No. 817,954. PATENTED APR. 17, 1906.

C. D. BROUYETTE.

SPRING BRACE.

APPLICATION FILED FEB. 18, 1902.

2 SHEETS—SHEET 1.

Fig. 1.

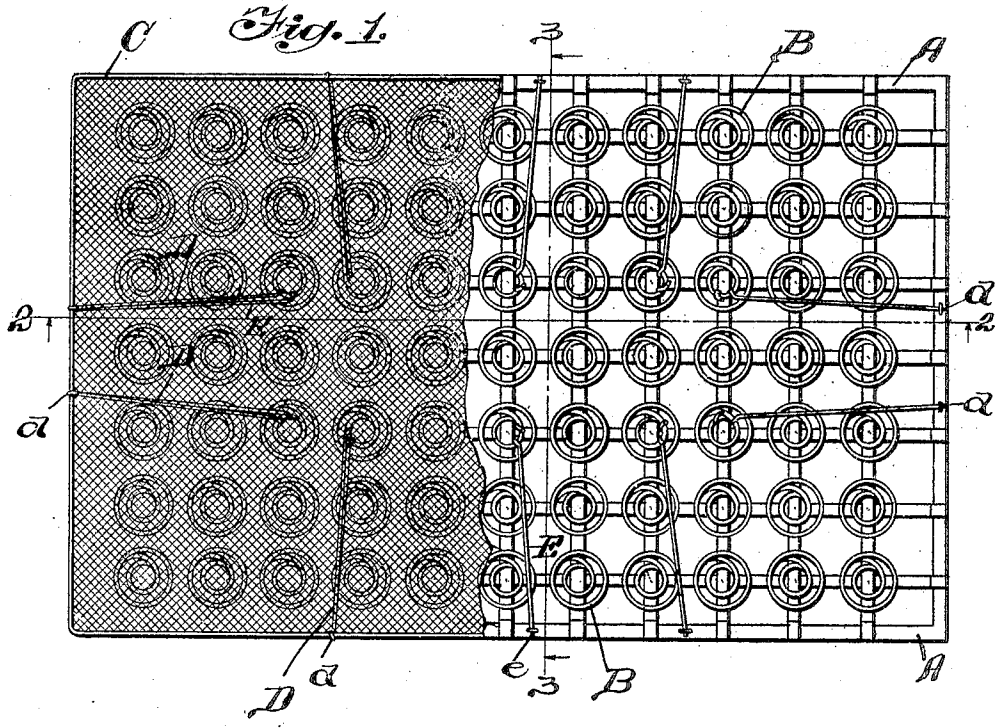


Fig. 2.

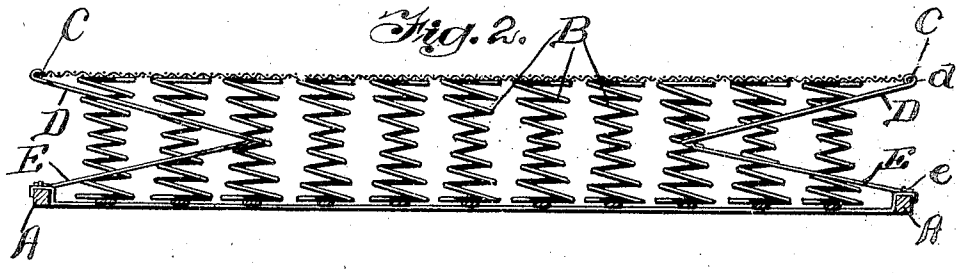
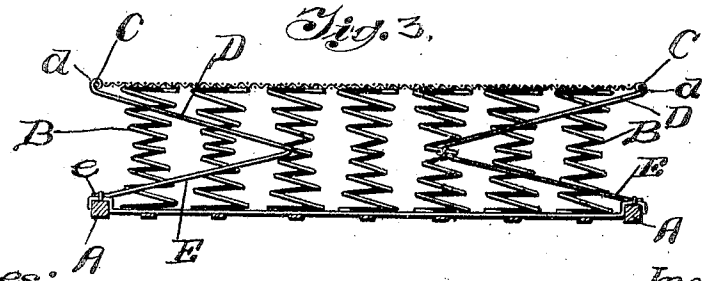


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

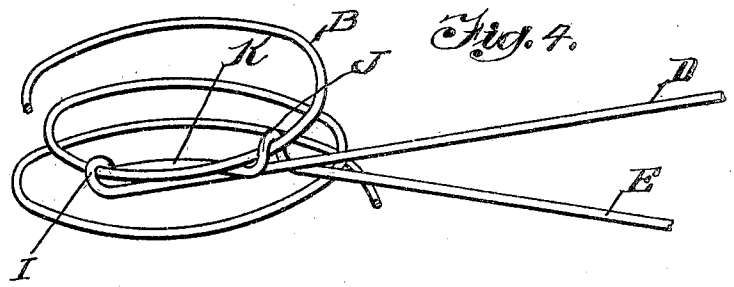


Fig. 5.

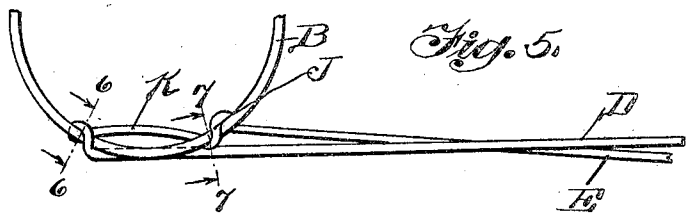


Fig. 6.

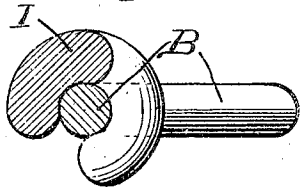
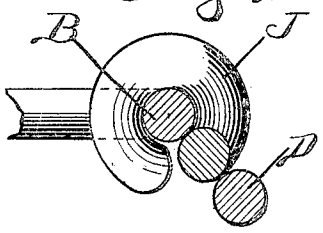


Fig. 7.



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UNITED STATES PATENT OFFICE.

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SPRING-BRACE.

No. 817,954. Specification of Letters Patent. Patented April 17, 1906.

Application filed February 18, 1902. Serial No. 94,576.

To all whom it may concern:

Be it known that I, CHARLES D. BROUYETTE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring-Braces, of which the following is a specification.

The object of my device is to provide means for preventing the lateral displacement of springs used in the construction of bed-bottoms or couch-bottoms and in all other places where springs are similarly used for analogous purposes. This and such other objects as may hereinafter appear are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a spring-bottom fitted with my improved brace, the figure showing part of the covering fabric broken away. Fig. 2 is a longitudinal view through Fig. 1 on the line 2 2 looking in the direction indicated by the arrows. Fig. 3 is a like view on the line 3 3 of Fig. 1 looking in the direction indicated by the arrows. Fig. 4 is a perspective view of a portion of a spring, showing the inner end of my brace attached thereto. Fig. 5 is a plan view. Fig. 6 is a sectional view on the line 6 6 of Fig. 5 looking in the direction indicated by the arrows. Fig. 7 is a sectional view on the line 7 7 of Fig. 5 looking in the direction indicated by the arrows.

Like letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A represents a supporting-frame upon which the springs are mounted. Mounted upon and attached to the supporting-frame A are springs B, which for convenience have been shown in the drawings as a familiar form of coil-spring; but my device is adapted for use in connection with any suitable form of spring. C represents the upper frame of the spring-bottom and is carried by the springs B in any suitable manner, such as by means of woven-wire fabric, which rests upon and is attached to the springs, as shown, for instance, in Fig. 1. D and E are the upper and lower members, respectively, of my improved brace.

In the simplest form of my invention my brace consists of a single wire sufficiently heavy to be effective as a brace against strains directed longitudinally against it, and yet sufficiently flexible to permit of the ends thereof to be brought toward each other after the brace has been bent to a V shape without resulting in any undesirable permanent set. When my brace is made in this form, the brace-wire is bent substantially midway between its ends into a V shape. At the bottom of the V the wire is bent into engagement with one of the springs in any suitable manner—such, for instance, as is shown in Figs. 4, 5, 6, and 7. The upper end *d* is attached to some portion of the upper framework, which rests upon the springs, and the lower end *e* is attached to the supporting-frame. When so constructed, it will be seen that there can be no lateral displacement of the framework C, and so of the springs attached thereto, without swinging the lower arm E downwardly, and so depressing the bottom of the V formed by my brace-wire, and thereby compressing the lower half of the spring to which it is attached, while at the same time putting the upper half of said spring under an abnormal tension. As a result of these opposing forces it is found that the leverage exerted by the force tending to laterally displace the frame C is applied so indirectly in a direction to compress the spring to which the brace-wire is attached that it is insufficient to overcome the opposing force of the spring, and so the desired lateral rigidity of the spring-bottom is maintained. This rigidity is further promoted by arranging a number of these braces on opposite sides of the spring-bottom, as shown in Figs. 1, 2, and 3. When so arranged, the displacing force when exerted so as to push against one edge of the frame C will be transmitted through the frame C to its opposite side, where it becomes a pull against the brace or braces attached to the opposite side of the framework, and so the force tending to laterally displace the framework C is further resisted by the opposing force of the springs to which these oppositely-situated braces are attached.

Obviously the brace need not necessarily consist of but one wire; but the arms D and E may be separate members so long as they are connected at their inner ends.

Where my improved brace is made of a single wire, bent to the form of a V and attached at the small end of the V to a coil-spring, it is desirable that the attachment of the brace-

wire to the coil-spring shall be a rigid attachment. Otherwise the brace-wire will have a tendency to slide upon the coil of the spring to which it is attached. While this might be theoretically desirable, in order to allow a small degree of lateral movement of the inner end of the brace without any tendency to displace the spring to which it is attached, this advantage will in actual use be more than offset by the fact that it would result in an annoying amount of noise, as the wires would scrape along the spring-coils whenever the springs were compressed. To avoid such a sliding and noisy attachment, I attach the brace-wire to the spring-coil in such a manner that the brace-wire shall be looped about the same spring-coil at two points, a portion of the brace-wire extending from one of said loops to the other and being slightly flexed therebetween, so as to act as a spring, the constant tension of which shall be in a direction to cause each of said looped engagements to grip the spring-coil. Thus the loops engaging the spring-coil are under a constant spring tension exerted in a direction to cause said loops to bite the coil about which they are bent. This result may be accomplished in several ways, one such way being shown in Figs. 4 and 5.

In Figs. 4 and 5, B represents the spring-coil, which is engaged by the loops I J of the brace-wire D, between which loops extends the portion K, which instead of extending in a straight line, so as to form a chord of the circle described by the coil B, is slightly flexed without being bent, so that its tendency will be to spring into a straight line, but being held in flexed position by the engagement between the loops I J with the coil B. The portion K is kept under a continual tension, which, as before stated, is exerted in a direction to cause the loops I J to firmly bite the coil B.

Of course it is not necessary that the outer ends of the members of my improved brace shall be attached directly to either the upper or the lower frames of the spring-bottom, as they may as effectively be attached to any of the cross-wires or cross-bars of these frames. These and similar variations, which will readily suggest themselves, are within the scope of my invention and are contemplated thereby.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a spring-bottom, the combination with a spring, of a brace having a portion thereof bent into engagement with said spring at two points, and a spring arranged to extend, under stress, between said bent portions, so as to cause the same to grip said spring, substantially as described.

2. In a spring-bottom, the combination with a spring, of a brace having a portion thereof bent into engagement with a coil of said spring at two different points, and having a portion thereof extending under tension between said points of engagement so as to cause said bent portions to grip said coil, substantially as described.

3. In a spring-bottom, the combination with a coil-spring, of a brace comprising two loops bent to engage a coil of said spring, and a spring extending under tension between said loops, and so arranged that the tension thereof will cause said loops to grip said coil, substantially as described.

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