Feb. 16, 1943. J. A. MILLER 2,311,561

HEATED MOLD FORM

Filed Aug. 31, 1940

FIG. 1

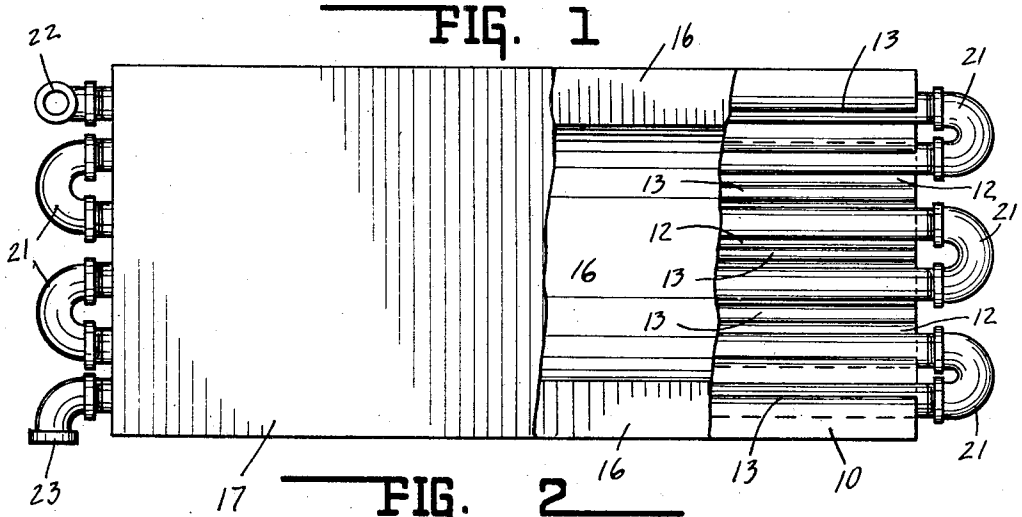


FIG. 2

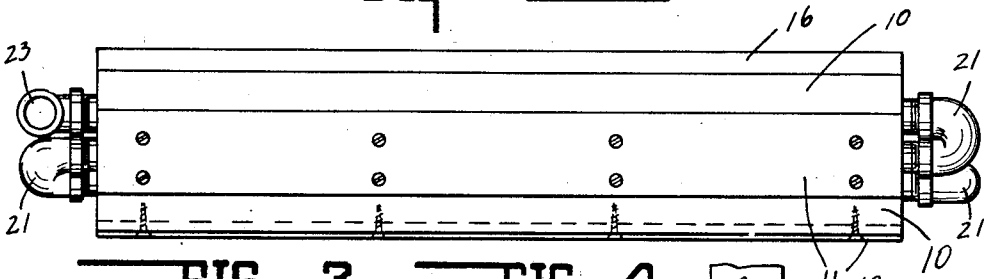


FIG. 3

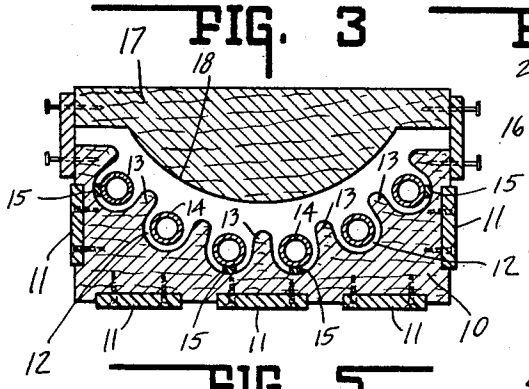


FIG. 4

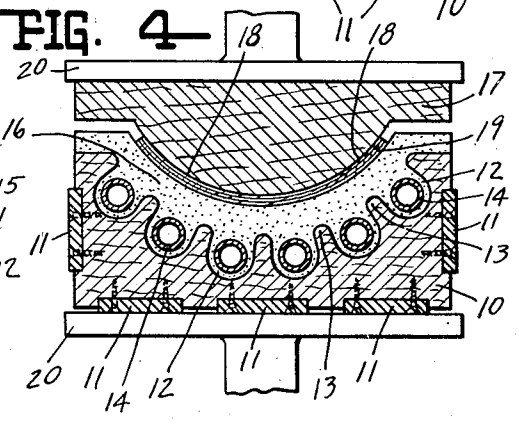
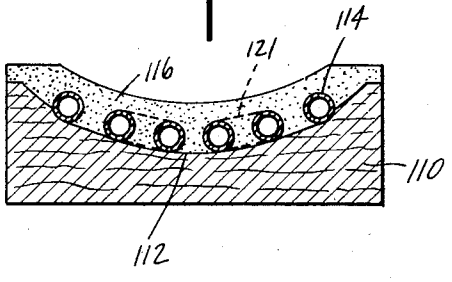


FIG. 5



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HEATED MOLD FORM

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4 Claims. (Cl. 144—256)

This invention relates to a heated mold form, which is particularly adapted for use as a die in forming, pressing and heating plywood veneering and setting the same to the desired curvature.

The principal purpose of the invention is to provide such a form as may be of simple, cheap construction so as to eliminate the necessity of providing the usual expensive metal dies or forms commonly used.

By means of the present invention, wherein it is desired to form a curved panel of plywood, it is only necessary to rout out a caul from a block of wood to substantially the shape desired, place a series of steam pipes therein, and provide a male form from a block of wood having the prescribed convex curvature. The wooden male form is then placed over the female caul and the space surrounding the steam pipes and between their surfaces is then filled with molten metal, such as babbitt. The molten metal thus surrounds the steam pipes and provides a forming surface for the female form of the prescribed curvature. The metal, being conductive of heat, readily transmits the heat from the steam pipes to the plywood for highly heating the same as it is pressed against the metal surface by the same wooden male form used in shaping such surface.

Other objects and features of the invention will be understood from the accompanying drawing and the following description and claims.

Fig. 1 is a plan view of the mold form with portions broken away to show the metal forming surface in one portion thereof and the heating pipes before the metal is applied, in another portion. Fig. 2 is a side elevation of the female form. Fig. 3 is a central vertical section through the male and female forms preparatory to introducing molten metal therein. Fig. 4 is a section similar to Fig. 3 through said forms to show them in plywood forming position. Fig. 5 is a central vertical section showing a modification of the female form.

In the drawing there is shown a wooden female caul 10 which is shaped from a solid or built-up block of wood. Said caul is reinforced by side and bottom plates 11. The upper surface thereof is routed out to provide a series of spaced recesses 12 with intermittent projections 13 extending longitudinally thereof. The recesses and projections are arranged generally in the configuration of a predetermined curvature to be reproduced in the plywood veneering.

Having thus formed the wooden caul, a series of interconnected steam pipes 14 are seated along the recesses 12 and are preferably blocked up with any suitable blocking pieces indicated at 15 so that said pipes may be temporarily supported substantially in spaced relation. A mass of molten metal 16 is then poured over the pipes so that the caul is practically filled therewith, and wherein it will flow into the recesses 12 and around said pipes. Such metal may preferably be babbitt or any similar metal which may be introduced in a molten state at sufficiently low temperature to avoid burning, as distinguished from perhaps merely charring, the wood caul into which it is introduced.

A wooden male form 17 having a convex curved surface 18 conforming to the prescribed curvature is placed over the molten metal so that said metal is pressed firmly about the steam pipes and excess metal is forced from between the caul and male form. The molten metal is then allowed to set and harden, conforming to the curvature of the male form, after which it is removed, with the result that the formed metal 16 has been given the proper curvature and is in contact with and surrounds the steam pipes so as to readily conduct heat therefrom to such curved surface.

In the above manner a female form capable of applying heat is produced in a simple and economical manner ready for use in shaping the plywood veneer. Thereupon a panel of plywood veneer 19 is placed on the metal surface of the female form, steam is introduced into the pipes 14 and the male form 17 is placed thereover. Pressure is thereupon applied to press and form the plywood through the medium of pressing plates 20 which may hydraulically or otherwise exert the desired pressure in the usual and well known manner.

As will be noted in Fig. 1, the steam pipes are connected in series at each of their ends by elbows 21, one of the pipes having a steam intake opening 22 and another a steam return or exhaust opening 23.

In Fig. 5 there is illustrated a modified and simplified form of female caul 111 which is provided with a bed having a curved surface 112 in which a series of steam pipes 114 are laid with their ends interconnecting through the elbows 121. The steam pipes being thus laid in the caul, the molten metal 116 is poured thereover and formed in the manner above described to provide the desired female form.

Whereas the invention has been herein illustrated and described as applied to a form having the metal and steam pipes imbedded in the female member, it is obvious that it is equally applicable to a form wherein the metal and steam pipes are imbedded in and comprise the male member—or a mere reversal of the structure as herein shown and described.

The invention claimed is:

1. A form for shaping a glue treated plywood veneer panel under heat and pressure, comprising a wooden caul, a cast metal forming surface molded therein for receiving said panel, a plurality of heating members imbedded in said metal, and a conforming member adapted to press and conform said panel to said metal forming surface.

2. A form for shaping a glue treated plywood veneer panel under heat and pressure, comprising a wooden caul, a cast metal forming surface molded therein for receiving said panel, a series of steam heating pipes imbedded in said metal, and a conforming member adapted to press and conform said panel to said metal forming surface.

3. A form for shaping a glue treated plywood veneer panel under heat and pressure, comprising a wooden block provided with a concave recessed portion conforming generally to the shape desired, a series of steam heating pipes mounted within said recessed portion, a cast metal forming surface imbedded therein and surrounding said pipes, said metal forming surface being of the curvature desired for shaping, and a wooden male member having a convex surface to mate with the metal surface for pressing and conforming said panel thereto.

4. A form for shaping a glue treated plywood veneer panel under heat and pressure, comprising a wooden block, a series of recesses formed therein separated by outwardly extending walls conforming in general to the shape of panel desired, sections of steam pipe mounted in each recess and separated by said walls, said sections being connected to provide a continuous steam passageway therethrough, a heat transmitting medium in the form of cast metal surrounding said pipe sections and separating walls to present a forming surface of the desired curvature, and a conforming wooden member having a complementary curved surface adapted to press and conform said panel to said metal forming surface.

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