

T. H. SKINNER.
 REINFORCED CONCRETE FOR BUILDING STRUCTURES.
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1,046,118.

Patented Dec. 3, 1912.

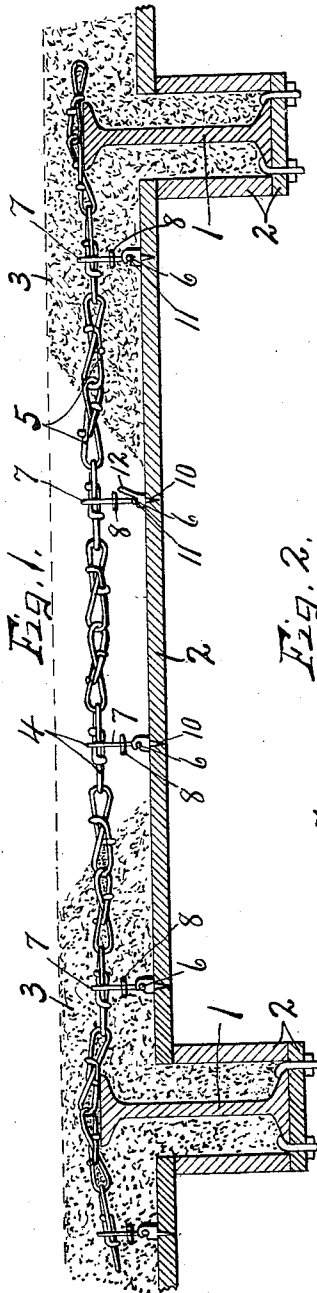


Fig. 2.

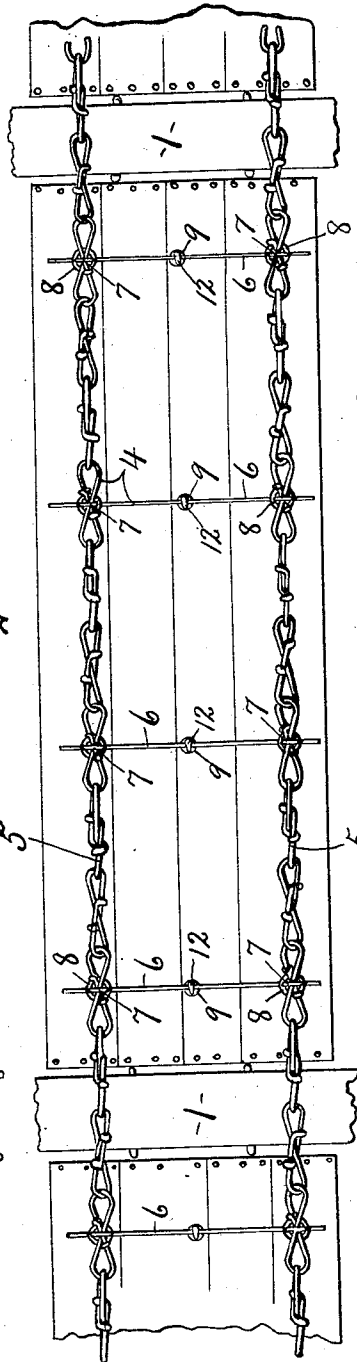


Fig. 3.

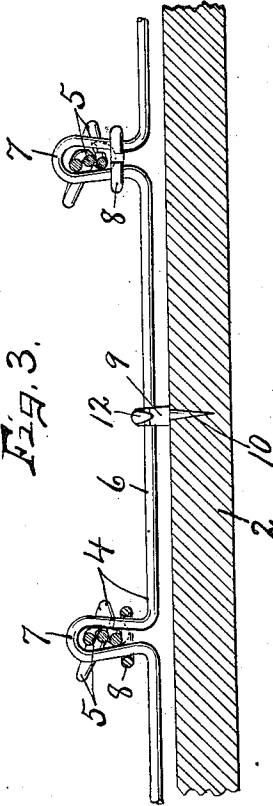
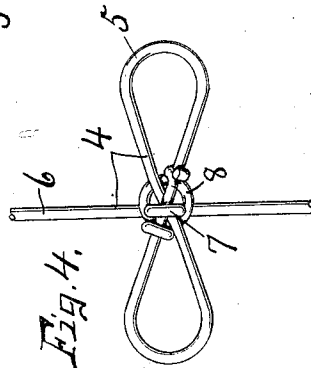


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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REINFORCED CONCRETE FOR BUILDING STRUCTURES.

1,046,118.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed March 20, 1909. Serial No. 484,698.

To all whom it may concern:

Be it known that I, THEODORE H. SKINNER, of Oneida, in the county of Madison, in the State of New York, have invented new and useful Improvements in Reinforced Concrete for Building Structures, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

10 This invention relates to certain improvements in reinforced concrete for building structures, and refers more particularly to reinforcements for flat concrete walls, such as floors and other flat slab structures as distinguished from the spirally wound beam and column reinforcement shown in my pending application #484,697 filed March 20, 1909. These reinforcements are made up as a jointed fabric unit to cover a considerable area of concrete, and each unitary structure comprises a series of straight parallel chains and transverse spacing members intersecting the chains and securely tied thereto at the intersections for holding the chains a fixed distance apart.

20 During progressive building of concrete structures of this class it is customary to use forms, and the unitary reinforcements are usually supported in close proximity to the surface of the forms but a sufficient distance therefrom to allow the concrete to be worked between the form and reinforcement so as to entirely envelop and conceal such reinforcement when the concrete work is finished.

30 In order that the reinforcement may retain its maximum degree of efficiency it is desirable to hold such reinforcement against movement relatively to the form during progressive building, and the main object of my present invention is to not only increase the efficiency of the reinforcing unit but also to hold such unit against such movement relatively to the form while the concrete is being filled in, so that when the work is completed there is positive assurance that each part of the reinforcement is properly positioned to perform the work and carry the strains for which it is intended.

40 In other words my object is to firmly tie the reinforcing chains and their spacing members together at their intersections, one with the other, and another object is to hold the entire reinforcement as a unit a suitable distance from the surface of the form to

which the concrete is to be applied and also to prevent movement of the reinforcing member relatively to such form.

Other objects and uses relating to specific parts of the reinforcement and its attaching means will be brought out in the following description.

60 In the drawing:—Figure 1 is a sectional view through the floor beams and form for a portion of the concrete floor about to be constructed, showing my improved reinforcement in operative position. Fig. 2 is a top plan of the parts seen in Fig. 1. Fig. 3 is an enlarged sectional view of a portion of my improved reinforcement showing the adjacent body of the form and one of the anchoring devices for holding the reinforcement against movement relatively to the form. Fig. 4 is an enlarged top plan of one of the links of the chain and adjacent portion of one of the spacing members showing particularly the manner of fastening of the chains and spacing members at their intersections, so as to prevent relatively lengthwise movement one upon the other.

80 In illustrating the construction and operation of my invention I have shown two floor beams —1— and a form —2— supported thereon for receiving and supporting the concrete floor, as —3—, together with my reinforcement —4—. This reinforcement comprises a plurality of parallel chains —5— spaced some distance apart and a plurality of transverse spacing members, such as wire rods —6—, which are also parallel and spaced some distance apart, and are firmly tied to the chains at their intersections therewith.

90 The means for securing the chains and spacing members at their intersections preferably consists in providing the spacing members with loops —7— adapted to open at one side for receiving portions of the links of the chain —5—, and after the links are drawn through the loops —7— the open sides of the loops may be closed by bringing the adjacent portions of the spacing members together, or by suitable tie rings —8—, as best seen in Figs. 3 and 4.

100 I preferably employ a chain with links having portions thereof reduced in width and adapted to be inserted in the loops —7—, the openings in which are just sufficient to easily receive the small portions of the links so that when the chains and spac-

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ing members are assembled they will be held against relative endwise movement one upon the other, the rings or tie pieces —8— simply serving to prevent displacement of the links
5 from the loops during progressive building.

The chains of the reinforcing units extend transversely of and rest upon the upper faces of the floor beams thereby bridging the space between the beams directly over the forms to which latter they are tied at intervals by suitable fastening members —9—. In this particular instance I have shown these fastening members as provided with spurs —10— driven into the forms and having their upper ends projecting some distance above the upper surface of the form and provided with suitable seats or recesses —11— and bendable tongues —12— which receive and embrace portions of the spacing members —6— to hold the latter a short distance above the surface of the form and to prevent movement of the reinforcing unit relatively to said form. It is now apparent that by firmly attaching the spacing
20 members —6— to the chains and also attaching the said spacing members to the form, the chains will also be held a fixed distance from the form and against movement relatively thereto.

It is clear from the foregoing description that the spacing members —6— and fastening members —9— constitute means for holding the chains —5— against movement relatively to the form and at the same time
35 holding them a suitable distance from the surface of such form to allow the concrete to be thoroughly worked through and around the links of the chain during progressive building.

In assembling the reinforcements upon the floor beams the chains are suitably anchored at one end to one of the floor beams or any available anchorage, after which the chains are drawn across the upper surfaces
45 from beam to beam and the intermediate portions between the beams are anchored by any suitable fastening means, such as that described, to the form —2—, thereby holding the chains in suitable relation to the form, after which the concrete may be filled in in the usual manner to embed all parts of the reinforcement therein, the spurs —10— of the fastening members —9— permitting the forms to be readily withdrawn
50 after the concrete is set, whereupon the projecting spurs may be readily cut off by a pair of nippers or other suitable tool, leaving the fastening members —9— embedded in the concrete.

What I claim is:—

1. In reinforced concrete for building structures, a system of chains running in the same general direction and cross rods intersecting the chains and having laterally projecting loops at the intersections embracing the adjacent portions of the chains for holding said chains to one side of the plane of the main body of the rods, and devices adapted to be secured to the surface of a form during progressive building and engaging the main body of the cross rods at intervals between the loops for holding the cross rods some distance from such form.

2. In reinforced concrete floors, a system of chains running in the same general direction and spaced some distance apart, spacing rods running transversely under and some distance from the chains and provided with upwardly projecting loops embracing the adjacent portions of the chains, and means for holding the rods in fixed relation to a form during progressive building of the concrete floor.

3. In reinforced concrete floors, a system of chains running in the same general direction, spacing rods running transversely of and in a plane some distance below the chains and provided with upwardly projecting loops embracing the adjacent portions of the chains to hold said chains some distance above the main body of the rods, and devices engaging the main body of the rods between the loops for holding them apart from an underlying form during the progressive building of the concrete floor.

4. In reinforced concrete floors, a system of chains running in the same general direction, spacing rods running transversely of and in a plane some distance below the chains and provided with upwardly projecting loops embracing the adjacent portions of the chains to hold said chains some distance above the main body of the rods, devices engaging the main body of the rods between the loops for holding them apart from an underlying form during the progressive building of the concrete floor, and other devices embracing the portions of the loops between said chains and first named devices for holding the chains against displacement through the open sides of the loops.

In witness whereof I have hereunto set my hand this 10th day of March 1909.

THEODORE HOBART SKINNER.

Witnesses:

ETHELBURGH DOTY PITT,
MERTON WALTER LINDSLEY.