No. 816,334. PATENTED MAR. 27, 1906.

J. KAHN.

TENSION MEMBER FOR COMPOSITE CONSTRUCTION.

APPLICATION FILED JUNE 21, 1905.

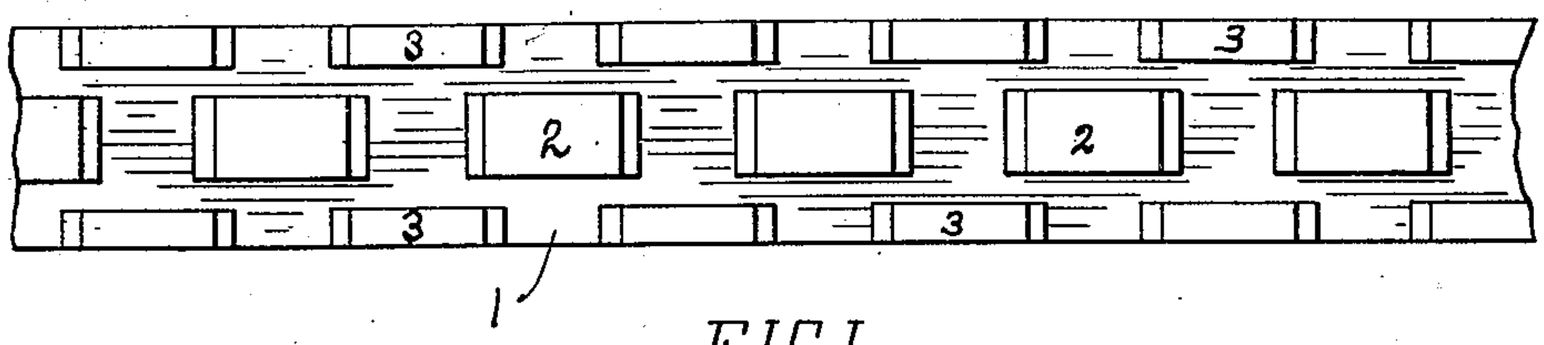

FIG. 1.

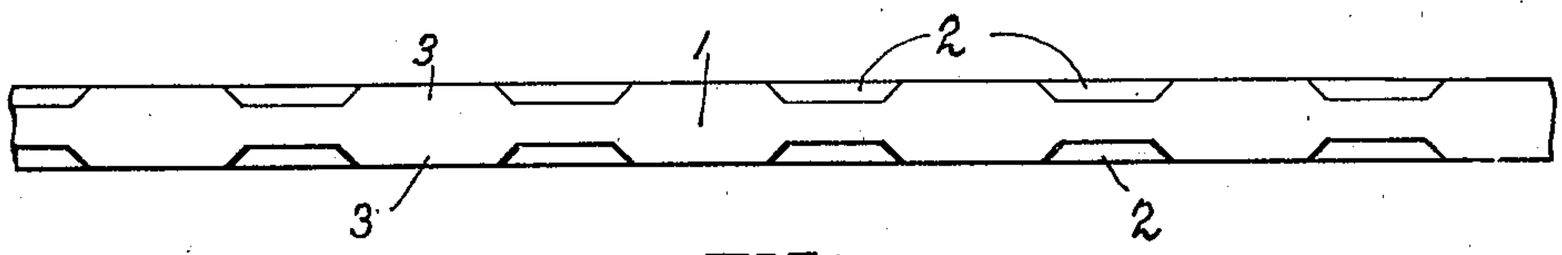

FIG. 2.

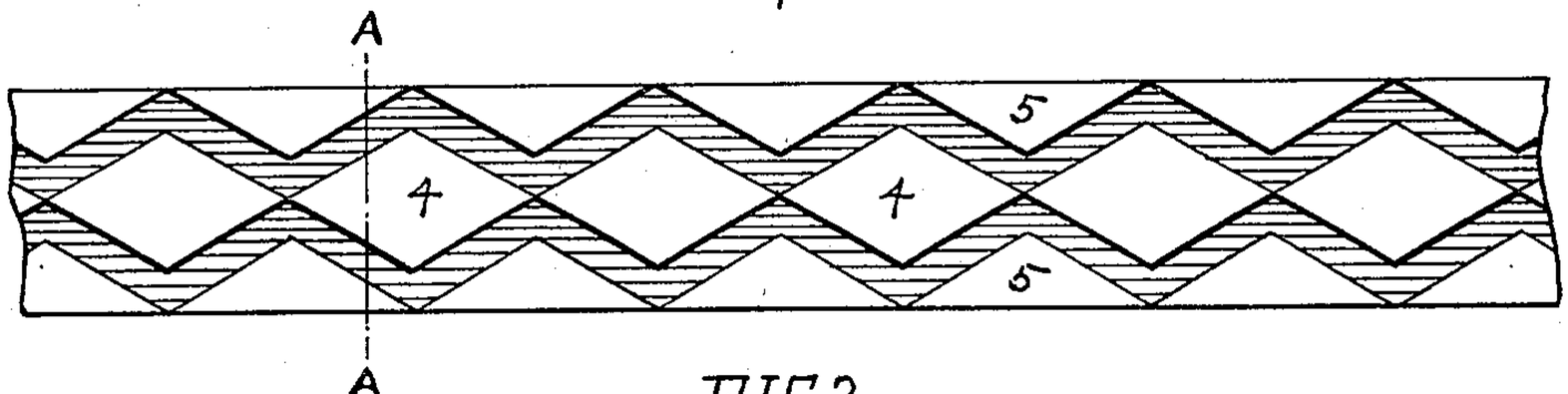

FIG. 3.

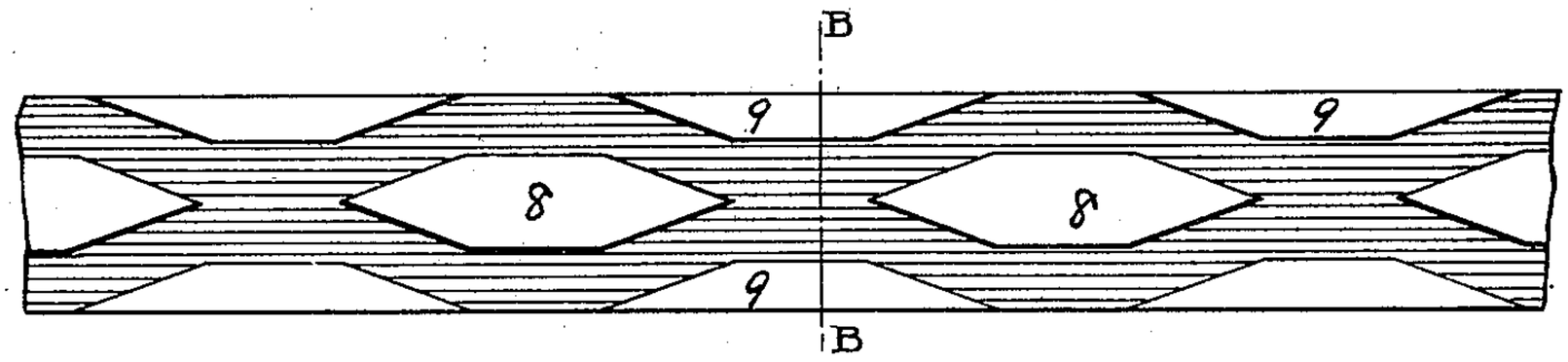

FIG. 4.

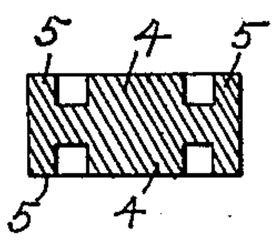

FIG. 5.

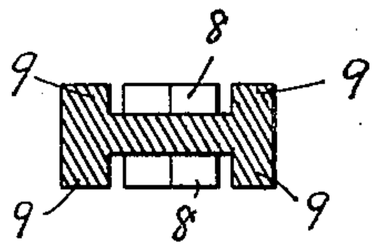

FIG. 6.

Witnesses:
A. C. Wilcox
W. B. Hudson

Inventor
By his Attorney Julius Kahn.
Edward N. Pagelsen.

UNITED STATES PATENT OFFICE.

JULIUS KAHN, OF DETROIT, MICHIGAN, ASSIGNOR TO TRUSSED CONCRETE STEEL COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

TENSION MEMBER FOR COMPOSITE CONSTRUCTION.

No. 816,334. Specification of Letters Patent. Patented March 27, 1906.

Application filed June 21, 1905. Serial No. 266,241.

To all whom it may concern:

Be it known that I, JULIUS KAHN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Tension Member for Composite Constructions, of which the following is a specification.

This invention relates to tension members for combined steel and concrete beams, trusses, and other structures subject to transverse stresses; and the object of my improvement is to provide a tension member of this kind in the form of a rod or bar which shall have projections formed thereon to insure more perfect engagement between the metal and the plastic material, while at the same time the tensional strength of the tension member shall be uniform throughout its length. I attain this object by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a side view, and Fig. 2 is an edge view, of one form of my improved tension members. Fig. 3 and Fig. 4 are side views of other forms of the same. Fig. 5 is a cross-section on the line A A of Fig. 3. Fig. 6 is a cross-section on the line B B of Fig. 4.

Similar reference characters refer to like parts throughout the several views.

Tension members for concrete steel construction have been formed by twisting angular metal bars, by securing washers and other projections upon the tension-bars intermediate their length at regular intervals, by corrugating the bars, and by forming projections on the bars by rolling. These changes in the form of the metal are to prevent the bars from slipping in the plastic material when the structure is loaded; but each of the various forms requires an excess of metal—a portion that serves merely to prevent the slipping of the bar in the concrete and does not carry its proportion of the tensional stress. In my improved construction I have endeavored to so proportion the various parts that the stress required to rupture the metal will be equally great at every point in the length of the bar.

In Figs. 1 and 2 the bar 1 is provided with a series of projections 2 and 3 on both sides of the bar, those on one side being equal and opposite to those on the other. The projections 3 are of equal length, and their width is one-half that of the projections 2, thus forming a symmetrical bar. The projections are beveled at their ends, and the inclines of the projections 3 lap those of projections 2, which is sufficient to cause the amount of metal which would be broken should the line of breakage extend around between the projections to be equal to that should the break be at right angles to the bar.

In Figs. 3 and 5 a bar is shown with projections 4 and 5 and grooves between the same so proportioned that the cross-sectional area is constant for all planes at right angles to the bar. The tensional strength of the bar will therefore be uniform throughout its length.

In Figs. 4 and 6 a bar 6 is shown having a continuous projection 7 on each side in the form of a sinuous ridge, which ridges may be symmetrical on the bar, as indicated by the solid and dotted lines of Fig. 4, or they may be opposite each other.

Many other modifications embodying my invention may be produced by those skilled in the art, either with continuous or disconnected projections, the point to be attained being that the metal be so proportioned that the bar be of uniform tensile strength, thus avoiding all waste of material, and that the projections be sufficient to insure good union between the metal and concrete.

Having now explained my improvements, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A metal bar having a plurality of rows of disconnected projections extending from a side thereof, the projections of one row overlapping the gaps in each adjacent row, the projections being so proportioned that the bar shall be uniform in tensile strength throughout the portion of its length having such projections.

2. A metal bar having a plurality of rows of disconnected projections extending from

each side thereof, the projections of each row having parallel sides, the projections of one row overlapping the gaps in each adjacent row, and the projections being so proportioned that the bar shall be of uniform tensile strength throughout the portion of its length having such projections.

In testimony whereof I have signed this application in the presence of two subscribing witnesses.

JULIUS KAHN.

Witnesses:

ANNA M. GREGORY,

EDWARD N. PAGELSEN