

Aug. 28, 1923.

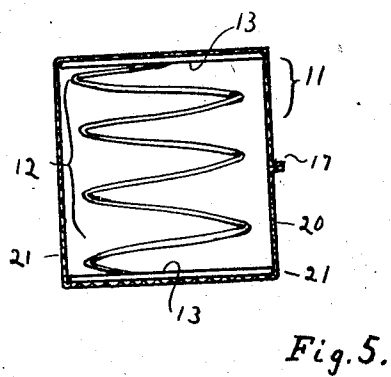
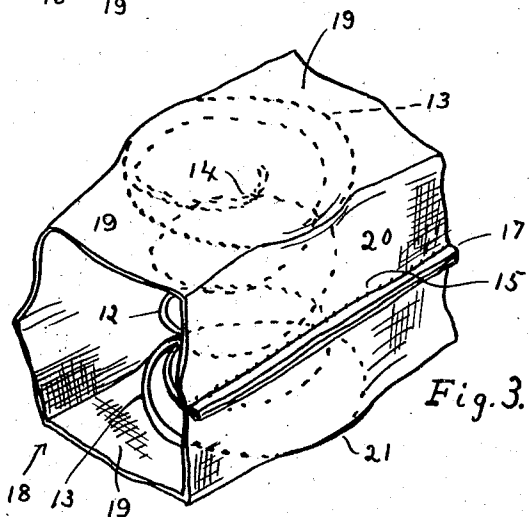
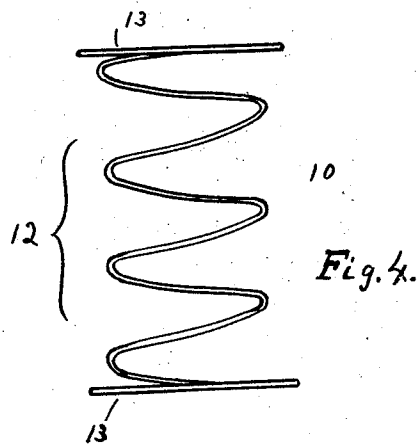
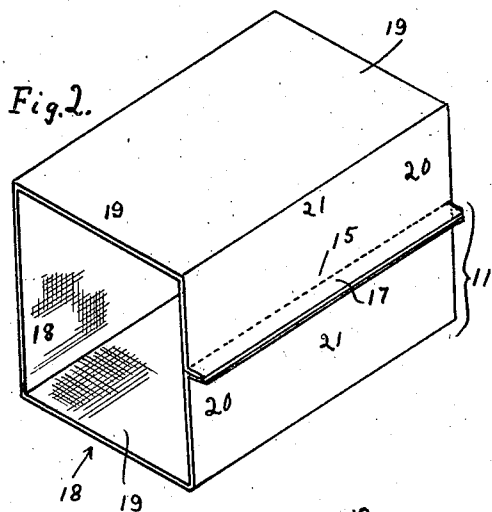
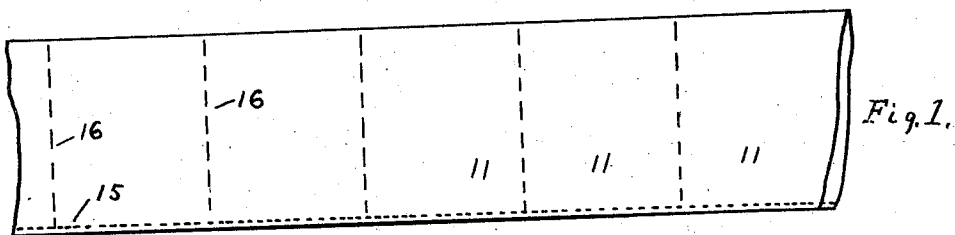
1,466,617

W. B. FOSTER

COVERED SPRING STRUCTURE

Filed Nov. 21, 1919

2 Sheets-Sheet 1



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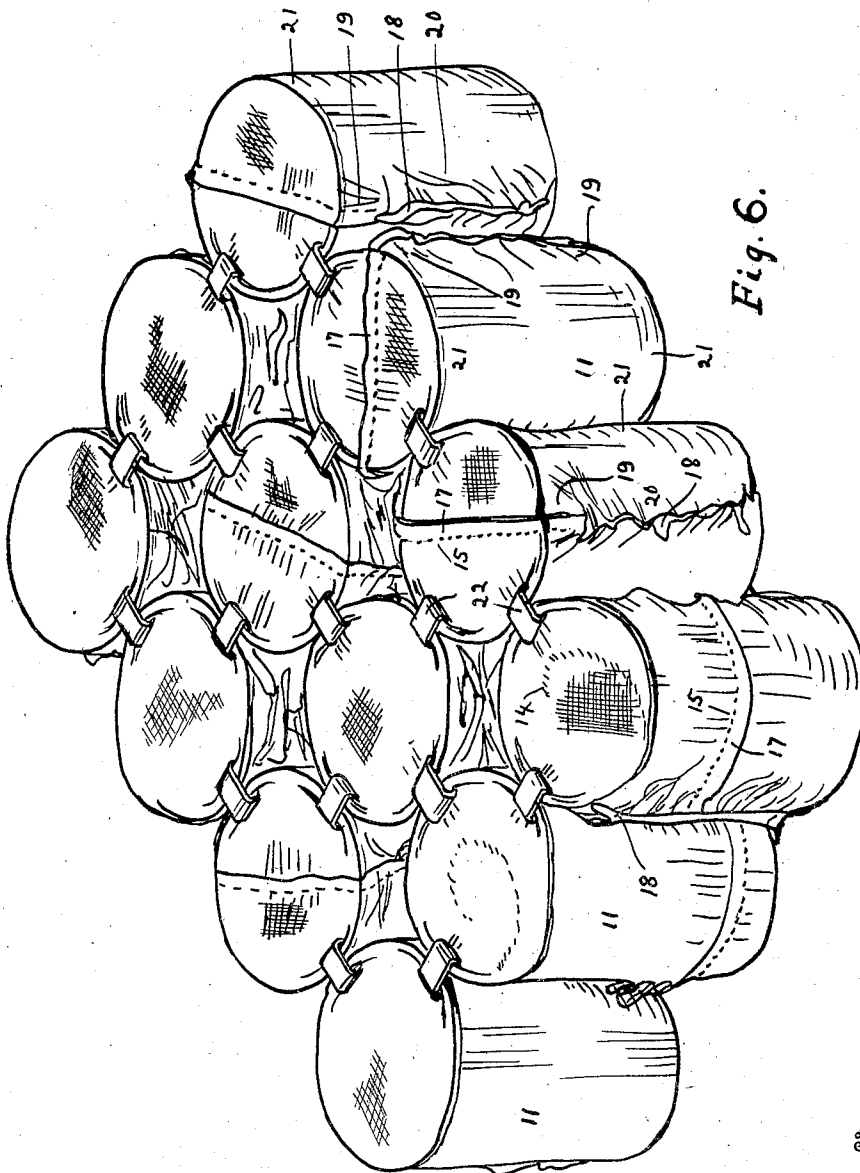


Fig. 6.

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UNITED STATES PATENT OFFICE.

WILLIAM B. FOSTER, OF UTICA, NEW YORK, ASSIGNOR TO FOSTER BROTHERS MANUFACTURING COMPANY, OF UTICA, NEW YORK, A CORPORATION OF NEW YORK.

COVERED-SPRING STRUCTURE.

Application filed November 21, 1919. Serial No. 339,636.

To all whom it may concern:

Be it known that I, WILLIAM B. FOSTER, a citizen of the United States, and a resident of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Covered-Spring Structures; and I do hereby declare that the following is a full, clear, and exact description thereof, which 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 the reference numerals marked thereon, which form part of this specification.

My present invention relates to covered spring structures where coiled springs are placed side by side to form a cushion seat or a mattress and wherein the springs are covered with flexible material to render the springs noiseless and to prevent their wearing upon or cutting the casing or upholstering proper.

The purpose of my invention is to provide an article of the class described of new and improved construction and yet of such simple form that it may be readily and economically made but will be very efficient in operation.

A further object is to provide a covering of flexible material for each separate spring and to have this covering in the form of a short tube placed upon the spring with the ends of the tubes at opposite sides of the coiled spring so that the tubing covers the top and bottom of the spring.

Another object is to have the tube formed and arranged as above mentioned but of such size relative to the spring that the spring is held partly compressed by the tubular covering.

A still further purpose is to combine a plurality of coiled springs covered as above mentioned into a complete structure by means that will hold the coverings to the several springs and at the same time hold the end coils of adjacent springs together in proper place.

Further advantages and purposes of this invention will appear from the specification and claims herein.

Fig. 1 is a plan or pattern view of a long tube of flexible material with dotted line

markings showing how the long tube is to be cut into the short tubes used in the embodiment of my invention.

Fig. 2 is an isometric projection showing a single unit or short tube distended but without a coiled spring therein.

Fig. 3 is a similar view of a tube with a coiled spring therein.

Fig. 4 is a side elevation of a coiled spring of a kind preferably used in this invention.

Fig. 5 is a vertical section taken transversely of the tube shown in Fig. 3 and its contained and compressed spring.

Fig. 6 is an isometric projection of a part of a covered spring structure embodying my invention.

Referring to the drawings in a more particular description it will be seen that the structure comprises the desired number of coiled springs 10 and a separate or independent tubular covering 11 for each coiled spring.

The coiled spring 10 will be formed to have a main spirally coiled central section 12 and end coils 13 which end coils will preferably be flat or in planes at right angles to the axis of the spring as a whole and will be of larger diameter than the central portion 12.

For the purpose of illustration I have also shown the spring 10 as being formed without a knot or tie in the end coil 13 but having an inwardly extending free end-piece 14 which construction of spring forms the subject-matter of a co-pending application and need not be further described herein.

The tubular covering 11 will be formed of flexible material such as cotton cloth or the like as by bringing opposite edges of a long strip of such cloth together as indicated in Fig. 1 and securely sewing through both layers of cloth near the adjacent edges as by a row of stitches 15. The length of the tubular material will then be cut into the units 11 of the proper length as by cutting the long tube along the dotted lines 16 shown in Fig. 1. When distended so as to be substantially square or rectangular in the transverse section a tubular covering will appear about as shown in Fig. 2. The narrow strips 17 of material beyond the row of stitches 15 may however be anywhere in

either side or the top or bottom of the tube without interfering with the operation of the tube and as plainly suggested in Fig. 6.

As far as convenient in assembling, this seam will be placed at the top or bottom of the tube when the tube and the spring are assembled.

A spring 10 and its unit of tubular covering 11 will be assembled in any desired way either manually or by machine so as to have the covering over the spring with the open ends 18 of the tube at opposite sides of the spring 10 and with the spring arranged about midway of the length of the tube. It will be understood that a unit of the covering is considerably longer than the greatest diameter of the spring 10 so that even the top and bottom end portions 19 of the tube extend at opposite sides of the spring some distance beyond the end coils 13 of the spring while the side walls 20 of the tube being as long as the top and bottom of the tube will obviously extend much further beyond the portions 21 of the end coils that are adjacent said side walls 20.

The relative size of a tubular covering 11 and its spring 10 will be such that the spring has to be compressed from its fully extended length in order to be housed within the covering 11 and that the covering 11 being formed of sufficiently inelastic material will of itself form the means for keeping the spring 10 partly compressed. A convenient and efficient proportioning of the parts is indicated in Fig. 4 where the spring is expanded to its full height and Fig. 5 where the spring is held partly compressed by its covering.

When the spring has been provided with its covering and before such a covered unit of the structure is further combined with other units it will appear about as shown in Fig. 3 with the flexible material of the unit strained or held taut across the top and bottom of the spring and through the central portion of the side walls 20 of the covering, that is, through the portion extending between the two points 21 on either side of the spring. The extended top and bottom end portions 19 of the covering and the end parts of the side walls 20 will be more or less folded or limp and obviously adapted to be readily bent back towards the sides of the spring which will occur without special manipulation when the desired number of covered units 10 and 11 are assembled in rows and then into parallel rows to form a complete structure as shown in Fig. 6.

The desired number of these covered units 10 and 11 will be assembled side by side and permanently but yieldingly connected by fastening means embracing the adjacent portions of the end coils 13 of adjacent springs 10, said means being attached after the coverings are in place upon the springs and

so outside the coverings 11 and grasping the wire of the spring through said covering. In this way the fastening means 22 operate not only to hold the springs in desired position in the complete unit but also to hold the several tubular coverings 11 in proper place permanently upon their respective springs. For such fastening means the shallow U-shaped metal clips common in the art may be used by having their ends extend down into the springs and then bent together in an obvious way.

The tendency of the spring to expand within the tubular covering will hold the covering in place upon the spring without trouble until the different covered units are brought together into the assembled structure.

Preferably when the covered springs are being arranged and permanently connected into rows, the units will be arranged so that the open ends of the tubes will not be placed directly against an adjacent unit in the row nor directly at the angle to engage the spring in an adjacent row.

In other words the units as far as possible will be assembled so as to have the open ends of the tubes project into the interstices between the units. In this assembling process the loose projecting ends of the tubular covering will be folded over or crowded back towards the springs so as to cover the springs sufficiently to keep them from striking each other or making a noise. The amount of material in the projecting ends of the tube, however, is sufficient to cover the spring even though a unit be assembled with the open end next to an adjacent spring.

A covered spring structure constructed to embody my invention is durable in construction and effective in operation in that it will be noiseless under all circumstances and will prevent the springs from striking or wearing upon each other or upon the casing or other upholstering covering.

The feature of having the springs held under partial compression provides a structure that is sufficiently yielding to be comfortable but without the great extent of sag or give before the person is sustained that is present in a cushion or other structure composed of equally soft or resilient springs. It will be noted that this initial compression is obtained without metallic binding or holding members and is in fact obtained by the use of the covering which heretofore has been used mainly to prevent wear or noise from the springs.

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

1. In a covered spring structure, the combination of a single coiled spring and a separate covering entirely enclosing said single spring and consisting of an open-

ended tube of flexible material, said tube being of slightly greater length than the width of the spring and having its ends at opposite sides of the spring and projecting therebeyond and loosely brought together to close the ends of the tube.

2. In a covered spring structure, the combination of a single coiled spring and a separate covering entirely enclosing said single spring and consisting of a tube of flexible inelastic material, said tube being of slightly greater length than the width of the spring and having its ends at opposite sides of the spring and projecting therebeyond and being of a transverse size to hold the spring partly compressed.

3. In a covered spring structure, the combination of a single coiled spring and a separate covering entirely enclosing said spring and consisting of an open-ended tube of flexible inelastic material, said tube being of slightly greater length than the width of the spring and having its ends at opposite sides of the spring and projecting therebeyond and there loosely brought together to close the ends of the tube, said tube being of a transverse size to hold the spring partly compressed.

In witness whereof I have affixed my signature, this first day of November, 1919.

WILLIAM B. FOSTER.