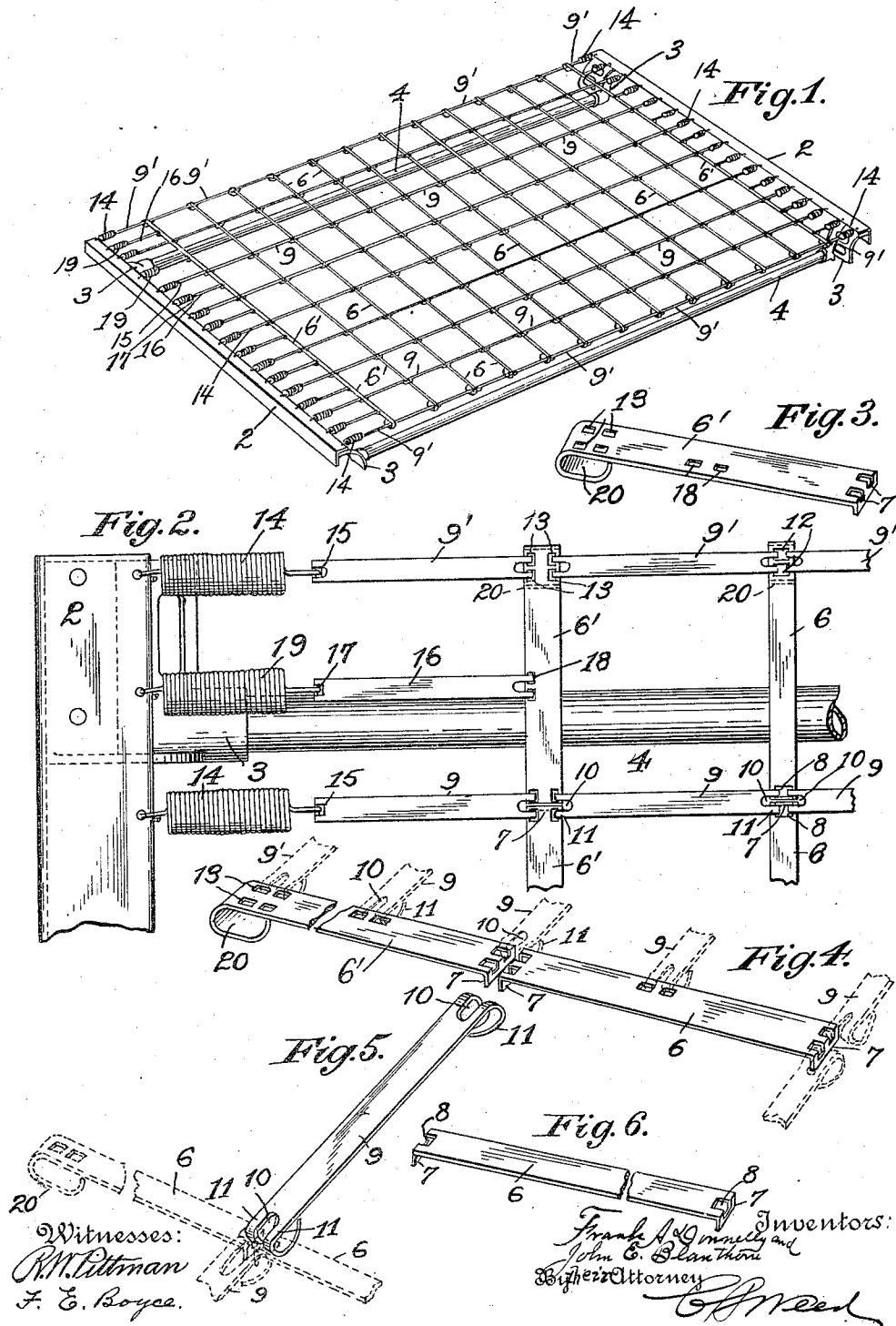


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 SPRING MATTRESS FABRIC.
 APPLICATION FILED SEPT. 7, 1911.

1,052,466.

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UNITED STATES PATENT OFFICE.

FRANK A. DONNELLY, OF NEW YORK, AND JOHN E. BLANTHORN, OF BROOKLYN, NEW YORK.

SPRING-MATRESS FABRIC.

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Specification of Letters Patent.

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Application filed September 7, 1911. Serial No. 648,168.

To all whom it may concern:

Be it known that I, FRANK A. DONNELLY and JOHN E. BLANTHORN, citizens of the United States, residing, respectively, at New York, in the county of New York and State of New York, and Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Spring-Mattress Fabrics, of which the following is a specification.

This invention relates to spring mattresses, the object thereof being to provide an improved metallic mattress which is extremely flexible so that it will readily yield in use, but so constructed that it will be practically noiseless, so that the rattling thereof in use will be avoided, and also so formed that wear on the stuffed mattress will be largely eliminated, so that the longevity thereof will be increased.

In those forms of spring mattresses which are made up of links and plates, or of connected wires, the wear upon the stuffed mattress by reason of the construction of the spring mattress is very great. Not only is this the case, but the spring mattresses, by reason of their construction, are noisy and rattle very much in use, and in many of them the helical springs draw the fabric on an angle instead of in parallel lines.

The object of the present improvement, therefore, is to do away with these disadvantages and provide a spring mattress in which the tension imparted thereto by the helical springs is not only in straight lines, but owing to the construction of the mattress a larger supporting surface for the stuffed mattress is provided, so that wear thereon is largely eliminated, while at the same time the members composing the spring mattress are so formed and connected that while the structure has considerable flexibility it is practically noiseless and without any rattling in use, and in which also the use of connecting plates for joining the members composing the structure is entirely avoided.

While the present improvement has all of the advantages hereinbefore set forth, it also has the further advantage of being a comparatively inexpensive fabric to manu-

facture, owing to the fact that the members can be readily stamped out of sheet metal and quickly assembled.

In the drawings accompanying and forming part of this specification, Figure 1 is a perspective view illustrating this improved spring mattress fabric stretched between the usual supporting means provided for that purpose; Fig. 2 is an enlarged top view of one portion thereof; Fig. 3 is a detail view of one of the end cross members; Fig. 4 is a view of a pair of such end cross members in position; Fig. 5 is a view illustrating several of the members connected together; and Fig. 6 is a view of one of the intermediate cross or transverse members.

Similar characters of reference indicate corresponding parts throughout the figures of the drawings.

In the present improvement the usual spring mattress supporting frame may be used, and this comprises a pair of cross or transverse angle bars or members 2 having brackets 3 for the reception of the longitudinally extending rods 4 for maintaining such bars properly spaced when the fabric is in position.

The improved spring mattress fabric, in the embodiment shown, is made up of flat strips of metal which are in the main all of substantially the same length and width, it being preferred, however, to form the strips which constitute the end cross strips of the fabric somewhat wider. In the present improvement the fabric is made up of a series of transverse or cross strips 6, the ends of which are preferably bent or turned down, as at 7, thereby to reinforce them, and provided with a slot or opening 8, and of a series of lengthwise extending strips 9, the ends of which are preferably bifurcated, as at 10, to form projections 11, each for insertion into an angularly formed slot 8 of one of the cross strips; so that, it will be observed, each lengthwise extending strip 9 connects at each end thereof a pair of cross strips 6, while each cross strip 6 in turn connects at its end a pair of lengthwise extending strips 9. The flanged or bent down ends of the cross strips

6 reinforce the ends of such strips, while the bent ends 11 are, after their insertion into the openings 8 of the cross strips, so bent upon the strip 9 as to properly articulate the several strips. Each cross strip 6' that projects to the outer edge of the mattress is provided with a pair of slots 12 for the reception of the bifurcated ends of the outer longitudinally extending strips 9'. In practice the cross strips 6' which form the ends of the fabric are preferably somewhat wider than the intermediate cross strips 6, in order that two sets of openings 13 may be formed therein for the reception of the ends of a pair of lengthwise extending strips 9 and 9'. Each lengthwise extending strip 9 or 9' at the end of the fabric is connected by a helical spring 14 with the cross bars 2, for which purpose these end strips 9 and 9' are provided with openings 15 at the flanged ends thereof. Thus, it will be observed that the tension imparted to the fabric by means of the helical springs is in straight lines. To give increased tension to the structure supplemental strips 16 may be provided, likewise having bifurcated ends 17 adapted to be hooked into openings 18 of the end cross strips 6', and to these strips 16 helical springs 19 are also connected. At the outer side edges of the structure all of the marginal crossing or transverse strips 6 and 6' are preferably bent upon themselves, as at 20, to form a neat end to the strips. All of the strips are formed of flat metal, and when articulated in the manner shown, or in any equivalent manner, provide a structure which is extremely flexible, while at the same time it is practically noiseless, so that it will not rattle in use; and by articulating the strips in the manner shown and described the fabric may be formed of flat stock, so that a larger bearing surface is presented to the stuffed mattress, thus materially increasing the wear of the latter. Furthermore, by forming the structure of flat strips and articulating them in the manner herein set forth, the use of connecting plates, which are noisy and increase the wear upon the stuffed mattress, is entirely done away with.

It will, of course, be understood that the various details of the structure may be more or less modified without departing from the spirit and scope of the present improvement. For instance, the bifurcated ends might be formed on the ends of the crosswise extending strips while the slots might be formed in the lengthwise extending strips, and the slots in the ends of the lengthwise extending strips could be of other forms if preferred, but in the embodiment shown they have been found to be extremely practical and easy to manu-

facture, and capable of withstanding a great deal more weight than the usual construction of fabrics without getting out of shape, and by reason of the fact that the links of which the structure is formed are made of flat metal or stock a great deal more bearing surface is presented to the stuffed mattress, so that the structure is very comfortable to sleep upon. It will also be observed that in the present improvement the several strips forming the same are located at right angles one to another, so that the pull on the several strips is in straight directions.

We claim as our invention:

1. A spring mattress comprising supporting means and a fabric suspensively supported thereby and made up of sets of parallel short lengthwise extending flat metal strips and sets of parallel short crosswise extending flat metal strips, each set of such lengthwise and crosswise extending strips comprising a series of independent short flat strips located end to end, the adjoining ends of a pair of crosswise and lengthwise extending strips having an articulated connection whereby each short crosswise and lengthwise extending strip is flexible at its articulated end, each such short member of a single integral structure having at both ends means integral therewith for effecting such articulation.

2. A spring mattress comprising supporting means and a fabric secured thereto and made up of sets of short lengthwise extending flat members and sets of short transversely extending flat members, each set of such lengthwise and transversely extending members comprising a series of such members located end to end, each pair of lengthwise extending members and each pair of transversely extending members being articulated together at their ends by hooks carried by a pair of such members projecting into openings carried by a companion pair of such members.

3. A spring mattress comprising supporting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending strips directly articulated one with another by projections of one strip extending into openings of a pair of companion strips so that the end of one strip will be articulated with the ends of a pair of companion strips extending at right angles thereto.

4. A spring mattress comprising supporting means and a fabric suspensively supported thereby and made up of sets of parallel short lengthwise extending flat metal strips and sets of parallel short crosswise extending flat metal strips, each set of such lengthwise and crosswise extending

strips comprising a series of independent short flat strips located end to end, a pair thereof having angular formed slots and a pair thereof having hooks extending into such slots thereby to form an articulated connection whereby each short crosswise and lengthwise extending strip is flexible at its articulated end.

5. A spring mattress comprising supporting means and a fabric secured thereto and made up of sets of short lengthwise extending flat members and sets of short transversely extending flat members, each set of such lengthwise and transversely extending members comprising a series of connected members located end to end, the transversely extending members at the ends of the fabric having greater width than the intermediate transversely extending members and having at the marginal ends thereof a pair of openings for the reception of the bent ends of oppositely extending flat metal strips.

6. A spring mattress comprising supporting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending strips, the marginal transverse strips having the ends thereof bent upon themselves.

7. A spring mattress comprising supporting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending strips, each marginal transverse strip having at its outer end a pair of slots for the reception of oppositely extending lengthwise strips.

8. A spring mattress comprising supporting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending strips, the strips extending in one direction having flanged ends and a slot and the strips extending in the other direction having hooks adapted to enter such slots.

9. A spring mattress comprising supporting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending members, the members extending in one direction having slots and the members extending in the other direction having hooked ends for projection into said slots, and helical springs connected to some of the lengthwise extending members for imparting tension thereto, said fabric having supplemental lengthwise extending flat members at the ends of the fabric for connection with helical springs, all of said flat members at the ends of the fabric being located in parallelism.

10. A spring mattress comprising sup-

porting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending members, the members extending in one direction having slots and the members extending in the other direction having hooked ends for projection into said slots, and helical springs connected to some of the lengthwise extending members for imparting tension thereto, said fabric having supplemental lengthwise extending flat members at the ends of the fabric for connection with helical springs, each of said supplemental members having connection with a transversely extending flat member by an opening or openings formed in one and a hook or hooks carried by the other.

11. A spring mattress comprising supporting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending members, the transversely extending members having at each end thereof one or more openings and the lengthwise extending members having at each end thereof one or more hooks projecting into said openings, the transverse members forming the ends of the fabric having greater width than the intermediate members and each having at its end a pair of openings, each of the transversely extending members having flanged ends.

12. A spring mattress comprising supporting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending members, the transversely extending members having at each end thereof one or more openings and the lengthwise extending members having at each end thereof one or more hooks projecting into said openings, the transverse members forming the ends of the fabric having greater width than the intermediate members and each having at its end a pair of openings, each of the transversely extending members having flanged ends and each of the transversely extending members projecting to the edge of the fabric having its outer end bent upon itself.

13. A spring mattress comprising supporting means and a fabric secured thereto and stretched under tension and made up of flat lengthwise extending and transversely extending members, the transversely extending members having at each end thereof one or more openings and the lengthwise extending members having at each end thereof one or more hooks projecting into said openings, the transverse members forming the ends of the fabric having greater width than the intermediate members and each having at its end a pair of openings, each of the transversely extend-

ing members having reinforced ends and each of the transversely extending members projecting to the edge of the fabric having its outer end bent upon itself, and
5 supplemental flat members articulated with the wider transversely extending members for the reception of helical springs.

Signed at New York city this 2nd day of September 1911.

FRANK A. DONNELLY.
JOHN E. BLANTHORN.

Witnesses:

FRED J. FLEMMING,
ALEX J. SOTTONG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."