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J. McGLASHAN

VEHICLE BODY CONSTRUCTION

Filed Jan. 3, 1922

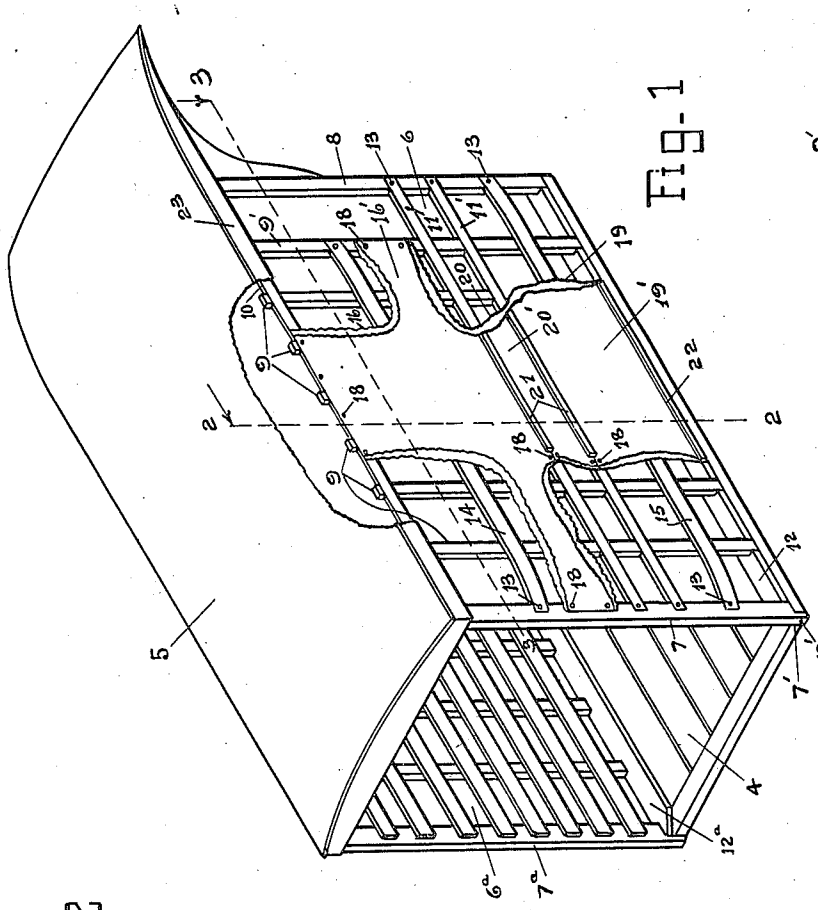


Fig. 1

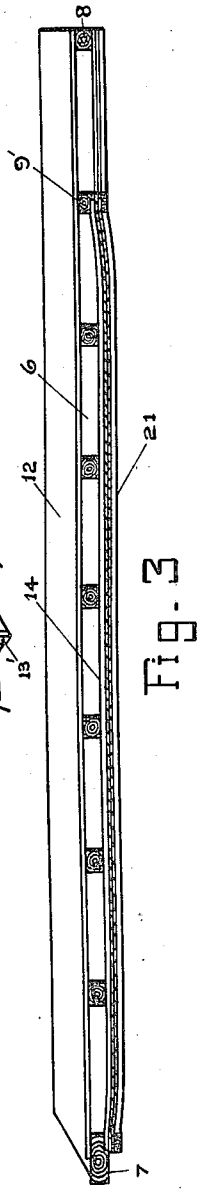


Fig. 3

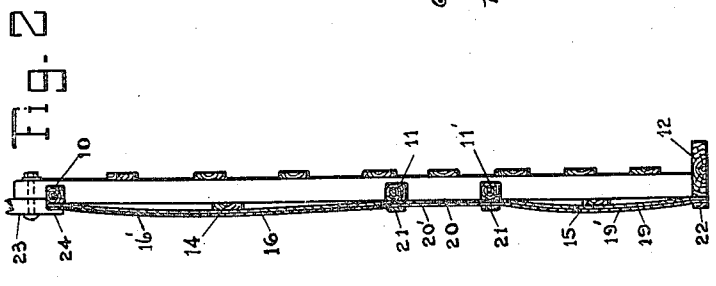


Fig. 2

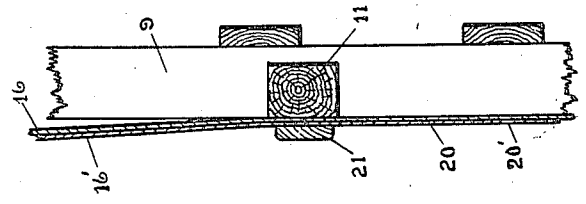


Fig. 4

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UNITED STATES PATENT OFFICE.

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VEHICLE BODY CONSTRUCTION.

Application filed January 3, 1922. Serial No. 526,520.

To all whom it may concern:

Be it known that I, 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 Construction, of which the following is a specification.

This 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 an improved body of the aforesaid type whereby vibrational and rattling noises thereof are substantially reduced and the novel features of this application are directed more particularly to improvements to this end and upon the invention set forth and claimed in application Serial No. 512,960, filed November 5, 1921, in the name of Charles M. Manly and myself.

That application covers a novel and improved combined panel frame structure and sheet metal covering whereby among other things the rattling and other noises usually present in commercial bodies are reduced, and while the construction therein disclosed is effective in reducing to a considerable extent the vibrations and noises consequent therefrom, I have found that they may be still further and substantially minimized and a more nearly noiseless body obtained by incorporating and combining the features of my present invention with the improvements of the aforesaid application.

To these ends I have here illustrated my invention as incorporated with the bowing and bending frame members and the bowed and bent sheet metal or resonant sheets and as comprising a material which I call a non- or anti-resonant material because of its sound deadening or absorbing qualities. Such material may be of a fibrous nature, and I may employ certain of the commercial fabrics, such for example, as that familiarly known as "fabrikoid". Preferably this is incorporated in the body structure by cutting sheets thereof corresponding to the size and shape of the sheet metal pieces which cover the framework and are bowed out thereby and then fastening these non-resonant or fabric sheets to the sheet metal panels in a manner to derive the particular advantages of deadening and absorbing the vibrations and rattling noises.

While the composite panel covering consisting of the main layer of resonant material and the non-resonant fabric layer is of particular utility as a sound reducing means when combined with the special features of the invention set forth in the above noted application yet it is to be understood that the present invention may be advantageously used to reduce vehicle body panel noises in bodies not embodying the invention of said application.

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, Figure 3 is a horizontal sectional view of the panel on the line 3—3 of Fig. 1 looking in the direction of the arrow, and Figure 4 is an enlarged view corresponding to Fig. 2.

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 6ª 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 and shipped as such for later assembly at their destination. Since the two side panels are exact duplicates of each other except that they are rights and lefts, I 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 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 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 said post 8. Mounted on the upper portion of the panel framing is an upper sheet panel covering 16, 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. The panel covering 16, 16′ is a composite or compound one comprising a base 16 of a resonant character, such as metal and capable of producing rattling and vibrating noises, and a face 16′ of the opposite character, namely, the material 16′ being of a character to assist in deadening and absorbing the rattling and vibrating noises, as indicated above. This sheet panel covering 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 being thereby bowed or bent out 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 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. The boundary edges of the panel covering are thus substantially coplanar with the flush surfaces of the boundary members of the panel frame to which they are secured, with the metal layer of the composite sheet firmly held by the fastening means against the said frame members and the interior or bounded area of the covering is bowed out of plane to decrease its tendency to vibrate. Similarly a combined lower composite panel covering 19 and 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 to be bent or bowed in a manner similar to that just described for the upper panel covering 16 and 16′. An intermediate panel covering 20 and 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 not absolutely necessary to mount a batten on the framework underneath it, as its very narrow width and the non-resonant character of layer 20′ render it substantially free from vibrations and rattling noises. Should it be desirable, however, to make this intermediate panel wider for reasons of design or otherwise, it may be bent or bowed out in a manner similar to the other panel coverings. In certain cases it may be desirable to combine the sheets 19, 19′ and 20, 20′ into one integral piece, and generally the sheet coverings may be of any convenient number of parts, but the three-part arrangement shown is that 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, a molding 21 which is indicated as of wood, but which is preferably of metal, is mounted on the outside of the panel covering and at the joints which the intermediate panel covering 20, 20′ makes with the upper panel covering 16, 16′ and the lower panel covering 19, 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 member 23 of the top laps over and covers the upper edge of the panel covering 16, 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, 16′, these moldings being omitted from the drawings for convenience in illustration. The sheet layers 16′, 19′, and 20′ may be incorporated in any suitable manner, but preferably by fitting them closely to the outer surfaces of the sheet panels as illustrated and have their edges covered by the molding as indicated. The fabric layers may be secured directly to the sheet metal panels, if desired, as for example by gluing them thereon. The completed panel may be finished by any suitable sizing or varnishing process. The non-resonant layers may be incorporated before the panels 16, 19 and 20 are assembled in which case they are cut to the same size of the resonant sheets and are secured thereto to form the composite sheets.

The body and panel thus constructed are peculiarly free from the rattling and vibration noises experienced in certain prior types of body construction. The anti-resonant layers 16′, 19′ and 20′, together with the bowing or bending of the sheet metal panels against which they bear serve to dampen or absorb both the natural vibrations set up in the sheet metal and the rattling noises which may be present notwithstanding the bowing and bending features. In certain cases a suitable finishing layer may be incorporated with the non-resonant layers 16′, 19′ and 20′ and thereby avoid the necessity for the usual finishing and varnishing steps, or the fabric layers themselves may have a properly finished outer surface for this purpose.

In accordance with the requirements of the patent statutes I have set forth one complete embodiment of my improvements in the specific manner required thereby, but it is understood that the claims annexed hereto are not to 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.

I claim:—

1. A vehicle body panel construction comprising a series of frame members secured to each other in such a manner as to have their surfaces on one side substantially coplanar, a bowing member bearing against certain of said first-named frame members, a primary panel covering of normally flat resonant material secured to the said frame members at its boundary edges with its intermediate portion binding tightly against the bowing member and a layer of an anti-resonant material bound to the resonant covering and cooperating wth the warping member to reduce body noises by damping the resonance of the primary covering.

2. A vehicle body panel construction comprising a frame embodying boundary members secured to each other with their outer surfaces in substantially the same plane and with a normally resonant covering of sheet metal attached thereto with the inner faces of its edges coplanar therewith, an auxiliary frame member bowing said sheet metal covering out of said plane except at its edges, and a non-resonant layer of fabric secured to and damping the resonance of the sheet metal covering.

3. A vehicle body panel construction comprising a frame work of angularly arranged boundary members secured to each other with their outer surfaces substantially coplanar and an auxiliary bowing member out of plane thereof, a normally flat sheet covering of a normally resonant material secured at its edges to the coplanar surfaces of said boundary members with its intermediate portions positively bowed out of plane against vibration as a whole by said auxiliary bowing member of the frame, and a sheet of non-resonant covering material secured to and damping the resonance and localized vibrations of the sheet of normally resonant material.

In testimony whereof I have signed my name to this specification.

JAS. McGLASHAN.