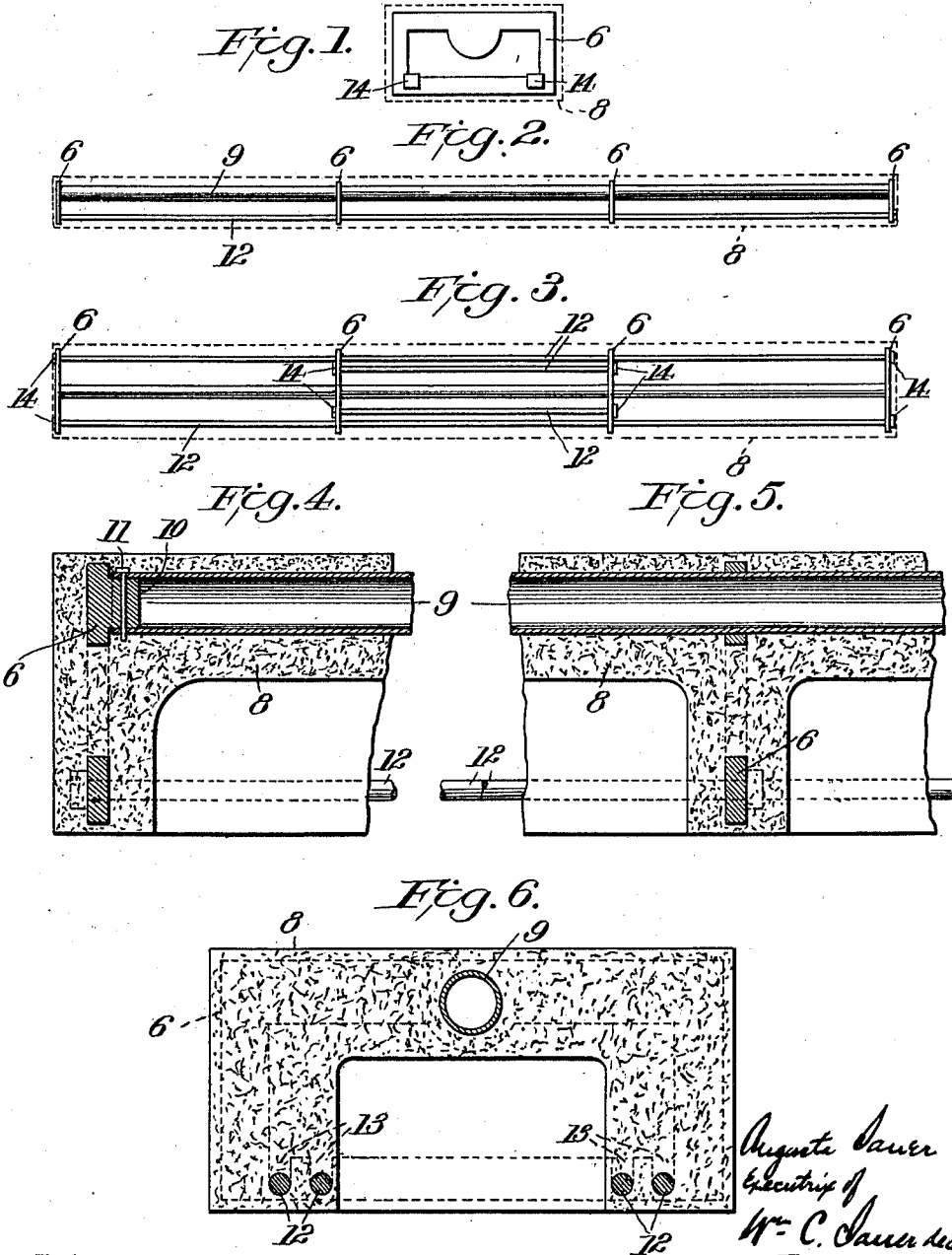


W. C. SAUER, DEC'D.
A. SAUER, EXECUTRIX.
REINFORCED CONCRETE STRUCTURE.
APPLICATION FILED JUNE 22, 1910.

988,951.

Patented Apr. 4, 1911.



Witnesses
Edwards Smith

Augusta Sauer
Executrix of
W. C. Sauer dec'd
Inventor

4 Geo. E. Tew
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM C. SAUER, DECEASED, LATE OF PEARLBEACH, MICHIGAN; AUGUSTA SAUER,
EXECUTRIX, ASSIGNOR OF ONE-HALF TO HARRY H. PRENZLAUER.

REINFORCED CONCRETE STRUCTURE.

988,951.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed June 22, 1910. Serial No. 568,388.

To all whom it may concern:

Be it known that WILLIAM C. SAUER, deceased, formerly a citizen of the United States, residing at Pearlbeach, in the county of St. Clair and State of Michigan, did invent certain new and useful Improvements in Reinforced Concrete Structures, of which the following is a specification.

This invention relates to reinforced concrete structures, and has for its object to provide means for gaining the greatest possible strength with a minimum amount of material, and embodies the idea of dividing the beam or structure into a number of panels, and varying the material according to the load or strain on each panel. This will admit of construction that will require great strength between supports, as in beams or girders used in aqueducts, viaducts, dams, wood floors and the like, while it can be profitably used as well in the construction of ordinary buildings.

The drawing represents a floor or horizontal beam, Figure 1 being a front elevation, Fig. 2 a side elevation, and Fig. 3 a plan, of the metal reinforcing elements, the lines of concrete being shown in dotted lines. Fig. 4 is a longitudinal section of one end of the beam. Fig. 5 is a similar section of a central part thereof. Fig. 6 is a section of an intermediate part.

Referring specifically to the drawings, it will be seen that the beam consists of several panels marked or divided by transverse plates or members 6, of which there is one at each end, and as many intermediate as may be required by the length of the beam or the load to be placed thereon. These plates are made in skeleton form and are embedded in the concrete 8. The plates are connected by an upper longitudinal member 9, consisting preferably of a tube fastened at its ends to lugs 10 on the end plates 6 by means of pins 11, and extending through suitable openings in the intermediate plates. This member is tubular to support compression and bending strain. Lower chords 12 are also attached to the plates and preferably consist of rods to resist tension. The number of these rods is varied in the different panels according to the breaking strain

thereon. Thus, as clearly shown in Fig. 3, two rods are provided which extend along the end and intermediate panels, and in the intermediate panel, two more rods are added, giving four tension rods therein. These rods rest in notches 13 in the intermediate plates, and are headed at their ends, as indicated at 14, to prevent drawing out of the plates. Obviously the number of panels may be varied according to the length of the beam, and likewise the number of tension rods, which will be increased at the middle or intermediate panels to provide the greatest strength farthest from the end supports. These rods may be varied in size from wire upward and will vary in number from the end to the middle of the span according to the load they are expected to sustain.

The concrete composition is shown hollow in Figs. 4 to 6, which saves a great amount of concrete, which, used for compression strains, will not need to be so heavy in the middle as at the ends of the span. However, the concrete may be solid if desired.

A reinforced structure built up in the manner indicated will be found superior with respect both to strength and to cost and amount of material to reinforced structures all parts of which are alike, and which do not permit of variation according to the strain. The plate 6 may be made with as many openings or notches as desired, to receive the necessary number of tension rods 12, and also the number of the compression tubes 9 may be varied according to local conditions. The arrangement may be reversed, as in side walk and wharf constructions, where compressive and tensional strains will be in reverse position from the case illustrated.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:—

A concrete beam having embedded therein a series of end and intermediate cross plates dividing the beam into a series of panels, the end plates having bosses on one face thereof, a longitudinal tubular compression member embedded in the concrete and fastened at its ends to said bosses and extending through

the intermediate plates, said compression member being located at about the middle line of the beam, and separate longitudinal tension members extending in the beam and
5 connected to the plates, said tension members being spaced apart and located toward opposite sides of the beam, the concrete being recessed at the middle line of the beam, between said tension members.

In testimony whereof, I affix my signature 10
in presence of two witnesses.

AUGUSTA SAUER,
Executrix of the last will and testament of
William C. Sauer, deceased.

Witnesses:

HARRY H. PRENZLAUER,
JOS. H. SCHAUB.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
