

No. 825,627.

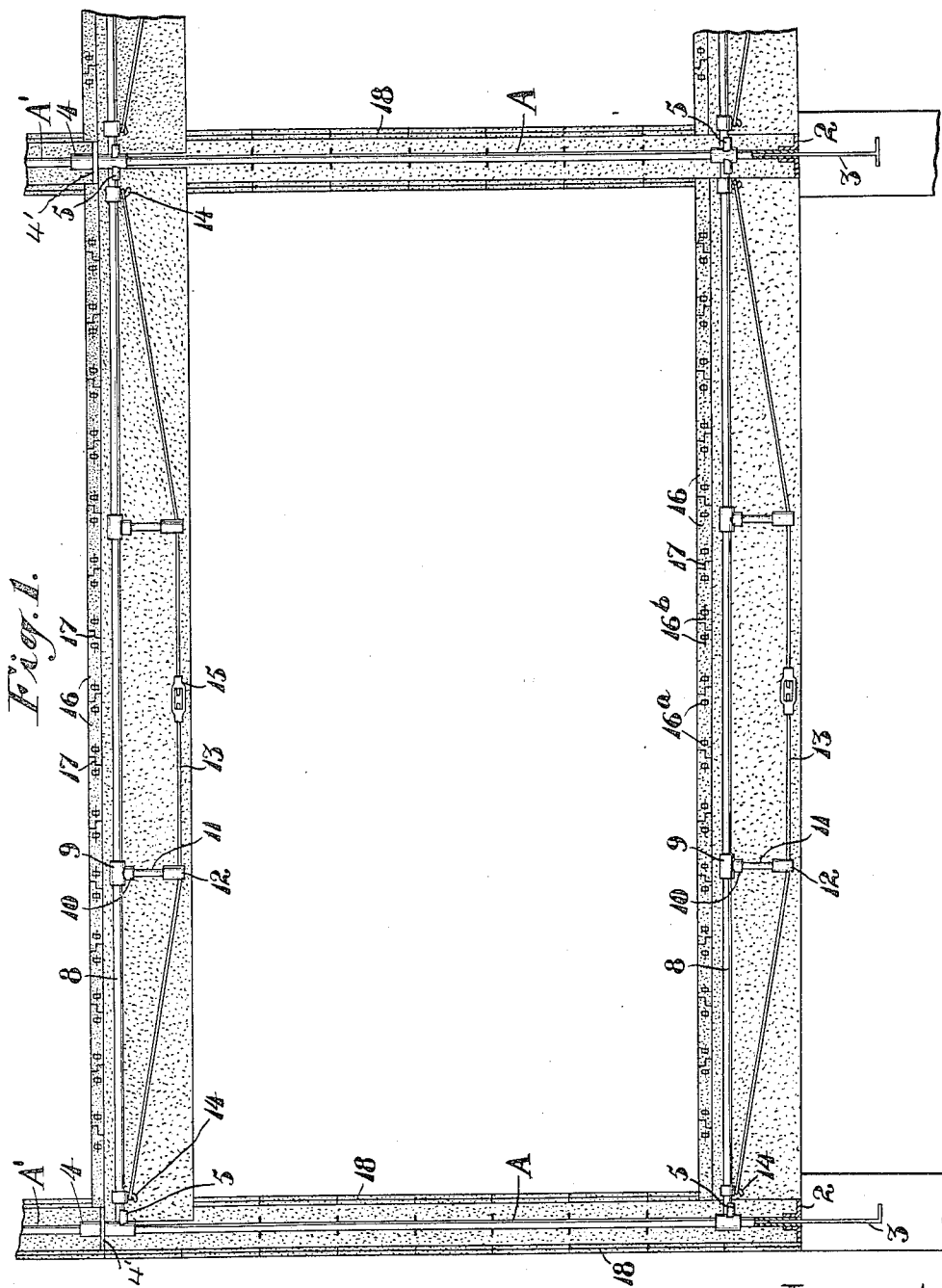
PATENTED JULY 10, 1906.

C. P. WEEKS.

REINFORCED CONCRETE CONSTRUCTION FOR BUILDINGS.

APPLICATION FILED AUG. 9, 1905.

2 SHEETS—SHEET 1.



Witnesses:-

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By Geo. H. Strong, att.

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Fig. 2.

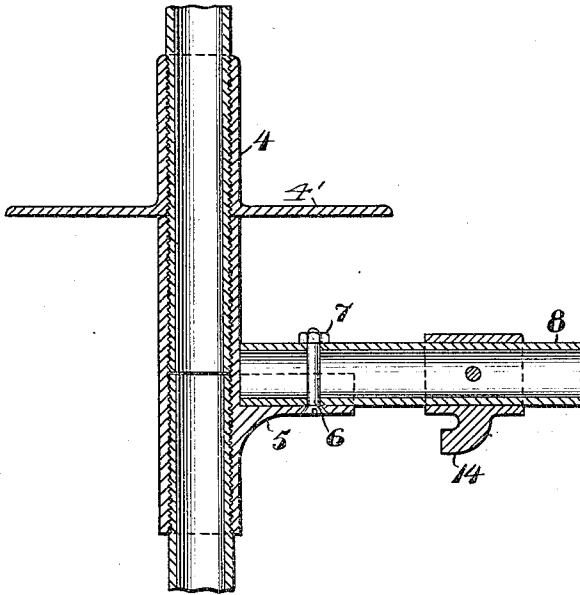


Fig. 3.

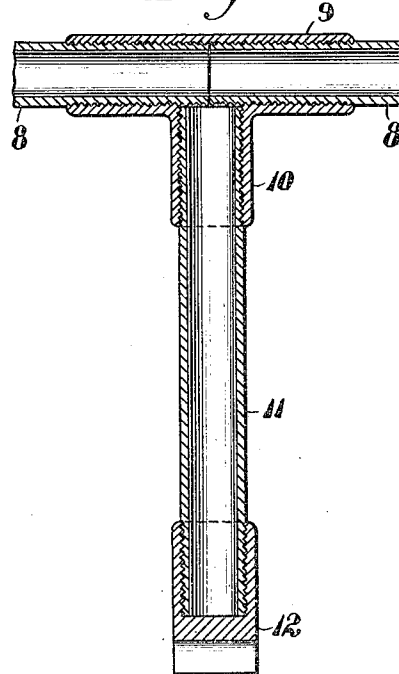


Fig. 4.

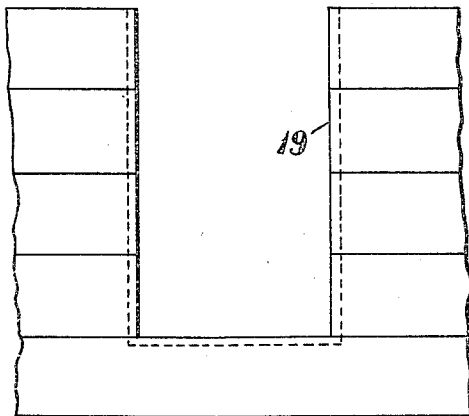
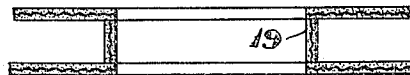


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES PETER WEEKS, OF SAN FRANCISCO, CALIFORNIA.

REINFORCED CONCRETE CONSTRUCTION FOR BUILDINGS.

No. 825,627.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed August 9, 1905. Serial No. 273,367.

To all whom it may concern:

Be it known that I, CHARLES PETER WEEKS, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Reinforced Concrete Construction for Buildings, of which the following is a specification.

My invention relates to improvements in building construction.

It consists in the construction of walls, columns, beams, girders, and the like in separate members at a suitable manufactory with means whereby said members may afterward be assembled to form a complete structure.

It consists also in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 shows my reinforced concrete construction for building. Fig. 2 is an enlarged sectional view of the casting supporting the horizontal girders. Fig. 3 is a sectional view of the casting supporting the meeting of the longitudinal girders. Fig. 4 shows part of an opening for doors or windows, the studs being shown in dotted lines. Fig. 5 is a plan view of same.

In the usual form of construction where concrete is used it is customary to build wooden forms at the building site in which the concrete is shaped, and they may be set in position where it is to be used.

In my invention I employ the requisite forms in which the parts may be made with suitable reinforcements at any convenient point of manufacture and afterward conveyed to the site of the structure in which they are to be used, and all the various parts of such a structure may be completed in this manner. These parts are constructed as follows: Columns of the required height are made by using ordinary gas or water pipe A, and at the bottom of the pipe may be a square or other plate screwed on by means of threads on the pipe and on plate 2. This pipe may then be slipped over an iron anchor 3, which is embedded in the foundation wall, and thus forms a solid support. Screwed into the top of this pipe A is a casting having an open sleeve 4 at the top, and into this sleeve the column A' of the second story may be set. Thus the columns may be continued to any desired height. This sleeve or casting 4 has a plate 4' which forms substantially

the bottom of the second-story column, and below this plate the casting is provided with branches 5, which form supports for the horizontal girders and beams. These branches may be made half-round or segmental, open at the top, and are adapted to receive a bolt 6, which may be screwed in from the bottom, passing through the girder or beam and secured by a nut, as at 7. This structure thus completed is then properly supported within the box in which the concrete column or pipe is to be formed, the latter having any desired ornamental or other shape. The concrete is then tamped into the box about this metal portion and allowed to set, and when these columns are completed they are in readiness to be taken to the point of building and set. It will thus be seen that as many of these columns may be superposed to form a building of any desired height. The length of the columns is proportioned to the height of the stories, and the supports or brackets 5 are located at such points as to receive the girders or beams forming the various floors.

The girders are constructed as follows: The top members are made up of sections of pipe 8, screwed together with connections at their meeting ends. These connections may be made of cast-iron and comprise horizontal branches 9, into which the contiguous ends of the pipes 8 are screwed, and vertical branches, as at 10, into which the struts 11 are fixed. These struts are here shown as consisting of pieces of pipe screwed into the vertical branches of the casting, and the bottom of the strut has a cap or casting 12, the lower end of which is made with a segmental groove or channel, into which the bottom cord 13 fits. This cord may consist of strands of wire, the ends of which are formed to engage with hooks 14 upon the outer ends of the pipe-section which forms the girder. Between the struts is a turn-buckle, as at 15, by which any desired tension of the wire may be produced and the truss made as stiff as required before being cast into the concrete. These beams thus constructed are placed into a mold of suitable size and proportion and the concrete cast around this reinforcing metal work in the same manner as forming the columns. After these girders have been set they may be brought to the building and each end attached to the column, as previously described. The end of the top horizontal member has a hole made through it to receive the bolt, as previously described.

The concrete portion of the girders rests upon shoulders of the concrete columns formed for the purpose. The girders may be of any suitable or desired length, depending upon the space between the supports, and they may be spaced from center to center of the girders, so as to receive the slabs 16, which form the flooring. These slabs are cast of concrete of such length as to extend between the girders. They may be one foot wide, six feet long, and formed with interlocking offsets or shoulders, as at 17, so as to form overlapping joints at their meeting edges. At the ends each abuts upon the tops of the girders. They may be fastened together by metal staples driven into the slabs, so as to hold them together. These slabs are cast with hollow tubing 16^a, extending longitudinally from end to end, and short pieces of wire 16^b are laid at right angles through this hollow tubing, after which the concrete is cast or molded around this interior structure. The structure being thus completed, it may be covered with similar slabs of concrete, as at 18, forming planks which may be from six to twelve feet long and an inch thick and of any suitable or desired width. These slabs are superposed on edge, forming outside and inside walls, and may be nailed or otherwise secured to the columns. In forming these slabs or planking they are also reinforced by expanded metal or wire mesh, which is supported in the molds in such a manner as to be embedded in the concrete which they eventually surround. The whole structure is thus built up of independent columns, girder-beams, and slabs of concrete with reinforcing metal interior and constructed at any suitable point in readiness to be assembled for the complete structure.

Where doors or windows are to be located, vertical studs of reinforced concrete about two inches thick by the width of the column (which is about six inches) may be set, and the outside and inside boarding is nailed to these vertical studs 19. The doors and windows are then located in these openings. By this construction the following advantages are obtained: first, all work is cast in forms away from the building; second, ordinary water or gas pipe may be used in conjunction with wire-tension members to form trusses within the body of concrete; third, the gas and water pipe may be used as reinforcement for the concrete columns; fourth, the hollow tubing with wire inserting at right angles may be employed for the reinforcement of the concrete slabs.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. Structural building material, consisting of metal pipes having supporting-plates at the lower ends, sleeves at the upper ends adapted to receive other pipes or tubes to

form a continuation of the column, said sleeves having supporting-plates and having below said plates lateral branches curved in cross-section and open at the top and forming seats for the ends of girders and beams, and said pipes and branches embedded in concrete.

2. Structural building material, consisting of metal pipes having base plates, sleeves fitting the upper portion adapted to receive the lower ends of similar pipes, said sleeves having supporting-plates and having below said plates brackets or branches extending horizontally outward from the sleeves to form girder and beam supports, said metal structures being embedded in concrete and completed previous to use.

3. Structural building material, consisting of metal tubes with base-plates, continuation joint-sleeves having supporting-plates and having below said plates projecting brackets, said tubes and base-plates and said sleeves being embedded in concrete so as to be superposed to form columns of any length, and beams or girders formed of metal pipes with truss-supports embedded in concrete, and struts and truss-wires suspended from the beams or girders and embedded in the concrete therewith, the ends of said girder-pipes being supported upon and secured to the brackets of the columns.

4. A building consisting of vertical sectional superposed columns of concrete having metal tubes embedded therein with connecting-sleeves and transverse brackets, concrete girders having metal tubes and truss-rods and wires embedded therein, said tubes resting upon and bolted to the brackets of the columns, concrete floor-slabs having longitudinally-disposed tubing and transverse wires embedded therein, said slabs having interlocking edges and the ends resting upon the girders and secured together by staples.

5. In a building, concrete sectional superposed columns having reinforcing-tubes embedded therein, said tubes having sleeves or couplings at their ends and transversely-projecting brackets, concrete girders having tubular pipes, struts and truss-wires embedded therein, said tubes being supported upon and secured to the column brackets, concrete floor-slabs with reinforcing tubes and wires cast therein, said slabs having overlapping meeting edges and means by which the ends are secured together, and wall-covering planks made of concrete having a reinforcing interior metal structure, said planks being nailed upon the concrete columns as described.

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

CHARLES PETER WEEKS.

Witnesses:

T. BEARWALD,
W. B. BETTS.