Dec. 26, 1922. 1,439,737

W. B. HOUGH.
REENFORCED CONCRETE CONSTRUCTION.
FILED JULY 29, 1918.

Fig. 1.

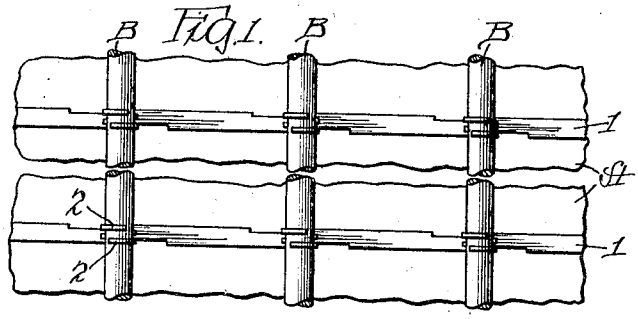


Fig. 2.

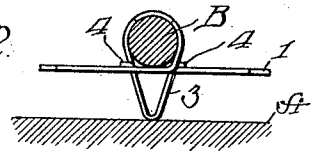


Fig. 3.

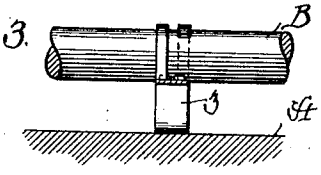


Fig. 4.

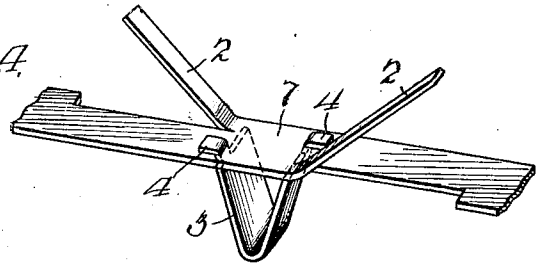
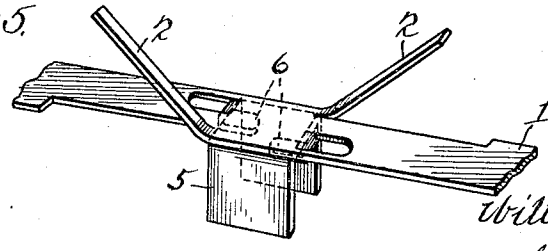


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM B. HOUGH, OF CHICAGO, ILLINOIS; HOWARD M. HOUGH EXECUTOR OF SAID WILLIAM B. HOUGH, DECEASED.

REENFORCED CONCRETE CONSTRUCTION.

Application filed July 29, 1918. Serial No. 247,123.

To all whom it may concern:

Be it known that I, WILLIAM B. HOUGH, 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 Reenforced Concrete Constructions, of which the following is a specification.

This invention relates to reenforced concrete floors and similar structures, and refers particularly to devices for spacing the reenforcing bars at predetermined distances from each other, for securing or locking the bars in place at such distances, and for spacing the bars at the desired distance from the formwork. Such devices usually consist of a metal strip extending transversely of the bars and provided with bar-engaging or locking means and with gages for supporting the bars above the formwork. The supports or gages must be sufficiently rigid and strong so as to support the bars at the desired distance from the formwork. Said gages also should be of sufficient strength to resist deformation in case a workman should step upon or otherwise place an excessive load upon one of the reenforcing bars. The metal strip extending transversely of the bars, however, is ordinarily not subjected to a severe stress and therefore may be of light construction. To economize in construction and in freight charges, said metal strip may be of relatively thin, light material. The bar-engaging or bar-locking means should be of such character as to securely hold the bar against horizontal displacement and still be sufficiently flexible so as to be readily bent into engagement with the bar.

It is an object of this invention to provide bar-spacing and locking means of such construction that each of the three elements, namely, the gage, the transverse spacing element, and the bar-locking means, may have individual characteristics as regards strength and rigidity.

Other objects and advantages of the invention will be apparent from the following description.

In the accompanying drawings, Figure 1 is a fragmental top plan view of one embodiment of my invention. Figs. 2 and 3 are fragmental views showing the spacing and securing device in fragmental side elevation and cross-section, respectively. Fig. 4 is a perspective view of the device on an enlarged scale. Fig. 5 is a perspective view of an alternative construction.

In the drawings, A denotes the formwork upon which the concrete is to be poured. B indicates the reenforcing bars. The spacing and securing device comprises a longitudinal member consisting, in this instance, of a metal strip 1. The bar-engaging or locking means may consist, as herein shown, of pairs of arms 2 cut from the strip 1 and originally bent into the position indicated in Fig. 4. After the bars B have been put in place, the arms 2 may be bent as indicated in Figs. 1, 2 and 3 to embrace and secure the bars against lateral displacement.

In the construction disclosed in Figs. 1, 2, 3 and 4 the means for supporting the bars at the desired distance above the formwork consists of gages 3, each formed by bending a piece of hoop iron, sheet metal or other suitable material into V-form. Said gage may be secured to the longitudinal member 1 in any preferred manner as by providing tongues 4 upon the ends of the arms of the V, passing said tongues through openings in the longitudinal member and bending said tongues as indicated in the drawings.

In Fig. 5 there is shown one of various possible forms of gages, the gage 5 illustrated in said figure consisting of a piece of sheet metal bent into inverted U-form and secured to the longitudinal member in any suitable manner, as by means of two tongues 6 cut from the longitudinal member 1 and bent downwardly and then upwardly into engagement with the lower side of the middle portion of the U-shaped member 5, thereby rigidly securing said member 5 to the longitudinal member 1.

It will be observed that the portion 7 of the longitudinal member which extends across or bridges the space between the side arms of the V-shaped gage 3 serves to tie said arms together and prevent said side arms from spreading. A very strong and reliable support for the reenforcing bar is thereby obtained.

Since the gage is formed separately from the longitudinal member 1, neither is limited by the other with reference to the spacing of the bar-engaging arms and gages along

the longitudinal member, the cutting of the arms or the detail construction of the gage and the bar-engaging means.

I claim as my invention:

1. A bar spacing device for reenforced concrete construction comprising a continuous substantially flat metal strip having a pair of integral flexible arms struck from the lateral edges thereof, a second strip extending transversely of said first mentioned strip and bent to form a gage, and lugs struck downwardly from said first strip and rigidly engaging said supporting gage.

2. A bar-spacing device for reenforced concrete construction comprising a continuous substantially flat metal strip having a pair of integral flexible bar-engaging arms extending upwardly therefrom, with a portion of said strip between the bases of the arms and in the plane of the body of the strip, and a separately formed gage below the strip opposite the space between the bases of said arms, and tongues on said strip engaging said gage to rigidly secure the same to said strip.

3. A bar spacing device for reenforced concrete construction comprising a continuous substantially flat metal strip having a pair of integral flexible arms struck from the lateral edges thereof, a second strip bent to form a gage to support said first-mentioned strips, and lugs on one of said strips adapted to be bent longitudinally of said first strip to rigidly secure said second strip thereto, said lugs being spaced from the lateral edges of said first strip.

In testimony whereof, I have hereunto set my hand.

WILLIAM B. HOUGH.