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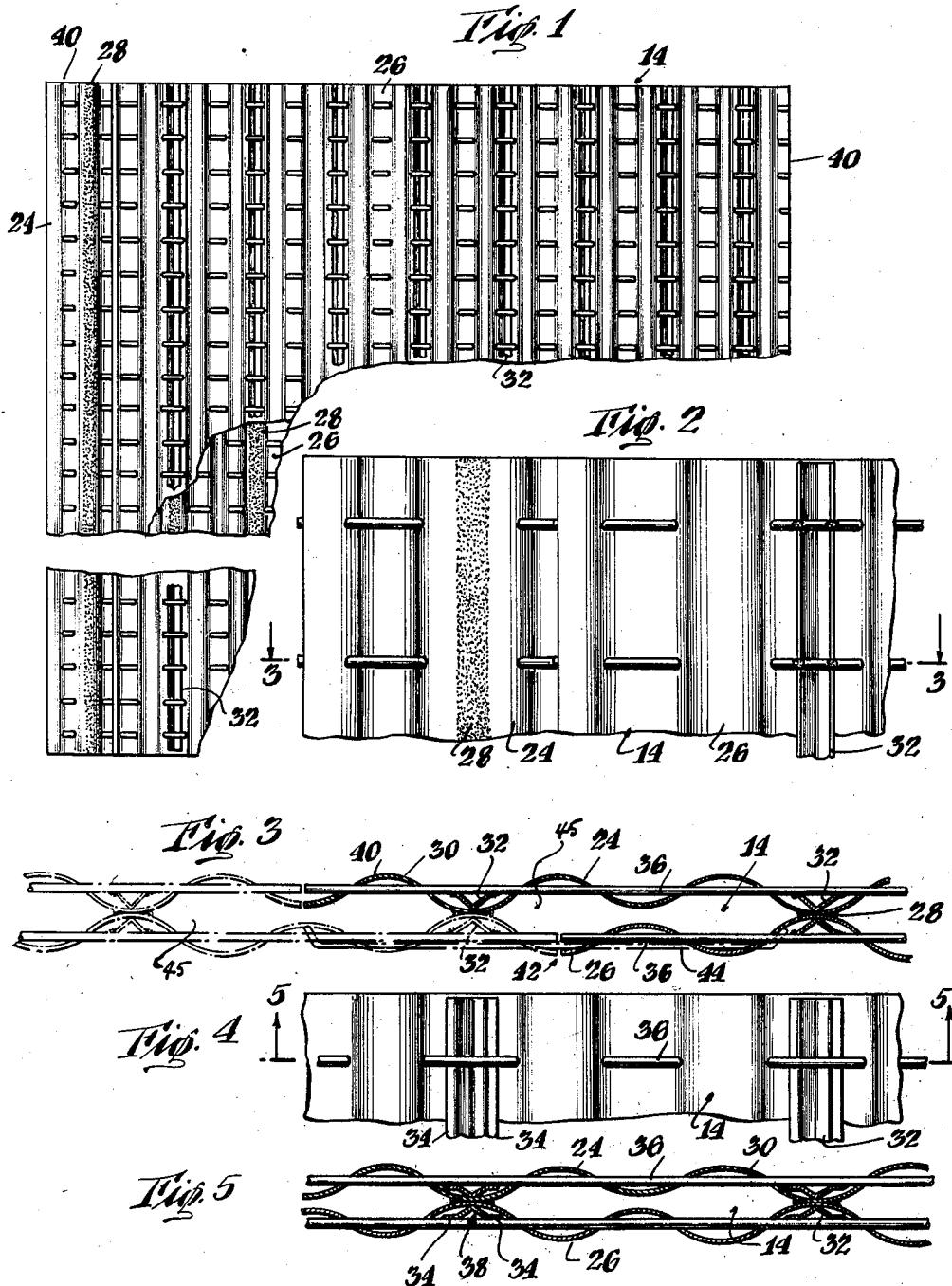
H. H. EADES

2,321,373

PLASTER BASE AND WALL CONSTRUCTION

Filed July 27, 1940

3 Sheets-Sheet 1



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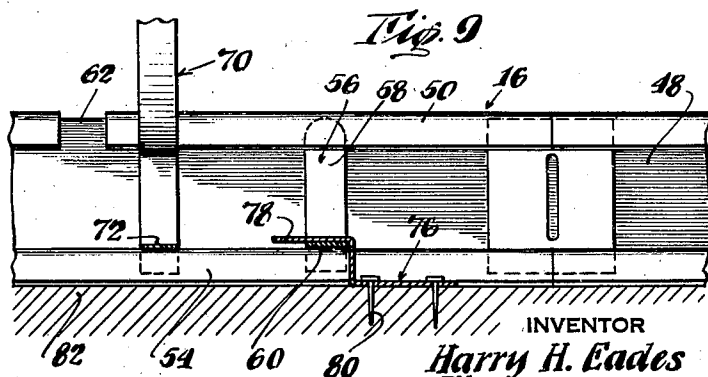
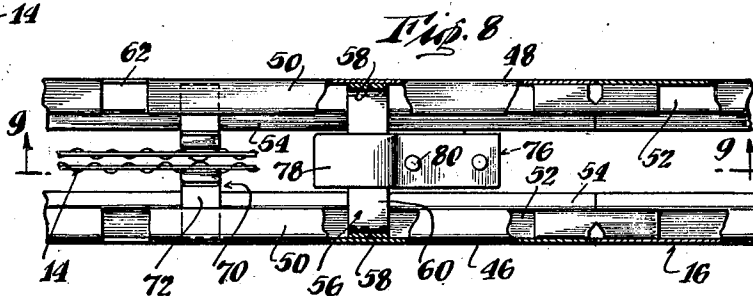
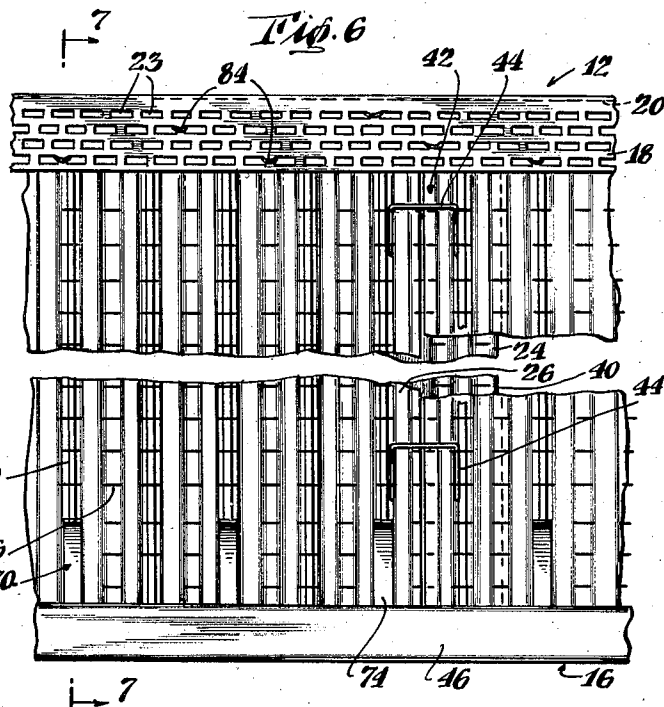
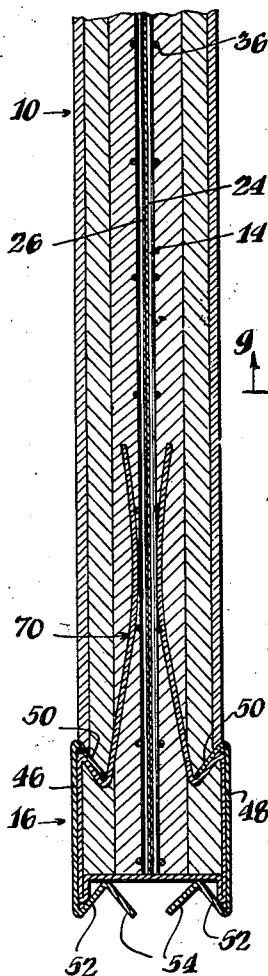
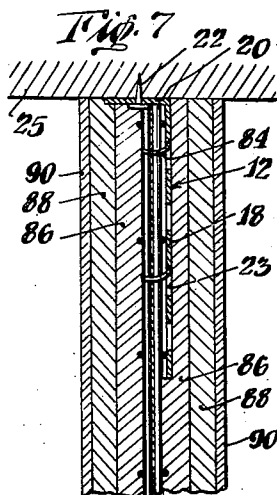
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PLASTER BASE AND WALL CONSTRUCTION

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3 Sheets-Sheet 2



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PLASTER BASE AND WALL CONSTRUCTION

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3 Claims. (Cl. 72-46)

This invention relates to a new and improved curtain wall construction and plaster base, particularly adapted for the speedy and economical erection of 2-inch curtain partitions in modern building constructions, and the purview of the invention includes such partitions formed from a new plaster base material, factory cut to predetermined full length wall height, and having built-in air spaces and a unique and novel hanging means, and also a knock-down metal baseboard and anchorage assembly, all of which are designed to give a new form of partition wall assembly which eliminates, as herein below explained, certain undesirable features of 2-inch partition walls as constructed in the past.

Heretofore, in modern building constructions which have incorporated heavy framing members, formed usually from steel, and ceiling and flooring members formed sometimes of cementitious ceiling or flooring slabs, it has been usual and customary to provide 2-inch curtain wall partitions to separate the rooms of the building, it being obvious that such 2-inch curtain partitions, as opposed to 4-inch or 6-inch partition walls, reduced to a minimum, the amount of space utilized in the building by the partitions. The building trades generally have accepted 2-inch curtain partitions in such buildings as conventional, as affording the requisite amount of sound deadening, and as affording a partition of sufficient strength and rigidity to withstand normal stresses and strains and vibratory disturbances. These prior 2-inch curtain partitions have normally been erected with costly steel channel bar supports giving un-needed structural strengths which are difficult and expensive to install and which have usually comprised $\frac{3}{4}$ -inch steel channel members spaced approximately 13½ inches apart and running vertically.

It has been customary to drill holes in the floors and ceilings and then to snap the ends of the steel channel members into place, and then to attach upon such steel channel members, any desired type of plaster base, usually expanded metal lath, which latter has been attached to the channel members by appropriate wiring. After installing proper baseboard assemblies, it has been usual to apply scratch, brown and finish plaster coats to each side of the metal lath to build up a partition approximately 2 inches thick. Such constructions, as opposed to wider partitions which might be 4 inches or 6 inches in thickness, definitely save large amounts of space. Depending upon the type of building, but taking, for example, a typical

hotel construction, the 4½-inch partitions utilize approximately 9% of the total floor space, 5½-inch partitions occupy approximately 11%, whereas 2-inch flat partitions have been calculated as occupying approximately 4% and accordingly, it will be realized that the utilization of a 2-inch partition, as opposed to a 5½-inch partition, permits an arrangement of rooms giving 7% more floor space, or translated into rooms, giving 7% more rooms with the manifest income advantages.

Accordingly, it is an object of my invention to provide a new and improved 2-inch curtain partition assembly, the plaster base of which can be factory cut to size for the particular installation, which is cheap and economical to install, and which includes what amounts to a $\frac{3}{8}$ -inch round deadening and heat insulating air space within the center of the partition, and it is a further object to utilize such pre-cut plaster base with a unique hanging means and knock-down and readily assemblable metal baseboard assembly.

It is a further object of my invention to provide a wall construction which will afford substantial structural savings in amounts of plaster used and which eliminates the conventional channel stud support means, and yet which is sufficiently strong to provide the sufficient and requisite shock and crack resistance.

It is a further object of my invention to provide a pre-cut plaster base for such wall constructions, which pre-cut plaster base incorporates a hollow air space approximately $\frac{3}{8}$ of an inch in width, and further incorporates a lacework of light gage metal ribs, and welded wires running cross-wise thereto, which lacework is so arranged to provide in itself, sufficient partition structural strength and thus eliminates all necessity of the $\frac{3}{4}$ -inch steel channel stud members now conventionally utilized.

Other objects and advantages will become apparent from the following detailed description of certain preferred embodiments of the invention, in which common numerals refer to common parts, and which are given merely and solely for illustrative purposes and therefore are not to be deemed limitative of the invention, the scope of the latter being defined in the appended claims. In the figures:

Fig. 1 is a fragmentary side elevation, partly broken away, of the new and improved plaster base utilized in my new wall construction;

Fig. 2 for purposes of clarity, is an enlarged

fragmentary corner of the structure illustrated in Fig. 1;

Fig. 3 is a section taken along the line 3—3 of Fig. 2, and additionally, for purposes of clarity, shows in fragmentary outline, a portion of a contiguous sheet of the plaster base in order to illustrate the method of marginal joining of the same;

Fig. 4 is a fragmentary side elevation, greatly enlarged, of an alternate form of plaster base material wherein the steel ribs are formed with extended side flanges adapted to give the structure greater rigidity and strength;

Fig. 5 is a section taken along the line 5—5 of Fig. 4;

Fig. 6 is a side elevation of the completed wall assembly, ready for the application of plaster coats;

Fig. 7 is a section taken on the line 7—7 of Fig. 6, and additionally shows the wall structure after the plaster coats have been applied;

Fig. 8 is a fragmentary horizontal section, partly broken away, of the lower portion of the wall assembly illustrated in Fig. 6;

Fig. 9 is a section taken on the line 9—9 of Fig. 8;

Fig. 10 is an enlarged fragmentary perspective with certain parts in exploded relationship, of the baseboard assembly showing corner members;

Fig. 11 is a fragmentary perspective with certain parts in exploded relationship of the ceiling runner or hanging means for the plaster backer, and also the knock-down metal baseboard and anchorage assembly; and

Fig. 12 is a fragmentary perspective illustrating an alternate form of clip means for centering and holding the plaster base.

In these figures, and referring particularly to Fig. 7 for purposes of clarity, a metal ceiling runner or hanging means 12 is provided to support a plaster base 14, the lower portion of which is connected to a knock-down pre-fabricated metal baseboard and anchorage assembly.

The ceiling runner or hanging means comprising a vertically disposed metal plate 18, formed, for example, of approximately 20 gage sheet steel with a horizontally disposed nailing flange 20 as indicated. The runners 12 will ordinarily be formed in about 10 ft. lengths and probably should approximate about $3\frac{1}{2}$ inches in width. The runners 12 can be cut on the job by a hacksaw, and will be attached to the ceiling 25 by appropriate nails 22 (Fig. 7). The plate 18 will have staggered rows of rectangular openings 23 which will permit plastering therethrough and which also affords a convenient and adjustable means to retain the sheets of plaster base 14 by tying, for example, by metal wires.

A plaster base 14 will normally be factory cut in pre-determined sheet lengths so as to run from the ceilings to the floors on any particular piece of building structure. If the walls are 10 ft. high, approximately 10 ft. lengths of plaster base 14 will be provided in convenient widths, for example, 30 inches wide.

The plaster base 14 includes identically opposed sheets of "Ecod" fabric 24 and 26 united by vertical adhesive stripes 28 and comprising undulating or wavy sheet paper backing material 30, vertically disposed steel ribs of V-shape 32, which latter may be provided with flanges 34 as indicated in Figs. 4 and 5 to give added strength and rigidity. The steel ribs may be

arranged in alternate valleys of the wave paper backing on 4-inch centers and may be formed of 28 gage copper bearing steel, thus affording good strength and rigidity. Transverse to the vertically arranged steel ribs 32, and passing the crest of the waves, are arranged copper bearing 16 gage steel wires 36 which are welded to the legs of the V-shaped ribs 32. As indicated in Fig. 3 and as particularly well shown in Fig. 5, the apexes of the V-shaped steel ribs are in opposed relation and closely adjacent in the assembled plaster base 14, thereby affording approximately an H beam construction, identified as 38, giving the plaster base 14 extremely good strength and rigidity for the amount of metal content therein. The V-shaped ribs 32 may be, for example, approximately $\frac{3}{8}$ of an inch deep and $\frac{1}{2}$ of an inch wide.

It will be recognized that the "Ecod" fabric described above, and variations thereof, are described and claimed in Coddington United States Patent Numbers 1,750,877; 2,071,454; 2,085,004; 2,085,635; 2,096,536, but in the said patents the V-shaped ribs are always shown as running horizontally thereof.

For example, the paper backing material 30 may comprise a 30 lb. kraft paper united in cross-wise grain to a 60 lb. kraft by means of a heavy coating of asphalt or other suitable adhesive.

Also, in the plaster base 14 the identically opposed sheets of "Ecod" 24 and 26 may be united by mastic-adhesive along stripes 28, or other suitable adhesive. The sheets 24 and 26, as best illustrated in Figs. 1 and 3, will normally be provided with opposed projecting or offset margins 40 to provide smooth overlapping joints 42, and adjacent and contiguous sheets will be firmly held in assembled position by inverted U clips 44 (see Fig. 6), which inverted U clips will have their legs slipped under any pre-selected wires 36 of adjacent sheets of "Ecod" fabric, making for ease and speed, in hanging and assembling and uniting adjacent sheets into a firm, continuous, and united plaster base.

The distance from the high to the low point of the undulations of "Ecod" may be approximately $\frac{3}{8}$ of an inch and the two paper backings of the two sheets of "Ecod" in plaster base 14 will normally lie, at their closest point, about $\frac{3}{8}$ of an inch apart (except in alternate depressions where the steel ribs 32 are positioned and where the two papers are united by adhesive stripes 28) thus affording a series of air cells 45 in plaster base 14. A main purpose of this invention is to provide a plaster base in curtain wall construction which is strong, rigid and stable, and which eliminates the necessity for auxiliary steel channel studs or stiffening members.

The pre-fabricated metal baseboard and anchorage assembly 16 (see particularly Figs. 7 and 10 for clarity) comprises identical and opposed side members 46 and 48 formed preferably of 20 gauge sheet steel and each provided with inwardly and downwardly turned top flanges 50 and inwardly and upwardly turned bottom flanges 52, the latter having a downwardly extending leg plate portion 54, the end of which is in the same plane as the bottom of the side members 46 and 48, thus permitting the side members 46 and 48 to be stood on their sides. In other words, leg plate portion 54 operates as an easel and also stiffens the assembly.

The top flanges 50 and the bottom flanges 52

form a sliding trackway for sliding and retaining connective bridge members 56 which latter each comprise two leg members 53 and a connecting strap 60. The lengths of leg members 58 are determined by the width of side members 46 and 48 so that the legs 58 will slide in the trackway described above and afforded by flanges 50 and 52.

The sliding connective and spacing bridge members 56 may be inserted through appropriate slots or openings 62 provided in top flanges 50. If desired, appropriate sliding clip members 64 (indicated in Fig. 12) may be employed with members 56 for centering and holding the lower portion of plaster base material 14 and the clip member 64 will normally be formed of the bottom portion 66, to slide laterally in the flanged trackway, and a resilient spring leg portion 68. An alternate form of sliding clip indicated as 70 and illustrated in Figs. 7 and 11, may be utilized, which combines the bridge member 56 and clip members 64 integrally, thus providing a connective bridge and spacing member 72 and opposed and contacting spring leg members 74, or a combination of all of these forms may be utilized if desired.

Ordinarily, the side members 46 and 48 will be manufactured in approximately 10 ft. lengths, but may be cut by a hacksaw on the construction job.

Preferably, a series of anchorage brackets 76 provided with a raised over-riding flange 78 (the latter over-riding bridges 60 or 72) will be nailed through holes 79 by nails 80 to floor 82. (See Figs. 9 and 11.) It is obvious from this description that the series of anchorage brackets 76 will be laid in a straight line on the floor where it is desired to place the two inch partition, and that plate member 18 will be placed thereabove and nailed to the ceiling 25. Thereafter, the prefabricated metal baseboard and anchorage assembly 16 will be assembled with their parts in pre-determined relation and centered by anchorage brackets or clips 76. The plastic base clip members 64 or 70 will be arranged at convenient distances one to another, to accommodate and to clip and to position and center the sheets of plaster base 14, which latter will be wired to ceiling runs 12 by wire loops 84.

When this is accomplished, the usual plaster layers 86, 88, and 90 will be applied to each side of the plaster base 14, and will fill in the interior portions of the baseboard assembly as indicated. These plaster coats will be conventional, namely, normally a scratch coat, a brown coat, and a finish coat.

Pre-fabricated corner assemblies, indicated as 92 and 94 will be joined to the main steel baseboard assembly by sliding connector units 95 as indicated in Fig. 10, which connector units will fit into the trackway of flanged side members 46 and 48. The members 95 will also be employed to connect the various sections of the metal baseboard assembly 16, as desired or appropriate.

It will be realized that an important element of my invention is the elimination of the conventional heavy steel channel studs now employed, and the substitution therefore of a metal lacework supporting a paper or similar plaster backer, and the arrangement of two such sheets of paper backers so that an air space is provided and so the lacework replaces the studs; also, an

element of the invention is to form the supporting structure for the curtain wall partition of a steel lacework which also serves as plaster gripping means used in conjunction with two sheets of paper backer so as to provide an air space and so as to make the curtain partition lighter in weight, and since it has air cells, to give the curtain partition important sound deadening and heat insulating qualities in contrast to solid curtain wall partitions in normal use heretofore.

Accordingly, it will be recognized that an important characteristic of my invention is the provision of two sheets of material held in spaced relation to provide air cells, which two sheets of material are provided with external plaster anchorage means, which means gives strength and rigidity and which form the support means for the curtain wall partition.

It is within the purview of my invention to line or coat the air cells in base 14 with metal foil for heat insulating purposes.

It will be recognized that according to my invention, I provide a two inch curtain wall construction, having air cells centrally disposed therein, which may be cheaply and economically erected without steel channel studs and which possesses good strength and rigidity. The assembling and erection operations are simple and easy and can be speedily accomplished, and the plastering operations also are simple. Although the invention has been described as particularly appropriate for two inch curtain partition walls, it will be recognized that the invention, in whole or in part, and the inventive concepts involved therein, may be applied to other types of partition wall or building constructions, or to other types of plaster bases, and therefore reference should be made to the appended claims to determine the scope of my invention.

I claim:

1. A prefabricated curtain partition wall construction comprising two opposed relatively thin wavy sheets, each sheet carrying a plurality of spaced metallic wire members substantially parallel and penetrating waves of the sheet in such manner that the waves extend at opposite areas of the spaced metallic wire members, a plurality of spaced generally V-shaped metallic ribs secured to the wire members of each sheet, the ribs of each sheet facing the same way and certain of the waves of the sheet lying in abutment with the apexes of the ribs, the two sheets being so associated that the apexes of the ribs of one sheet are in register with the apexes of the ribs of the second sheet with wave areas of the sheets between said ribs, the wire members and areas of the sheets thus being held spaced to provide air chambers, and means securing the two sheets to each other.

2. A curtain partition wall construction in accordance with claim 1, in which the two sheets are bonded together along parallel lines by an adhesive medium in line with each pair of opposed ribs carried by the two sheets.

3. A curtain partition wall construction in accordance with claim 1, in combination with means carried by one end of the structure and adapted to hold the same perpendicular to a supporting wall surface independently of studing, whereby the entire opposed surfaces of the structure may be plaster-coated and concealed.

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