March 28, 1944. G. E. SWENSON 2,345,221

BUILDING MATERIAL AND METHOD OF APPLYING SAME

Filed Sept. 23, 1938 3 Sheets-Sheet 1

Fig. 2

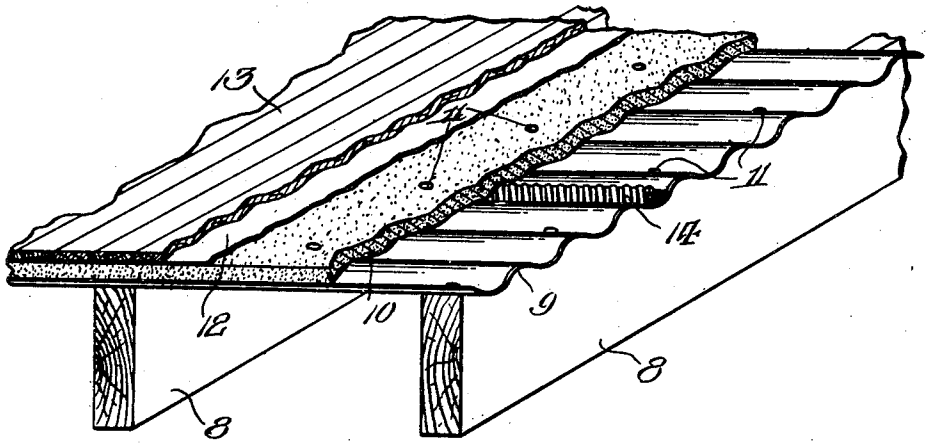


Fig. 3

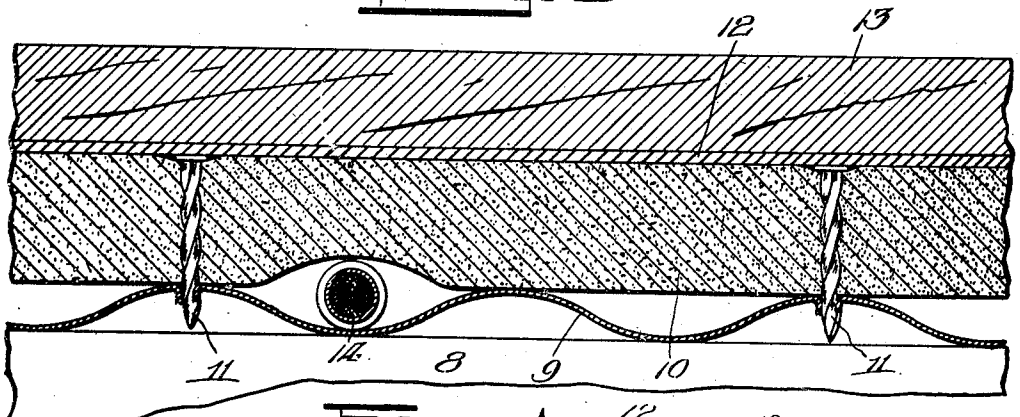
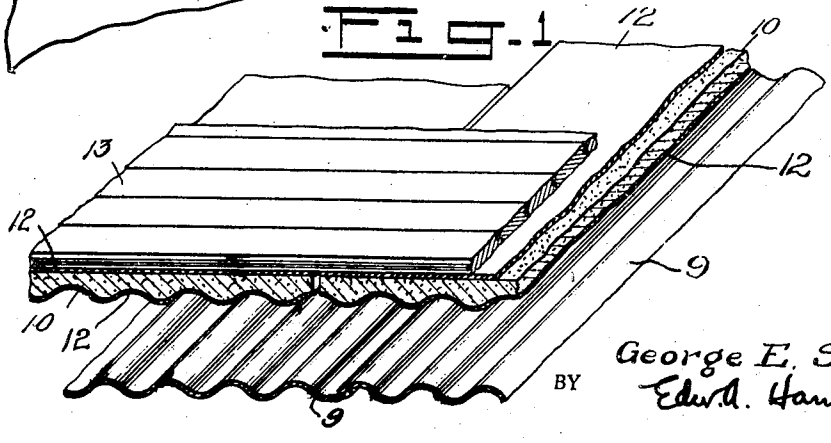


Fig. 1



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BUILDING MATERIAL AND METHOD OF APPLYING SAME

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Fig. 4

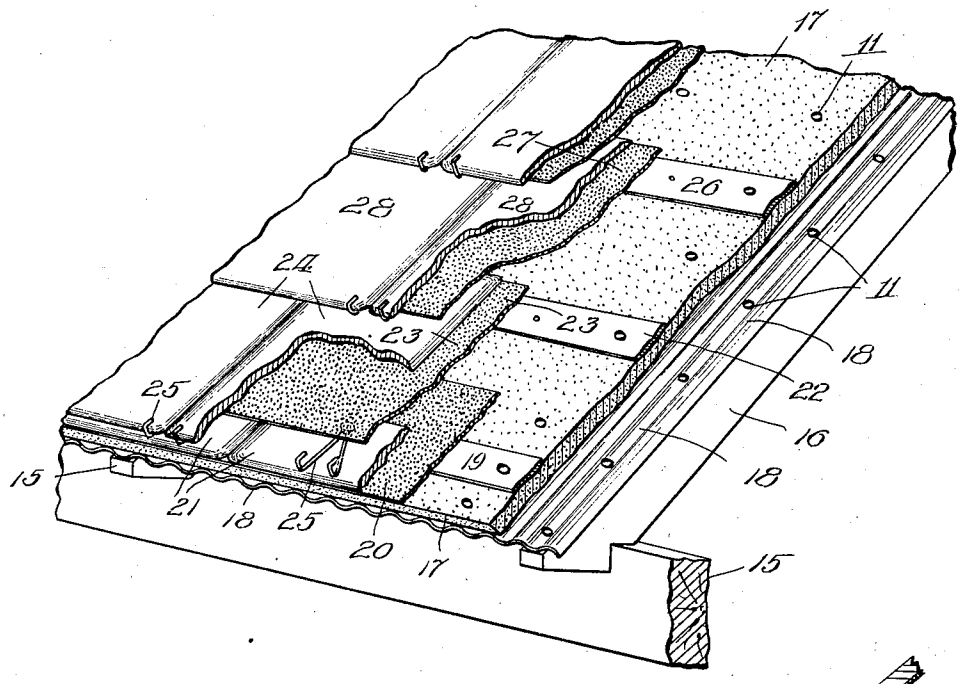
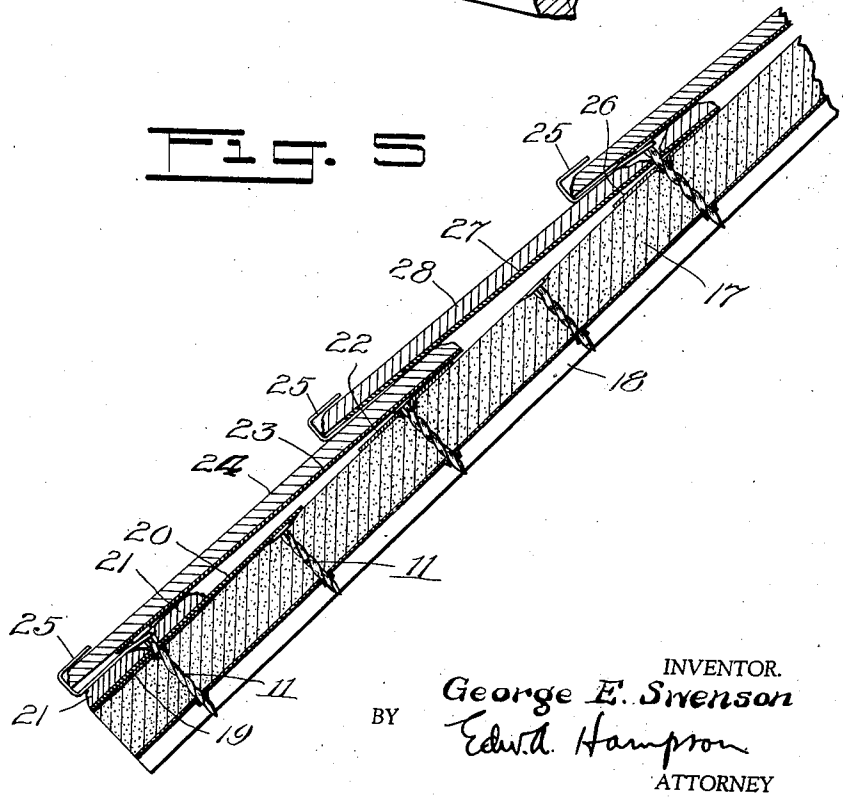


Fig. 5



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BUILDING MATERIAL AND METHOD OF APPLYING SAME

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Fig. 6

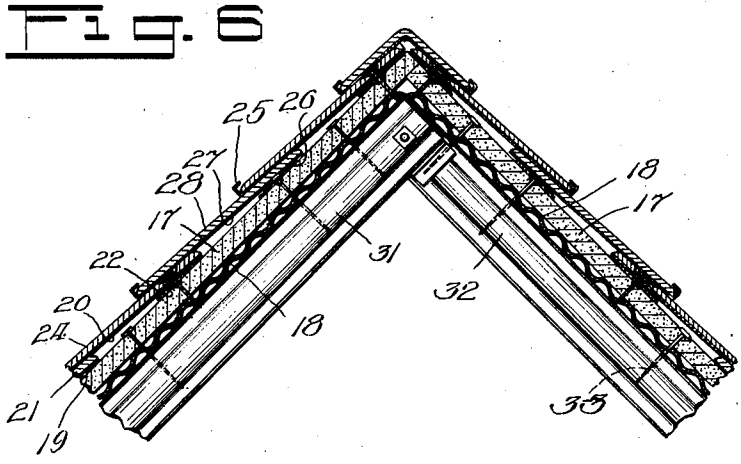


Fig. 7

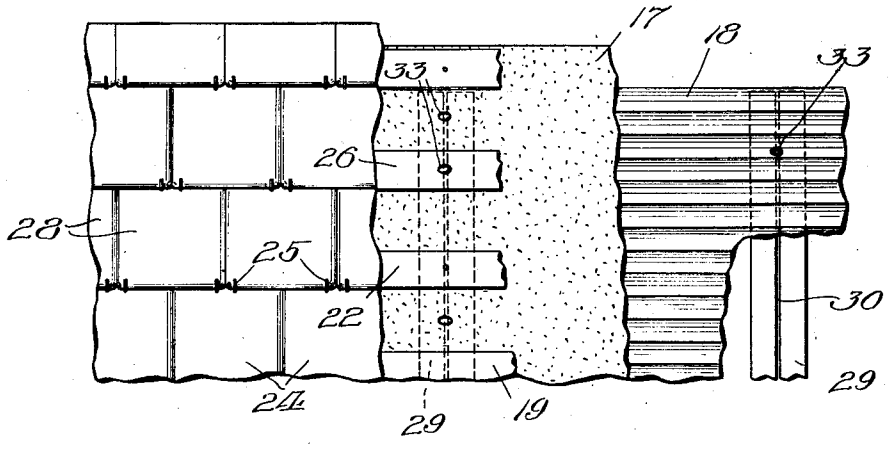
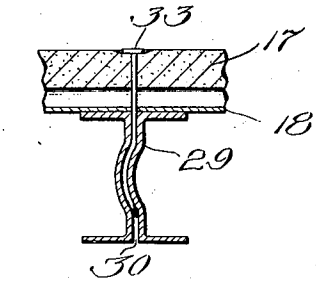


Fig. 8



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UNITED STATES PATENT OFFICE

2,345,221

BUILDING MATERIAL AND METHOD OF APPLYING SAME

George E. Swenson, Hastings on Hudson, N. Y., assignor to The Celotex Corporation, Chicago, Ill., a corporation of Delaware

Application September 23, 1938, Serial No. 231,411

4 Claims. (Cl. 108—1)

The invention relates to a new and useful method of building construction and particularly relates to new and useful combinations of materials and the method of application thereof.

The general object of the invention is to provide a type of building construction which will be an improvement over present materials and methods and in accordance with which the materials of construction may be used and applied in relatively large units with consequent advantages in connection with their erection.

Other and secondary objects of the invention are the provisions of a type of building construction in which, particularly because of the manner in which the materials are employed, building structures may be afforded the strength, rigidity and thermal and sound insulating properties which may be achieved through the utilization of the above broad concept of my invention. In addition to the advantages just mentioned, the use of materials in accordance with my invention afford economies of construction, the provision of which constitutes a still further object of my invention.

More particularly, the features of the invention are directed to combinations of materials which may form floors, roofs, walls and partitions in building structures. In each particular construction, the combinations of materials hereof afford not only economies in construction, but also through increasing the strength, rigidity, and thermal and sound insulating properties of the structure, achieve the desired ends of my invention.

A still further object of my invention is the provision of a special method of roof construction which eliminates the use of a ridgepole but which at the same time will have the desirable characteristics above pointed out.

Referring to the accompanying drawings forming a part of this specification and in which like numerals designate like parts in all the views.

Figure 1, partly in section, shows a structural unit built in accordance with the present invention;

Figure 2 is a view, partly in section, of a floor built in accordance with the present invention;

Figure 3 is a section of the floor of Figure 2;

Figure 4 is a view, partly in section, of a roof built in accordance with the present invention;

Figure 5 is a section of the roof of Figure 4;

Figure 6 is a section showing the construction of the peak of a roof to eliminate the necessity for using a ridge pole;

Figure 7 is a cut away view of a portion of the roof of Figure 6; and,

Figure 8 is an enlarged section of a portion of Figure 6.

The basic feature of the invention is the combination of materials shown in Figure 1 and it is mainly by the use of such composite units that the various advantages of my invention are obtained. By proper application of the composite unit shown in Figure 1, structural roofs, walls, partitions, floors, and the like may be readily erected and when used for such purposes and properly secured, the various advantages heretofore pointed out may be secured.

By the use of the composite structural units shown in Figure 1, it is possible to erect structures requiring less frame work than is necessary in structures built according to the present general methods of construction since due to the strength and rigidity of my structural units either lighter framing may be used or a lesser amount may be used, that is, studding, rafters, joists, and the like, may be spaced further apart than the necessary spacing according to present methods of construction and in certain phases and uses of my structural units, studding and the like, may be dispensed with entirely, with, of course, a consequent appreciable saving in the cost, not only of the materials used for framing, but also with considerable consequent saving in erection costs.

The basic unit employed according to my method of building construction is that illustrated in Figure 1 of the drawings and in which it will be seen that each unit comprises a corrugated sheet 9 having a flat sheet of structural material 10, preferably insulating board, secured thereto as by nails 11.

In the preferred embodiment as illustrated in Figure 1, a prefabricated unit, comprising a corrugated sheet and a flat sheet of structural material, the flat sheet 10 is offset with respect to the corrugated sheet 9 to form a means adapted for mounting the structural units in juxtaposition. The flat sheet of structural material comprises a relatively coarse fiber structural unit such as is available on the market generally as fiber insulated board, and which is manufactured by a process involving felting of the fiber from a water suspension of the fiber. The insulating board material, which is a felted fiber product manufactured from relatively coarse fibers derived from vegetative sources, contains a large proportion of air space provided by the relatively loose fibrous structure thereof,

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which imparts to the fiber sheet an appreciable resiliency and relatively high insulating value.

The insulating board 10 for the particular purpose of this invention is first partially permeated or saturated with an asphaltic substance or some other substance or compound having approximately the same general characteristics. The saturant should be relatively firm at ordinary temperatures such as are encountered in buildings but should not be brittle and could well contain wax such as montan or an appropriate rubber compound or an appropriate pitch or the like.

The saturant may be forced either by vacuum or by pressure treatment or by a combination thereof into and throughout the sheet material 10, but such application should preferably be such that the fibers themselves are not saturated but rather that a large part of, or substantially all of, the interior interstices or voids within the sheet 10 are filled with a saturated material.

The saturant may be applied in any desired or convenient manner, and instead of being driven into the material by either vacuum or pressure, or by a combination of such treatments, it may be applied by the submersion of the fiber boards 10 in the saturant, while such saturant is being maintained at an elevated temperature such that the saturant is in a liquid state. The saturant may be applied as a solution in a solvent whereupon, after saturating the fiber board, the solvent may be evaporated. If it is preferable, it is to be understood the sheet material 10 might have incorporated therein during its process of manufacture sufficient of the asphaltic or other saturating substances whereby the fiber of the sheet will be firmly bonded together, which last method of preparation would involve a hot compression of the fiber sheet having the saturant distributed therethrough in order that the final product might be of sufficient compactness, with the saturant thoroughly distributed over the fibrous surfaces thereof due to the compression at elevated temperatures.

For the saturation or permeation of fiber insulation board such as Celotex cane fiber insulation board of a density of approximately 0.270 the preferred saturant is a Venezuelan residual asphalt as disclosed in my co-pending application Serial No. 180,772, filed December 20, 1937, for Building material. The process of incorporating an asphaltic material into a felted fiber board is disclosed and claimed in this application. The asphalt is heated to a temperature of from 360° F. to 390° F. and the fiber board 10 is immersed therein, and on being held immersed for a period of about one hour, the fiber board will absorb the described asphalt to the extent of about 140 to 200% based on the dry weight of the fiber board prior to immersion. An average saturation or approximately the mean of the above given figures is desired, that is, preferably the saturation is in the neighborhood of 170 to 175% of the dry weight of the unsaturated board. While the preferred saturant has been described, it is to be understood that in the same general manner other saturants can be incorporated into the fiber board 10 as set forth in the above co-pending application.

The fiber insulating board sheet 10 saturated in accordance with the above described procedure, particularly with the preferred Venezuelan residual asphalt as above set out, is for certain purposes used as is, but for other uses such saturated material is given a further treatment whereby the entire surface of such saturated material 10 has applied thereto a layer of asphaltic or other appropriate material indicated at 12. The layer 12 should preferably be about $\frac{1}{16}$'' thick and should be of a material which in general has physical characteristics of the nature of asphalt, as for example, having the characteristics of being waterproof, water insoluble, ductile or rubbery, potentially adhesive, etc.

This layer 12 should not appreciably soften nor should it be brittle at ordinary temperatures, say at 50° F. and 100° F. nor brittle at 32° F., that is, between the usual ranges of temperatures which are liable to be encountered in the use of a material. The coating should be generally of a more or less rubbery nature and should preferably be of such a nature that the surface thereof can be rendered sticky or tacky through the application of proper solvents. This surface layer or coating 12 may preferably comprise asphalt, or as an example of other materials which might be used, rubber and pitch are suggested. The base material as above described whether saturated or saturated and coated has been described, will as may be seen comprises a quite rigid product having, due to the nature of its construction and composition a limited amount of resilience, it is waterproof and is aperiodic.

The material 10 saturated as above, and having surface coating 12 thereon as has been described, is particularly useful as a base material, usable in connection with the installation of flooring 13 and, in such use the saturated and coated material 10, in sheets of appropriate size, say in a size 24'' x 48'' and ½'' thick will be laid in place on a corrugated structural unit 9, and is preferably laid in hot asphalt applied to the unit 9 as by mopping or the like although under certain circumstances it may be deemed advisable to lay this material according to the plan which will be described, in connection with the laying of a finishing flooring 13 upon the upper surface of the prepared base material 10. The base material 10 can have its lower surface corrugated to match the corrugations of the unit 9, as illustrated in Figure 1.

The coated and saturated base material 10 is securely attached to the supporting corrugated unit 9 preferably by cutting back the surface coating 12 with a suitable solvent to render this coating 12 tacky or adhesive. A solvent as gasoline for the coating 12 of the base material 10 is applied to the exposed surface of this coating or alternately other suitable solvent of the coating 12 as for example naphtha or the like is applied thereto. The solvent applied will, of course, be applied only to a limited extent, that is, in an amount sufficient to soften and render tacky the coating 12 and it is of course to be understood that such solvent is not to be applied to such an extent that the coating 12 is removed.

It will, of course, be understood that if desired, instead of applying a solvent to the surface of the exposed coating 12 the corrugated surface 9 may be heated and the surface on the coating 12 may be heated or other means may be employed for rendering the surface tacky or adhesive, but such procedure is only by way of a suggested alternative since the manner of application as was specifically described is the one which is preferred. The insulating sheet 10 is firmly pressed, after its surface has been rendered adhesive, to the corrugated surface 9 whereupon it will become firmly affixed.

After the coated and saturated base material

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10 has been securely attached to the supporting corrugated member 9 and the various units placed in juxtaposition, the usual flooring or other ornamental surface may be applied. A finished flooring 13 may comprise practically any of the usual types of flooring as for example parquetry blocks, narrow tongue and groove strips and any of the prepared wood block flooring materials, there may be laid thereon rubber, tile, linoleum or the like. Prior to the application of the finished flooring 13, illustrated in the drawings, strips of the surface 12 have been cut back with a solvent as was previously described for the application of the insulating sheet 10 to the corrugated supporting unit 9. As soon as the surface has been rendered tacky or adhesive, the flooring 13 is affixed thereto.

It will be found that a floor or other structural unit constructed from the units as have been hereindescribed will have to a very satisfactory extent all of the most desirable characteristics of various floor constructions which have been heretofore suggested. The flooring construction described provides one wherein, due to a certain amount of resilience of the base material, it is not absolutely hard and unyielding but there is provided sufficient resilience so that the floor is comfortable to walk upon. The base material affords an appreciable amount of heat insulation when used in the composite flooring construction and there is afforded a very appreciable degree of sound insulation.

A very advantageous feature of the structural unit comprising the corrugated unit 9 and the insulated sheet 10 of this invention which appears particularly in connection with the laying of the finished flooring, lies in the fact that it is not necessary that heat be added to soften the surface of the upper coating 12, and therefore it is not necessary that fires be maintained in proximity to the operation of laying the floor. The surface 12 is readily rendered tacky or adhesive by the simple expedient of applying a solvent and the surface remains sticky or tacky for some time until the solvent evaporates. It is possible to work the finishing flooring securely and thoroughly into its final position and into complete and secure contact with the sticky and tacky surface. Similarly in forming a structural unit comprising the member 9 and the insulating sheet 10, as illustrated in Figure 1, the surface 12 is rendered tacky with a suitable solvent and then the insulated sheet 10 is firmly affixed to the corrugated member 9.

In Figure 1 it is to be noted that the corrugated sheet 9 which is preferably corrugated sheet metal of the type which is readily available and which will be of the appropriate gauge depending upon the strength requirement thereof is somewhat offset with respect to both the length and width dimension of the sheet 10. It is to be understood that the preformed metal structural member or corrugated metal structural member 9 as set forth in the claims is also, within the scope of my invention, a prefabricated metal structural member may have applied over its surfaces a protective coating. The protective coating applied to surfaces of the metal preformed member may be applied on either or both surfaces and it preferably comprises an asphalt impregnated asbestos felt adhered to the surface of the metal structural member with a layer of asphalt interposed. The asphalt impregnated asbestos felt may be a coated sheet, that is, a surface or the surfaces may be asphalt coated and suitable granules or the like may be embedded in the outer asphalt coating if an ornamental surface effect is desired. The units 10 of felted fiber can be affixed thereto as previously disclosed. Sheet 10 is preferably a fiber insulation board of the type now readily available on the market under various trade names, one of the best known of which is "Celotex," made from bagasse fiber and which has an integral treatment, for example one such as is disclosed in U. S. Patent No. 1,880,965, to Lathrop et al., affording protection against dry rot, fungi, termites, and the like.

The sheet of fiber insulation board 10 and corrugated metal 9 are preferably and conveniently secured together and in construction work are handled as a unit. Of course, it will be readily apparent that it will be much simpler to secure the fiber board and the corrugated metal together as a manufacturing operation in quantity production, than to attempt to secure them together on the job and furthermore, particularly when such units are fabricated in a shop, it is a rather relatively simple matter to fabricate the various units to the required sizes so that on the job it is only necessary that they be secured in place to complete the erected structure.

The fiber insulating board 10 and corrugated sheet 9 may be secured together in any appropriate manner and as a particularly satisfactory manner of securing these together the use of sharp-pointed, hardened, twist nails, such as shown in 11, Figure 3, is suggested, such nails being available on the market, a well known brand of which is sold under the trade-name "Parker-Kalon." These special nails 11 are designed particularly for securing together metal sheets or for securing other materials to metal sheets and, due to being hardened and having sharp-points, they may be readily driven through the fiber insulating board 10 to puncture the metal sheet 9 and firmly anchor the insulating board to the metal sheet. In place of using Parker-Kalon nails to secure the fiber insulating board to the metal sheet, it will, of course, be apparent that any other appropriate securing means may be used as for example, the fiber insulating board may be secured to the metal sheet by the use of an adhesive, as previously disclosed, or by riveting, or the like.

A particular feature of the fabrication of the structural units hereof in an offset manner as above described, is that such offset relation affords added strength where most needed, that is, at each joint between adjacent structural units, the offset portions may overlap and therefore there is afforded not only additional strength at these points, but furthermore, due to this overlap, each joint is completely and thoroughly closed so that leakage of air therethrough is prevented.

Where heat insulation is a factor, an advantage can be obtained by having on the corrugated sheets 9 a bright metallic surface such as may be obtained by galvanizing. Composite units made up of fiber insulating board and galvanized corrugated sheets will, when erected in such manner that the exposed face of the corrugated sheet is not in contact with other materials, have a heat insulating efficiency greater than that which would be provided were such exposed face not galvanized, which result is due to the fact that the bright metal sheet has relatively low emissivity and relatively high reflectivity and therefore tends to prevent the transfer of heat from one

side to the other side thereof providing that one of the faces is exposed to an air chamber and is not in actual contact with other materials.

While above there has been mentioned a bright and solid metallic surface obtained by galvanizing, it is to be understood that the base sheet or corrugated sheet 9 may be made of any metal having low emissivity and relatively high reflectivity or may be provided in any well known manner with a surface having such properties applied, as for example, by electroplating.

In Figures 1, 2 and 3, the application of the inventions hereof to the construction of a floor is illustrated. In constructing a floor in accordance with the inventions hereof, the base thereof is an appropriate form of joist such as the wood joists of Figure 2, or the metal joists of Figure 8, which latter structural unit is what might be termed a metal nailing stud and will be later described in detail with reference to Figures 6, 7 and 8.

With appropriate joists suitably spaced, there is applied thereto preferably large size structural units comprising insulating board 10 and sheet metal 9 secured together as hereinbefore described, which units, particularly because of their large size and assembled relation, may be applied with a minimum of labor since, due to the relatively large area of the unit, each unit covers a relatively large portion of the floor area and the securing thereof is much simplified with a consequent saving of labor. After the large size assembled units of flooring material are applied to the joists 8 it is only necessary to, along each joist member, drive relatively few nails which are preferably of the hardened and twisted shank type 11 into each joist and as a result the unit will be firmly secured to the joist members.

After the first assembled floor unit is applied as above described, then a second unit is placed adjacent thereto in matched relation and the next unit is appropriately secured as previously described and then such other units as may be necessary are laid likewise to complete the floor area to be covered. After the floor area has been covered with the large composite sheets of fiber insulation board and metallic backing, a coating of mastic material 12 may be applied to the surface of the fiber board 10. The coating 12 of the mastic material, as illustrated in Figure 1, is such that it may be cut back by a suitable solvent to render it adhesive in order to apply the unit 10 to the corrugated sheet 9 for prefabrication and also for applying a flooring 13 or other suitable structural surface, as roofing. The wooden floor 13 preferably of hard wood may be bedded in the mastic 12 to bind the wood floor surface to the surface of the composite unit on which the wood surface is laid. The corrugated form of backing material as illustrated in the drawings has particular advantages in that not only does the corrugated form afford greater strength than provided by a like flat sheet, but in addition, the corrugations afford space for the installation of electrical conductors 14, and the like as particularly illustrated in Figure 3 of the drawings.

In the above type of construction, it has been found that the joists may be spaced more widely apart than is the usual practice due primarily to the rigidity of the combination units of corrugated metal and fiber insulation board and there is another important feature of saving in the application of the units in that such units may be readily applied by relatively unskilled labor and without the necessity of the skillful cutting and fitting which is required in connection with the materials usually used in the construction of floor structures.

A roof construction is shown in Figures 4 and 5 wherein there is employed the usual roof joist 15 and wooden rafters 16, to which then are applied the composite units hereof and an appropriate exposed roof surface. The composite units of fiber insulating board and corrugated metal are applied to the wooden rafters 16 in large sheets and in the same manner as the such units are applied in the construction of a floor. In this particular illustration of the invention involved in Figures 4 and 5, the unit is illustrated as composed of a fiber insulating board sheet 17, mounted on a corrugated metal sheet 18, which two parts of the unit may be secured together as has been heretofore in this specification described.

After the large base units, comprising the members 17 and 18 have been applied and appropriately secured to the rafters 16, there is then preferably applied to the exterior surface thereof a relatively narrow metal strip 19, over which is applied a strip 20 of suitable tar paper, saturated roofing felt, or like waterproofing material, and then upon which is applied a row of slate slabs 21 which are secured in place by nailing through a hole provided in the slate and through the waterproofing material 20, metallic strip 19, fiber insulating board 17, and corrugated metal 18 and also into the rafters 16, if there should be a rafter under the particular nail. Preferably in nailing, the slate slabs 21, the Parker-Kalon type of nail is used, that is, the nail such as is illustrated in Figure 3 at 11, that is, a nail of the hardened and twisted shank type which readily penetrates sheet metal and is firmly gripped therein.

After laying the first row of slate slabs in the manner as above described, a second metallic strip 22 is placed on the surface of the sheet of fiber insulating board 17, appropriately spaced from the first metal strip 19 and then a second strip of the waterproofing material 23 is laid thereover and a second row of slate slabs 24 is secured as above described in connection with the first row of slate slabs. In order that the slate slabs may be securely and firmly held in place, it is preferable that brackets 25 be provided, a portion of which bracket is secured under the head of a nail attaching the first row of slate slabs to the roofing structure and which bracket, due to its form, that is, because of its upturned outer ends, firmly supports the lower ends of the next succeeding row of slate slabs applied. The laying of the roof surfacing is then continued in the same manner in the next row by the application of a metallic strip 26, a waterproof strip 27, and a row of slate slabs 28, each successive row of slate slabs being supported in turn by brackets similar to those already described.

The metallic strips 19, 22, 26, etc., are provided in order to prevent the nails used in securing the slate slabs from working loose in the fiber insulating board. While the slate slabs may be secured to the roof unit by simply driving the nail through the fiber insulating board 17 and through the corrugated metal 18, it is possible that such nail may be worked sideways and eventually loosened to the extent that the slate slabs may not be securely held on the roof structure. By the use of the metallic strips 19, 22 etc., the nail is held very rigidly in position and may not work sideways and which condition is very important in connection with roofs composed of slate slabs since they are not necessarily held rigidly and

fastened in one position and may be subject to slight movement in a wind. The use of the metallic strips prevents any working loose of the nails and therefore avoids any possible danger of any of the slate slabs being blown off.

A roof constructed in accordance with the above, will be exceptionally firm and rigid, is relatively low in cost, it provides a high degree of thermal insulation, and in addition, the construction though relatively cheap, is of most excellent appearance and the finished roof structure is fireproof. In Figures 6, 7 and 8, there is shown another way of applying a roof such as is described in connection with Figures 4 and 5. According to the construction shown in connection with the above particular figures of the drawings, similar units of fiber insulating board 17 and corrugated sheet metal 18 with metallic strips 19, 22, etc., and slate slabs 21, 24, etc., and brackets 25, are used in the same general manner as described in connection with the construction shown in Figures 4 and 5.

In the Figures 6 to 8, there is shown a roof section erected with sheet metal rafters 29 which are known to the trade as "Stran-Steel" units or joists, which, as illustrated, incorporates a center slot 30 into which nails may be driven and are securely held as illustrated in Figure 8.

When the inventions hereof are used in connection particularly with "Stran-Steel" units, it is unnecessary that a ridgepole be incorporated in the construction. In Figure 6 there is shown a pair of "Stran-Steel" rafters 31 and 32, bolted together at the ridge of the roof without the use of an interposed ridgepole. In applying the units of the invention to a roof structure, such as shown in Figures 6 and 7, the application of the units is preferably started from the ridge and worked downward or alternatively the construction may be started by scoring through the fiber insulating sheet 17, across the middle of the unit, whereupon the unit may be applied across the ridge of the structure and with one-half of the unit bent down on one side of the roof and the other half of the unit bent down on the other side of the roof, whereupon the unit is firmly secured by the use of nails 33, which are driven into the slots of the "Stran-Steel" rafter units in the manner as heretofore described. After the first units are applied to the roof structure, the subsequent units may be applied as previously described until the entire roof structure is covered, whereupon the metal strips, waterproofing material, and exterior roof slabs are applied as heretofore described.

A roof constructed as above described is exceptionally strong, due to the fact that all of the elements thereof are securely fastened together, and because of the fact that the various parts thereof each serve to anchor and reinforce the other part and thus produce a roof structure which is superior to such structures as are now ordinarily erected.

The invention hereof may also be employed in connection with the erection of walls, partitions, and the like, and this is accomplished by securing the large composite units of fiber insulating board and corrugated metal to studs in the manner as has been described in connection with the construction of floors and roofs. Partitions may also be provided without the use of studs by carefully fitting the units to the space and securing them at the top and bottom, whereupon, if both sides of the partition are to be finished, a further sheet of fiber insulating board 17 may be secured to the uncovered side of the unit by the use of the hardened and twisted shank nails 11 or by other appropriate means.

It is to be particularly noted that in every application of the invention hereof a fire resistant structure is provided, which has excellent characteristics as regards sound and thermal insulation. In the floor of Figure 2 for example, mastic 12 provides a certain amount of damping and attenuation of sound, the fiber insulating board 10 provides further damping and attenuation, but in a different degree, and the corrugated metal 9 provides a laterally resilient conductive member which affords a cushioning effect for any acoustical shock. The combination of these various damping and attenuating means, acting in series as naturally follows in accordance with the construction employed, affords an exceptionally satisfactory structure from the angle of sound quieting.

Referring back to Figures 2 and 3, it is to be noted that a ceiling for a room below may be readily fastened directly to the underside of the corrugated metal by any appropriate securing means, as for example, by nails 11 to provide a simple, quick and economical method of applying a ceiling giving added height to a room and permitting the beams to show where this is desired for decorative purposes. A ceiling thus applied may consist solely of the fiber insulating board or if desired such fiber insulating board may have applied thereto plaster, paint, or wallpaper, or it may be given any other appropriate desired finish.

In connection with the showings of Figures 4 to 7, it is to be understood that the invention is not to be restricted to the use of slate slabs in connection with the construction of a roof since the construction may have applied thereto any desired covering material such as wood shingles, composition roofing, and the like.

While the above description has been particularly directed to the use of pre-assembled units of fiber insulating board and corrugated sheet metal, it is to be understood that various constructions can be accomplished through the application first of the large sheets of corrugated metal which are secured to the supporting members such as rafters 16, or floor joists 8, or the like, and then the large sheets of fiber insulating board may be applied to the corrugated metal sheets and appropriately secured to the metal sheets and to the supporting members should such supporting member be under a particular point at which a member securing the fiber insulating board may be positioned.

While the above constructions illustrate preferred embodiments of the invention, the details of construction described are not essential and may be varied without departure from the scope of the invention as defined in the following claims.

What is claimed is:

1. The method of fabricating a building construction which comprises erecting a supporting structure comprising preformed beams adapted to receive and cleat nails, erecting thereon an insulated structural unit comprising a preformed structural member and insulating board, and affixing said insulated structural unit to said preformed beams by nailing said insulated structural unit to the preformed beams to cause the nails to be cleated by the beams and to cause the insulated structural unit to coact with the supporting structure to form a rigid construction.

2. The method of constructing a roof which

comprises joining a plurality of rafters together in pairs to form a peak for the roof, and securing the rafters together against lateral movement by affixing sheets of corrugated iron thereto and over the peak to cause a rigid roof construction to be formed, the sheets of corrugated iron over the peak of the roof serving as a ridge pole.

3. A fabricated insulated building construction comprising in combination a preformed metal structural member, felted fiber insulating board, and on the side thereof remote from the preformed metal structural member substantially parallel spaced strips of metal, and provided over that surface thereof remote from the preformed metal structural member, surfacing material, secured thereto by fastening means extending through the surfacing material, through a metal strip, the insulation board and the preformed metal structural member, the such fastening means securing the surfacing material, metal strips, insulation board and performed metal structural member together as a rigid insulated building construction.

4. In a roof structure a construction comprising a plurality of spaced pairs of rafters, the rafters of each pair oppositely disposed and inclined downwardly and outwardly to constitute the framework for a peaked roof, an elongated sheet form structural member formed as an inverted V applied over the peak of the rafters and secured to the rafters, the such sheet form structural member serving in lieu of a ridge pole and in combination with the joint construction comprising a rigid roof structure.

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