J. E. MULCAHY.

PACKING CASE.

APPLICATION FILED JAN. 17, 1920.

1,373,091. **Patented Mar. 29, 1921.**

3 SHEETS—SHEET 1.

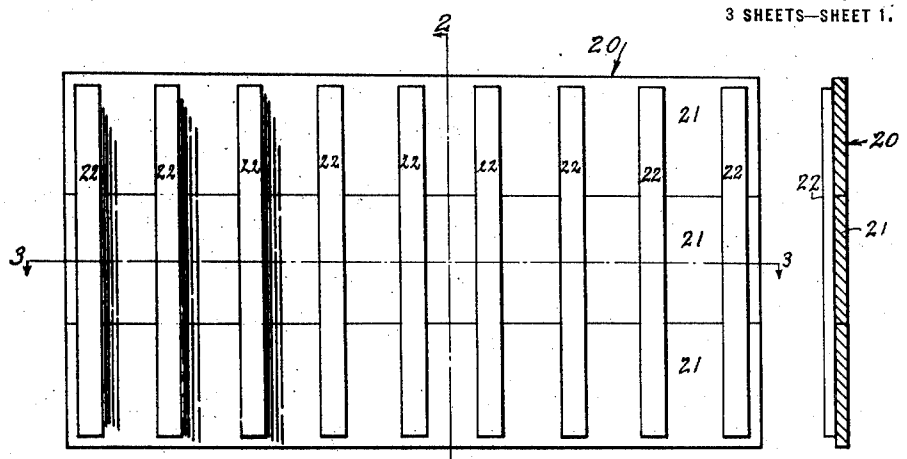


FIG 1

FIG 2

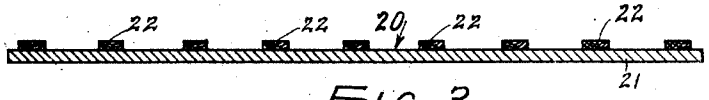


FIG 3

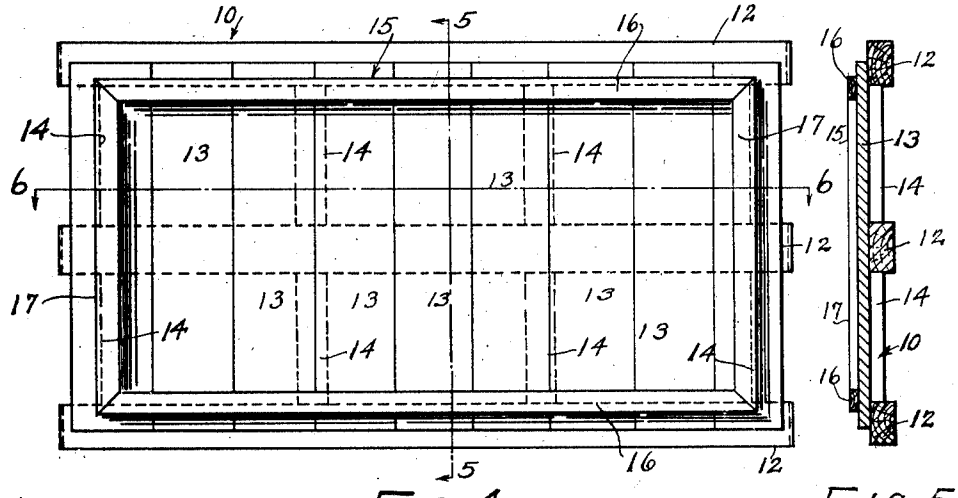


FIG 4

FIG 5

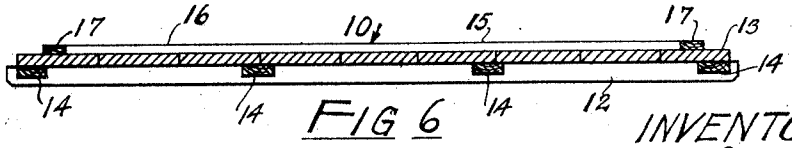


FIG 6

INVENTOR

James E. Mulcahy,

BY

Baker & Maeklin,

ATTORNEYS

J. E. MULCAHY.

PACKING CASE.

APPLICATION FILED JAN. 17, 1920.

1,373,091.

Patented Mar. 29, 1921.

3 SHEETS—SHEET 2.

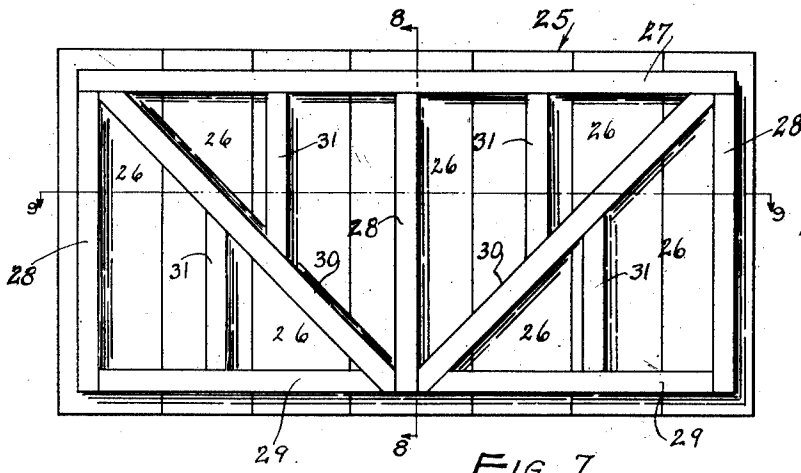


FIG 7

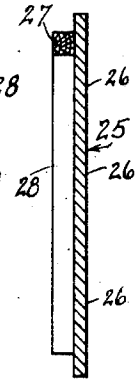


FIG 8

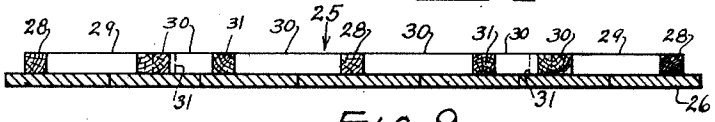


FIG 9

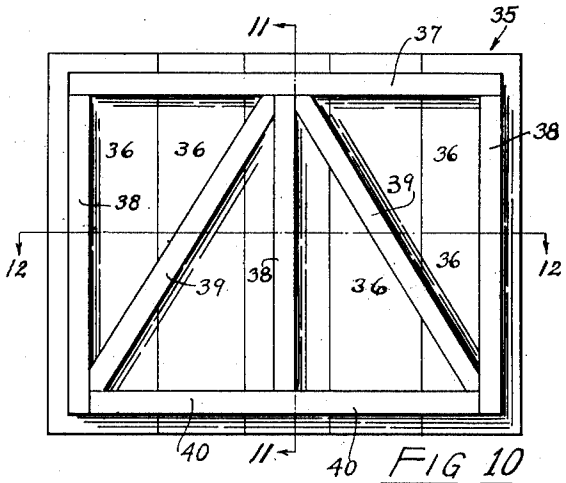


FIG 10

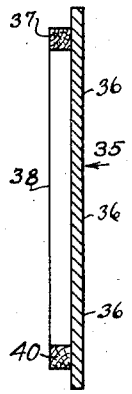


FIG 11

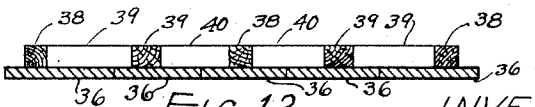


FIG 12

INVENTOR
James E. Mulcahy,
BY Baker & Moerlein,
ATTORNEYS

J. E. MULCAHY.

PACKING CASE.

APPLICATION FILED JAN. 17, 1920.

1,373,091.

Patented Mar. 29, 1921.

3 SHEETS—SHEET 3.

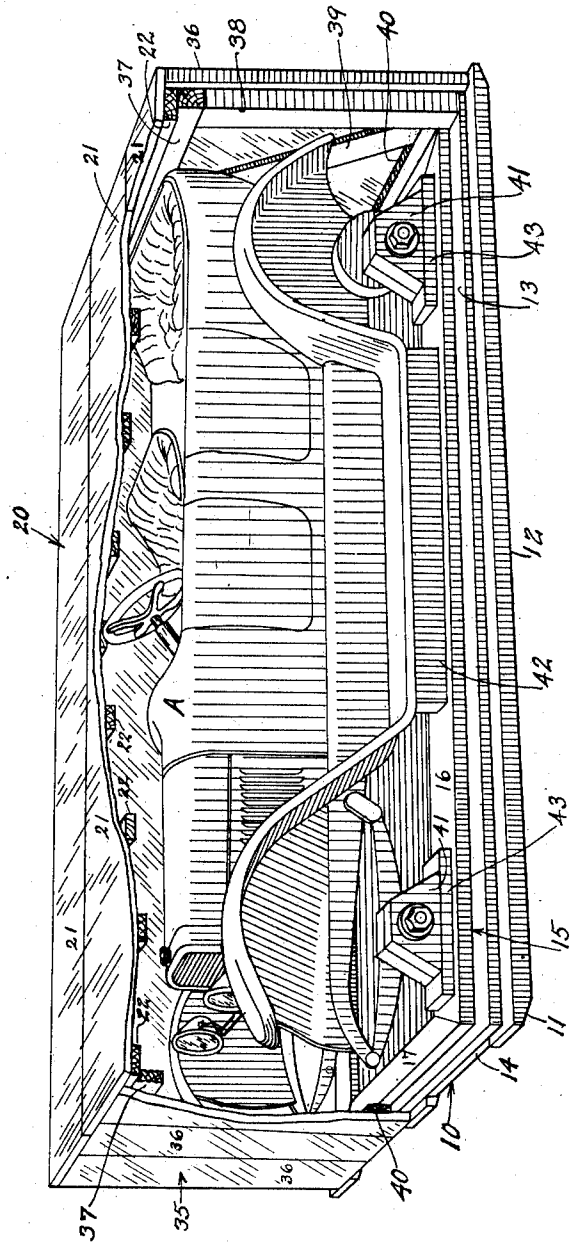


Fig. 13

Inventor
James E. Mulcahy
By Baker, Mocklin,
Attorneys

UNITED STATES PATENT OFFICE.

JAMES E. MULCAHY, OF CLEVELAND, OHIO.

PACKING-CASE.

1,373,091. Specification of Letters Patent. Patented Mar. 29, 1921.

Application filed January 17, 1920. Serial No. 352,065.

To all whom it may concern:

Be it known that I, JAMES E. MULCAHY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Packing-Cases, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to packing cases, particularly adapted for automobiles.

Hitherto the shipment of automobiles abroad has been attended by severe losses due to unavoidable damage inflicted on various parts of machines in the course of their handling during shipment. For example, among the difficulties experienced with packing cases employed have been the walls being smashed in, or the corners broken, or the cases becoming pulled or torn apart, or buckling when hoisted. Any of these or other failures of the packing means have resulted in more or less damage to the machines inclosed, such as causing bent or broken parts, or marring the various wood, metal and upholstered finishes, in such manner that repairs, involving considerable time, labor, and expense, have been constantly required. In fact shipments to certain ports from this country have been prohibitive on account of the inability to safely transport the machines.

An object of my invention is to provide a packing case that will securely retain a vehicle, such as an automobile, and prevent its parts becoming marred or broken during transportation. A more specific object is the arrangement of reinforcing members in their relation to each other as applied to a packing case in such a manner that longitudinal and transverse strains to which the case may be subjected are counteracted by the distribution of stresses from one member and combination of members to another. Further objects are the provision of a packing case in which are combined the features of cheapness of manufacture, lightness in weight, ease and convenience in handling, and durability in use. Other objects will become more apparent as the description proceeds. The essential characteristics of the invention are summarized in the claims.

My invention is illustrated in the accompanying drawings, in which Figure 1 is an inverted plan of the cover of the box; Figs. 2 and 3 are sections on the corresponding lines of Fig. 1; Fig. 4 is a plan of the bottom of the case; Figs. 5 and 6 are sections on the corresponding lines of Fig. 4; Fig. 7 is an elevation of a side of the box from the interior; Figs. 8 and 9 are sections on the corresponding lines of Fig. 7; Fig. 10 is an elevation of an end from the interior; Figs. 11 and 12 are sections on the corresponding lines of Fig. 10; and Fig. 13 is a perspective view of the complete case broken away to show an automobile mounted therein.

Referring to the drawings, my improved packing case comprises a bottom member 10, top member 20, side members 25 and ends 35, all reinforced and secured together by interbracing means.

The bottom member comprises skids 12, preferably three in number extending longitudinally, and separated and braced by transverse members 14 to form a grid. Secured to the skids 12 and members 14 as by nails or screws, is a floor or platform composed of boards 13 of suitable dimensions placed side by side. This platform 13 is of the same shape, but is of slightly less area than the grid below, and together with the latter constitutes a substantial base to support a machine. Above the boards 13 and around the edge of the platform formed thereby but spaced inwardly, an amount equal to the thickness of the side and end reinforcing means, is a hollow frame 15 comprising side members 16 and end members 17, having ends preferably mitered and secured together to the platform by any suitable means, and adapted to receive the machine base.

The top 20 is composed of boards 21 secured together side by side by members 22 having the function of cleats and braces and extending transversely of the boards at intervals throughout their length, the whole comprising a rectangular member of substantially the same size as the bottom 10. These members 22 terminate short of the side edges of the top thus formed, and are secured to the boards as by nails or screws, in the manner illustrated in Figs. 1 to 3, leaving a margin of uniform width, equal to the thickness of the boards constituting the side and end walls, between the outline of the series of transverse members and the periphery of the board surface 21.

The sides 25 which are identical, are constructed as illustrated in Figs. 7 to 9, and comprise rectangular members made up of

boards 26 placed together side by side. As shown, there is a sill 27 extending longitudinally of the boards constituting the side; transverse posts 28, one being positioned at either end and one in the center; alined bottom sills 29 between the posts 28 and parallel with the sill 27; diagonal braces 30 extending from the upper ends of the end posts 28 to the inner adjacent ends of the bottom sills 29; and intermediate non-alined transverse posts 31 extending from the top and bottom sills to the diagonal braces, there being preferably one of these posts in each of the four triangles formed by the sills, posts and braces described. These sills and posts are secured in the preferred form of my invention in the manner illustrated and described, leaving a margin between the outer edges of the reinforcing framework and the boards 26 of a width equal to the thickness of the reinforcing members.

The end walls 35, illustrated in Figs. 10 to 12, are also identical with each other and comprise boards 36 secured together by longitudinal sills 37 and 40. Transverse posts 38 extend from below the ends and center of the top sill 37, with the bottom sill 40 extending between the ends of the outer posts and across the lower end of the central one. Diagonal braces 39 extend from the lower ends of the end posts 38 to the upper end of the central post 38. The sills and posts are secured to the boards 36, leaving a narrow margin at the outer edge of a width equal to the thickness of the boards 26 on the side members.

In assembling the case, an automobile or other vehicle A, has its wheels removed and blocks 41, preferably of the general triangular shape illustrated in Fig. 13, slipped on the axles of the car and secured thereto in place of the wheels. The machine is then placed on the bottom 10 with the blocks 41 resting on spacing blocks 43 near the ends of the side members 16 of the frame 15, and secured thereto, the blocks 43 being in turn secured to the frame 15. Blocks 42 may be placed between the frame 15 and lower surfaces of the running boards of the machine. The sides 25 and ends 35 are then fitted on the bottom 10, the lower faces of the board walls 26 and 36 resting on the ends and edges of the skids projecting from the board platform 13 with the interior faces of the reinforcing posts and sills on the inner faces of the side and end members 25 and 35, resting on the periphery of the platform 13, abutting against the outer periphery of the frame 15. The sides of the outer skids protrude beyond the exterior faces of the side walls to act as buffers when the box is being hoisted or otherwise moved. The ends of the skids may be beveled as at 11 for ease in moving. The top 20 is lastly laid over the side and end members, the reinforced face thereof being down, with the ends of the transverse members 22 abutting the board frame and resting on the top sills of the side members and the end transverse members 22 resting on the top sills of both side and end members. The portions of the case thus assembled may be secured at any desired practicable stage in the assembly by nails, bolts, screws, or the like, or by various combinations of these means with or without wire binding or similar means, as desired.

By the system of bracing made possible by the arrangement of sills, posts and braces on the various members of the packing case in the manner disclosed, I have provided a case that is at once light in weight and very strong and durable, and capable of being hoisted and handled roughly without liability of breakage. The arrangement of these reinforcing members of the various walls to each other and the relation of the several wall-reinforcing combinations to each other by their inter-connected edges, all on the interior faces of the box, unite to produce a packing case that will successfully withstand enormous strains to which it may be subjected. The provision of skids beneath the bottom of the case adds to the strength of the structure and together with the smooth exterior of the top, side and end walls, aids greatly in the ease and convenience with which the cases may be handled and stored. Moreover, the material used need not be unduly expensive and the work required in cutting the various members is of the simplest order, thus making the manufacture of my packing case an inexpensive proposition.

I claim:

1. In a packing case having a bottom, side and end walls, reinforcing means including diagonal members secured to some of said walls, the interior faces of the side and end walls abutting the vertical face of the bottom, and the ends of some of the reinforcing members of one wall abutting the interior face of an adjacent wall.

2. In a packing case, the combination of a bottom, sides and ends secured thereto, each reinforced on its inner face by longitudinal, transverse and diagonal members, the interior faces of the sides and ends being arranged to abut the vertical faces of the bottom.

3. A device of the character described comprising a hollow rectangular body having rectangular top, bottom, side and end walls secured together at the edges thereof, diagonal reinforcing means secured to the interior faces of said walls in planes respectively parallel thereto, said reinforcing means interengaging along lines parallel to the intersections of said walls to counteract the compression strains brought to bear upon said body.

4. A packing case having a bottom, sides and ends secured together, the bottom comprising a grid having a platform of less area thereon, and side and end members comprising smooth outer walls having longitudinal, transverse and diagonal bracing members secured to said platform.

5. In a packing case, having a bottom, and side and end walls, reinforcing means secured to said members, the interior faces of the side and end walls abutting the vertical faces of the bottom, and secured thereto, and the interior faces of the reinforcing means of the sides and ends abutting the exterior vertical faces of a portion of the bottom reinforcing means.

6. In a packing case, having a bottom, and side and end walls, reinforcing means secured to said members, the interior faces of the side and end walls abutting the vertical faces of the bottom, and secured thereto, and the lower faces of the reinforcing means of the side and end walls abutting the projecting edges of the bottom.

7. A packing case having a laterally projecting bottom comprising a grid composed of longitudinal skids spaced and connected by transverse members, a board floor substantially of the same shape secured to said grid and slightly less in area than said grid, and a hollow frame also of the same shape having a slightly smaller periphery than the floor and secured to the upper surface thereof.

8. In a packing case, a side wall therefor comprising a smooth board exterior, reinforcing means secured to the inner face of said wall comprising a rectangular frame of the same shape but of a slightly less periphery than the wall, said frame having diagonal braces extending from the upper corners to the center of the bottom of the frame, and transverse posts connecting the top and bottom members of the frame with said braces.

9. A packing case having a side composed of a board wall, smooth on its exterior face, and having a similarly shaped reinforcing frame on its inner face, said frame comprising a top sill, end and center transverse posts secured thereto, bottom sills between the lower ends of said transverse posts, diagonal braces extending from the junction of the end transverse posts and the upper sill, to the adjacent ends of the lower sills at the lower end of the central transverse post, and additional non-alined transverse posts extending from the opposite sides of the diagonal braces to the top and bottom sills.

10. In a packing case, an end therefor comprising a smooth board wall, a rectangular frame of the same shape but of slightly less periphery secured to the inner face of said wall, said frame comprising upper and lower sills, transverse posts connecting the ends of said sills and an additional post connecting the centers thereof, a diagonal brace connecting the lower ends of the outer transverse posts at their junction with the lower sill with the upper end of the central transverse post at its junction with the upper sill.

11. A device of the character described comprising a box having a bottom composed of longitudinal skids transversely braced and connected to form a rectangular grid, a rectangular platform thereon of slightly smaller periphery, and a rectangular frame on the platform spaced inwardly from the edges thereof, said box having sides, ends and top having reinforcing means on their inner faces extending short of the edges of said faces.

12. In a device of the character described, a bottom member comprising a board platform secured to a rectangular grid of the same shape but slightly larger area, a similarly shaped frame spaced inwardly from the edge of said platform and secured thereto, said frame being adapted to receive at its corners the supported axles of an automobile having its wheels removed, side and end walls having reinforcing means on their interior faces, with their lower edges resting on the projecting edges of the grids, and their reinforcing members in abutting engagement with the projecting edges of said platform and the outer vertical faces of the frame thereon.

In testimony whereof, I hereunto affix my signature.

JAMES E. MULCAHY.