

A. E. LINDAU.
METAL REINFORCING AND SPACING BAR.
APPLICATION FILED JAN. 25, 1911.

1,014,711.

Patented Jan. 16, 1912.

Fig. 1.

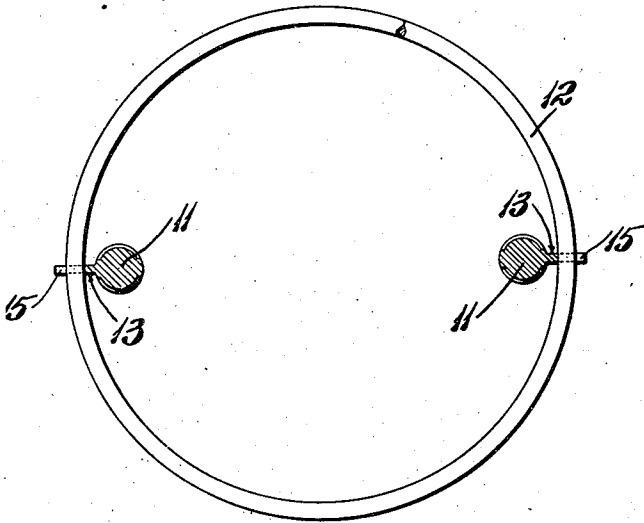


Fig. 3.

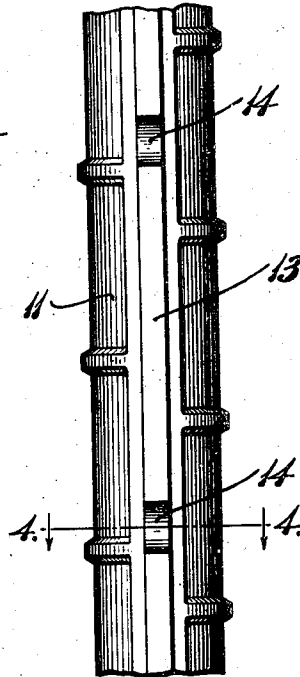


Fig. 2.

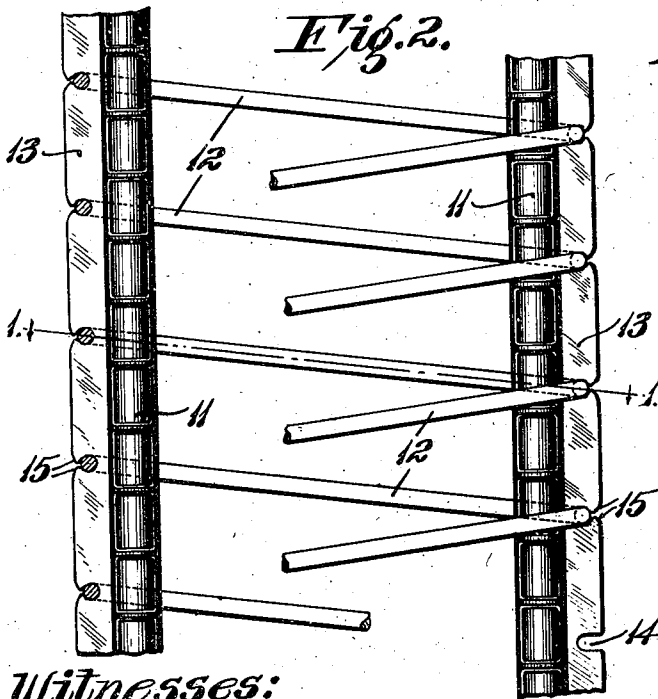
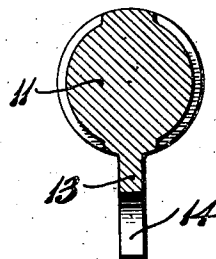


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALFRED E. LINDAU, OF ST. LOUIS, MISSOURI, ASSIGNOR TO CORRUGATED BAR COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

METAL REINFORCING AND SPACING BAR.

1,014,711.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed January 25, 1911. Serial No. 604,690.

To all whom it may concern:

Be it known that I, ALFRED E. LINDAU, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Metal Reinforcing and Spacing Bars, of which the following is a specification.

My invention relates particularly to improvements in reinforced concrete columns, pipes, stacks, tanks or cylinders, but is applicable to any concrete structure in which spiral or looped metal reinforcement, or a plurality of spaced parallel reinforcing bars, is used in connection with longitudinal tension bars.

The object of my invention is to provide an improved means for securing the metal reinforcement and the tension bars in spaced relationship in the forms or molds preparatory to placing therein the matrix of concrete in the process of erecting reinforced concrete columns and like structures.

Another object of my invention is the provision of a simple, secure and rigid mechanical connection between adjacent reinforcing bars, and one which may readily be made after the bars are placed in the forms.

A further object of my invention is the production of reinforcing bars, formed by rolling or rolling and punching, which shall be of such shape as to enable the use of a separate spacing means for properly assembling the reinforcement in the forms to be dispensed with. I also desire to produce a tension bar adapted for use as a spacing means which is suitable for transportation without being boxed or crated, and which can be shipped in fixed lengths and cut up at the place of use to suit the work in hand.

Other objects of my invention will be more fully set forth in connection with the accompanying drawings forming a part of this specification, and will be more particularly pointed out in the claims.

In the drawings accompanying this specification, in which like numerals are used to designate like parts throughout the several views: Figure 1 is a section on the line 1—1 in Fig. 2; Fig. 2 is a partial view in side elevation of two of my improved bars used in connection with spiral reinforcement which is shown partly broken away; Fig. 3

is a partial view in side elevation of my improved tension and spacing bar; and Fig. 4 is a section on the line 4—4 in Fig. 3.

In metal-reinforced concrete columns and similar structures it is customary to use longitudinal tension members arranged near the surface of the column and extending parallel with its longitudinal axis in connection with loops or spirals of metal arranged around the column near the surface and bound to the longitudinal members by wire or clips. These metal reinforcing elements are usually assembled and secured together at the time of erecting the forms, by unskilled laborers, and it frequently happens that through carelessness in assembling or binding securely together the various elements of the reinforcement, the latter becomes distorted or misplaced during the operation of filling in the forms with concrete, and thus the finished structure is impaired.

The reinforcing bars illustrated in the accompanying drawing comprise a main body portion having longitudinal ribs on diametrically opposite sides thereof and transverse ribs arranged at intervals along the surface of the bar and extending from one longitudinal rib to the other. Mounted on one of these longitudinal ribs and extending outwardly therefrom is a thin longitudinal flange 13 which has a series of notches spaced apart along its outer edge. Two or more of these bars 11 are arranged in parallel relationship and the spiral or looped reinforcement 12 assembled around them with the several loops thereof positioned in the notches 14. These notches are of greater depth than the thickness of the reinforcement, being formed of such depth that the corners of the flanges 13 adjacent thereto project out beyond the section of greatest width of the looped reinforcement positioned therein, so that these corners can easily be mashed down or bent in, as shown at 15 in Fig. 2, by a blow from a hammer to embrace the loops and thus secure them in the notches. This is a comparatively simple operation easily carried out by unskilled labor, and insures not only that the reinforcement shall be spaced properly with respect to the longitudinal tension bars and that the longitudinal tension bars shall be held

securely in alinement, but moreover there is very little danger of the reinforcement becoming detached from the longitudinal tension bars or being accidentally misplaced, on account of this strong and secure form of connection between them.

It is evident that my improved tension and spacing bar can be used with other forms of reinforcement than that shown and described herein, as for example, with spaced parallel reinforcing bars as used in floor panels or arches, which forms I have thought it unnecessary to show and describe.

I do not wish to be limited to the particular embodiment of my invention shown and described above, but what I claim as my invention and desire to secure by Letters Patent is as follows:

1. A metal reinforcing unit for concrete structures comprising a tension bar in combination with looped reinforcement, said tension bar having diametrically opposite longitudinal ribs and transverse ribs at intervals extending from one longitudinal rib to the other, one of said longitudinal ribs being provided with a thin flange having spaced notches in the edge thereof in which are seated the loops of said reinforcement, said notches being of such depth that the adjacent corners of said flange overlap the

sides of the loops seated therein, said corners being turned in to embrace the loops.

2. A metal reinforcement for concrete structures comprising parallel tension bars having diametrically opposite longitudinal ribs and transverse ribs at intervals extending from one longitudinal rib to the other, one of said longitudinal ribs being provided with a thin flange having spaced notches therein, and transverse reinforcing elements arranged in said notches and supported thereby.

3. As a new article of manufacture, a tension bar for reinforced concrete structures, said bar having diametrically opposite longitudinal ribs and transverse ribs at intervals extending from one longitudinal rib to the other, one of said longitudinal ribs being provided with a thin flange having notches therein adapted to receive metal reinforcement, said notches being of such shape as to form corners on the flange adapted to be bent over the said reinforcement to retain it in position in the notches.

Signed at St. Louis, Missouri, this 23rd day of January, 1911.

ALFRED E. LINDAU.

Witnesses:

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