No. 681,728. Patented Sept. 3. 1901.

W. ORR.

FIREPROOF CONSTRUCTION AND METHOD OF MAKING SAME.

(Application filed Aug. 23, 1900.)

(No Model.)

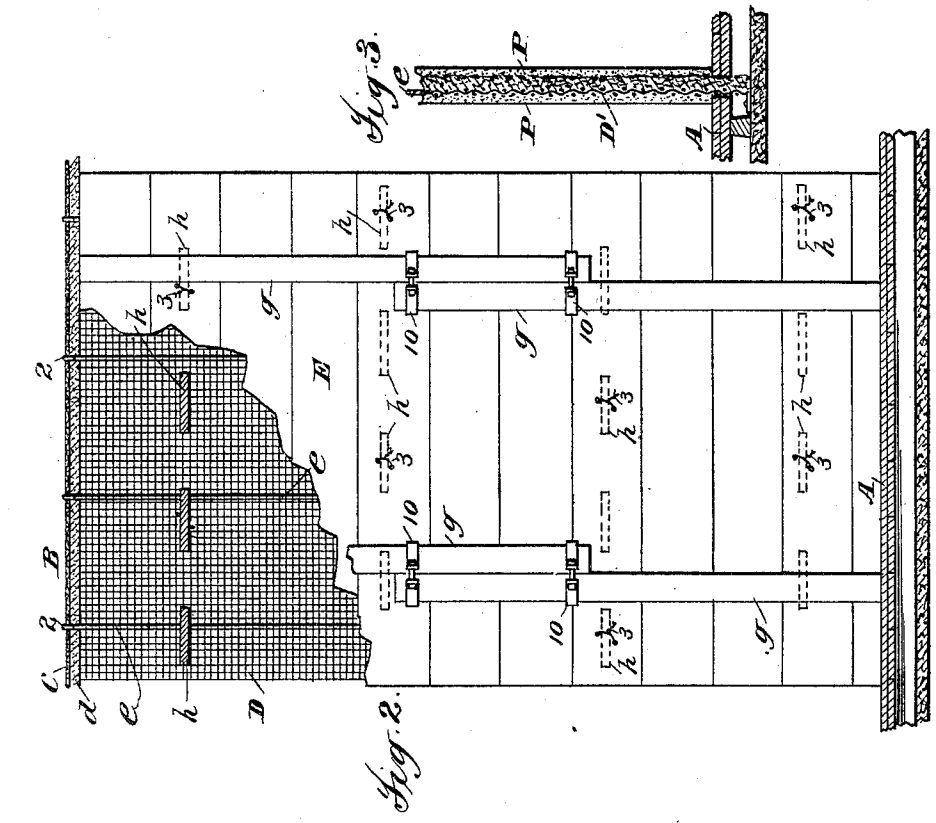


Fig. 3.

Fig. 2.

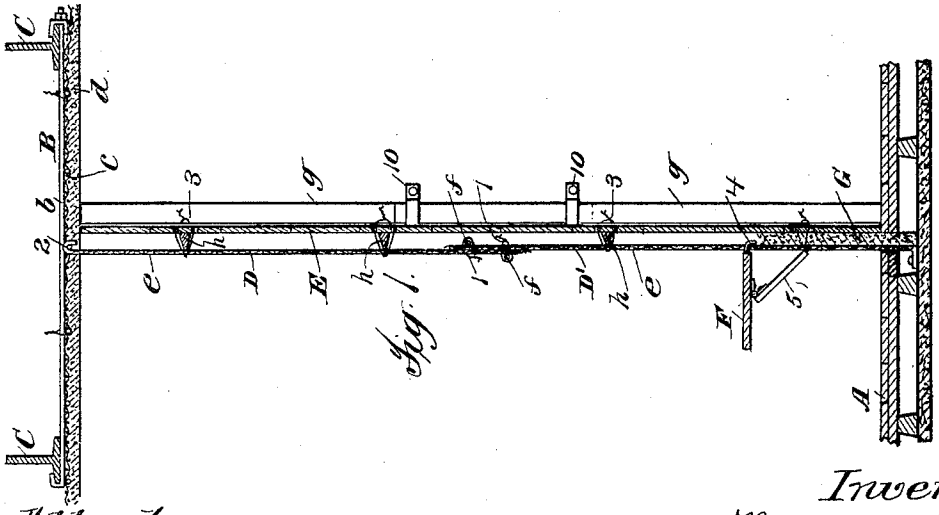


Fig. 1.

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UNITED STATES PATENT OFFICE.

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FIREPROOF CONSTRUCTION AND METHOD OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 681,728, dated September 3, 1901.

Application filed August 23, 1900. Serial No. 27,774. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ORR, a citizen of the United States, residing at Trenton, county of Mercer, and State of New Jersey, have invented certain new and useful Improvements in Fireproof Constructions and Methods of Making the Same, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to provide a cheap strong fireproof partition or wall formed of reticulated metal and plastic material and an improved apparatus and method for making the same, the especial object being to provide a partition having the required fireproof qualities and strength while employing but a single layer of reticulated metal.

As a full understanding of the invention can best be given by an illustration and detailed description of constructions embodying the same, such a description will now be given in connection with the accompanying drawings, forming a part of this specification, and showing a partition embodying all the features of the invention in their preferred form, and the features forming the invention will then be particularly pointed out in the claims.

In the drawings, Figure 1 is a vertical section of a partition in process of construction. Fig. 2 is a side elevation of the same looking to the left in Fig. 1, with the mold-frame partly broken away and the offsetting supports sectioned to show the construction. Fig. 3 is a vertical section showing a portion of the completed partition.

Referring now to the drawings, A is the floor, and B the ceiling, between which the partition is to be built. The ceiling B is shown as of a common fireproof construction, with ceiling-supporting rods *b* extending from beam to beam and carried by the flanges of the I-beams C, reticulated metal *c*, which is shown as common woven-wire lathing supported by and below the rods *b*, and the plastic material *d*, applied on the lower side of the reticulated metal *c*. It will be understood, however, that the ceiling or floor construction at the top of the partition as well as at the base of the partition may be of any suitable construction.

Referring now to the partition construction, the reticulated metal employed consists of a plurality of sheets, two sheets D D′ being shown, the width of which is such that when the sheets are placed vertically one above the other they extend from ceiling to floor and overlap at the center, as shown, the overlapping being sufficient so that these sheets may be used in constructing partitions of different heights, thus avoiding the necessity for making reticulated metal of special widths for different partitions. Each of these sheets of reticulated metal has supporting-rods *e* secured thereto or woven therein, which rods extend the full width of the sheets of the reticulated metal and project therefrom, so as to be used in securing the reticulated metal to the ceiling or to the floor. These rods in the successive sheets of reticulated metal overlap, therefore, between the ceiling and floor when placed together to form the partition, and these overlapping portions are secured together, so as to make a continuous layer of reticulated metal, extending vertically between the ceiling and floor. As shown in the drawings, the overlapping portions of the sheets of reticulated metal and of the rods *e* are secured together by horizontal rods *f*, extending along the opposite sides of the overlapping portions and secured by wire ties 1 to the rods *e* at suitable intervals. The rods *e* are shown as bent at right angles and flattened at their lower ends for nailing to the floor and at their upper ends are shown as formed with hooks 2, which are hooked through the lathing and around the stiffening-rods of the lathing. It will be understood, however, that these ends of the rods *e* may be formed and secured to the ceiling and floor in any other suitable manner.

The reticulated metal D D′ is shown as woven-wire lathing; but it will be understood that this may be of any suitable form, either of woven or netted wire or metal rods or strips or perforated or expanded metal, preferably with the mesh such that the plastic material may be forced through the meshes, so as to form a body of plastic material on

one side of the reticulated metal, as hereinafter described. Concrete will preferably be used, so as to form a strong partition, so that the metallic lathing will be of quite large mesh or size of opening, which reduces largely the cost of the reticulated metal as compared with constructions in which fine metal is used with a fine plastic material, such as plaster, applied thereto, so that large-mesh metal with the concrete enables the production of a very cheap fireproof partition, while at the same time the desired strength and fireproof qualities are secured.

Upon one side of the reticulated metal D D′ is mounted a vertical mold-frame or centering E, this mold-frame preferably being formed with vertical supports *g*, which are adjustable in length, so that they may be used for partitions of varying heights, these vertical supports *g* being shown as consisting of bars overlapping at their ends and secured together by bands 10. These supports *g* may be held in place in any suitable manner, as by struts from the floor or otherwise, and serve as the backing for the molding-frame E, which in the form shown consists simply of boards arranged one upon the other edgewise between the supports *g* and the reticulated metal D D′.

For the purpose of holding the reticulated metal D D′ rigidly in a vertical plane while avoiding the necessity for the heavy rigid vertical bars commonly used to support reticulated metal in partition constructions I preferably use offsetting supports upon the molding-frame E, which extend the depth of the body of plastic material desired and serve as gages to determine the proper position of the molding-frame relatively to the reticulated metal, while at the same time supporting the latter against the pressure of filling the plastic material through the interstices of the metal. As shown, these offsetting supports *h* consist of ribs on some of the boards forming the molding-frame, these ribs preferably being wedge-shaped, as shown, so as to be withdrawn readily from the plastic material after the latter is filled in and leave only narrow openings to be filled, and the reticulated metal is secured to the molding-frame, so as to prevent its being pressed out of vertical line by the pressure of the plastic material as the latter is filled in, by wire ties 3, tied around the ribs *h* and through holes in the molding-frame E. By cutting these ties 3 after the plastic material has been filled in and allowed to set the molding-frame may readily be removed.

The plastic material C is preferably filled in through the openings in the reticulated metal in the manner illustrated in Fig. 1, a board F being supported on the reticulated metal by hooks 4 on the board extending through the metal and hinged struts 5 on the under side of the board bearing against the metal. This board F is placed in position upon the reticulated metal, the concrete or similar plastic material placed thereon and then filled by trowel or otherwise through the openings in the metal into the space between the latter and the molding-frame E. When the space below the board F has been thus filled, the board is removed and moved upward on the reticulated metal to the desired point and the process thus continued until the full height of the partition is formed. While this is the preferred method of applying the plastic material, it will be understood that the moldboard or centering on one side of the structure may be used with plastic material filled in in any suitable manner, either through the meshes of the reticulated metal on the opposite side of the partition from the centering or from above before the reticulated metal is put in place. After the space between the reticulated metal and the moldboard or centering has been filled in and the material is set the moldboard or centering is removed and the opposite sides of the partition are then preferably finished by coating with plaster P, which keys onto the metal and portions of concrete which project through its meshes on one side and are held by the molded concrete on the opposite side of the partition.

It will be understood that this construction may be used with plaster only on one side in case the construction is to be placed adjacent to a wall instead of forming a partition or that such construction may be used without finishing in plaster on either side. It is especially designed, however, for partition and similar constructions finished with plaster on opposite sides.

It will be seen that the construction is very simple and cheap, while at the same time quite strong for the amount of material used, and that it may be made very cheaply with metal of large mesh and requiring no labor of special skill. The body of concrete or similar plastic material not only makes a strong construction, but also reduces largely the amount of plaster required as compared with constructions in which the plaster is applied to the metallic lathing in forming either solid or hollow partitions without such a body of plastic material as a base for the plaster, thus aiding also in securing a cheap construction.

What I claim is—

1. A fireproof construction comprising a single vertical center of reticulated metal, and a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, substantially as described.

2. A fireproof construction comprising a single vertical center of reticulated metal, a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, and a covering of plaster or similar material applied on the reticulated-metal side of the structure thus formed, substantially as described.

3. A fireproof construction comprising a single vertical center of reticulated metal, a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, and a covering of plaster or similar material on both sides of the structure thus formed, substantially as described.

4. A fireproof construction comprising a single vertical center of reticulated metal, and a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, said reticulated metal being of such mesh as to permit the body of plastic material to be applied through the openings in the metal from the opposite side of the latter, substantially as described.

5. A fireproof construction comprising a single vertical center of reticulated metal, a body of concrete or similar plastic material molded on one side of said center and filling the openings in the reticulated metal, said reticulated metal being of such mesh as to permit the body of plastic material to be applied through the openings in the metal from the opposite side of the latter, and a covering of plaster or similar material on the reticulated-metal side of the structure thus formed, substantially as described.

6. A fireproof construction comprising a vertical body of concrete or similar plastic material with reticulated metal on one side only and consisting of sheets of metal having vertical rods woven therein or secured thereto with the successive sheets overlapping horizontally and having the overlapping portions secured together, substantially as described.

7. A partition consisting of a body of concrete or similar plastic material with reticulated metal on one side only and consisting of sheets of metal having vertical rods woven therein or secured thereto with the successive sheets overlapping horizontally and having the overlapping portions secured together, and a covering of plaster or similar material on one or both sides of the structure, substantially as described.

8. The method of making a fireproof construction, which consists in erecting a vertical center of reticulated metal, mounting on one side of said metal a mold-frame with a space between it and the reticulated metal, and filling the space between the reticulated metal and mold-frame with plastic material, substantially as described.

9. The method of making a fireproof construction, which consists in erecting a vertical center of reticulated metal, mounting on one side of said metal a mold-frame with a space between it and the reticulated metal, filling the space between the reticulated metal and mold-frame with plastic material by introducing it through the reticulated metal, and removing the mold-frame, substantially as described.

10. The method of making a fireproof construction, which consists in erecting a vertical center of reticulated metal, mounting on one side of said metal a mold-frame with a space between it and the reticulated metal and with offsetting supports between the frame and metal for supporting the latter against pressure, and filling the space between the reticulated metal and mold-frame with plastic material by introducing it through the reticulated metal, substantially as described.

11. The combination with the vertical reticulated-metal center, of the removable mold-frame, and offsetting projections on said frame by which the metal center is offset from the frame and supported against pressure tending to force it toward the frame, substantially as described.

12. The combination with the vertical reticulated-metal center, of the removable mold-frame, offsetting projections on said frame, and means for connecting the metal to the frame, substantially as described.

13. The combination with the vertical reticulated-metal center, of the removable mold-frame, wedge-shaped offsets *h* on said frame, and means for securing the metal to the frame, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM ORR.

Witnesses:
EDWIN W. ARNOLD,
GEO. W. FELTY.