No. 824,595. PATENTED JUNE 26, 1906

E. M. SCOFIELD.

SUPPORTING DEVICE FOR REINFORCING BARS OF CONCRETE STEEL CONSTRUCTION.

APPLICATION FILED OCT. 21, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

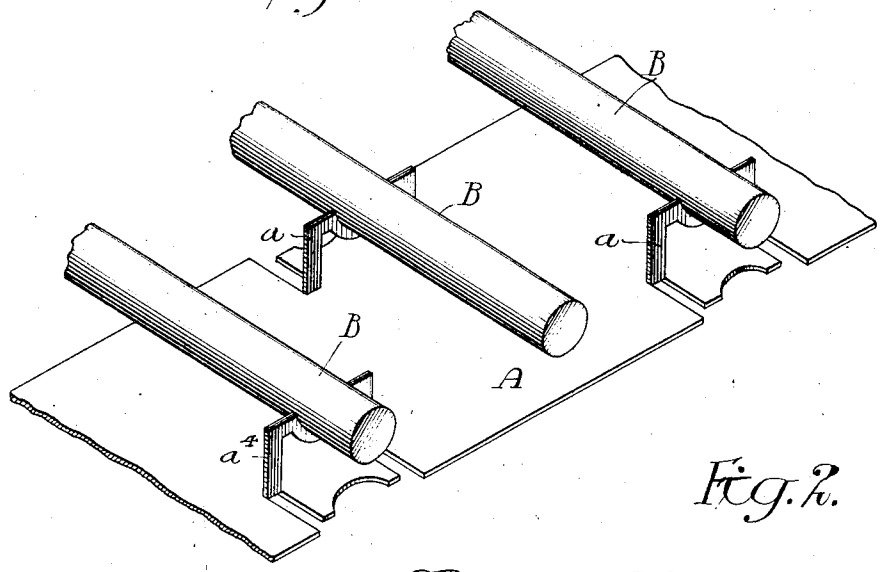


Fig. 2.

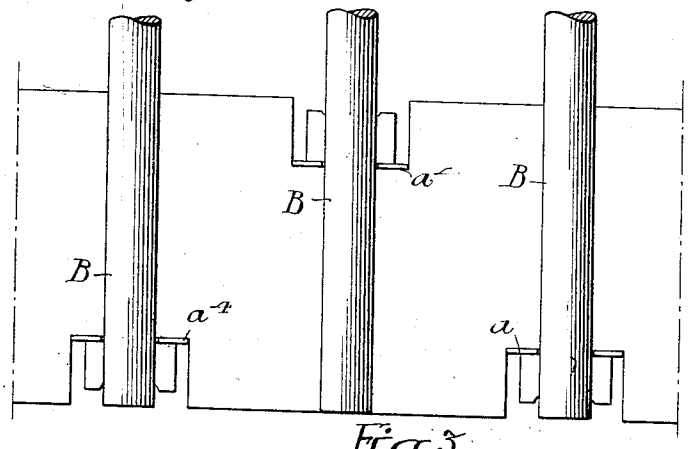
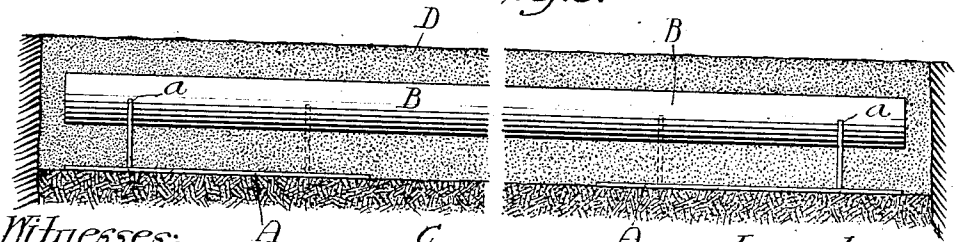


Fig. 3.



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Howson & Howson

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2 SHEETS—SHEET 2.

Fig. 4.

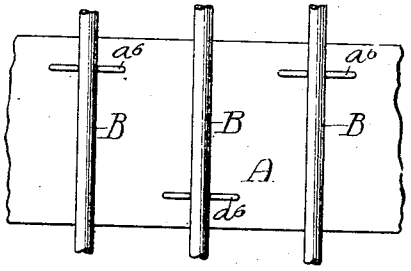


Fig. 6.

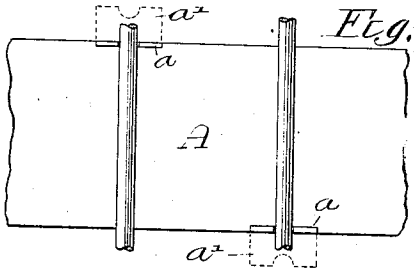


Fig. 5.

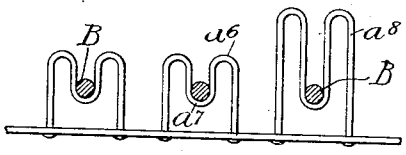


Fig. 7

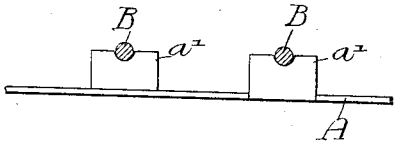


Fig. 8.

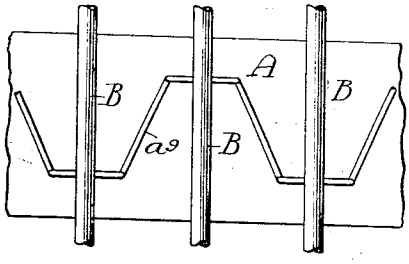


Fig. 10.

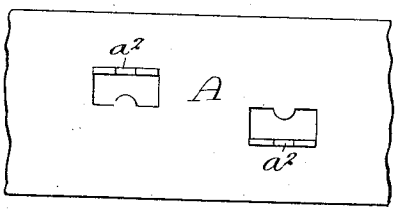


Fig. 9.

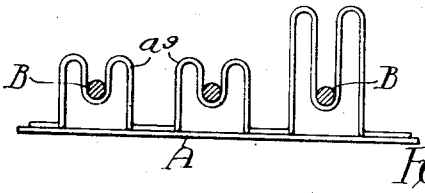


Fig. 12.

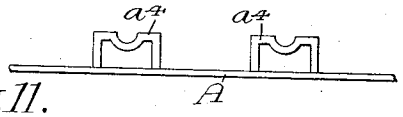
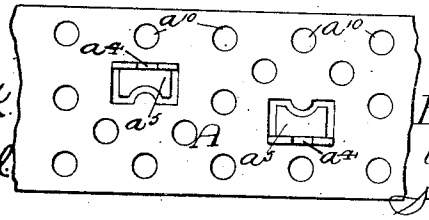


Fig. 11.



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UNITED STATES PATENT OFFICE.

EDSON M. SCOFIELD, OF PHILADELPHIA, PENNSYLVANIA.

SUPPORTING DEVICE FOR REINFORCING-BARS OF CONCRETE-STEEL CONSTRUCTION.

No. 824,595. Specification of Letters Patent. Patented June 26, 1906.

Application filed October 21, 1904. Serial No. 229,484.

To all whom it may concern:

Be it known that I, EDSON M. SCOFIELD, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Supporting Devices for Reinforcing-Bars of Concrete-Steel Construction, of which the following is a specification.

My invention consists in a novel device for supporting reinforcing-bars, such as are employed in concrete-steel construction, at definite distances from each other and from the surface or body of material upon which the concrete is to be placed, and more particularly contemplates the provision of a device of the character noted for use in supporting reinforcing-bars when the surface or foundation under the same is of such a nature as to give insufficient or yielding support for spacers of the ordinary construction. Such a device is particularly applicable when sand, cinders, or similar unstable or yielding material constitutes the foundation upon which concrete is to be placed.

A further object of the invention is to provide a supporting device for reinforcing-bars of such a nature that it will not objectionably sink into a body of sand or cinders when used to support such bar or bars in a definite position above the same.

I secure the above-noted objects as hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view illustrating a length of my improved supporting device and a series of reinforcing-bars carried thereby. Fig. 2 is a plan view further illustrating my invention. Fig. 3 is a sectional elevation illustrating a body of concrete supported on relatively yielding material and provided with reinforcing-bars held in suitable position by means of my improved supporting device. Figs. 4 and 5 are respectively a plan and a side elevation of a form of my invention in which the supporting device for reinforcing-bars is in the form of a wire or rod suitably bent and then riveted to a piece of sheet material. Figs. 6 and 7 are respectively a plan and a side elevation of a form of my invention in which the upwardly-turned flaps or tongues for the support of the reinforcing-bars are formed without cutting into the body of the piece of sheet material. Figs. 8 and 9 are respectively a plan and a side elevation of a form of my invention in which a spacer-bar of the form shown and described in my application for patent, Serial No. 219,146, filed August 1, 1904, is provided with a sheet of flat material to prevent it sinking into a soft or yielding foundation. Fig. 10 is a form of my invention in which the tongues for the support of the reinforcing-bars are formed by suitable cuts made in the interior portions of a sheet of material, said tongues being afterward bent into a substantially vertical position; and Figs. 11 and 12 are respectively a plan and a side elevation of another form of the invention designed with a view to preventing as far as possible the formation of cleavage planes due to the use of sheet material.

In the above drawings, A represents an elongated piece of sheet material cut at certain points in and adjacent to its edges by suitable dies or otherwise to form tongues which are bent upwardly, as indicated at *a*, until they are substantially perpendicular to the plane of the piece A and are provided with notches or recesses in their upper edge for the reception of the reinforcing-bars B. Said tongues preferably have openings through them which permit of the passage of concrete when the spacing-piece is in use. The cuts or openings in the body of said piece A, from which the tongues a^4 have been displaced, also serve as means whereby the bond between the concrete and spacing-piece is materially strengthened.

It will be noted that in order to avoid weakening the body of concrete, which ultimately surrounds the supporting device and the reinforcing-bars, I stagger the upwardly-turned pieces A—that is, I so arrange them that adjacent tongues shall be formed in opposite edges of the piece A or shall lie in more than one plane when in their turned-up position.

When in use, a number of pieces A are provided, depending upon the length of the reinforcing-bars employed, and it will be seen that owing to their relatively large extent of flat surface said pieces A have little or no tendency to sink into the material of the foundation C even though this be soft and yielding.

There are two or more of the spacing-pieces A for each series of the reinforcing-bars, and it will be seen that these latter are supported at any desired distance above the

surface of the foundation material and are, moreover, held at fixed distances from each other, so that the body of concrete D is placed under and around them without requiring any special labor or attention to keep them properly spaced. By reason of the fact that the various tongues a of each spacing-piece are staggered the body of concrete is not weakened by closely-situated series of plane surfaces along which there would be a tendency for the concrete structure to fail, since by such arrangement of bar-supporting tongues its cleavage-points are separated from each other by relatively great distances.

If desired, in forming the supporting device I may employ strips of sheet material having laterally-projecting flaps or tongues, as shown in dotted lines at a' in Fig. 6, which tongues are bent at right angles to the body of the supporting-sheet, so as to accomplish the same end as that attained by the construction shown in Figs. 1 and 2. Again, by means of suitable dies I may make a succession of cuts in the interior of the body of sheet material, as shown in Fig. 10, and afterward bend upwardly the partially cut-out portions a^2 for the support of the reinforcing-bars, as above noted. In this, as well as in others of the cases noted, it is desirable that the turned-up portions shall lie in different though parallel planes in order as far as possible to avoid the formation of continuous planes along which cleavage of the finished structure might occur. A modification of this arrangement is illustrated in Figs. 11 and 12, in which the turned-up portions a^4 have openings through them, so as to permit of the passage of concrete or mortar, as is also shown in Figs. 1 and 2, thereby avoiding the plane surfaces otherwise formed by the flat turned-up portions. In such a case the piece of sheet material would be suitably cut by dies, after which the outlined supporting member a^4 in Fig. 12 would be bent upwardly, leaving a tongue a^5 of undisturbed material.

Another form which my invention might take is illustrated in Figs. 4 and 5, in which the spacers for the reinforcing-bars consist of suitably-bent rods or pieces of wire a^6, each of which is riveted to the supporting-body A of sheet material. Said wires or rods are preferably formed with loops a^7 for the reception of the reinforcing-bars B, and, if desired, they may be extended upwardly, as indicated at a^8, so as to form a vertical tie into the body of concrete.

If desired, the self-supporting spacer-bars described and claimed in my application for patent, Serial No. 219,146, filed August 1, 1904, may be used in connection with a flat piece of sheet material without departing from my invention. Said spacer-bar a^9 is so constructed as to be self-supporting, and when it is necessary or advisable to use it upon a foundation of yielding or soft material it may be simply laid or supported upon elongated pieces of sheet material, as shown in Figs. 8 and 9.

From the above it will be seen that it is not necessary to form the upwardly-extending members for the reception of the reinforcing-bars from the body of the piece of sheet material, since in some cases it will be preferable to employ the wire or rod construction illustrated in Figs. 4, 5, 8, and 9.

While I have in the above specification described my improved spacer as employed to support reinforcing-bars above a yielding foundation, I do not desire to limit myself to such use, for it is possible without departing from my invention to employ various forms of the device, as lathing for the support of plaster, &c. In such case the flat supporting-plate A would have a series of perforations, as indicated at a^{10} in Fig. 11, or would be otherwise roughened in order to provide holding-surfaces for the plaster, the plate itself being held in position by the portions a^4, which are embedded in the concrete.

I claim as my invention—

1. As a new article of manufacture, a supporting device for reinforcing-bars, the same consisting of a relatively flat elongated piece of sheet material having cuts forming tongues, said tongues being bent upwardly and having their upper edges recessed for the receipt of reinforcing-bars, certain of said tongues being formed to project in different lines so as to be staggered relatively to each other, substantially as described.

2. As a new article of manufacture, a supporting device for reinforcing-bars, the same consisting of a relatively flat elongated piece of sheet material having cuts forming tongues, said tongues being bent upwardly and having their upper edges recessed for the receipt of reinforcing-bars, there being openings through the tongues to permit the passage of concrete, &c., substantially as described.

3. The combination of a foundation of relatively yielding material, spacers on said foundation consisting of a piece or pieces of horizontally-placed sheet material having upwardly-projecting supports for holding reinforcing-bars at predetermined distances from the foundation and from each other, reinforcing-bars carried by said supports, and a body of concrete on the foundation surrounding said reinforcing-bars, substantially as described.

4. The combination of a body of concrete with reinforcing-bars and supporting devices for said bars, said devices consisting of relatively flat elongated pieces of sheet material each having a series of projecting tongues constructed with bar-seats in which said bars are carried, substantially as described.

5. The combination of a sheet-metal spacer having portions projecting at an angle to the remainder and constructed to support

reinforcing-bars, said spacer having a substantially flat supporting-body provided with openings for the reception of plaster, with a series of reinforcing-bars supported on the upper ends of said projecting portions, and a body of concrete enveloping said bars and spacer, substantially as described.

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

EDSON M. SCOFIELD

Witnesses:
E. S. RUE,
J. C. MCALPINE.