

G. B. LEGNARD & E. FORMATO.
INSULATING PANEL.
APPLICATION FILED DEC. 4, 1911.

1,028,575.

Patented June 4, 1912.

FIG. 1

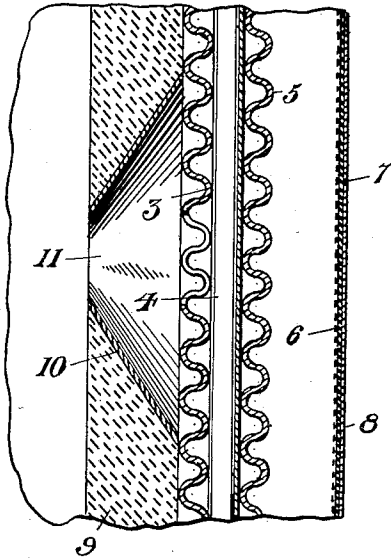
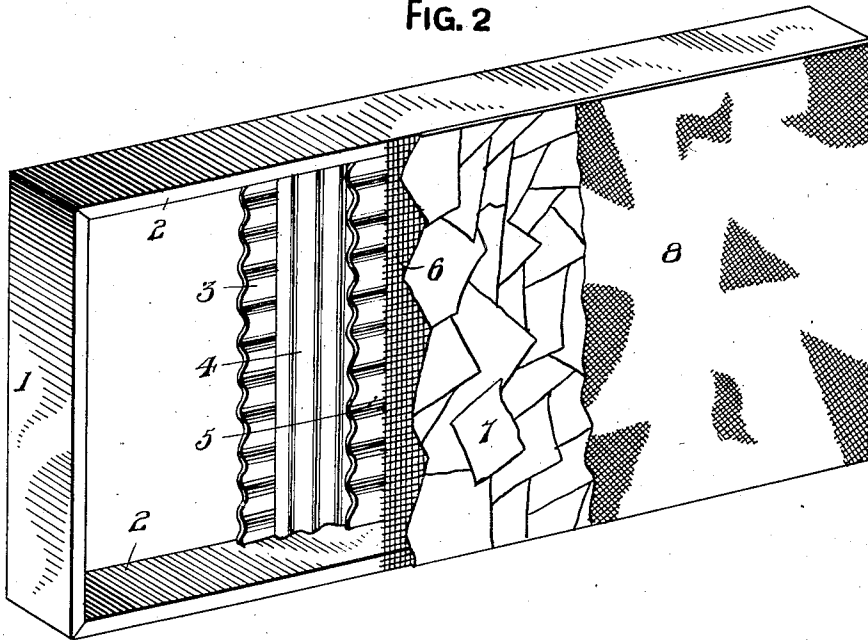


FIG. 2



WITNESSES

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UNITED STATES PATENT OFFICE.

GILBERT B. LEGNARD AND ELMERINDO FORMATO, OF PITTSBURGH, PENNSYLVANIA.

INSULATING-PANEL.

1,028,575.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed December 4, 1911. Serial No. 663,751.

To all whom it may concern:

Be it known that we, GILBERT B. LEGNARD and ELMERINDO FORMATO, citizens of the United States of America, residing at
5 Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Insulating-Panels, of which the following is a specification, reference being had therein
10 to the accompanying drawing.

This invention relates to an insulating panel especially designed for collecting acoustic disturbances, and the primary object of my invention is to provide a panel
15 that can be advantageously used in wall and ceiling construction of public buildings, for preventing an echo or repetition of sound that interferes with the proper transmission to an audience or others to whom it
20 should be properly conveyed, the panel eliminating all undesirable reverberations, from the walls, surfaces or angles of the compartment or room of the building.

Another object of this invention is to
25 provide an insulating panel that can be constructed in units and the units readily assembled in the construction of a wall or ceiling, the units being inexpensive and highly efficient for the purposes for which it is
30 intended.

With the above and other objects in view, the invention resides in the novel construction, combination and arrangement of parts to be hereinafter specifically described and
35 then claimed.

Reference will now be had to the drawing, wherein:—

Figure 1 is a vertical sectional view of a portion of an insulating panel in accordance with this invention, and Fig. 2 is a perspective view of one of the units of an insulating panel, partly broken away and partly in section.

A unit of an insulating panel comprises
45 a rectangular frame having end walls 1 and top and bottom walls 2. These walls have the rear edges thereof connected by a longitudinally corrugated plate 3, a vertically corrugated plate 4, and a longitudinally
50 corrugated plate 5, the plate 4 being arranged intermediate the plates 3 and 5, in order to provide communicating air cells that are distributed throughout the rear side of the rectangular frame. The front edges
55 of the frame support a piece of cloth 6 or a fine piece of interwoven wire. Secured to

the piece of cloth are pieces of paper 7, and secured to the pieces of paper 7 is a piece of cloth 8 that can be painted, covered with paper, or otherwise finished to
60 present a neat and attractive appearance. A unit as thus described is mounted against the outer side of a wall 9, that is provided with a funnel-shaped opening 10, having a
65 metallic funnel 11, the large end of said funnel being in communication with the air cells formed by the longitudinally corrugated plate 3 carried by the inner edges of the rectangular frame forming the unit.

In the practice of our invention, the units
70 are placed at such places where the reverberations occur, and said units can be made of any desired size and thickness according to the wall or ceiling construction in connection with which they are used. The materials used in connection with these units
75 are of the sound absorbing character, made of sheets of paper, wood fiber, straw board, cork composition, loosely pressed pulp board, felt, or any pulp or composition, it being
80 preferable to use straw board, whereby the plates 3, 4 and 5 can be corrugated, this character of board being ordinarily used for packing purposes.

The material 6 used in connection with
85 each unit can be burlap, scrim cloth, muslin, cotton, wool, silk, cheese or other suitable material, the cloth being tacked, pasted or glued to the outer face of the frame. It is essential, however, that this piece of cloth
90 be located some distance from the corrugated plates, in order to provide an air space that tends to interrupt and break up such sounds that pass through the outer face of the unit.

The pieces of paper 7 are preferably torn
95 pieces that are applied with an insoluble paste made with rye flour, alum and glue, the paper being pasted in various directions to the seams or adjoining edges, whereby
100 the outer piece of cloth can be easily applied to the surfaces of the torn pieces of paper. The outer piece of cloth designated 8 can be painted, papered, frescoed or otherwise decorated to harmonize with the
105 interior of the compartment in connection with which it is used.

From the foregoing it will be observed that each wall unit is composed of sound absorbing material, and that should a sound
110 pass through the wall of the unit, it passes through the funnel 11 into the interior of

the wall in connection with which the unit is made. The wall that has been designated 9 may represent the plaster or laths of a wall, or even brick construction, it being essential that the openings 10 are provided in the wall in order that such sounds that penetrate the units against said wall are carried into the wall and prevented from rebounding from said wall.

10 The sound waves encountering the wall units are absorbed, just as though the waves were permitted to continue on without any interruptions, consequently it is impossible for the sound waves to be interrupted or
15 throw off echoes or reverberations that would have a tendency to confuse or cause words to intermingle to the extent that a hearer could not understand what is being spoken in the compartment provided with
20 the wall units.

What we claim is:—

1. The combination with a wall provided with funnel-shaped openings, of wall units arranged against said wall and in communication with the openings thereof, each unit comprising a rectangular frame provided with corrugated plates at the rear sides thereof, and pieces of cloth arranged at the front side of said frame.

30 2. An insulating panel comprising rectangular frame, corrugated plates carried by the rear edges thereof, pieces of cloth

carried by the front edges thereof, pieces of torn paper arranged between said pieces of cloth. 35

3. The combination with a wall provided with openings, of rectangular frames arranged against said wall and in communication with the openings of said wall, and sound absorbing material arranged in each frame. 40

4. The combination with a wall having openings formed therein, of frame units arranged against said wall and in communication with the openings thereof, and sound absorbing material arranged in each frame and including corrugated plates and pieces of cloth. 45

5. The combination with a wall provided with funnel-shaped openings, of composite board frames arranged in communication with the openings of said wall, each frame comprising corrugated plates, pieces of cloth, and pieces of torn paper arranged between said pieces of cloth, with an air space between said corrugated plates and said pieces of cloth. 50

In testimony whereof we affix our signatures in the presence of two witnesses.

GILBERT B. LEGNARD.
ELMERINDO FORMATO.

Witnesses:

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