

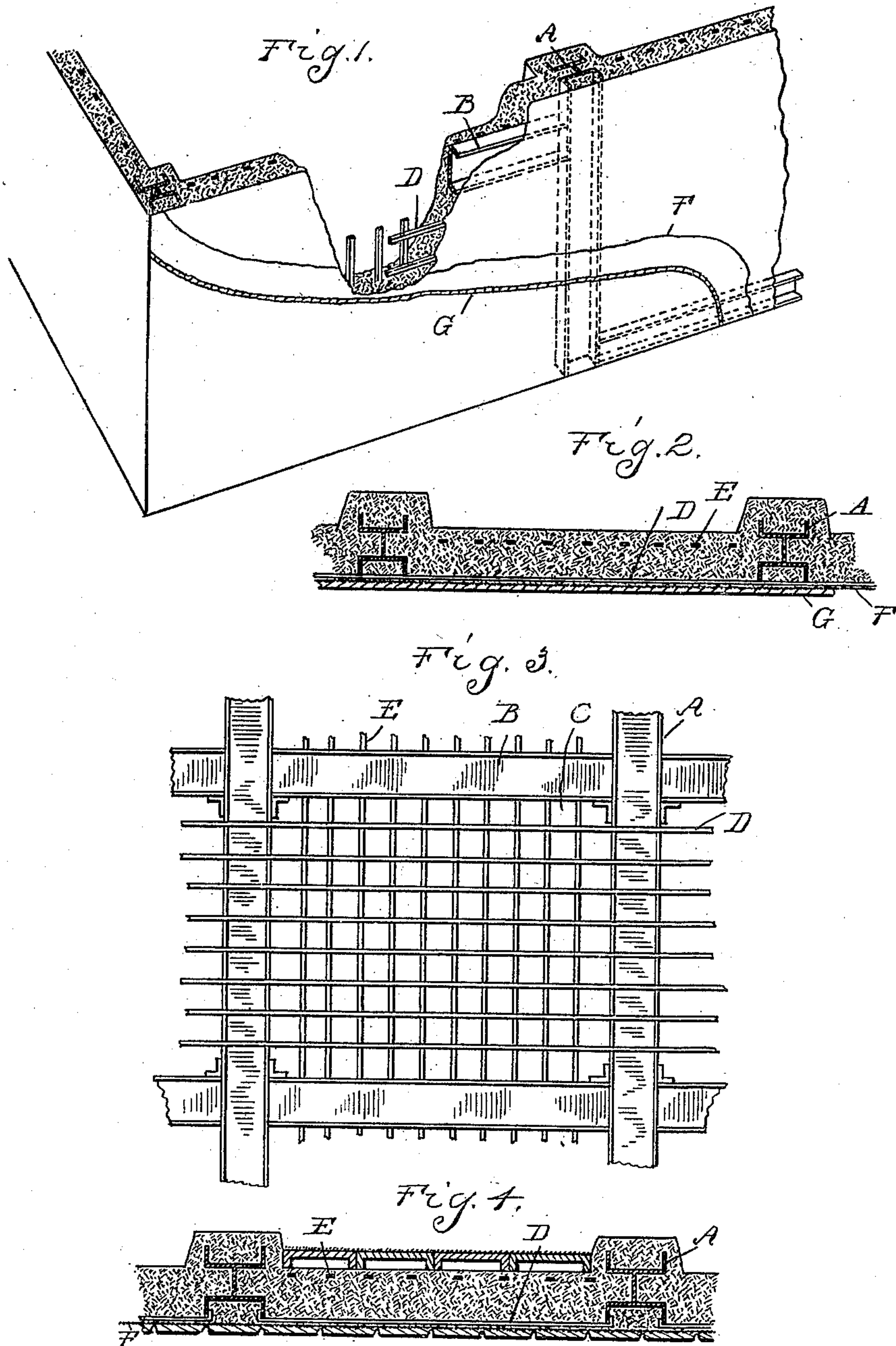
No. 705,048.

Patented July 22, 1902.

A. DE MAN.
BUILDING WALL.

(Application filed June 5, 1901.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

ALPHONSE DE MAN, OF NEW YORK, N. Y.

BUILDING-WALL.

SPECIFICATION forming part of Letters Patent No. 705,048, dated July 22, 1902.

Application filed June 5, 1901. Serial No. 63,237. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSE DE MAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Building-Walls, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to building-walls, and is more particularly designed to be used in connection with that type of building having a metallic structural framework.

15 In the construction of buildings in large and crowded cities where the space occupied is very valuable it is important to reduce in every way possible the thickness of walls and partitions. The modern type of steel-frame structures permits of a considerable reduction in the thickness of the outer walls over those formed of solid masonry or brick; but as heretofore constructed the thickness of the wall is still considerably greater than is required if novel methods of construction are 25 used.

It is the object of the present invention to obtain a construction of wall in which the thickness will be reduced considerably from what they were in previous methods of construction; and to this end the invention consists in the construction as hereinafter described and claimed.

35 In the drawings, Figure 1 is a perspective view of a portion of the improved building-wall. Fig. 2 is a horizontal section thereof. Fig. 3 is an elevation of the metallic framework before the cementitious body is filled in; and Fig. 4 is a view similar to Fig. 2, showing a slight modification.

40 The structural frame of the building is composed of a metallic skeleton comprising the vertical members A and horizontal members B, joined to each other in any suitable way. This structural framework when completed will form a series of open spaces or panels C, which are usually filled with masonry or brickwork. In order to protect the structural framework, the masonry or brickwork is usually extended on each side of it, 45 and as the vertical members of said framework are usually of greater diameter than the cross members it is not practical and not

workmanlike to change the thickness of a brick wall to follow all these irregularities of the metal skeleton. The thickness of the wall 55 is thus increased in order to make it straight. With my improved structure I diminish the thickness of the wall between the vertical members by filling the open spaces with a cementitious body, such as concrete, of sufficient thickness to withstand the lateral pressures to which the wall may be exposed. The use of reinforced concrete admits a greater reduction than any other mason building material. To strengthen this concrete, as 65 well as to securely connect the same to the structural framework, I arrange a series of small metallic tension members extending across the open space between the main uprights and their horizontal connecting-pieces 70 of the framework, which tension members are also embedded in the cementitious body. As shown in the drawings, the outside face of the wall is provided with a series of horizontal tension members D, while the inner side 75 of the wall is provided with a series of vertical tension members E. These members may be secured to the structural framework in any suitable way, and as they are firmly embedded in the wall and overlap the edges of the 80 beams and principal uprights the wall will be firmly held in place. The wall as thus formed being comparatively thin and being formed of a more or less porous substance needs to be protected from the penetration of moisture. 85 This I accomplish by coating the outer face of the cement with a waterproof coating of any suitable material, (indicated at F in the drawings,) and then to give the proper finish a facing G of suitable plastic compound is 90 placed outside of this coating. The plastic compound can also be made waterproof of itself, in which case the waterproof coating can be dispensed with. Instead of this plastic compound any outside finishing material 95 can be used—such as terra-cotta, brick, or stone—using it as a veneer to give an outside desired effect. This veneer can be anchored to the cementitious wall by any suitable anchoring-clips built in it for that purpose or 100 by driving projecting nails in the wall if it is built of porous material, such as cinder concrete.

The inside of the wall may be either di-

rectly finished or it may be coated with plaster or other suitable finishing material.

As these walls are very thin, it will be necessary in climates where the difference of
5 outside and inside temperature is great to apply on the inside of the wall a coat of some insulating material, and besides a furring of hollow tile, to which the inside plastering can be applied.

10 The placing of the tension members near the surface of the cementitious wall will impart the greatest element of strength thereto, as the greatest tension strain is always exerted on the surface of the wall, and as there
15 are tension members near the two surfaces the wall will resist lateral pressions as well from the inside as from the outside.

What I claim as my invention is—

20 1. A building-wall comprising a structural framework composed of vertical and horizontal connecting metallic beams leaving open panels between, small tension members extending across said open panel upon opposite
25 sides of said framework and overlapping the latter and a cementitious filling embedding said structural and cross tension members.

30 2. A building-wall comprising a metallic structural framework composed of vertical columns and horizontal connecting-beams leaving open panels therebetween, a series

of small metallic tension members extending across said open spaces on the outside of said framework and overlapping said vertical columns, a similar series of metallic tension
35 members arranged in a different plane from the first series of tension members and overlapping said horizontal beams and a cementitious body filling said panel and embedding said tension members, said body being extended around said vertical columns and
40 horizontal beams to embed these also.

3. A building-wall comprising a metallic structural framework forming open panels between the members thereof, small metallic
45 tension members extending across said open panels at the side of said framework and overlapping the latter, a cementitious body filling said open panel and embedding said metallic tension members, and structural
50 framework; coating of waterproof material outside of said cementitious filling and a facing of finishing material outside of said waterproof coating.

In testimony whereof I affix my signature in presence of two witnesses.

ALPHONSE DE MAN.

Witnesses:

ALFRED OHLIGSBERG,
J. MANHEIMER.