

H. J. SCHUBERT.
CAST WALL FOR BUILDINGS.
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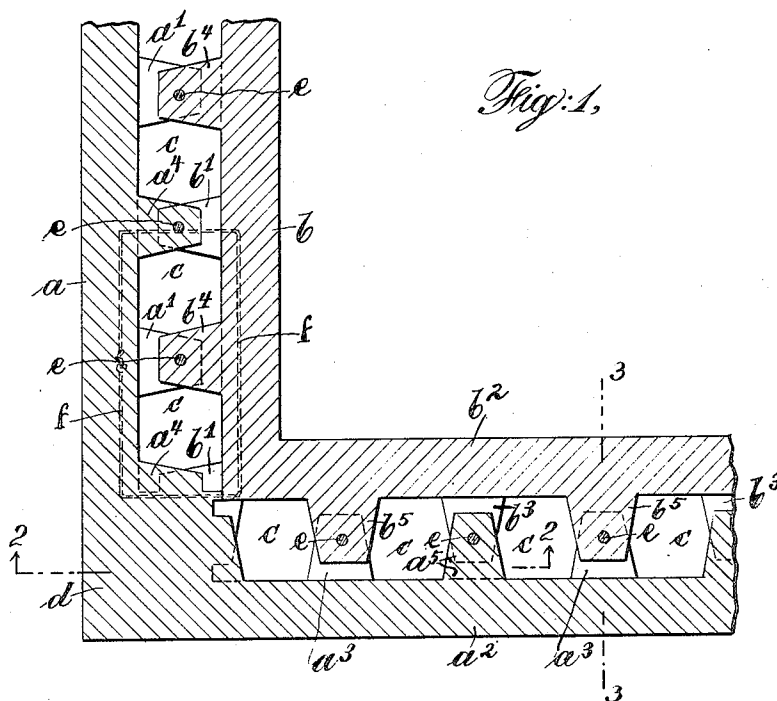


Fig. 1.

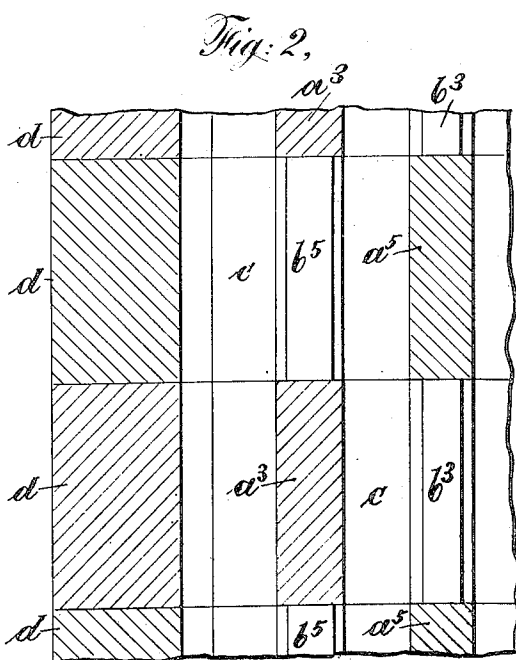


Fig. 2.

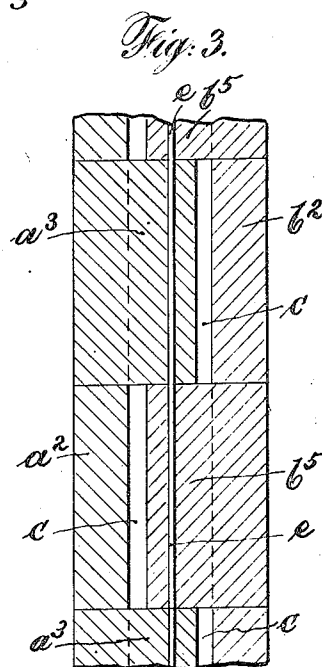


Fig. 3.

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CAST WALL FOR BUILDINGS.

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Specification of Letters Patent.

Patented Dec. 17, 1912.

Original application filed April 27, 1909, Serial No. 492,493. Divided and this application filed September 3, 1910. Serial No. 580,407.

To all whom it may concern:

Be it known that I, HERMANN J. SCHUBERT, a citizen of the United States of America, and a resident of Hackensack, in the county of Bergen, State of New Jersey, have invented certain new and useful Improvements in Cast Walls for Buildings, of which the following is a specification.

This invention has reference to novel cast walls of buildings.

It is the special object of my invention to produce cast double walls of buildings for so called cement houses and the like. These novel walls may be of various thickness relative to each other and there is a continuous air space of peculiar form between said walls for the purpose of retaining a relatively uniform temperature within the house. Means are provided in the walls of the same material and integral therewith for strengthening and connecting them in a peculiar manner, and connecting members for the inner and outer wall and within the strengthening portions above mentioned while the corner of two adjoining walls is so constructed that it is relatively strong.

The frame houses heretofore built are relatively uncomfortable because the summer heat easily penetrates the wooden boards of same and the cold of the winter can not be kept out effectively. These are great disadvantages, not to consider that wood is becoming scarce and substitutes for same must be found. Furthermore brick and stone houses of present constructions consist generally of solid walls without a continuous air space therein and thus are less desirable although they are more expensive.

The cement houses composed of my novel walls retain relatively uniform temperature within the house both during winter and summer because the material of the walls is a good insulator and the air within the continuous air space between the walls is an excellent insulator against heat and cold and dampness. Furthermore, houses composed of my novel cast walls are relatively cheap in comparison to the houses of present construction and more durable. By virtue of the construction of the novel walls with their strengthening portions and connecting members each cast double truly represents a

single wall with a continuous air space of peculiar shape therein. This has been primarily attained by providing on each inner and outer wall portion interior strengthening ribs so arranged that they overlap each other in successive castings in alternative order and the peculiar air space above mentioned is formed around same, all as will be fully described hereinafter with reference to the accompanying drawings in which:

Figure 1 represents part of a cast wall in horizontal section embodying in desirable form the present improvements. Fig. 2 is a vertical section on line 2, 2 of Fig. 1 and Fig. 3 is a like section on line 3, 3 of Fig. 1.

Similar characters of reference denote like parts in all the figures.

The novel walls are cast between suitably supported wall molds and around peculiarly constructed cores within said molds for which I have filed application for Letters Patent of the United States the 27th day of April 1909, said application bearing Ser. No. 492,493 and the present application is a division of the above identified application.

For practical reasons the walls are cast in separate vertical sections whereby the peculiar correlation and location of the overlapping ribs results.

In the drawing, *a* represents the outer wall of a double or compound wall and *b* is its inner wall. For the purpose of strengthening the walls and connecting them, ribs are produced on their inner sides. These ribs being produced simultaneously with the walls during the process of casting form an integral part of same. The strengthening ribs of one section or casting, say for instance the lower section, are located alternately and successively one on the outer wall then one on the inner wall and again one on the outer wall and so on. As shown in Fig. 1 of the drawing the ribs cast with the lower section of the wall *a* are designated by the reference character *a*¹ and the ribs cast simultaneously on the corresponding section of the wall *b* are designated by the reference character *b*¹. These latter ribs are located alternately between the ribs *a*¹. Adjoining the wall so far described, there is shown in Fig. 1 a like wall at a right angle thereto. It is composed of an outer wall *a*² and an

inner wall b^2 and the same kind of ribs a^3 are cast with the wall a^2 and the ribs b^3 with the wall b^2 in alternative and successive order as above described. In this way an
 5 air space c of peculiar form is produced between the outer and inner wall around the strengthening ribs, of serpentine shape.

Both walls are connected by a strong solid corner d preferably in the manner shown in
 10 Fig. 1. While the inner walls b , b^2 retain their usual thickness at the point of union the outer walls a , a^2 are joined by the solid corner d of relative large diameter whereby a very strong corner is formed which is particularly valuable in houses standing alone
 15 as is often the case with country houses or houses standing on the corner of a street when the whole block is built up in city style. For the purpose of connecting consecutive vertical castings or portions of the
 20 walls, iron rods e are placed in such places that same are located within the ribs of the wall when same have been cast. These rods extend vertically up beyond the first lower
 25 casting or portion of the walls and extend each into or through at least two vertical rib portions formed by different castings, as shown in Fig. 3. Each rod e passes first
 30 through a rib of the outer wall then passes through a rib of the inner wall whereby both are effectively connected and setting toward one another or separating from each other is prevented. To further connect the outer
 35 and inner walls oblong metal frames f , preferably of wrought iron, are pressed into the top of the casting just produced, before same gets hard. These are embedded into the
 40 outer and inner wall so that the short sides of each frame cross each two ribs, as shown in Fig. 1. The second casting or adjoining
 45 higher portion of the walls is produced in substantially the same manner except to note that the ribs a^4 of the outer wall a are formed in this portion above the ribs b^1 of
 50 the inner wall b and overlap same, as shown in Fig. 1, while the iron rod e passes through the rib b^1 and the rib a^4 for the purpose above mentioned in addition to the connection made by the metal frames f . In like
 55 manner ribs b^4 are formed on the inner wall b above corresponding ribs a^1 of the outer wall and overlapping same. Corresponding ribs a^5 , b^5 , are formed in the walls a^2 , b^2 . The production of wall portions as above
 60 described is continued until the desired height of the walls has been produced. Openings for windows and doors may be produced in the usual manner and the top of the walls may be closed by any suitable
 65 means.

By forming the walls in separate sections or castings as above described with the ribs produced on the inner wall portions in alternative and successive order so that one rib of
 65 the inner wall overlaps one rib of the outer

wall the air space is formed around the ribs of the first casting in form of a serpentine line and the air space of the second casting is formed in a like serpentine line but laterally shifted so that if graphically displayed
 70 the serpentine lines would cross each other at equal distance in top view, that is the serpentine air channel of the second casting is formed in reverse order with the one of the first casting. Likewise the second casting
 75 forms a corner with slightly modified joining portions, as shown in Fig. 1. While the lower casting or section is formed around the whole cores the second section is formed on the corner with half cores only as indicated in Fig. 1. The third section is again
 80 formed as the first section and the fourth like the second and so on.

The walls are cast of cement or any other suitable and approved composition. In the
 85 accompanying drawing, walls are illustrated which represent in about one-eighth of the natural size, approximately a twelve inch double or compound wall with an air space
 90 between the outer and inner wall of about five inches in diameter. This is a convenient size for smaller structures such as cottages and the like. For larger structures the walls may be increased in width. These
 95 cast double walls are further very well adapted for storage houses because not only the material is an insulator against heat and cold but the continuous air space within the wall with the air constantly retained therein
 100 greatly increases its insulating qualities. Further in my novel walls both the outer and inner wall bear the weight of the entire house because they are connected by the overlapping ribs, accordingly the walls may
 105 be relatively thin.

I claim as my invention:

1. A hollow cast wall for buildings comprising an outer and inner wall, composed of consecutive vertical sections, having each
 110 integral vertical inner ribs terminating short of the opposite ribs, so cast, that the ribs of the successive casting overlap the ribs of the lower casting for securely connecting both walls, and vertical rods or ties passing
 115 through two overlapping ribs.

2. A hollow cast wall for buildings comprising an outer and inner wall, composed of consecutive vertical sections, having each
 120 integral vertical inner ribs terminating short of the opposite ribs, so cast, that the ribs of the successive casting overlap the ribs of the lower casting for securely connecting both walls, vertical rods or ties passing through
 125 two overlapping ribs, and horizontal frames in the top portion of each section crossing two ribs of one wall.

3. A hollow cast wall for buildings comprising an outer and inner wall, composed of consecutive vertical sections, having each
 130 integral vertical inner ribs each trapezoidal

in cross section, said ribs terminating short
of the opposite ribs, so cast, that the ribs of
the successive casting overlap the ribs of the
lower casting for securely connecting both
5 walls, vertical rods or ties passing through
two overlapping ribs, horizontal frames in
the top portion of each section crossing two
ribs of one wall, and integral corners con-

necting each two outer walls and free from
the inner wall.

Signed at New York, N. Y., this 19th day
of August, 1910.

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Witnesses:

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