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INSULATING BLOCK FOR BUILDING PURPOSES.

APPLICATION FILED OCT. 23, 1906.

906,025. Patented Dec. 8, 1908.

Fig. 1.

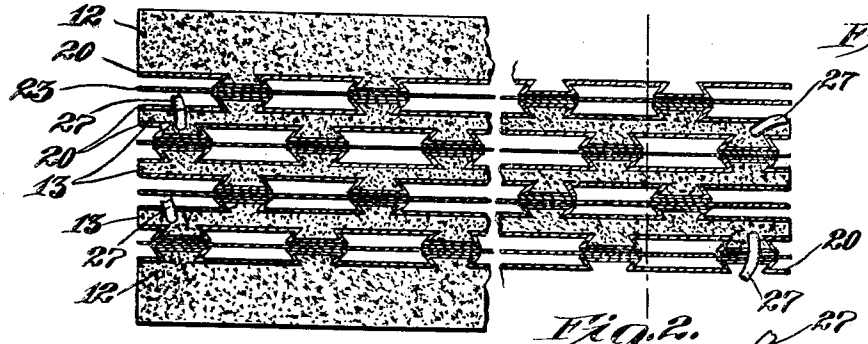


Fig. 2.

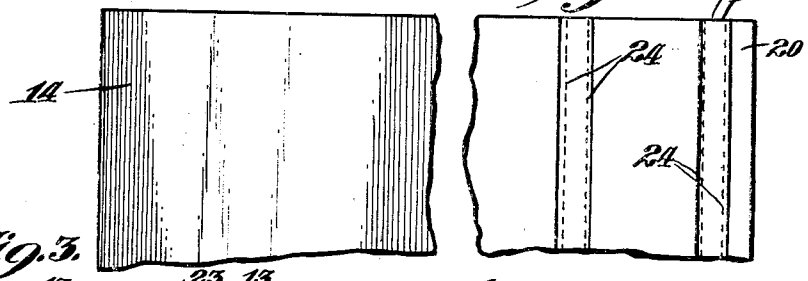


Fig. 3.

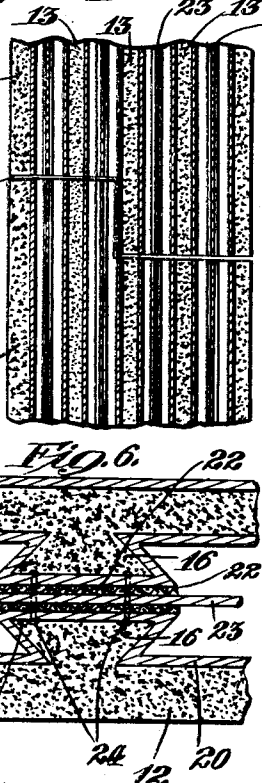


Fig. 4.

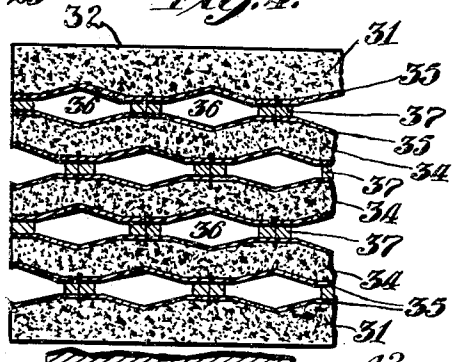


Fig. 5.

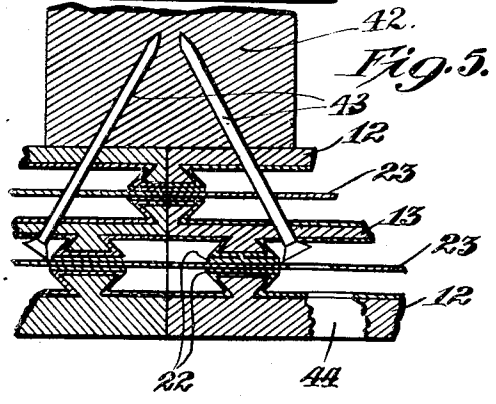


Fig. 6.

Attest:
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UNITED STATES PATENT OFFICE.

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INSULATING-BLOCK FOR BUILDING PURPOSES.

No. 906,025. Specification of Letters Patent. Patented Dec. 8, 1908

Application filed October 23, 1906. Serial No. 340,139.

To all whom it may concern:

Be it known that I, JOHN E. HOWE, a resident of the city and State of New York, have invented certain new and useful Improvements Relating to Insulating-Blocks for Building Purposes, of which the following is a specification, accompanied by drawings.

My invention relates to insulating blocks used in building for preventing the transmission of sound, heat or cold.

It is particularly adapted for use in partitions or ceilings of hotels, sanitariums, apartment houses and the like where it is highly desirable to prevent or minimize sound transmission. Its object is to produce effective insulating blocks or units which can be put together to form walls, ceilings, etc., and be readily cut to smaller size and fitted where required, can be securely fastened to studs or supports either of wood or metal, or can be built up into a partition, wall, or other structure, without such supports, and which presents a flat surface for plastering.

Further objects of the invention will appear in the specification and be pointed out in the claims.

In the drawings, Figure 1 is a horizontal section, partly broken away, of a block embodying my invention; Fig. 2 is an elevation of the same. Fig. 3 is a vertical section on section plane shown in Fig. 1, showing a mode of joining two blocks. Fig. 4 is a plan view of a modified form of block. Fig. 5 shows in horizontal section a further modified form of block, together with the mode of securing it to a wooden stud or floor timber. Fig. 6 is a detail of Fig. 1 on a larger scale.

Figs. 1, 2, 3, and 6 of the drawings show a block composed of a plurality of plates or layers 12 and 13 formed preferably of a plastic material, as plaster of paris, cement or the like. The outer plates on their inner faces and the inner plates on both faces have a plurality of dovetailed projections 16 having flat faces 17. The inner plates 13 have these projections arranged in staggered relation on opposite faces of the plate. Each of the plates has these projections 16 located to register with the corresponding projections on the adjacent plate. Each plate on the sides having projections 16 is covered with a sheet 20 of stiff paper or fabric, adhering closely to the entire face of the plate, including the projections, as shown. Between the opposing pairs of projections 16 are placed one or more layers of fibrous material 22, which may be felt, fiber, soft paper or the like non conducting material. Preferably also a sheet of fibrous material 23, as stiff heavy paper, is interposed throughout the entire length and width of the plates 12 and 13. The parts are held together in any desired manner, as by rows of stitching 24, forming an integral block which may be of any conveniont size, *e. g.* 12x16 inches face measurement.

In manufacturing such blocks as above described, I preferably take two of the sheets 20 and secure them at either side of the sheet 23 with the interposed strips or layers of felt 22 and sew or rivet them together as at 24 in Fig. 6. The next step after having made a sufficient number of these composite structures is to support them so that they form molds between them for the plastic mass of the layers 13. The plastic mass after it has been poured in and set, completes the structure with the exception of the outer layers 12, which may be either separately applied or applied at the same time as the intermediate layers by means of a suitably shaped mold.

By reason of the materials employed, each of which has a marked sound and heat insulating quality, and by reason of the large number of small air spaces formed and also perhaps because there are no lines or planes of material directly across the block, the insulation secured by even a relatively thin wall of such blocks is highly efficient. This advantage is probably increased by the dissimilarity of the materials in contact. The blocks are of substantial strength so that they will stand shipment. Where the blocks are to be built into a partition having vertical metal studding I may provide wires 27 which are embedded in the masses of plaster and have ends projecting therefrom at each end of the block so that they may be twisted or tied around the stud.

Fig. 3 of the drawings shows a mode of construction of the blocks with rabbeted edges which enables them to be more readily and accurately alined. The edges of the blocks 11 are rabbeted at 28, so that certain of the plates 13 extend beyond the others, as shown. This facilitates the alinement of the faces of the blocks when erected.

The blocks may be used in the same way as the plaster blocks are now used. Their outer surface should be rough enough to correspond with a scratch coat of plaster so that after the blocks are laid up in the wall, preferably without cement between them, the brown coat and skin coat can be applied, making the finished wall or partition.

In Fig. 4 of the drawings I have shown a further modification of the block, in which the outer plates 31 are formed with flat outer surfaces 32 and with corrugated inner surfaces. The inner plates 34 are in the present instances formed with both their surfaces corrugated, the arrangement being such that when the blocks are assembled, as shown, diamond shaped air spaces 36 in staggered relation are formed between the plates. All the opposing faces of the plates are covered with paper or fabric 35 as before. The plates are separated, as before described, by pieces of felt or like material 37 placed between their nearest planes as shown.

The block shown in Fig. 5 of the drawings is similar to that already shown in Fig. 1, except that it has a fewer number of intermediate plates 13, its outer plates 12 being similar to those already described. The figure is introduced to show the means of fastening the block to a wooden stud 42, this being accomplished by driving nails 43 through one or more of the plates 12 and 13, the head of the nail being forced entirely through the outer plate 12, leaving a broken aperture 44. By slanting the nails as shown in the drawing, two adjacent blocks may be firmly held together and as firmly secured to the stud 42.

In the preferred forms of the invention which I have described it will be seen that there are a series of cells or air spaces formed by the corrugated paper or fabric, and that the fabric is embedded and the cells incased on either side by the plastic material. I employ the term "fabric" to include paper, woven material, felt, and other fabrics. In the broader aspects of my invention it will be seen that it is not essential that there should be projections on each of the opposing faces of two plates.

It is obvious that many modifications other than those shown may be made in my insulating blocks, and that an efficient block may be made omitting certain features, especially where a compromise between cheapness of construction and thoroughness of insulation is required.

Obviously some features of this invention may be used without others and the invention may be embodied in widely varying forms; therefore, without limiting the invention to the devices shown and described, and without enumerating equivalents,

I claim and desire to obtain by Letters Patent the following:

1. A block composed of a plurality of attached plates of plastic material, each of which is faced by a fabric substantially impervious to plaster secured thereto, at least one of said plates being formed with laterally projecting portions extending toward an adjacent plate, whereby air spaces are formed between said plates, the fabric facing constituting the lining of the air spaces, substantially for the purposes specified.

2. A block composed of a plurality of plates of plastic material, each of which is faced by a fabric substantially impervious to plaster secured thereto, each of said plates being formed with laterally projecting portions extending toward an adjacent plate, and a sheet of fabric placed between said plates and held between said projecting portions, the fabric facing constituting the lining of the air spaces, substantially for the purposes specified.

3. A block composed of a plurality of attached plates of plastic material, each of which is faced by a fabric substantially impervious to plaster secured thereto, at least one of said plates being formed with laterally projecting dovetailed portions extending toward an adjacent plate, whereby air spaces are formed between said plates, the fabric facing constituting the lining of the air spaces, substantially for the purposes specified.

4. In a block having a plurality of plates of plastic material, the combination of one plate having a series of projections covered with fabric adherent to the plastic material thereof, the opposing plate having a series of opposed projections covered with fabric adherent to the plastic material thereof, interposed insulating material between the said fabric-covered projections, and fastening means for securing the fabrics together.

5. In a block having a plurality of plates of plastic material, the combination of one plate having a series of projections covered with fabric adherent to the plastic material thereof, the opposing plate having a series of opposed projections covered with fabric adherent to the plastic material thereof, a sheet of fabric interposed between the registering projections and sub-dividing the cells or spaces formed between the series of projections, and fastening means for securing the said fabrics together and thereby securing the plates.

6. A block having a plurality of plates of plastic material having intervening air spaces or cells between them and connected together at intervals by the following means:— a projecting portion of one of the plates having adherent thereto a surface of fabric, a similar surface of fabric adherent to the opposing plate, and fastening devices securing the two fabrics together and thereby the plates.

7. A block having a plurality of plates of plastic material having intervening air

spaces or cells between them and connected together at intervals by the following means:— a projecting portion of one of the plates having adherent thereto a surface of fabric, a similar surface of fabric adherent to the opposing plate, a mass of insulating material interposed between the said fabric and fastening devices securing the two fabrics together.

8. A block composed of a plurality of plates of plastic material, one at least of the opposing faces of a pair of plates having projections for separating the two plates at intervals, said projections being provided with adherent fabric and the opposing portions of the other plate being provided with adherent fabric secured to the first said fabric, whereby the plates are held together.

9. A block composed of a plurality of plates of plastic material, one at least of the opposing faces of a pair of plates having projections for separating the two plates at intervals, said projections being provided with adherent fabric and the opposing portions of the other plate being provided with adherent fabric secured to the first said fabric, whereby the plates are held together, and a layer or mass of insulating material interposed at the points where the fabrics are so secured together.

10. A block having a plurality of plates of hardened plastic material provided with opposed projections and faced with adherent fabric molded integrally therewith, the fabric forming the lining for the so-formed air spaces, and fastening devices securing the plates together by means of the fabric.

11. A block having a plurality of plates, one or more of which consist of hardened plastic material faced with fabric and provided with projections against which the adjacent members of the block are secured, the said projections alternating on opposite sides of the plate, whereby fabric lined air spaces are produced.

12. A block comprising a plurality of plates of plastic material each having projections from a surface thereof, the surface and projections being faced over their entire extent with fabric substantially impervious to plaster, the plates being secured together with the fabric-covered projections face to face to form fabric-lined air spaces within the block.

13. A block comprising a plurality of plates of plastic material having a series of projections thereon, and surfaces faced over their entire extent with fabric, the plates being secured together with the fabric-covered surfaces face to face whereby fabric-lined air spaces are provided.

14. A block of hardened plastic material faced with fabric, an additional sheet of fabric, means for spacing the two sheets to leave hollow fabric-lined spaces between them, and means for fastening the two fabrics together.

15. The combination in a block of two sheets of fabric substantially impervious to plaster secured together at a plurality of points, and separated from each other intermediate of such points to form fabric-lined air spaces, the exterior face of at least one sheet of fabric adherent to a mass of hardened plastic material.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN E. HOWE.

Witnesses:
JULIAN HOLLAND,
JOHN R. RAINBOW.