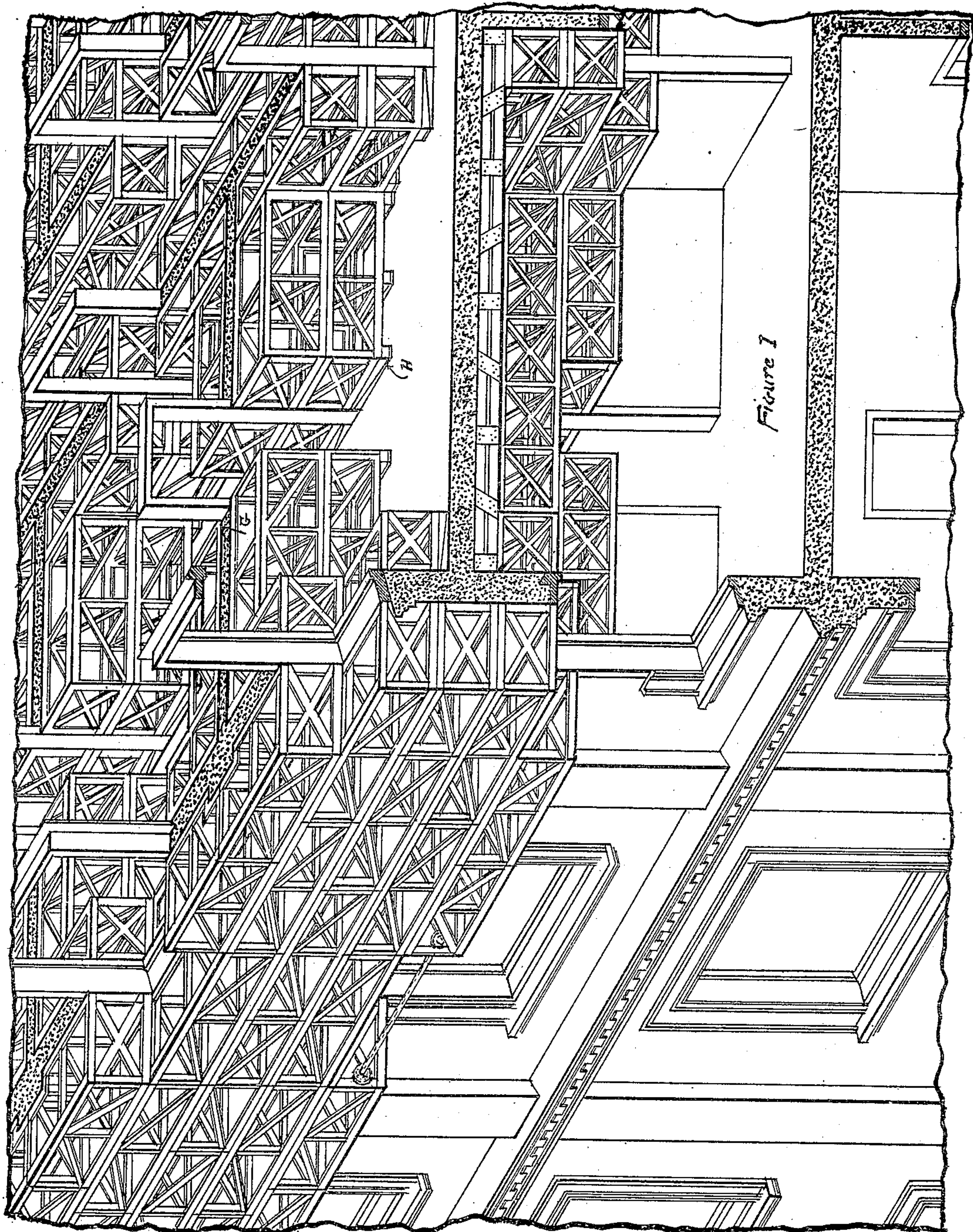


P. H. BOSWORTH.
METHOD OF FORMING CONCRETE BUILDINGS.
APPLICATION FILED MAR. 25, 1908.

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Patented Dec. 28, 1909.

2 SHEETS—SHEET 1.



WITNESSES:

Geoffrey Holt.

Nellie B. Keating

INVENTOR,

P. H. Bosworth,

BY

J. M. Wright,

ATTORNEY.

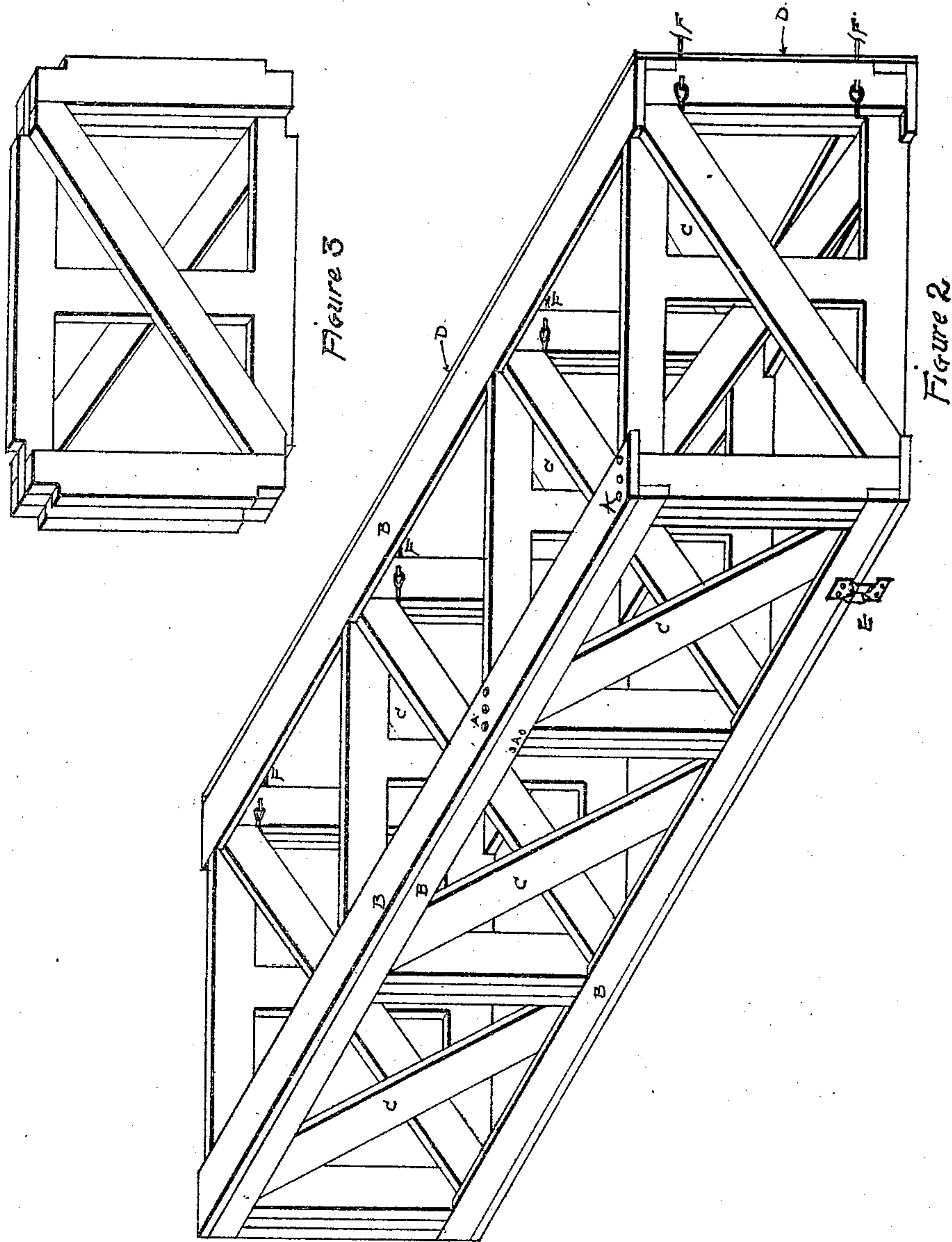
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UNITED STATES PATENT OFFICE.

PAUL H. BOSWORTH, OF SAN FRANCISCO, CALIFORNIA.

METHOD OF FORMING CONCRETE BUILDINGS.

944,594.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed March 25, 1908. Serial No. 423,276.

To all whom it may concern:

Be it known that I, PAUL H. BOSWORTH, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Methods of Forming Concrete Buildings, of which the following is a specification.

The present invention is an improved method of erecting concrete buildings, either of reinforced or plain concrete.

Up to the present time the principal expense of the erection of concrete buildings, and the main reason why concrete is not more extensively employed in buildings, is the cost of building up the molds for containing the concrete, and in the waste of material necessarily attendant upon the removal of these molds and use of the same again in other positions. The material itself, concrete, is very cheap as compared with brick or stone, and, taking into account its great durability, is also much cheaper than wood, so that were it not for the above mentioned expense, buildings could be erected of concrete cheaper than of other materials. Moreover, such buildings are more satisfactory than those of almost any other material, as the strength of concrete increases with age, so that buildings of this material when properly constructed, will last for an indefinite period, and they have the further advantages, especially as compared with wooden buildings, of being more nearly fire proof, and are better non-conductors of heat, cold, and sound.

The object of the present invention is to provide an improved method of forming these molds so as to avoid such waste, thereby greatly cheapening the cost of concrete buildings.

In the accompanying drawing, Figure 1 is a broken isometric perspective view, partly in section of a building constructed according to the present invention, showing the same in course of erection. Fig. 2 is an enlarged isometric perspective view of the special form of crib which I prefer to use in my invention. Fig. 3 is a perspective view of one of the transverse members of the crib.

In practicing this invention, I use a suitable number, according to the size of the building, of cribs, similar in general construction to those commonly employed by house raisers, consisting of longitudinal and

transverse bars joined by oblique braces. However, the members of the crib are made considerably lighter than cribs used for house raising, as the pressure to be borne by said cribs is far less. Moreover, instead of using the cribs generally employed, in which all the members are permanently secured together, I prefer, for greater convenience and economy, in storage and transportation, to make said cribs of transverse members, which may be used either for the end pieces of the crib or for partitions thereof, and to connect these transverse members by screws A with longitudinal bars B and oblique braces C, some of which braces extend only in the planes of the sides of the crib and others extend through the body of the crib. This construction permits of readily assembling cribs of different sizes, according to the form of the building to be erected.

In forming a wall according to my invention, to one side of each crib, or it may be two sides when the crib is used to form an inside corner, or two sides and a bottom or top when it is used for a bottom or top corner, or three vertical sides when it is used for a closet, are attachably secured, by screws, facings D of sheet metal, wood, or other suitable material, which, when placed in suitable position to form the sides of a mold, will retain the concrete. These facings may be either plain, or may be suitably recessed, or embossed, to form ornamental designs upon the wall, or may have recesses therein to form window sills, columns, pilasters, girders, chimneys, cornices or to obtain any architectural or artistic effect. For a similar reason, the cribbing may be of any suitable shape besides the rectangular, as when it may be desired to form bay windows, and so forth.

The method of constructing a concrete building according to my invention is as follows:—Upon the ground, on opposite sides of the foundations of the building, are supported two series, or lines, of cribs with their facings opposing each other, thereby forming the mold. These cribs are tied together in line horizontally and vertically by a suitable fastening device E. The facings of the cribs are also tied together transversely by pieces of wire F which hold the cribs in place when the concrete is poured in. The concrete G is then poured into the mold, and, while it is setting two other lines of cribs are laid upon

the first lines, in the same manner, and are similarly tied by wire. The second series or lines of cribs are likewise tied or otherwise secured to the lines immediately below them. This operation is repeated, and thus the wall gradually rises in height. When the lowest portion of the wall has sufficiently set, the cribs may be removed from the side of said portion, the fastenings which secure the cribs to each other and to those above being loosened, and said cribs are now used to form, in like manner, the mold for the topmost portion of the wall. The number of layers, or vertical series, of cribs required to be used will depend upon the time which may be given to allow the concrete between the lowest cribs in use, to set, and therefore it is desirable, in order to use as few cribs as possible, to complete all the bottom portions of the walls for a building, or for a suitable number of buildings, before proceeding to form an upper portion thereof. The wires F which tie the cribs to one another through, or across, the wall serve the purpose of sustaining the cribs in position when cribs of a lower series, which formerly supported the upper series, are removed. They are left in the wall, their ends being clipped off close to the wall.

The floors and roofs of buildings can readily be formed according to this invention, the improvement in the present invention being in the form of the supports for the beams, which in turn support the boards upon which the concrete is laid. The floor is then run in to a sufficient depth and is then allowed to set, before placing thereon the next series of interior cribs for forming the walls above the floor. Reinforcing bars, wires, or other material can be used in precisely the same manner as the present.

In order to remove the lowermost series of cribs, especially for inside work upon a floor, I rest said cribs upon starting pieces consisting of two wedges H, which may be readily removed, whereupon the cribs themselves may afterward also be removed.

In forming a wall having therein an opening for a window or door, the cribs are not

used across said opening, but are preferably tied in longitudinal series by tie bars. This gives an opportunity of removing, through said opening, the cribs which have been used on the inside, in order to transfer them to an upper portion of the building for subsequent use.

The essential novelty of my invention resides in the fact that each crib is sufficiently wide at the bottom to rest upon the crib below in stable equilibrium, requiring no extraneous supports to prevent it from rolling away from the mold cavity the tie wires being only used to prevent it from moving away in the same horizontal plane. The crib is also wide enough at the top to support a working platform for the workman to handle the molds and pour in the concrete.

I claim:—

The method of erecting a concrete wall, which consists in forming a mold for the wall by means of frames spaced from each other by the thickness of the wall, and sufficiently broad for workmen to stand upon them when pouring the concrete, tying together said frames across the wall space, pouring the concrete into the mold cavity between the frames, then similarly placing on said frames similar frames, and, in like manner, tying said frames across the mold space, and pouring the concrete into the mold cavity between them, and continuing the above steps, while successively removing the lowest frames, as the wall above the same becomes sufficiently set to support the remaining frames, whereby the structure for supporting the workmen and also for forming the mold cavity is, in the upper portions of the wall, supported wholly by the wall itself, substantially as described.

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

PAUL H. BOSWORTH.

Witnesses:

F. M. WRIGHT,
D. B. RICHARDS.