

No. 782,810.

PATENTED FEB. 14, 1905.

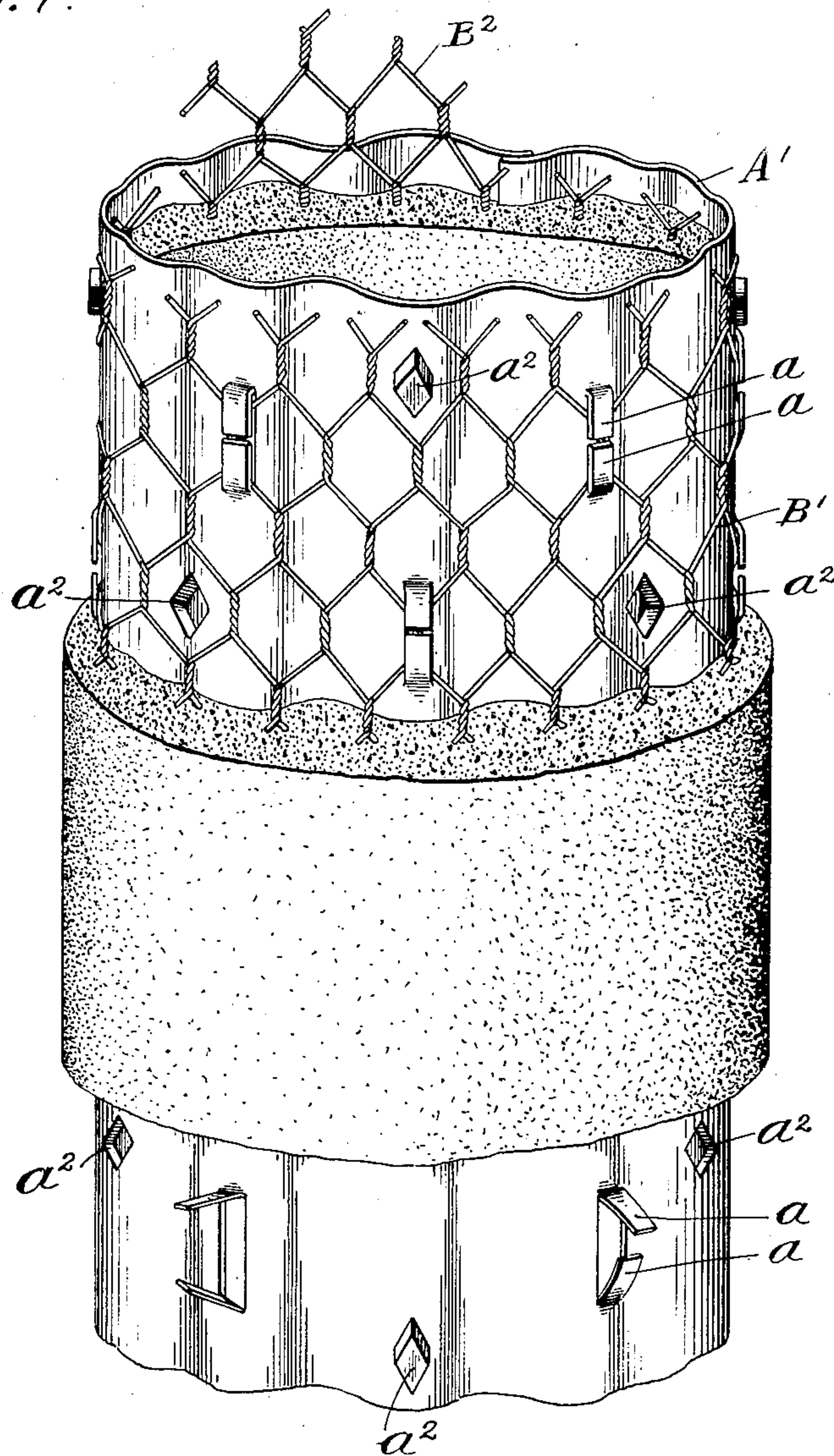
J. H. MURPHY & E. M. CAMP.

BUILDING CONSTRUCTION.

APPLICATION FILED MAR. 7, 1902.

3 SHEETS—SHEET 2.

Fig. 4.



Witnesses.

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By their Atty. Charles M. Hill

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3 SHEETS—SHEET 3.

Fig. 5.

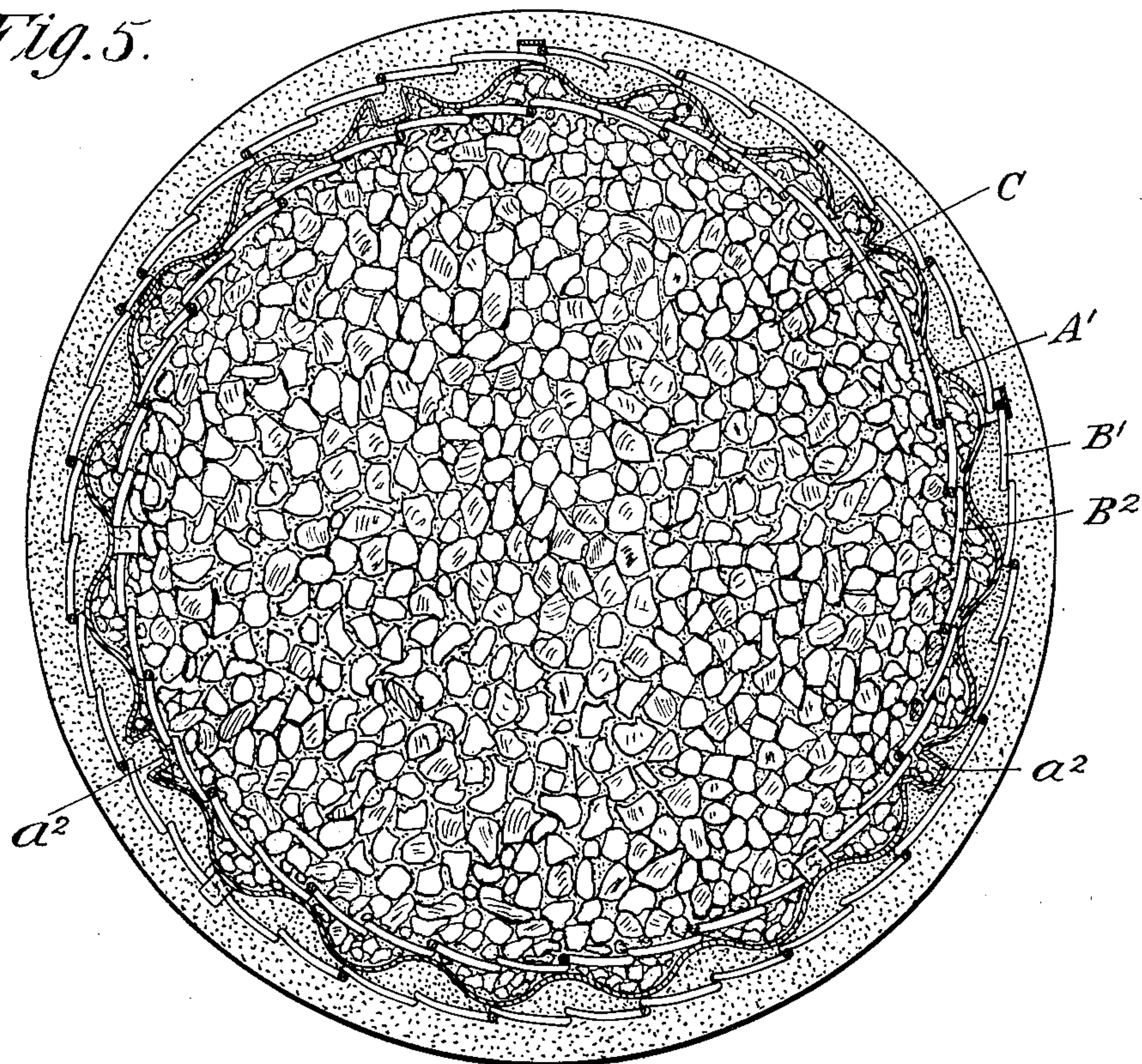
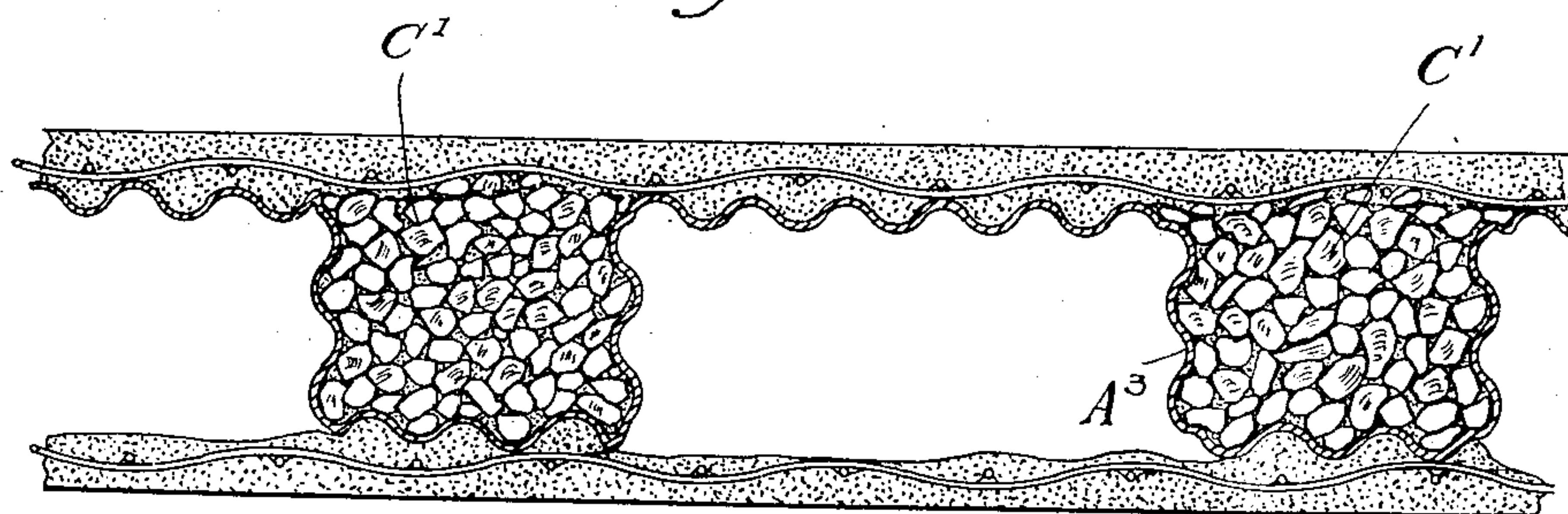


Fig. 6



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN H. MURPHY AND ERVIN M. CAMP, OF CHICAGO, ILLINOIS.

BUILDING CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 782,810, dated February 14, 1905.

Application filed March 7, 1902. Serial No. 97,133.

To all whom it may concern:

Be it known that we, JOHN H. MURPHY and ERVIN M. CAMP, citizens of the United States, and residents of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Building Construction; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in building construction.

The object of the invention is to provide a structure of concrete, cement, or other plastic material and metal so combined and associated as to provide great strength with comparatively light weight and at a small expense, to economizing greatly in space and the cost of material, and to reduce the weight upon foundations, while greatly increasing the strength of the structure.

The invention is adaptable to many different purposes and uses, and we do not desire to be restricted to the specific constructions herein described.

The invention embraces many novel features, and consists of the matters hereinafter described, and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a perspective view showing the invention embodied in a partition or wall construction. Fig. 2 is a transverse section of the same. Fig. 3 is a view illustrating one means for securing the reticulated structure to the corrugated sheet. Fig. 4 is a perspective view, partly broken, illustrating a column or conduit construction embodied in our invention. Fig. 5 is a sectional view of a construction similar to that shown in Fig. 4, but showing the interior filled with concrete. Fig. 6 is a cross-section view illustrating a partition or wall construction.

As shown in said drawings, a sheet of metal A, which may be corrugated, as indicated in Figs. 1, 2, and 3, has permanently secured on one or both sides of the same in any desired manner a reticulated structure B, such as wire-net or expanded metal. The structure thus

formed for whatsoever purpose used may then be plastered with cement, mortar, concrete, or other desired material, thus not only greatly economizing in the amount of the plastic material used, but forming an exceedingly rigid structure having a perfect bond on the reticulated material and filling the corrugations of the sheet and bonding therein, said sheet forming a tension member. This structure is especially adapted for wall and partition constructions, and the sheet A when reinforced by the reticulated material B and the plastic material forms a very rigid structure which is not only fireproof, but occupies a minimum amount of space.

In the construction of ceilings the sheet A, having wire-netting or expanded metal B secured on one side thereof, as shown in Fig. 3, is rigidly engaged upon the girder or other structure (not shown) and plastered to afford the desired finish.

In the construction illustrated in Fig. 4 a sheet of metal A', which may be either corrugated or plain, is provided on one or both sides with a sheet of reticulated material rigidly secured thereto by clips *a*, which in the construction shown are integral with the sheet. The wire-net B' and B² shown is of large mesh and is formed of wires twisted together in a familiar manner. The sheet, with the net secured thereon, is then bent to a cylindric form and the meeting edges permanently secured together by any desired means. The cylinder thus formed is plastered inside and out with cement of any desired material. When so plastered, the wire is firmly bonded in the cement and a very rigid and durable construction is provided. If preferred, indentations may be made in the sheet, as indicated at *a*², which provide projections alternately on opposite sides of the sheet and in which the mortar or other cement beds, aiding to rigidly hold the cement in position. Obviously pipes or tubular structures of any desired size and length may be constructed as described. If preferred, said structure may be readily converted into an artificial-stone column by constructing the metallic shell as before described, which may be plastered on the exterior and the interior filled with concrete C, as indicated in Fig. 5, in

which said concrete is shown bonded through the interior reticulated structure into close association with the sheet and providing a structure of great strength and durability.

5 If preferred, studs may be constructed similar to the construction shown in Fig. 4, which may or may not be plastered on the outer side, and the clips α on the sheet A' may be securely engaged to wire-netting or corrugated sheet
10 of the wall.

If preferred, a comparatively light fire-proof construction for walls or partitions may be made by bending the sheet A^3 inwardly to provide a vertical recess to receive concrete, as shown in Fig. 6, thus providing, in effect,
15 the concrete stud C' , on opposite sides of which may be supported a wire mesh or other reticulated material adapted to receive the plaster or cement. Clips α are provided on the sheet,
20 either on the stud or on the sheets A^5 , of which, if corrugated, the corrugations extend longitudinally and horizontally between the studs. Reticulated material B^6 may be secured on the outer side of the sheathing A^5 , as before described, to receive the plaster. Obviously, if
25 preferred, a relatively small tube of metal A^7 , such as shown and which need not be corrugated, may be employed in constructing the stud. Within the same may be placed a sheathing of reticulated material to form a bond for
30 the concrete, and concrete may be filled therein, forming a rigid column. Stud or columns of two inches or less in diameter may be thus constructed, providing a thin partition.

35 The operation is as follows: Corrugated or other sheets when provided on one or both sides thereof with a reticulated material which forms a rigid bond with the plaster or cement or concrete applied thereto provides a very
40 rigid construction. If reticulated material—such as wire-netting, expanded metal, or other suitable material—is placed on both sides, as indicated in Figs. 1, 2, and 3, a metallic and concrete board may be so constructed of little
45 thickness and of great strength which may be adapted for almost any conceivable building purpose.

In use the metallic sheet forms a backing for the reticulated material and acts to greatly
50 economize in the amount of the plaster or cement used and independent of the size of the mesh or reticulations insures a perfect bond being made thereon, affording a more positive support for the plaster or cement. Obviously
55 the sheet instead of being corrugated may be indented at points to enable the plaster or cement to form a bond or to clench therein, and, if preferred, the sheet may be a plain sheet, in which event the reticulated material being
60 firmly secured and firmly clenched in the plaster, said sheet acting as a tension member in any position in which such a member is desirable or useful. Obviously where such
65 plastered or cemented construction is exposed to the action of water, as in tunnel construc-

tions, a continuous sheet bedded therein acts to prevent water percolating therethrough, thus providing a construction peculiarly adaptable for such purposes and for all underground construction.

Obviously sheets of any desired size or form may be employed, and any form of reticulated material may be used. It is also obvious that any construction of concrete, cement, or plaster may be employed in connection with
75 this invention, and it is immaterial in what shapes or forms the same may be applied for use, and it is not desired to be limited to the particular uses herein shown and described.

Obviously many features of construction
80 may be modified without departing from the principles of this invention.

We claim as our invention—

1. A flexible metallic sheet having permanently secured thereon in close proximity
85 therewith, approximately parallel with the surface thereof reticulated material having meshes therein too large to normally support the plaster and adapted when secured to said sheet to form a support for plaster or other material and to have the structure so formed entirely filled therewith and clips or tongues on
90 said sheet adapted to permanently engage the reticulated material.

2. The combination with a flexible sheet of
95 sheet metal, of reticulated material secured on the sheet and an investing coating of adherent plastic material entirely filling and bonded on and in the structure so formed.

3. The combination with a metallic sheet, of
100 clips or tongues integral therewith, reticulated material having meshes therein too large to normally support plaster and permanently secured on each side thereof by said clips or
105 tongues in close relation and approximately parallel with said sheet, and plastic material such as plaster supported on both sides of the sheet filling the structure thus formed and affording an exterior finish.

4. The combination with an unperforated
110 sheet of flexible material, of indentations therein, of clips integral therewith, reticulated material lying flat against the sheet and permanently secured thereon by said clips, and plastic material rigidly engaged thereon by said
115 indentations and reticulated material and entirely filling the structure.

5. The combination with a metallic corrugated sheet having clips alternately arranged on the apexes of its corrugations, of reticulated
120 material rigidly secured on each side thereof, and a relatively thick layer of plastering material spread on the reticulations on each side of the sheet and filling the corrugations and reticulated structures.

6. The combination with a sheet of metal having a plurality of unperforated corrugations therein and interlocking clips thereon, of sheets of reticulated material supported
125 against the corrugations by said clips and ce-

ment or the like spread on each side of and filling the corrugations of the corrugated sheet and incasing the reticulated structure.

5 7. A structure of the class described comprising a casing of indented sheet metal, binding-clips thereon, reticulated structures permanently secured thereon and in close relation therewith, a similar reticulation on the inner side of the casing, concrete or the like in said casing and engaging on the reticulated material and plaster on the outer side of the casing thus formed to afford a finish.

15 8. The combination with a sheet of metal having corrugations and bends therein, of a concrete filling in the spaces formed by the bends, reticulated material supported on the sheet in close contact therewith adapted to afford a support for a plastered finish.

20 9. A structure of the class described comprising a sheet of unperforated metal, corrugated and having alternate depressions in and projections on its surface, clips permanently

secured on each side of the sheet, reticulated material having meshes therein too large to normally support plaster and permanently secured on the sheet in close relation thereto and plastic material bonded in said reticulated material and entirely filling said structure. 25

10. In a device of the class described, the combination with a flexible, non-combustible sheet of clips or tongues thereon, reticulated metal secured on said clips having meshes therein too large to normally support plaster and plastic material embedded in the structure thus formed and on the outside of the reticulated metal affording a finish therefor. 30 35

In testimony whereof we have hereunto subscribed our names in the presence of two subscribing witnesses.

JOHN H. MURPHY.
ERVIN M. CAMP.

Witnesses:

C. W. HILLS,
ALFRED C. ODELL.