

(No Model.)

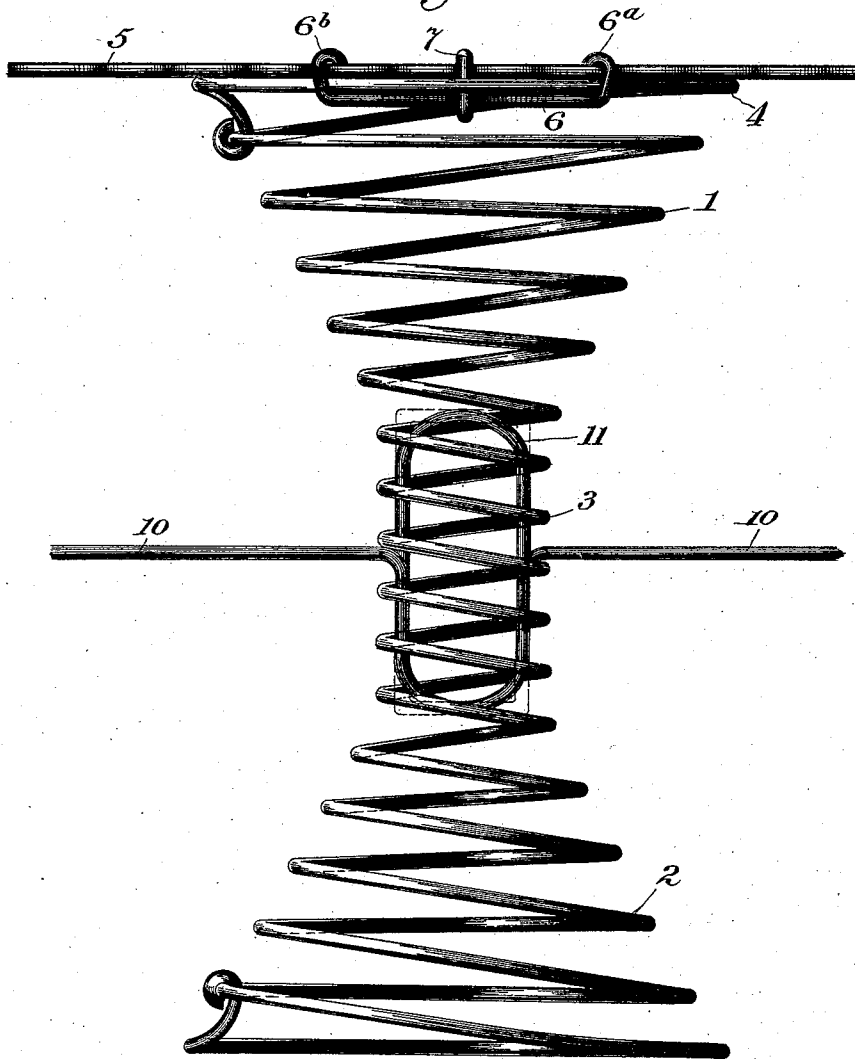
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J. A. STAPLES.
UPHOLSTERY.

No. 572,581.

Patented Dec. 8, 1896.

Fig. 1.



WITNESSES:

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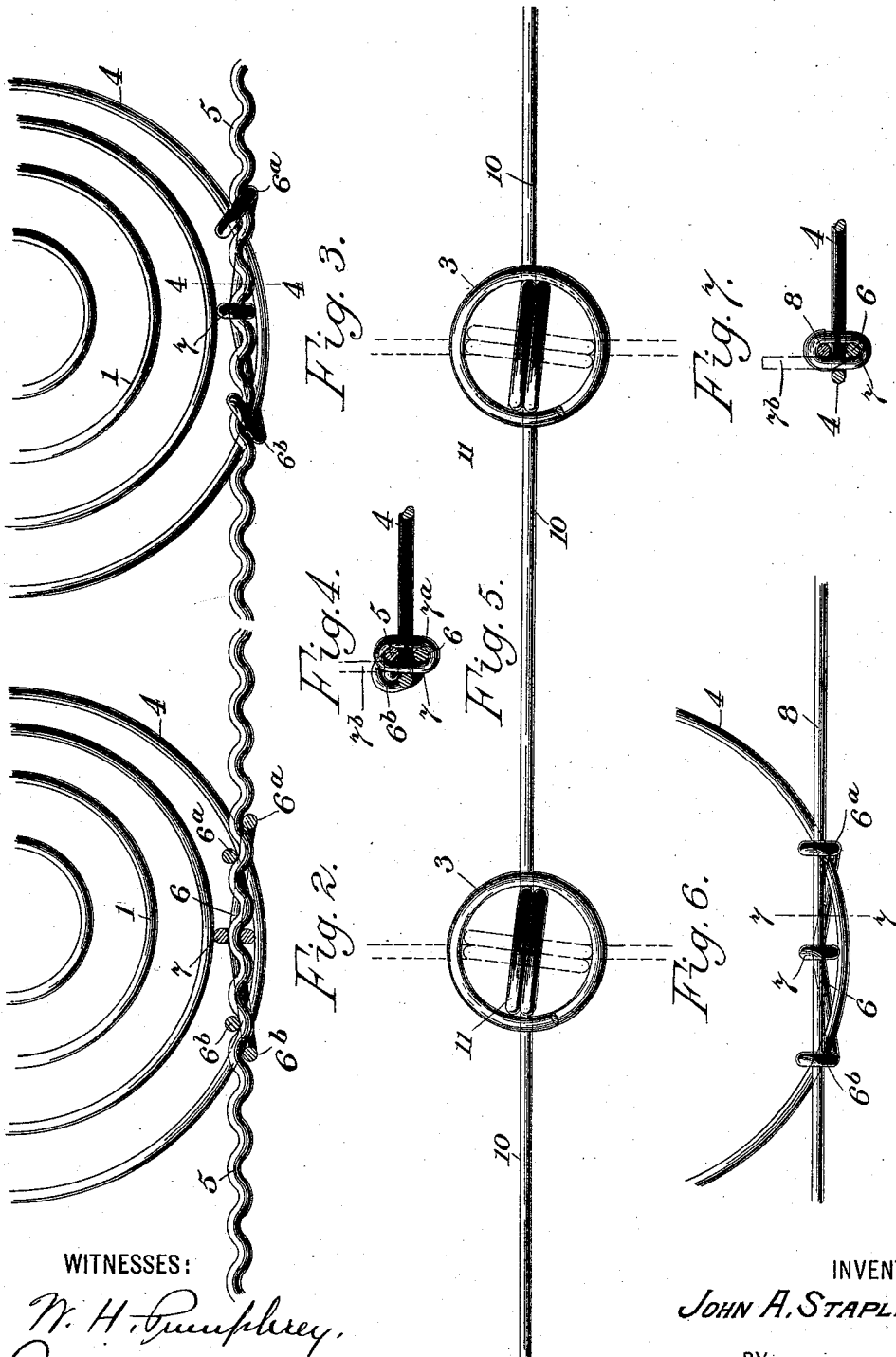
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UNITED STATES PATENT OFFICE.

JOHN A. STAPLES, OF NEWBURG, NEW YORK.

UPHOLSTERY.

SPECIFICATION forming part of Letters Patent No. 572,581, dated December 8, 1896.

Application filed February 19, 1896. Serial No. 579,930. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN A. STAPLES, a citizen of the United States, residing at Newburg, in the county of Orange and State of New York, have invented certain new and useful Improvements in Upholstery, of which the following is a specification.

My present improvements are intended to simplify and improve the springwork in upholstery, spring-beds, car-seats, &c. The coil-springs employed in this class of upholstery are usually built up or supported upon a foundation of wooden or metal slats, or bands of suitable webbing, the tops of the springs being interlaced or secured to each other by means of wire clips, chains, or cords. In addition to securing the springs together at the top it is necessary in all cases of what is known as "spring-edgework" to provide a bracing or strengthening wire along the outside edge of the upper rims or coils of the springs, connecting their outside diameters one to the other and forming an edge upon which the upholstery is built. In ordinary upholstered furniture this edge-wire brace is simply a straight wire to which the upper spring-coils are secured at the points of contact by means of cords or small wires. It has been suggested to secure the springs to the edge-wire brace by means of clips of various kinds, but in all such cases there has been a tendency for the edge wire to become displaced by reason of the slipping of the connections between it and the springs. When long double-cone springs are employed, there is, in addition to the slipping tendency just referred to, a tendency for the centers of the springs to buckle or bend out of line when they are subjected to heavy pressure. I obviate these objections in upholstery-springwork by my present improvements. For the purpose of securely fastening the upper coils of the springs to the edge-wire frame or brace I provide a double-ended clip formed of a single wire or metal strip having open-ended loops at its opposite ends and adapted to embrace a segment of the upper coil of the spring and the edge-wire brace for securing them together. The clip is preferably formed with a central depression or notch for the engagement of a pin or wire which passes be-

tween the spring-coil and the clip and edge wire. This pin or wire is preferably formed in the shape of a J in order that it can be readily inserted and have its upper end bent over to form a closed loop for closely securing the edge wire and clip together. In this way I am enabled to locate or secure a spring at any point along the edge wire and fasten it in place without any possibility of its being afterward displaced. I prefer to employ an edge wire of a regular corrugated shape, as this form will hold the springs in place and at the same time provide depressions for the engagement of the clip and fastening pin or loop, doing away in a measure with the objectionable lumps or projections produced by securing the parts together with the wire clip or straight wire now commonly employed.

For the purpose of preventing the buckling of the central parts of the long double-cone springs I provide one or more central bracing-wires, extending transversely through the central parts of the long springs and formed with bent portions or loops, which are embraced and engaged by the central portion of the spring. Any number of these improved brace wires or rods may be employed by forming the loops of such relative size that they will fit one within another, the loops being preferably formed so as to extend both above and below the line of the bracing-wire. The loops may be either oval or rectangular in shape.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings, and afterward point out the novelty with more particularity in the accompanying claims.

In said drawings, Figure 1 is a side elevation of a large double-cone spring having my improved bracing-rods applied thereto. Fig. 2 is a detail sectional plan showing the corrugated-edge-wire brace secured to the top coil of a spring by my improved clip. Fig. 3 is a detail plan of the same. Fig. 4 is a detail sectional elevation taken on the line 4 4 of Fig. 3. Fig. 5 is a detail sectional plan showing the central portions of two double-cone springs braced together by my improved bracing-rod. Fig. 6 is a detail plan view illustrating the application of my improved

clip for securing the upper coil of a spring to a straight-edge-wire brace. Fig. 7 is a detail sectional view taken on the line 7 7 of Fig. 6.

The double-cone spring shown in Fig. 1 comprises the upper portion 1, lower portion 2, and the connecting cylindrical portion 3, formed of four or five convolutions of the spring.

4 is the top coil of the upper portion of the spring, to which the edge-wire brace is to be attached.

5 is a corrugated-edge-wire brace. (Shown in Figs. 1, 2, 3, and 4.)

6 is my improved double-ended clip formed of a single wire and having at its opposite ends the open loops 6^a and 6^b. The clip 6 is slipped into engagement with the corrugated-edge-wire brace 5, and the latter is placed above the upper coil 4 of the spring, so that the main or body portion of the clip will engage a segment of the coil, as clearly illustrated. A pin is then forced between the coil 4 of the spring and the edge-wire brace and clip. As shown in the drawings, 7 is a pin or wire formed, preferably, of J shape. (The upper end of the pin or wire is represented in dotted lines before it is bent into place.) The pin 7 is slipped up from below with its lower bent end 7^a engaging the body of the clip and its pin portion extending between the coil 4 of the spring and the clip and edge-wire brace. The upper portion 7^b (indicated in dotted lines) is then bent over, as indicated in full lines in Fig. 4, to form a closed loop and secure the clip and edge-wire brace together.

It will be found that the clip 6, secured in place, will rigidly hold the spring in place on the edge-wire brace, and should it be desired to remove the spring or change its position all that is necessary is to remove the pin or wire 7.

It will be observed that I have shown the clip 6 with a depression midway between its ends in order to facilitate the insertion of the pin 7 between it and the coil 4 to assist in holding the parts in position.

When the corrugated-edge-wire brace is employed, it will be observed that one of the depressions or corrugations of the brace will coincide with the depression in the clip, further insuring the rigidity of the fastening.

In Figs. 6 and 7 the clip 6 is of the same form, with the exception that the lower ends 6^a and 6^b are slightly different in shape to facilitate their engagement with a straight-edge-wire brace 8. The clip is secured in place in this instance by a pin 7 of the same form as in Figs. 2, 3, and 4. In Fig. 7 the dotted lines indicate the upper end of the pin 7 before it is bent over into engagement with the edge-wire brace-rod.

Aside from the fact that the corrugated-edge-wire brace is more readily secured to the upper coils of the springs, it forms a stiffer brace-wire and provides sufficient resistance to counteract the tendency of the springs to

pull the edge wire in and bend it. As above stated, the corrugations form recesses or depressions into which the loop ends of the clip and the pin or wire 7 engage, obviating the objectionable projections or lumps.

I will now describe the brace for preventing the buckling of the central cylindrical portion of the large double-cone springs.

10 is a brace wire or rod extending transversely through the central cylindrical convolutions of the double spring and having within the cylindrical convolutions 3 the loop 11. The loop 11 extends, preferably, above and below the line of the wire 10 and fits closely within the cylindrical convolutions 3 and engages them so as to hold the central part of the spring in line with the ends. The loop 11 may be of oval shape, as shown in full lines, or rectangular, as indicated by dotted lines in Fig. 1. It will be observed from Fig. 5 that I form as many loops 11 in the brace-wire 10 as is necessary to engage the springs in a particular line. The brace-wires 10 may extend in any desired direction, and for the purpose of bracing the springs in different directions I may provide two or more of the braces for each spring, the loops being formed of such relative length that they can fit one within another within the cylindrical portion of the spring, as indicated in dotted lines in Fig. 5.

I am aware that other devices have been provided for supporting the cylindrical portions of double-cone springs in line with the ends, such, for instance, as straps of iron or steel. These devices have objections which are overcome by my improved brace, which extends from center to center of the springs and embraces all the springs relatively. The portion of the brace which is bent to form the loops is bent at approximately right angles to the brace-rod, and the loops are of slightly smaller diameter than the convolutions of the coil within which they rest, so that the engagement is a close one.

It will be observed that in applying the brace to a spring the projecting ends of the wire are inserted between the opened top coils of the spring and the spring is revolved until the loop portion is brought to the central cylindrical part. When several braces are applied to a spring, it is not necessary that the tops of the loop portions touch each other, as they depend entirely upon their engagement with the coils of the springs for maintaining their position.

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

1. The combination of a spring, with a brace-wire formed with a loop extending above and below the brace-wire and fitting within and engaging the spring interiorly, substantially as set forth.

2. The combination of a spring formed with a cylindrical portion, with a brace-wire extending transversely through the cylindrical

portion and having a loop extending above and below the brace-wire and fitting closely within and engaged by the cylindrical portion of the spring, substantially as set forth.

5 3. The combination of a spring, with two or more brace-wires extending through the spring at an angle to each other and formed with bent portions or loops extending above and below the brace-wire and which closely
10 fit within the spring one within the other and brace the spring in several directions, substantially as set forth.

15 4. The combination of a double-cone spring having a central cylindrical portion, with a brace-wire extending transversely through the cylindrical portion of the spring and formed with a loop which fits closely within and is engaged by said cylindrical portion, substantially as set forth.

20 5. The combination of a spring, with an edge-wire brace, a clip adapted to engage the brace-wire and a segment of the top coil of the spring, and a pin or wire engaging between the clip and spring-coil, as set forth.

25 6. The combination of a spring, with an edge-wire brace, a double-ended wire clip adapted to engage the brace and a segment of the top coil of the spring, and a bent pin

or loop embracing the clip and brace-wire and engaging between them and the spring-coil, 30 as set forth.

7. The combination of a spring, with an edge-wire brace, a double-ended clip engaging the brace and a segment of the top coil of the spring, said clip being formed with a central depression or notch, and a pin or wire 35 seated in said notch or depression and engaging the spring-coil, as set forth.

8. The combination of a spring, with an edge-wire brace, and a clip adapted to secure 40 the brace to a coil of the spring, said clip comprising a single wire or metal strip having open loop ends, as set forth.

9. The combination of a spring, with a corrugated-edge-wire brace, a double-ended clip 45 engaging the corrugated-wire brace and a segment of the upper coil of the spring, and formed with a central notch or depression, and a pin or wire engaging the notch or depression and a notch of the corrugated brace- 50 wire, as set forth.

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Witnesses:

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