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ALGINATE COATED SHEETS FOR USE IN A DELAMINATING PROCESS

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Fig. 1.

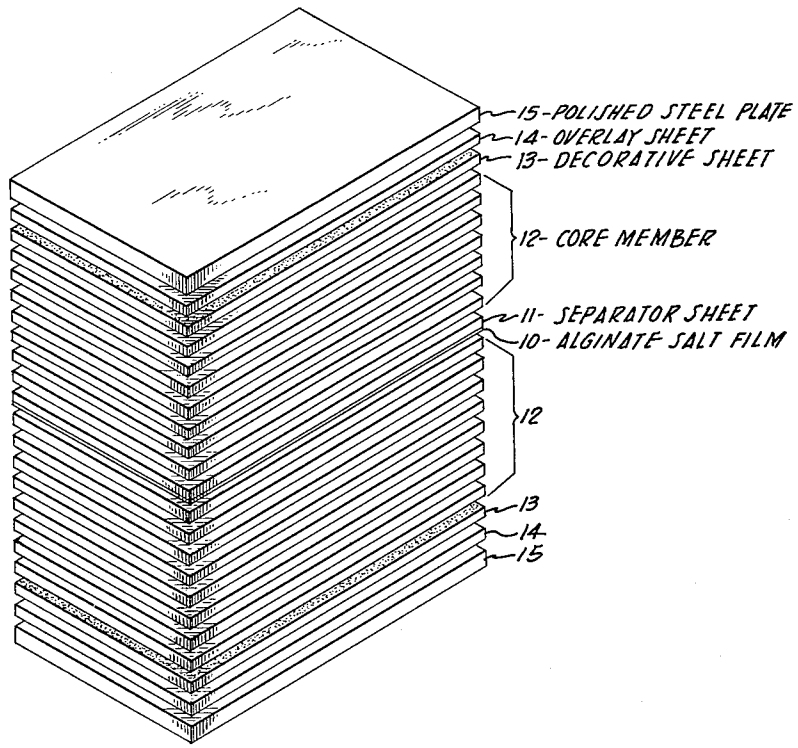
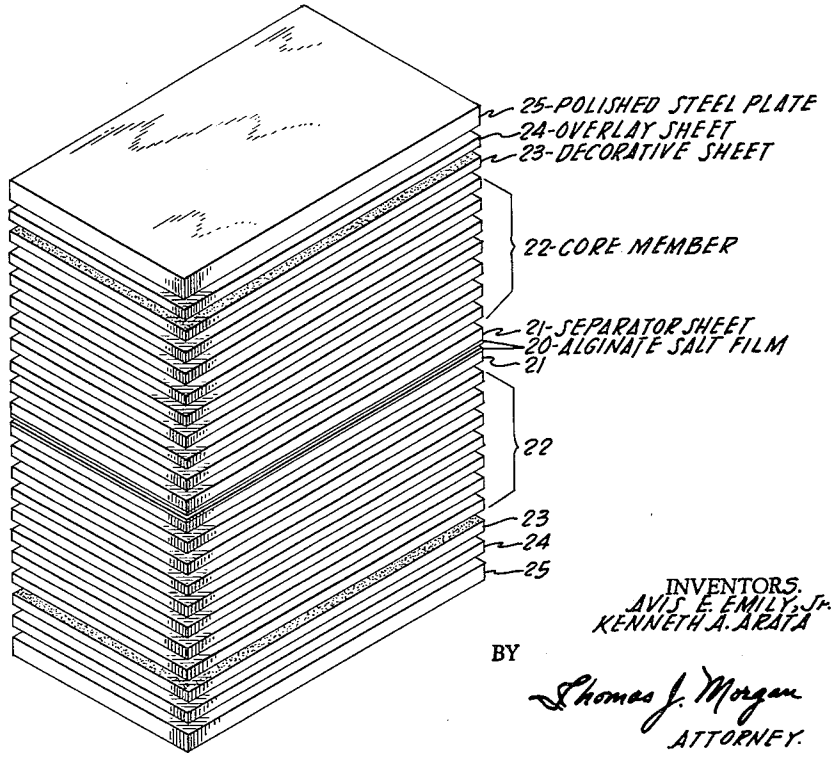


Fig. 2.



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ALGINATE COATED SHEETS FOR USE IN A DELAMINATING PROCESS

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This invention relates to a process for releasing a plurality of laminates, and particularly decorative laminates, from one another when pressed back to back. More particularly this invention relates to a process for releasing a plurality of laminates that have been pressed back to back which comprises utilizing, as a separator sheet, a web of paper which has been coated on one side only thereof with a film of a salt of alginic acid.

One of the objects of the present invention is to produce laminates, and particularly decorative laminates, by an improved method whereby greater savings in the cost of production are realized when contrasted with old conventional methods. A further object of the present invention is to produce laminates in a mass production technique by utilizing a separator sheet comprising a web of paper coated on one side only with a film of a salt of alginic acid and separating the consolidated stacks of plies on each side of the alginate coated sheet after the consolidation step has been completed. These and other objects of the present invention will be discussed in greater detail hereinbelow.

Laminates, including decorative laminates, have been produced for a considerable number of years by a plurality of prior art processes. In making such laminates it is conventional to utilize a plurality of resin-impregnated core sheets. The core sheets are kraft paper which has been impregnated with a thermosetting resin, and more particularly, as a general rule, with a thermosetting phenolic resin. When the kraft paper has been impregnated with the thermosetting resin, the sheet are dried and cut to the appropriate size. Thereupon a plurality of these resin-impregnated sheets are stacked in a superimposed relationship. The number of plies in the stack will depend on the ultimate intended use of the laminate. For most purposes the number of plies of these core sheets will total about 7 or 8. For decorative laminates, there is then placed on the stack of core sheets a decorative sheet which is a sheet of nobler paper bearing a printed design and impregnated with a thermosetting resin which is not subject to significant darkening on the application of heat. Suitable resins for the decorative sheet are the aminotriazine resins and more particularly the melamine-formaldehyde resin and benzoguanamine-formaldehyde resins, unsaturated polyester resins, and the like. All of these resinous materials are well known in the art and further delineation of the composition thereof is deemed unnecessary here. It is generally desirable, when making decorative laminates, to make use of a protective overlay sheet which is similar to the decorative sheet but generally devoid of design.

In conventional procedures the core sheets and the decorative overlay are assembled and placed between a pair of polished steel plates. Thereupon the entire assembly is subjected to the conventional amounts of heat and pressure until consolidated into a unitary structure. The process of the present invention would, in one of its embodiments, reside in the assembly of two groups of stacks of core sheets separated by a sheet of paper which has been coated on one side only thereof with a film of a salt of alginic acid. The decorative overlay sheets are positioned in such a way as to be in a position to be contacted directly between polished steel plates such as polished stainless steel plates. The two separate stacks

of resin impregnated sheets could then be considered to be the mirror image of one another, separated only by the alginate coated sheet. This entire assembly is then subjected to the conventional heat and pressure until consolidated into a unitary structure. When this unitary structure is released from the laminate machine, the upper and lower sections are readily separated from one another because of the presence of a coated alginate sheet.

Among the alginates which may be used in the practice of the process of the present invention are sodium alginate, potassium alginate, iron alginate, ammonium alginate, lithium alginate and the like, and mixtures thereof. These alginates are readily available from commercial sources and come in a plurality of forms, mostly fluid, and in varying viscosities. The viscosity, of course, will vary significantly with the concentration of solids in aqueous solution. For the purposes of the present invention, the alginates used will have a viscosity varying between 300 cps. and 1000 cps. in a 1% solids aqueous solution at 25° C. These solutions of the alginates may be applied to the paper in any conventional procedure but it is preferred that they be applied in a reversed roll coating. The thickness of the wel film applied to the paper should be at least about 0.002 inch. No upper limit need be observed, although for practical purposes a wet film over 0.01 inch thick is generally unnecessary. After treatment with the alginate, the paper is dried at an elevated temperature and is then ready for use as the releasing sheet or sheets.

If desired one may utilize a pair of alginate coated separator sheets, each coated on only one side thereof. In using two such sheets, the alginate coated sides should be positioned face to face and in direct contact with one another. The alginate coated sheet or sheets will, upon separation of the pair of laminates, remain as an integral part of that laminate to which it adheres on the uncoated side of the alginate coated barrier sheet.

The back of the laminates upon separation from one another may be sanded, and particularly that back of the laminate which has the alginate film as an exposed side.

Although the separator sheet may be devoid of any resin impregnation prior to the coating thereof on one side only with a salt of alginic acid, the preferred embodiment is to impregnate the separator sheet with a thermosetting resin such as a phenolic resin and then coat one side only of the resin impregnated separator sheet with the salt of the alginic acid. It has been indicated hereinabove that the separator sheet coated with the salt of alginic acid becomes an integral part of the laminate with which it is in juxtaposition and which is in contact with the separator sheet on that side of said sheet which has no alginate coating. The separation of the two laminates takes place at the point in the assembly where the separator sheet with the alginate film thereon contacts the other group of plies in the adjacent laminate structure.

In the drawing:

FIGURES 1 and 2 are pictorial representations of multiple decorative laminating assemblies made up according to the practice of the present invention.

Referring now to the drawings, FIG. 1 shows a preferred embodiment of a multiple decorative laminating assembly in which an individual laminating assembly, or superimposed stack, of an overlay sheet **14**, a decorative sheet **13**, a core member **12** and a separator sheet **11** coated on one side only with an alginate salt film **10** is in superimposed mirror-image relationship to a similar superimposed stack of a core member **12**, a decorative sheet **13** and an overlay sheet **14**, the whole of said multiple decorative laminating assembly being positioned between a pair of polished steel plates **15**.

FIG. 2 shows an additional embodiment of a multiple

decorative laminating assembly in which an individual laminating assembly, or superimposed stack, of an overlay sheet 24, a decorative sheet 23, a core member 22 and a separator sheet 21 coated on one side only with an alginate salt film 20 is in superimposed mirror-image relationship to a similar superimposed stack of a separator sheet 21, coated on the side facing the alginate salt film of the corresponding separator sheet with an alginate salt film 20, a core member 22, a decorative sheet 23 and an overlay sheet 24, the whole of said multiple decorative laminating assembly being positioned between a pair of polished steel plates 25.

We claim:

1. A process for releasing laminates pressed back to back comprising the steps of arranging a plurality of plies of resin-impregnated core stock in superimposed relationship in groups of at least two stacks, separating said stacks from one another with a web of paper coated on one side only thereof with a film of a salt of alginic acid, consolidating the plies by the application of heat and pressure and separating the ends of the stacks from one another at the locus of the alginate coated sheet.

2. A process for releasing decorative laminates pressed back to back comprising the steps of arranging a plurality of plies of resin-impregnated core stock in superimposed relationship in groups of at least two stacks, separating said stacks from one another with a web of paper coated on one side only thereof with a film of a salt of alginic acid, positioning a decorative resin impregnated sheet on opposing ends of the stacks in superimposed relationship, thereafter consolidating the plies by the application of heat and pressure and separating the ends of the stacks from one another at the locus of the alginate coated sheet.

3. A process for releasing laminates pressed back to back comprising the steps of arranging a plurality of plies of resin-impregnated core stock in superimposed relationship in groups of at least two stacks, separating said stacks from one another with a web of paper coated on one side only thereof with a film of sodium alginate, consolidating the plies by the application of heat and pressure and separating the ends of the stacks from one another at the locus of the alginate coated sheet.

4. A process for releasing decorative laminates pressed back to back comprising the steps of arranging a plurality of plies of resin-impregnated core stock in superimposed relationship in groups of at least two stacks, separating said stacks from one another with a web of paper coated on one side only thereof with a film of sodium alginate, positioning a decorative resin impregnated sheet on opposing ends of the stacks in superimposed relationship, thereafter consolidating the plies by the application of heat and pressure and separating the ends of the stacks from one another at the locus of the alginate coated sheet.

5. A process for releasing decorative laminates pressed back to back comprising the steps of arranging a plurality of plies of resin-impregnated core stock in superimposed relationship in groups of at least two stacks, separating said stacks from one another with a web of paper coated on one side only thereof with a film of potassium alginate, positioning a decorative resin impregnated sheet on opposing ends of the stacks in superimposing relationship, thereafter consolidating the plies by the application of heat and pressure and separating the ends of the stacks from one another at the locus of the alignate coated sheet.

6. A process for releasing laminates pressed back to back comprising the steps of arranging a plurality of plies of resin-impregnated core stock in superimposed relationship in groups of at least two stacks, separating said stacks from one another with a resin impregnated web of paper coated on one side only thereof with a film of a salt of alginic acid, consolidating the plies by the application of heat and pressure and separating the ends of the stacks from one another at the locus of the alginate coated sheet.

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