

855,240.

PATENTED MAY 28, 1907.

W. D. FORSYTH.
REINFORCING MEMBER FOR CONCRETE CONSTRUCTION.

APPLICATION FILED FEB. 1, 1907.

2 SHEETS—SHEET 1.

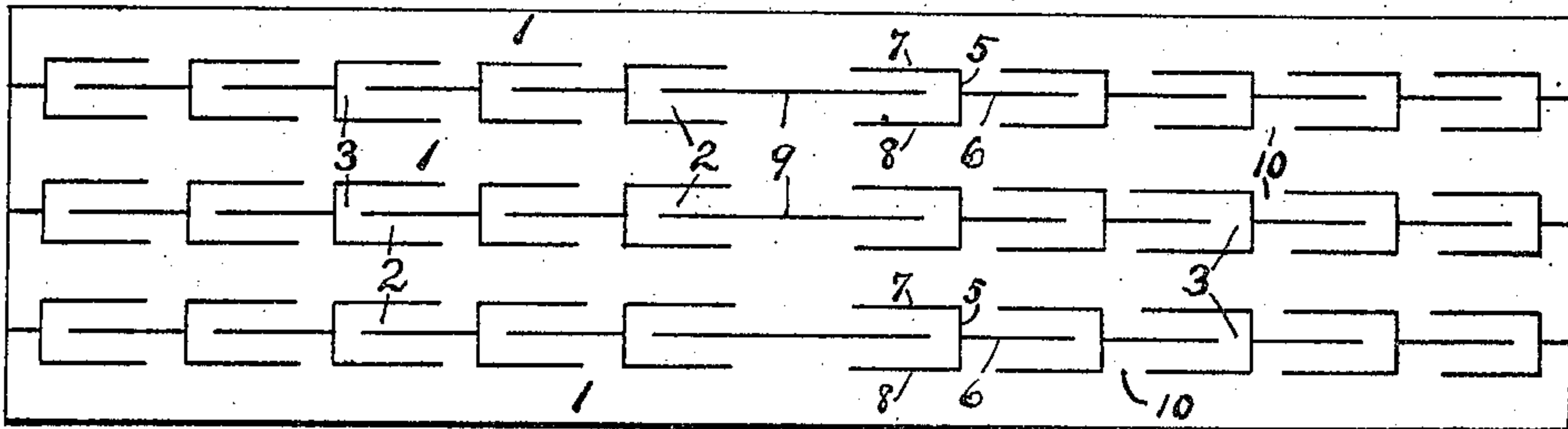


Fig. 1.

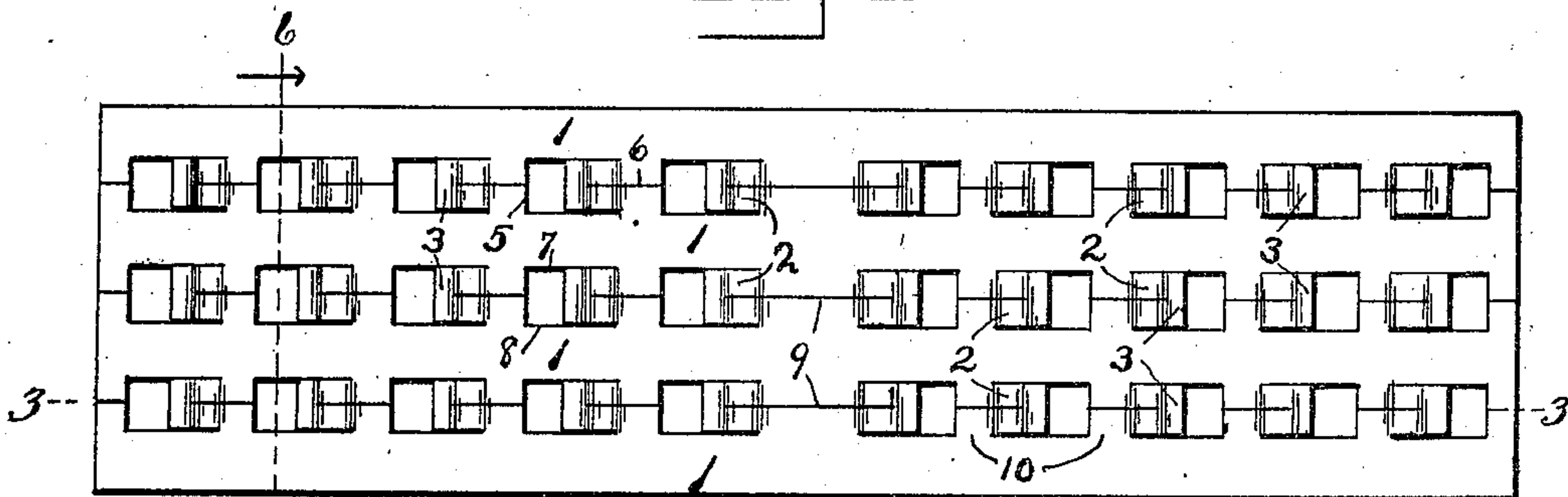


Fig. 2.

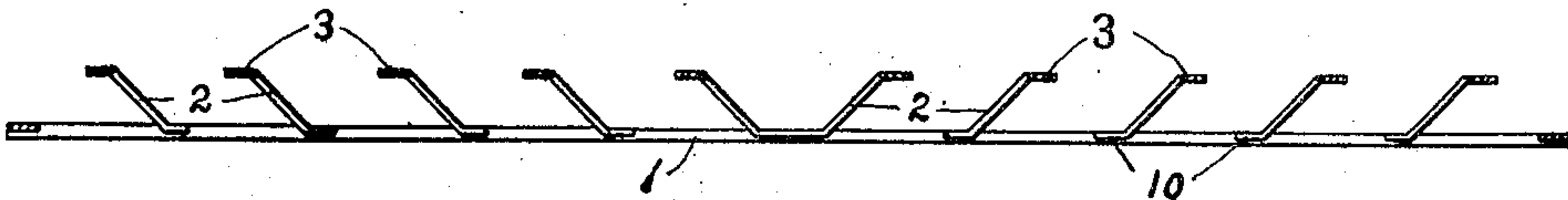


Fig. 3.

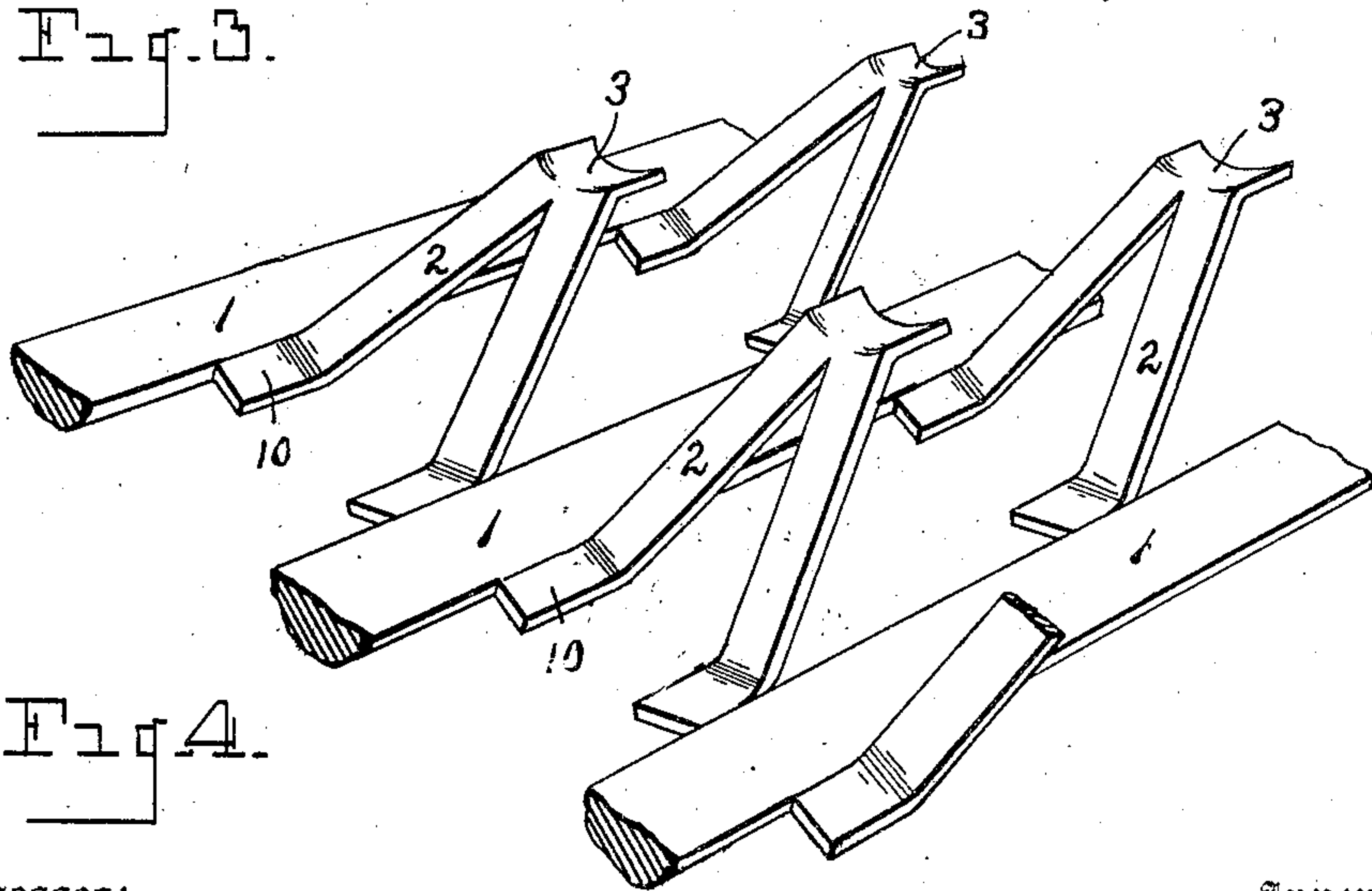


Fig. 4.

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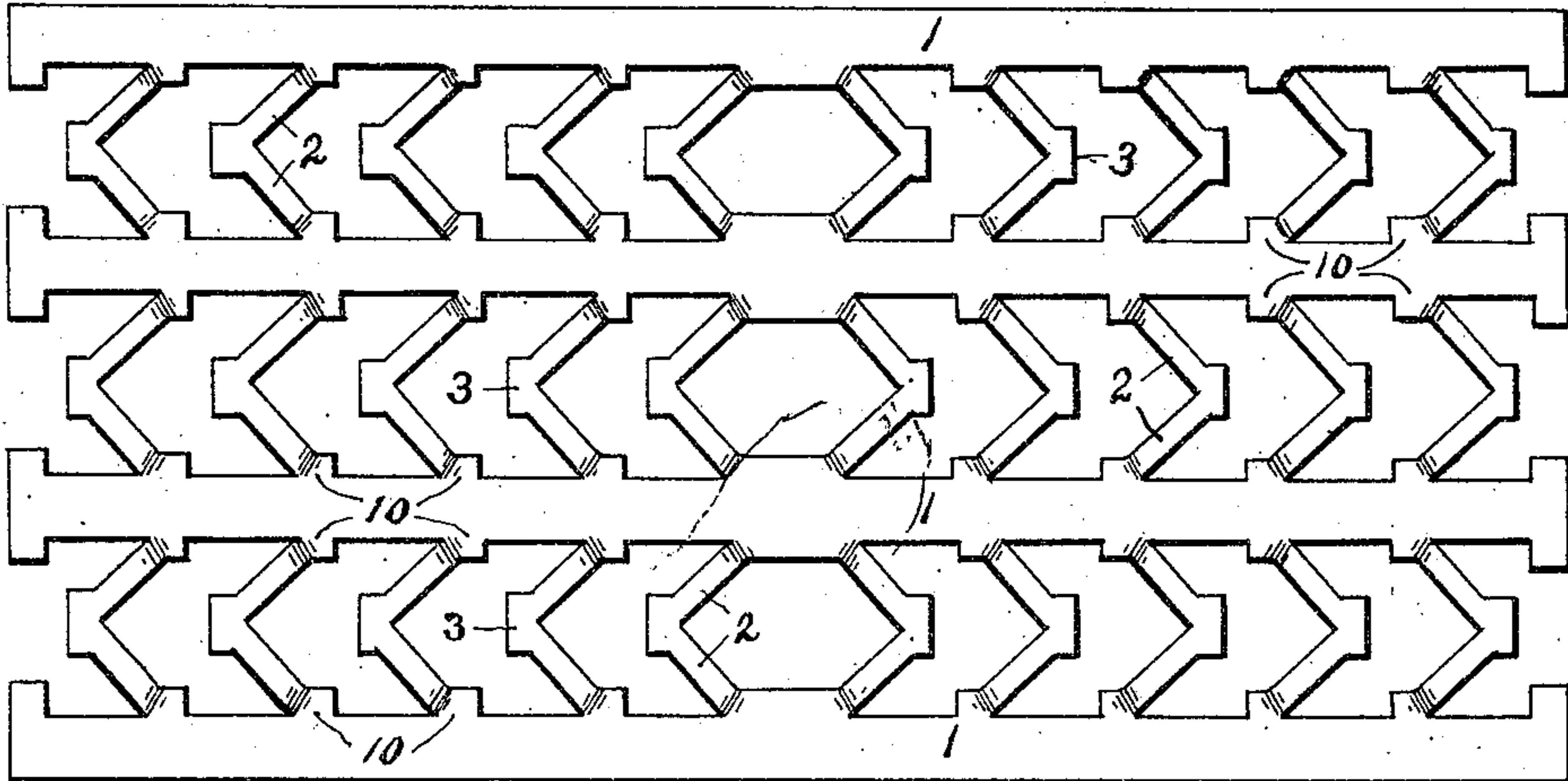


Fig. 5.

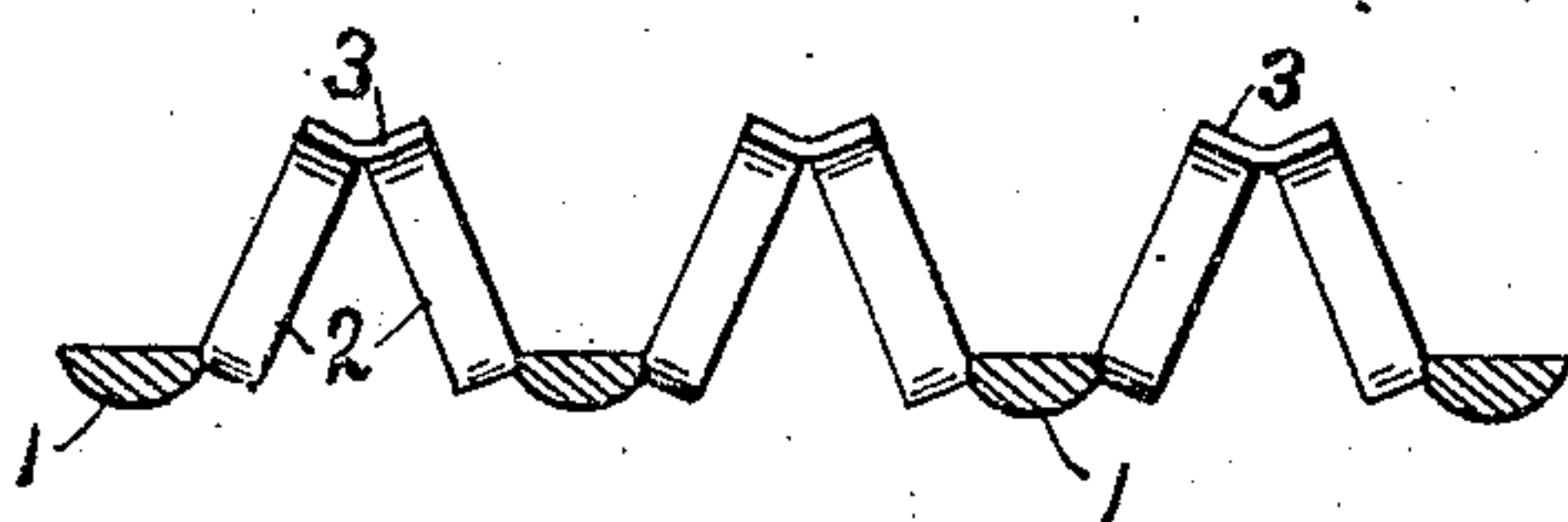


Fig. 7.

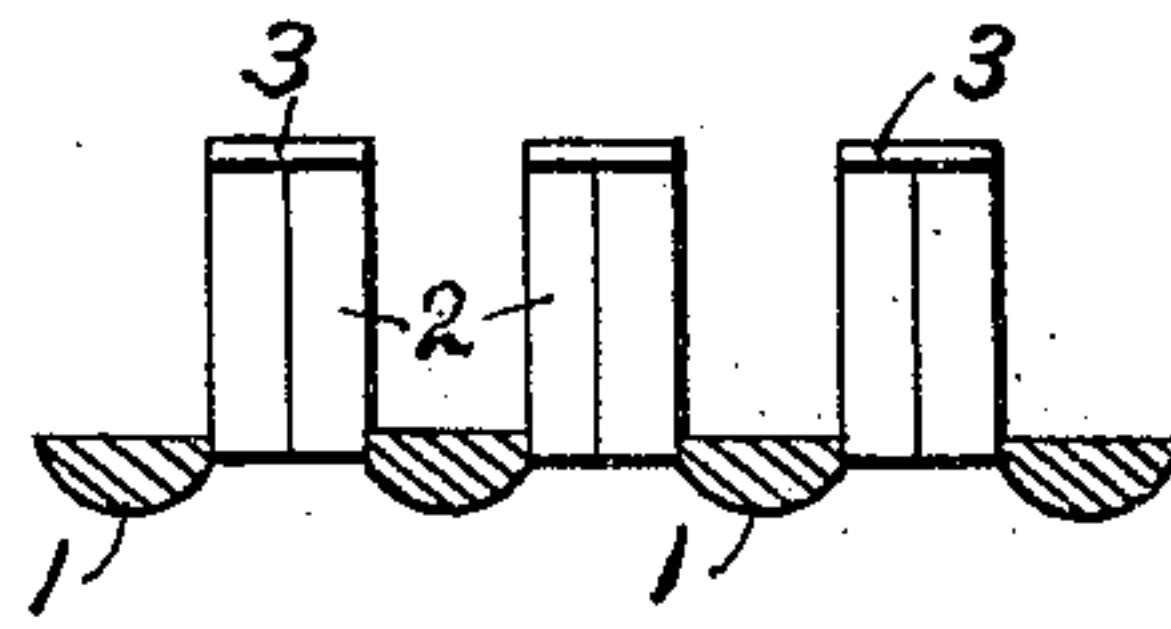


Fig. 6.

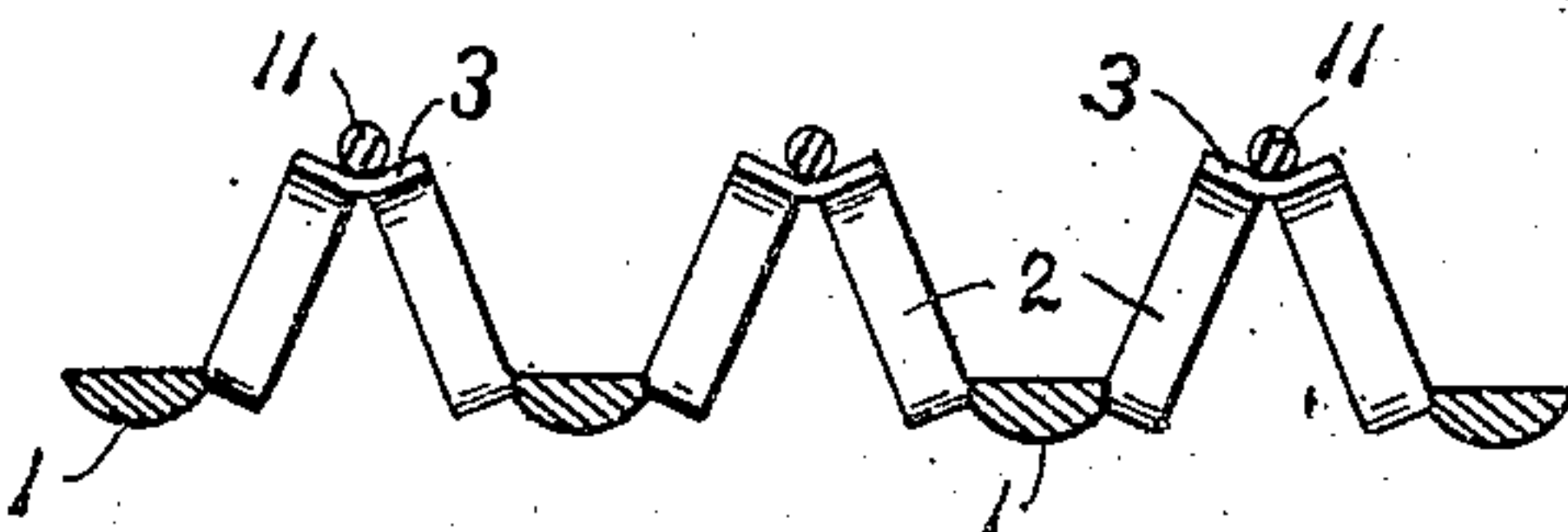


Fig. 8.

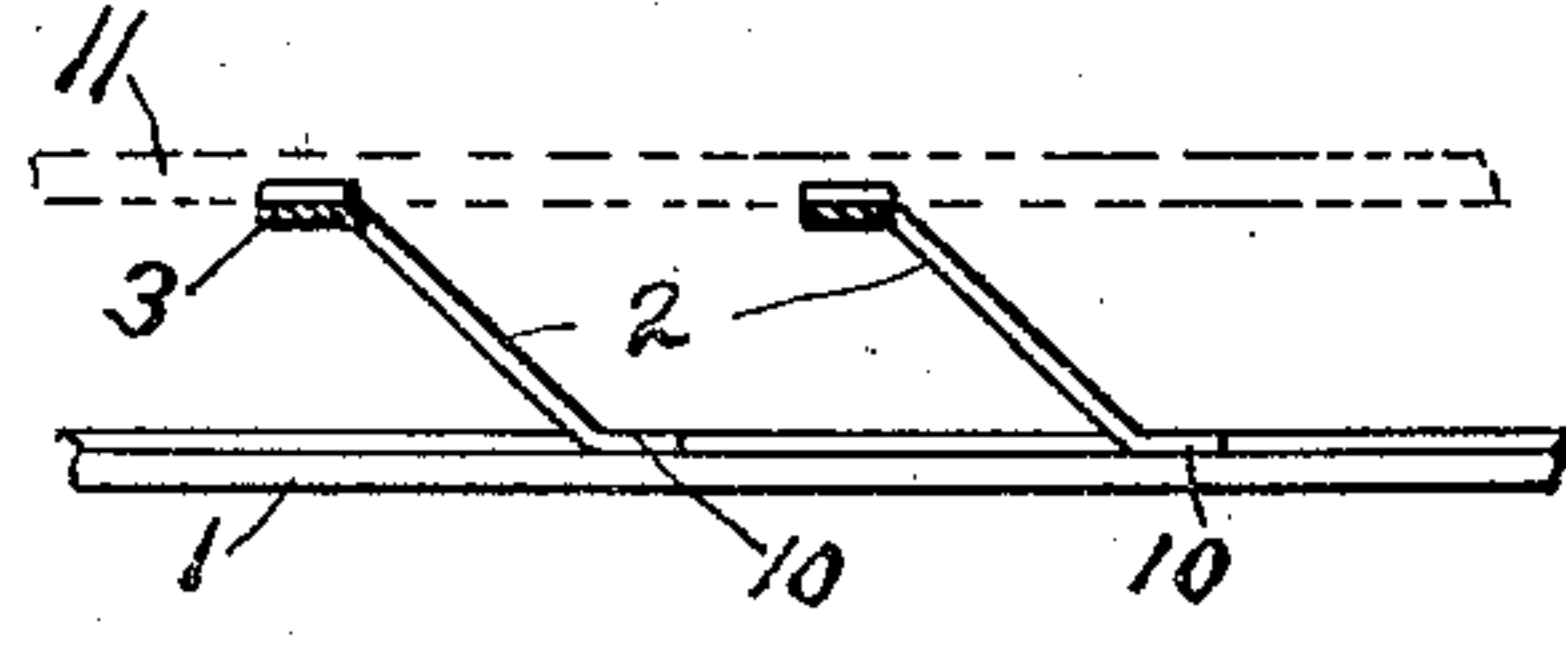


Fig. 9.

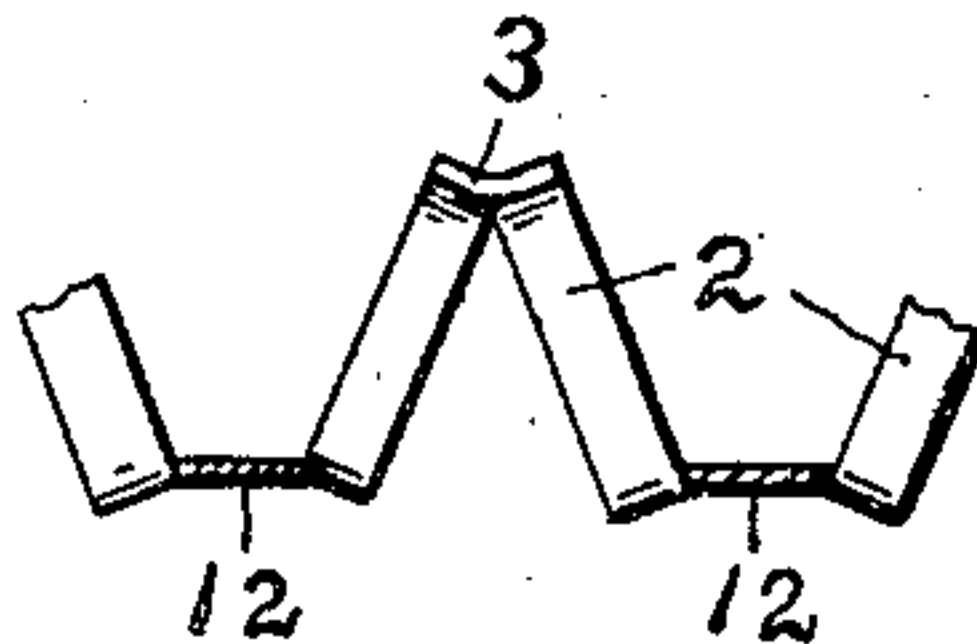


Fig. 10.

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UNITED STATES PATENT OFFICE.

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REINFORCING MEMBER FOR CONCRETE CONSTRUCTION.

No. 855,240.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed February 1, 1907. Serial No. 355,189.

To all whom it may concern:

Be it known that I, WILLIAM D. FORSYTH, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Reinforcing Members for Concrete Construction, of which the following is a specification.

My invention relates to metal tension members for reinforcing concrete slabs, arches and other flat surfaces, and the object of this improvement is to provide means for such purposes that shall have the usual inclined auxiliary tension members attached to the main tension members as are commonly employed in the Kahn system of construction and set forth in the Kahn patents No. 736,602, dated August 18th, 1903, and No. 751,921, dated February 9th, 1904.

My invention consists of a series of parallel rods which are the main tension members, and upwardly projecting auxiliary tension members attached thereto and inclined toward the ends and also inclined laterally, the auxiliary members of adjacent rods being joined at their outer ends.

My invention is illustrated in the accompanying drawings, in which

Figure 1 is a top view of a bar or plate adapted for the forming of this reinforcing material, after it has been slitted. Fig. 2 is a top view of the same after the auxiliary members have been struck up. Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2. Fig. 4 is a perspective of a portion of this reinforcing material. Fig. 5 is a top view of the bar or plate shown in Fig. 2 after the rods have been separated. Fig. 6 is a cross section on the line 6—6 in Fig. 2. Fig. 7 is a cross section on the same line after the rods have been separated as in Fig. 5. Fig. 8 is a cross section similar to that in Fig. 7 showing the reinforcing member with superimposed tension rods. Fig. 9 is a longitudinal sectional view of the same. Fig. 10 is a transverse section, showing my reinforcing member formed from a flat sheet.

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

The Kahn bar shown in the patents above cited, meets all engineering requirements as to the tension and shear. But when large surfaces are to be reinforced, and where no

spacing forms or tiles can be employed, it is often necessary to provide means to hold the bars properly spaced, which is generally a series of wires, wound about and extending across between the bars. To thus insure proper spacing requires much time and is expensive.

My improved reinforcement for concrete construction consists of a series of parallel rods 1, which are the main tension members of this construction. Integral therewith are the upwardly extending arms 2 which incline toward the ends of the rods as shown in Figs. 2 and 3, and also laterally from the rods as shown in Figs. 4, 5, 7 and 8. The outer end of each member 2 is joined to the outer end of the adjacent member 2 of the adjacent rod 1 by the cross piece 3. Or it may be stated that the ends of these adjacent members are bent back parallel to the main rods 1 and joined. The advantage of this joining of the outer ends of the members 2 is, that the rods 1 may be properly spaced and the members 2 properly inclined before the reinforcement is laid in place and will remain so while the concrete is rolled down. For floor slabs this construction is especially valuable as wide sheets may be properly prepared in advance and then laid in place without the usual loss of the time required for positioning the many small reinforcing bars usually employed.

The process of forming my improved reinforcing member is as follows. A beam or plate of metal is rolled in the form of rods 1 connected by thin webs. The webs are then slitted as shown in Fig. 1, the slits being each formed of four parts, a transverse portion 5, a longitudinal portion 6 extending from the middle of part 5 toward the end of the bar and the portions 7 and 8 extending from the ends of the parts 5 toward the middle of the bar. At the middle of the bar, slits 9 are provided to permit the rods to separate. The distance the parts 6 extend between the parts 7 and 8 determines the length of the auxiliary members 2. The distance between the ends of the parts 7 and 8 and the cross portions 5 determines the length of the attachment 10 between the rods 1 and auxiliary members 2. And the distance between the ends of the parts 6 and the portions 5 determines the length of part 3, that is, the distance the ends of members 2 are joined. The

metal is then passed through the forming dies which strike up the members 2 in the manner shown in Figs. 2, 3, and 6, inclining them toward the ends of the original material, the upper ends 3 of the struck up portions being bent back parallel to the rods 1. The rods 1 are then separated as shown in Figs. 4, 5, 7 and 8, which will cause the inclined members 2 to incline laterally from the rods. A tension member is thus formed which has the requisite metal, properly placed, in the rods 1, and has the auxiliary members 2 extending across the lines of shear and also adapted to transmit tension stresses in the concrete to the longitudinal members 1.

For some purposes, it is desirable to provide metal compression members at the upper side of the beam, slab or arch, in which case the rods 11 may be laid in the grooves formed by bending the cross pieces 3 as indicated in Fig. 8.

While the preferable form of this reinforcing material comprises rods joined by lighter arms, I may use flat sheets for the manufacture of these tension members, in which case the longitudinal members 12 (Fig. 10) will be of the same thickness as the auxiliary members 2 and connecting portions 3.

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

1. A reinforcing member for concrete construction comprising parallel longitudinal

rods, all in the same plane, and auxiliary members attached to the sides of said rods, the auxiliary members projecting upward and laterally from the rods and being inclined toward the nearer ends of the rods, the ends of auxiliary members of adjacent rods being joined.

2. A metal web formed of parallel rods and inclined members attached to said rods and projecting from the general plane of the rods, the inclined members of adjacent rods being joined at their outer ends.

3. A metal web formed of longitudinal members, all in the same plane, and outwardly projecting auxiliary members attached thereto and joined at their outer ends.

4. A metal web formed of longitudinal members, and laterally projecting connecting members, the connecting members inclining toward the ends of the longitudinal members from a common transverse line, the longitudinal members being separated and the connecting members of adjacent longitudinal members being in pairs connected at their ends.

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

WILLIAM D. FORSYTH.

Witnesses:

EDWARD N. PAGELSEN,
ELIZABETH M. BROWN.