

United States Patent

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 295: 156/583; 29/130; 18/16P. 17P: 144/317, 281;
 264/293

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[54] **MULTILAYER PRESS FOR PRODUCTION OF
 SHEETS OR BOARDS OF FIBROUS MATERIAL**
1 Claim, 3 Drawing Figs.

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18/17; 100/295; 156/583; 264/293
 [51] Int. Cl..... **B30b 15/34**

ABSTRACT: A press plate of a heated press made of two coherent layers of which the layer nearest to the press plate has a greater coefficient of thermal expansion than the sagging of the plate due to its own weight is effectively counteracted.

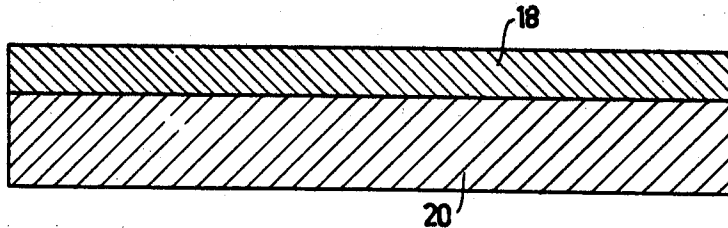


Fig.1

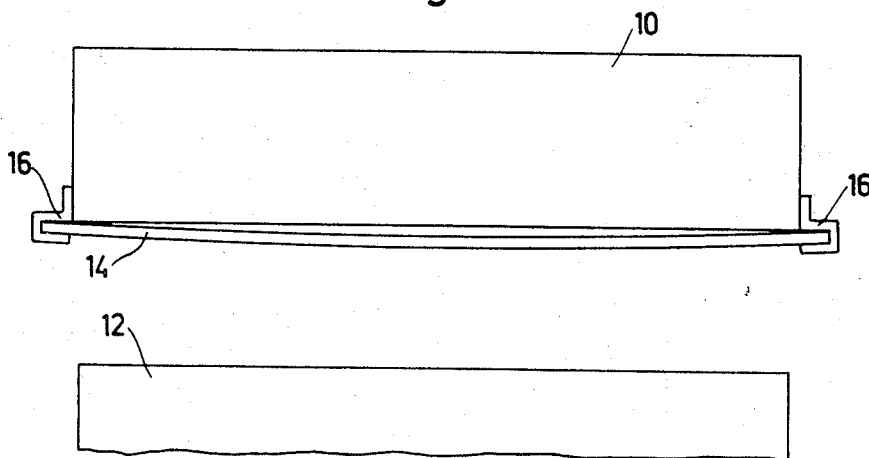


Fig.2

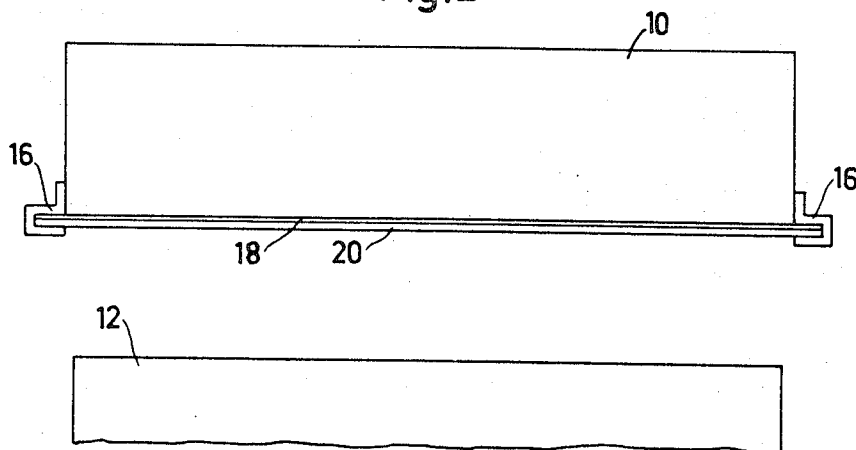
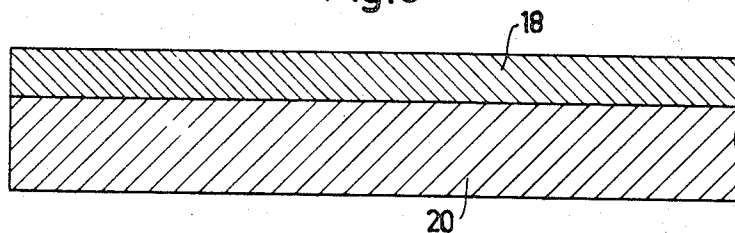


Fig.3



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MULTILAYER PRESS FOR PRODUCTION OF SHEETS OR BOARDS OF FIBROUS MATERIAL

This invention relates to multilayer presses for manufacture of sheets or boards of fibrous material.

More particularly this invention relates to multilayer presses for manufacture of sheets or boards of fibrous materials such as wood fibers, which presses are equipped with a plurality of superimposed, horizontally extending press plates which are displaceable relatively to one another in a vertical direction from a position in which they are separated by an air gap or interspace (daylight opening), to a position in which sheet or board blanks fed between them are subjected to pressure and heat between the plates, the upper of the pair of plates defining an interspace carrying a surface sheet plate on its lower face.

Such surface sheet plates or, as some types thereof are called, "glazing plates" have as their purpose to impart to the manufactured product some desired surface property such as a glazing or a satin dull surface. The sheet plates can be acid-proof or chromium-finished. In the hot press the surface sheet plate is fixed on the upper of two coating press plates so that it, when the press is closed comes into contact with the upper face of the board blank. As a consequence of modern presses presenting broader and broader dimensions, the sagging of the surface sheet plates due to their own weight has become a problem, since the presses must be made with substantially wider daylight openings between the press plates than corresponds to the thickness of the board blanks in order to render possible to introduce them between the press plates. This results in increased costs.

One main object of the invention is to eliminate the sagging of the surface sheet plates in multilayer presses of the type in consideration.

According to one main feature of the invention the surface sheet plate is made of two coherent layers of which the layer nearest to the press plate has a greater coefficient of thermal expansion than the more remote layer.

Further objects and advantages of the invention will become apparent from the following description considered in connection with the accompanying drawing, which forms part of this specification and of which:

FIG. 1 is a diagrammatic lateral view of two press plates forming part of a multilayer press and of which the upper one has a surface sheet plate made according to a known construction.

FIG. 2 is a similar view of an embodiment with a surface sheet plate made in accordance with the invention, and FIG. 3 is a partial vertical section of this surface sheet plate represented in a larger scale.

A multilayer press has a great number of superimposed press plates of which two plates 10, 12 are shown in the drawing. They can be displaced vertically to a greater spacing between them so that a gap or interspace, the so-called "daylight opening," is formed there between which opening is sufficiently wide to permit introduction of the sheet blanks between the press plates. For performance of a pressing operation the press is closed and the blanks are subjected to heat and pressure between the heated press plates. When, as is usually the case, the sheet blanks or wet sheets contain water, this water is then pressed out and boiled off. For this purpose wire screens or perforated or slotted metal sheet plates are positioned on the lower of a pair of press plates defining a

daylight opening. Rigidly secured to the lower face of each upper press plate 10 in a layer is a surface sheet plate 14 by means of members 16 mounted outside the active portion of the longish press plate 10 and preferably at the short sides of said plates. As indicated in FIG. 1, the sheet plate 14 is caused by its own weight to sag and thereby to reduce the height of the daylight opening between the press plates 10 and 12 when the press is open. As mentioned above, the surface sheet plate has for its purpose to impart to the upper surface of the fiber board some desired property.

In accordance with the invention, the surface sheet plates are made of two layers of metal according to the compound-principle. Of these layers the upper one denoted 18 which thus is located nearest to the press plate 10 is made of a material having a higher coefficient of heat expansion than the lower layer 20. The upper layer may be thinner than the lower one, although this is not a condition. A surface sheet plate constructed in the described manner will, as will be seen from FIG. 2, maintain its plane shape which results in that the daylight opening can be given minor width and the multilayer press will obtain as a unit substantially minor dimensions in the vertical direction. The layer 18 in the compounded sheet plate which is located nearest to the press plate will be given a higher temperature than the lower layer 20 more remote from the press plate 10 when the press is open to receive a fresh charge of blanks. Due to the composition of the sheet plate according to the invention the upper layer 18 will expand more than the lower layer 20. In this way sufficient forces are created in the surface sheet plate to prevent it from sagging. It is evident that the invention also can be assumed to start from the bimetal effect.

The composition of material of which the surface sheet plate is made can be varied in response to the demands on surface structure and capacity of resistance to chemical attacks. The thickness of the two layers in the sheet plate relative one another is varied in response to the strength of the components and their capacity of resistance to compression and tensile stresses. The softer the metal is the thicker the layer must be made. An example of a suitable composition of the layers is copper for the upper layer 18 and acid-proof steel for the lower layer 20.

While one more or less specific embodiment of the invention has been shown and described, it is to be understood that this is for the purpose of illustration only, and that the invention is not to be limited thereby, but its scope is to be determined by the appended claim.

I claim:

1. In a multilayer press for production of sheets or boards of fibrous materials such as wood fibers, and equipped with a plurality of superimposed horizontal press plates displaceable relatively to one another in a vertical direction from a position in which they are separated by an air interspace into a position in which sheet or board blanks introduced between them are subjected to pressure and heat between said plates, the upper of a pair of plates defining an interspace carrying a surface sheet plate on its lower face, the improvement that the surface sheet plate is made of two coherent layers of which the layer located nearest to the upper press plate has a greater coefficient of heat expansion than the more remote layer so that a sagging of the sheet plate due to its own weight is effectively counteracted.