

J. SCHWARTZMAN.
WIRE FABRIC.
APPLICATION FILED NOV. 27, 1911.

1,042,612

Patented Oct. 29, 1912.

3 SHEETS-SHEET 1.

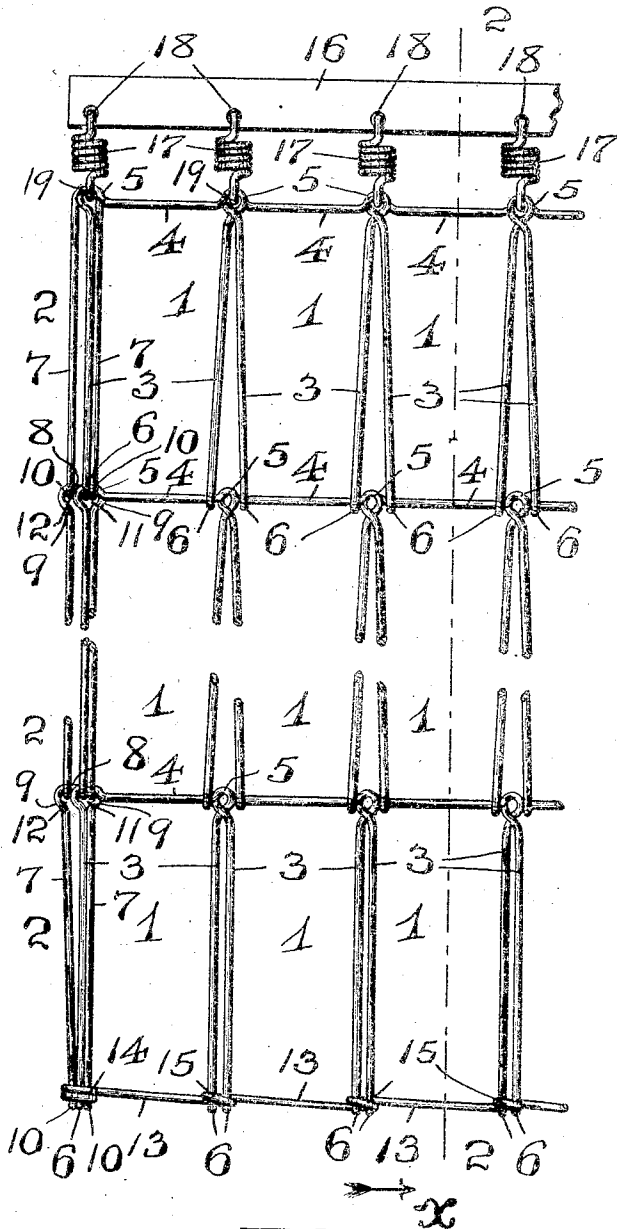


FIG. 1

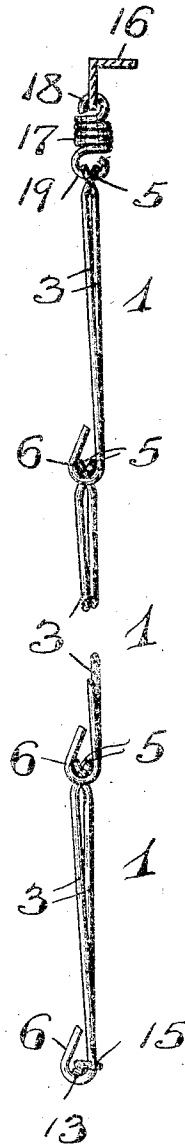


FIG. 2

WITNESSES:

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INVENTOR:

Jacob Schwartzman.
BY *Fraentzel and Richards,*
ATTORNEYS.

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3 SHEETS-SHEET 2.

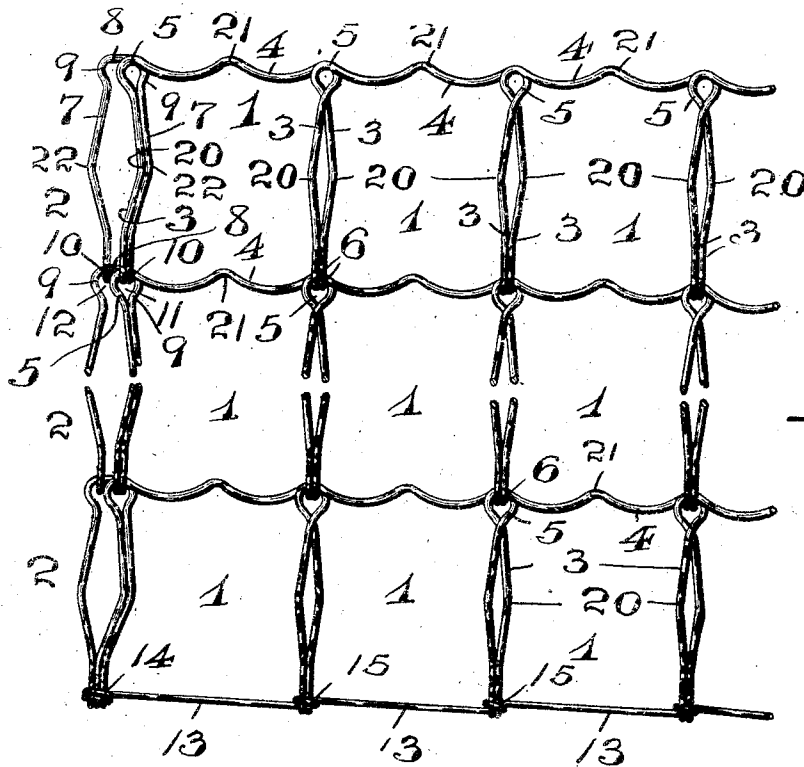


Fig. 3

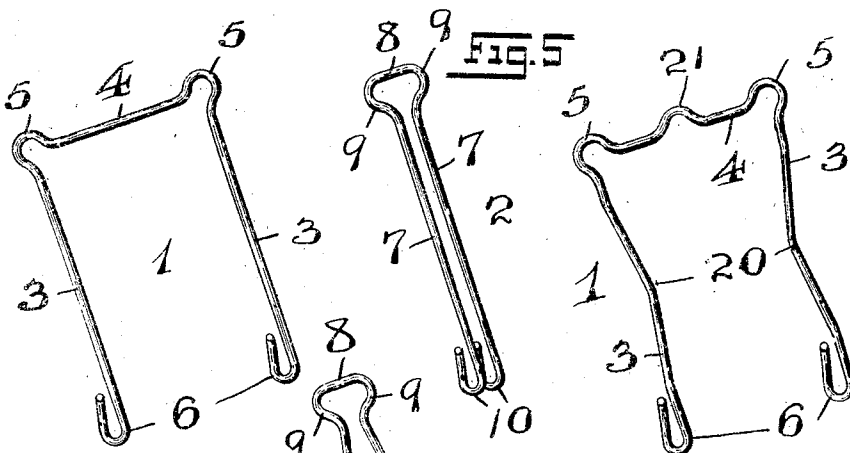


Fig. 4

Fig. 5

Fig. 6

WITNESSES:
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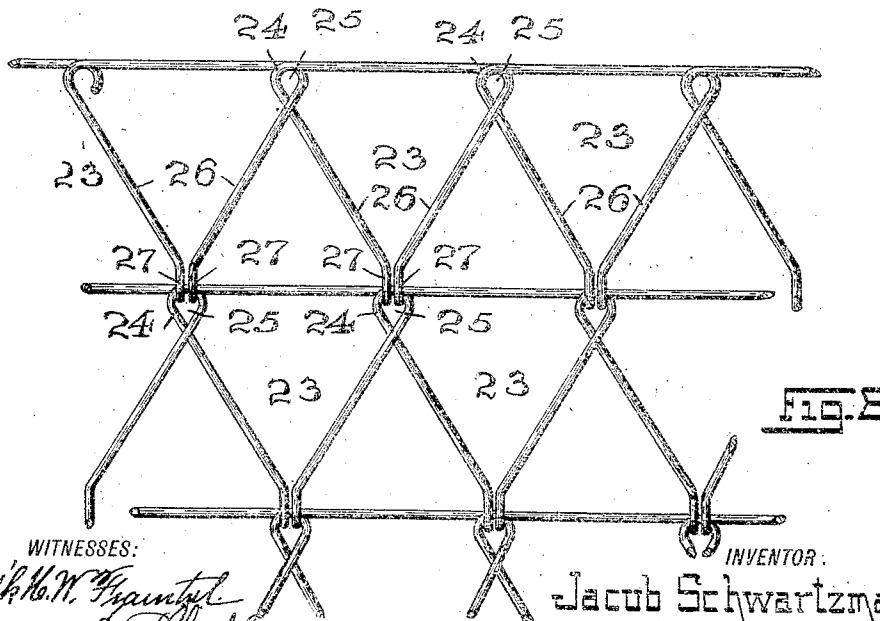
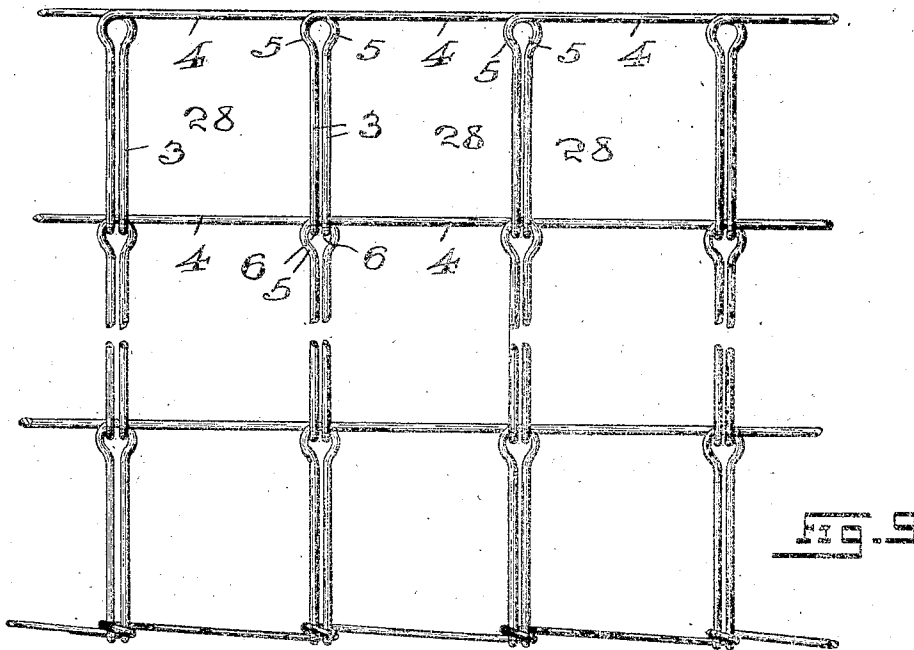
Fig. 1 JACOB SCHWARTZMAN,
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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WIRE FABRIC.

1,042,612.

specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed November 27, 1911. Serial No. 662,589.

To all whom it may concern:

Be it known that I, JACUB SCHWARTZMAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Wire Fabrics; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention relates, generally, to improvements in fabrics made of wire; and, the invention has reference, more particularly, to a novel construction of wire-fabric for use as a bed-spring and composed of a plurality of small and interconnected units, adapted to be secured to and connected with the usual frame, to provide a complete bed-bottom.

The present invention has for its principal object to provide a wire-fabric of the general character hereinafter more fully set forth having certain spring-like features and resilient properties so that the fabric is easily stretched in the direction of its length, as well as in the direction of its width.

The invention has for its further object to provide a wire-fabric in the form of a bed-spring formed along its longitudinally extending marginal edges with a doubled arrangement of interconnected and longitudinally extending units, so as to provide a "double-edge" and to distribute greater strength along said marginal edges of the fabric where most needed.

Other objects of this invention are:—First, to provide a wire-fabric which will not to any great extent "squeeze in" from the sides of the fabric, so as to sag in the middle; secondly, to provide a spring-like action to each individual unit, so that the wire-fabric will resume its normally flat relation after the supported weight has been removed from the fabric; thirdly, to provide a wire-fabric, the plurality of units of which are easily and quickly assembled, the loops at the ends of said units being closed, and not open, so that there is no necessity of hammering the loops in order to close

the same; fourthly, to provide a wire-fabric composed of a plurality of units which are connected in such a manner so that the fabric is foldable in its width, as well as along its length, upon the lines of connection between the interconnected units; and fifthly, to provide a fabric in which the connected parts of the interconnected units provide strong supports for the mattress, the arrangement of the units being such, so that a close relation of such units is the result and a better support for the mattress is provided; and, finally, to provide a wire-fabric which is noiseless, there being no squeaky and loose connections which will rattle or jingle with the weight movably supported thereon, or when moving the wire-fabric from place to place.

Other objects of this invention not at this time more particularly enumerated will be clearly understood from the following detailed description of the present invention.

With the various objects of this invention in view, the said invention consists, primarily, in the novel wire-fabric hereinafter set forth; and, this invention consists, furthermore, in the novel arrangements and combinations of the several devices and parts, as well as in the details of the construction of the same, all of which will be more fully set forth in the accompanying specification, and then finally embodied in the clauses of the claims which are appended to and which form an essential part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a portion of a wire-fabric, showing one embodiment of the principles of the present invention; and Fig. 2 is a sectional representation of the same, said section being taken on line 2—2 of said Fig. 1. Fig. 3 is a plan view of a portion of a wire-fabric of a slightly varied form of construction, but still embodying the principles of the present invention. Figs. 4 and 5 are perspective views of the two forms of units employed in the construction of wire-fabric represented in said Fig. 1; and Figs. 6 and 7 are perspective views of the two forms of units employed in the construction of wire-fabric illustrated in said Fig. 3. Figs. 8 and 9 are plan views of two other varied forms

of wire-fabric made according to and embodying the principles of the present invention.

Similar characters of reference are employed in all of the above described views, to indicate corresponding parts.

Referring now to the form of wire-fabric illustrated in Figs. 1 and 2 of the drawings, the fabric is composed of a multiplicity of interconnected wire-units 1 of the construction shown in Fig. 4 and the reinforcing wire units 2 shown in Fig. 5 of the drawings. Each unit 1 consists of a pair of longitudinally extending side-members 3 and a laterally extending end-member 4, said side-members 3 and the end-member 4 being connected by suitably formed eyes or loop-shaped portions 5 located at the junctions of said side-members and the said end-member. The eyes or loop-shaped portions 5 are bent so as to be angularly or diagonally disposed with relation to the general rectangular configuration of the unit 1, and at their free ends, the side-members 3 are made with suitably bent members or portions 6 which form suitable eyes or loops for the purposes to be presently set forth. Each unit 2 consists of a pair of closely located side-members 7 and a short laterally extending end-member 8, said side-members 7 and the end-member 8 being connected by the curved portions 9, which with the end-member 8 provide the unit 2 with a suitable eye or loop of substantially the configuration shown in said Fig. 5 of the drawings. At their free ends, the side-members 7 are made with suitably bent members or portions 10 which form suitable eyes or loops. In assembling these units 1 and 2 to provide the wire-fabric represented in said Fig. 1 of the drawings, the units 1 of which there may be any desirable number, are interconnected in such a manner, so that the eyes or loops formed by the diagonally disposed portions of the adjacent units 1 are brought into hooked relation, substantially as shown, and so that the side-members 3 of the adjacent units 1 are brought into an overlapping relation, with the two overlapped side-members being angularly disposed or slightly spread apart, substantially in the relation represented in said Fig. 1 of the drawings. The eyes or loops 6 at the ends of the side-members 3 are then hooked over the end-members 4 of the units 1 in the next lateral row of interconnected units 1, upon opposite sides of the eyes formed by the hooked portions 5 of the adjacent units 1, in the manner clearly shown. The spread-apart arrangement of the side-members 3 of the adjacent units 1 produces a spring-like action of each pair of overlapped side-members 3 toward each other, as will be clearly evident, so that the eyes or loops 6 which are located upon the opposite sides of the hooked portions 5,

are forced directly against said portions 5, whereby a firm and practical rigid connection is the result, which causes the complete fabric to hang taut, but still permits the wire-fabric to be folded longitudinally along the lines of the connected side-members 3, or laterally along the lines of the connected end-members 4 of the several units 1, as will be clearly evident.

Along the longitudinal marginal edges of the wire-fabric made by the units assembled in the manner above stated, the fabric is reinforced by means of a series of the connected narrow units 2 previously mentioned, and of the general configuration shown in Fig. 5 of the drawings.

As will be seen from an inspection of Fig. 1 of the drawings, the curved portions 9 of the laterally extending end-member 8 of each unit are arranged with relation to the looped-shaped portions of the longitudinally extending marginal rows of the assembled units 1, in such a manner that the one side-member 3 of the unit 1 will lie substantially between the two side-members 7 of the unit 2, and so that, at the junction of the said parts two receiving portions or loops, as 11 and 12, are formed, into which the bent-members or portions 6 at the free ends of said side-members 3 of the marginal units 1, and the bent members or portions 10 of said reinforcing units 2 are hooked and suitably secured in the manner more clearly illustrated in Fig. 1. The units in the laterally extending end-row are suitably connected by means of a laterally extending wire 13 which is formed with loops 14 and 15 arranged, respectively, in the respective bent-members or portions 6 of the units 1 and the bent-portions or members 10 of the units 2, as will be clearly understood from an inspection more particularly of Figs. 1 and 2 of the drawings.

In connecting the wire fabric thus provided by the assembled units 1 and 2 in the usual frame-work 16, suitably coiled connecting springs 17 are employed, said springs 17 being provided with the usual hooks or eye-portions 18 and 19 by means of which the wire-fabric can be connected with the frame-work 16, substantially as shown. In order to provide for greater resiliency and increased spring-like action of the fabric, the side-members 3 of the units 1 are provided with the inwardly bent-portions 20 and their laterally extending members 4 are formed with the bent-portions 21, as illustrated in Figs. 3 and 6 of the drawings. The members 7 of the units 2, as will be seen from an inspection of Fig. 3, and from Fig. 7 of the drawings, are formed with outwardly extending bent-members 22, substantially as shown. In all other respects, the units 1 and 2 in the form of wire-fabric, represented in said Fig. 3 of

the drawings, are of the same general configuration and construction as the units 1 and 2 employed in connection with the wire fabric represented in said Figs. 1 and 2 of the drawings.

From an inspection of Fig. 3 of the drawings, it will be clearly evident that in the form of wire-mesh fabric consisting of the interhooked elements 1 and 2, variously provided with the angularly bent portions 20, 21, and 22, that a great stretch of the fabric both laterally and longitudinally along the rows of interconnected units may be had, the spring-like action provided by these angularly bent parts of the units immediately returning the stretched fabric to its normal condition, as will be clearly evident. This inter-connected arrangement of the several units, in the manner as represented in Figs. 1 and 3, also provides a fabric which does not "squeeze in" in its width, so that the fabric will not sag in the middle, and a fabric having a pliable spring-like action is the result, which will carry great weight without the danger of distorting or disconnecting the units, the said units upon the removal of the weight from the fabric readily assuming their normal initial relations, so that a perfectly flat wire fabric and bed-springs is the result.

In Fig. 8 I have shown a slightly modified arrangement of inter-connected units 23, the said units being of triangular configuration, and being brought into hooked relation at their corners 24 so as to provide suitable loop-shaped portions or eyes 25 into which are hooked and suitably secured eyes or loop-shaped portions 27 with which the side-members 26 of the said triangularly shaped elements are provided. It will be seen that in the assembling of such triangularly shaped units, a wire-fabric for bed-springs is provided which embodies in its construction the general features of the wire fabric made by the units of the forms represented in Figs. 1 and 3, and, that with a wire-fabric of the construction represented in Fig. 8, great resiliency and spring-like action is also provided.

In Fig. 9, is shown a wire-fabric consisting of inter-connected units 28 of the same general configuration as the units 1 represented in the construction shown in Fig. 1. The manner of connecting the side-members of said units 28 with the end-members of these units, however, is slightly different from the manner of the connection of the same parts of the units as represented in Figs. 1 and 3.

From the foregoing description, it will also be clearly evident, that I have produced a wire-fabric of great strength, and that a minimum gage of wire may be used, and by the hinged or pivotal arrangements of the several looped-shaped portions or eyes with

the side and end-members of the respective units a joint is provided, without intervening links, which is especially strong and noiseless, and which permits of the wire-fabric to be folded either laterally or longitudinally along the lines of the various joints of the assembled units.

I am aware that some changes may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction of the same, without departing from the scope of my present invention as set forth in the foregoing specification, and as defined in the claims which are appended thereto. Hence, I do not limit my present invention to the exact arrangements and combinations of the several devices and parts, as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts, as illustrated in the accompanying drawings.

I claim:

1. A wire-fabric for bed-springs and the like, comprising a multiplicity of wire units arranged in rows, each unit consisting of side-members and a laterally extending end-member, said side-members being formed with inwardly extending angular portions arranged and constructed to provide spring-like action or resiliency of said side-members and lateral stretch of the fabric, and the end-member of each unit being formed with an angular portion arranged and constructed to provide spring-like action or resiliency of said end-member and longitudinal stretch of the fabric, means connected with said units for connecting the same, and reinforcing units also of wire extending along the longitudinal marginal edges of the wire fabric, the side-members of the units in each longitudinally extending end-row of said fabric being connected with said reinforcing units.

2. A wire-fabric for bed-springs and the like, comprising a multiplicity of wire units arranged in rows, each unit consisting of side-members and a laterally extending end-member, said side-members being formed with inwardly extending angular portions arranged and controlled to provide spring-like action or resiliency of said side-members and lateral stretch of the fabric, and the end-member of each unit being formed with an angular portion arranged and constructed to provide spring-like action or resiliency of said end-member and longitudinal stretch of the fabric, and loop-shaped portions at the junctions of said side-members and said end-member, said loop-shaped portions forming eyes, the loop-shaped portions of the adjoining units being hooked over each other so that the side-members of the adjoining units overlap at points near said eyes.

3. A wire-fabric for bed-springs and the like, comprising a multiplicity of wire units arranged in rows, each unit consisting of side-members and a laterally extending end-member, said side-members being formed with inwardly extending angular portions arranged and constructed to provide spring-like action or resiliency of said side-members and lateral stretch of the fabric, and the end-member of each unit being formed with an angular portion arranged and constructed to provide spring-like action or resiliency of said end-member and longitudinal stretch of the fabric, and loop-shaped portions at the junctions of said side-members and said end-member, said loop-shaped portions forming eyes, the loop-shaped portions of the adjoining units being hooked over each other so that the side-members of the adjoining units overlap at points near said eyes, and reinforcing units also of wire extending along the longitudinal marginal edges of the wire fabric, the side-members of the units in each longitudinally extending end-row of said fabric being connected with said reinforcing units.

4. A wire-fabric for bed-springs and the like, comprising a multiplicity of wire units arranged in rows, each unit consisting of side-members and a laterally extending end-member, said side-members being formed with inwardly extending angular portions arranged and constructed to provide spring-like action or resiliency of said side-members, and means connected with said units for connecting the same, and narrow reinforcing units also of wire extending along the longitudinal marginal edges of the wire, each reinforcing unit comprising a pair of side-members, a short end-member, and loop-shaped portions at the junctions of said side-members and said end-member, said side-members being formed with angular portions arranged and constructed to provide spring-like action or resiliency of said side-members, the side-members of the units in each longitudinally extending end-row of said fabric being connected with said reinforcing units, substantially as and for the purposes set forth.

5. A wire-fabric for bed-springs and the like, comprising a multiplicity of wire units arranged in rows, each unit consisting of side-members and a laterally extending end-member, said side-members being formed with inwardly extending angular portions and constructed to provide spring-like action or resiliency of said side-members, and loop-shaped portions at the junctions of said side-members and said end-member, said loop-shaped portions forming eyes, the loop-shaped portions of the adjoining units being hooked over each other so that the side-members of the adjoining units overlap at points near said eyes, and narrow reinforcing units

also of wire extending along the longitudinal marginal edges of the wire, each reinforcing unit comprising a pair of side-members, a short end-member, and loop-shaped portions at the junctions of said side-members and said end-member, said side-members being formed with angular portions arranged and constructed to provide spring-like action or resiliency of said side-members, the side-members of the units in each longitudinally extending end-row of said fabric being connected with said reinforcing units, substantially as and for the purposes set forth.

6. A wire-fabric for bed-springs and the like, comprising a multiplicity of wire units arranged in rows, each unit consisting of side-members and a laterally extending end-member, said side-members being formed with inwardly extending angular portions arranged and constructed to provide spring-like action or resiliency of said side-members and lateral stretch of the fabric, and the end-member of each unit being formed with an angular portion arranged and constructed to provide spring-like action or resiliency of said end-member and longitudinal stretch of the fabric, means connected with said units for connecting the same, and narrow reinforcing units also of wire extending along the longitudinal marginal edges of the wire, each reinforcing unit comprising a pair of side-members, a short end-member and loop-shaped portions at the junctions of said side-members and said end-member, said side-members being formed with angular portions arranged and constructed to provide spring-like action or resiliency of said side-members, the side-members of the units in each longitudinally extending end-row of said fabric being connected with said reinforcing units, substantially as and for the purposes set forth.

7. A wire-fabric for bed-springs and the like, comprising a multiplicity of wire units arranged in rows, each unit consisting of side-members and a laterally extending end-member, said side-members being formed with inwardly extending angular portions arranged and controlled to provide spring-like action or resiliency of said side-members and lateral stretch of the fabric, and the end-members of each unit being formed with an angular portion arranged and constructed to provide spring-like action or resiliency of said end-member and longitudinal stretch of the fabric, and loop-shaped portions at the junctions of said side-members and said end-member, said loop-shaped portions forming eyes, the loop-shaped portions of the adjoining units being hooked over each other so that the side-members of the adjoining units overlap at points near said eyes, and narrow reinforcing units also of wire extending along the longitudinal

marginal edges of the wire, each reinforcing unit comprising a pair of side-members, a short end-member, and loop-shaped portions at the junctions of said side-members and
5 said end-member, said side-members being formed with angular portions arranged and constructed to provide spring-like action or resiliency of said side-members, the side-members of the units in each longitudinally
10 extending end-row of said fabric being con-

nected with said reinforcing units, substantially as and for the purposes set forth.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 24th day of November, 1911.

JACUB SCHWARTZMAN.

Witnesses:

GEORGE D. RICHARDS,
ADOLPH HANSEN.