

S. H. SUMMERSCALES.
 REINFORCED CONCRETE CONSTRUCTION.
 APPLICATION FILED SEPT. 22, 1908.

944,110.

Patented Dec. 21, 1909.

2 SHEETS—SHEET 1.

Fig. 1

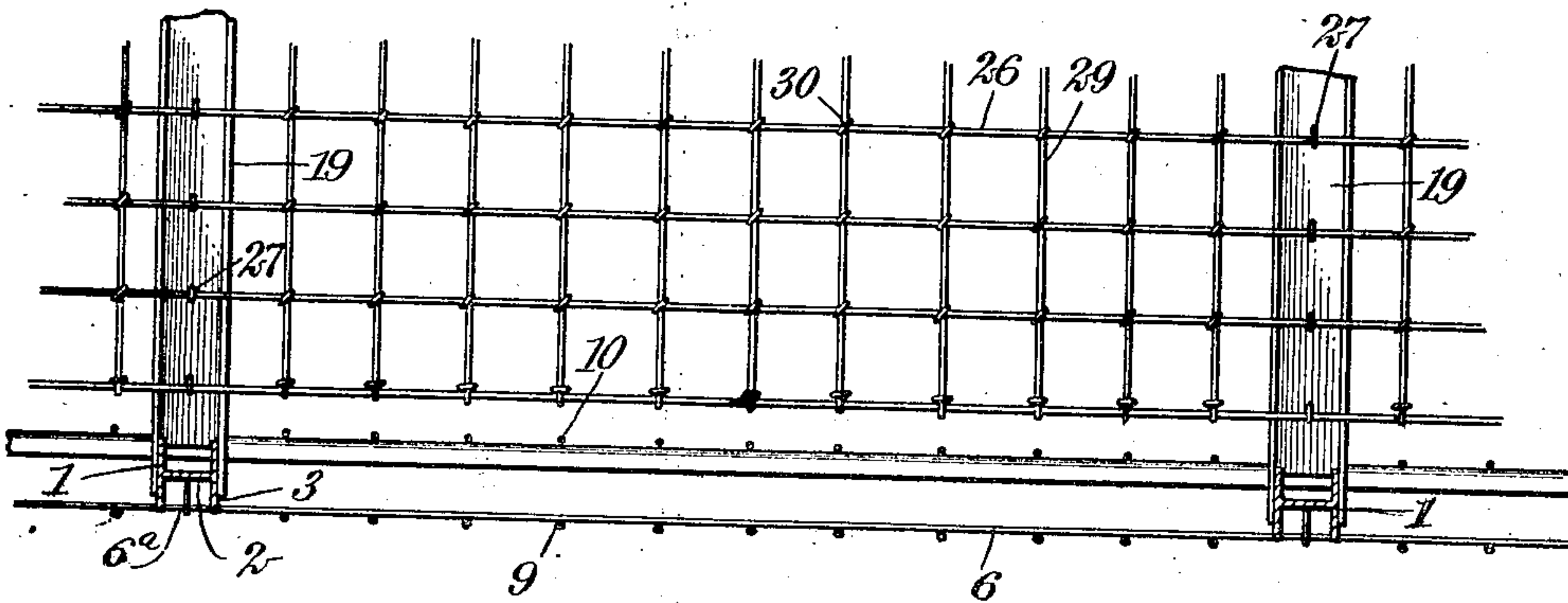
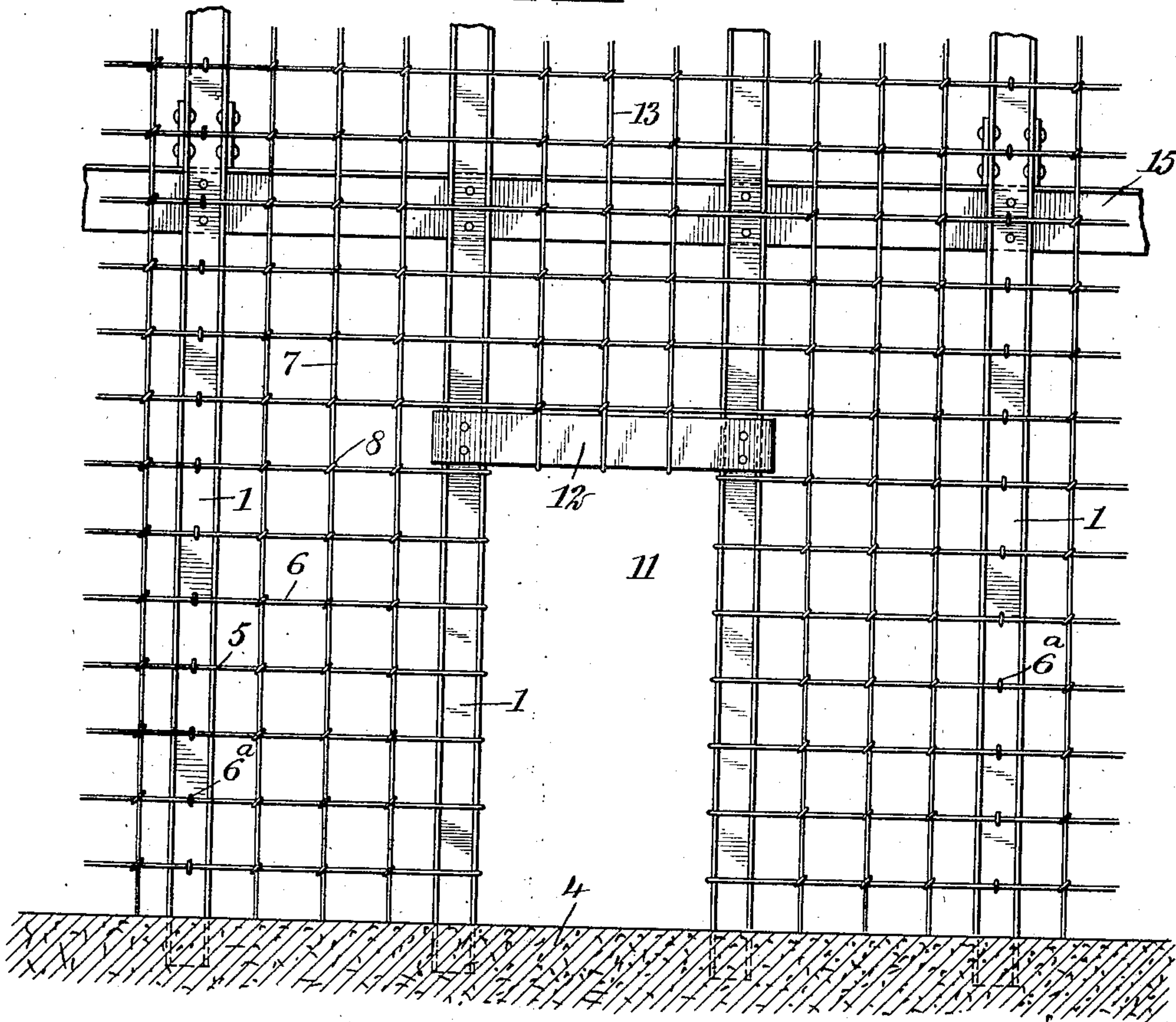


Fig. 2

WITNESSES

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Fig. 3

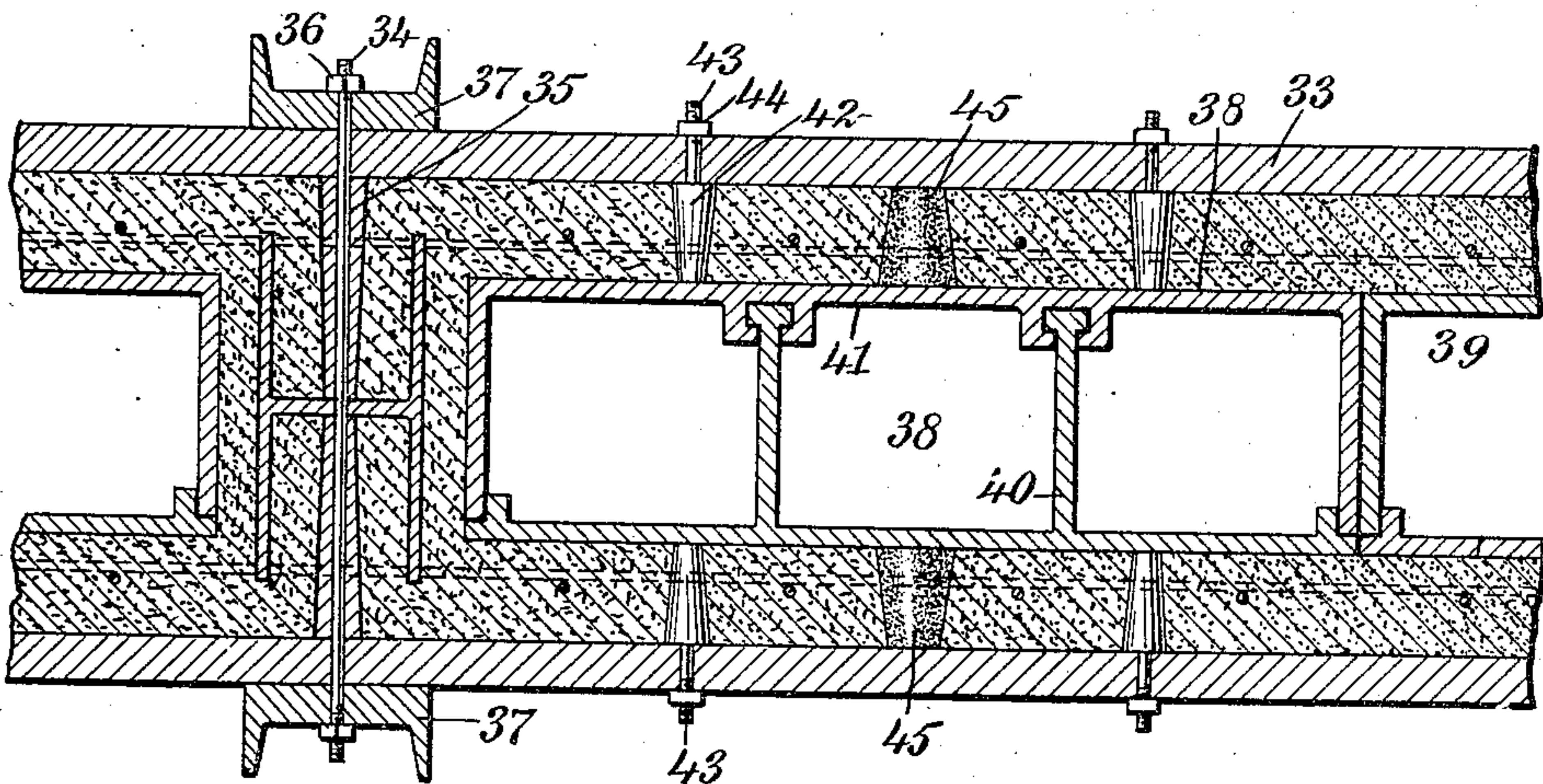
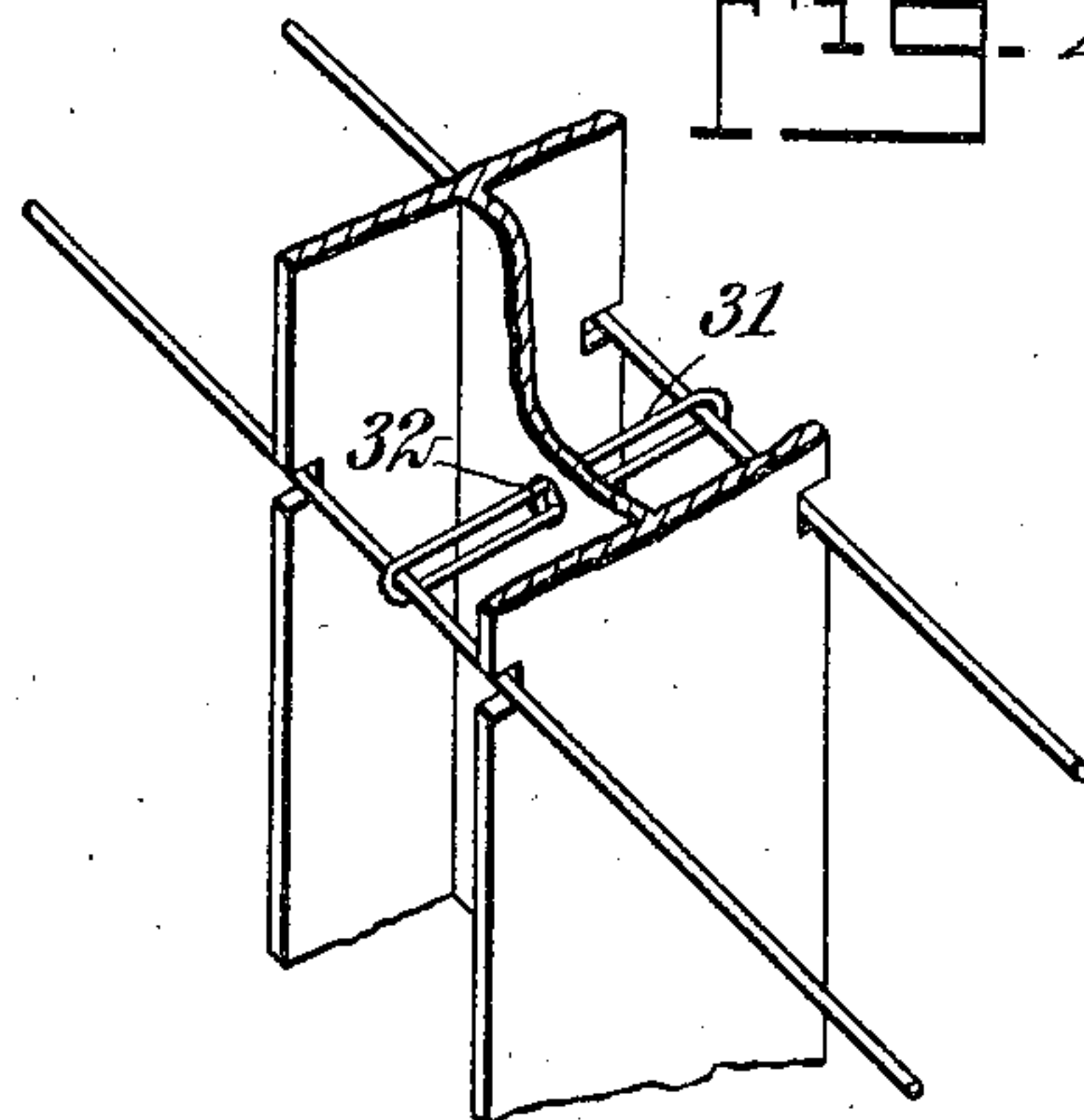


Fig. 4



WITNESSES

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UNITED STATES PATENT OFFICE.

SAMUEL HENRY SUMMERSCALES, OF WINNIPEG, MANITOBA, CANADA.

REINFORCED CONCRETE CONSTRUCTION.

944,110.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed September 22, 1908. Serial No. 454,235.

To all whom it may concern:

Be it known that I, SAMUEL H. SUMMERSCALES, a subject of the King of Great Britain, and a resident of Winnipeg, in the Province of Manitoba, Dominion of Canada, have invented a new and useful Reinforced Concrete Construction, of which the following is a full, clear, and exact description.

This invention relates to reinforced concrete construction, and the object of the invention is to provide a simple construction of this class in which the metal reinforcing parts are connected in an improved manner, so as to form an efficient reinforcing skeleton for concrete walls, floors, and similar constructions.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a front elevation showing a portion of a wall in process of construction according to my invention; the ground being shown in cross section; Fig. 2 is a horizontal section taken through the wall just above a floor, and showing a portion of the wall and floor also in process of construction; Fig. 3 is a horizontal section taken through a portion of a wall and illustrating the manner in which the forms are applied when the cement is being set; and Fig. 4 is a perspective and illustrates the manner of attaching reinforcing wires to the columns.

Referring more particularly to the parts and especially to Figs. 1 and 2, in forming a wall, I provide a plurality of stringers or columns 1, which are preferably in the form of double channels or H-beams. The feet of these columns may be stepped in cement 4, or otherwise suitably secured in the foundation of the building. As illustrated in Fig. 2, the columns are arranged so that their webs 2 extend in the plane of the wall, the flanges 3 being disposed at right angles to the plane of the wall. On their inner and outer edges, the flanges 3 of the columns are provided with oppositely-disposed notches 5, which are preferably spaced equidistant as shown. In these notches 5, parallel reinforcing horizontal rods or wires 6 are ar-

ranged, and between the columns these rods are connected by vertical rods or wires 7, which are attached to them by ties or clips 8 at the intersections, as shown. These rods 7 are preferably spaced equidistant and the same distance apart as the wires 6. In this way, I form a grill 9 of the cross wires of the rods toward the outer side of the wall and a similar grill 10 on the inner side. Where a doorway is to be formed, it is preferably formed between two columns, as indicated in Fig. 1, so that the width of the doorway is equal to the distance between the columns. The doorway is then formed by providing a lintel 12, which is riveted or bolted to the columns, and the vertical wires or rods which are disposed above the doorway, are attached to this lintel, as indicated. The horizontal wires 6, where they cross the columns, are attached thereto by short anchors 6^a, which are attached to the webs of the columns as indicated.

After the skeleton of the walls and floors has been formed in the manner described, the cement is molded in the manner illustrated in Fig. 3, so as to envelop the steel work. For this purpose, I provide outside molding plates or shields 33, which are attached to the columns or floor beams by means of screw bolts 34 which pass through the webs as indicated. In order to hold the shields in place, the bolts 34 are provided with conical sleeves 35, which taper toward their inner ends. Their inner ends set against the webs of the columns or beams, and their outer ends abut the inner faces of the shields. On the ends of the bolts, nuts 36 are provided, which screw down upon binder strips 37, holding the shields tightly against the sleeves 35, as will be readily understood.

In order to form a central chamber 38 in the wall or floor, I provide forms 39, which are held in place between the plates 33. These forms 39 are preferably formed in sections 40 and 41, which interlock with each other in any suitable manner as shown, so that they may be slid into position. They are held equidistant between the plates 33 by means of distance cones 42, which cones have studs 43 formed on their outer ends, that is, on their larger ends. These studs pass through the plates and are provided with nuts 44 to secure the distance cones in position. The inner ends of the cones abut against the sides of the forms and hold them

in position. If desired, I may further provide distance cones 45, which are formed of cement or similar material, and these may be placed intermediately of the cones 42. They
5 taper in the opposite direction, that is, their small ends are disposed outwardly. When the plates and forms have been placed in position as indicated in Fig. 3, a complete molding space is formed about the columns
10 or floor beams and the grills, and into this space the cement is flowed and allowed to set. After the cement has set, the forms 39 are removed and also the plates 33. In order to facilitate the withdrawal of the
15 sleeves 35 and the cones 42, their surfaces may be oiled before the cement is applied. The binder strips or binders 37 are elongated bars and extend under a number of bolts. They may be made of any length
20 desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A reinforced concrete wall having reinforcing stringers each having a web and
25 two flanges disposed transversely to the plane of the wall, said flanges having notches therein, wires received in said notches and extending transversely of said stringers,
30 links anchoring said wires in said notches disposed between said flanges, and a cementitious material embedding said flanges and said wires.

2. A reinforced concrete wall having reinforcing stringers formed with webs parallel with the plane of the wall and flanges extending at right angles to said webs and at
35 right angles to the plane of the wall, said flanges having notches in the edges thereof,
40 wires received in said notches and extending transversely of said stringers and connecting the same, said webs having openings there-through, links connecting said wires through
45 said openings and holding said wires in said notches, and a cementitious material embedding said stringers and said wires.

3. A reinforced concrete wall having metal columns with vertical webs disposed substantially in the plane of the wall, and laterally-projecting vertical flanges, said flanges
50 having notches in the edges thereof, wires received in said notches links connecting said wires through said webs, and stretched between said columns, and a cementitious material, embedding said columns and said
55 wires.

4. A reinforced concrete wall having metal columns with webs disposed substantially in the plane of the wall and laterally projecting vertical flanges, said webs having open-
60 ings therethrough, said flanges having notches in the edges thereof, wires received in said notches, and stretched horizontally across the space between said columns, links
65 passing through said openings and connecting said wires, and cross bars connecting said wires and forming a grill therewith in the planes of the outer edges of said columns.

5. A reinforced concrete wall construction
70 having metal columns comprising vertical webs disposed substantially parallel with the plane of the wall and vertical flanges disposed transversely with respect to the wall, said flanges having notches in the edges
75 thereof, said webs having openings there-through, parallel wires received in said notches and forming grills at the front and rear sides of said columns substantially in the plane of the edges of said flanges, links
80 connecting said wires and passing through said openings, and a cementitious body having a hollow space between said grills and enveloping said grills and said columns.

In testimony whereof I have signed my
85 name to this specification in the presence of two subscribing witnesses.

SAMUEL HENRY SUMMERSCALES.

Witnesses:

FRANK R. EVANS,

JAMES CROSTHWAITTE.