June 9, 1925. 1,541,106

F. BROSSLER

ASBESTOS SLATE MATERIAL AND PROCESS FOR MANUFACTURING IT

Filed Sept. 6, 1923

Fig. 1

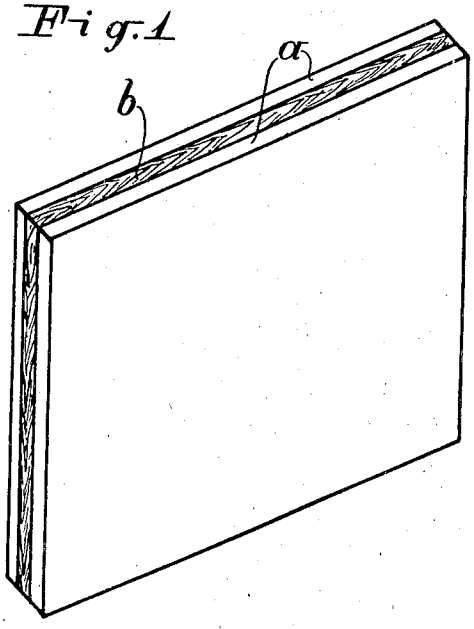


Fig. 2

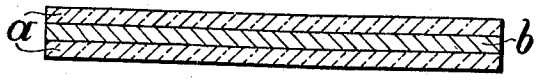
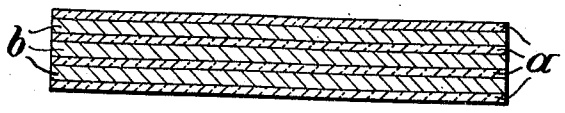


Fig. 3



Inventor
F. Brossler
By Marks & Clerk
Attys.

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UNITED STATES PATENT OFFICE.

FRANZ BRÖSSLER, OF VIENNA, AUSTRIA.

ASBESTOS SLATE MATERIAL AND PROCESS FOR MANUFACTURING IT.

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To all whom it may concern:

Be it known that I, FRANZ BRÖSSLER, architect, citizen of the Republic of Austria, residing at Vienna, in the Republic of Austria, have invented certain new and useful Improvements in Asbestos Slate Material and Processes for Manufacturing it, of which the following is a specification.

This invention has for its object to provide an improved composite material in the form of sheets, plates, slabs, blocks and the like, and an improved process for the manufacture of same.

A material produced by passing a mixture of asbestos fibres and cement over the sieve of a papermaking machine, is already known in the art under the name "eternite". Further, under the name "three-ply-wood" there is also known a material consisting of three steamed plates of wood (produced by cutting or shaving a block of wood) laid and glued together one upon another in such a manner that the fibres of the inner layer run at right angles to the fibres of the other two layers.

The improved process of the present invention consists broadly in piling upon one another in alternate order plates of "eternite-material" and "ply-wood" with the interposition of a "water-proof" adhesive and then compressing the piled plates together under pressure.

By the use of the term "eternite material" I desire it to be understood that this invention is not limited to the use of "eternite" as above specified, but that any desired combination of asbestos fibres and powdered cement may be used for the purposes of this invention. Similarly, the expression "ply-wood" is intended to include plates each consisting of any desired number of wooden plates arranged together with their fibres crossing more or less at right angles.

The expression "water-proof adhesive" is intended to cover any suitable adhesive or binding agent that is not soluble in water.

According to a preferred form of the improved process, plates of "eternite material" in a moist, semi-moist or dry state are laid alternately upon "ply-wood" plates, with interposed coats of water-proof adhesive, so as to form a pile, the top and bottom plates being of "eternite material", and the pile is compressed by high hydraulic pressure.

For mass production a plurality of such piles (each comprising two plates of "eternite material" and one "ply-wood" plate) are piled upon one another with the interposition of sheets of metal, and the whole is then compressed under high hydraulic pressure.

In the accompanying drawings I have illustrated by way of example two forms of the composite material according to the invention.

Fig. 1 is a perspective view illustrating one form of the composite material.

Fig. 2 is a sectional view through this form of the material.

Fig. 3 is a similar view through another form of the invention.

The usual form of the improved composite material as shown in Figs. 1 and 2 will consist of two plates *a* of "eternite material" with an interposed plate *b* of ply-wood.

Thicker plates or slabs of the improved composite material may be produced either by increasing the thicknesses of the several plates of "eternite material" and "ply-wood" or as shown in Fig. 3 by inserting further pluralities of these plates *a* and *b* in alternate order and compressing the whole together.

For the manufacture of the improved composite material, plates of "eternite" taken direct from the paper-making machine may be used in their moist state or they may be used in a semi-moist or in the dry state.

In the production of "eternite material" used for the manufacture of the improved plates, it is advisable to employ best quality asbestos fibres and extremely finely ground cement. In this manner plates can be made as thin as one millimetre or thereabouts.

As a result of the high-pressure exerted in compressing the improved plates, when moist or semi-moist plates of "eternite material" are used, the asbestos fibres become felted with the wood fibres, so as to produce an almost indivisible union, apart from the action of the binding medium. By this union and the densification of the wood fibres caused by the compression, the improved plates can be readily bored and nailed, and bore holes made in such plates will hold nails, screws and rivets immovably in a far higher degree than is the case with wood or plates of artificial or natural stone.

The improved sheets, plates or blocks are

quite insensitive to normal influences of temperature and weather and are also proof against the attacks of tropical insects if the section edges are suitably bound or framed. They are the only artificial plates that can withstand high bending, tensile and breaking strains, and by reason of their strength they can be used advantageously as supporting structural elements. They have elastic, tough and stone-like outside surfaces, and can be employed with advantage in all cases where plates of marble, wood or artificial stone have been used hitherto; in some cases they can also be used in place of metal plates. They provide an excellent material for the wood, brass or iron furniture industry, for wagon, motorcar and ship-building; for small dwellings and halls; they are also suitable for use as wainscot, panelling and flooring, and also as switch-boards.

A particular advantage of these improved plates is this that they can be made of any desired thickness and of any desired superficial area; this depending solely on the size of the available paper machine and the presses.

Technically it is possible to produce homogeneous plates of "eternite material" of very great thickness, but the production of such plates, however, entails such great expense that their manufacture is not a practical proposition for economic reasons.

In contradistinction to the above, the improved process has the advantage that it is of any desired thickness with a minimum consumption of actual "eternite material" and, therefore at quite reasonable prices. In the manufacture, without detriment to the quality of the material and its valuable properties, the thickness of the "eternite material" covering can be so reduced that the total amount of "eternite material" contained in an improved plate having a thickness of for instance 30 mm. is not greater than the quantity which is required for the production of an homogeneous plate of eternite material of 5 to 6 mm. thickness.

Further, the improved composite material has also the considerable advantage that, in contradistinction to plates of ordinary "eternite material" of any thickness, it does not warp, and even when loosely laid in position it will keep its flat shape perfectly and permanently.

Having now particularly described and ascertained the nature of my said invention and in what manner same is to be performed, I declare that what I claim is:

1. The manufacture of a composite material, which consists in forming a pile of plates of asbestos cement material, alternating with intermediate plates of ply-wood with the interposition of a waterproof adhesive in such a manner that the outside plates of the pile consist of asbestos cement material, and then subjecting the pile of plates to hydraulic pressure for causing the plates to unite together to constitute material of the desired thickness.

2. A composite material, composed of a pile of plates of ply-wood alternating with plates of asbestos cement a binding medium interposed between the plates, so that the outside plates of the pile consist of "eternite material", united together by the application of hydraulic pressure.

In testimony whereof I have affixed my signature in presence of two witnesses.

FRANZ BRÖSSLER.

Witnesses:
Ing. VICTOR MONATH,
SOFIE GRÜN.