A. P. WHITE.

COMPOSITE LATH.

APPLICATION FILED SEPT. 10, 1914.

1,276,147.

Patented Aug. 20, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

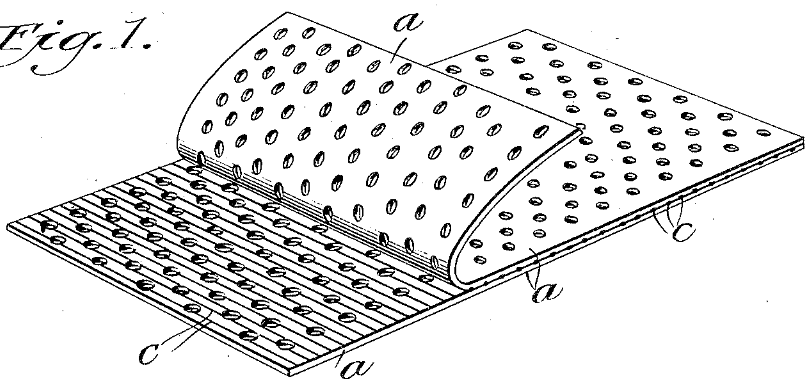


Fig. 2.

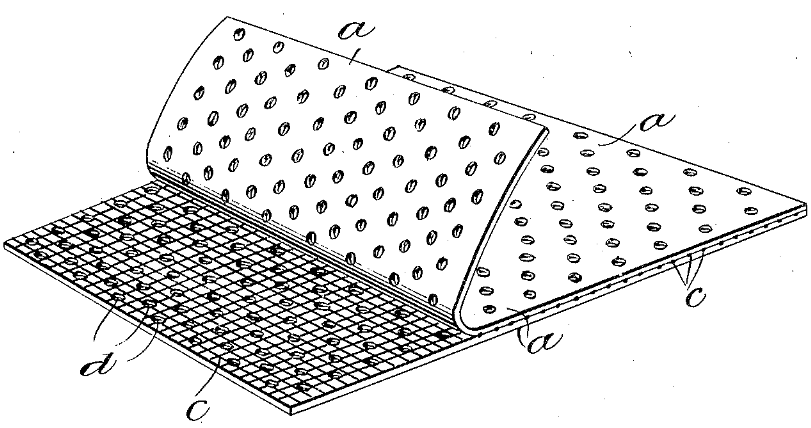
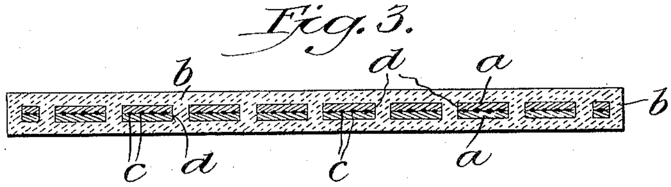


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

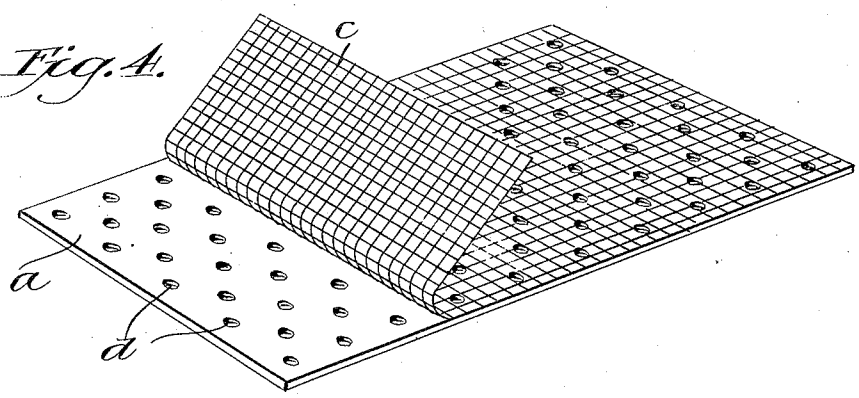


Fig. 5.

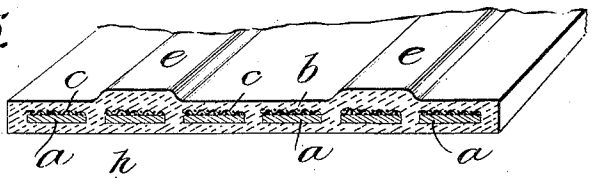


Fig. 6.

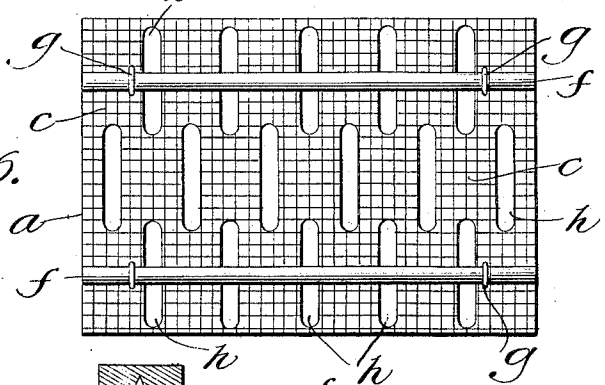


Fig. 7.

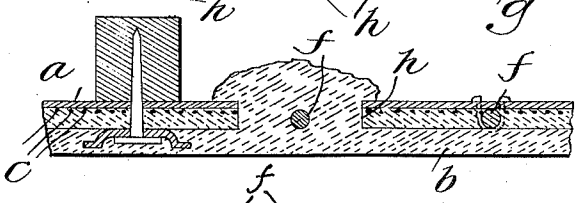
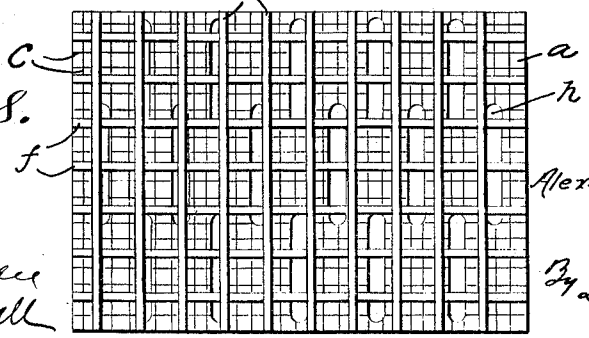


Fig. 8.



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UNITED STATES PATENT OFFICE.

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COMPOSITE LATH.

1,276,147. Specification of Letters Patent. Patented Aug. 20, 1918.

Application filed September 10, 1914. Serial No. 861,116.

To all whom it may concern:

Be it known that I, ALEXANDER P. WHITE, a citizen of the United States, residing at Caldwell, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Composite Laths, of which the following is a specification.

This invention relates to a novel building material to be used chiefly for lathing, and its object is to provide an improved and cheaper article of this nature that can be readily handled and transported, and which possesses strength without great weight.

A special object of the invention is to provide a composite lath construction having novel means for strengthening the product in combination with an artificial stone body element, while at the same time imparting thereto improved facility for absorbing and assimilating excess moisture in such a manner as to hold the body of the lath to proper form and condition during the setting of the plaster, thereby insuring the drying of the latter with an even surface, both on walls and ceilings.

Other objects will become apparent as the nature of the invention is better understood, and in order to illustrate the essential features thereof, a few practical embodiments are shown in the accompanying drawings, in which—

Figure 1 is a perspective view illustrating a simple embodiment of the invention and exposing the primary elements thereof in separated relation, the view also showing the thread-reinforcement as consisting of single unwoven threads of fibrous material arranged in close parallel relation on one of the layers of the fibrous body sheet.

Fig. 2 is a view similar to Fig. 1 illustrating the thread-reinforcement as consisting of a sheet of coarsely woven fabric, such as cheese cloth, jute fabric, or burlap.

Fig. 3 is an enlarged sectional view of a piece of the completed material showing the stone body element incorporated or consolidated with the fibrous body sheet and the fibrous thread-reinforcement.

Fig. 4 is a view similar to Figs. 1 and 2, illustrating a single-ply body sheet carrying the thread or fabric reinforcement upon one side thereof.

Fig. 5 is a sectional view of a finished piece of the product showing the stone body element consolidated with the elements shown in Fig. 4, the view also illustrating the feature of having the stone body element formed with projecting ribs upon one side of the product.

Fig. 6 is a plan view of a modification of the element wherein metal wall holding members or rods are employed, the view illustrating a single-ply body sheet, a thread-reinforcement upon one side thereof, and the metal holding rods upon the thread-reinforcement.

Fig. 7 is a sectional view of a piece of the finished product embodying the construction of Fig. 6, and a part of which view illustrates the application thereof to a wall or ceiling.

Fig. 8 is a detail plan view illustrating a modification that may be resorted to as to the form of the metallic elements or members of the article.

Like reference characters designate corresponding parts in the several figures of the drawings.

At present, a form of lathing is made which includes paper in sheet form combined with an artificial stone substance, thus producing a composite body, and the present invention proposes to effect an improvement in lathing of this kind by combining therewith a fibrous thread-reinforcement which not only strengthens the product throughout and renders the same more flexible and tenacious, but also exercises a novel mechanical function which assists in holding the lath to proper form and condition while the plaster is drying out. This combination of elements gives to the new material structural characteristics which enable it to also withstand the shocks of transportation and the rough handling to which all crude forms of building material are of necessity subjected.

For illustrative purposes, reference is now made to the embodiments of the invention shown in the drawings. In these drawings, the reference letter *a* designates the fibrous body sheet or sheets, usually of paper in prepared sheet form and constituting a carrier for the stone body element, designated by the reference letter *b*. The thread-reinforcement which is consolidated with these elements to make the composite lath is designated by the reference letter *c*, and may consist of single unwoven threads of fibrous material such as cotton or jute, or may consist of a sheet of coarsely woven fabric, such

as commercial cheese cloth, jute fabric, or burlap. Both forms of this reinforcement are shown in the drawings, Fig. 1 illustrating single unwoven threads arranged in close parallel relation and unconnected, and Fig. 2 showing a layer of the threads woven into a fabric, so it will be understood that the present invention is not limited to either of these forms of the thread-reinforcement, it only being essential for the purposes of the present invention that fiber threads of such a character, and in such a number, be employed to lend to the structure the intended additional reinforcement as well as providing means for absorbing excess moisture in a manner to relieve the paper material from the deleterious effects thereof. It is also proposed to combine the thread-reinforcement with the paper body sheet in such a manner that the artificial stone substance may be deposited on both sides of the reinforced body sheet, and the stone surface coating on one side of the article united through the body sheet and the meshes of the thread-reinforcement, with the stone surface coating on the opposite side of the article, thereby forming a homogeneous stone body element.

In explanation of the methods which may be pursued in making the new article, it will be observed by reference to Figs. 1, 2 and 3 of the drawings that the fibrous body sheet *a* preferably consists of paper in sheet form of a strong variety, as well as being porous so as to be permeable to the stone solution. On one face of this fibrous body sheet is placed the thread-reinforcement *c* consisting of the connected or unconnected fibrous threads referred to, and in order to provide a firm attachment of the said reinforcement to the body sheet a suitable adhesive is employed for this purpose, such for example as silicate of soda containing say five per cent. of oxid of zinc. Then, over the thread-reinforcement *c* is superimposed a second paper or equivalent body sheet *a*, and after breaking up the unit or body thus formed by a multiplicity of perforations *d*, the same has applied thereto an artificial stone compound by either immersing the body in a stone solution or applying the latter with a spray. If necessary, the consolidation or union of these various elements with the artificial stone may be assisted by mechanical pressure in a press or between rolls or otherwise, the result being a composite sheet having the quality of a flexible stone.

Various substances and compounds may be employed for the stone body element of the material, and it is therefore to be understood that the general designation or terms "stone compound" or "stone element" employed herein are intended to include any suitable cementitious compound or substance which is used in a plastic or soft state, and will on drying and setting become hard and take the nature of stone. Many of the artificial stone substances, well known, are available for the purpose. For instance, a mixture of silicate of soda, infusorial earth, and oxid of iron will answer. To make this compound, ordinary commercial liquid silicate of soda is mixed with equal parts of iron oxid and infusorial earth forming a paste of the consistency of ordinary molasses. The mixture may be improved by a slight quantity of zinc oxid, say five per cent., and when the zinc is used the iron may be omitted. It will of course be understood that other artificial stone compositions may be satisfactorily employed to form the stone body element.

As already indicated, the unit or body formed by combining the thread reinforcement with a paper body sheet is broken up by a number of perforations, which not only provide keying means for the plaster but also lessen the tendency of the paper to swell and warp when the wet plaster is applied. This tendency of the paper to distortion is very materially reduced by breaking up the surface thereof with the perforations, since the expansive capabilities of the small or divided areas are not nearly so great as if the paper material was left unbroken or intact. Furthermore, the provision of the perforations in the paper sheet enables the stone substance to fill into the same and integrally unite the stone coatings on opposite sides of the sheet, and in thus completely enveloping the reinforced paper body sheet, the stone substance will render the paper substantially moisture-proof or better adapted to resist the undesirable effects of moisture. Nevertheless, in order to more effectually safeguard the product against the action of moisture on the paper body sheet or sheets, the present invention includes the thread-reinforcement which mechanically takes care of any fugitive or excess moisture as well as directly contributing to the strength of the product. In explanation of this mechanical action of the thread-reinforcement, it will be noted that when the wet plaster is applied to the lath, such moisture as may penetrate the pores of the stone or paper will likewise reach the fibrous threads. This moisture will cause the paper fibers to swell, but it will also cause the chords of the thread-reinforcement to shorten or contract, thereby drawing such reinforcement taut and maintaining a flat even surface until the plaster has set and hardened by the departure of the moisture. In short, if by reason of the moisture there is any tendency in the paper layer or layers to swell or sag, the tightening of the thread-reinforcement will correct the same and thus maintain the article in proper form and condition.

To illustrate more fully the general scope of the invention reference is made to Figs. 4 and 5 of the drawings wherein is shown a form of lath consisting of a single ply paper body sheet *a* to one side of which is adhesively fastened the fibrous thread-reinforcement *c*, the same being filled and covered by the stone body element *b* in the manner and for the purpose already explained. Fig. 5 is also illustrative of a detail of construction that may be employed to advantage, namely the formation of the stone body element with integral projections *e* forming external stone ribs which impart added strength to the article, as well as increasing the effective plaster holding area thereof. It is noted in this connection that owing to the stone character of the surfaces of the product, plaster will tenaciously adhere to it without the necessity of providing the locking and attaching means commonly known as keys. At the same time the material, when used for lathing, can be fastened to the studding or furring by nails, as shown in Fig. 7 of the drawings.

In making the new material, the same may also be combined with metal wall-holding members *f* as shown in Figs. 6 and 7 of the drawings. These wall holding members preferably consist of metal rods of suitable gage arranged at distances of from three to five inches apart and extending parallel from one end of the sheet to the other. The said holding members or rods *f* may be temporarily held to the reinforced body sheet by staples or equivalent fastening means *g* prior to the application of the stone substance thereto, but then become an intimate part of the structure giving added strength thereto as well as constituting permanent wall-holding members after being placed in position on a wall or ceiling and the plaster applied. In using the metal holding members or rods *f*, the same may be combined with key openings *h* which entirely pierce the lath adjacent the rods so as to permit the plaster to pass through said openings and engage about the rods. To more effectually accomplish this result, the key openings *h* may be in the form of slots and the metal rods arranged in a manner to cross a number of these slots so as to be directly exposed to the plaster entering the same. This is plainly shown in Figs. 6 and 7 of the drawings.

Although for the purpose of clearness, certain steps for the production of the new material have been explained in detail, it is obvious that the desired results can be accomplished in other ways. For instance, instead of using the paper in the convenient sheet form and cementing together two separate sheets with the thread reinforcement between them, the paper may be used in the plastic form and have the thread-reinforcement incorporated therein before being worked into sheets. But regardless of the particular process employed and the order of the steps thereof, the essential features of the invention will remain the same in the novel combination of the paper body sheet, the thread-reinforcement therefor, and the stone body element, with or without the feature of metal holding rods carried therewith. Also, with respect to the metallic elements of the article, these may be arranged in different ways without affecting the invention, for example as shown in Fig. 8 of the drawings.

From the foregoing, it is thought that the novel features of the invention will be readily understood without further description, and that various changes in the use of materials and their arrangement, such as fall within the scope of the appended claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim:

1. A building lath composed of a fibrous body sheet, absorbent reinforcing threads extending throughout the structure and united with the body sheet, and an artificial stone element having a bonding engagement with both the body sheet and said threads.

2. A structure for lathing consisting of a perforated paper sheet, fibrous reinforcing threads extending throughout the structure and exposed at the perforations, and an artificial stone element covering the sheet and extending through the perforations.

3. A structure for lathing consisting of metallic holding members for the plaster or equivalent material, a perforated fibrous sheet carried with said members, fibrous reinforcing threads extending throughout the structure and united with the sheet, and an artificial stone element covering and engaging the metallic members and fibrous sheet and extending through the perforations of the latter.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ALEXANDER P. WHITE.

Witnesses:
C. N. FARME,
J. A. CLARKE.