No. 810,561. PATENTED JAN. 23, 1906.

G. L. PEABODY.

REINFORCING DEVICE FOR CONCRETE CONSTRUCTION.

APPLICATION FILED OCT. 21, 1904.

Fig. 1.

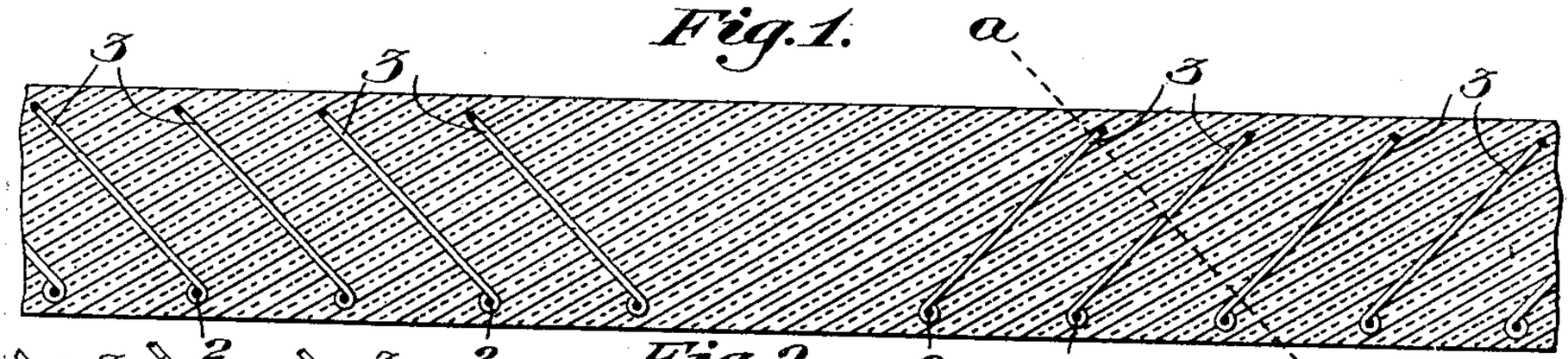


Fig. 2.

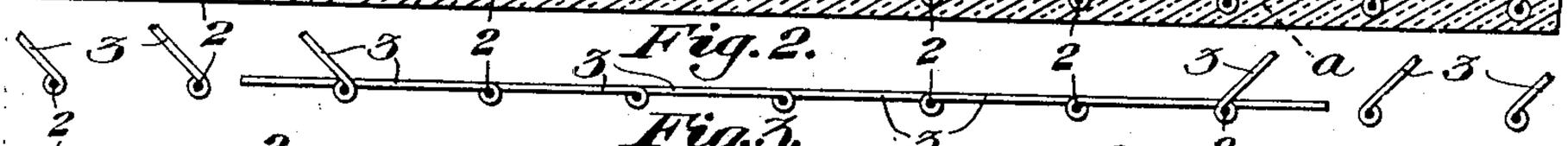
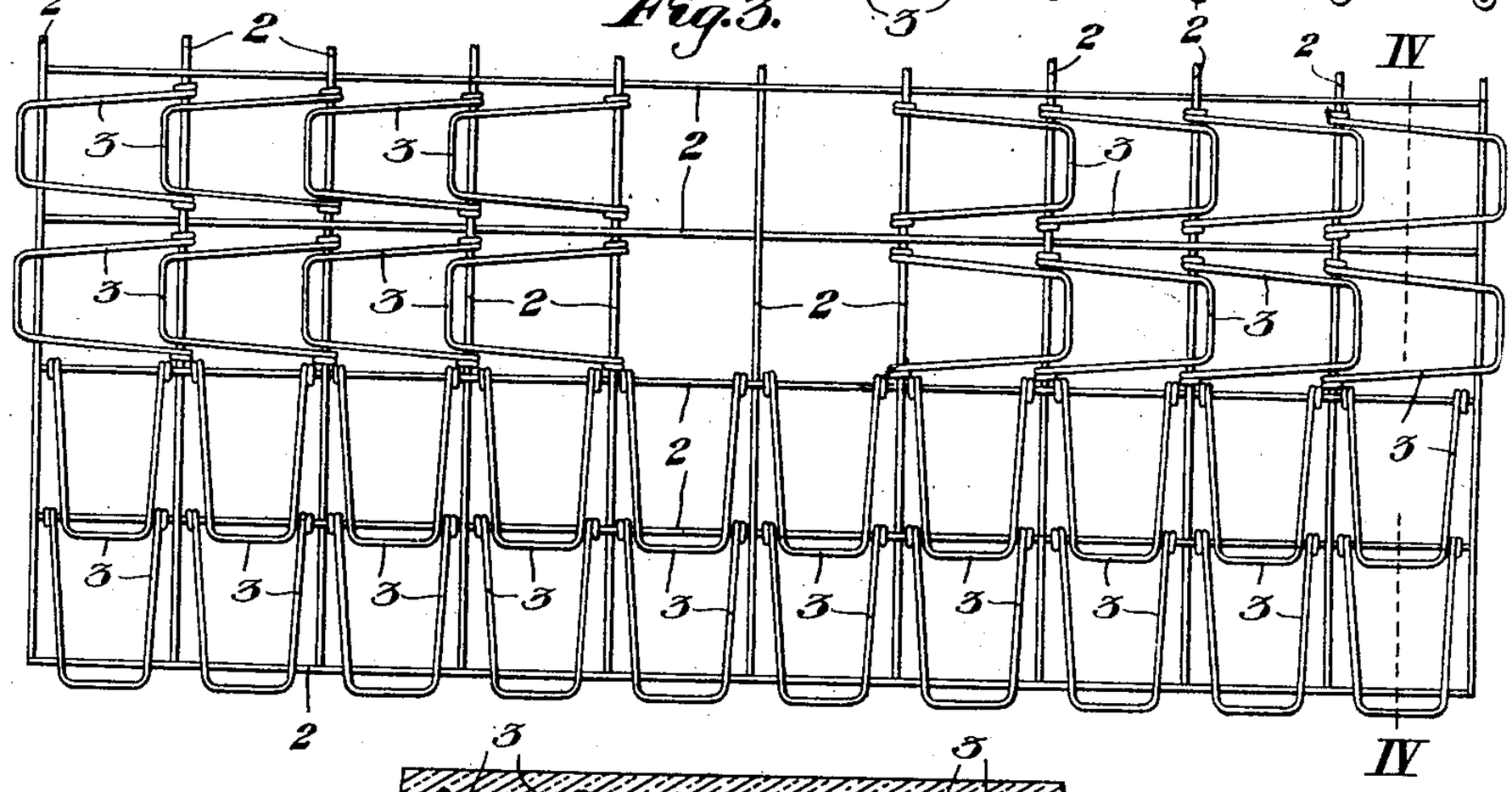


Fig. 3.



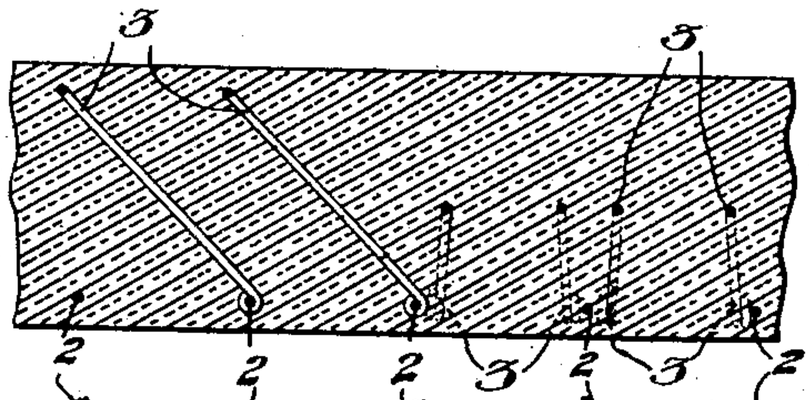


Fig. 4.

Fig. 5.

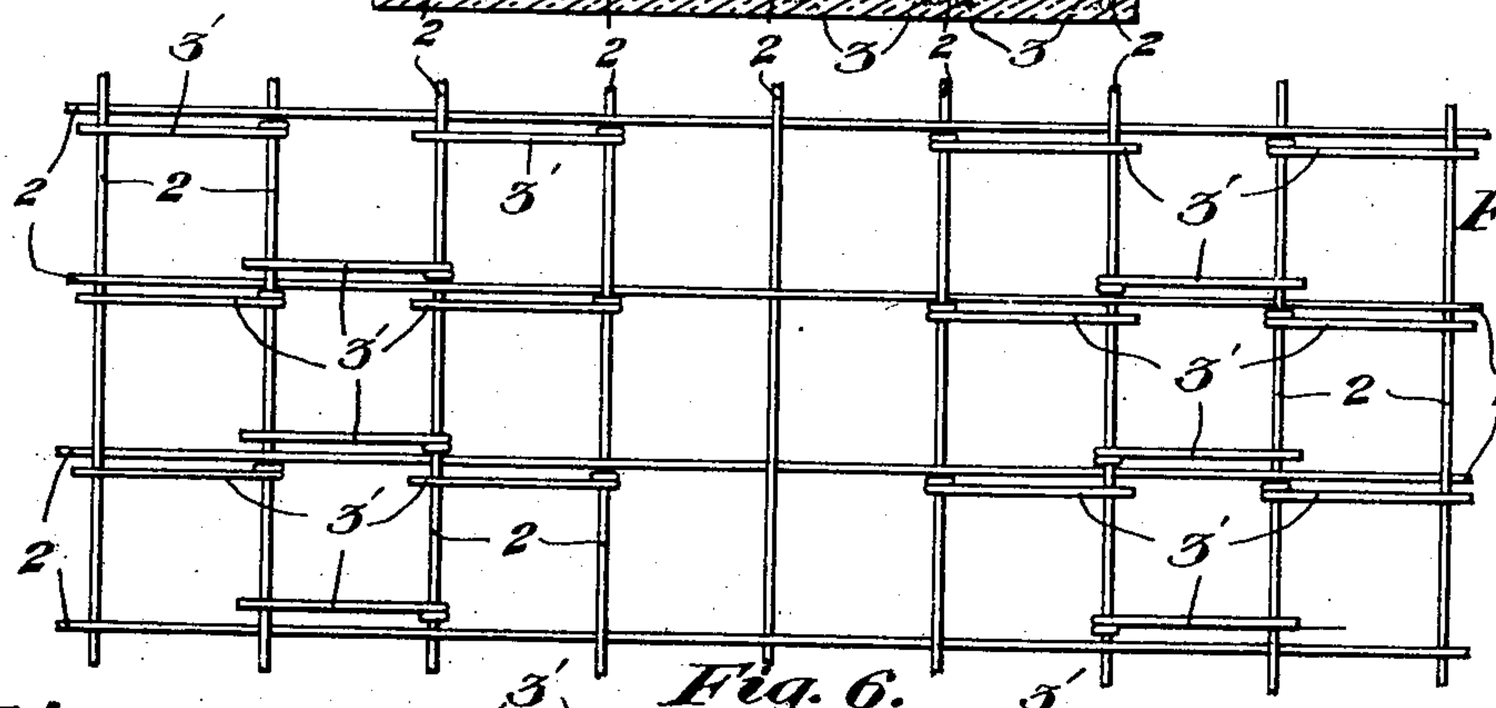
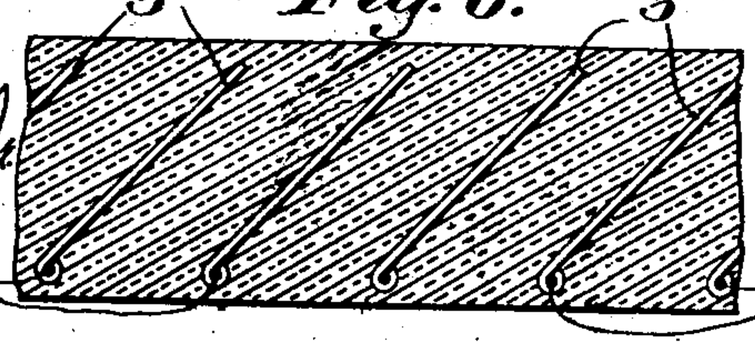


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE L. PEABODY, OF PITTSBURG, PENNSYLVANIA.

REINFORCING DEVICE FOR CONCRETE CONSTRUCTION.

No. 810,561. Specification of Letters Patent. Patented Jan. 23, 1906.

Application filed October 21, 1904. Serial No. 229,361.

To all whom it may concern:

Be it known that I, GEORGE L. PEABODY, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Reinforcing Devices for Concrete Constructions, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal sectional view of a portion of a concrete structure provided with my improved reinforcing device. Fig. 2 is a similar sectional view of the device detached, showing an increased number of horizontally-disposed intervening arms. Fig. 3 is a plan view of Fig. 1, showing a portion of the device. Fig. 4 is an enlarged detail view, in sectional elevation, indicated by the line IV IV of Fig. 3. Fig. 5 is a plan view illustrating a modification as to the form of the arms. Fig. 6 is an enlarged sectional detail view showing the form of arms of Fig. 5.

My invention relates to improvements in devices for incorporation with concrete structures, as bridges, ceilings, floors, &c.; and it has for its object to strengthen and reinforce the concrete body portion constituting the floor, &c., embedded therein and provided with projecting arms or branches arranged at any angle desired and so constructed as to be adjusted to suit the requirements of use and to make and maintain a strong binding hold in the cement or concrete at closely-adjacent intervals.

The invention is designed to provide a reinforcing device which will be capable of incorporation with the concrete in such a manner as to traverse the lines of probable fracture and counteract such fracture in the best possible manner.

The device is designed to utilize the strength-giving qualities of metallic netting—as, for instance, of woven wire or any other similar material—constituting a webbing or sheet-like base, with which I have combined or connected holding arms or branches designed to project at varying angles from the webbing and to provide means for reinforcing or strengthening the concrete structure in planes above or below the plane of the web. These supplemental holding-arms are tightly connected with the body portion of the webbing, are arranged sufficiently close together to provide a sufficient number of arms to traverse or cross the probable line of fracture at two or more points in the thickness of the concrete, and to thus counteract the tendency to breakage or cleavage at all points.

Referring now to the drawings, 2 represents the cross-bar elements of the netting or other fabric or material employed as the base or body portion of the strengthening device, consisting of wires or bars crossed upon each other and connected in any suitable manner, as by knotting or welding, and which may be of any length or width desired, according to the dimensions of the concrete structure with which it is to be incorporated. Tightly secured upon these cross-wires, generally in one direction only, but in both directions if desired—that is, lengthwise and crosswise—are a series of arms 3, consisting of wires or rods having their ends wound around wires 2 or tightly connected with them in any other suitable or desired manner. It will be understood that strips of sheet metal, bars, or any other similar or suitable construction or device may be employed in place of these arms 3 and that they may be formed in any suitable design—as, for instance, in corrugated form turned at their ends—or provided with holding-perforations or anchoring elements of any suitable type adapted to engage and bind in and with the concrete body. As shown in the drawings, it will be seen that the arms 3 are located sufficiently close together and are of sufficient length to cross the probable line of fracture *a a*, Fig. 1, at two or more points. These arms may be erected at each end of the base, as shown in Fig. 1, the intervening arms being allowed to conform to the plane of the web to strengthen its horizontal tension, or they may be erected across the entire area, as desired.

In Figs. 5 and 6 I have shown the arms 3′ as merely single rods or wires, which may be straight, as shown, or bent, curved, or corrugated in any suitable or desired manner.

It will be readily understood that the proportions, sizes, number, and arrangement of the elements are not herein specifically provided for or limited in any manner whatever, but that these features of the invention and of its construction and application are to be considered as more particularly within the province of the designing engineer or skilled mechanic and that all such changes and va-

riations are contemplated as within the scope of the claims.

In using the invention the arms may be assembled with the network of the base at the factory and the arms may be bent up at the place of incorporation with the building. It is placed in the body of the concrete as the same is made in the mold or in the operation of building, care being taken to bend the arms 3 to the desired angle, where they will be held by their connection with the frame 3 and will become surrounded by the concrete and remain embedded therein.

The advantages of a device of this kind are well understood and appreciated, and my invention provides a simple, strong, cheap, and efficient means for the purpose and is well adapted to the objects in view.

Having described my invention, what I claim is—

1. A reinforcing device for concrete, &c., consisting of a flat web-like base having main and cross strands, and holding-arms connected therewith by winding their extremities around the strands of the base, substantially as set forth.

2. A reinforcing device for concrete, &c., consisting of a flat web-like base having main and cross strands, and looped holding-arms attached thereto and adapted to be set at varying angles, substantially as set forth.

3. A reinforcing device for concrete, &c., consisting of a flat web-like base having main and cross strands, and holding-arms attached thereto arranged to be bent in oppositely-disposed upwardly and outwardly slanting directions, substantially as set forth.

4. A reinforcing device for concrete, &c., consisting of a flat web-like base having main and cross strands, and holding-arms attached to the main and cross strands and adapted to be bent in relatively cross planes and at varying angles to the base, substantially as set forth.

5. A reinforcing device for concrete, &c., consisting of a flat web-like base having main and cross strands, and looped holding-arms having their extremities secured to the main and cross strands and adapted to be bent in relatively cross planes and at various angles to the base, substantially as set forth.

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

GEORGE L. PEABODY.

Witnesses:
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