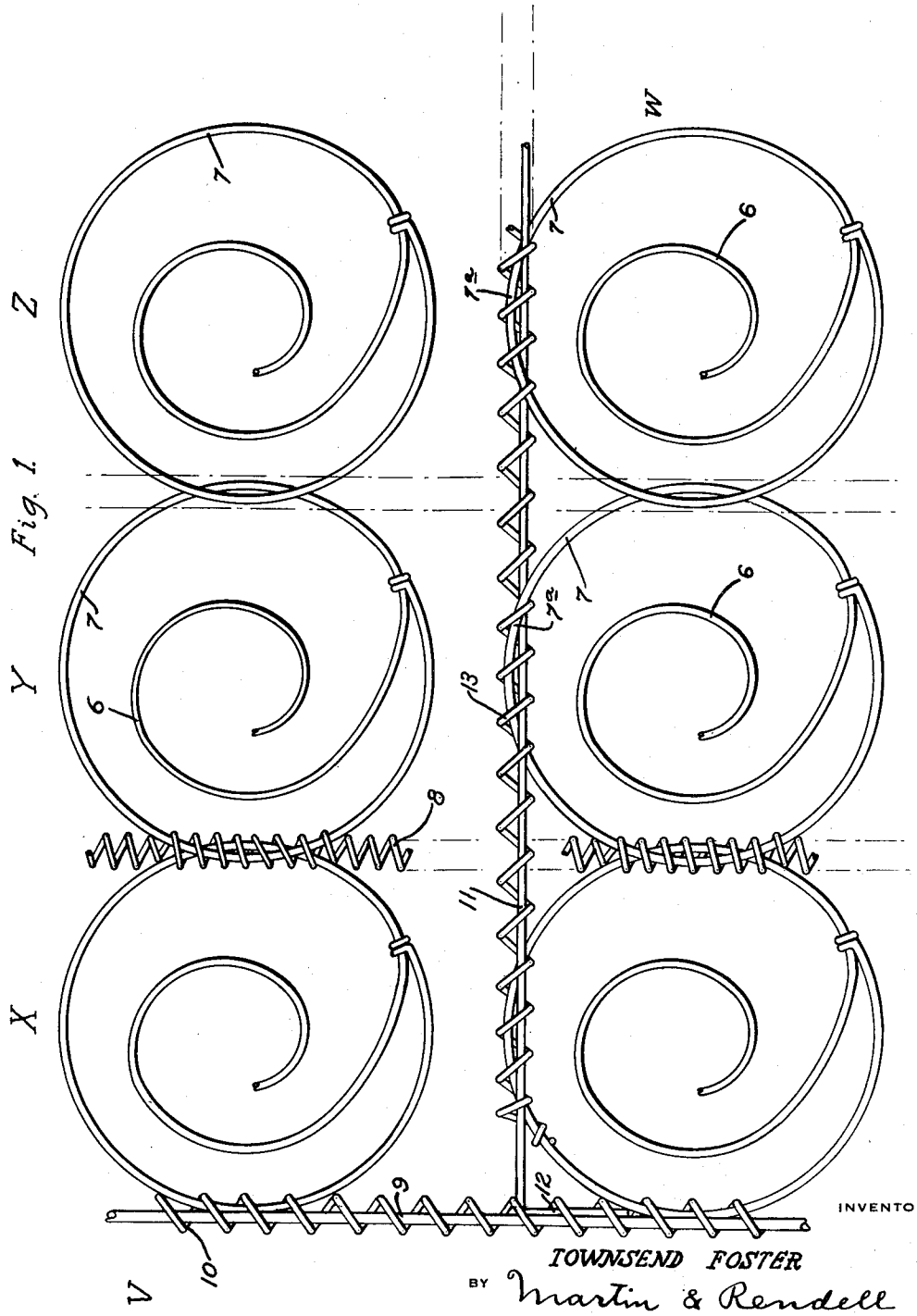
Dec. 9, 1941. T. FOSTER 2,265,426

SPRING FILLING FOR MATTRESSES AND CUSHIONS

Filed Feb. 28, 1939 3 Sheets-Sheet 1



INVENTOR

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BY Martin & Rendell

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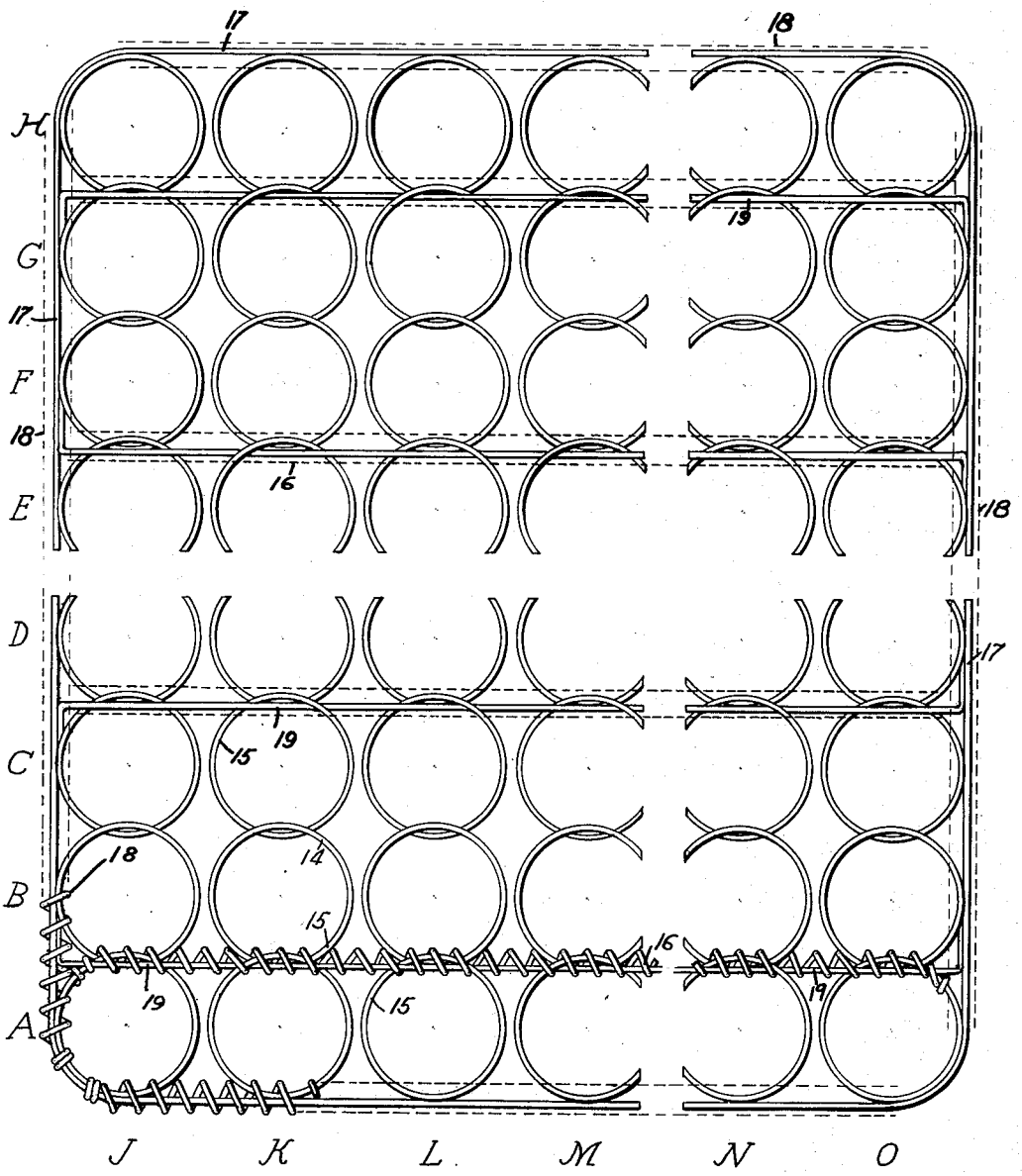


Fig. 2.

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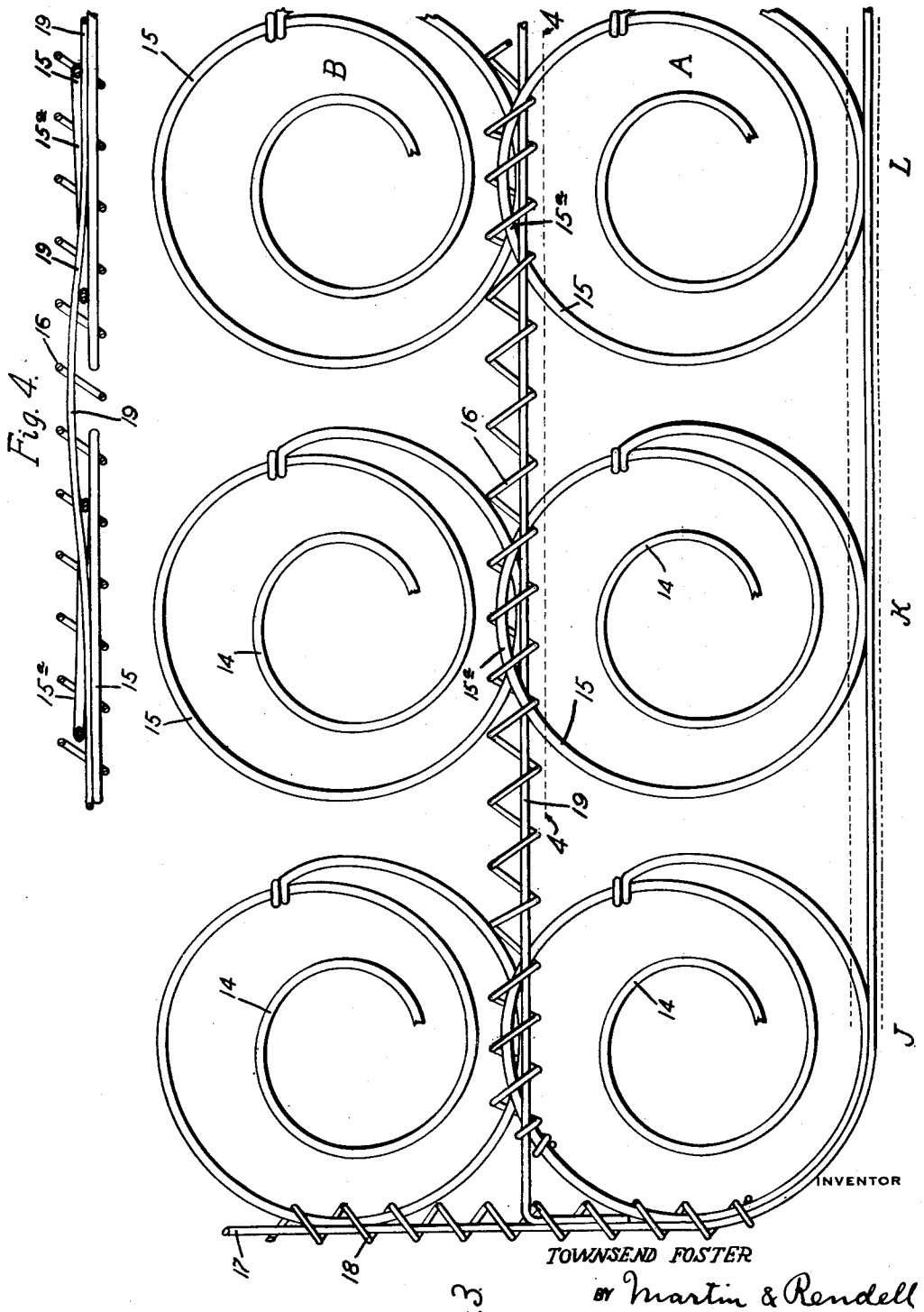
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SPRING FILLING FOR MATTRESSES AND CUSHIONS

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2,265,426

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2,265,426

SPRING FILLING FOR MATTRESSES AND CUSHIONS

Townsend Foster, New Hartford, N. Y., assignor to Foster Brothers Manufacturing Company, Utica, N. Y., a corporation of New York

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2 Claims. (Cl. 5—269)

This invention relates to spring fillings for mattresses, cushions and the like.

The purpose of my present invention is to provide a spring filling of the character indicated of new and improved construction and one wherein the parts thereof are so constructed and so combined as to prevent the noise of the metal parts grinding upon or slipping past each other.

In these spring fillings cross bracing wires have been used extending across the top and bottom of the filling within the helical spring wires that help to locate the coiled springs or that connect the overlapped portions of the top and bottom end coils of the structure. As heretofore placed, these brace wires have not been so placed as to help to prevent noise in the structure but have simply been run through the said coiled wire as a means of locating the brace wires. I have found that these transversely extending brace wires may be utilized to perform a new function, namely that of rendering it practically impossible for the brace wires to snap by the portions of the end coils within the helical wires and in this way obviously the noise of these parts slipping or snapping by each other is eliminated and as well also there is eliminated the objectionable part of the said end coils sliding or grinding upon each other.

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

Fig. 1 is a plan view of the upper surface of a part of two adjacent transverse rows of coiled springs of a spring filling embodying my invention as applied in a very simple form.

Fig. 2 is a plan view of either the top or bottom face of a spring filling embodying this invention as applied to a different and a more complicated and more common form of filling, intermediate parts of the structure both transversely and longitudinally being omitted so as to show the essential parts of the whole spring filling and its frame and the coiled springs being shown in conventionalized form by omitting their intermediate spiral coils.

Fig. 3 is a plan view on a much larger scale of part of two adjacent transverse rows of coiled springs, being transverse rows A and B of Fig. 2, two pairs of adjoining springs from adjacent longitudinal rows K and L being connected in a manner embodying the invention.

Fig. 4 is a vertical sectional view mainly upon the line 4—4 of Fig. 3, but with the coiled or helical wire sectioned on a vertical central line so as to more clearly show the arrangement of the brace wire and the two wires from the end coils of the connected coiled springs.

Referring to the drawings in a more particular description and first to the form of a spring filling of which a small part is illustrated in Fig. 1, it will be seen that the spring filling in the main is of common form, that is composed of a plurality of main coiled springs 6 having their opposite end coils 7 adapted to form the top and bottom of the spring filling and that these springs are arranged in parallel longitudinal rows as X, Y, Z for the three rows shown in Fig. 1 and in transverse rows such as V and W for the two rows shown in Fig. 1. In the view referred to the adjacent springs in the transverse rows have their end coils overlapping a short distance and these overlapping parts are connected by being enclosed within the bore of longitudinally extending helical wires 8 which in the construction of filling shown in Fig. 1 also serve to hold adjacent transverse rows of springs spaced apart. Border members 9 commonly in the form of a wire extend past the outer portions of the outer coiled springs and are secured thereto usually by the use of lengths of helical wires 10.

In order to prevent these spring fillings from being compressed or reduced below their desired size by the tight fitting fabric casing, these spring fillings are provided with several brace wires 11 which are relatively strong approximately straight wires extending commonly from border member to border member and having their ends secured to such border members commonly by the extremities of said border wires being provided with extensions 12 parallel to the border wire and secured to the adjacent border wire usually by the same border helical wires 10 already mentioned; or shorter brace wires may have their ends secured by any desired means to the marginal springs. These brace wires may extend lengthwise but usually they extend crosswise of the filling because the fillings are much more apt to be compressed crosswise than lengthwise. Accordingly in Fig. 1 there is shown one of these brace wires 11 extending crosswise of the structure. In order to keep these brace wires substantially in the upper or lower face or level of the spring filling as the case may be these brace wires are located close to one side of the end coils of a transverse row of springs such as transverse row W and such brace wire is secured to the adjacent portion of one end coil of each main spring 6 of the said adjacent transverse row W. This connection is usually effected by the use of a length of helical spring

wire 13 which for the whole length of said helical wire encloses the said brace wire 11 and also encloses the adjacent portion of the end coils 7 of the several springs in said transverse row W of the main springs. As heretofore commonly made, the brace wire has simply extended in a direct line through the bore of the said helical wire and has gone on either the upper or lower vertical sides of the adjacent portion of the end coils 7. It will be understood that the helical wires have to fit loosely enough upon the end coils 7 to allow the desired pivotal action between the end coils and the helical wires 13 in order to allow the spring filling to have its surfaces flex easily. This arrangement, however, has often resulted in noisy spring fillings in that the portion of a brace wire opposite the portion of an end coil within a helical spring wire and such coil portion may snap by each other as the spring filling of the mattress or cushion is subjected to movement incidental to use and this snapping of the enclosed portion of an end coil by the brace wire makes a noticeable and disagreeable and undesired sound.

My invention consists in placing the brace wire 11 adjacent each enclosed section 7a of an end coil 7, that is enclosed by the helical wire 13 on the opposite vertical sides of the end coil within the bore of the helical wire 13. This will be best understood by observing the construction of the middle spring in transverse row W. It will be seen that at the first or left hand intersection of the brace wire 11 with the enclosed portion 7a of the end coil 7 the said brace wire is above the wire of the end coils, but at the second or right hand intersection of these two parts the said brace wire is below the wire of the end coil. In other words, the brace wire pierces or passes through the aperture or hole of the end coil 7 of this spring and therefore it will be seen that the brace wire 11 cannot pass beyond or outside of the adjacent portion 7a of the end coil and so obviously cannot snap past the said adjacent portion of the end coil.

At the next or right hand main spring in the transverse row W the same relative arrangement is made, that is the brace wire passes through the aperture of the end coil of that spring and so at the two intersections of the brace wire with the enclosed portion 7a of the end coil of this spring the brace wire is upon the vertically opposite sides of the end coil. This may be accomplished in the same way as already described with the middle spring of transverse row W in Fig. 1, but in order to show another variation in construction the brace wire 13 passes below the wire 7a at its first intersection therewith and at its second or right hand intersection passes above said wire. This feature of the brace wire going over the end coil wire at one crossing therewith and under that wire on its second crossing therewith prevents the snapping past each other of the brace wire and its adjacent portion of the end coil of a main spring and thus prevents the undesirable noise made by such snapping of these parts past each other.

Referring now to the spring filling shown in Figs. 2, 3 and 4 and to the form of my invention as applied thereto, it will be seen that this spring filling consists of similar main coiled springs 14 having end coils 15 which are adapted to form the upper and lower surfaces of the spring filling for a mattress or cushion. This construction is a more elaborate but more common type of spring filling in that its springs are arranged in transverse rows as A, B, C, D, E, F, G and H as shown in Fig. 2 and longitudinal rows J, K, L, M, N, and O as shown in Fig. 2 and that the adjacent springs in the longitudinal rows have their end coils overlap each other. These overlapping parts are connected by transversely extending helical spring wires 16 while the adjacent springs in the transverse rows are slightly spaced from each other by said wire 16. It will be understood that the border edge of these spring fillings is composed of one or more border members at the top and bottom surface of the filling and that commonly these border members are composed of a border wire 17 opposite the outer portions of the end coils of the border springs and with at least each straight length of border wire pivotally connected to the adjacent portions of the end coils of the border springs by lengths of helical spring wires 18.

In spring fillings of this form there is provided the necessary number of brace wires 19, usually, and as shown in Figs. 2, 3 and 4 with said brace wires extending crosswise of the filling. These brace wires also are located within the already present transversely extending helical cross wires 16. As many of these brace wires are used in a construction as required and in Fig. 2 these brace wires are shown located in every second transverse helical wire 16. This is a common arrangement and is shown as illustrating my invention in various detail arrangements of the brace wire. It will be understood, however, that my invention as relates to the arrangement of the brace wire is not limited to the brace wire being at alternate crosswise extending helical wires 16. My invention can be used wherever the cross brace wire is used whether that be between every adjacent pair of crosswise rows of springs or between every second or every third pair of crosswise rows of spring or any irregular arrangement of the cross brace wire.

It will be seen that in this form of spring filling the crosswise helical wires 16 enclose a crosswise brace wire 19 where one is present, but also in any event enclose adjoining overlapping portions from two springs. However, even in this structure my invention is applicable in that the brace wire 19 is so located within the bore of the helical spring wire 16 as to cross on vertically opposite surfaces of one of the end coils 15. This will be best understood by observing the relative arrangement of the brace wires 19 with reference to the enclosed portion 15a of the end coil 15 of the middle spring in the transverse row A as shown in Figs. 2 and 3. By observing the enlarged view of these parts as shown in Fig. 3, it will be seen that at the left hand or first intersection of said brace wires 19 with the enclosed portions 15a of the end coil of the spring referred to, the brace wire passes beneath the wire of the end coil, but at its right hand or second intersection of the brace wire with said end coil the brace wire is located above the end coil. In other words, the brace wire 19 pierces the aperture of the upper end coil of the middle spring of transverse row A shown in Fig. 3 and thus it is impossible for the said brace wire to get outside of the said end coil 15 and particularly its portion 15a enclosed by helical spring wire 16. It will be noticed that the end coil of the spring, that is in longitudinal row K and in transverse row A overlaps above the adjacent portion of the other spring in the longitudinal row K. Since the brace wire 19 pierces the aperture of the spring that is in transverse row A this brace wire cannot get below the other or lower located

end coil of the spring, that is in transverse row B. It must be seen that as far as these two overlapping springs are concerned, the enclosed portion 15a of the spring in row A certainly cannot snap past the brace wire and likewise that the brace wire is safely spaced away from the lower located end coil of the other spring.

Referring now to the arrangement of parts shown between the two overlapping springs of the longitudinal row L it will be seen that again the brace wire 19 is on the vertically opposite sides of the end coil of the spring in transverse row A. In other words, at the first intersection the brace wire 19 passes above the end coil of the spring in row A and at its second or right hand intersection the brace wire passes below the end coil of that spring. The end coil so straddled by the brace wire 19 also is above the overlapped portion of the end coil of the spring from transverse row B. It will thus be seen that with the brace wire 19 located within the circle of the end wire of the spring in row A the said brace wire can never snap over the adjacent portion of the end coil of the spring in row A and therefore the noise between those two parts is absolutely eliminated. The brace wire is also safely spaced from the other end coil of these two overlapped springs so that those two parts cannot rub upon each other nor snap past each other.

In practice it is not necessary for the brace wires 19 to go through the aperture of end coils of the border springs because the tying of the ends of the helical wires around the brace wire and one part of one of the end coils satisfactorily locates all the parts at that pair of overlapping end coils.

By referring to Fig. 2, it will be seen that the brace wire 19 at the junction between the overlapping end coils of the interior springs of transverse rows C and D goes over the end coils at every first intersection with an end coil and goes under the end coil at every second intersection with an end coil.

On the other hand, the brace wire at the meeting points between the end coils of transverse rows E and F follows no such set arrangement other than the main requirement that the brace wire is on the vertically opposite sides of each end coil.

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

1. In a spring filling for mattresses and cushions, the combination of a plurality of coiled springs arranged on end, side by side in transverse and longitudinal rows, with the end coils of adjacent springs of one series of rows overlapping each other, helical spring wires extending between adjacent rows of the other series and encircling the said overlapping portions of adjacent springs, and approximately straight brace wires severally extending through the bore of certain of said helical spring wires, each of said brace wires piercing the aperture of one end coil of certain of said overlapping pairs of end coils, the internal diameter of the bore of the helical wire being only large enough to have several loops thereof snugly movably encircle the overlapped parts of two end coils and a straight brace wire but the piercing of one end coil by the brace wire within the encircling loops of said helical wire on a plane approaching the plane of the end coil operating to slightly distort the said pierced end coil and said brace wire whereby the said three encircled parts are held more closely by the helical wire and are prevented from snapping past each other and so from causing noise.

2. In a spring filling for mattresses and cushions, the combination of a plurality of coiled springs arranged on end, side by side in transverse and longitudinal rows, within top and bottom border wires with the edge springs having their top and bottom end coils secured to the adjacent top and bottom border wires respectively, with the end coils of adjacent springs of the longitudinal rows overlapping each other, transversely extending helical spring wires extending between adjacent rows of the transverse rows and encircling the said overlapping portions of adjacent springs and approximately straight transversely extending brace wires severally extending through the bore of certain of said transversely extending helical spring wires, each of said brace wires being threaded through the aperture of one end coil of certain of said overlapping pairs of end coils, the internal diameter of the bore of the helical wire being only large enough to have several loops thereof snugly movably encircle the overlapped parts of two end coils and a straight brace wire, but the so threading of the brace wire through one end coil within the helical wire loops operating to slightly distort the said encircled parts whereby they are held more closely by the helical wire and are prevented from snapping past each other and from causing noise.

TOWNSEND FOSTER.