E. J. JOSZ.

DECORATIVE SHEATHED WALL.

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1,022,951. Patented Apr. 9, 1912.

Fig. 1.

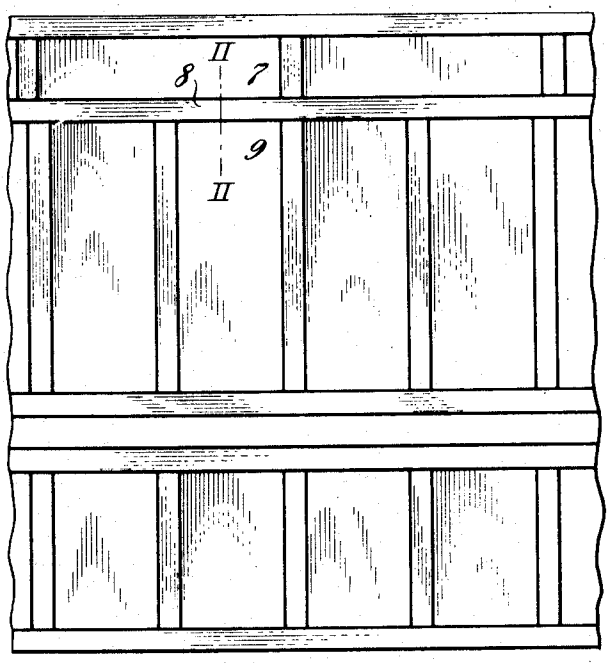


Fig. 2.

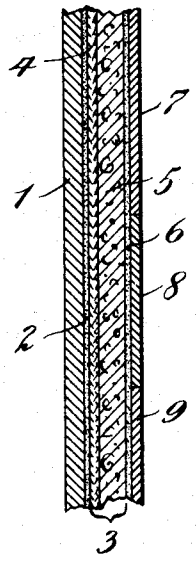
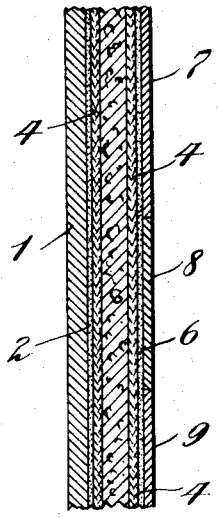


Fig. 3.



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DECORATIVE SHEATHED WALL.

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To all whom it may concern:

Be it known that I, EDGARD J. JOSZ, a subject of the King of Belgium, residing at the city of New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Decorative Sheathed Walls, of which the following is a full, clear, and exact description.

This invention relates to the construction of non-conductive and decorative sheathed metallic walls and partitions, and more particularly to railway car, steamship and other vehicle walls which are subject to temperature changes and more or less continuous vibration. The sheathing which also is preferably of metal, may, if desired, be of a highly ornamental character and means are provided whereby it may be firmly and yet resiliently secured to its metal base without the use of screws, rivets or similar devices, the application of which involves the impairment of the strength and appearance of, for example, the plates which form the sides of a vehicle, by necessitating the provision of holes or slots therein.

As constructed today, railway-cars, for example, are often built almost entirely of steel, the walls and partitions being composed of large sheets or plates of steel, riveted or otherwise secured to a metal frame. The decoration of such structures interiorly and exteriorly has not heretofore been satisfactorily accomplished, since when such plates are secured to the frame or to each other by riveting and the like, said plates become more or less distorted and their surfaces are no longer perfectly plane or smooth. This distortion is not usually great, but it is sufficient to prevent the successful decoration of such plates with paints or varnishes especially of a light color, since light colors and more or less polished surfaces reflect the light and thereby disclose to the eye of the observer the wavy or warped surfaces so formed. It is for this reason that practically all attempts at decoration of railway car walls made of metal has been confined to relatively plain and dark colors, and dull surfaces, and whether plain or covered with designs the effects available under these limiting conditions impart a rather cheap and inelegant appearance to costly structures, besides which they soon become "crazed" by the expansion and contraction which takes place due to temperature changes.

The application of wood, paper or the like to the plates is objectionable in that such materials are not fire-proof, and all ordinary methods of securing decorative surfaces, where the sheathing is of reasonably substantial and hence more or less weighty material, are also objectionable since they require the use of nails, screws, rivets, etc., in order to properly hold said material in place when it is subjected to the intense vibrations to which high speed vehicles are exposed. The use of decorative metal sheathing for the purpose in question has been open to all of the objections above noted, since if screwed or riveted to the wall plates, its surface in turn would become distorted, while if directly cemented thereto, it would speedily become loosened by the vibration. I have devised means for overcoming all of these difficulties while securing at the same time several additional advantages, in that walls constructed in accordance with my invention are substantially sound-proof and further are practically non-heat-conductive. This last mentioned feature is of advantage not alone in that the temperature of the car can be thereby maintained more uniform and the vehicle hence rendered comfortable and habitable in any climate, but it is further of great value in that the life of the decorative surface is very materially prolonged thereby.

As at present constructed metal cars have their interior surfaces finished by painting or otherwise decoratively covering the metal walls directly. If such a car be subjected to wide differences of temperature the paint or enamel so applied will become cracked or "crazed" owing to the differences in the coefficient of expansion and contraction of the metal and the paint or enamel. Even if metal sheathing be applied to these walls and the exposed face of such sheathing carry the decorative coating, said coating will still under such conditions be cracked or ruptured in the manner described since the variations of temperature will readily be communicated to such sheathing from the metal walls, causing it to expand and contract, its joints to open and close, and its surface to become defaced. By constructing the wall in the manner hereinafter described this objectionable feature is practically eliminated.

These and other objects of my invention will be hereinafter set forth and more particularly referred to in the appended claims.

In the accompanying drawings which form a part hereof and in which like reference characters designate like parts throughout the several views: Figure 1 is an elevation of a decorative wall of the character in question. Fig. 2 is a section of said wall, taken on line II—II of Fig. 1. Fig. 3 is a section of a modified form of my novel wall construction.

Referring first to Fig. 2, a large sheet or plate of steel 1 which may, for example, be about 1/16″ in thickness, forms the foundation or base plate for my structure, such sheet corresponding to one of the plain steel plates which constitute the wall of a railway car or the like as now commonly constructed. First a priming coat, and then a rather thick layer of suitable cement 2 are applied to this sheet and a layer 3 of resilient, flexible material, is laid on over this cement and secured thereby to the side of the base plate. It is obvious of course that the flexible material may be coated with cement and thus adhered to the steel plate; but I find in practice that the best results are attained by first coating the steel surface with the cement. The flexible material, which in effect constitutes a filler, may be of any suitable material, but I prefer to use a fabric which is virtually linoleum, or a substance analogous thereto, since the said filler preferably consists of a textile fabric layer 4, of canvas, burlap or the like, and a superposed layer 5, of resilient non-heat conductive material, such as ground cork, mixed with a suitable binder, such as boiled linseed oil. Upon the outer surface of the filler is a second layer 6 of cement, and panels 7, 8, 9 of thin sheet metal, such as zinc, are firmly adhered to said surface by such second layer of cement. For decorative purposes these panels may be of varying widths and lengths and may be arranged in any desired manner with, however, their edges preferably abutting as shown in Fig. 2.

By reason of the construction above described, this decorative metal sheathing or facing is connected to the steel base plate or plates 1 by a resilient medium or layer; and in order to render such layer as resilient throughout as possible I prefer to use a special type of cement which is adapted to remain flexible or pliable for an indefinite period. The respective layers of cement and resilient filler hence co-act to materially reduce the intense vibrations to which the sheathing would otherwise be subjected to and the latter will consequently remain firmly in position for an indefinite period. In addition to so reducing vibrations, the filler being practically a non-conductor of heat prevents rapid changes of temperature in the sheathing and as the car is usually maintained at an equable temperature within, this sheathing is hence never in practice subjected to great fluctuations in temperature. The enamel or paint upon its surface will hence remain free from cracks indefinitely. It may further be pointed out that were it not for this non-heat conducting filler, when very marked changes in temperature occur, the sheets of sheathing if riveted or otherwise secured together would buckle; or conversely in many instances, they would be torn apart or separated at their edges.

As a result of the above described construction I am enabled to use enamel, when desired, in lieu of paint, since the decorative effects obtainable by the use of this material are in many cases superior to paint or the like. The enamel used is preferably of a somewhat flexible type, so that it will not crack when the sheathing is being applied. If desired the filler may comprise in addition to the resilient material 5 a layer of fabric 4 upon either side of such material as shown in Fig. 3 in order to prevent the cork sheet or the like from cracking. In practice, however, I find that one layer of textile fabric for each layer of ground cork is sufficient when the sheets are not of excessive size nor disposed around curved or irregular surfaces. Where, however, the sheets are very large or for other reasons, two fabric layers may be used to advantage. The employment of a filler of the type in question is advantageous for a number of reasons. For example, it serves to deaden or dampen sound waves; the vehicle walls are rendered much less conductive of heat; while the structure as a whole, by reason of the metal sheathing, is practically incombustible, since the filler, by reason of its compressibility and flexibility is thoroughly incased. The textile fabric serves a further purpose of considerable importance since it behaves, in effect, as a reservoir for fatty matters such as turpentine and oil which are used in the cement hereinafter described. When but one layer of canvas or the like is used, the resilient layer must be specially prepared to render it sufficiently porous to absorb the fatty matters just referred to.

While I prefer to use ground cork as the base of my filler on account of its having the quality of non heat conductibility to a high degree as well as on account of its resiliency and its many other desirable qualities, it is often that other materials, which combine both resiliency and nonconductibility with a power of absorption, such as asbestos and mineral wool, made in sheet form, may be substituted therefor in some cases with advantage. The filler should be used in as large sheets as can be conveniently

handled, while the panels or strips of sheathing may be, individually, relatively much smaller. This arrangement permits of ready replacement of damaged panels, which is a matter of great importance in, for example, railway cars, since it obviates the necessity for running a car to the repair shop when one or more of its decorative panels have been disfigured. In such case, the damaged panels can be readily stripped off and new ones substituted without disturbing adjoining panels, and the car is then immediately ready for use by passengers, there being no wet paint to dry as in the case of steel cars as at present constructed. The panels may be enameled, painted or stenciled, and by reason of their relatively small size can be decorated at a minimum of expense.

The cement which I prefer to use consists of two parts, by weight, of whiting and one part of oxid of lead. These are ground together in boiled linseed oil to produce a mass of about the consistency of soft putty. Before applying the cement I add and thoroughly mix in a quantity of copal varnish, prepared in turpentine in order to supply an excess of fatty matter. The excess of fatty matter in the cement is absorbed by the cork filler and particularly by the burlap or other textile layer, with which it is reinforced, and is afterward re-absorbed by the cement to compensate for any drying out, which results in the cement remaining pliable for an indefinite period. In other words, the cement used may be defined as being a normally flexible cement to distinguish it from cements which speedily set and become brittle; while the saturated or impregnated filler constitutes means for maintaining the cement at substantially its maximum degree of flexibility. I regard this feature as of especial importance since it is obvious that if the cement be of a brittle nature, or if it is apt to become so after a moderately short time, the intense vibrations to which the vehicle walls are subjected would speedily detach the decorative panels.

It is obvious that my invention is not limited in its scope to the use of a metallic decorative sheathing, since the decorative surface may be carried on sheathing which is not metallic, in which case it might not be necessary that both layers of cement should be flexible, but in any case where the cement is used against a metallic surface, it should be of a flexible character as distinct from a hard or brittle character.

Having thus described my invention, what I claim is:

1. A decorative metal wall adapted to withstand vibration comprising a metallic base plate, an ornamental sheathing plate therefor, an interposed filler, and a flexible cement securing one of said plates and the filler together.

2. A decorative metal wall adapted to withstand vibration comprising a metallic base plate, a metallic ornamental sheathing, an interposed filler of non-heat conducting resilient material, and flexible cement between the filler and base plate and between the filler and sheathing.

3. A decorative metal wall adapted to withstand vibration comprising a metallic base plate, a flexible cement, a flexible filler impregnated with a constituent of said flexible cement, and sheathing, said cement uniting said sheathing, filler and plate together, the impregnated filler serving as a reservoir from which the said constituent may be drawn by said cement to replace that lost by evaporation.

4. A decorative metal wall comprising a metallic base plate, a metallic ornamental sheathing and an interposed filler connecting the plate and sheathing together, said filler comprising a layer of ground cork, a suitable binder therefor and a textlie fabric reinforcing layer.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

EDGARD J. JOSZ.

Witnesses:
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WALDO M. CHAPIN.