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MATERIAL FOR STRUCTURAL PARTS, AND PARTS MADE THEREFROM

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In the Specification of United States Application No. 143399½ a material is described for structural parts, such as structural plates, doors, walls and the like, which material contains as chief constituent any substance of organic or inorganic nature in the form of chippings, shavings, fibres, grains, granules, or powder, and as binder, artificial resin and/or one or several artificial resin distillates or similar substances. The prior application referred to also describes a process for preparing such materials.

The present invention relates to a further form of the invention described in the prior application referred to. The present invention also relates to a material for structural parts, such as structural plates, doors, walls and the like, further, to a process for preparing this material or the structural parts made thereof, and finally to the structural parts themselves made from the said material.

A main characteristic of the invention consists in this that the material contains as chief constituent organic or inorganic fibres, such as wood shavings, wood meal, sawdust, comminuted maize stalks or reeds or maize or corn cobs, coffee bean husks, asbestos or a mixture of these substances, if desired or necessary with addition of set asbestos cement waste or mineral additions such as quartz, trass, soapstone and the like, and as binding agent adhesive substances like casein, dextrine, bone glue, leather glue, natural resin, artificial resins in any stage of the production process, more particularly in the condensation or distillation stage. or mixture of these substances.

In order to prepare structural parts, such as structural plates, doors, walls and the like, from the new material, according to the invention the substance or substance mixture which is to form the chief constituent of the finished material is intimately mixed with the adhesive substance or the mixture of adhesive substances which is to serve as binding agent in a suitable mixture ratio, such as for example 3:1. This mixture, without the substances used being previously prepared in any particular way, say in hollanders or according to one of the known processes of the paper art, and without addition of water is pressed, either cold or with simultaneous heating to temperatures up to 200° C., with a pressure of 50–250 kg per sq. centimetre. When employing heat the mass after this heating and whilst still under the action of the pressing pressure may be cooled down again. In this way warping, twisting or cracking of the pressed parts after the pressing operation can be avoided. The structural parts such as structural plates, doors, walls and the like may be pressed in one piece.

The binding agent may be added in liquid or in powdered state. When using a liquid binding agent the mixture prepared from the chief constituent and binding agents may be dried before the pressing.

For pressing the material hollow plates may be used, the hollow spaces of which, for the purpose of heating and subsequently cooling down the material, may be connected to a steam lead, and to a cooling water lead alternately.

The new material is characterised by high elasticity, satisfactory thermal, acoustic and electrical insulating capability, and high tensile and oscillatory strength.

These properties render the material particularly suitable as structural material for constructional plates of any desired size, even up to a surface area of several square metres. The material is also pre-eminently suited for making walls, doors, ceiling coverings, floorings, wall coverings, intermediate walls, separating walls, water closet walls, and the like. Decorative plates with raised and/or recessed ornamentations can also be pressed from the material.

As compared with ply-wood the material has the particular advantage that it is substantially cheaper from the point of view of production and working up. Waste substances may be used as the main constituent, such as for example set asbestos cement waste or wood shavings or sawdust obtained from saw mills, or other wood working plants in the working up of wood of any kind. The use of such waste substances. which latter have up to now found no other use, renders the production of the new material perfectly economical. Plates of the new material may be used more particularly in place of ply-wood boards. They may also be veneered with sheets or plates of finer wood, asbestos cement or other suitable materials.

The appearance of the structural plates, doors, walls, and so forth made from the new material depends more particularly upon the nature and quality of the chief constituent and on the mixing ratio of the chief constituent and the binding agents. In every case the structure of the chief constituent, that is to say the fibre variety, is clearly apparent on the finished workpiece.

If the articles made from the new material are to have coloured patterns on their surface, then the substances forming the chief constituent may, before mixing with the binding agent, be mordanted, stained, or coloured in some other way. In this way particularly varied and original patterns may be produced such as can be obtained by none of the processes heretofore known.

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