May 3, 1932. A. E. DENTLER 1,856,472

MEAT RACK FOR REFRIGERATOR CARS

Filed June 1, 1931

Fig. 1

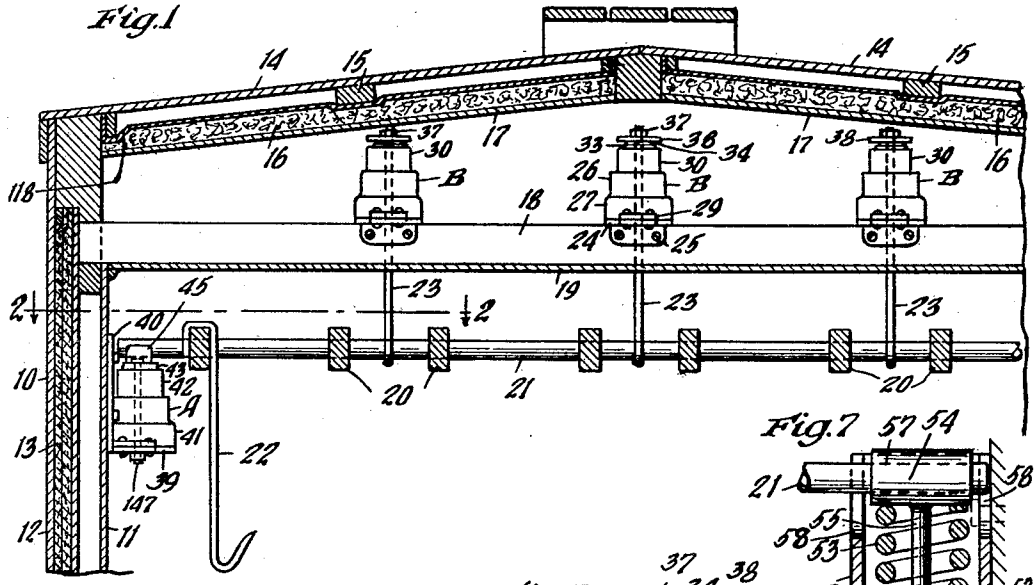


Fig. 7

Fig. 2

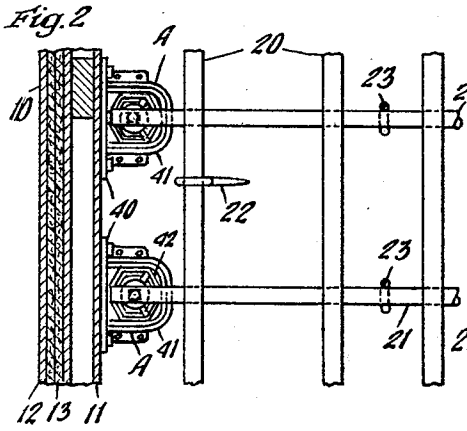


Fig. 3

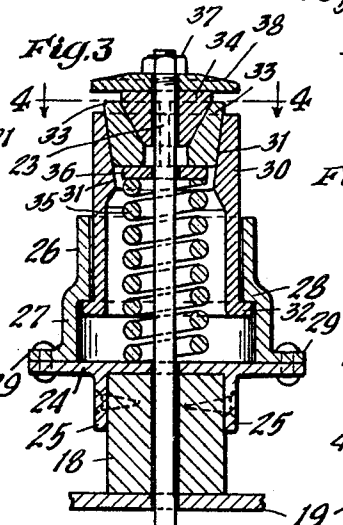


Fig. 6

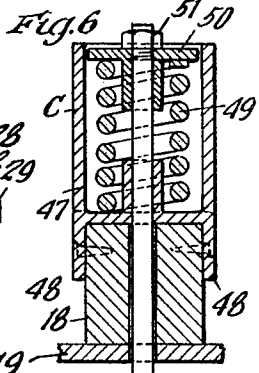


Fig. 4

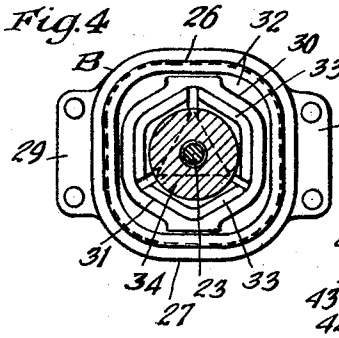
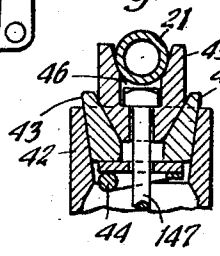
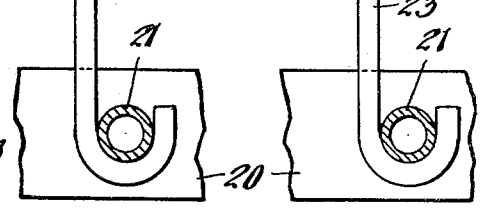


Fig. 5





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UNITED STATES PATENT OFFICE

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MEAT RACK FOR REFRIGERATOR CARS

Application filed June 1, 1931. Serial No. 541,393.

This invention relates to improvements in meat racks for refrigerator cars.

In the transportation of meat by refrigerator cars, damage is frequently caused in transit by the same being shaken and torn from the supporting hooks of the racks through excessive violent vibrations imparted to the car body by the action of the truck springs.

The main object of my invention is to overcome this difficulty by providing resilient supporting means in connection with the meat racks of refrigerator cars to cushion and absorb the damaging shocks, thereby protecting the load suspended from the racks from damage.

A more specific object of the invention is to provide a shock absorbing supporting means for suspending the meat racks within the car.

Another object of the invention is to provide yielding shock absorbing means for suspending the meat racks of refrigerator cars wherein the yielding action of the suspending means is dampened by friction mechanism.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawings, forming a part of this specification, Figure 1 is a transverse, vertical sectional view through the upper portion of a refrigerator car, illustrating my improvements in connection therewith. Figure 2 is a horizontal sectional view, partly broken away, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is a vertical sectional view of one of a plurality of shock absorbing supports for suspending the meat rack. Figure 4 is a horizontal sectional view on the line 4—4 of Figure 3. Figure 5 is a vertical sectional view of the upper portion of one of a plurality of shock absorbing supports employed to suspend the ends of the meat rack. Figure 6 is a view similar to Figure 3, but illustrates a different embodiment of the supporting device. And Figure 7 is a vertical sectional view through one of a plurality of shock absorbers for supporting the ends of the rack from the car wall, involving substantially the same shock absorbing means as illustrated in Figure 6.

In said drawings, referring first to the invention illustrated in Figures 1 to 5 inclusive, 10 indicates the side wall of a refrigerator car, said wall comprising an inner sheathing 11, an outer sheathing 12, and interposed insulation material 13. The car roof is indicated by 14 and is supported by the usual longitudinally extending beams 15. Insulation 16 is provided on the inner side of the roof and is covered and protected by the inner sheathing 17. Transverse beams 18 extend from side to side of the car beneath the roof and are spaced therefrom, as shown in Figure 1. The opposite ends of these beams are fixed in the side walls of the car. The beams 18 form supporting means from which the meat rack is suspended. The usual carlines 118 are provided for supporting the roof, and the beams 18 are preferably disposed at opposite sides of the same. The ceiling 19 is secured to the bottom of the carlines 118 and beams 18, as shown in Figure 1.

In carrying out my invention as disclosed in Figures 1 to 5 inclusive, I employ a meat rack composed of a plurality of longitudinally extending bars 20—20 and transverse connecting rods 21—21. As most clearly shown in Figure 1, the bars 20—20 are arranged in spaced pairs and are of greater thickness in height than the rods 21—21. As shown, the rods 21—21 extend transversely through the bars 20—20, the latter being provided with suitable openings to accommodate the rods. In the present instance, the rods 20 are hollow, as shown in Figure 5, that is, they are preferably tubular members. The connected rods and bars form a grid structure which serves to suspend the usual hooks on which the meat is hung, one of these hooks being shown in Figure 1 and indicated by 22. The transverse bars 21—21 of the meat rack are supported at opposite ends on shock absorbers A—A which are fixed to the side walls of the car. Between the ends, each rod 21 is further suspended by hooklike members 23—23 which are supported by shock absorbers B—B mounted on top of the beams 18. As shown in Figure 1, three such shock absorbing supporting members B are provided for each rod 21 between the ends there-

of, the same being spaced apart as shown and having the hook members 23 thereof respectively disposed between adjacent pairs of the longitudinal bars 20—20.

Each shock absorbing supporting member B comprises a base casting 24 which has spaced bottom flanges 25—25 embracing the corresponding beam 18. A casing 26 is mounted on top of the base member 24 and has the lower portion thereof enlarged as indicated at 27, thereby providing an annular limiting shoulder 28. The bottom end of the casing 26 is provided with flanges 29—29 at opposite sides thereof by which the same is secured to the base member 24, rivets being employed for this purpose, which extend through the flanges 29—29 and laterally outstanding sections at opposite sides of the base member. A friction shell 30 is telescoped within the casing 26, the shell being open at opposite ends and having interior friction surfaces 31—31 at the open upper end. At the bottom end, the shell 30 is provided with an outstanding annular flange 32 which works within the enlarged portion 27 of the casing 26 and has engagement with the shoulder 28 of said casing to restrict outward movement of the friction shell. The friction surfaces 31—31 of the shell are preferably converged inwardly. A pair of friction shoes 33—33 cooperate with the friction surfaces of the shell and an outer wedge block 34 has wedging engagement with the shoes. A spring member 35 is disposed within the friction shell 30 and casing 26, having the bottom end bearing on the base member 24 and the upper end engaging a spring follower disc 36 which in turn engages the inner ends of the friction shoes. As will be evident, the spring 35 opposes inward movement of the friction shell with respect to the casing 26 and also opposes movement of the friction shoes 33—33 inwardly of the shell 30. Each supporting hook member 23 has an elongated rodlike shank portion which extends through openings provided in the ceiling 19 of the car, the corresponding beam 18, the base member 24, the follower disc 36, and the wedge block 34. The hook member 23 is anchored to the wedge block by means of a securing nut 37 threaded on the upper end of the shank of the hook. A follower plate 38 is preferably interposed between the outer end of the wedge block 34 and the nut 37. As will be evident, each shock absorbing means B yieldingly opposes downward movement of the corresponding supporting hook 23 by means of the combined spring and frictional action of said device. In absorbing a shock due to downward pull on the hook 23, the same will initially be resisted by the spring 35 only. After a predetermined compression of the spring 35, the lower end of the friction shell 30 will engage the base member 24, thereby arresting downward movement of the shell and compelling the friction shoes to move inwardly on the friction surfaces of the shell. As will be evident, the friction means provides a dampening action during this part of the operation of the shock absorber and in addition opposes greater resistance to downward movement of the member 23. The spring 35 acts to return all the parts to the normal position, upward movement of the shell 30 being limited by the shouldered engagement thereof with the casing 26.

Each shock absorbing supporting member A comprises a base member 39 having an upstanding securing flange 40 which is fixed to the side wall of the car by means of bolts extending therethrough. The base casting has a casing 41 mounted thereon in all respect similar to the casing 26 hereinbefore described in connection with Figure 3. A friction shell 42, similar to the shell 30, is telescoped within the casing and contains friction shoes 43—43, a spring resistance 44, and a wedge member 45, similar to the corresponding parts of Figure 3. The wedge member is provided with a pocket 46 at the top thereof in which the outer end of the corresponding rod 21 is seated. A retainer bolt 147 is employed, which is anchored to the wedge block and the supporting bracket 39. The operation of this shock absorbing device is in all respects similar to the device shown in Figure 3, downward movement of the rack forcing the wedge inwardly, first compressing the spring only and then, after movement of the friction shell has been arrested, forcing the friction shoes to slide inwardly of the shell. As will be understood, supporting shock absorbing devices A—A are provided at opposite ends of each rod 21, the same being fixed to the side walls of the car. The entire rack is thus supported at opposite ends by a plurality of shock absorbing devices A, and is further suspended from the beams 18 by a plurality of shock absorbing devices B—B, three such devices being employed in connection with each rod 21.

As illustrated in Figures 6 and 7, spring shock absorbing devices may be substituted for the friction devices A and B. A plurality of such spring shock absorbers C—C, shown in detail in Figure 6, are employed in place of the shock absorbing devices B—B, and a plurality of shock absorbing devices D, as shown in Figure 7, are employed in place of the devices A—A. Each shock absorbing device C comprises a casing 47 which is closed at the bottom end and is supported on the corresponding beam 18. The casing 47 is provided with spaced depending flanges 48—48 at the bottom end thereof which embrace opposite sides of the beam 18, securing means being employed extending through these flanges and into the beam. The shank of a hook member 23, corresponding to the hook member hereinbefore described in con-

nection with Figures 1 to 5 inclusive, has the shank thereof extending through openings in the ceiling 19, the beam 18, and the bottom wall of the casing 47. A spring 49 is disposed within the casing and is supported on the bottom wall of the same. A spring follower 50 cooperates with the upper end of the spring, and the shank of the hook 23 extends therethrough. The hook member 23 is anchored to the follower 50 by means of a nut 51 at the upper end of the shank thereof. Both the spring follower member 50 and the bottom wall of the casing 47 are provided with inwardly extending bosses which engage within the spring 49 to center the same, and restrict downward movement of the follower 50 by engagement with each other, thereby limiting compression of the spring.

The shock absorbing device D comprises a casing having a flat rear wall 52 which has projecting flanges at opposite sides for fixing the same to the wall 11 of the car. Any well-known securing means may be employed for mounting the casing on the wall 11, bolts being herein shown which extend through the flanges of the rear wall. The casing contains a spring 53 which is supported on the bottom wall thereof. A spring follower 54 is telescoped within the upper end of the casing and bears on the spring 53. The spring follower has a depending guide rod 55 formed integral therewith, the rod extending through the bottom wall of the casing and having a nut 56 secured to the lower end thereof for limiting upward movement of the follower 54. The follower is provided with an opening 57 which receives the corresponding end of the cooperating rod 21 of the rack. The front and rear walls of the casing 52 are vertically slotted, as indicated at 58 to permit the necessary reciprocating movement of the rod 21.

As will be evident, when the rack is subjected to shocks or vibrations, the same is yieldingly supported by the springs of the shock absorbers C and D, the springs of the shock absorbers D yieldingly opposing downward movement of the outer ends of the rods 21 of the rack, and the springs of the shock absorbers C opposing downward movement of the hooks 23 which suspend the rods 21 between the ends thereof.

From the preceding description taken in connection with the drawings, it will be evident that I have provided a yielding shock absorbing supporting means for the entire meat rack of a refrigerator car, thereby avoiding sudden jars to the rack structure due to vibrations of the truck springs and car body, thus preventing the meat suspended on the hooks of the rack from being torn and shaken down. In addition, by employing the friction shock absorbing devices, excessive jars to the meat rack are effectively absorbed, the yielding resistance of the springs of the shock absorbing devices being dampened by the friction means which also provides greater shock absorbing capacity in case of heavy shocks being encountered.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a meat rack for refrigerator cars, the combination with connected bars forming a gridlike rack structure for suspending meat supporting hooks; of shock absorbing means for suspending said connected bars.

2. In a meat rack for refrigerator cars, the combination with connected bars forming a gridlike rack structure for suspending meat supporting hooks; of spring shock absorbing means for suspending said connected bars.

3. In a meat rack for refrigerator cars, the combination with connected bars forming gridlike rack structure for suspending meat supporting hooks; of friction shock absorbing means for suspending said connected bars.

4. In a meat rack for refrigerator cars, the combination with connected bars forming a grid structure adapted to receive meat supporting hooks; of shock absorbing means fixed to the walls of the car supporting opposite sides of the grid structure; and additional shock absorbing means anchored to the grid structure inwardly of the sides thereof for suspending said grid structure from the top of the car.

5. In a meat rack for refrigerator cars, the combination with longitudinally extending bars and transverse connecting rods forming a grid structure adapted to suspend meat hooks; of bracket means fixed to the walls of the car; means on which the opposite sides of said grid structure is supported; and shock absorbing means interposed between said brackets and the corresponding supporting means.

6. In a meat rack for refrigerator cars, the combination with longitudinally extending bars and transverse connecting rods forming a grid structure adapted to suspend meat hooks; of bracket means fixed to the walls of the car; means on which the opposite sides of said grid structure is supported; shock absorbing means interposed between said brackets and the corresponding supporting means; members suspending the grid structure inwardly of the ends thereof, said members having shank portions; fixed follower means at the upper end of each shank portion; fixed supporting means on the car; and shock absorbing means interposed between

said fixed supporting means and each follower.

7. In a refrigerator car structure, the combination with a plurality of fixed interior beams at the top of the car extending transversely thereof; of a grid member composed of a plurality of spaced, longitudinally extending bars and transverse rods extending through the bars and supporting the latter; a plurality of casings supported on said beams; a plurality of supporting elements fixed to the grid structure for suspending the same; a follower anchored to the upper end of each supporting element and slidable within one of said casings; and means yieldingly opposing movement of said followers with respect to the corresponding casings.

8. In a refrigerator car structure, the combination with a plurality of fixed beams at the top of the car extending transversely thereof and spaced lengthwise; of a grid member composed of a plurality of spaced, longitudinally extending bars and transverse rods extending through the bars and supporting the latter; a plurality of casings supported on said beams; a friction cylinder telescopically slidable within each casing; friction means including a wedge member cooperating with each cylinder; spring means opposing relative movement of each casing and cylinder and also opposing relative movement of the friction means and corresponding cylinder; and means anchored at opposite ends to each wedge member and rod respectively for suspending said grid structure.

9. In a refrigerator car structure, the combination with a plurality of fixed interior beams at the top of the car extending transversely thereof; of a grid member composed of a plurality of spaced, longitudinally extending bars and transverse rods extending through the bars and supporting the latter; a plurality of casings supported on said beams; a plurality of supporting elements fixed to the grid structure for suspending the same; a follower anchored to the upper end of each supporting element and slidable within one of said casings; means yieldingly opposing movement of said followers with respect to the corresponding casing; a plurality of casings fixed to the side walls of the car; a supporting member slidable in each casing, said supporting member having a socket at the top thereof in which the outer end of one of said rods is seated; and spring means opposing movement of said supporting member inwardly of the casing.

10. In a refrigerator car structure, the combination with a plurality of fixed beams at the top of the car extending transversely thereof and spaced lengthwise; of a grid member composed of a plurality of spaced, longitudinally extending bars and transverse rods extending through the bars and supporting the latter; a plurality of casings supported on said beams; a friction cylinder telescopically slidable within each casing; friction means including a wedge member cooperating with each cylinder; spring means opposing relative movement of each casing and cylinder and also opposing relative movement of the friction means and corresponding cylinder; means anchored at opposite ends to each wedge member and rod respectively for suspending said grid structure; a plurality of friction casings fixed to the side walls of the car; friction shoes slidable within said casing; spring means opposing inward movement of the shoes of each casing; and a wedge member cooperating with the shoes of each casing, each of said wedge members having a seat receiving the outer end of one of said rods.

11. In a shock absorbing supporting means for meat racks of refrigerator cars, the combination with a friction casing fixed to the car structure; of friction shoes slidable within the casing; spring means resisting inward movement of the shoes; and a wedge block cooperating with the shoes, said wedge block having means thereon for supporting the rack structure.

12. In a shock absorbing supporting means for meat racks of refrigerator cars, the combination with a casing fixed to the car; of a friction shell telescopically slidable within the casing; friction shoes slidable within the shell; spring resistance means opposing relative movement of the shell and casing and also opposing relative movement of the shoes and shell; wedge means cooperating with the shoes; and means for suspending the meat rack by said wedge means.

In witness that I claim the foregoing I have hereunto subscribed my name this 29th day of May, 1931.

ARNOLD E. DENTLER.