

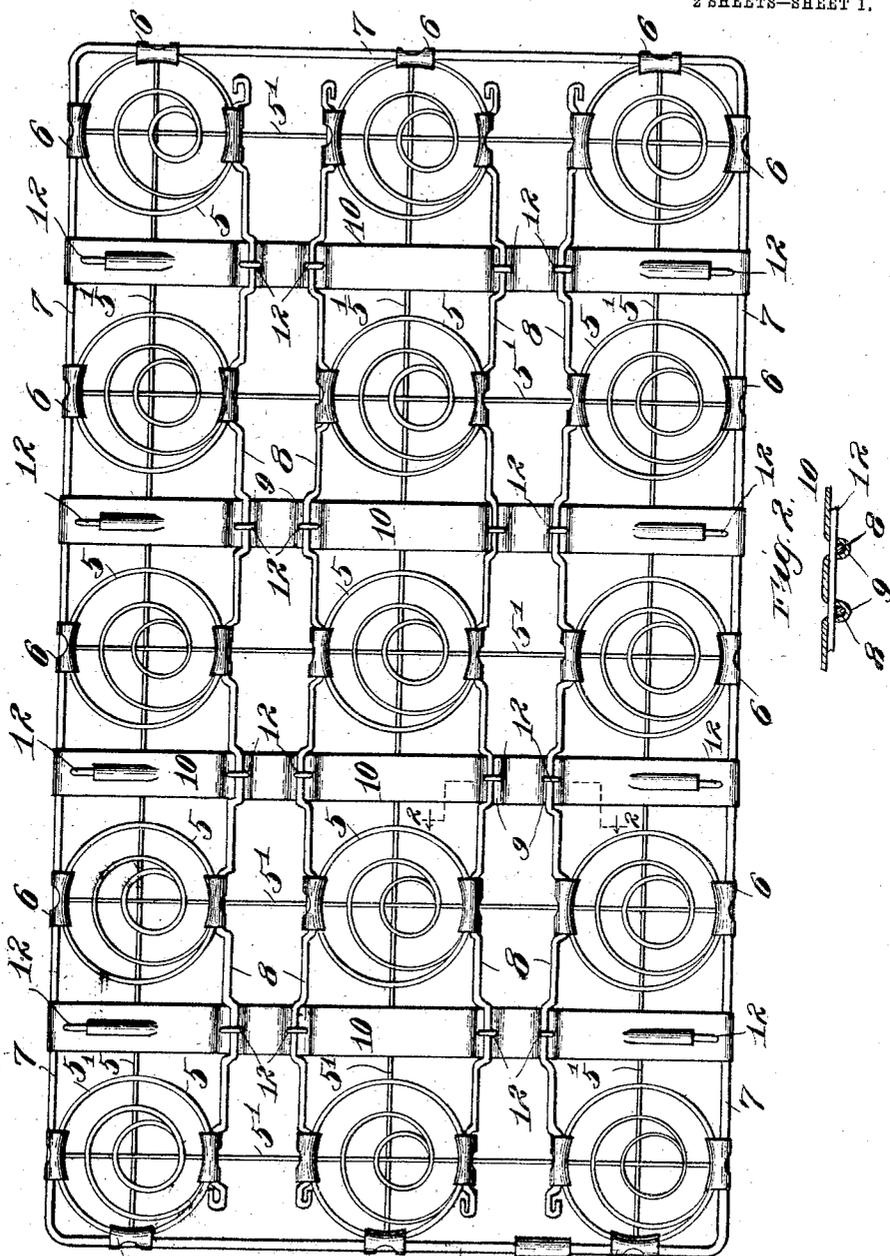
J. A. STAPLES.
 SPRINGWORK.
 APPLICATION FILED JUNE 15, 1908.

902,011.

Patented Oct. 27, 1908.

2 SHEETS—SHEET 1.

Fig. 1.



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 John A. Staples,
 Robert M. Roberts,
 his Attys

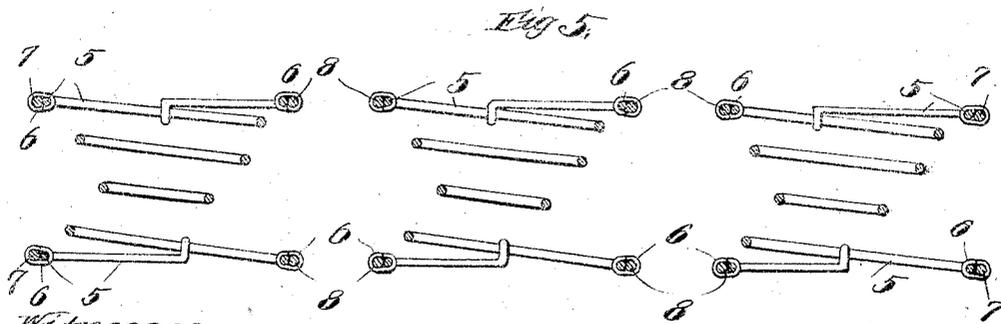
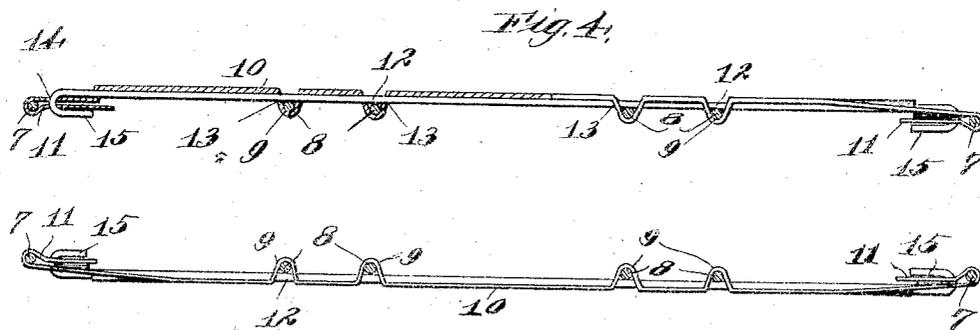
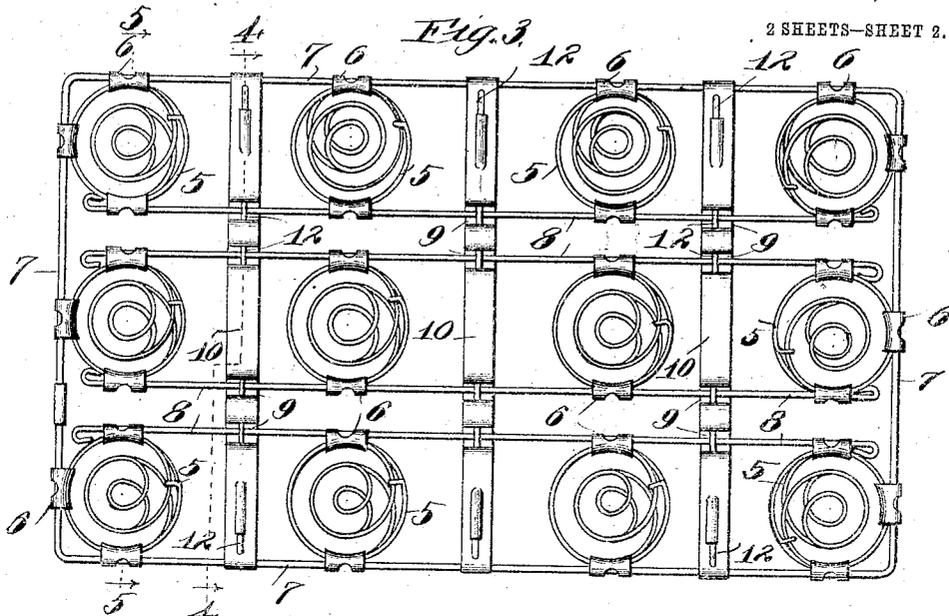
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN A. STAPLES, OF NEWBURGH, NEW YORK.

SPRINGWORK.

No. 902,011.

Specification of Letters Patent.

Patented Oct. 27, 1908.

Application filed June 15, 1908. Serial No. 438,508.

To all whom it may concern:

Be it known that I, JOHN A. STAPLES, a citizen of the United States, residing at Newburgh, in the county of Orange and State of New York, have invented certain new and useful Improvements in Spring-work, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to spring-work for spring-beds, sofas, sofa-beds, chairs and all articles of furniture in which springs are employed, and the invention consists in the arrangements and organizations of parts hereinafter particularly described and then pointed out in the appended claims.

In the accompanying drawing, in which like numerals refer to similar parts in the several figures, Figure 1 is a top plan view of a section of spring-work made in accordance with my invention; Fig. 2 is a detail sectional view on the line 2—2 of Fig. 1; Fig. 3 is a top plan view of an embodiment of my invention with certain modifications; Fig. 4 is a sectional view on the line 4—4 of Fig. 3, and Fig. 5 is a similar view on the line 5—5 of Fig. 3.

In the embodiment of my invention I may employ any suitable form of springs 5 as the single cone springs supported on corrugated wires 5' as in Fig. 1 or the double cone or hour-glass springs as in Figs. 3 to 5, and as the top and bottom coils of these hour glass springs are secured in identically the same manner and in the manner in which the top coils of the single cone springs are connected, it will be only necessary to describe the method of fastening the top coils for a proper understanding of the erection of the complete structure. It is also to be understood that when the hour-glass springs are assembled in a manner to be hereinafter made plain and the structure is in its complete form, the top and bottom are identical, and it is obvious that by reason of this fact, as in the case of spring-work for beds, not only may the top and bottom be used interchangeably but also the head and foot may be thus used, thereby adding to the life of the structure and providing a more comfortable spring-work.

In carrying out my invention the top coils of the springs are connected by clips 6, or in any other suitable manner, to a border-wire 7 and to connecting or supporting-wires 8, which run longitudinally or transversely of

the structure as preferred and are disposed in pairs slightly spaced apart between the coils. These supporting-wires may or may not be secured to the border wire and are carried in seats 9 formed in metallic supports or brace strips 10 extending transversely or longitudinally of the structure and of predetermined length so that they will come out evenly with the border-wire. The strips may be secured to the border-wire by any suitable means though preferably by bending their ends to form loops or hooks 11 around the border-wire as shown in Fig. 4 for example. The supporting wires may be of any suitable form such as either plain in their intermediate portions as in Figs. 3 and 4 or provided with seats or offsets at the points where the coils are attached or where the wires fit into the seats in the braces, as shown in Fig. 1. The seats prevent the strips 10 from slipping on the wires, and also prevent the wires from slipping on the springs, as will be apparent from a consideration of Fig. 1.

In order to prevent accidental dislodgment of the supporting-wires from the seats in the braces, I provide means to lock them in place, and while this may of course be accomplished in a variety of ways I preferably employ a length of wire running substantially the length of the brace and forming a key 12, which is strung along the under face of the strips 10 and through slots or openings 13 in the down side walls of the seats 9 and above the supporting wires, as shown in Figs. 1, 2, 3 and 4. Each end of the keys passes upwardly through the strips near their ends and then downwardly through suitable openings 14 in the hooked ends of the strips and is formed into a hook 15 making a lock for the hooks 11 to lock the strips to the border-wire and prevent accidental displacement, as clearly shown in Fig. 4 for example.

While the ends of the supporting-wires may or may not be secured to the border-wire, in the forms shown they are not so secured and so do not make a knot or rough projection as they otherwise would, but are horizontally bent to form blunt ends to prevent damage to whatever may be placed on the structure, as, for instance, a mattress, and the border-wire, strips 10, supporting-wires 8, and the top coils lie in substantially the same horizontal plane. It is of course understood that the form of connecting-wire 8 illustrated in Fig. 1 in connection with sin-

gle cone springs may be employed, if desired, in connection with the other form of springs shown in Figs. 3 to 5, and that any form of spring may be used as desired.

5 The device may be furnished in knock-down form and may be readily assembled by unskilled workmen. The strips with the seats at predetermined intervals and varying in number according to the number of
10 springs intended to be employed in the structure may be shipped in bundles, as may also the keys which are cut to suitable lengths. In assembling the structure the springs are placed in position and their top coils secured
15 to the border-wire and the strips 10 positioned transversely or longitudinally thereof as preferred and midway between the springs and secured to the border-wire by bending their ends down to place, then the support-
20 ing-wires are placed in the seats provided for them in the strips and locked therein by the keys, which are readily strung through the slots 13 and 14 in the strips and also serve to lock the latter to the border-wire. The top
25 coil of each spring is then secured to its adjacent supporting-wire and to the edge-wire when appropriate, and the structure is then complete when single cone springs are used; when double cone springs are used the structure
30 is next turned over and the then top coils of the springs, the original bottom coils, and associated parts are assembled as just described. This construction enables the parts to be assembled in a mechanical and
35 rapid manner and insures the proper location of the parts to hold the springs in position and provides a spring-structure having sufficient rigidity to maintain its form while allowing the desired spring effect, when any form of
40 spring is used, and reducing the number of springs required for any given job as it distributes the load over the entire top, thereby equalizing the strain without in any manner impairing the flexibility of the structure. The braces and connecting-wires have
45 a carrying-power whereby weight on one spring is distributed to the others, and their flexibility allows the springs to yield freely.

While I have shown my invention applied
50 to a small number of springs it is of course obvious that it may be employed in structures having different numbers and arrangements of springs.

What I claim is:—

55 1. In spring-work, a series of springs, a border-wire and supporting-wires intermediate the springs and secured to the larger coils of adjacent springs, brace strips inter-

mediate the springs and having seats for the supporting-wires and secured to the border- 60 wires, and a key co-acting with each strip to retain the supporting wires in the seats.

2. In spring-work, a plurality of springs arranged in longitudinal and transverse rows, a border-wire secured to the larger 65 coils of adjacent springs, supporting-wires intermediate the longitudinal rows of springs and fastened to the larger coils of adjacent springs, transverse brace strips intermediate the springs and having seats for the support- 70 ing-wires and looped around the border wire, and a key cooperating with each strip to lock the supporting wires in their seats and the loops of the strips about the border wire.

3. In spring-work, a plurality of springs 75 arranged in longitudinal and transverse rows, a border-wire secured to the larger coils of adjacent springs, supporting-wires arranged in pairs intermediate the longitudinal rows of springs and fastened to the larger 80 coils of adjacent springs, brace strips intermediate the transverse rows of springs and having seats for the supporting-wires, and a key passing through each strip above the supporting-wires to retain them in their 85 seats.

4. In spring-work, a plurality of springs arranged in longitudinal and transverse rows, an upper and lower border-wire fastened respectively to the upper and lower 90 coils of adjacent springs, supporting-wires intermediate the longitudinal rows of springs and connected to the top and bottom coils of adjacent springs, transverse brace strips having end-hooks for the border-wires and seats 95 for the supporting-wires, and keys cooperating with the seats and having their ends passed through the end-hooks of the strips.

5. In spring-work, a plurality of springs arranged in rows, a border-wire secured to 100 the edge springs, supporting-wires intermediate the rows of springs in one direction, brace-strips intermediate the rows in the other direction and connected to the border-wire, seats on the supporting wires at their 105 points of crossing the brace-wires and adjacent the springs, and means to secure the springs and brace-wires to the supporting wires at their seats.

In testimony whereof I affix my signature 110 in presence of two witnesses.

JOHN A. STAPLES.

Witnesses:

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J. H. JACKSON.