P. F. SOLAN AND H. S. BALLIET.

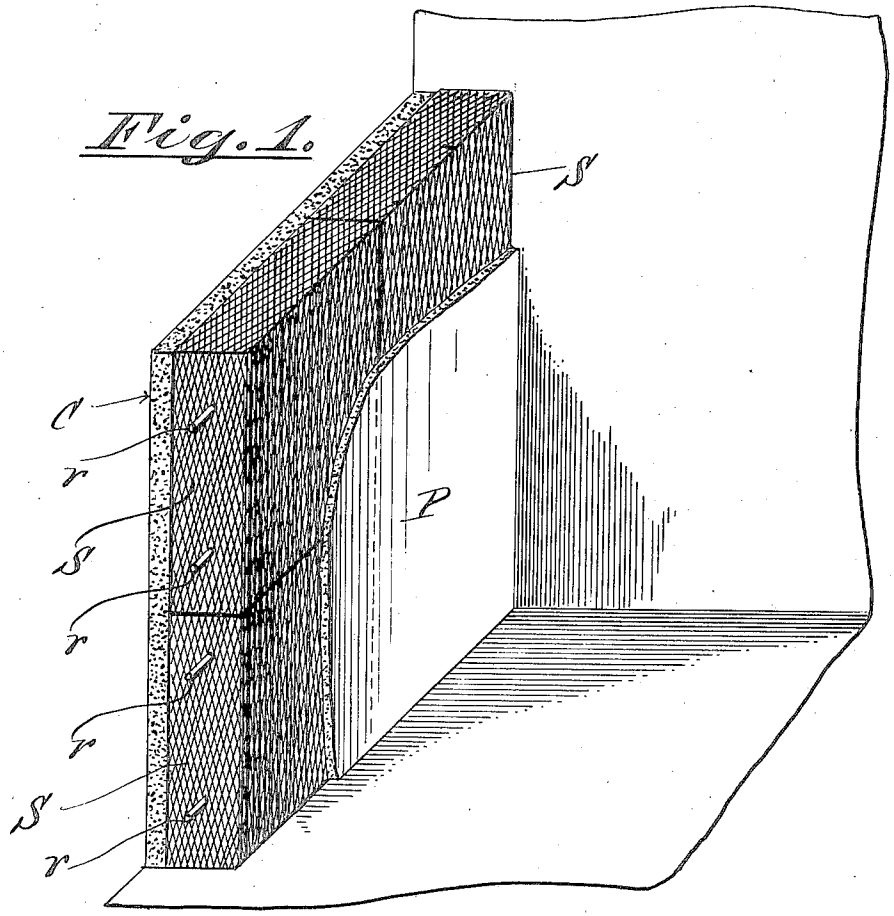
STRUCTURAL FRAMEWORK FOR WALLS, PARTITIONS, ROOFS, &c.

APPLICATION FILED OCT. 18, 1920.

1,397,301. Patented Nov. 15, 1921.

3 SHEETS—SHEET 1.

Fig. 1.



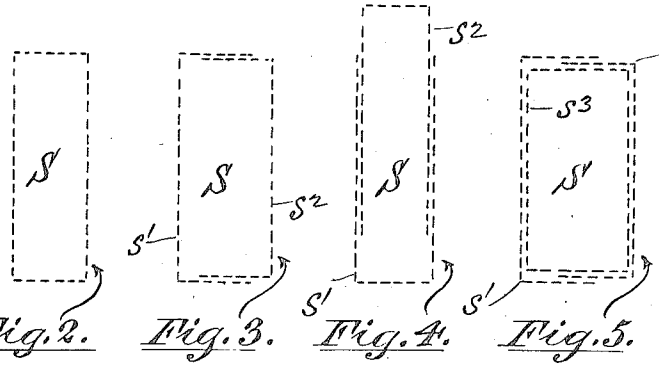


Fig. 2. Fig. 3. Fig. 4. Fig. 5. Fig. 6.

Inventors:
Patrick F. Solan, Herbert S. Balliet,
By their Attorney,
Leo. J. Miath

P. F. SOLAN AND H. S. BALLIET.

STRUCTURAL FRAMEWORK FOR WALLS, PARTITIONS, ROOFS, &c.

APPLICATION FILED OCT. 18, 1920.

1,397,301.

Patented Nov. 15, 1921.

3 SHEETS—SHEET 2.

Fig. 7.

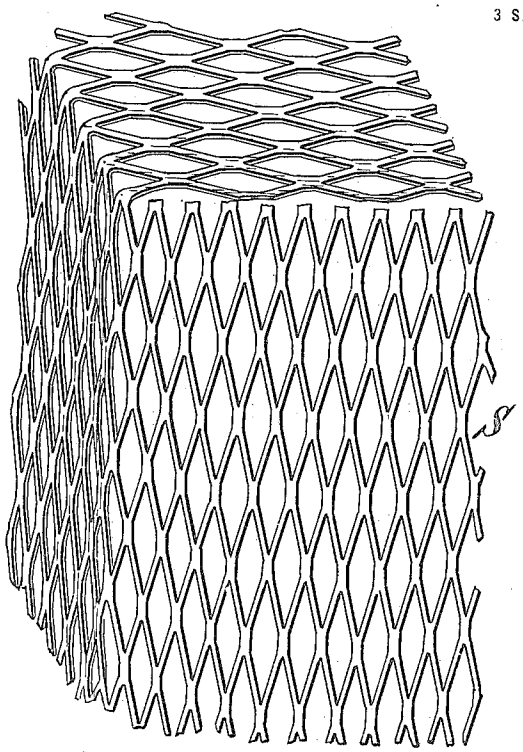


Fig. 8.

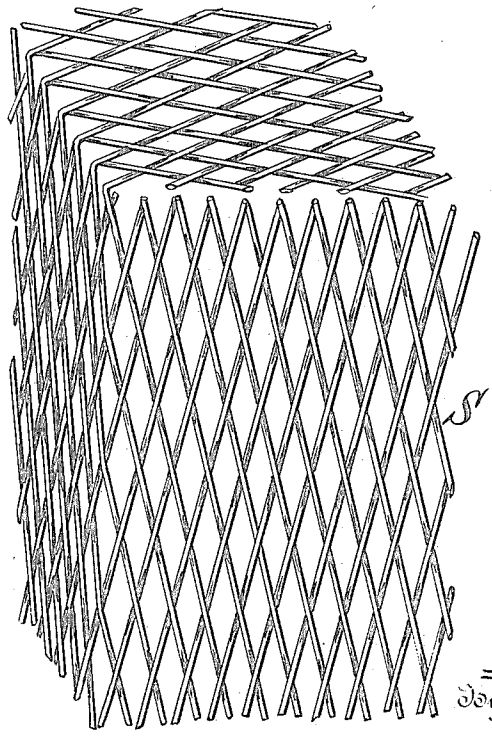
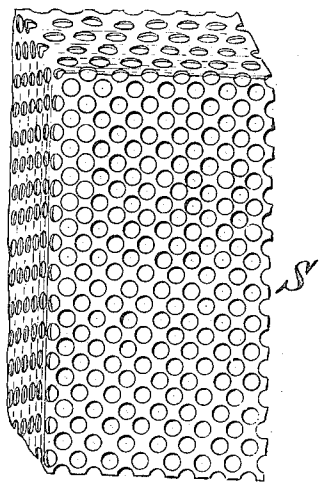


Fig. 9.



Inventor:
Patrick F. Solan, Herbert S. Balliet,
By their Attorney,
Geo. Mc Hiatt

P. F. SOLAN AND H. S. BALLIET.

STRUCTURAL FRAMEWORK FOR WALLS, PARTITIONS, ROOFS, &c.

APPLICATION FILED OCT. 18, 1920.

1,397,301.

Patented Nov. 15, 1921.

3 SHEETS—SHEET 3.

Fig. 10.

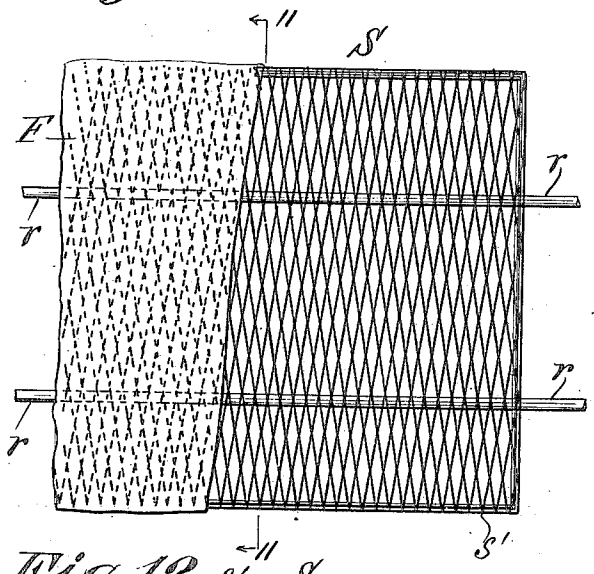


Fig. 11.

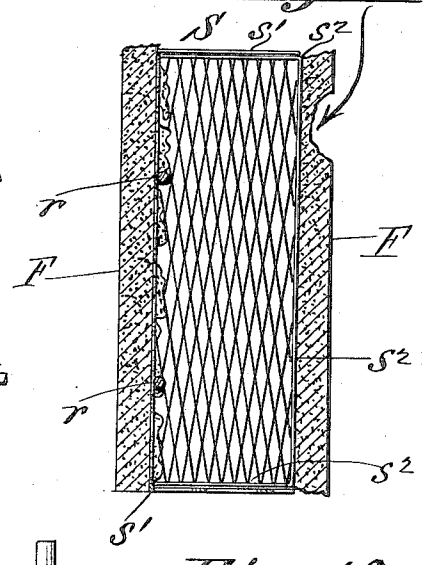


Fig. 12.

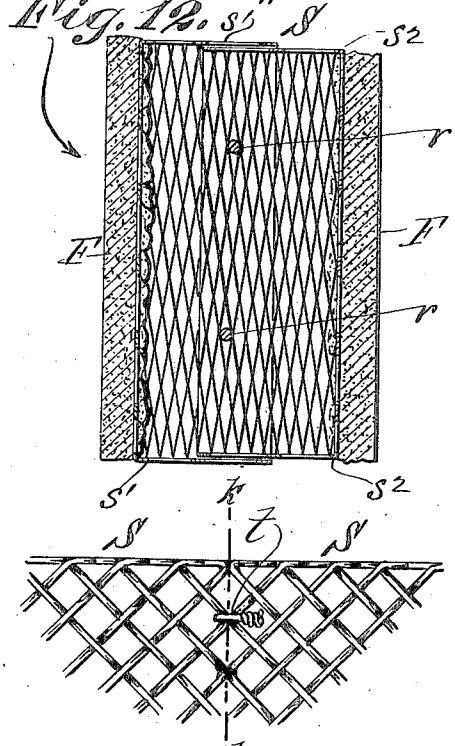


Fig. 13.

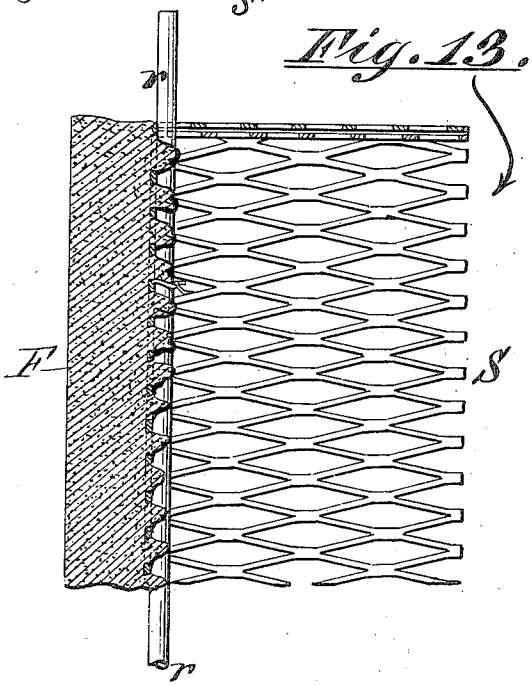


Fig. 14.

Inventor:

Patrick F. Solan, Herbert S. Balliet,

By their Attorney,

Geo. Wm. Miatt

UNITED STATES PATENT OFFICE.

PATRICK F. SOLAN, OF BROOKLYN, AND HERBERT S. BALLIET, OF NEW YORK, N. Y.

STRUCTURAL FRAMEWORK FOR WALLS, PARTITIONS, ROOFS, &c.

1,397,301. Specification of Letters Patent. Patented Nov. 15, 1921.

Application filed October 18, 1920. Serial No. 417,717.

To all whom it may concern:

Be it known that we, PATRICK F. SOLAN, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, and HERBERT S. BALLIET, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Structural Framework for Walls, Partitions, Roofs, &c., of which the following is a specification.

The main object of our invention is the production of a simple, cheap and effective substitute for the various materials heretofore used for basic structural support in the formation of walls, partitions, roofs, etc., in edifices generally, such materials for instance as plaster board, wood framing, lumber, cement in various forms, Egyptian and terra cotta blocks, bricks, etc., all as well known in the prior state of the building art. This we accomplish, while at the same time attaining certain new and advantageous results in the way of lightness of structure combined with strength and stability, fire and sound proof qualities, and the isolation of heat, cold and dampness, as hereinafter fully set forth,—our invention consisting in the specific construction, combination and arrangement of parts and appliances described and claimed, and an essentially distinctive feature being the provision and use of hollow skeleton sections formed of reticulated or intersticed metal as and for the purposes designated, in conjunction with certain minor details incorporated therewith in the production of an integral structure.

In the accompanying drawings,

Figure 1, is a perspective view illustrating in a general way the practical use of our skeleton frame work in the formation of a wall or partition;

Figs. 2 to 6, inclusive indicate diagrammatically various forms in which our intersticed metallic skeleton sections may be made in adapting them to the various requirements of the building trade as hereinafter set forth;

Fig. 7, is a perspective view of a corner portion of one of our reticulated skeleton sections made of expanded metallic lath, so called;

Fig. 8, is a similar view showing the use of woven or electric-weld wire mesh for the same purpose;

Fig. 9, is a similar view illustrating the use of perforated cast or sheet metal in the construction of our basic structural frame work;

Fig. 10, is a side elevation of one of our skeleton sections having incorporated therewith reinforcing and coupling rods, and also showing part of a plaster or similar facing attached thereto;

Fig. 11, is a transverse section taken upon plane of line 11—11, Fig. 10;

Fig. 12, is a view like unto Fig. 11, showing the skeleton section expanded laterally;

Fig. 13, is a horizontal section of a portion of one of our skeleton sections made of expanded metallic lath, with a facing of plaster or cement adhering thereto;

Fig. 14, is a detail showing a method of tying adjacent woven wire sections together.

The unit of our structural frame work is the hollow skeleton section S, formed of intersticed metal; and by the term intersticed metal we mean to include the various kinds of reticular configuration, such as cancellous, retiform, etc., perforated, or otherwise created, as may be found most expedient in the manufacture of the sections to adapt them to circumstances and conditions of use. Thus our intersticed metal may consist of woven wire of suitable mesh as indicated in several figures of the drawings; of expanded metallic lath, so called, as shown in Figs. 7 and 13; or of perforated cast or sheet metal as indicated in Fig. 9:—the interstices in any case, while affording lightness of structure, being adapted to also afford means whereby plaster or cement, while in plastic condition, may enter and anchor itself superficially,—that being the main function of the interstices, whatever their configuration.

Our unitary sections S, may be each made in one or more parts, as indicated symbolically in Figs. 2 to 6, inclusive. Thus Fig. 2, represents a section S, which may be woven in one piece, as of wire like unto the mesh structure shown in Figs. 8 and 14; or the sections S, may consist of telescopic parts s', s^2, as in Figs. 3, 4 and 6,—Fig. 3, providing for adjustment in width; Fig. 4, for adjustment in height, and Fig. 6, for adjustment in length; while in Fig. 5, provision is made for adjustment both in width and

length by the use of telescopic ends s^3, fitting within the telescopic side pieces s', s^2.

The provision and use of the skeleton sections S, made with telescopic parts, enables us to standardize the manufacture thereof while providing for emergencies and variations in building requirements, and to modify certain parts of our basic skeleton structure in accordance with alterations in plans or specifications when necessary. Furthermore, the telescoping of parts is advantageous in storage and transportation, since only the minimum of space is requisite for either purpose. The sections S, may be made of any size convenient for manipulation; and are preferably rectangular in shape, so that they may be built up, block fashion, upon and adjoining each other as indicated in Fig. 1, which shows a wall or partition, faced, say, externally with cement C, and internally with plaster finish P.

The adjoining sections S, may be connected together by metallic ties t, as in Fig. 14, in which the line k, represents the line of conjunction; or by means of coupling and reinforcing rods r, r, inserted through the sections,—in which case the rods r, r, may be utilized to perform a triple function in that they may not only be so positioned as to reinforce and unite the abutting sections, but also to space the telescopic parts thereof. This latter function will be understood by reference to Figs. 11 and 12, particularly, by which it will be seen that in Fig. 11, the rods r, r, lock the parts s', s^2, in closed relationship, whereas, in Fig. 12, they hold the said parts s', s^2, in expanded or extended relationship. The metallic ties t, may also be used for holding the reinforcing rods r, in place, etc., as may be found most expedient.

In all but Fig. 1, of the drawings, the facing material is indicated by the reference letter P, and may consist of mortar, plaster, cement or other suitable surfacing material applied in plastic state in a manner well known in the art. Figs. 11, 12 and 13, indicate approximately the protrusion of the plastic material through the intersticed metal in such manner as to form its own binder or anchorage.

When the sections S, are made integral, and practically of one piece (as indicated in Fig. 2) all sides thereof are permanently positioned as related to the others, constituting a building unit of prescribed size and dimensions suitable for incorporation without alteration in shape in a wall, partition, or similar structure.

As heretofore intimated, our structural frame work affords many practical advantages over the prior state of the art. It is comparatively cheap, and of relative light weight, and adapted to economize storage and transportation, especially when the sections are telescopic,—this feature of adjustment also adapting it to the varying requirements of use in construction of all kinds of edifices and parts thereof. Furthermore it may be manipulated and installed without the aid of specially skilled labor; and at an expense of approximately only one tenth of the cost of labor involved in the installation of other structural work for like purposes, and it affords adequate support for a plaster or cement finish or coating,—the sides of the interstices forming constrictive means whereby the intrusive plastic material is effectually held, when set, so as to combine the facing integrally with our basic structural skeleton frame work.

Our reticulated building sections, when made of wire or expanded metallic lath, may readily be cut and shaped to admit of the formation of window or door spaces, or the like, either during or after installation; and may be readily incorporated with other metallic frame work, rafters, etc., and used as a filling therebetween.

The saving in weight, material, and labor accomplished by the use of our intersticed or skeleton building-block sections, are all important factors in the reduction of cost of erection of all kinds of edifices, especially under present conditions in the trade to which our invention appertains; and will be of material advantage to the public generally.

Our structural frame work sections are especially adapted for use in the formation of partitions, in office buildings and dwellings,—their lightness of weight rendering a partition of such character as portable as an ordinary wooden partition, while affording all the advantages of plaster facing or finish, non-conductivity of noise, heat, cold, etc. As a basis for the construction of bungalow and similar relatively small buildings, temporary or otherwise, they obviously afford advantages over either wooden or cement structures; and when made of wire or expanded metallic lath, so called, they afford a degree of elasticity and resilience that adapts them particularly to countries liable to earthquakes, for obvious reasons.

What we claim as our invention and desire to secure by Letters Patent is,

1. Structural frame work of the character designated comprising a plurality of hollow skeleton sections of reticulated metal in block form, each of telescopic parts.

2. Structural frame work of the character designated comprising a plurality of hollow skeleton sections of reticulated metal in block form, each of telescopic parts, and means for connecting adjoining sections together.

3. Structural frame work of the char-

acter designated comprising a plurality of hollow skeleton sections of reticulated metal in block form, each of telescopic parts, and coupling and reinforcing rods inserted through said sections.

4. Structural frame work of the character designated comprising a plurality of hollow skeleton sections of reticulated metal in block form, each of telescopic parts, coupling and reinforcing rods inserted through said sections, and a facing material embedded in the interstices of said sections and around said rods.

5. A unit of structural frame work of the character designated, comprising a hollow skeleton section of intersticed metal in block form formed in telescopic parts, for the purpose described.

6. A unit of structural frame work of the character designated, comprising a hollow rectangular skeleton section of intersticed metal in block form formed in telescopic parts, for the purpose described.

7. A unit of structural frame work of the character designated, comprising a plurality of hollow skeleton sections formed of intersticed metal, together with means for securing adjoining sections thereof together and a facing embedded in the interstices and around said securing means, for the purpose described.

PATRICK F. SOLAN.
HERBERT S. BALLIET.

Witnesses:
GEO. WM. MIATT,
DOROTHY MIATT.