This invention relates to a concrete building structure and to a concrete wall structure. In modern concrete buildings it is often desirable to have a space or opening in the wall for ventilating and insulating purposes. It is desirable, therefore, to have simple and efficient means for forming such a space in the wall which at the same time will not weaken the wall structure.

It is an object of this invention, therefore, to provide a simple and efficient structure of wall having an opening therein.

It is another object of the invention to provide a building structure or building, the walls of which are provided with a continuous open space.

It is still another object of the invention to provide a structure of hollow concrete wall having spaced metal members forming spaced frames along which is placed some open mesh material adapted to hold the concrete together with suitable spacing means for said frame.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a vertical section through the wall of a building, showing a portion of the roof and floor structure;

Fig. 2 is a view in front elevation of one of the wall frames, showing a portion of the open mesh material used;

Fig. 3 is a horizontal section through a portion of a building at the corner thereof; and

Fig. 4 is a horizontal section taken on line 4—4 of Fig. 1, omitting the concrete portion of the wall and shown on an enlarged scale.

Referring to the drawing, a section of a building is shown in Fig. 1, comprising the side wall designated generally as 5. The lower or first floor of the building is indicated as 6, the same being shown as comprising two layers of boards or other material which are supported upon a beam 7 which may be of usual I-beam type. The beam 7 is supported on the inner portion 5a of the wall 5, forming the lower portion or basement portion of the wall. The foundation piers or bases 5b are shown as of greater transverse dimension than the wall 5 and a horizontal layer 5c forming the floor of the basement is also shown. A section of earth 8 is shown at one side of the lower or foundation portion of the wall, the top surface of which is indicated as 8a. The usual baseboards 9 are shown extending about the wall just above the floor 6, a molding strip 10 also being shown disposed in the corner of the wall and baseboards. A portion of the window frame in the wall is shown comprising the inner sill 11 and the outer sill portion 11b, the window sash being shown as 12. The horizontal roof beams 13 are shown at the top of the wall 5, which support the rafters 14 on which is placed the roof layers 15. A cornice board 16 is also shown secured to the horizontally extending members 17 which may comprise the usual 2 x 4 timbers. The wall 5 has a space or passage 5g formed therein at each side of which is disposed a frame 18. While the frames 18 may be variously made, in the embodiment of the invention illustrated they are shown as each comprising horizontally extending bars 18a extending in spaced relation and a set of bars 18b also extending in spaced relation at right angles to the bars 18a. Between the bars 18a and 18b is disposed a layer of open mesh material 18c. This material may comprise any open mesh metal material of the character now used for holding concrete plaster or cement such as metal lath or furring. In Fig. 2 a portion of this material is shown, the same comprising rows 18d of struck up tongues or projections from the metal. The frames 18 are spaced by a bolt or bar 19 having nuts or heads 20 engaging the bars 18a. The bolts 19 have projecting threaded portions 19a extending through the frames 18, the same being provided with nuts 21 adapted to clamp the frames and engage the outer bars 18b. The projecting ends 19b extend into the concrete portion of the wall as shown in Fig. 1.

When the wall is to be constructed, the frames 18 will be placed in position and the usual forms built to confine the concrete. The concrete is then poured in the form and the same passes between the bars 18a. The concrete also penetrates the open mesh layer 18c, passing therethrough and substantially covering the inner side thereof. The layer 18a and the bars 18b are thus embedded in the concrete layer so that the layer has a
strong firm and supporting bond on the frame 18. The wall is also supported by the projecting ends 19 of the bolts 19 which form reinforcing members for the wall. The passage is thus left in the wall and at the same time a very strong and durable wall is produced. While the spacing of the bars 18 and 18 may be varied, in practice it has been found that if these bars are spaced two feet apart, that satisfactory results are obtained.

From the above description it is seen that applicant has provided a very simple and efficient structure of building and wall. The wall comprises the desired air space and at the same time is strong and durable and easily and inexpensively constructed.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which, generally stated, consists in a device capable of carrying out the objects above set forth, in the novel parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A concrete wall structure comprising spaced frames, each having spaced horizontal and vertical bars, a layer of open mesh material held between said bars, means connecting said frames and having enlarged portions contacting the inner sides thereof holding the same in properly spaced relation and means on said bolts at the outer sides of said frames engaging the same and holding them in proper position, the ends of said bolts projecting beyond said frames, concrete walls at the outer side of said frames surrounding said projecting ends, thus forming an air space at the central part of said structure.

2. A concrete wall structure comprising spaced frames, each having spaced horizontal and vertical flat bars, a layer of open mesh material held between said bars, means extending between said frames and engaging the inner and outer sides thereof for holding said frames in spaced relation, a concrete layer disposed at the outer side of each of said frames and engaging said open mesh material and held thereby, whereby a wall is formed, comprising an air space between said layers.

3. A concrete wall structure comprising spaced frames, each having spaced substantially parallel bars and other spaced substantially parallel bars secured thereto and extending at an angle thereto, a layer of open mesh material held between said sets of parallel bars, means connecting said frames and extending therebetweeen and having means at the inner and outer sides thereof for holding said frames in spaced parallel relation, a concrete layer disposed at the outer side of each of said frames engaging said open meshed material and held thereby, the space between said frames being open and forming an air space between said layers.

In testimony whereof I affix my signature.

PEDER P. SCHMIDT.