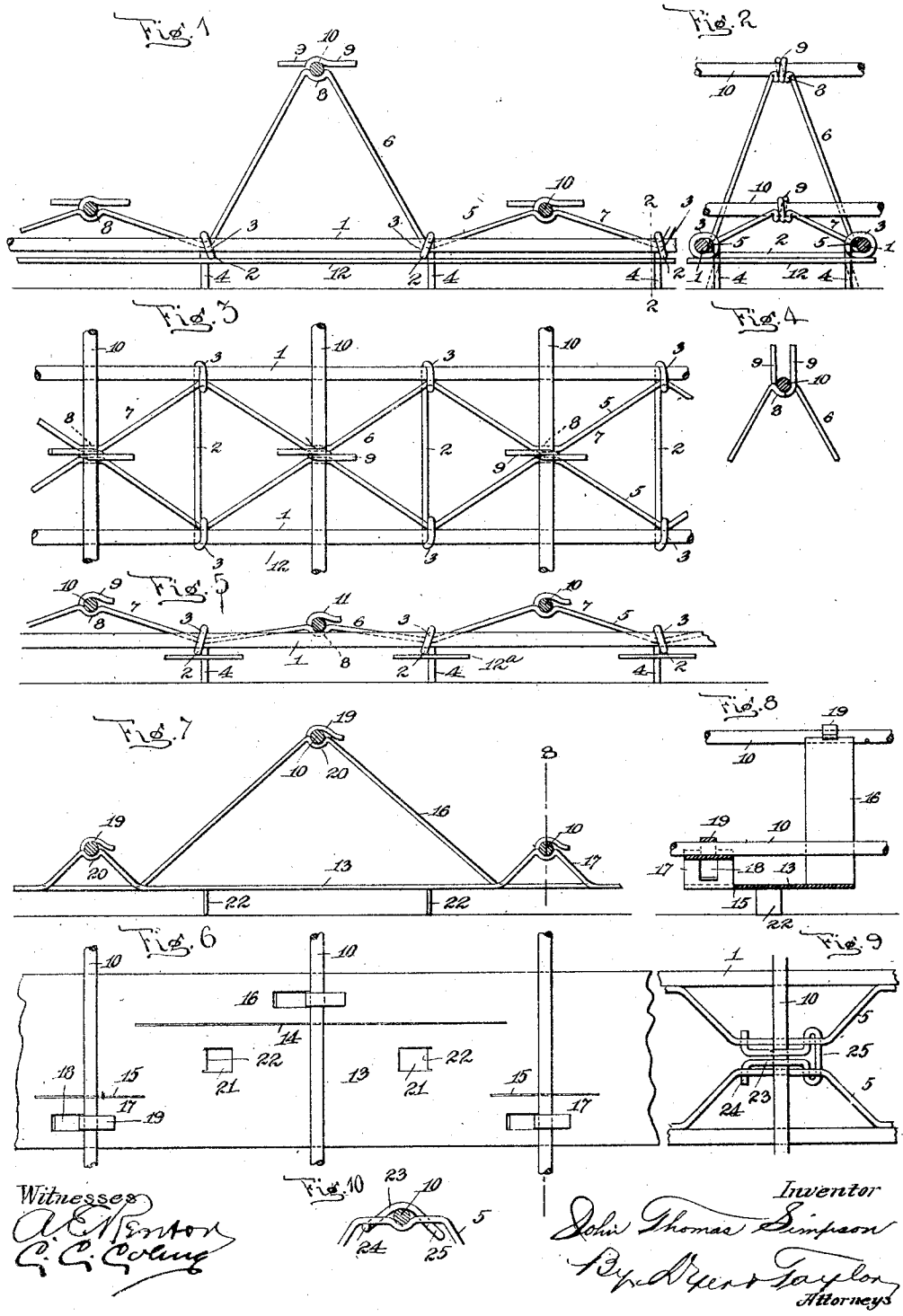
J. T. SIMPSON.

CHAIR AND SPACER.

APPLICATION FILED APR. 23, 1919.

1,365,126. **Patented Jan. 11, 1921.**



UNITED STATES PATENT OFFICE.

JOHN THOMAS SIMPSON, OF NEWARK, NEW JERSEY.

CHAIR AND SPACER.

1,365,126. Specification of Letters Patent. Patented Jan. 11, 1921.

Application filed April 23, 1919. Serial No. 292,212.

To all whom it may concern:

Be it known that I, JOHN T. SIMPSON, a citizen of the United States, and a resident of Newark, county of Essex, and State of New Jersey, have invented a certain new and useful Chair and Spacer, of which the following is a specification.

The invention relates to chairs and spacers for locating and supporting reinforcing bars in flat concrete slabs in building construction, and in the reinforcement of concrete roads.

The object of the invention is to provide a substantial support for determining the positions of the reinforcing rods which it is to support.

A further object is to provide a cheap reinforcement, which is strong and durable, which may be made to fit various conditions of use and to which the reinforcing rods or other member may be applied with ease and certainty.

These and further objects will more fully appear in the following specification and accompanying drawing considered together or separately.

I have illustrated one embodiment of my invention in the accompanying drawings in which like parts are designated by corresponding characters of reference, and in which

Figure 1 is a side elevation of the preferred construction of the invention.

Fig. 2 is a transverse section on the line 2—2 of Fig. 1.

Fig. 3 is a plan view.

Fig. 4 is a detail sectional view showing a step in the manufacture of the device.

Fig. 5 is a side elevation showing a modification.

Fig. 6 is a plan view of a modified form of the device.

Fig. 7 is a side elevation of the same.

Fig. 8 is a cross section of the same on the line 8—8 of Fig. 7.

Fig. 9 is a detail plan view illustrating a further modification, and

Fig. 10 is a detail side elevation of a portion of the same.

In carrying out the invention longitudinal reinforcing members 1 are employed. These members are preferably rods and are spaced apart the desired distance horizontally and arranged in parallel arrangement. The rods may be bent to form truss members if desired.

Transverse elements 2 preferably of wire are provided. The ends of the elements project beyond the members 4 and are bent over the members to form loops 3 and the free ends are bent downward to form feet 4 on which the structure is supported.

Before the cross elements 2 are bent over the members 1 a strand of wire 5 is laid parallel to each member and with parts of one strand alongside of and in contact with each member. When the ends of the elements 2 are bent over as described the wires 5 will be secured to the members 1 by the elements 2.

Between each pair of elements the wires 5 are bent upward to form angles 6 and 7. The apex of each angular portion is bent to form a crotch 8 and at one side of the crotch in each strand a short length of wire 9 is secured as by spot welding.

The angular portions of one strand is bent or inclined toward the corresponding angular portion of the other strand to form a pyramidal structure with the sections 9 extending upward as shown in full lines in Fig. 4.

A transverse reinforcing member 10 is placed in the crotches of each pyramid and the sections 9 are bent downward as shown, to secure the members 10 in position.

Instead of securing a section 9 to each crotch 8, such a section 11 may be secured to one strand only. In such case the section is bent to the form of a hook as shown in Fig. 5 and the member is snapped in place beneath the hook thus formed.

The pyramidal portions may be of different heights as shown or they may be of the same height. In some situations the transverse members 10, or alternate ones, may rest on the longitudinal members, as shown in Fig. 5, in which case the height of the pyramid will be slight and the strands 5 and sections 9 will be required to retain the members against horizontal displacement only.

When the device is to be used for road work a base 12 is provided to prevent the device from sinking. The base may be made of a sheet metal strip as wide as the

members 1 are spaced apart and perforated at intervals to receive the feet 4. The feet are then bent outwardly, as shown in dotted lines in Fig. 2 to retain the base in position. The base may extend the entire length of the members 1 or it may be in short sections if desired. The sections may extend longitudinally or transversely of the members 1 as desired.

Instead of forming the chair of wire, it may be made of sheet metal as shown in Figs. 6, 7 and 8. A sheet of metal 13 is slitted at 14 and 15 as shown whereby parts of the same may be expanded to form angular struts 16 and 17. The center of each strut member is slitted as at 18 and a hook 19 is struck up from such slitted portion and the metal at each side of the slit for forming the hook is struck down to form a crotch 20.

The sheet is slitted as at 21 and feet 22 are struck down. The device just described is used in exactly the same manner as is the wire chair first described.

The chairs are arranged side by side and positioned by the members 10, and are embedded in concrete and form the reinforcements of the same.

The elements 2 may be welded or otherwise secured to the members 1 if desired.

In the modification illustrated in Figs. 9 and 10 the wires are bent upward and toward the center line and provided with crotches in which the members 10 may rest. There is considerable space between the wires 5 where the members 10 rest upon them. A key 23 provided with feet 24 and a head 25 is provided. The key is positioned over the member 10 with the feet 24 engaging beneath the wires at one side of the member, and the head 25 engaging beneath the wires at the opposite side thereof.

In accordance with the provisions of the patent statutes I have described the principle of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is merely illustrative, and that the invention may be carried out in other ways.

Having now described my invention what I claim and desire to secure by Letters Patent is—

1. A device of the character described, comprising a supporting member, said supporting member being of considerable width and with elements carried thereby and extending from the plane thereof, each of said elements having a crotch at a point removed from the member and adapted to receive a member extending transversely of the first mentioned member, and a device integral with the element for securing the second member in the crotch.

2. A spacer of the character described, comprising longitudinal and transverse members, the longitudinal members being arranged in parallel, means for securing the longitudinal members together, a device carried by the longitudinal members for securing the transverse members to the longitudinal members on a different plane from the last mentioned members, feet for supporting the spacer, and a base for the spacer.

3. A spacer of the character described, comprising longitudinal and transverse members, the longitudinal members being arranged in parallel, filamentous means for securing the longitudinal members together, and a filamentous device carried by the longitudinal members for securing the transverse members to the longitudinal members on a different plane from the last mentioned members, feet for supporting the spacer, and a base carried by the feet.

4. A spacer of the character described, comprising longitudinal and transverse members, the longitudinal members being arranged in parallel, a wire twisted around each longitudinal member for maintaining the same in parallelism, a wire extending lengthwise of each longitudinal member, said wires being bent upward at intervals, the bent portions being inclined toward each other to form a pyramid, and a crotch in the apex of such pyramid for receiving a transverse member.

5. A spacer of the character described, comprising longitudinal and transverse members, the longitudinal members being arranged in parallel, a wire twisted around each longitudinal member for maintaining the same in parallelism, a wire extending lengthwise of each longitudinal member, said wires being bent upward at intervals, the bent portions being inclined toward each other to form a pyramid, a crotch in the apex of such pyramid for receiving a transverse member, and means for securing the transverse member in the crotch.

6. A spacer of the character described, comprising longitudinal and transverse members, the longitudinal members being arranged in parallel, a wire twisted around each longitudinal member for maintaining the same in parallelism, a wire extending lengthwise of each longitudinal member, said wires being bent upward at intervals, the bent portions being inclined toward each other to form a pyramid, a crotch in the apex of such pyramid for receiving a transverse member, and means carried by the wire for securing the transverse member in the crotch.

7. A spacer of the character described, comprising longitudinal and transverse members, the longitudinal members being arranged in parallel, a wire twisted around

each longitudinal member for maintaining the same in parallelism, a wire extending lengthwise of each longitudinal member, said wires being bent upward at intervals, the bent portions being inclined toward each other to form a pyramid, a crotch in the apex of such pyramid for receiving a transverse member, and a hook carried by the wire for securing the transverse member in the crotch.

This specification signed and witnessed this 4th day of April, 1919.

JOHN THOMAS SIMPSON.

Witnesses:
A. E. RENTON,
J. F. COLEMAN.