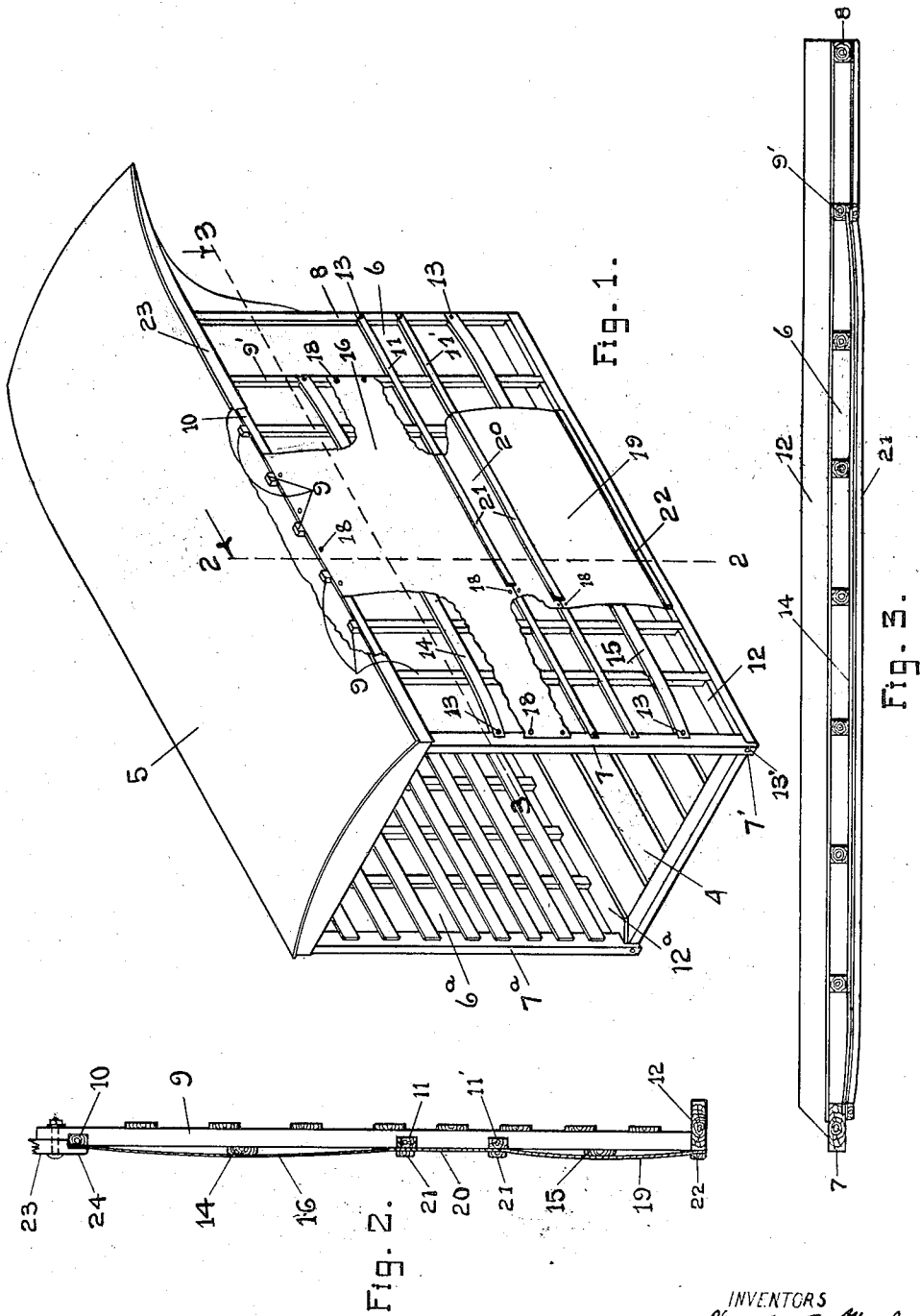


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C. M. MANLY ET AL
VEHICLE BODY CONSTRUCTION

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VEHICLE BODY CONSTRUCTION.

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To all whom it may concern:

Be it known that we, CHARLES M. MANLY, a citizen of the United States, residing at Richmond Hill, Queens County, New York, and whose post-office address is No. 210 Abingdon Road, Richmond Hill, Queens County, New York, and JAMES McGLASHAN, a subject of the King of England, residing at York, Pennsylvania, and whose post-office address is No. 154 South Pine Street, York, Pennsylvania, have invented certain new and useful Improvements in Vehicle Body Constructions, of which the following is a specification.

Our invention relates to vehicle bodies and, particularly, to that class of bodies generally known as of the side panel commercial type.

The object of the invention, generally stated, is to improve the construction of the panels of such vehicle bodies with reference to making them capable of manufacture and assembly at a minimum cost of material and labor, also strong and durable and at the same time free from "rattling" of the panels under the severe usage to which commercial vehicles are usually subjected.

The improvements are particularly applicable to knock-down bodies or those built in units in large quantities at factories and assembled only after being shipped to their final destination, and of comparatively light weight, although they may be advantageously employed in the construction of hand-made bodies for either light or heavy vehicles, as will hereinafter appear. In commercial bodies of the panel type, considerable difficulty is encountered in keeping large size panels free from disagreeable and noisy rattling due to the thin sheet material of which the panel coverings are made vibrating either freely or against the posts which form part of the main framework of the panels. Considerable difficulty is experienced in this respect even where the large sheet-like members which cover the panels are made of wood, or other fibrous material, and the difficulties are particularly marked where such sheet-like covering members are made of steel or other sheet metal. Since any sheet of thin material, whether wood or metal, if flat, is very easily put into vibration, and when vibrating at certain speeds acts as a diaphragm producing sound even if the vi-

brating part does not strike any obstruction, and producing sound even more readily and volubly if it does strike an obstruction, it has been customary, in the construction of panel bodies to either curve or bow the vertical posts of the panel framework so that the sheet of covering material of the panel will be similarly bowed, thus reducing its tendency to vibrate, or, if the posts are left straight and the panel flat, the thin panel covering material is prevented from vibrating by fastening it to the vertical posts. The great objection to bowing the vertical posts is that they are consequently more expensive to manufacture and likely to be weaker unless made heavier, while if the panel covering is fastened to the vertical posts, the fastening means is usually an added item of expense, as well as likely not to be satisfactory due to the fastening means becoming, under service conditions, sufficiently loose to permit the panel to vibrate slightly and strike the posts thus producing objectionable sound. The improvements involved in this application in panel construction for bodies therefore, reside particularly in the cheap and effective means which we employ in causing the sheet material covering of the panel to be bowed or bent and firmly held in such bowed or bent condition, and resulting in a substantial body and panel construction in which the vibrations and rattling are reduced to a minimum and which is otherwise peculiarly adapted for the use intended.

For a better understanding of the above-indicated features and others which will hereinafter appear and as more specifically pointed out in the claims annexed hereto and forming a part of this specification reference may be had to the accompanying drawings wherein:

Figure 1 is a perspective view of a side panel body of the commercial type, with a portion of the sheet material covering of one of the panels broken away to more clearly show the framework thereof. Figure 2 is a vertical cross sectional view through the panel on line 2-2 of Fig. 1 looking in the direction of the arrow, and Fig. 3 is a horizontal sectional view of the panel on the line 3-3 of Fig. 1 looking in the direction of the arrow.

Referring to the drawings where like

numerals designate similar parts throughout, a vehicle body is illustrated which comprises, essentially, a platform or base portion (4), a top portion (5) and two vertical side panels (6) and (6^a) which unite the said platform to the said top and support the latter on the platform, each of these main members, platform, roof and the side panels, being manufactured as individual units readily assembleable with and demountable from each other, and shipped as such units for later assembly at their destination. Since the two side panels are exact duplicates of each other except that they are rights and lefts, we will describe only one of them; viz, the one designated by the numeral 6, similar parts of the other one being indicated by the same numerals as the corresponding parts of the panel 6 except with the addition of the letter "a" as a suffix. In the panel 6 the rear vertical post (7) and the front vertical post (8) together with the several intermediate posts (9) and the post (9') are formed into a partial framework by the top stringer (10), and the intermediate stringers (11) and (11') which are morticed into each other so that the outside faces of the said stringers and posts are substantially flush and coplanar with each other. The framework of the panel 6 is completed by a base strip 12 into which the lower end of each of the vertical posts is morticed, with the outer face of the base strip 12 flush and coplanar with the outer faces of the said posts. The various parts of the framing of the panel 6 are fastened together with suitable nails, screws or other fastening means indicated by the numeral 13. The lower end of the rear vertical post 7 is provided with a tang 7' which extends below the base strip 12 and is fastened to the platform 4 by the screw 13'. The panel 6 is so placed on the platform 4 as to be flush with the outside edge thereof on which it rests. Secured to the rear post (7) and the intermediate posts (9) and post (9') at a position about midway between the top stringer (10) and intermediate stringer (11) is an upper batten (14) with its inner face pressing against and secured to the outer face of all the intermediate posts (9), the batten (14) thereby protruding to the extent of its thickness towards the outside of the said panel beyond the plane of the outer faces of the said posts. The left hand end of the said batten (14) is morticed into the post (7) so that its outer surface is flush with the said rear post (7), and it is similarly at its right-hand end morticed into the post (9') until its outer surface is flush with the outer surface of this post, attaching screws 13 being provided to securely hold the members together. Similarly a lower batten (15) is mounted against and protruding beyond the outer surface of all the intermediate posts (9) and the post (9') and is secured at its left-hand end to the post (7), into which it is morticed till its outside surface at this point is flush with the outside surface of the post (7), and the right-hand end of the said batten (15) is similarly morticed into the front post (8) to bring its outer surface at this point flush with the outer surface of the said post (8). Mounted on the upper portion of the panel-framing is an upper sheet panel covering (16) here shown broken but which in the finished construction extends in length from the post (9') to the rear post (7), and in width from the upper edge of the upper stringer (10) to the middle of the intermediate stringer (11). This sheet panel covering (16) is suitably secured by tacks or screws (18) to the upper stringer (10) and by similar tacks or screws (18) to the intermediate stringer (11), the said panel sheet covering (16) being thereby bowed or bent by the protruding batten (14) to the extent by which the said batten (14) extends beyond the outer surface of the plane in which lie the outer surfaces of the said stringers and posts (Fig. 2). The said panel covering (16) is also secured to the rear post (7) and to the post (9') by fastening means similar to the tacks or screws (18) and is consequently bent in a longitudinal direction at the two posts at the end of the panel. The bending of the panel covering (16) is purely longitudinal at the posts 7 and 9', and is purely vertical at the intermediate posts 9, with points at the ends of the panels between the posts 9 and 7 and the posts 9 and 9' having a combined longitudinal and vertical bend. Similarly a lower panel covering (19) is of a length extending from the front post (8) to the rear post (7), and is of a width extending from the middle of the lower stringer (11') to the bottom of the base strip 12, the batten (15) causing the panel covering (19) to be bent or bowed in a manner similar to that just described for the upper panel covering (16). An intermediate panel covering (20) extends in length from the front post (8) to the rear post (7), and in width from the middle of the intermediate stringer (11) to the middle of the lower stringer (11'), and is secured to the said posts and stringers by suitable fastening means such as screws or tacks (18). Where this intermediate panel covering is as narrow as is here shown, it is found unnecessary to mount a batten on the framework underneath it, as its very narrow width makes it unnecessary to bend or bow it to prevent it from vibrating. Should it be desirable, however, to make this intermediate panel wider for reasons of design or otherwise, it may be bent or bowed in a manner similar to the other panel cover-

ings. In certain cases it may be desirable to combine the sheets 19 and 20 into one integral piece or 16 and 19, or even 16, 19, and 20 may be combined, and generally the sheet coverings may be of any convenient number of parts and of any desired material, but the three-part arrangement shown and the use of sheet metal as covering material are preferred at present.

In order to give a proper finish to the panel and at the same time cover up the joints between the several sections of the panel covering as well as the covering fastening means, a molding 21 which is indicated as of wood, but which is preferably of formed sheet metal, is mounted on the outside of the panel covering and at the joints which the intermediate panel (20) makes with the upper panel covering (16) and the lower panel covering (19), this molding being secured by nails or other suitable means to the stringers (11 and 11'). In the same way a piece of similar molding (22) is mounted at the bottom of the lower panel covering (19) and secured by nails or other suitable fastening means to the base (12), thereby giving a suitable finish to the lower edge of this panel covering. The upper edge of the panel covering (16) is not provided with a strip of molding, as the side frame member (23) of the top is rabbeted out as shown at the top of Fig. 2, whereby an outer lip (24) of this side frame (23) of the top laps over and covers the upper edge of the panel covering (16). The panel is further finished by moldings similar to 21 and 22 placed over the vertical joints between the ends of the coverings and the post 7, and also on the vertical post 8 to give the proper finish thereto, and a similar finishing molding may be positioned on the upper part of post 9' to cover up the joint with the end of sheet covering 16; these moldings being omitted from the drawings for convenience in illustration.

In general each section of panel covering material needs to be secured only to such members of the framing as are the boundary members for that section, thus obviating the disfiguring or marring of the otherwise smooth surface of the panel covering except at its edges, where it is covered by a finishing molding. However, in securing the desired style or appearance for the finished panel, it may be desired to have the panel appear to comprise more divisions than is found best in the panel covering material from the standpoint of economy in manufacturing. It is therefore to be understood that the panel covering is secured to panel boundary members wherever there is a division or edge of the said covering, or finishing molding is applied to give the appearance of divisions in the said covering.

The body and panel thus constructed have

proven in service to be peculiarly free from the rattling and vibrations and noises consequent therefrom experienced in certain prior types of body construction. Moreover the same may be economically manufactured and assembled on a quantity production basis.

In accordance with the requirements of the patent statutes we have set forth one complete embodiment of our improvements in the specific manner required thereby, but it is understood that the claims annexed hereto cannot be construed as limited to the exact devices illustrated, except as is specifically recited therein but are to be given a construction commensurate with the spirit of the invention.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A vehicle body panel construction comprising a framework of longitudinal and transverse boundary and intermediate members firmly secured to each other, with a surface of each coplanar with a surface of each of the others, a normally flat sheet covering for said framework adapted to fit snugly upon the coplanar surfaces of the boundary members of said frame and having its edges fastened to the said boundary members and a longitudinally arranged bowing member disposed between said sheet covering and the intermediate members of the framework for the purpose set forth.

2. A vehicle body panel construction comprising a set of end, top, bottom and intermediate frame members secured to each other in such a manner as to have their surfaces on one side substantially co-planar, and an additional frame member a portion of which is out of plane with and bears against said intermediate frame members and a sheet covering secured to the end and top and bottom members of said framework and adapted to be bowed out by and bind against the out of plane portion of said additional frame member for the purpose set forth.

3. A vehicle body panel readily assembleable and demountable as a unit of a vehicle body and comprising a pair of vertically disposed posts and a pair of longitudinal members secured respectively to the upper and lower portions of said vertical posts, said members being secured to each other so that their outer surfaces are co-planar, a batten member which is so disposed with respect to the vertical posts that its outer surface at each end is co-planar with that of the outer surfaces thereof, said batten having its main body bowed out of the plane of the aforesaid co-planar surfaces of the frame members and a sheet metal covering bearing against the convex side of said batten and rigidly secured to the vertical posts and the

longitudinal members for the purpose set forth.

4. A vehicle body panel constructed as a readily assembleable unit of a vehicle body and comprising a pair of vertical posts and a pair of longitudinal members secured thereto so as to have their outer surfaces substantially in one plane, a series of other vertical members also so secured to the longitudinal members as to have their outer surfaces co-planar with the aforesaid members, a normally flat sheet metal covering disposed over the aforesaid members and having its edges attached to the said pair of posts and said pair of longitudinal members of the framework and a batten member extending longitudinally and disposed intermediate the aforesaid longitudinal members, said batten being bound by the covering securely against the intermediate posts and having its outer surface near its ends co-planar with the end posts, for the purpose set forth.

5. A body panel unit construction comprising a pair of vertical end posts, a pair of longitudinal members secured respectively to the upper and lower ends of said vertical posts, a plurality of intermediate posts also secured to the longitudinal members so that their outer surfaces and the surfaces of the aforesaid posts and the longitudinal members are co-planar with each other, a second longitudinal member disposed intermediate the aforesaid longitudinal members, said second longitudinal member being secured to the aforesaid vertical posts so that its outer surface is flush with the aforesaid outer surfaces, a pair of rectangular-shaped sheet metal coverings adapted to be secured to said second longitudinal member and to the upper and lower longitudinal members respectively and having their ends securely fastened to certain of the vertical posts, and a pair of longitudinal batten members having their outer surfaces at their ends co-planar with the outer surfaces of the vertical posts to which said sheet metal coverings are fastened and having their main bodies out of plane with and bearing against the outer surfaces of the intermediate vertical posts and engaging intermediate points of the sheet metal coverings to cause them to bow out for the purpose set forth.

6. A body panel construction comprising a series of vertical and longitudinal frame members all secured to each other in such a manner as to have their outer surfaces flush with each other, a pair of intermediate longitudinal members displaced from each other and also secured to the aforesaid vertical members with their surfaces flush with the outer surfaces thereof, a rectangular shaped sheet metal covering which is normally flat and is securely fastened to and between the two upper longitudinal mem-

bers and having its ends securely fastened to a pair of vertically disposed posts, a second sheet metal panel which is normally flat and is securely fastened to and between the two lower longitudinal members and having its ends attached to two of the vertical posts, a third sheet metal covering disposed between and securely fastened to the two intermediate longitudinal members, a pair of batten members respectively disposed between the upper and lower sheet metal coverings and the intermediate vertical posts and having their ends located in the same plane as the outer surfaces of the vertical posts to which the sheet metal coverings are fastened, and molding devices disposed upon and secured over the joints between the sheet metal coverings and the frame members.

7. A four-part vehicle body construction consisting of top, bottom and two side units, each of said side units comprising a framework of angularly disposed members with the outer surfaces of the frame members disposed in substantially the same plane and sheet metal coverings which are securely fastened to certain of the angularly disposed members of the framework and batten members having the outer surfaces of their end portions in substantially the same plane as the outer surfaces of certain of the frame members and their main bodies disposed between the sheet metal coverings and certain of the other frame members not co-planar therewith whereby the aforesaid sheet metal coverings are bowed out of their normal flat shape and placed under tension and the usual vibrations of the said sheet metal coverings and consequent noises are eliminated.

8. A body construction for vehicles consisting of readily assembleable and demountable top, bottom and two side units, each of the side units comprising a longitudinal base member which is adapted to rest upon the bottom unit and vertical end posts which are secured to the aforesaid base member to have their outer side surfaces flush, one of said vertical posts having a tang or tongue extending down below the base member which is adapted to be readily and demountably secured to the bottom unit, a stringer which is arranged substantially parallel with respect to the base member and is also secured to the vertical posts near their upper ends so that their outer surfaces are flush, said vertical posts being adapted to receive and be secured to a frame member of the top, sheet metal coverings adapted to be secured to the aforesaid vertical posts and longitudinal members, and a series of other frame members, certain of which are secured together with their outer surfaces in the same plane with the outer surfaces of the end posts and longitudinal members, and certain of which extend longitudinally and have

the outer surfaces of their end portions co-planar with the outer surfaces of the vertical posts but with their main bodies disposed between the sheet metal coverings and the other frame members.

9. A vehicle body panel-unit construction comprising a rectangular frame comprising boundary members secured to each other with their outer surfaces in substantially the same plane and with a sheet metal cover-

ing attached thereto with the inner faces of its edges co-planar therewith, and batten members bowing said covering out of said plane except at its edges for the purpose set forth.

In testimony whereof we have signed our names to this specification.

CHARLES M. MANLY.
JAMES McGLASHAN.