

J. L. ISAACS.

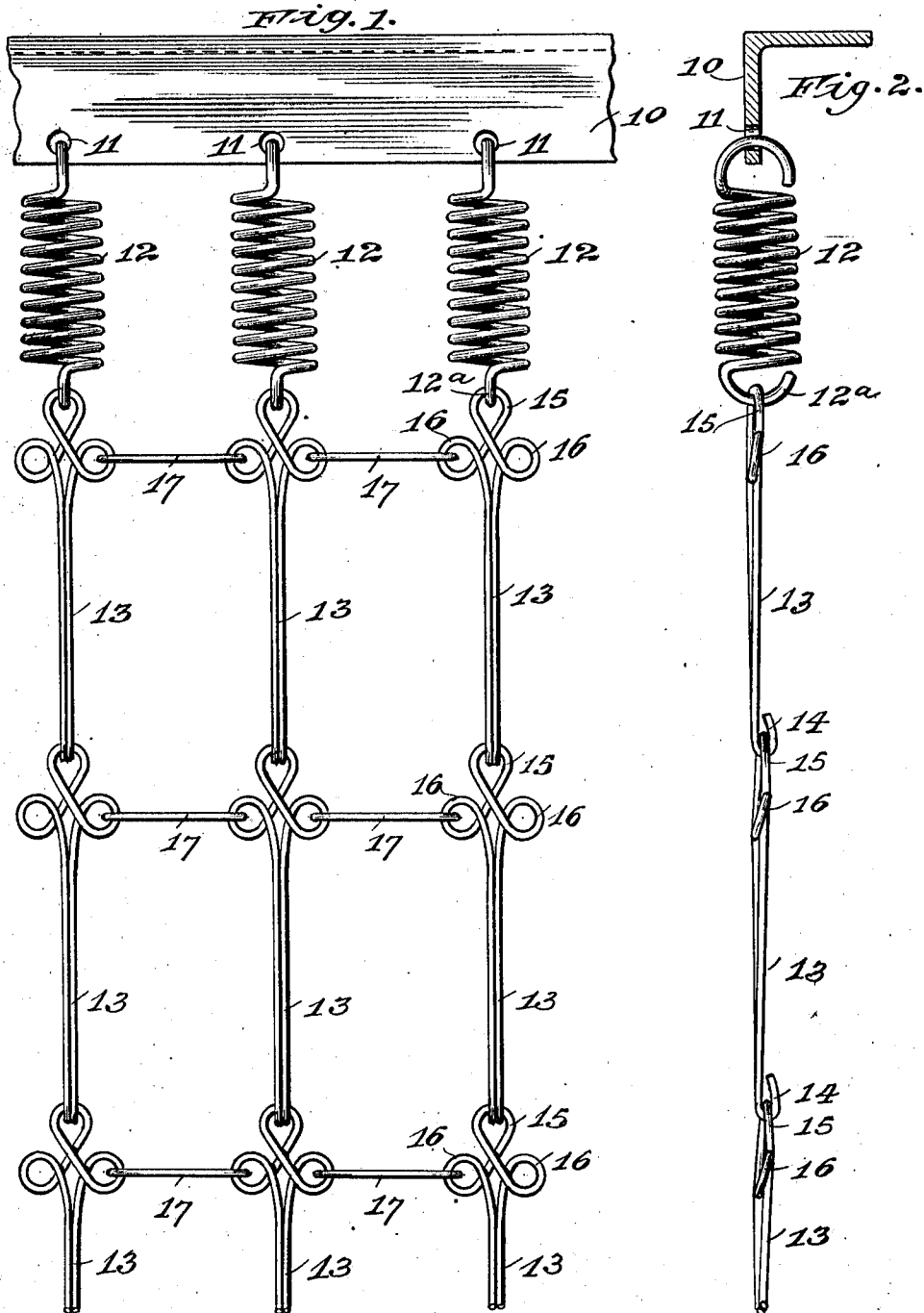
WIRE FABRIC.

APPLICATION FILED JUNE 23, 1909.

Patented Sept. 20, 1910.

3 SHEETS-SHEET 1.

970,713.



Witnesses,
J. E. Mann,
S. N. Pond

Inventor,
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By Offield, Towle, Groves & Offield
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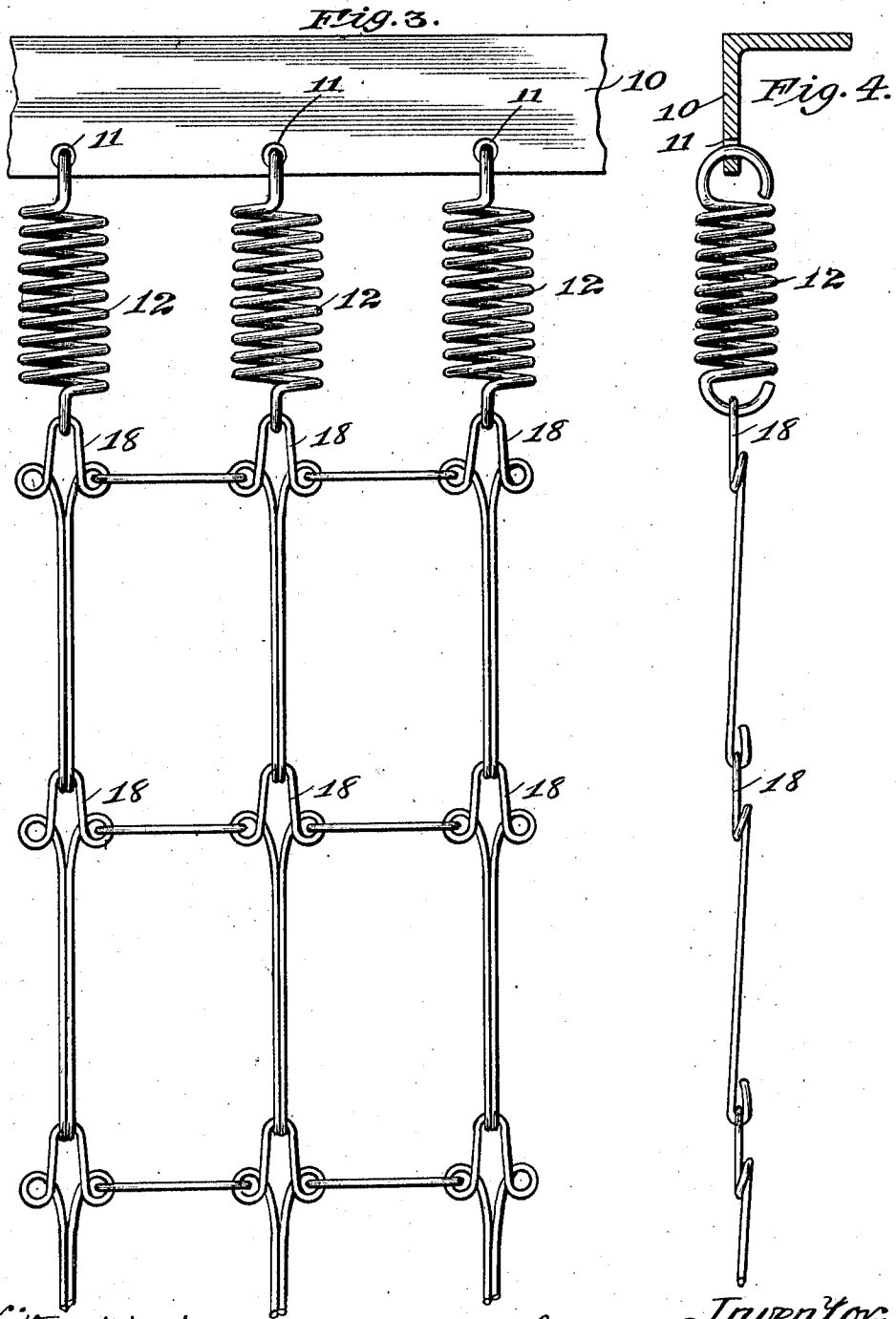
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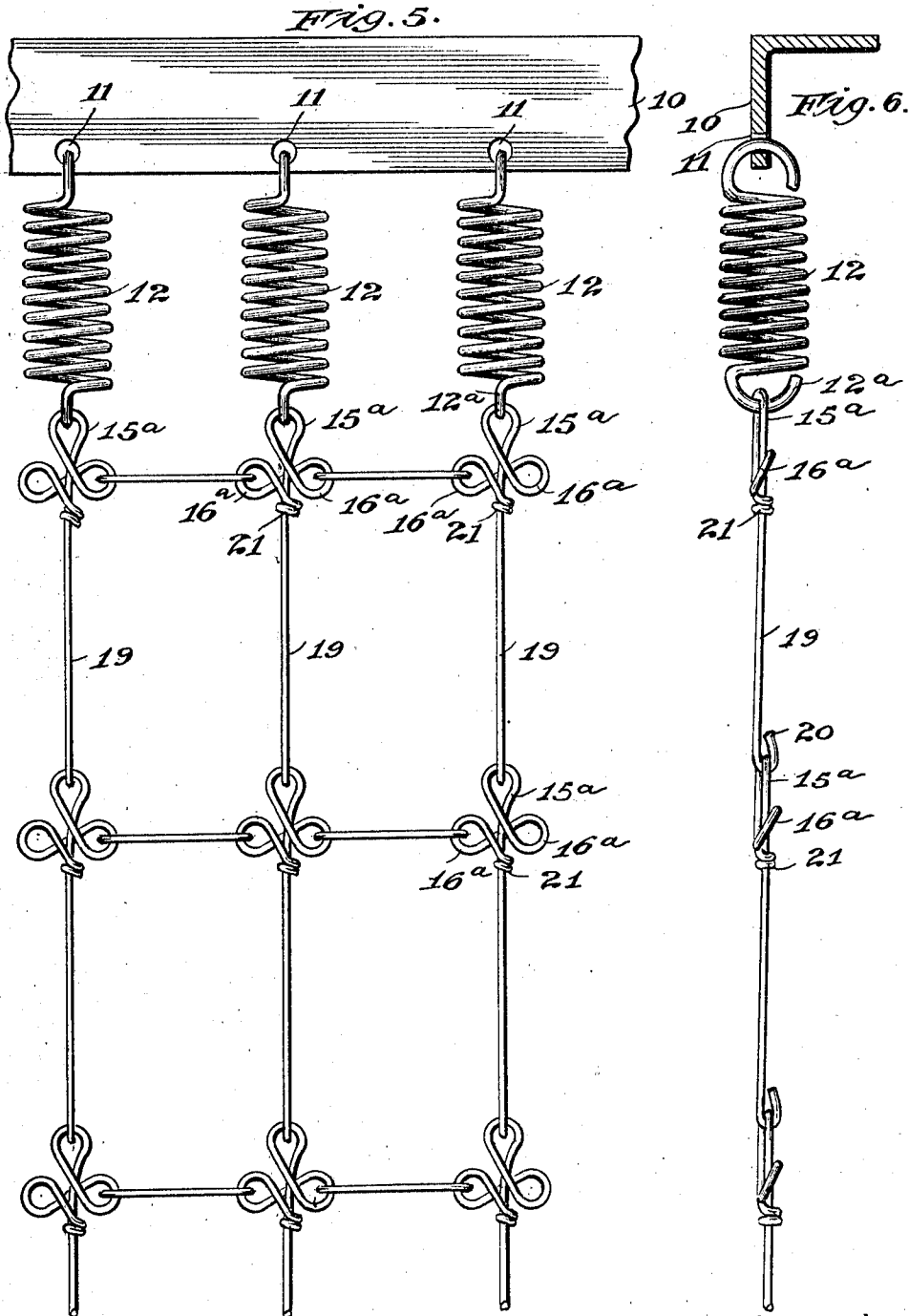
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UNITED STATES PATENT OFFICE.

JOEL L. ISAACS, OF RED BANK, NEW JERSEY.

WIRE FABRIC.

970,713.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed June 23, 1909. Serial No. 503,782.

To all whom it may concern:

Be it known that I, JOEL L. ISAACS, a citizen of the United States, residing at Red Bank, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Wire Fabrics, of which the following is a specification.

This invention relates to wire fabrics, and more particularly, though not exclusively, to that class of fabrics employed for the bottoms of beds, couches, and the like. The older form of woven wire fabrics, at one time extensively employed for such purposes, has latterly been largely displaced by a type of fabric made up of bent wire units connected in longitudinal and transverse rows; and, out of considerations of economy in manufacture, these bent wire units are commonly made uniform in respect to size and contour, and are connected in such a manner as to afford sufficient flexibility to enable the fabric to be folded for shipment and storage; and the required resiliency is secured through the employment of rows of helical springs usually located between the upper and lower ends of the fabrics and the upper and lower cross-bars of the frame to which the fabric is applied.

Various forms of fabrics of this type have heretofore been proposed; and among the principal objects and advantages attained by the article of the present invention are, first, to produce an improved fabric in which the cross-links connecting the adjacent longitudinal strands are not liable to slip out of place, but are secured against accidental dislocation through engagement with closed loops or eyes; second, to produce such a fabric in which the units making up the longitudinal strands are so connected as not to be liable to accidental separation or relative slip; and, third, to produce a fabric of an improved and attractive appearance and more staple character, and one which shall be more compact than similar fabrics not known, and which will not open under the strains of shipment.

My invention will be readily understood when considered in connection with the accompanying drawings, in which I have illustrated three slightly differing specific forms in which the invention may find embodiment, and in which,—

Figures 1 and 2 are plan and edge views of a fragmentary portion of the fabric, in-

cluding one of the end rails to which the fabric is secured through the usual row of helicals. Figs. 3 and 4 are views similar to Figs. 1 and 2, respectively, illustrating another slightly differing form of the invention; and Figs. 5 and 6 are views similar to Figs. 1 and 2, respectively, illustrating still another slightly different form of the invention wherein the tension member of the unit is composed of a single strand of wire.

The chief novelty of my invention resides in the structural features and characteristics of the individual bent-wire units which, when connected end to end, go to make up the several longitudinal strands of the fabric. In accordance with my invention each of these units comprises a longitudinal tension member, which may be of either a single or double length of wire, bent to form a hook at one end, and at its opposite end having a central loop or eye adapted for direct engagement with the hook of the next adjacent unit in the same longitudinal strand and, on either side of the tension member, having laterally projecting closed loops or eyes that are adapted for engagement with the hooks of the usual cross links which connect laterally adjacent strands.

Referring to the drawings, 10 designates one of the end or cross-bars (herein shown as an angle-bar) of an ordinary bed frame, the horizontal flange of which is apertured as shown at 11 for the reception of the end hooks of the usual series of helical springs 12 through which the upper and lower ends of the fabric are commonly united with the upper and lower cross bars of the frame, which furnish mainly the desired resiliency and elasticity. The fabric itself, in which the novel features of the present invention more particularly reside, is made up of a series of bent wire units arranged in longitudinal and transverse rows, the units in the same longitudinal rows being directly interhooked to form the longitudinal strands of the fabric, and the latter being connected at intervals by cross-links. Referring first to the form of the invention shown in Figs. 1 and 2, each of these units is formed from a single length of wire so bent as to present a straight two-ply tension member 13 bent into the form of a hook 14 at one end, and formed at its opposite end with a central closed loop or eye 15 adapted to be directly engaged by either the hook 14 of an adjacent unit in the same strand or by the inner hook

12^a of one of the helicals 12. The unit is further provided, on either side of the tension member 13, just inwardly or at the base of the longitudinal loop or eye 15, with a pair of oppositely extending closed lateral loops or eyes 16, these latter being designed for engagement by the hooked ends of these cross or connecting links 17.

From the foregoing it will be seen that when the fabric is assembled, the closed loops or eyes 16 prevent accidental displacement or slip of the cross links 17, and, similarly, the closed central loops 15 prevent any appreciable slip of adjacent units lengthwise of each other. The clover-leaf form of head of the unit also gives to the fabric as a whole a neat and attractive appearance.

The form of the invention shown in Figs. 3 and 4 differs from that shown in Figs. 1 and 2 and already described chiefly in the form of the central loop 18 at the closed end of the unit, this being an open or inverted U-shaped form of loop having approximately parallel sides merging into the lateral loops or eyes, instead of the crossed sides of the loops 15 of Figs. 1 and 2.

In Figs. 5 and 6 I have shown a form of the invention in which the form and arrangement of the three loops or eyes at the closed end of the unit is the same as that shown in Figs. 1 and 2, although the bending of the wire to form these loops is effected in a somewhat different manner, and the longitudinal tension member consists of but a single length 19 of wire. In forming the loops, in this form of the invention, the wire 19, bent inwardly at one end to provide a hook 20, is continued upwardly and then bent back across itself to form the central longitudinal loop 15^a. The wire is then continued to one side and bent back across itself, forming one of the lateral loops 16^a; thence the wire, crossing the tension member 19, is similarly doubled or looped upon itself, forming the opposite lateral loop 16^a; and, finally, the end of the wire is twisted one or more times around the longitudinal member 19, as shown at 21, care being taken that the end of the wire twist shall lie on the bottom or under side of the fabric to prevent the possibility of its catching in and tearing the mattress. The form of the invention last described, while not possessing the same degree of tensional strength as that afforded by the forms shown in Figs. 1 to 4, inclusive, is nevertheless sufficiently

strong for many purposes, and offers an advantage in respect to economy of material used.

It will be observed that the disposition of the wire forming the central and lateral loops at the head of each unit is, in all of the several forms of the invention shown, such as to render the unit elastic both longitudinally and transversely, which characteristic contributes not only to the wearing qualities of the article but also to its integrity and durability, since any slack which might result in the disconnecting of the interhooked parts is automatically taken up by the elasticity of the units as soon as any strain on the fabric is intermitted.

In all of the several forms shown the structure and mode of connecting the units and cross-links is such as to render the fabric not liable to distortion or displacement or separation of its constituent parts under the strains of service or shipment; each unit has three distinct loops or eyes, each of which engages but a single hook, thus making the fabric easy to assemble; the design or pattern is a compact and attractive one; the fabric may be readily folded both longitudinally and transversely; and the structure is generally well adapted to constitute a strong and flexible bottom for beds, couches, and the like.

I claim:

A bed-bottom fabric comprising a plurality of bent wire units arranged in longitudinal and transverse rows, each of said units consisting of a wire bent to form a longitudinal tension member having a hook at one end, a central longitudinally projecting loop at its opposite end for engagement with the hook of an adjacent unit in the same longitudinal strand, and laterally projecting loops located opposite the base of said central loop, and cross-links connecting the laterally projecting loops of the units in adjacent longitudinal strands, said loops affording both longitudinal and transverse elasticity to the units substantially as described.

In testimony that I claim the foregoing as my invention, I have hereunto subscribed my name, in the presence of two witnesses.

JOEL L. ISAACS.

Witnesses:

SAMUEL N. POND,
MATTIE B. BLISS.