading of the car through the door 32 and this loading and unloading may be carried out in a conventional manner.



It will be readily understood by those skilled in the art that the improved bulkhead bracing of the present invention is extremely simple in operation and successfully solves the problem normally present in bracing cargos within partially filled cars by conventional means as hereinbefore described. The adjustable positioning of the bulkhead bracing along the length of the car makes possible the employment of the bracing of the present invention even though the car be only partially filled, while the bracing may be moved to an overhead position to provide a transversely extending loading and unloading aisle in full communication with the car door. After being swung upwardly into its overhead position, the bulkhead bracing does not interfere with the normal loading and unloading of the car, and upon removing the pins 29 from their position within the aperture plate 35, the bracing may be easily swung down into its transverse position to maintain the cargo within the car.

It will, of course, be understood that various details, of construction may be varied through a wide range without departing from the principles of this invention, and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claim.

I claim as my invention:

A center door bulkhead bracing in combination with a railroad car having a closed rectangular interior compartment, comprising spaced parallel mono-rails secured longitudinally along the ceiling of said compartment, carriages in rolling engagement with each of said rails for movement therealong, a flexible bracing grid comprising a plurality of vertical and transverse light metal pipe sections welded together in an equally spaced orthogonal array having a periphery substantially conforming to the transverse cross section of said compartment, at least two of said vertical pipe sections having a portion extending above the uppermost transverse pipe section for pivotal securement to said carriages to support said grid dependently from said carriages normally in a vertical plane, the longitudinal walls of said compartment having horizontally extending slots formed therein at heights corresponding to the level of the uppermost and lowermost of said transverse pipe sections, strip-like plates overlying said slots and having correspondingly spaced apertures therealong, securing pins telescopically mounted in opposite ends of said uppermost and lowermost transverse pipe sections and having handles projecting lateraly out through bayonet slots in said opposite ends, said pins being insertable

fully through the apertures of said plates into said slots to position said grid in any of several adjusted transverse positions along the length of the compartment and to hold said grid when the same is flexed by a load, and additional apertured plates on the longitudinal walls of said compartment positioned to receive said pins when said grid is swung to its overhead non-use position, thereby to support said grid.

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