Oct. 10, 1939. E. L. THOMPSON 2,175,326

MORTAR BOARD

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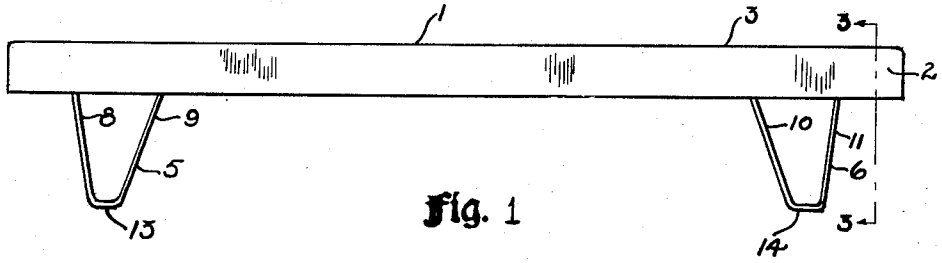



Fig. 1

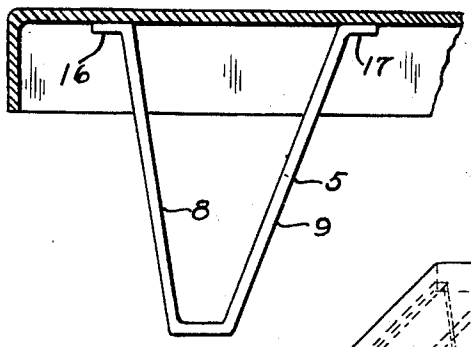



Fig. 2

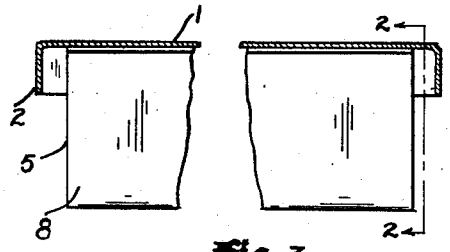



Fig. 3

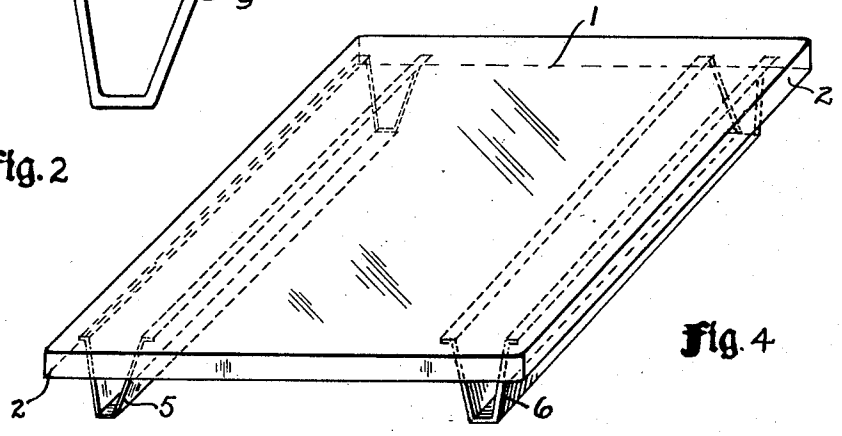



Fig. 4

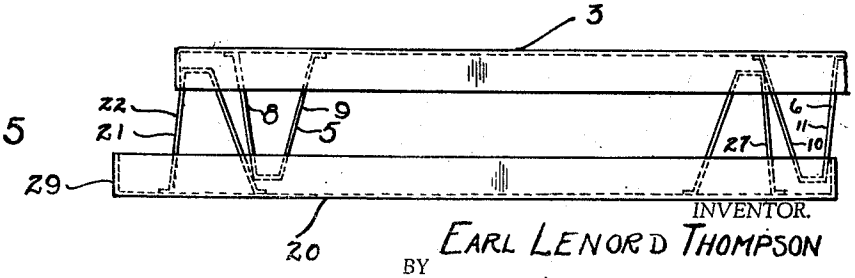



Fig. 5

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## MORTAR BOARD

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2 Claims. (Cl. 72—128)

This invention relates to an improvement in a mortar board and to a method of making same. In the building industry, a mortar board is used generally for supporting a quantity of materials in a convenient place and to be readily accessible for those engaged in the work of actual construction.

Heretofore, mortar boards have been used which consisted of a flat table top surface made by joining together a number of flat wood boards which were fastened to a pair of common supports by nailing each wood board to each of the supports. This type of mortar board had been generally used because it was the only type of board construction which was at all adaptable for such use, this being due to its light weight and its unitary strength sufficient to support the amount and bulk of materials necessarily placed thereon. In spite of their wide use, however, these wooden mortar boards have been unsatisfactory because of the obvious characteristics of wood which make it a very unsuitable material for use in the building industry. For instance, wood does not withstand hard wear, it does not resist sufficiently the action of destructive agents present in building materials, such as water, which penetrates through the wood, causing warping, softening, excessive wear and loosening of pieces of the top from the supports so that nails used in fastening project above the top surface, causing damage to tools and delay to workmen, and, generally, it does not have the inherent properties necessary to withstand the rough usage to which it must be subjected. In estimating construction costs, the expense of supplying mortar boards and replacements had been an appreciable factor in the total expense of a project.

For a mortar board to be practical and useful, it must be of relatively light weight, have the requisite top surface area, be sufficiently strong as a unit for adequately supporting the materials placed threon, be sufficiently portable so that it can be moved conveniently from place to place, and be adaptable for use under variable conditions, and the construction must be of a character which can be altered to the extent of satisfying the requirements of the trade throughout the country. Regulations of trade organizations, municipal codes and other controlling units set the conditions which must be met, and these regulations vary almost as much as the jurisdictions over which these units have control.

A metal mortar board construction has been used in the industry which consists of a metal box-like structure having a concave bottom for facilitating removal of material and for strengthening the bottom, but this type of board has not been used to any great extent because of the objection to the box-like structure itself, which impedes workmen in readily removing materials, the vulnerable character of the bottom, the difficulty in thoroughly cleaning the tub, as it was generally termed, and the fact that improper cleaning caused materials to harden on the working surface, thereby delaying workmen when striking these obstacles during subsequent use. Furthermore, the nature of the construction rendered it unsatisfactory for its designed use, although the box-like construction did have the effect of strengthening the bottom.

It is therefore a principal object of this invention to provide a relatively light weight mortar board made of thin, flat sheet metal and having sufficient unitary strength to adequately support a flat top surface area for accommodating the bulk and weight of materials ordinarily placed thereon.

It is a further object of the invention to provide a mortar board which can be made cheaply and transported conveniently, and which is adapted for use under widely varying operating conditions.

It is a correlative object of this invention to provide a mortar board made wholly of thin, flat sheet metal and having a flat top member which is adequately supported over its entire surface area and is rendered substantially stable by a perimetrical outwardly projecting flange and a pair of longitudinally extending supports each having leg members securely connected to the top member and which are of a character making them suitable for accommodating the multitude of variable operating conditions.

It is a more specific object of this invention to provide a method of making a light weight mortar board of thin, flat sheet metal.

A further object is to provide a metal mortar board which can be conveniently made to meet the variable physical specifications of the trade, such as overall height, and having uniform strength for adequately supporting the top table surface of the board.

Other and more specific objects of this invention will become apparent from the specification and drawing, and it is to be understood that reference herein made to mortar boards is not to be considered as meaning a limitation of the invention, but such words are used as words describing an article of that character.

In the drawing,

Fig. 1 is a view in elevation of an embodiment of my invention;

Fig. 2 is a fragmentary sectional view taken along the line 2—2 of Fig. 3, illustrating an arrangement of a support and a top member and also a means integral with the legs of the support for connecting it to the underside of the top member;

Fig. 3 is a fragmentary sectional view taken along line 3—3 of Fig. 1;

Fig. 4 is a perspective view of the embodiment showing particularly the arrangement of spacing of the legs of each of the supports from the edges of the top member;

Fig. 5 is a view in elevation illustrating the cooperative action of the leg members and flanges for providing a convenient method of transporting the metal boards, as by nesting of two of the boards together.

In the embodiment illustrated in the drawing, the mortar board 3 comprises a top member 1 formed from a single sheet of flat metal and having the necessary surface area to accommodate the materials to be placed thereon. A complete perimetrical flange 2 projects downwardly from the top member 1 and is preferably made by cutting a triangular portion from each of the corners of a piece of flat sheet metal having the proper dimensions for making the requisite top surface area and the length of flange so that the end portions of the flat sheet may be bent downwardly, and the ends so formed by cutting may then be joined together in a permanent manner for forming a unitary top member having this projecting and top supporting flange integral therewith. Other ways and means may be employed for so forming the flange integral with the top member.

A pair of support members 5 and 6 are each made of a single piece of flat sheet metal formed into a member having two leg members 8 and 9, as in the member 5, or leg members 10 and 11, as in the member 6. These members of each support 5 and 6 are integrally joined to a common base portion 13 and 14, respectively. Each of these leg members has a flange, as 16 and 17 of the support member 5, with a surface substantially parallel to the underside surface of the top member 1, and this cooperation provides an effective means for joining each of the leg members, as 8 and 9 of the support members 5, to the top 1, and it also provides an effective additional support for the top surface.

The leg portions of each support are spaced a predetermined distance from each other, this depending on the extent of the total top surface area and the required support for the materials to be placed thereon. Each of these leg portions is formed so as to converge one to the other in a downward direction or toward a vertical longitudinal plane through a support to a base portion, as 13 of support 5. It has been found that by forming the inside leg member, as 9 and 10 of supports 5 and 6, respectively, so that it converges at a greater angle to a vertical longitudinal plane of the support, additional support is given to the top surface. By this increased rate of convergence, more support can be given to the central portion of the top member, which is obviously the vulnerable section of the member, but the rate of convergence is dependent in part upon the required height of the support and the necessary area of the base portion of the support, as 13 of Fig. 5.

Each of these supports 5 and 6 is positioned from the flange 2 a predetermined distance from the inside surface of the flange. This spacing is partly for the purpose of providing a means for conveniently nesting the boards, as illustrated in Fig. 5. For example, a second board, as 20, having a support 21 with an outer leg portion 22, is so constructed as to engage an inner surface of flange 2 of mortar board 3, and the outer leg portion 11 of support 6 engages the inner surface of flange 29 of board 20. The outer leg portions 8 and 27 engage surfaces of boards 3 and 20, respectively. It is believed to be obvious that with the cooperative action of portions of each of the supports with the other, a positive nesting action is produced, thereby facilitating transportation of the boards from one job to another.

The supports 5 and 6 need not extend in length so as to engage the flange member 2, but they may stop short a predetermined distance from the flange, as illustrated in Figs. 3 and 4 and still provide sufficient support for the longitudinal edge portions of the top member 1.

By the lateral spacing of the line of permanent engagement of the outer leg members 8 and 11 of the supports 5 and 6, respectively, from the inner surface of the flange 2 a predetermined distance, by the spacing of leg members of each of the supports at their line of engagement with the top member, by the converging character of the inner and outer leg portions of each of the supports to a point where each of the leg portions becomes integrally united with the other through a common base, means is provided in conjunction with the support given by the downwardly projecting flange 2 to adequately support a top member having the requisite surface area and the quantity and weight of materials placed thereon. It is preferred, in cases where the top surface area is unusually large, to place the inner leg portion in connection with the top support so that it will give greater support to the central portion of the top member, by forming the inner leg member so as to converge at a greater angle to a vertical longitudinal plane through the support, and it can be integrally formed to a uniform base portion. Projecting flanges extending from each of the leg portions makes it possible to securely engage the leg portion with the top member, and, in addition, it greatly accentuates the support rendered by each of the leg portions.

This composite metal structure of a mortar board can be made so that the total weight of the board is substantially that of the boards made of wood, although its unitary strength is greatly increased, which enables the board to be used to an advantage. In addition, a metal mortar board is far more advantageous in use than one of wood. It has been found that by adding a protective coating to the top surface of the metal board, corrosive action ordinarily caused by oxidizing elements in building materials can be completely avoided.

This improvement in a mortar board as heretofore described enables one to make a sufficiently strong unitary structure having the necessary structural properties of height, working surface area and weight for satisfying the requirements of the trade in any locality. It is to be observed in this instance that the requirements of the trade are not uniform as to matters of working surface area, height and weight, and it is therefore necessary to provide a mortar board construction which can meet this multitude of re-

quirements. As previously pointed out, the many alterable structural factors in my improvement permit modifications to be made to the unitary structure without affecting the necessary strength in the completed board. It is therefore intended that this invention is to be defined in scope and limited only by the appended claims.

Having thus described my invention, I claim:

1. A mortar board comprising a top member of relatively thin flat sheet metal material and having a working surface of a substantial area, a continuous perimetrical flange of a predetermined depth, dependent upon the working surface area of the top member, and integral with the edges of the member and projecting downwardly therefrom, support members permanently connected to the underside of said top member and each comprising a web-shaped member having a base portion positioned a predetermined distance inwardly relative to an edge of said top member for limiting the turning moment of loads ordinarily placed on the surface area of the top member adjacent to said edge for preventing tipping of the board and said base portion extending inwardly therefrom an amount sufficient to provide adequate support for the central portion of the top member, and further comprising leg portions integrally connected to the base portion and extending upwardly in a diverging relation and being permanently connected to the underside of the top member, and said support members and flange cooperating to maintain the top member substantially flat under normal loads.

2. A mortar board comprising a top member of relatively thin, flat sheet metal material having a working surface of a substantial area, a continuous perimetrical flange integral with the edges of the top member and projecting downwardly therefrom, longitudinal support members rigidly connected to said top member and comprising a base portion spaced relative to an edge and the longitudinal central portion of said top member so as to adequately support the member and prevent tipping of the working surface on application of loads ordinarily placed at or adjacent the edge surface areas of the top member and further comprising an outer leg portion integrally connected to the base portion and extending upwardly in a direction toward the edge of the top member and spaced sufficiently therefrom so as to adequately support the edge portion of the top member, an inner leg portion integrally connected to the base portion and projecting upwardly in a diverging direction toward the central portion of the top member and at an angle of divergence greater than that of the outer leg portion for adequately supporting said central portion of the top member, each of said leg portions engaging said top member and being permanently connected thereto, and said support members supporting the top member in substantially flat condition.

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