Apr. 10, 1923. 1,451,000

J. A. WHITE

CONCRETE STRUCTURE

Filed May 29, 1920 2 sheets-sheet 1

Fig. 2.

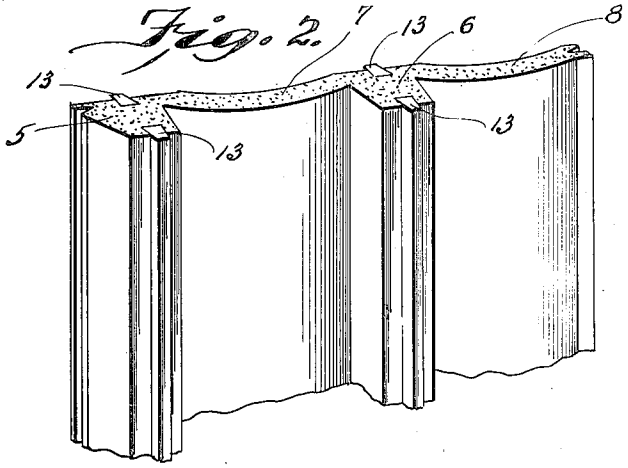

Fig. 1.

WITNESSES

INVENTOR

Joseph A. White

BY Munn & Co.

ATTORNEYS

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J. A. WHITE

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Fig. 3.

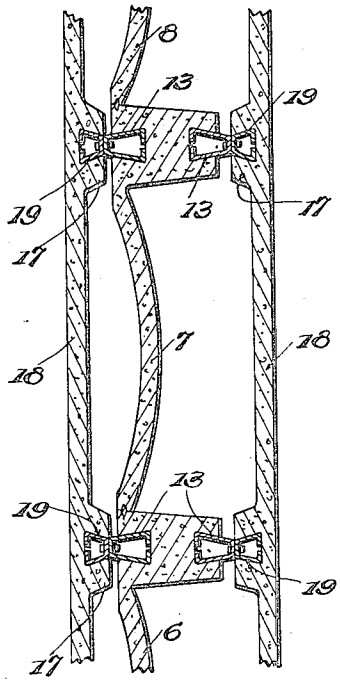


Fig. 4.

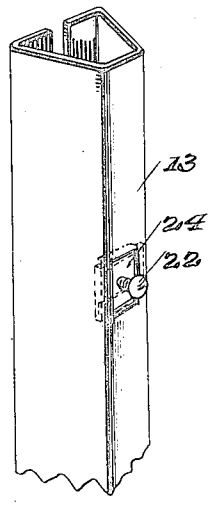


Fig. 5.

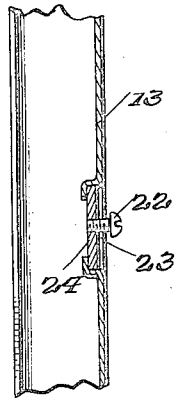


Fig. 6.

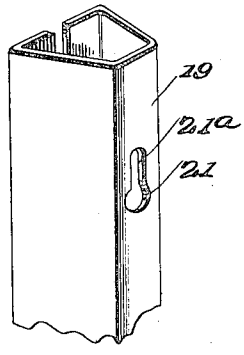


Fig. 7.

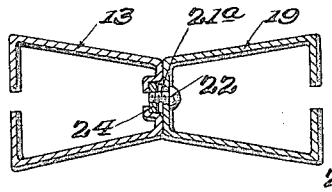
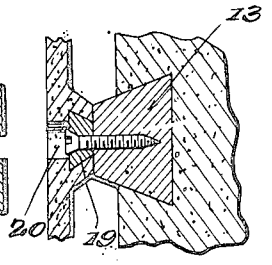


Fig. 8.



WITNESSES

W. A. Williams.

W. F. Buckley.

INVENTOR

Joseph A. White.

BY Munn & Co.

ATTORNEYS

Patented Apr. 10, 1923. 1,451,000

UNITED STATES PATENT OFFICE.

JOSEPH AEGIDIUS WHITE, OF BERKELEY, CALIFORNIA.

CONCRETE STRUCTURE.

Application filed May 29, 1920. Serial No. 385,260.

To all whom it may concern:

Be it known that I, JOSEPH A. WHITE, a citizen of the United States, and a resident of Berkeley, in the county of Alameda and State of California, have invented certain new and useful Improvements in Concrete Structures, of which the following is a specification.

The present invention relates generally to concrete structures, and more particularly to an improved concrete structure, the elements of which are adapted to be employed in the construction of dwellings, factories, warehouses or other structures.

The object of the invention is to provide a concrete structure of the above character in which the elements are so constructed, arranged and related that when assembled they present a structure of great strength and rigidity, the walls of the structure being substantially hollow although the elements of which the walls are assembled are not hollow.

Another object is to provide a structure of this character with improved means whereby the interior finishing as floor, ceiling or side walls and the like, may be easily and securely fastened to the wall proper.

Other objects and advantages of the invention reside in certain novel features of construction, combination and arrangement of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings forming part thereof, and in which:

Figure 1 is a horizontal sectional view of a portion of a wall structure embodying my invention;

Figure 2 is a detail perspective view of the preferred form of wall or floor slab;

Figure 3 is a fragmentary view, in section, illustrating the construction of a partition or floor embodying one form of the invention;

Figure 4 is a fragmentary perspective view of the metallic sleeper and one member of the fastening means;

Figure 5 is a sectional view thereof;

Figure 6 is a detail view of the metallic sleeper having a socket;

Figure 7 is a detail view, in section, illustrating the fastening means of the metallic means in assembly; and

Figure 8 is a detail view of the cooperating wooden sleeper construction together with the cooperating fastening member.

Referring to the drawings, it will be seen that the invention contemplates a structure embodying in part a side wall A and an end wall B which is constructed from concrete slabs. In the embodiment of my invention shown in Figure 1, the building slabs each consists of an end beam 5, an intermediate beam 6, and an intermediate web 7 between the beams 5 and 6 and an end web 8 which extends beyond the intermediate beam 6. The beams 5 and 6 constitute studding or if embodied in a floor they would constitute joist. The webs and beams are homogeneous in construction and the outer surface of the webs of the beams are coplaner and finished to form the exterior surface of the structure, as shown at 9. In the corner of the structure a double beam 10 is provided, which takes the place of the ordinary end beam 5 and embodies rectangularly extended beam portions 11 and 12, respectively.

The adjacent ends of each of the slabs are provided with V-shaped recesses which are adapted to lie adjacent each other when the slabs are assembled and to receive the bonding material K.

All of the beams including the corner beams, are provided with sleepers 13 on their inner surface which may be of wood or of metallic construction as will be hereinafter more fully described. These sleepers are of tapezoidal cross section and are embedded in the material of the beams while they are in the plastic state and when the material sets it securely grips the inclined walls of the sleeper to maintain them in position therein, as shown in the drawings. The metallic sleeper construction is preferably constructed of a single piece of metal bent to trapezoidal form with the meeting edges of the metal arranged along the median line of the base of the sleeper. Both the metallic sleeper and the wooden sleeper project for a substantial distance beyond the surface of the beam. Each of the beams are further provided with openings 14 extending longitudinally thereof and adapted to receive reinforcing rods 15 and grouting 16.

A finishing C is provided and is adapted to cover the interior of the wall construction. This finishing comprises a plurality of slabs, each of which consists of spaced ribs 17 and homogeneous webbing 18 ex-

tending between the ribs. As shown in Figure 3, each slab includes three ribs and two intermediate webs which extend between the ribs which latter are arranged one adjacent each end of the slabs and one intermediate the ends. Sleepers 19 are embodied in the ribs of the finishing slabs and are precisely the same as the sleepers of the wall construction, excepting that they are somewhat smaller. The exterior of the finishing slab is colored and designed as desired.

The sleepers of the finishing always lie flush against the sleepers of the building slabs when the structure is assembled.

Means are provided for fastening the finishing to the wall construction, and this means preferably cooperates between the sleepers carried by the wall construction and the sleepers carried by the finishing. As shown in Figure 14, in the embodiment of my invention in which the wooden sleepers are employed, the finishing slabs are provided with a plurality of openings, the axis of which is arranged to intersect the sleepers 19 of the finishing slabs and as the slabs are assembled the sleepers thereof lie against the sleepers of the wall construction, any suitable fastening means may be inserted through the holes 20 to secure the sleepers together and thereby secure the finishing to the wall. This fastening means preferably embodies a screw but it may consist of a nail, spike or the like. In the embodiment of my invention in which the metallic sleeper is employed, the sleeper of the wall construction is provided with a circular opening 21, which communicates with a slot 21^a the width of which is considerably less than the diameter of the opening. The sleepers of the finishing slab are provided with a plurality of headed studs 22 which preferably include a threaded shank 23 adjustably received in a correspondingly threaded opening of a block 24 carried by the sleeper. The head of the stud 22 is adapted to be inserted into the circular opening 21 of the sleeper of the wall and then moved into the slot whereby the head of the stud is engaged behind the walls of the slot and the finishing slot is secured to the wall construction.

In the preferred form of wall which is especially adapted for use as a partition wall, is also well adapted for the ordinary uses of the wall. The webs 7 and 8 are concavo-convex form, as clearly shown in Figure 2 of the drawings. The beams 5 and 6 are arranged precisely the same as the form shown in Figure 1 but these beams have sleepers 13 on each side wall on only one side thereof as is the case in the form shown in Figure 1. This is to provide for the application of a finishing to each side of the wall which the concavo-convex form of the web necessitates.

Having thus described my invention, I claim:

1. A building construction of the character described comprising building slabs consisting of spaced beams and webbing extending between said beams and homogeneous therewith, a finishing slab for each of said building slabs, a metallic sleeper for the building slab and the finishing slab, each formed of a single piece of metal bent to trapezoidal form, and means for cooperating with the metallic sleepers for securing the finishing to the building slab.

2. A wall construction of the character described comprising building slabs consisting of spaced beams and webbing extending between said beams and homogeneous therewith, said webbing being of concavo-convex form, all as and for the purposes set forth.

3. A wall construction of the character described comprising building slabs consisting of spaced beams and webbing extending between said beams and homogeneous therewith, said webbing being of concavo-convex form, sleepers carried by said beams, and a finishing for said walls secured to said sleepers.

JOSEPH AEGIDIUS WHITE.