W. B. FOSTER.

COVERED SPRING STRUCTURE.

APPLICATION FILED JUNE 7, 1917.

**1,287,663.**

Patented Dec. 17, 1918.

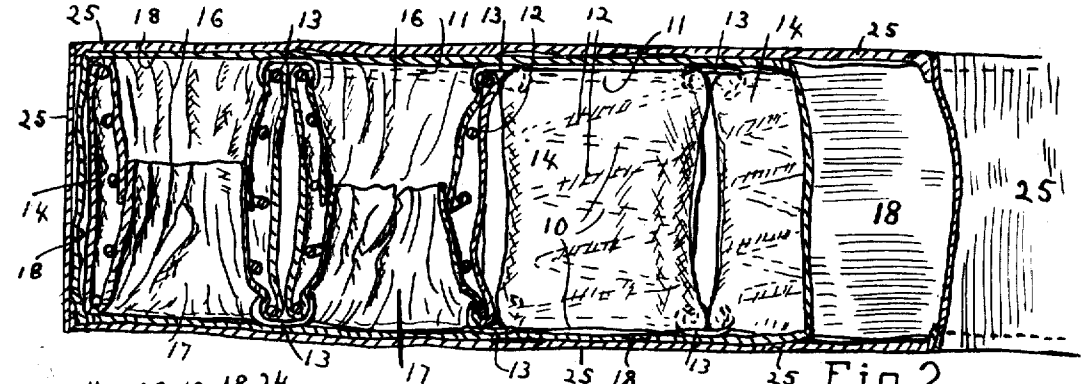


Fig. 2.

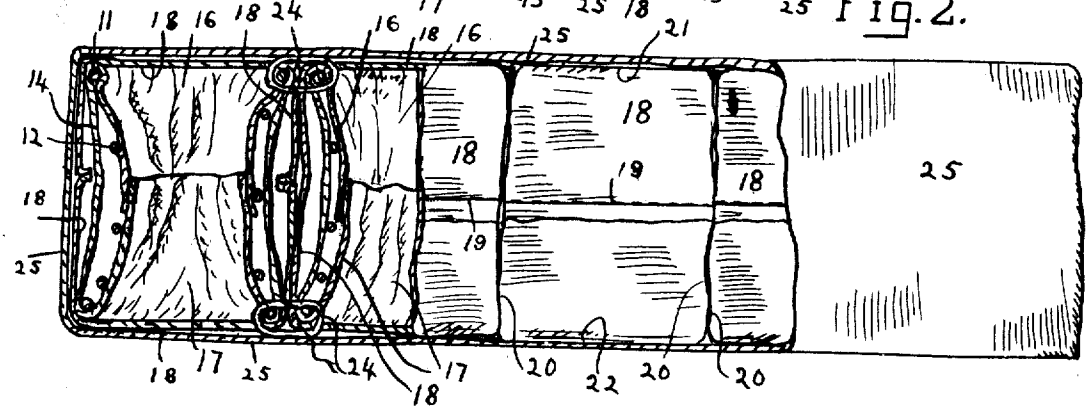
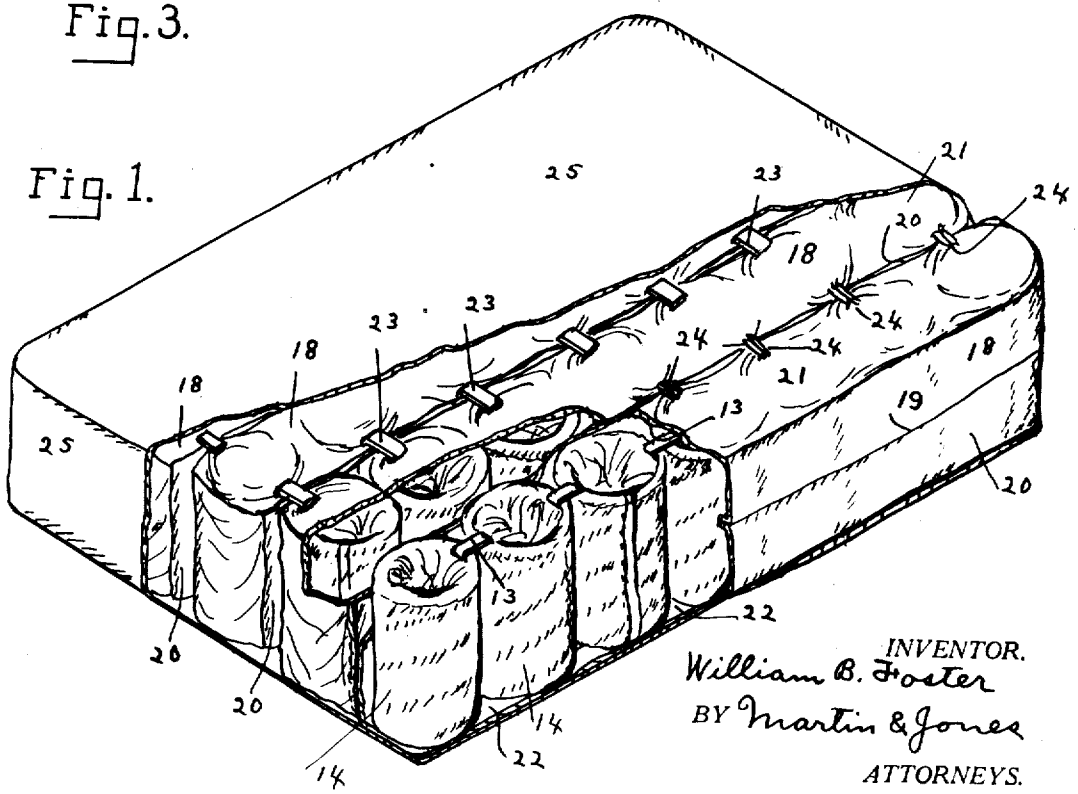


Fig. 3.

Fig. 1.



INVENTOR.

William B. Foster

BY Martin & Jones

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

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

## COVERED-SPRING STRUCTURE.

1,287,663. Specification of Letters Patent. Patented Dec. 17, 1918.

Application filed June 7, 1917. Serial No. 173,310.

*To all whom it may concern:*

Be it known that I, WILLIAM B. FOSTER, 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 or those constructions where a cushion-seat or a mattress has coiled springs placed side by side to form the resilient element, said springs being inclosed in pockets of flexible material to render the springs noiseless in action and to prevent their wearing upon or cutting the material of the outer envelop of the completed article.

The purpose of my present invention is to provide an article of the class described having a new and improved construction which is efficient and durable in use and well adapted to render the springs noiseless.

A further purpose is to provide an improved construction in the article described whereby the springs are more thoroughly covered and at the same time are more readily placed and held in position in the structure.

A further purpose is to provide a spring structure wherein the separate springs are fastened side by side into a row and then that row inclosed within a long pocket, which pocketed rows of springs may be then very conveniently assembled side by side to form a structure of the desired size.

A still further purpose of my invention is to provide a construction combining the features of an individual pocket for each spring and a row pocket for each row of springs.

Another object of my invention is to provide a pocketed row of springs wherein the row pocket is used to hold the springs thereof under partial compression.

Another aim of this invention is to provide a construction wherein separate pockets are provided for each spring and row pockets are provided for each row of springs and wherein several of such pocketed rows of springs are assembled side by side to produce a connected or continuous surface to the structure and wherein also the means used to connect adjacent rows may be utilized to hold the row pockets in place and also to help hold the individual pockets in place.

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

Figure 1 is an isometric projection of a cushion-seat or mattress embodying my invention in covered spring construction.

Fig. 2 is a view on an enlarged scale partly in section and partly in side elevation longitudinally of one of the rows of springs shown in Fig. 1.

Fig. 3 is a similar view, but taken transversely of the rows of Fig. 1.

Referring to the drawings in a more particular description, it will be seen that the coiled springs 10 may be of any of the types of springs properly used for covered spring constructions such as cushion-seats, mattresses and the like, said springs having end coils 11 and intermediate coils 12 connecting said end coils. In the drawings the springs are illustrated as having intermediate coils of less diameter than that of the end coils. This construction is simply illustrative of the springs that may be used in constructions embodying my invention, but it will obvious that the springs to be used may be of various forms, from those more decidedly double coned than herein shown to those that are strictly cylindrical. In fact, my invention is applicable with practically any form of coiled spring that is otherwise usable in covered spring constructions.

The proper number of coiled springs to form the length or breadth of the desired article are arranged side by side in a row and loosely connected to each other preferably by having their upper and lower coils fastened together at the points where they meet or approach each other. As such fastening means I have shown metal clips 13 bent about the adjacent portions of the two springs to be connected. Such clips form a convenient and durable fastener for the purpose, but many other well known forms of fastening means may be used such as knots or ties made from thread, string or even from wire.

In the preferred form of my invention

and in the full embodiment thereof each separate spring 10 will be provided with a separate pocket or covering 14 of flexible material, such for instance as cotton cloth or any other material or fabric suitable for the purpose. These separate pockets 14 may be of any desired form, but for the full embodiment of the invention of this application I prefer to utilize the form of separate pocket which *per se* is the subject matter of a copending application filed by me.

In this preferred form of individual pocket the pocket not only provides a casing entirely surrounding the outer surface of the coiled spring as a whole and the outer edges of the end coils, but also extends through the cavity of each spring so as to form an inner casing fitting more or less closely against the inner surfaces of all of the coils of the springs, which inner casing especially when combined with the usual outer casing forms a peculiarly efficient sound-deadening pocket for the spring. Said inner and outer casing may be formed in a variety of ways from a single piece of material and is shown here in one of the most convenient and economical ways of making such a separate pocket; namely, by forming the material into a tube, the central part of which closely encircles the outside of the spring as a whole, while the ends 16 and 17 are tucked into the opposite ends of the spring, said ends being purposely of such length that they will pass each other and form a complete inner casing for the cavity of the spring.

A row of springs having been formed and fastened together, whether said springs be uncovered or as in my preferred form covered with an individual pocket, each row of springs is then placed within what for convenience I will call a row-pocket 18. This row-pocket is composed of any suitable flexible material such as cotton cloth or any other desired material or fabric that may be found suitable for the purpose. The pocket may be conveniently formed like a long pillow by fastening the opposite edges of the piece of material together by a seam and stitches at 19 and then closing the ends of the row-pocket by continuing the seam around the ends of said pocket. The row-pocket will be of such dimensions as to closely fit the row of springs taken as a whole; that is, the pocket will be of the same length as the row of springs and when opened to receive the springs will have a width equal to the width of the larger or end coils of the spring and a depth equal to or a little less than the height of the springs. Preferably the pocket will be of less depth than the height of the individual springs and the row of springs will be assembled within the pocket or the pocket placed about the row of springs, with the springs partly under compression, so that the row of springs will be held partly compressed by the said row-pocket. In this way the tendency of the springs to expand will keep the row-pocket thoroughly expanded and thus aid in keeping the row-pocket in desired position and arrangement. It will be particularly noted that viewed as a whole the pocket with its contained springs will be rectangular; that is, will have its sides parallel and its top and bottom likewise parallel.

In other words, the arrangement and connection of the parts is such that the side walls 20 and the top 21 and bottom 22 are all substantially flat and extend almost the full length of the row-pocket. At each end of the row-pocket of course the sides 20 curve around following the circle of the end springs, and the top and bottom 21 and 22 have their corners follow more or less the curve of the upper and lower coils of the springs. For the rest of the length of the sides and top and bottom of each row-pocket, however, their surface is practically flat. At each space where the sides 20 of the row-pocket pass a spring it will be obvious that the row-pocket will be strained tight or straight. In a similar way the top and bottom 21 and 22 will be strained tight across the widest part of each contained spring. At intermediate points the pocket may be drawn back a little into the space between the springs, but on the whole will maintain the height and width of the row-pocket. It will be particularly observed that I do not draw the sides of the row-pocket toward each other or together at the points where adjacent springs meet. In this way the freedom of the individual springs is maintained, the row-pocket is not subjected to added strain or drawn out of shape and in many other ways the advantages of a row-pocket of my construction is maintained.

Row-pockets of the form now described may be utilized as an advantageous form of manufacturing, shipping and selling covered spring constructions. The construction so far described is capable of being made almost entirely by machinery and can be readily handled, packed, sorted or arranged into desired shapes for the ultimate customer. A maker of mattresses or of cushion-seats may with only a few different lengths of springs arranged in these row pockets assemble said pocketed springs in any desired number sidewise to get the desired length or width of the article he desires to make. In this way a much smaller stock of goods and a stock of goods of many less kinds may be used as the basis for making the necessary variety of mattresses or cushion-seats or other covered spring structures.

When it is desired to assemble the springs in their row-pockets to form a spring structure the desired number of filled row-pockets are placed side by side and usually will be

fastened together by having each row fastened to the row adjacent thereto upon each side thereof. Preferably such fastenings to connect the filled row-pockets will loosely connect the filled pockets at points where the springs of adjacent rows come nearest together. Preferably also the means used to fasten together adjacent rows will connect the end coils of the springs in adjacent rows. Such fastening means will engage the springs through the row-pockets and also of course through the individual pockets in that form of my construction where individual pockets are used. For such fastening means any desired form of fastener may be utilized. In one row of fasteners I have shown as used for this purpose a metal clip 23 similar to clip 13 and for another row have used a form of a tie 24 of thread or wire, in which case the thread or wire will go through the material of the pockets and grasp the wire of the spring coils instead of locally depressing the top or bottom of the row-pockets as do the clips.

It will be understood, of course, that the fastening means and the thickness of the pocket material and the diameter of the wires have all been exaggerated in order to clearly show the relation of the parts.

A covered spring structure made in accordance with my invention will be unusually efficient in preventing noise when the springs are compressed, in that there will be in the preferred form of said pockets a row-pocket inclosing a series of spaced springs, each of which in turn is inclosed in its individual pocket. Furthermore, when my invention is combined with the preferred form of individual pocket it will be seen that the springs are inclosed not only within row-pockets, but within a double individual pocket, in that the individual pocket has a casing outside the circle of each spring and a casing for the inner circle of each spring that is within the cavity of the spring. Furthermore, it will be noticed that the fastening means used to connect adjacent springs within the rows are within the row-pockets and so covered and protected that much more from being felt by the person using the article. It will be noticed also that the means used to connect adjacent rows of spring-filled pockets operate also to hold the row pockets in place and also to help in holding the individual pockets in place where individual pockets are used.

Ordinarily the spring structure composed of rows of spring-filled pockets will be in turn placed within an envelop 25 such as the tick of a mattress or the outside envelop of a spring cushion-seat.

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

1. In a covered spring structure the combination of a plurality of coiled springs side by side in parallel rows, means connecting the end coils of adjacent springs, a separate pocket of flexible material for each row of springs and means for connecting the end coils of springs of adjacent rows, said means engaging the springs through said pockets.

2. In a covered spring structure, the combination of a plurality of coiled springs side by side in parallel rows, a separate pocket of flexible material for each row of springs, means within said pockets for connecting adjacent springs therein and means for connecting adjacent rows of springs.

3. In a covered spring structure, the combination of a plurality of coiled springs side by side in parallel rows, a separate pocket of flexible material for each row of springs, means within said pockets for connecting adjacent springs therein and means outside said pockets for connecting adjacent rows of springs.

4. In a covered spring structure, the combination of a plurality of coiled springs side by side in parallel rows, a separate pocket of flexible material for each row of springs, means within said pockets for connecting adjacent springs therein and means engaging said springs through the pockets for connecting the springs of adjacent rows.

5. In a covered spring structure the combination of a plurality of springs placed side by side in parallel rows, a separate pocket of flexible material for each spring, a separate pocket of flexible material for each row of springs. means connecting adjacent springs in the rows and means connecting adjacent rows of springs.

6. In a covered spring structure the combination of a plurality of springs placed side by side in parallel rows, a separate pocket of flexible material for each spring, a separate pocket of flexible material for each row of springs, means connecting adjacent springs in the rows and means engaging the springs through said pockets for connecting adjacent rows of springs.

In witness whereof I have affixed my signature, this 29th day of May, 1917.

WILLIAM B. FOSTER.