April 9, 1929. R. S. CONROW 1,708,082

METAL BLACKBOARD

Filed Feb. 28, 1927

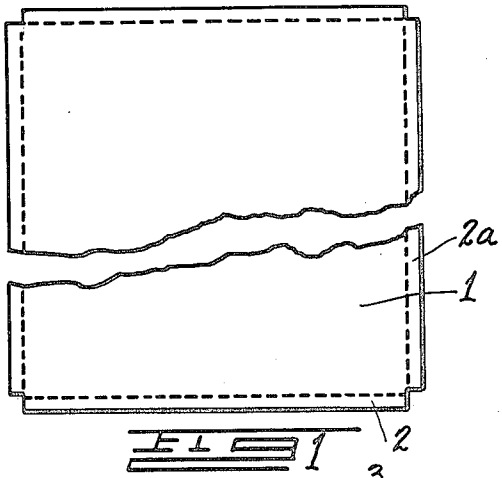

FIG 1

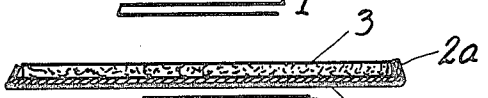

FIG 2

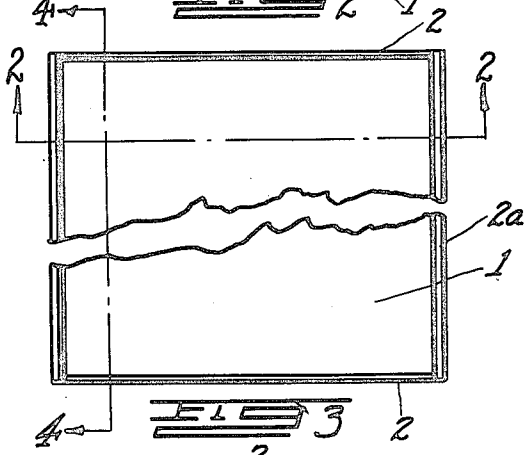

FIG 3

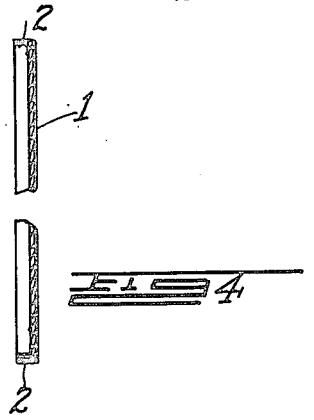

FIG 4

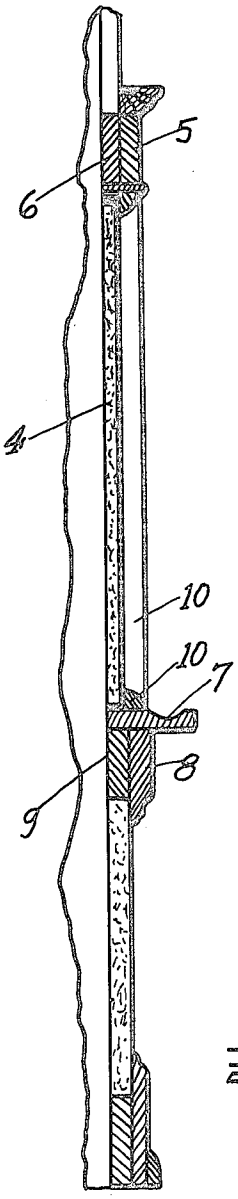

FIG 5

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UNITED STATES PATENT OFFICE.

ROBERT S. CONROW, OF CINCINNATI, OHIO.

METAL BLACKBOARD.

Application filed February 28, 1927. Serial No. 171,435.

My invention relates to the formation of blackboards from metal sheets instead of using slate. The color of a blackboard does not necessarily have to be black, as the term is applied to dark gray, dark green and other colored writing surfaces for use with chalk, as in school rooms, laboratories, lecture halls and the like.

It is the object of my invention to employ as the writing surface element, a sheet of iron or steel, or other inexpensive metal of sufficient rigidity, coated with a surface of dull finish vitreous enamel, or other hard and permanent coating, such as a cellulose product. I much prefer, however, the dull finish vitreous enamel baked or fused onto an iron or steel sheet, as the surface element.

Dull finish vitreous enamels are known in the art, and can be applied to sheet metal over fairly large surfaces with uniformity and smoothness. This is accomplished by loading the regular black coat enamel with silica and under firing at around 1250 degrees Fahrenheit. Also regular black coat can be pickled with oxalic acid and then neutralized to de-glaze the coat.

It is my object to provide a mode of mounting the metal sheets which will keep them straight and tight, and which preferably lays them flat against the wall of the room in which they are mounted, with a sound-proof backing between the metal and the wall of the room.

It is my object to provide a simple style of molding, by means of which the sheet metal board, or series of sheet metal boards can be arranged along the walls of a room, and my structure is very much lighter in weight than the usual slate blackboard construction, and in effect merely substitutes the sheet metal piece with its sound-proof backing, for an area of plaster on the walls, with a simple wooden or metal molding surrounding it.

In comparison to the costly structure involved in the setting of slate boards, and the high cost of the slate slabs themselves, my invention results in great economy. Furthermore, it is readily possible to coat the boards with a dark green dull enamel, thus giving more rest to the eyes, instead of being forced to rely on the blackish slate color exclusively.

I accomplish my objects by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawings:—

Figure 1 is a plan view of one of the metal sheets.

Figure 2 is a section on the line 2—2 of Figure 3.

Figure 3 is a plan view of the sheet of Figure 1, with the flanges turned, ready for installation.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a central vertical section taken through a part of a wall, showing the device of my invention in place.

I have shown a sheet 1, with the edges cut at the corners to provide for flanges 2 and 2^a, which are subsequently bent up. The sheet is then given a coating of vitreous enamel in the usual manner. If adequate care is taken in selecting perfectly flat stock, an 18 gauge enameling iron sheet will give most excellent results. It is fairly light, and the metal can be given a stretcher leveling treatment which lays it as flat and level as a cut and ground slab of slate. The lateral flanges will be bent inwardly as at 2^a, while the top and bottom flanges may be at right angles as at 2.

The enamel coating will be of dull finish so as to give a good writing surface for chalk. It will be less porous than the dull finish on the slate, and will wash a little more easily.

The piece of enameled, flanged metal is filled in the back with a sheet of some suitable thick fibrous board 3. I find that the composition board made of sugar cane fiber, known at present on the market as Cellotex will serve excellently. This sheet is either thick enough or enough layers are set in place to fill the back of the board to a little more than level with the edges of the flanges.

The enameled and backed sheet can be shipped to point of installation as a blackboard unit, ready to be set in the wall.

A simple way of mounting the sheet will be to provide a plaster free space 4 in the wall inside of a wooden or metal molding for top, bottom and sides, said molding being set in place in the usual manner for moldings on walls.

Thus, there will be the top trim 5, secured to a wood ground 6 set against the wall. There will be a sill board 7, and bottom trim

8 secured to the wood ground 9. The sides of the opening will be bordered with molding.

There will be as many of the enameled and backed units as are required to make up the total area of board. They are set in the space between the wood grounds, of standard thicknesses of trim are used and the flanges are proportioned in accordance therewith the sheets will come flush, each sheet being butted against the other, with the enamel face outwardly. Quarter round strips 10 are then suitably tacked or screwed to the grounds or trim, and the blackboard is complete.

The slightly turned in flanges on the sheets make them butt very closely against each other, leaving a very small meeting line which is not apparent, and does not collect dirt and water. The backing piece is compressible and made a little thicker than the width of the flanges, so that the quarter rounds can be pressed tightly against the front of the product, and force it snugly against the wall.

The flanges around all four sides of the product make it quite stiff, and if the sheet is light enough to require more stiffness, this can be applied by welding the corners before enameling. In any event, the flanges should be formed before enameling in order to stiffen the piece against warping while subjected to heat.

The fiber board behind the sheet prevents the sheet from being noisy, as by a child pressing upon it, and permitting it to snap back into place. Rapping upon the boards, when complete, makes if anything less sound than rapping upon a slate board.

It is evident that modifications over the precise form shown can be readily adopted. The Cellotex may be applied to the wall, and the sheets fitted over it, and other modifications of the mode of installation will occur to those skilled in the art.

Having thus described my invention by a specific example illustrating its merits and structural features, what I claim as new and desire to secure by Letters Patent is:—

1. A metal blackboard comprising a sheet of metal having stiffening flanges, and faced with a coating of a fused dull finish and of great hardness.

2. A metal blackboard comprising a sheet of metal having a facing coating of fused dull finish vitreous enamel.

3. A metal blackboard comprising a sheet of metal having its edges flanged away from the writing surface to impart stiffness, and a coating of fused dull finish, enamel of great hardness on the face thereof applied after flanging.

4. A metal blackboard comprising a sheet of fused vitreous enameled, metal having flanges turned back around its edges before enameling, and filled with fibrous sheet material lying within the space defined by said flanges.

5. A metal blackboard comprising a sheet of metal having its edges flanged away from the writing surface to impart stiffness, and a coating of fused dull finish, enamel of great hardness on the face thereof applied after the flanging operation, said board being backed with fibrous sheet material lying within, and filling the space confined by said flanged back edges.

6. A metal blackboard comprising a sheet of vitreous fused enameled metal having flanges turned back around its edges, and filled with fibrous sheet material lying within the space defined by said flanges, said fibrous sheet material being slightly thicker than the flange defined space, for the purpose described.

7. A metal blackboard comprising a sheet of fused vitreous enameled metal having flanges turned back around its edges, and filled with fibrous sheet material lying within the space defined by said flanges, said flanges at the sides of the sheet being turned in at more than a right angle, for the purpose described.

8. A blackboard structure for building walls, comprising a frame formed of molding pieces held to the wall, with plaster omitted within said frame, a piece of sheet metal coated on the face with fused dull finish enamel, a backing of sound deadening fibrous material, said fibrous material with the sheet lying against it held within said frame by strips secured by means of said molding pieces, to the wall.

9. A blackboard structure for building walls, comprising a frame formed of molding pieces held to the wall, with plaster omitted within said frame, a piece of sheet metal coated on the face with fused dull finish enamel, a backing of sound deadening fibrous material, said fibrous material with the sheet lying against it held within said frame by strips secured by means of said molding pieces, to the wall, said sheet having its edges turned back from the enameled face to surround the said backing sheet, giving stiffness to the sheet, and holding the said backing in place.

ROBERT S. CONROW.