

No. 822,999.

PATENTED JUNE 12, 1906.

J. G. SMITH.  
SPRING BED BOTTOM.  
APPLICATION FILED JUNE 15, 1904.

4 SHEETS—SHEET 1.

Fig.1.

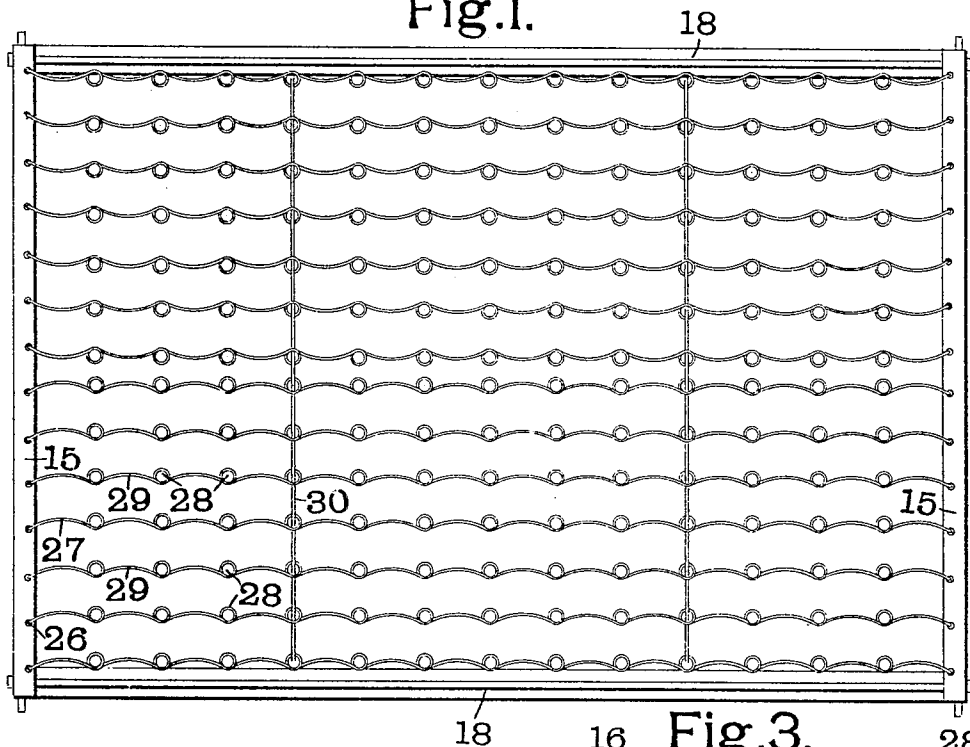


Fig.2.

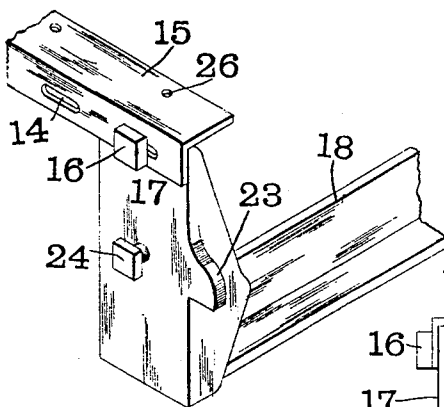


Fig.3.

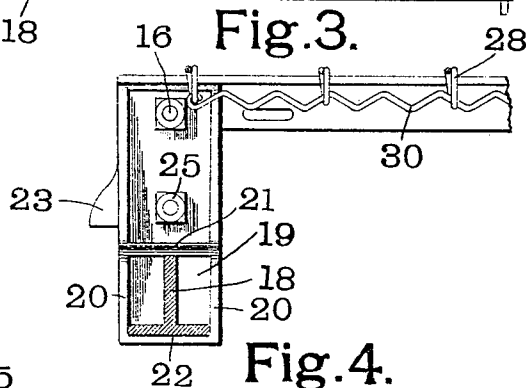
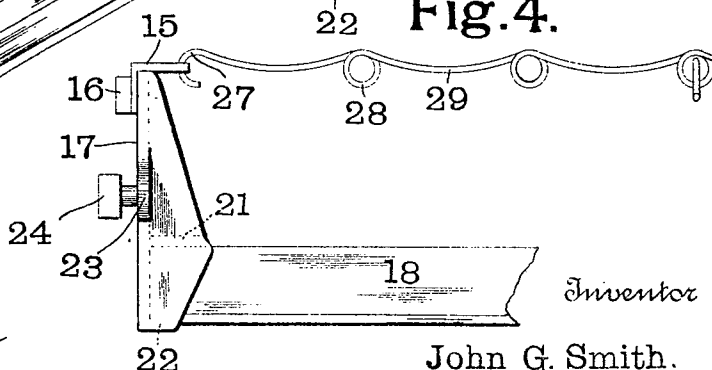


Fig.4.



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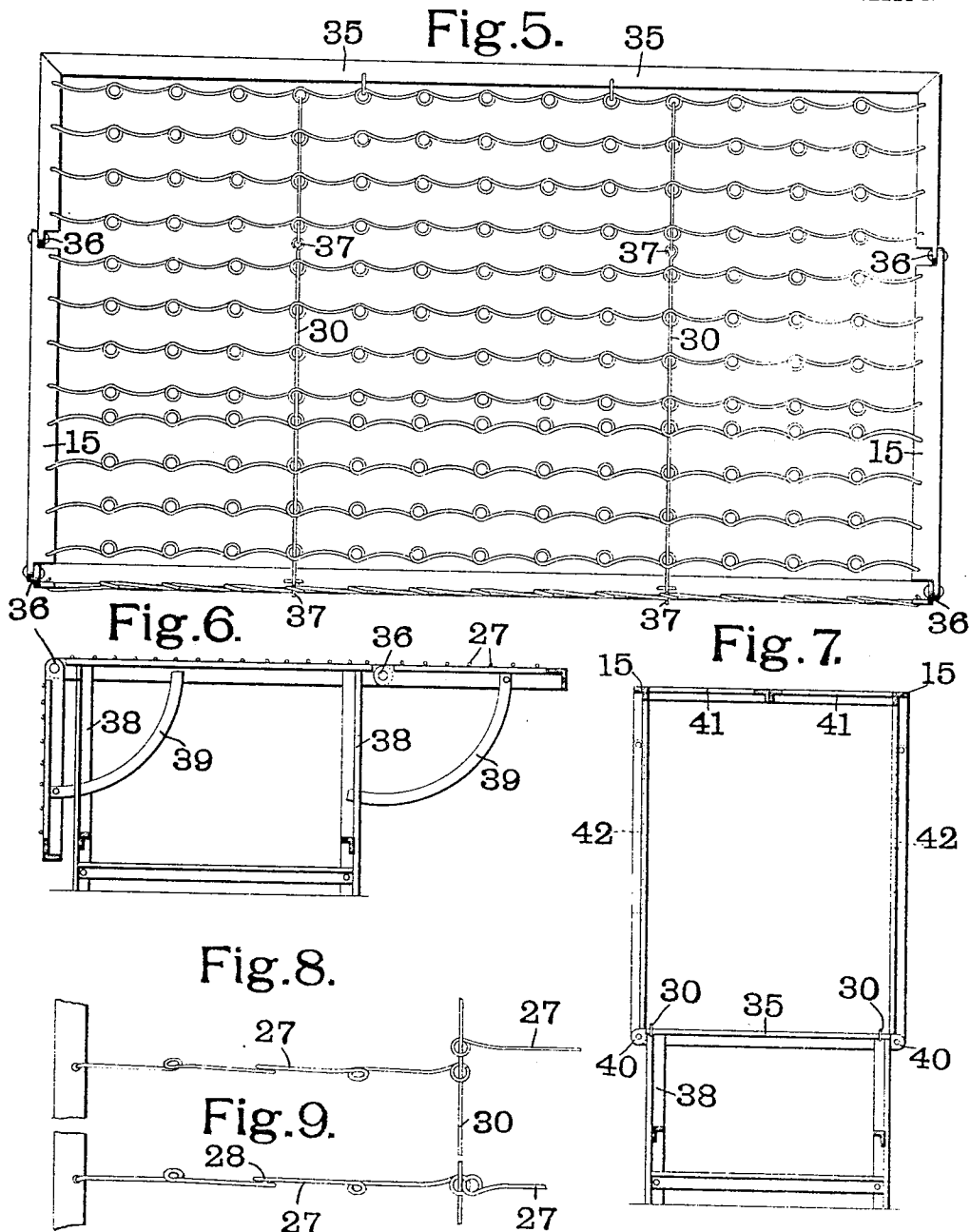
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig.10.

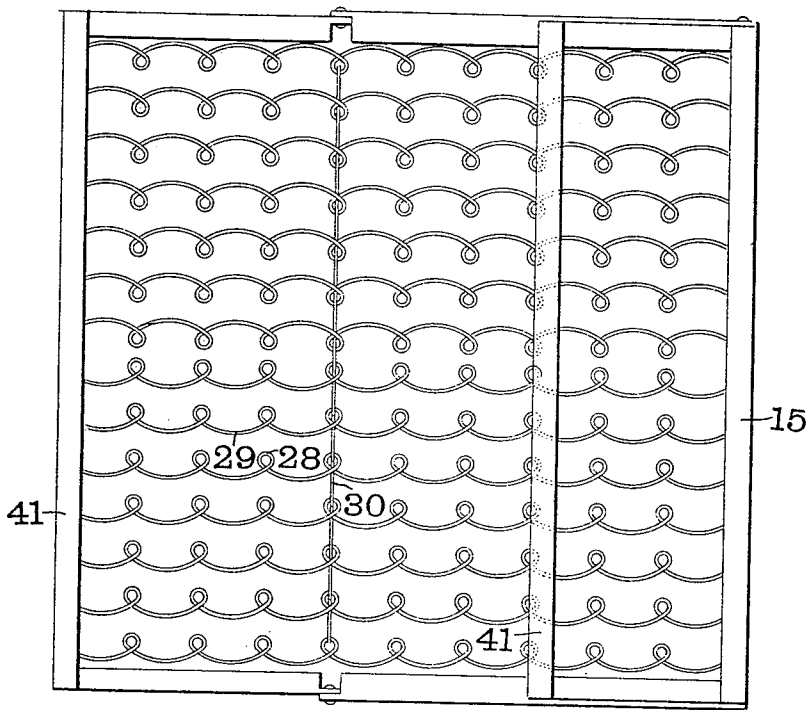
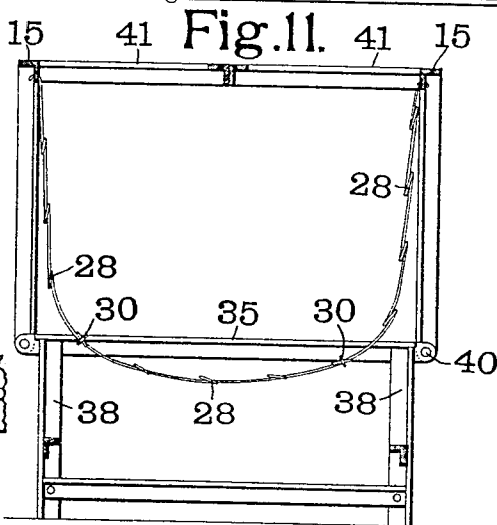
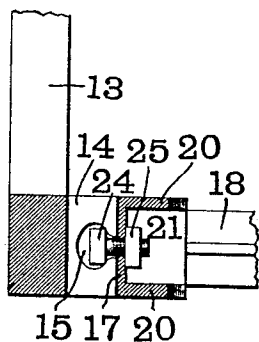


Fig.12.



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5 PDS.

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4 SHEETS—SHEET 4.

Fig.13.

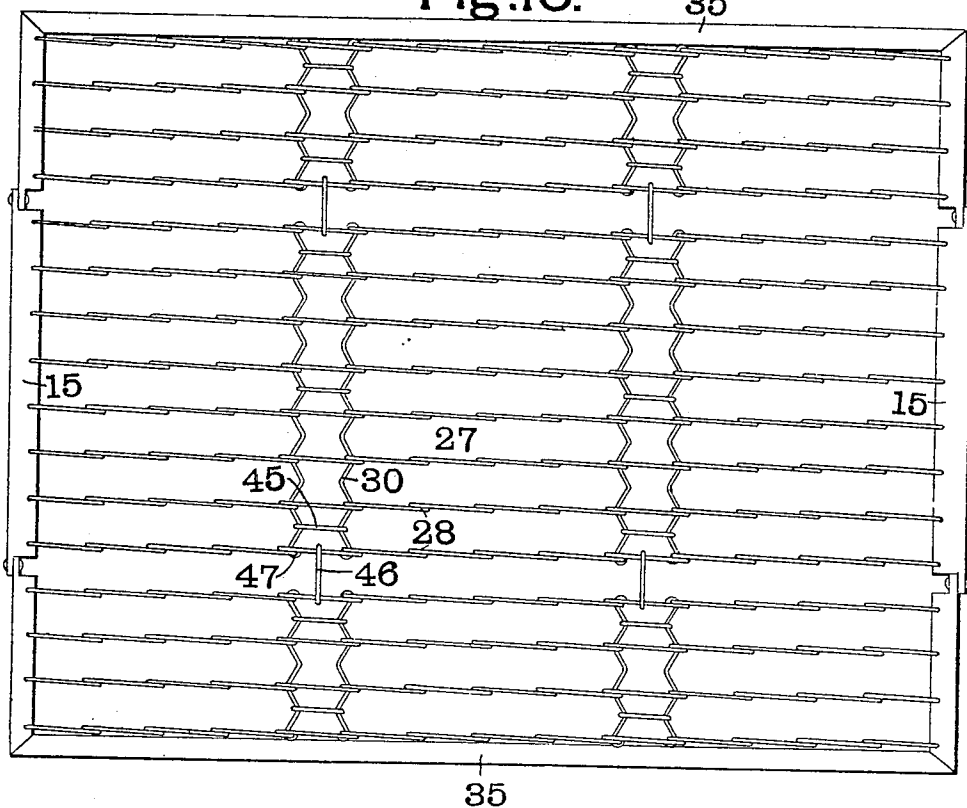


Fig.14.

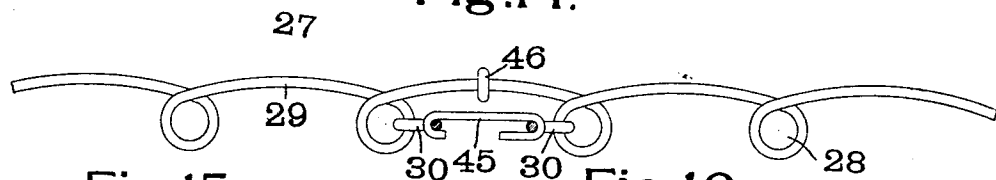


Fig.15.

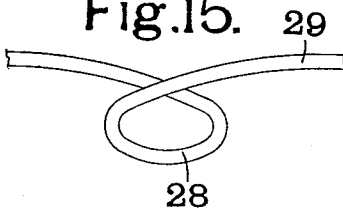
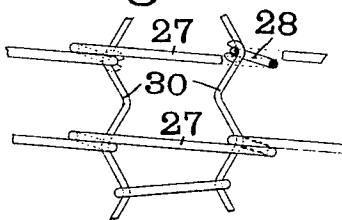


Fig.16.



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# UNITED STATES PATENT OFFICE.

JOHN G. SMITH, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR OF ONE-HALF TO AMERICAN BED COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## SPRING BED-BOTTOM.

No. 822,999.

Specification of Letters Patent.

Patented June 12, 1906.

Application filed June 15, 1904. Serial No. 212,608.

*To all whom it may concern:*

Be it known that I, JOHN G. SMITH, a citizen of the United States, residing at Chicago Heights, county of Cook, State of Illinois, have invented a certain new and useful Spring Bed-Bottom, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention consists in part in the combination, with a frame, of a plurality of substantially parallel spring-wires provided with loops and one or more corrugated wires extending substantially at right angles to said first-named wires and passing through the loops thereof.

My invention also consists in certain other novel features and details of construction, all of which will be described in the following specification and pointed out in the claims affixed hereto.

In the accompanying drawings, which illustrate some forms of spring bed-bottoms made in accordance with my invention, Figure 1 is a top plan view. Fig. 2 is an enlarged isometric projection of the corner of the frame shown in Fig. 1. Figs. 3 and 4 are an end view and a side view, respectively, of the parts shown in Fig. 2. Fig. 5 is a top plan view showing a modified form of bed-bottom. Fig. 6 is a cross-section of the form of bed-bottom shown in Fig. 5. Fig. 7 is a cross-section of the frame of a bed-bottom, showing a still further modification. Figs. 8 and 9 are detailed views showing the manner of forming the wire fabric for the formation of the bed shown in Fig. 7; and Fig. 10 is a top plan view showing a bed similar to that shown in Fig. 7, but provided with a modified form of fabric and having one end folded up. Fig. 11 is a cross-section of the bed shown in Fig. 10, both ends folded up. Fig. 12 is an enlarged view showing a detail of construction. Fig. 13 is a top plan view showing a modified form of spring bed-bottom. Fig. 14 is an enlarged view of the fabric shown in Fig. 13, and Figs. 15 and 16 are enlarged views showing modifications.

Like marks of reference refer to similar parts in the several views of the drawings.

Referring first to Figs. 1 to 4, 15 represents end rails preferably formed of angle-iron.

These end rails 15 are secured by means of bolts 16 to corner-pieces 17. These bolts 16 pass through slots 14 in the end rails 15, so as to adjustably secure the corner-pieces to the end rails. 18 represents the side rails preferably formed of T-iron. The ends of the side rails 18 are received in pockets 19 in the corner-pieces 17. These pockets 19 are formed by side flanges 20, a top flange 21, and a bottom flange 22. The corner-pieces and side rails may either be held in position simply by the tension of the wire fabric secured to the end rails 15, as will be hereinafter described, or the corner-pieces may be shrunk upon the ends of the side rails, so as to be practically formed integral therewith. 23 represents lugs extending from the sides of the corner-pieces 17. Each of the corner-pieces 17 is also provided with a hooded projection for securing it to the head or foot piece of an ordinary iron bed. This projection is preferably made of a bolt 24, passing through the back of the corner-piece 17 and secured in position by means of a nut 25, so that it is both removable and adjustable. 13, Fig. 12, represents a portion of the head or foot piece of the bed. The head or foot piece 13 is provided at each end with an inwardly-projecting portion 14, in which is formed a dovetailed opening 15. These openings 15 are usually about of the form shown in Fig. 12. They, however, vary considerably in size, so that a fixed projection would not fit the various sizes. Owing to the fact, however, that the projection 24 is adjustable, the projection may be used with any-sized opening, and the parts may be permanently drawn together by turning the nut 25. The end rails 15 have formed in them at regular intervals openings 26 to receive the end of longitudinal spring-wires 27. These spring-wires 27 have formed in them at regular intervals loops 28. The loops 28 are all turned in the same direction, and the portions 29 between the loops are curved. These portions 29 may either be curved in the same direction as the loops, as shown in Figs. 1, 4, and 5, or they may be curved in the opposite direction, as shown in Fig. 10. The direction in which the parts 29 are curved depends upon whether a stiffer or more elastic fabric is desired. If a stiffer fabric is desired, the parts 29 are curved in the same direction as the loops, as shown in Figs. 1, 4, and 5, while if a more elastic fabric is desired they are

curved in the opposite direction, as shown in Fig. 10.

30 designates corrugated transverse wires which pass through the loops 28 of the wires 27. These corrugated wires 30 are preferably two in number, as shown in Fig. 1 of the drawings, but more may be used, if desired. By the above-described construction, in which longitudinal wires provided with loops are supported only at their ends and a few intermediate points, with unconnected loops between the supporting-points, the bed will conform readily to the form of the occupant. This is owing to the fact that the unconnected loops between the supports can be depressed below the supported points of the fabric, while in all other wire-fabric beds of which I am aware if any two points in the length of the bed-bottom are depressed the portion of the fabric between said points will extend in a straight line. In forming the bed-bottom the wires 27 are placed in position with the loops vertical, as shown in Figs. 3 and 4, and the corrugated wires are passed through the loop and secured to the extreme side wires 27, after which the said wires 27 are twisted to bring the loops in a horizontal position, as shown in Fig. 1. The tension of the wires 27 thus holds the loops 28 firmly in engagement with the corrugations of the wires 30, and thus prevents any lateral displacement of the wires 27.

In Figs. 5 and 6 I have shown a modification which is similar to the bed shown in Fig. 1, except that in place of the side rails 18 side rails 35 are provided, which are in the same plane as the rails 15, and the side rails 15 are hinged or pivoted at 36, so that the bed may be folded. In order to allow the sides of the bed to be folded down, the transverse wires 30 are provided with hinges or joints 37. In this form of bed the bottom is supported by any suitable means, such as legs 38, (shown in Fig. 6,) and the sides of the frame may be supported by any suitable means, such as the curved guides 39.

In Figs. 7, 8, and 9 I have illustrated a form of bed in which the bed is folded transversely in place of longitudinally, as shown in Figs. 5 and 6. In this construction the side rails 35 are provided with hinges or pivots 40, so that the ends of the bed may be folded up, as shown in Fig. 7. The end rails 15 also preferably carry head and foot pieces 41. The ends of the frame may be supported by means of folding feet 42. In this construction in place of the corrugated wires 30 being jointed or hinged it is necessary to joint or hinge the looped wires 27. This may be done either as shown in Fig. 8 by hinging the parts of the strand 27 on the transverse wire 30, or it may be done, as shown in Fig. 9, by hinging one of the wires 27 to the said transverse wire 30 and hinging the other of the wires to the first-named wire 27. In either

case the frame, together with the wire fabric, can fold transversely. In making this form of bed-bottom it is necessary to twist the wires 27 in one direction at one end and in the opposite direction at the other end in order to hold the loops 28 in engagement with the corrugations of the wires 30 by the torsion of the said wires 27, and owing to this the loops will not lie in a horizontal plane, but will be disposed spirally around the wire, as shown in Figs. 8 and 9.

In Figs. 10 and 11 I have shown a bed similar to that shown in Fig. 7, in which, however, neither the longitudinal wires 27 nor the cross-wires 30 are pivoted or hinged. In this construction the longitudinal wires will be bent, as shown in Fig. 11, when the bed is folded up. As the bends, however, are not sharp, the longitudinal wires will not be injured.

My bed-bottom, while very simple in construction and cheaply manufactured, is very durable and has many desirable qualities. Owing to the formation of the curved portions 29 between the loops 28, especially when curved in a direction opposite to the loop, as shown in Fig. 10, the bottom will yield to a short distance with very little resistance; but after these parts have become substantially straightened and the loops 28 must be drawn together to allow the wires to yield further the resistance is very greatly increased. In case the wires 27 become stretched by use it is only necessary to place through the loops 28 some small implement, such as a nail or stiff piece of wire, and partially rotate the same in a vertical plane parallel with the wire. This will stretch the loops 28 apart and take up any slack in the wire. My wire fabric also has a great advantage in folding beds, such as shown in Figs. 5 and 6, as the corrugated transverse wires 30 hold the longitudinal wires in position so as to form sharp corners where the fabric is bent and also to hold the vertical parts of the fabric after it is folded rigidly in position, so that the said vertical parts act very much in the same manner as would a vertical solid portion.

In Fig. 13 I have shown a still further modification, in which the longitudinal wires 27 are arranged with the loops 28 in a vertical position in place of in a horizontal position, as in structures hereinbefore described. In this construction in place of using one cross-wire 30 at each point where it is desired to connect the longitudinal wires I use two of the said cross-wires passing through adjacent loops and connect these cross-wires by links 45, which firmly hold the cross-wires together, and consequently prevent lateral movement of the longitudinal wires. The ends of these cross-wires 30 are hooked around the loops 28 at 46. When the frame of the bed is hinged, as shown in Fig. 13, the

cross-wires 30 are separated at the point where the fabric is to bend, and the adjacent strands 27 may either be connected by links 47, as shown in Figs. 13 and 14, or the adjoining cross-wires 30 may be hooked around the loops 28 of the same strand, as shown in Fig. 16.

In Fig. 15 I have shown a modification in which the loop 28 in place of being circular is elongated in the direction of the wire. With this construction there is less tendency to bend the loop at its lower portion, and consequently this construction is used when it is desired to have the strand bear a greater load than is possible with the loop made circular.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a spring bed-bottom, the combination with a frame, of a plurality of substantially parallel longitudinal spring-wires provided with loops, and one or more cross-wires passing through the loops of said first-named wires, said cross-wires being provided with means for spacing said first-named wires.

2. In a spring bed-bottom, the combination with a frame, of a plurality of substantially parallel spring-wires provided with loops and extending longitudinally of said frame, and one or more corrugated wires extending substantially at right angles to said first-named wires and passing through the loops thereof.

3. In a spring bed-bottom, a combination with a frame, of a plurality of substantially parallel spring-wires provided with loops and extending longitudinally of said frame, a pair of cross-wires extending substantially at right angles to said first-named wires and passing through the loops thereof, and connections between said second-named wires for holding them in position.

4. In a spring bed-bottom, the combination with a frame, of a plurality of substantially parallel spring-wires provided with loops and extending longitudinally of said frame, a pair of corrugated cross-wires extending substantially at right angles to said first-named wires and passing through the loops thereof, and connections between said

second-named wires for holding them in position.

5. In a spring bed-bottom, the combination with a hinged frame, of a plurality of substantially parallel spring-wires provided with loops, one or more corrugated wires extending substantially at right angles to said first-named wires and passing through the loops thereof, and hinges in the wires corresponding to the hinges in said frame.

6. In a spring bed-bottom, the combination with a frame hinged at its ends, of spring-wires extending longitudinally thereof and provided with loops, one or more wires extending transversely of said frame and passing through said loops, and hinges in said latter wire or wires.

7. A spring bed-bottom composed of longitudinal-extending spring-wires provided with loops, supports for the ends of said wires, one or more cross-supports formed of corrugated wires extending through the loops of said longitudinal wires and connecting the same, said longitudinal wires having unconnected loops between said supports.

8. A spring bed-bottom composed of longitudinal spring-wires each provided with a plurality of loops, supports for the ends of said wires, and one or more cross-supports connecting said wires, each of said cross-supports being composed of two connected wires passing through the loops of said first-named wires, said first-named wires having unconnected loops between said supports.

9. A spring bed-bottom composed of longitudinal spring-wires each provided with a plurality of loops, supports for the ends of said wires, and one or more cross-supports connecting said wires, said cross-supports each consisting of two connected corrugated wires passing through the loops of said first-named wires, said first-named wires having unconnected loops between said supports.

In testimony whereof I have hereunto set my hand and affixed my seal in the presence of the two subscribing witnesses.

JOHN G. SMITH. [L. s.]

Witnesses:

D. C. BETJEMAN,  
M. L. BONFILS.