

C. A. HANSON.
REINFORCING DEVICE FOR CONCRETE.
APPLICATION FILED MAY 5, 1910.

980,414.

Patented Jan. 3, 1911.

Fig. 1.

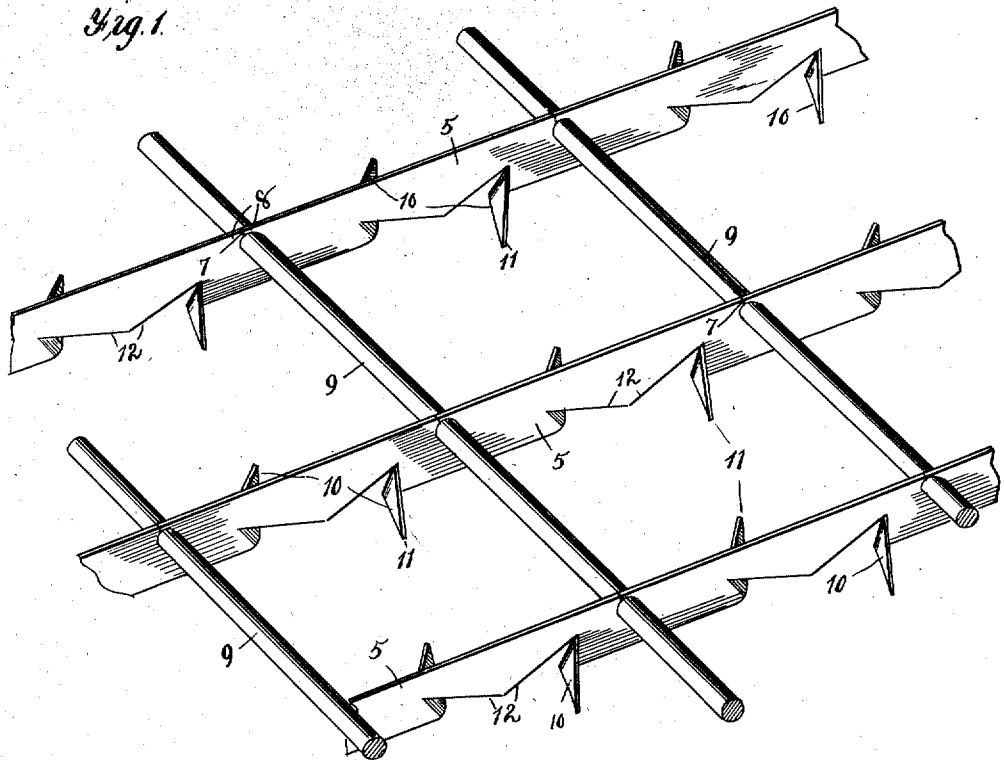


Fig. 2.

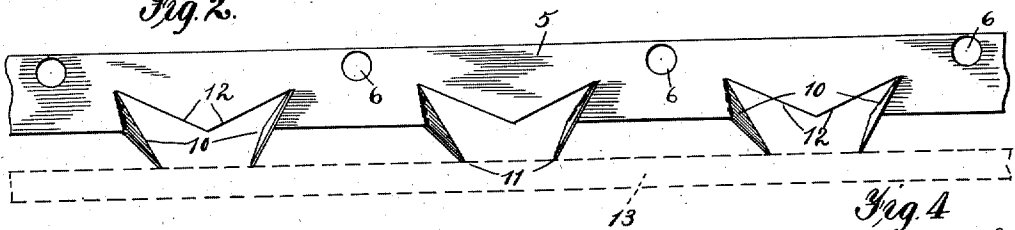


Fig. 3.

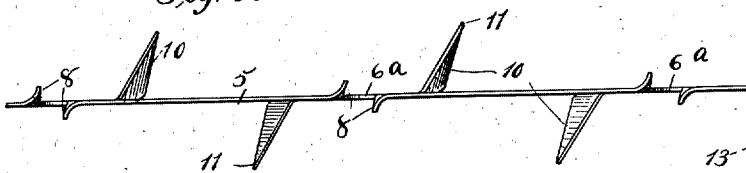
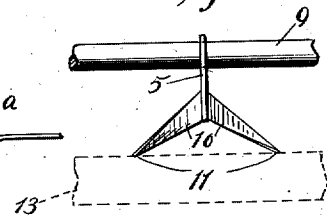


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

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REINFORCING DEVICE FOR CONCRETE.

980,414.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES A. HANSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Reinforcing Devices for Concrete, of which the following is a specification.

My invention relates to concrete construction and refers more particularly to reinforcing means especially adapted for use in roofs and floors.

The chief objects of the improvements which constitute the subject matter of this application for patent are: to provide a combined reinforcing and spacing construction that can be readily assembled: that will be especially applicable to horizontal walls, and that will be equally effective in whatever position it may be applied.

Other features which have received attention are: the production of a reinforcing framework that is simple in construction, composed of members or units that can be manufactured by economical processes so as to produce an article of unusual cheapness, and by combining simple rods with the specially designed members, the resulting structure combines the requisite stiffness and lightness desirable in work of this class.

The manner of joining the coöperating parts presents novel features and permits the members to be quickly placed in proper relation, where they are firmly held in frictional engagement, and the frame thus readily built up is supported by suitable feet which rest upon the form or other temporary support, and when the structure is completed the reinforcing members are properly embedded in the concrete material.

I accomplish the desired results by employing the structural frame illustrated in the accompanying drawing which forms a part of this application, the general appearance of the assembled members, and the details of construction of the frame and its interlocking units being disclosed in the following views:—

Figure 1 is an isometric perspective showing a portion of a reinforcing framework embodying my improvements: Fig. 2 is a side elevation of a part of one of the improved spacing bars. Fig. 3 is a top plan view of a spacing bar with the rod engaging ears bent to inoperative position to permit

the reinforcing rods to be inserted in their seats, and Fig. 4 is an end elevation of a spacing member, with a fragment of a reinforcing rod in engaged relation therewith.

Referring to the details of construction, the numeral 5 indicates a spacing chair or bar, constructed of a sheet metal strip of suitable gage and width and of any desired length that may be convenient to manufacture and handle. At spaced intervals along one of its margins the said strip has round holes 6 formed therein near the edge of the bar, leaving a narrow connection which is severed in the median line, as indicated at 7, producing lugs or ears 8. These ears are bent outwardly, as shown in Fig. 3, being arranged in staggered relation upon the opposite sides of the bar, permitting the reinforcing rods 9 to be laid in the notches 6 thus formed and after the rods are in place the ears are bent back to their original position in the plane of the bar, thus interlocking the rods and bars in mutual engagement, as shown in Figs. 1 and 4. It is desirable to support the frame thus formed by the conjoined members so as to have it centralized within the concrete when work is completed. To this end the other margin of the spacing bar is provided with projecting angular lugs or feet 10 which extend laterally in staggered relation upon opposite sides of the bar, and their extreme points 11 drop below the adjacent edge of the bar, as shown in Figs. 2 and 3. The said feet 10 are preferably arranged in pairs, each pair being formed by diverging cuts, indicated at 12, which meet at the margin of the bar in a line midway between each two adjacent holes 6. The triangular flaps or ears thus formed are then bent outwardly and downwardly as described and shown in the drawing.

The manner of assembling the spacing bars and reinforcing rods is clearly disclosed in Fig. 1, and when thus arranged the tips 11 of the triangular feet will rest upon the form 13, shown in dotted outlines in Figs. 2 and 4, and thus raise the structure sufficiently above the support to permit the plastic material to flow underneath the rods, bars and lugs, practically embedding the framework within the concrete, and when the work is completed and the form removed, the only portions of the metal structure exposed will be the points 11 of the feet, and

as their surfaces are comparatively small they will be scarcely discernible on the wall surface.

It may be found desirable, in some instances, to omit the severing of the connecting bridge to form the ear 8, thus leaving the said bridge intact, in which case the rods will be threaded through the holes 6 of the strips and the work of bending the said ears be avoided. A portion of a bar thus constructed is shown in side elevation in Fig. 2.

It will be noted that the structure and arrangement of the feet 10, while effecting a strong support for the bars 5 and rods 9, form reinforcing elements with the bars 5 which tend to resist strains applied laterally, longitudinally and vertically to the structure of which they form parts.

While I have shown my improved spacing member arranged in horizontal relation to the rods 9, it will be apparent that they will be equally effective when placed vertically in a wall, and that other forms of cooperating members than rods 9, can be used if desired. In fact, under certain conditions, the members 5 may serve solely as reinforcing means as they possess all of the characteristics of reinforcing bars when made of suitably dimensioned material.

Having thus described my invention, what I claim as new, is:—

1. A spacing member for concrete construction, consisting of a flat bar having spaced apertures adjacent one margin, and integral supporting lugs extending outwardly from the sides of said bar and downwardly from the lower edge thereof.

2. A spacing and reinforcing member for concrete construction, consisting of a flat bar having spaced apertures adjacent one margin, ears extending from the apertures, and integral supporting lugs on the other margin of said bar, said lugs extending out-

wardly from the sides of said bar and downwardly from the lower edge thereof and arranged in staggered relation upon opposite sides of the bar.

3. A reinforcement for concrete construction, comprising flat parallel bars having spaced apertures adjacent one margin, integral supporting lugs on said bars extending outwardly from the sides of said bar and downwardly from the lower edge thereof and arranged in staggered relation upon opposite sides of the bar, and rods extending at right angles to said bars and engaging said apertures.

4. A reinforcement for concrete construction, comprising a frame formed of a plurality of flat bars arranged parallel to each other, said bars having spaced apertures adjacent one margin, ears adjacent said apertures, integral supporting lugs on the other margin of said bar, said lugs being bent outwardly from the sides of the bar and downwardly from the lower edge thereof in staggered relation upon opposite sides of the bar, and rods engaging the said apertures.

5. A reinforcement for concrete construction, comprising a framework consisting of flat bars arranged in parallel and provided with spaced apertures adjacent the upper margin, rods arranged at right angles with said bars and engaging said apertures, and triangular spaced supporting lugs extending from the lower margin of each bar, the said lugs being bent outwardly from the sides of the bar and downwardly from the lower edge thereof in staggered relation upon opposite sides of the bars.

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

CHARLES A. HANSON.

Witnesses:

H. DE LOS HIGMAN,

C. B. BENJAMIN.