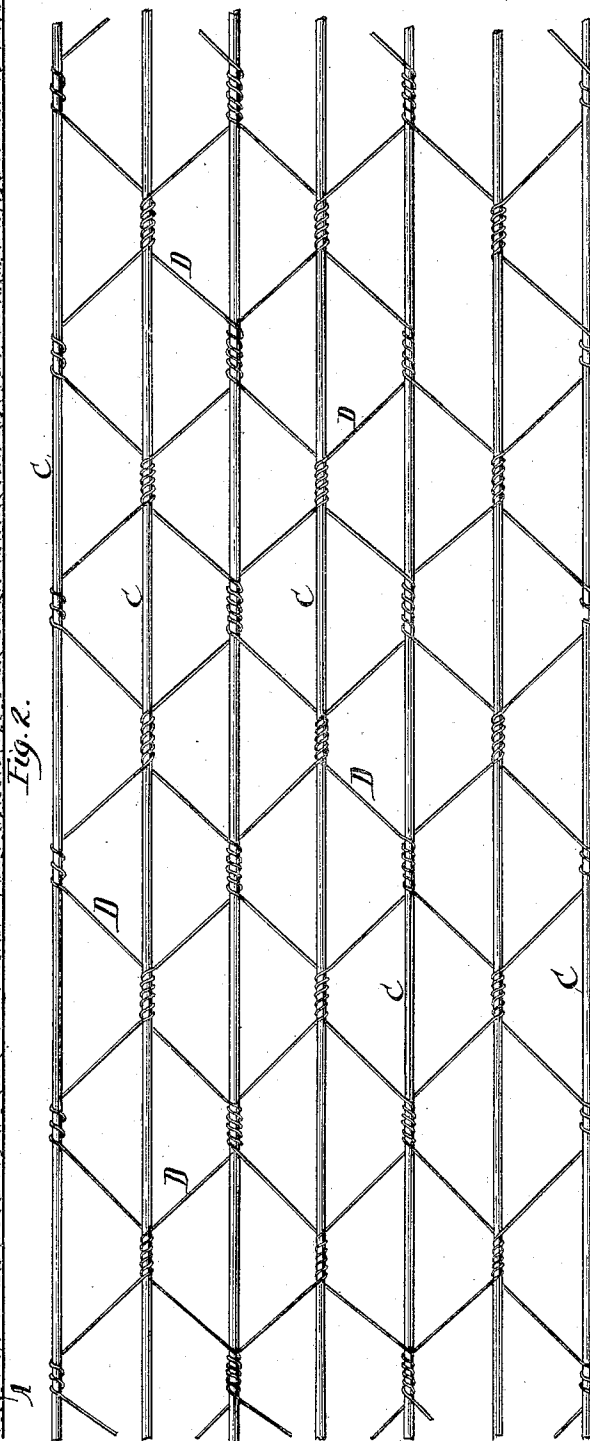
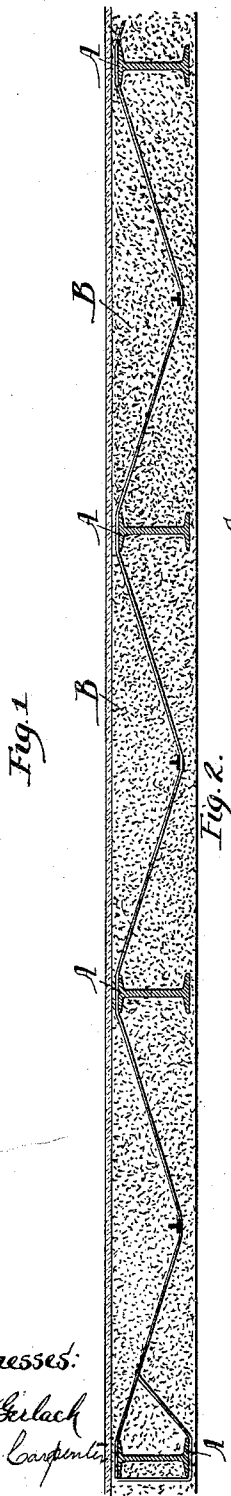


(No Model.)

M. F. McCARTHY.
WIRE FABRIC FOR FIRE PROOF STRUCTURES.

No. 460,214.

Patented Sept. 29, 1891.



Witnesses:

Fred. Geilach
J. D. Carpenter

Inventor:
M. F. McCarthy
By Pierce & Fisher
Attorneys.

UNITED STATES PATENT OFFICE.

MITCHELL F. MCCARTHY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE UNITED STATES FIRE PROOFING COMPANY, OF SAME PLACE.

WIRE FABRIC FOR FIRE-PROOF STRUCTURES.

SPECIFICATION forming part of Letters Patent No. 460,214, dated September 29, 1891.

Application filed April 24, 1891. Serial No. 390,222. (No model.)

To all whom it may concern:

Be it known that I, MITCHELL F. MCCARTHY, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wire Fabric for Fire-Proof Structures, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

In an application for Letters Patent for improvements in fire-proof buildings filed by me in the United States Patent Office February 24, 1891, Serial No. 382,342, there is described certain improvements in fire-proof structures, the essential feature of which consists in stretching between the beams of the structure a series of wire supports, these supports being inclosed by a filling which closes the pocket-space between contiguous beams. In such application for Letters Patent I have also shown, but have not therein claimed, the particular construction of wire fabric which it is my purpose to claim in the present specification.

In the construction of fire-proof buildings after the manner set forth in my above-mentioned application, the weight of the concrete being very great, it is desirable that the wire fabric should be of such character as to sustain this weight, and in the preferred method of setting this wire fabric the drooping portions of the fabric between the beams are placed under tension, so that they will be embedded in the plastic concrete in such manner that when the plastic mass has become set the further stretching of the fabric will be avoided. As the weight of the filling between the beams of the structure falls chiefly upon the strands of the wire fabric that extend directly across the beams, I form such wire strands much heavier than the strands of the fabric, which simply serve to unite together the strands that sustain the main strain and afford a bond for the concrete mass and distribute the weight thereof upon the main supporting-strands. It is desirable, also, not only that the main supporting-strands of the fabric shall be of heavier material than the cross-strands, but that they shall be straight, so that when placed under

tension or when the load of the concrete mass falls upon them all danger of sagging or stretching under this load will be avoided, as would be the case if the supporting-strands were curved or coiled about the cross-strands.

With this object in view my invention consists in a wire fabric the main supporting-strands of which are formed of straight and heavy wire and the cross-strands of which are formed of lighter wire coiled about the heavier strands.

My invention also consists in the combination of this form of wire fabric with the beams of the structure and the concrete mass that serves to fill the space between the beams and in which the wire fabric is embedded.

Figure 1 is a view in vertical section through the floor of a building or other structure, having a series of beams with my improved fabric stretched across the top thereof. Fig. 2 is a plan view of the fabric.

A designates the series of beams of a building or other structure, these beams being arranged at proper distances apart with reference to the load they are designed to carry. The beams may be of wood or iron and in the form shown, or of the I structures generally adapted for this class of work. Over the tops of the beams A is extended the wire fabric or netting that droops between the beams A and is embedded in the mass of concrete B, that serves to fill the space between these beams.

The wire fabric is formed of a series of supporting "warp-wires" C, of stout heavy wire, and a series of cross "weft-strands" D, of finer wire. The heavy supporting-wires C extend directly across the tops of the beams A and are straight—i. e., without coil or twist—while the finer cross-strands D are coiled about the supporting-wires C, preferably in the manner shown. The supporting-wires and cross-wires are embedded in the mass of concrete B, and the weight of this mass is sustained in great measure by the supporting warp-wires C, although the cross-wires or weft D serve to distribute the strain upon the supporting-wires and more firmly interlock them with the concrete mass. It is obvious that by employing heavy straight wires extending across the beams in manner shown the stretching of these wires under the weight of the concrete

mass will be very slight, whereas if the wire fabric were extended across the beams in such manner that the strain of the load should come upon the cross-wires D the fabric would stretch and sag beneath the weight of the concrete mass. It is manifest, also, that by the employment of my improved fabric a much more effective tension of the fabric across the beams can be obtained than would be possible with a fabric in which no straight heavy wires were employed extending across the beams.

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

1. A wire fabric consisting of heavy straight warp-wires C and finer cross-wires D, coiled

about said straight wires, substantially as described.

2. The combination of the beams A of a fire-proof structure, a concrete filling between said beams, and a wire fabric embedded in said concrete mass and extending over and drooped between the beams, said wire fabric consisting of the large warp-strands C, extending directly across the beams, and the cross-strands D, of finer wire, interlocking said heavier strands C, substantially as described.

MITCHELL F. MCCARTHY.

Witnesses:

FRED GERLACH,
I. B. CARPENTER.