(No Model.) 3 Sheets—Sheet 1.

W. H. JOHNSON.

WALL, ROOF, PARTITION, &c.

No. 344,381. Patented June 29, 1886.

Fig 1

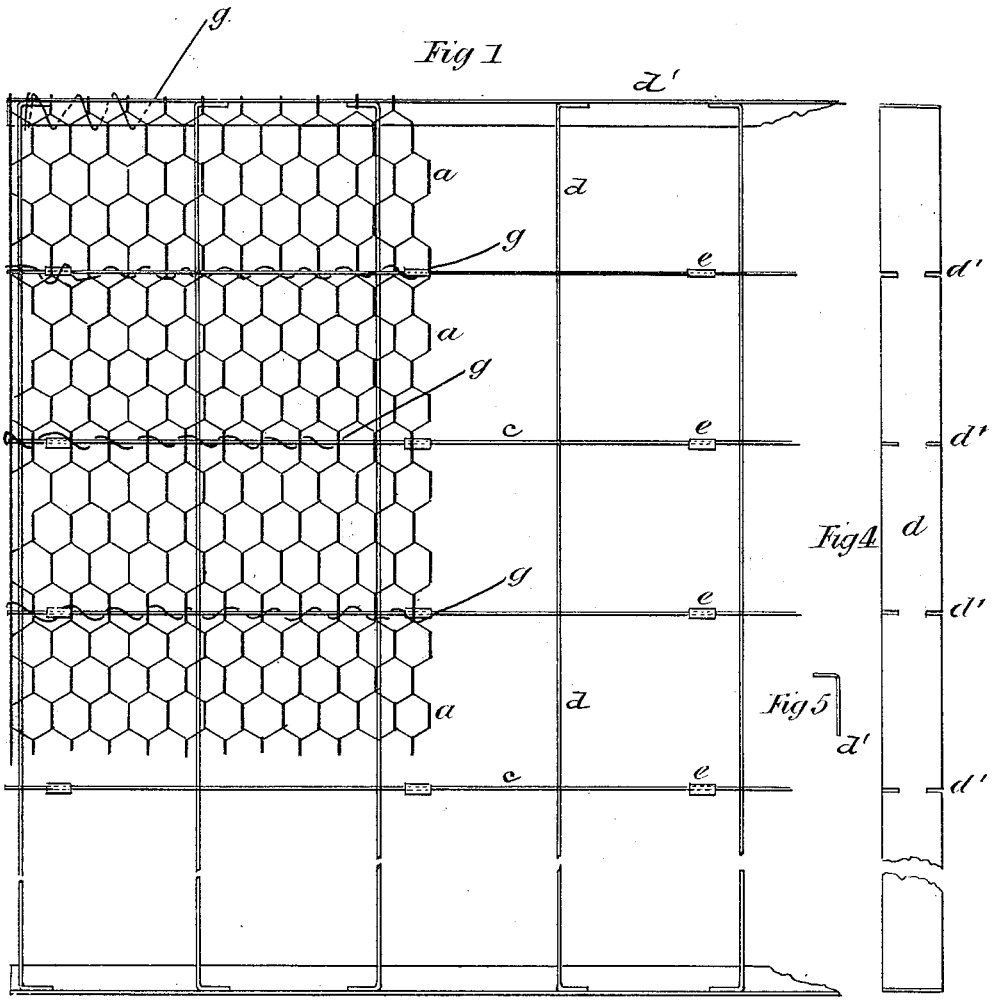


Fig 4

Fig 5

Fig 2

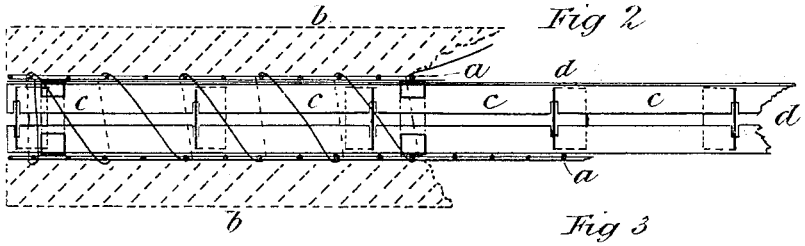
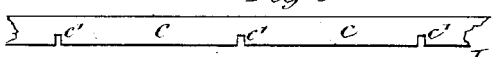


Fig 6 Fig 7

Fig 3



Attest
Will T. Norton
R. B. Washington

Inventor
Wm H. Johnson
by John J. Halsted & Son
his Attys.

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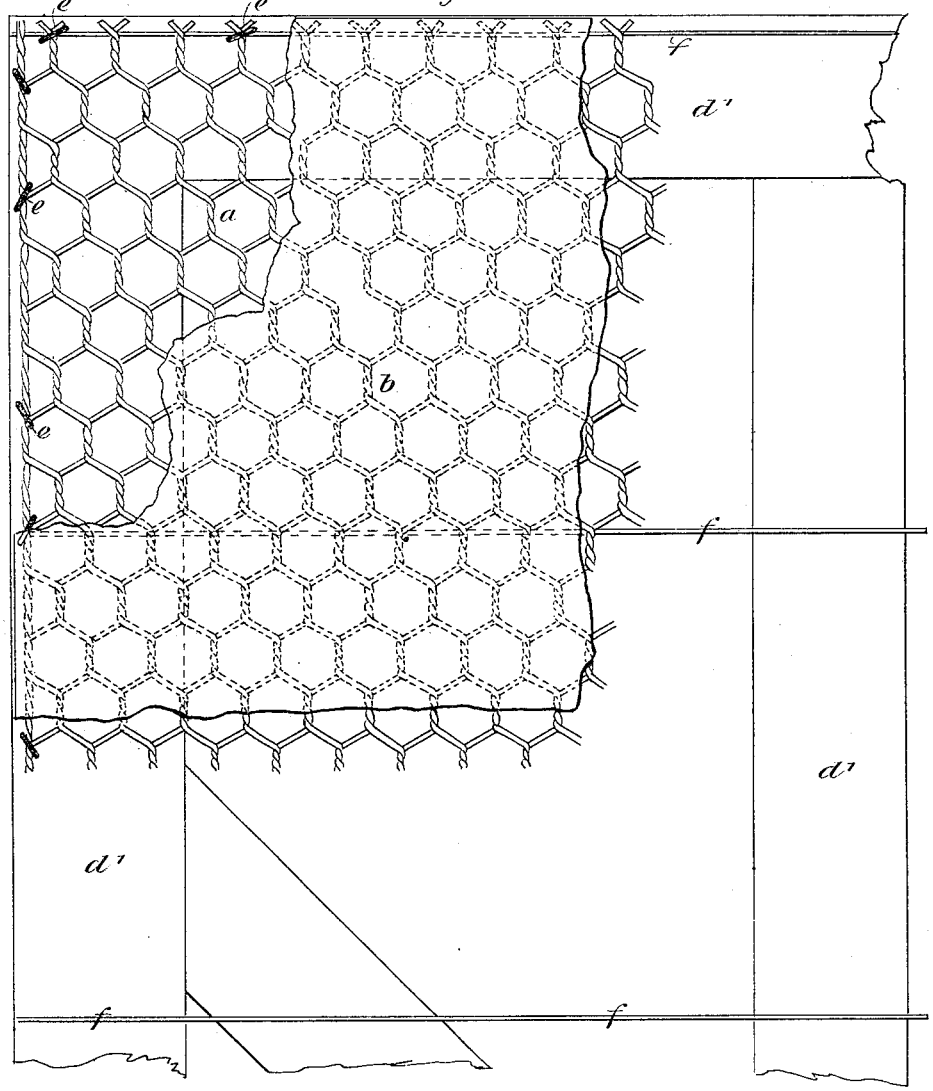
Fig 8



Attest
Will T. Norton
R. B. Washington

Inventor
Wm H. Johnson
by John J. Halsted & Son
his Attys.

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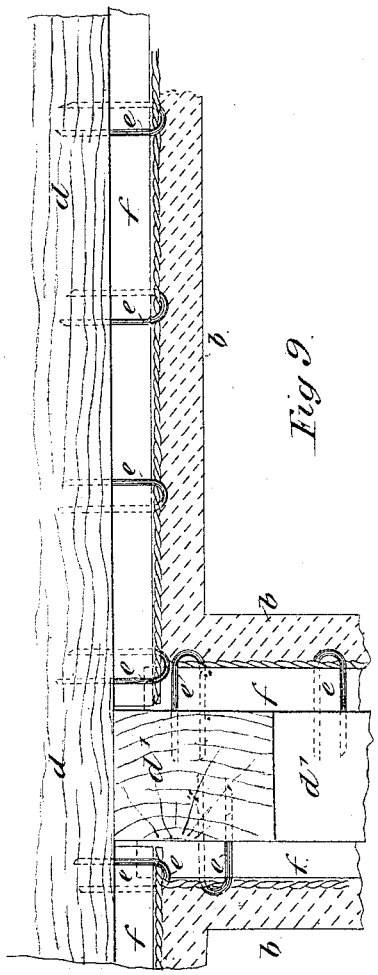

Fig 9.

Attest.
Will F. Norton
R. B. Washington

Inventor.
Wm H. Johnson.
by John J. Halsted & Son
his Attys.

UNITED STATES PATENT OFFICE.

WILLIAM HENRY JOHNSON, OF MANCHESTER, COUNTY OF LANCASTER, ENGLAND.

WALL, ROOF, PARTITION, &c.

SPECIFICATION forming part of Letters Patent No. 344,381, dated June 29, 1886.

Application filed January 28, 1886. Serial No. 190,026. (No model.) Patented in England March 24, 1885, No. 3,802.

To all whom it may concern:

Be it known that I, WILLIAM HENRY JOHNSON, a subject of the Queen of Great Britain, residing at 26 Lever street, Manchester, in the county of Lancaster, England, iron merchant, have invented Improvements in Walls, Roofs, Partitions, and other Similar Structures, (for which I have received Letters Patent in Great Britain, No. 3,802, dated March 24, 1885,) of which the following is a specification.

The object of the invention is the improved construction of partition-walls and other walls or divisions, or such like structures of plaster or such like composition or cement, in place of employing the more common laths for the purpose, and to supercede the ordinary studded walls and brick partition-walls, and also to adapt like means of construction to roofs.

In carrying out my invention I support the plaster, cement, or other composition employed upon prepared wire-work or reticulate work of that character, and this supporting-surface I back up or support by means of strengthening ribs, frame-work, or structure of rod, rib, **I**-iron, or other suitable section of metallic material adapted to the purpose.

A form of construction which I have found most useful in the construction of partition-walls is as follows: I take lengths of wire-work woven in a manner well understood and commonly employed as wire-netting, and either plain, galvanized, or coated with preservative or cemented material, and I increase its stiffness as follows: Behind this wire-work I fix thereto and to the ceiling, partition-wall, or other surface frame-work, flat pieces of metal longitudinally, diagonally, or otherwise, so that the plaster is supported by the meshes of the wire-work, and the wire-work is stiffened by the pieces of metal laid edge outward on the supporting frame-work of iron ribs.

Figure 1 shows a face view of a portion of such a wall-surface, except that, for clearness, the outer or plaster layer of material is supposed to be not yet applied or has been removed. Fig. 2 is a cross-section of such a wall made up of opposite outer side layers of plaster, *b*, supported on metal framing *c d*, laid edgewise. Fig. 3 shows separately one of the edge-laid ribs *c*, notched for interlocking or innotching when crossed upon the border-notched ribs *d*. (Shown separately at Fig. 4.) Fig. 5 shows an end view of the end pieces of the framing *d'*. Figs. 6 and 7, details; Fig. 8, a face view of a partition supported by metal ribs, bands, or pieces set edgewise between the wire-work and wood-work, a portion of the plaster being removed, and Fig. 9 a cross-section of such a partition.

The wall is built up of end pieces, *d'*, supporting longitudinal ribs *d*, which ribs are secured or riveted to the end pieces at suitable intervals, and into the notches d^2 in these longitudinal ribs *d*, I internotch the cross-ribs *c* by their notches *c'*, and then these ribs are held to and retained correctly in the fabric with the longitudinal ribs *d* by the hooked pieces *e*. (Shown separately in side and edge views, respectively, by Figs. 6 and 7.) Wires *g* are bound around the whole metal structure, to hold the same together. The plaster layers *b b* are applied upon the wire-work *a*, and cog or hold thereto in a very secure manner.

A convenient form of frame-work may be made by applying around the wall a length of **I** or other suitable sectional form of iron, and then other lengths of similar iron at the upper part, and from the upper to the lower lengths I connect other pieces of the like or other sectional form of metal ribs or cross ties or pieces, suitably connecting the whole frame—such as by riveting—with the aid of additional ties where desired. The cross-ties may be arranged in various subsidiary series, or arranged diagonally or otherwise, to suit the particular requirements of the situation.

It has been commonly the practice to corrugate wire-work in order to stiffen the sheet; but by the use of my invention such will not be necessary, inserted wires for the same purpose or the flat pieces of iron effecting the like end. These wires or flat pieces of iron also serve advantageously to raise the wire-work from the supporting frame-work to a distance of about one quarter to half an inch, thereby affording more space for the plaster within the meshes of the wire, and to isolate the interior frame-work, which, when wood or other destructible material is introduced into the construction, is of great advantage in aiding protection from fire.

This method of construction, as so applied

to cases where wood or material that is destructible or combustible—backing, rafters, scantling, joists, or such like—are made use of, is shown in detail in Figs. 8 and 9, the former figure showing a face view and the latter a cross-section of a plaster partition of wire network *a*, secured to and supported by metal ribs, bands, or pieces *f*, set edgewise and held between the wire-work and the wood-work *d*, which may be a joist, or *d'*, which may be partition.scantling, by the fastenings *e*. These fastenings *e* are thus caused to lock the wire-work to the iron rib or frame-work *f*, and being driven into the timber, fasten the whole into a rigid structure, and these fastenings *e* or their equivalents are inserted at short intervals all over the structure, as desired.

In Fig. 8 portions of the plaster and wire-work are removed to show underneath parts. The net *a* may be flattened or rolled, or ordinary.

Among the advantages of this method of construction are its fire-resisting qualities, the rapidity and accuracy with which good work can be constructed, the economy of space the construction admits of, owing to the flattening of the wire-work, and the substitution of the stiffening-wires for deep corrugations, the whole giving great strength, durability, and stability with lightness and other advantages.

If desired, the space between the two coats of plaster left unoccupied may be filled with sawdust or other sound-deadening matter.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is—

1. In walls, roofs, partitions, and similar structures, the combination, with woven or other reticulate wire-work *a*, for supporting plaster or other composition, of edge-laid metal ribs or pieces *f*, frames *d*, and fastenings *e*, serving to lock the wire-work to the ribs or pieces *f*, and to fasten the whole to the timber, all as set forth.

2. In walls, roofs, partitions, or similar structures, the combination, with wire-work to support plaster or other like composition, of a metallic frame-work having notched edge-laid longitudinal ribs and other notched edge-laid cross-ribs interlocked therewith, substantially as set forth.

3. In a partition-wall or other similar structure, the combination of plaster-surfaces *b*, wire-work *a*, edge-laid pieces *f*, ties *e* and *g*, and frames *d*, as set forth.

In testimony whereof I, the said WILLIAM HENRY JOHNSON, have hereunto set my hand, this 7th day of January, 1886.

WILLIAM HENRY JOHNSON.

In presence of—
ROBERT WARDLE,
ROBERT TOMLINSON.