Feb. 11, 1936. J. K. PESCHEL 2,030,072

METHOD OF MAKING METAL PANELS

Filed June 20, 1932

Fig. 1.

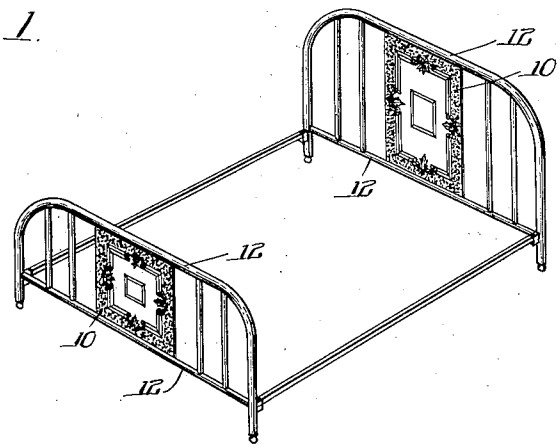


Fig. 3.

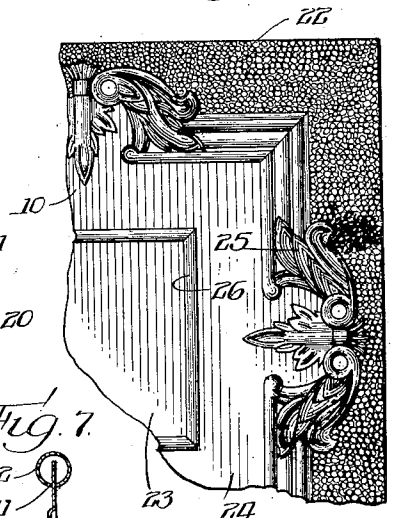


Fig. 2.

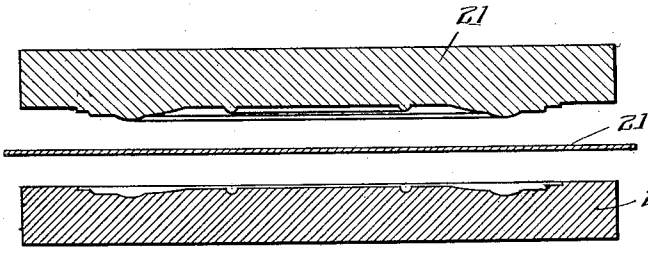


Fig. 4.

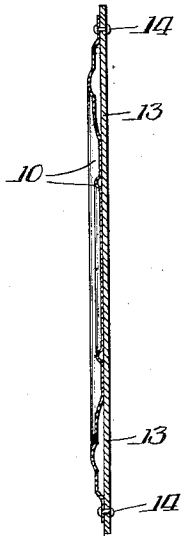


Fig. 5.

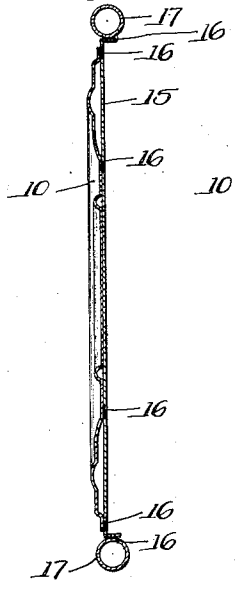


Fig. 6.

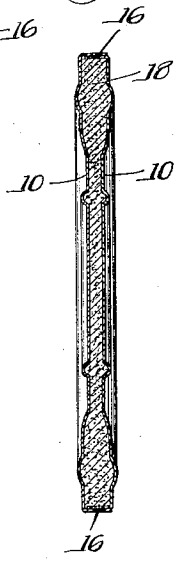


Fig. 7.

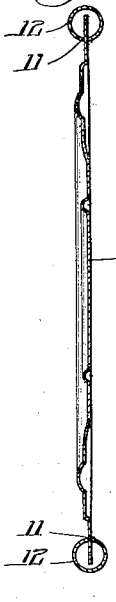


Fig. 8.

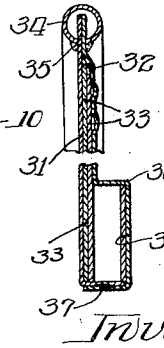
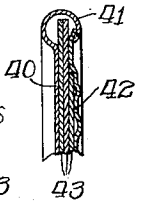


Fig. 9.



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METHOD OF MAKING METAL PANELS

Joseph K. Peschel, Bradley, Ill.

Application June 20, 1932, Serial No. 618,128

7 Claims. (Cl. 29—148)

This invention relates in general to a metal panel and to the method of making or forming it, and has more particular reference to an embossed metal panel adapted to be used in various articles of furniture, automobiles, and wherever applicable.

One of the principal objects of the invention is in an improved simple and inexpensive method of embossing and mounting sheet metal panels separately, together or in a frame.

A further object of the invention is in the making of an embossed metal panel which is composed of a relatively light gauge metal which may be secured within or attached to a hollow metal frame.

A further object of the invention is in the making of an embossed panel of lightweight metal which is mounted upon or secured to another metal sheet and thus attached in a frame.

A still further object of the invention is in the making of a panel of lightweight metal comprising opposite plates provided with a lightweight or plastic filler between them thereby presenting a thicker and more substantial appearance, the filler being for deadening sound and for reinforcing the embossing to prevent indentation.

Other objects of the invention will appear hereinafter, the preferred constructions being illustrated in the accompanying drawing. In the drawing,

Fig. 1 is a perspective of a metal bed embodying the invention;

Fig. 2 is a diagrammatic view representing the method of forming the panels;

Fig. 3 is a face view of a portion of a panel;

Fig. 4 represents a form of panel attached to a thicker plate;

Fig. 5 is a section of a thin panel secured to a thin plate;

Fig. 6 is a section of joined opposite panels with a filling material between them;

Fig. 7 is a sectional view of a formed panel inserted at its ends in hollow frame bars;

Fig. 8 is a broken sectional view of a panel with a thin beaded edge, and with sound deadening paper in it; and

Fig. 9 is a sectional detail of a panel in which the metal of the panel also forms the beaded edge.

It has not been customary to use decorated or embossed sheet metal panels generally in connection with articles of furniture or many other articles for the reason that the cost of producing the dies for making such panels has been considered excessive and for the further reason that if such panels are made of thick material, the article with which it is used is too heavy and cumbersome.

The present invention relates to the method of making an embossed metal plate of relatively thin sheet metal, as from 36 to 14 gauge, which is strengthened and stiffened by the embossing, and to an improved simple and inexpensive method of producing the embossing dies by which the plate is made. It is also contemplated that thin metal panels may be made up of a single thickness or of double thicknesses oppositely disposed; by attaching the thin metal plate to a thicker supporting plate or to a plain sheet of relatively thin material by riveting, spot-welding or other means; by forming the panels in curves or attaching the plates to curved reinforcements, or in the form of a circle, a triangle, S-shape, and the like; and by making a double panel with a filler of sound deadening material.

Referring now more particularly to the drawing, this invention is illustrated in Fig. 1 as applied to a metal bed having hollow frame members to which the sheet metal panels are secured. Similar panels, or panels similarly made, may also be applied to other articles of furniture such as chairs, dressers, chests, made of either wood or metal, and to automobile or other panels in which a decorated, plain or embossed sheet may be used.

This panel may consist of a single embossed sheet 10 as shown in Fig. 7, with the opposite edges inserted in slits 11 of hollow tubular frame parts 12, either round or various shapes, or may consist of a similar embossed plate attached to a thicker backing or support 13 of metal or other material by means of rivets 14 or other fastening devices. It may consist of a plate 10 attached to a thin backing plate 15, as shown in Fig. 5, by spot-welding it thereto at a number of points 16 and the combined panel thus made may be spot-welded to the frame supports 17.

It is also contemplated that two embossed plates may be disposed oppositely as shown in Fig. 6 to produce a panel which is similar in appearance on both sides, or dissimilar if desired, but leaving a space between them which may be filled with a sound deadening such as paper or a plastic hardening material 18 thereby producing a panel of light weight and of pleasing design insuring and increasing the rigidity of the embossing which may be easily made and readily attached in a supporting frame for a bed or any other article to which it is applied.

If desired, a pair of sheets 31 and 32 as shown in Fig. 8 either one or both of them embossed,

may be placed together with sound deadening material such as sheets of paper 33 therebetween, the edges of the sheets bound together and held in a firm panel relation by means of a hollow tubular beading 34 which is rolled or pressed in place and secured to the sheets by soldered or welded fillets 35 at the joining edges. The lower end of this panel may be formed with a strengthening ridge or shoulder 36 at or near the bottom, the lower edges being overlapped and connected by spot-welds 37 or other suitable connecting means.

It is also understood that one of the panel sheets 40, as shown in Fig. 9, may be provided at its edge with a bead 41 which overlaps the edge of a plain or embossed panel 42 and may be secured thereto by spot-welding or any other suitable manner, and a sheet or sheets of sound deadening material 43 may be inserted between the panel sheets if desired.

In making a sheet metal panel of this kind it has been the custom to make separately corresponding dies which coact to produce the desired design or embossing. It involves considerable expense to make dies sufficiently large to produce a panel of this kind and is difficult to make the dies register for producing a clear cut design.

In carrying out the present invention the desired design is made of wood, lead, zinc, or any other suitable material and a female die member 20 is cast or moulded in a well-known manner from a relatively hard material such as cast iron or the like. The other die member 21 is formed of a relatively soft metal or alloy such as lead, brass, zinc, copper, bronze, or any other suitable semi-soft material by casting it directly in the lower die part 20 using suitable precaution to prevent the upper die member from adhering to the lower one in the formation of the upper die member, by greasing or otherwise coating the lower die member to prevent the adherence of any metal particles of the upper die member thereto.

With the die members thus formed, a flat thin sheet of metal 21 is inserted between the die members which are brought tightly together under pressure, by air, hydraulic, or mechanical means, producing the corresponding design. Fig. 3 represents a portion of a plate thus embossed having substantially flat outer edges 22 and inner portions 23 and 24 with embossed designs 25 and 26. By having some of the surfaces in the same plane they may be readily attached to a common supporting plate 13, as shown in Fig. 4, or may be spot-welded to a plate 15 as shown in Fig. 5. The embossed plate may also be formed and attached to a curved surface, and flat plates are attached to backing sheets of various shapes and sizes depending upon the use of the panel.

By embossing a thin plate more rigidity is given to it so that very thin metal may be used in preparing panels of this kind, using lightweight metal for the panel itself and also for the backing or support to which such a panel may be secured. A metal rim which is slit or rolled about the edges of adjacent sheets and then attached or welded thereto as shown in Figs. 7, 8 and 9 produces an attractive panel which may be used in any desired place; it is light in weight, inexpensive, and if provided with sound deadening, it is reinforced, and will not buckle, bend or become indented.

I claim:

1. The method of making a sheet metal panel which consists in providing a relatively hard die member having a desired design therein; in casting a relatively soft die member upon the harder die member to have the same configuration thereof; in embossing the design of the die members upon a sheet of thin metal; in inserting opposite edges of the embossed sheet into opposite longitudinally slotted hollow frame members; and in securing the embossed sheet to the frame members.

2. The method of making an embossed sheet metal panel which consists in embossing a sheet of thin metal; in longitudinally slotting frame parts; in setting opposite edges of the embossed metal sheet between the slotted edges of frame parts of a supporting frame; and in securing the edges of the sheet to the said frame parts.

3. The method of making a metal paneled bed end which consists in embossing a sheet of thin metal; in attaching the metal sheet to a thin metal plate and thereby forming a stiff panel; in slotting the inner edges of opposite frame parts and in inserting the panel in the slots of the frame and thereby securing it in place.

4. The method of making an embossed sheet metal panel which comprises embossing a thin sheet of metal, in backing it with a metal sheet of about the same size, and in applying a hollow slotted rim about the edges of both sheets by inserting them in the slot and attaching it to them.

5. The method of making an embossed sheet metal panel which comprises embossing a sheet of thin metal, in applying to it another sheet of metal of about the same size, in interposing a sound deadening material between the sheets and thereby reinforcing the embossing, and in attaching the sheets together at their edges.

6. The method of making an embossed sheet metal panel which comprises; embossing a sheet of thin metal and applying it to another sheet of about the same size, in interposing a sound deadening material between these sheets, and in securing adjacent edges of the sheets together by applying a beaded edge to embrace them and securing the sheets to this beaded edge.

7. The method of embossing which consists in forming a die part of relatively hard metal, in molding a second cooperating die part of softer metal on the first die part and embossing a thin metal sheet therebetween, in applying the embossed sheet to another sheet of about the same size, and in securing the edges of the sheets together by applying a hollow beading to embrace the edges and securing the sheets to the beading.

JOSEPH K. PESCHEL.