

(No Model.)

L. M. DEVORE.
WIRE COIL SHEET.

No. 361,002.

Patented Apr. 12, 1887.

Fig. 1.

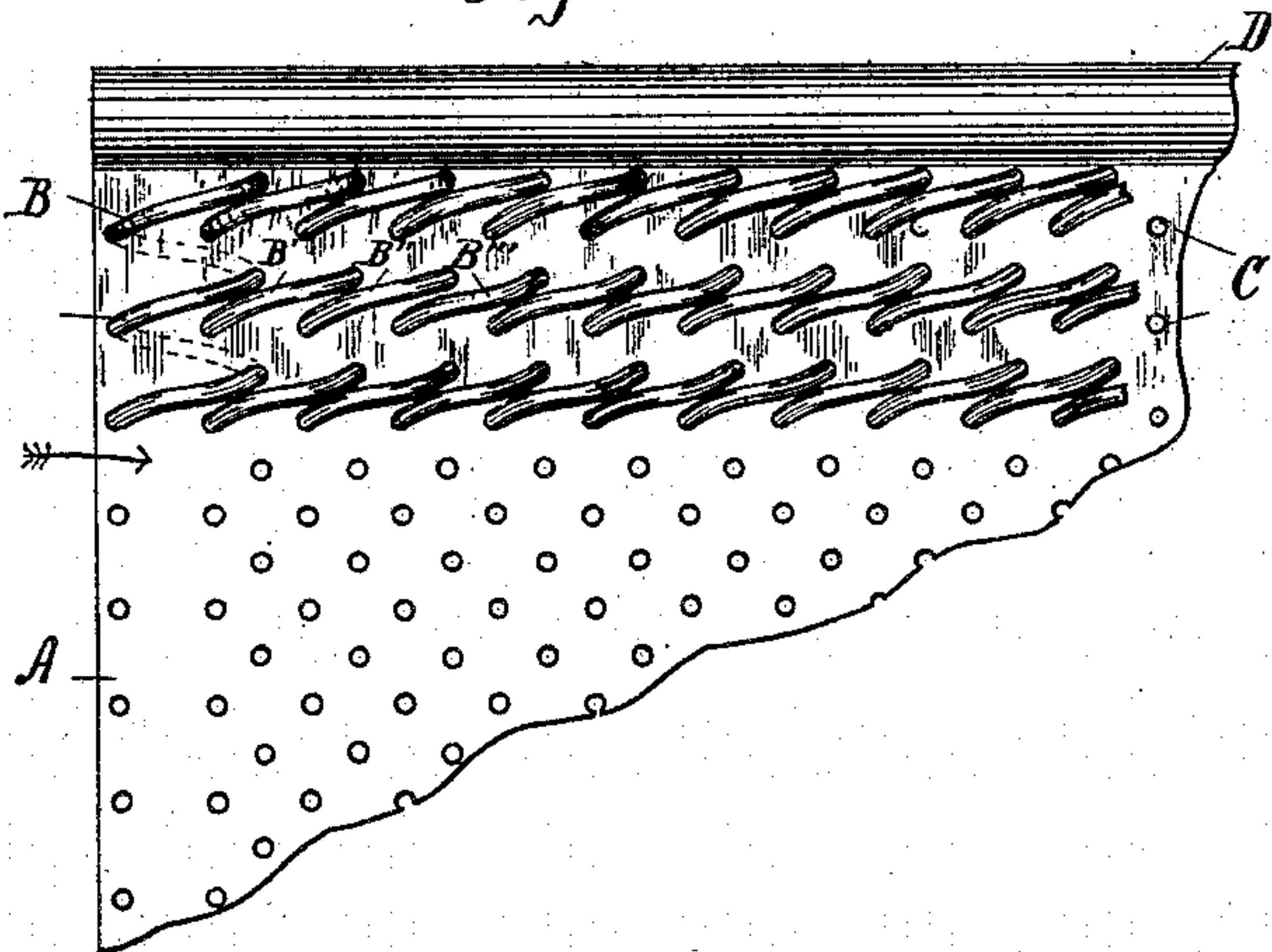


Fig. 3.

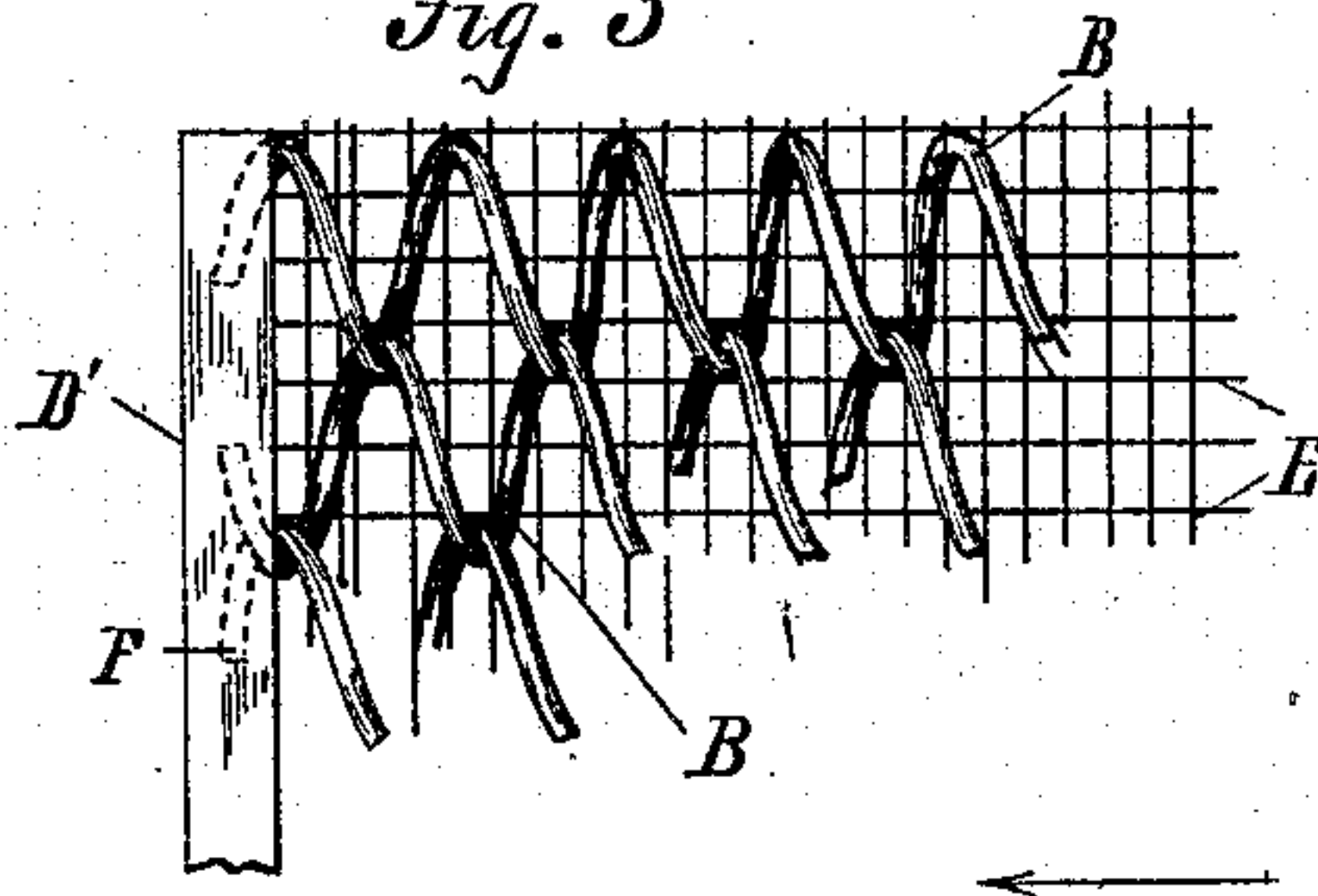


Fig. 4.

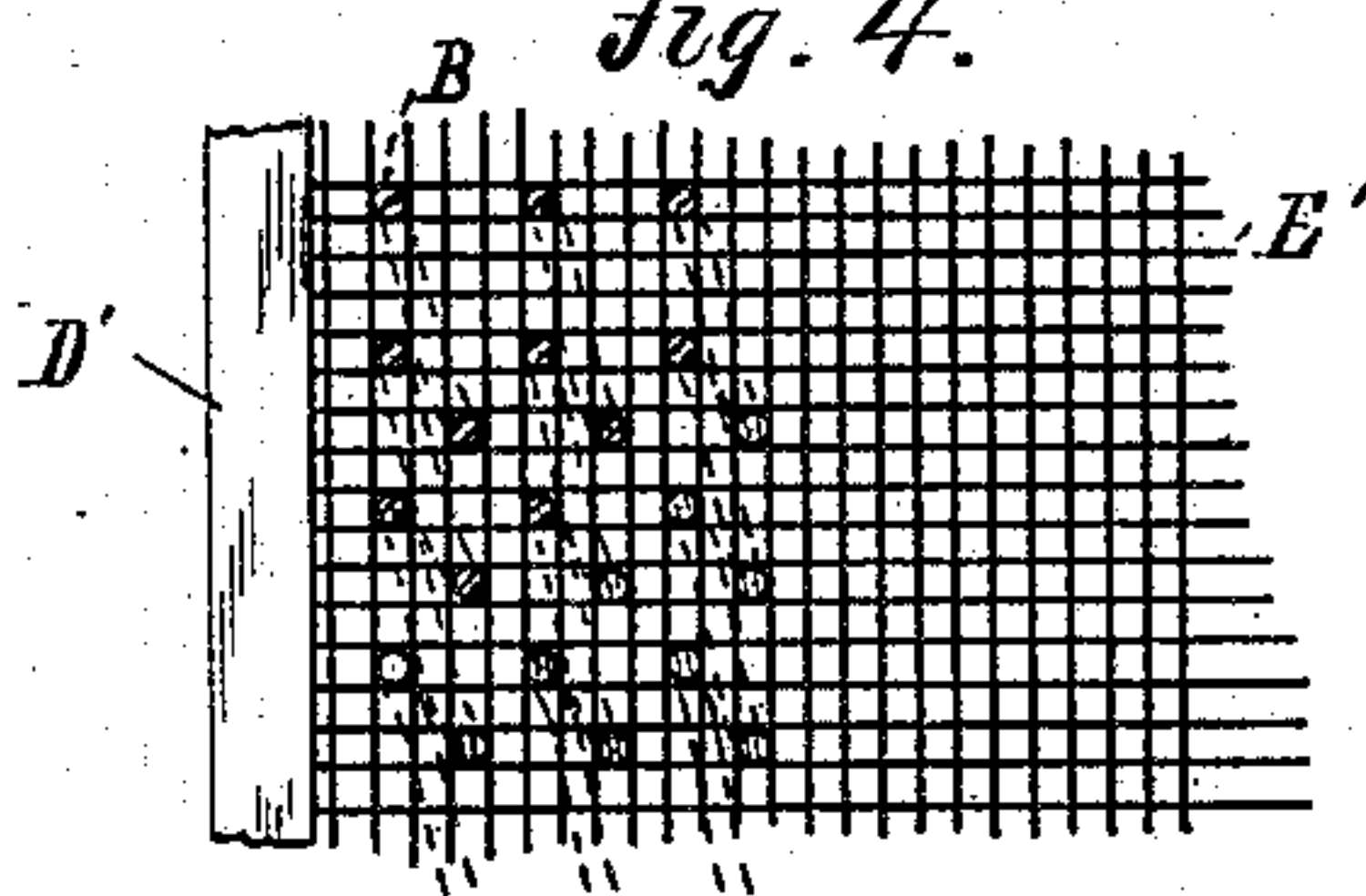


Fig. 2.

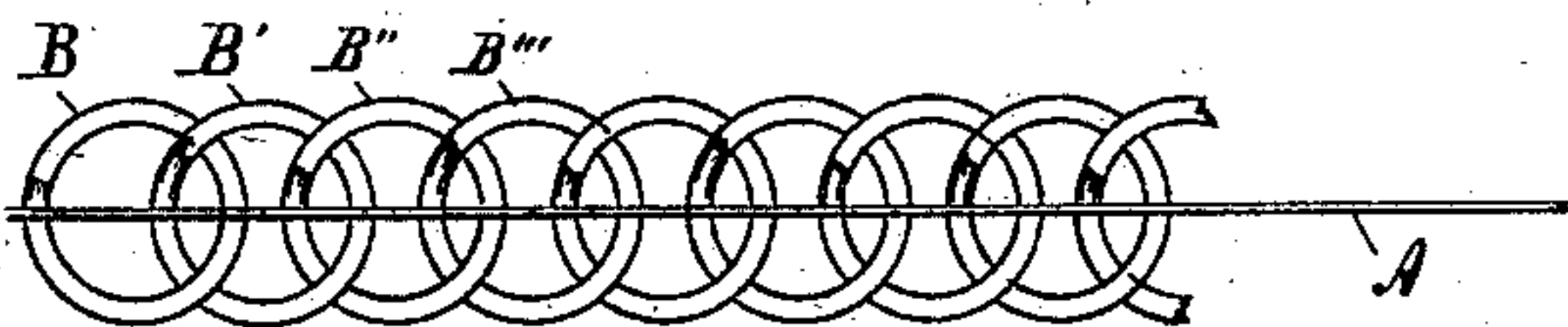


Fig. 5.

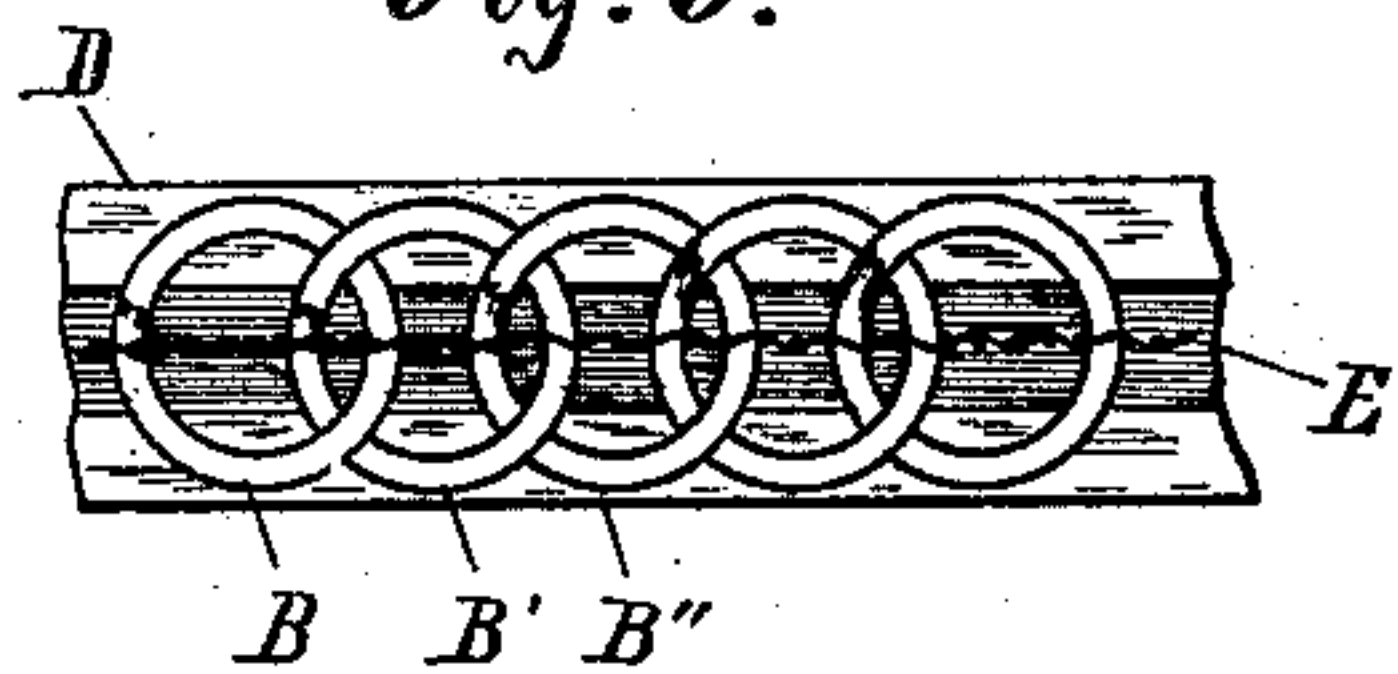


Fig. 6.



Fig. 7.



Witnesses.
J. L. Waddell
C. H. Graham.

Inventor.
L. M. Devore
By W. H. Greene
Attorneys.

UNITED STATES PATENT OFFICE.

LEVI M. DEVORE, OF FREEPORT, ILLINOIS, ASSIGNOR OF PART TO GEORGE M. WALDORF AND HENRY P. KOCHSMEIER.

WIRE-COIL SHEET.

SPECIFICATION forming part of Letters Patent No. 361,002, dated April 12, 1887.

Application filed December 23, 1886. Serial No. 222,420. (No model.)

To all whom it may concern:

Be it known that I, LEVI M. DEVORE, a resident of Freeport, in the county of Stephenson and State of Illinois, have invented certain
5 new and useful Improvements in Wire-Coil Sheets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and
10 use the same.

My invention involves a sheet composed of cylindrical coils of wire united and in the same plane, the novelty lying in the means for uniting them, and in certain details, that are hereinafter described.

An important feature of my wire-coil sheet is that each turn of each coil has its opposite sides tied together, so that its two segments form two opposite oblique arches. The sheet
20 is thus adapted to withstand great strain of compression, and hence it can be made much lighter than other forms intended for use in situations where such strain is applied either constantly or by blows.

The invention is shown in the drawings, to which this specification refers, wherein—

Figure 1 is a portion of the sheet seen from above as it lies in a horizontal position. Fig. 2 is a view in the direction of the arrow of
30 Fig. 1. Figs. 3 and 4 show modified forms of construction. Fig. 5 is an edge view of the form illustrated in Fig. 4. The remaining figures relate to means for finishing the edges of the sheet.

In Figs. 1 and 2, A is a sheet of metal perforated in a suitable regular manner. B B' B'', &c., are cylindrical coils of wire inserted in the perforations in the sheet A by rotating the separate coils. Beginning at one edge of
40 the sheet, the coil as it is rotated passes successively through every aperture in two parallel lines of perforations, and when fully inserted lies partially above and partially below the sheet, each complete turn forming two opposite arches oblique to the coil's axis and fixed at the springing line by the sheet through which they pass. It is evident that the body of the coil will be bisected by the sheet, making the opposite arches equal if the distance
50 between the two lines of perforations equals

the diameter of the coil, and that if such distance be less the arches will be unequal, the greater being all above or all below the sheet. As shown, the successive coils may without
55 interlocking be made to interlap to any desired extent, and the arches may be in lines perpendicular to the sides of the sheet and touching, so as to mutually support each other when pushed in the direction of the coils. The arrangement of the arches with reference
60 to each other may, however, be varied indefinitely by varying the position of the perforations, and the coils may interlock.

The sheet itself is bent into any suitable form to form a margin, a hollow cylinder, D,
65 being shown in Fig. 1. This cylinder may be distinct from the sheet A, being formed as shown in end view in Fig. 7, and closed upon the sheet A, either covering the side coil and the end or last line of arches or not. It may,
70 when placed on all sides of the sheet, be united at the corners by any suitable means, none being shown in the drawings, since joining is not essential. Substantially the same effect is attained in substantially the same manner if for
75 the sheet A we substitute wire-cloth E', Fig. 4. The proper relation of size of mesh, diameter of coil, and of coil-wire being obtained, a fabric may be produced in which the position of the arches is precisely the same as in any
80 given sheet like that shown in Fig. 1. The coil-wires in such a fabric are shown in section in the proper meshes in Fig. 4. Their ends and the edge of the wire-cloth are covered by a sheet-metal sleeve similar to that already
85 described, and which is shown in different forms in Figs. 4, 5, 6, 7. A slightly-different form is shown in Fig. 3, where the meshes of the wire-cloth are comparatively larger, two adjacent coils passing through the same mesh
90 and interlocking with each other. Other forms might be shown embodying the same principle.

It is not essential that the sheet A or the wire-cloth E E' should be one continuous sheet, so long as it is continuous between opposite
95 sides of each arch in most cases—that is, throughout the greater part of the numerous arches; nor is it essential that the sheet retaining the coils be plane, though I prefer this form.

When wire-coil structures are used for mats or floor-coverings, two difficulties or objections arise: The coils tend to roll suddenly under the foot, and owing to slight "set" of the wire under a casual blow repeated at intervals on various parts of the structure the mat at length bulges and the fabric no longer lies flat upon the floor.

In this form of construction the various sets in different portions are not cumulative and the coils cannot roll, or, in other words, these difficulties are eliminated. It follows that this structure is adapted for uses where many others would be valueless, and I do not wish to limit the size of the rods coiled, nor the thickness and strength of the web through which they pass.

What I claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, a metallic web provided with a series of apertures, combined with a series of wire coils, each of which passes back and forth through certain of said apertures, forming upon opposite sides of said web a series of wire arches, each of which is prevented by said web from spreading at its springing line.

2. As a new article of manufacture, a series of helical coils of wire, combined with a sheet of perforated metal adapted to receive in its perforations opposite sides of each turn of each helix and to fix with reference to each other such parts of all the coils as lie in said perforations.

3. The combination, with a series of wire coils and a web connecting them, of a border of sheet metal formed on the edge of the web, substantially as and for the purpose set forth.

4. The combination of the web formed with suitable openings, the coils B, passing back and forth through said openings, and the tubular sheet-metal border rigidly attached to the margin of the web, substantially as and for the purpose set forth.

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

LEVI M. DEVORE.

Witnesses:

ALFRED H. BROWN,

J. A. CRAIN.