

No. 803,933.

PATENTED NOV. 7. 1905.

W. R. SMITH.
SPRING CUSHION.

APPLICATION FILED MAR. 22, 1905.

2 SHEETS—SHEET 1.

Fig. 3.

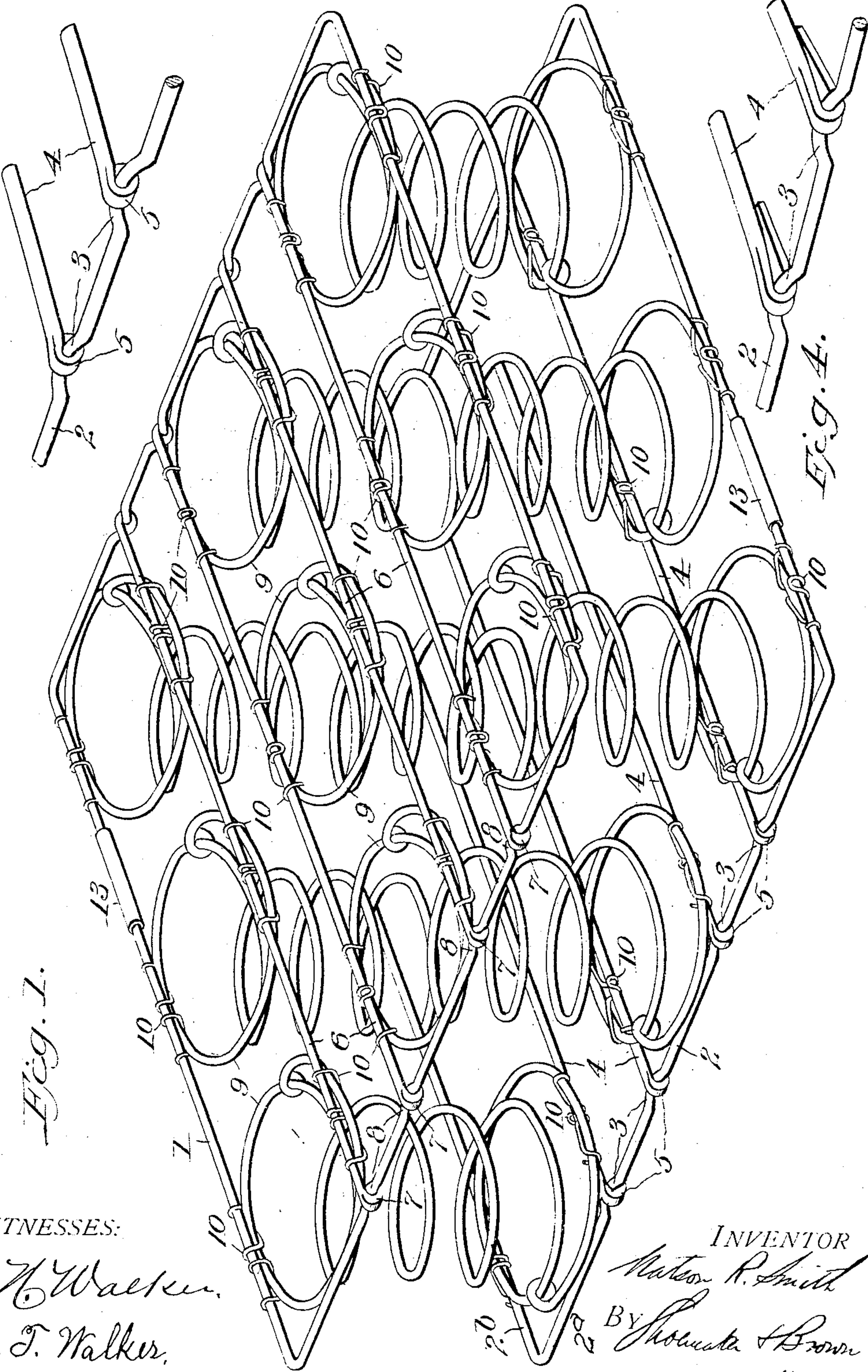


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

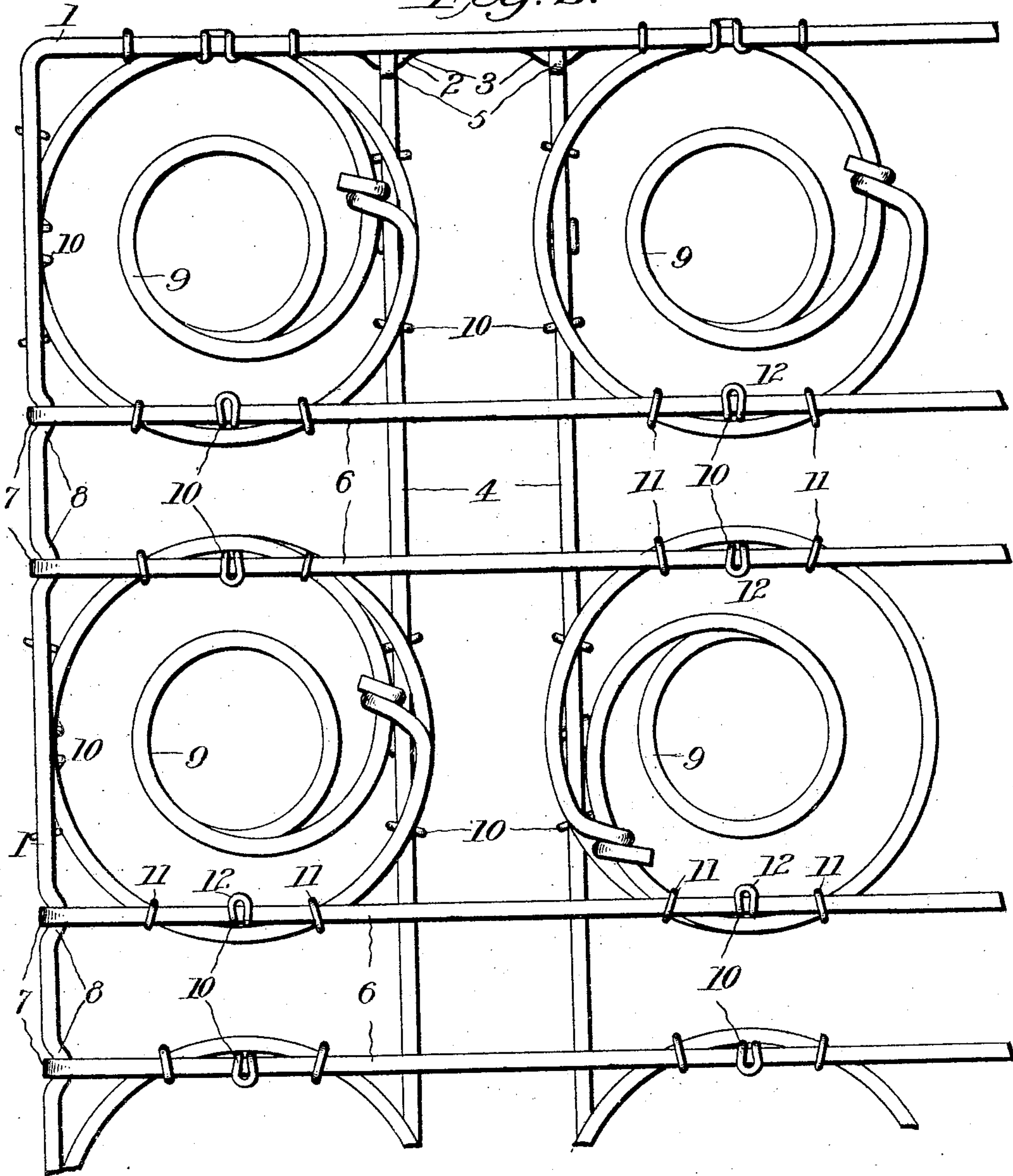


Fig. 5.

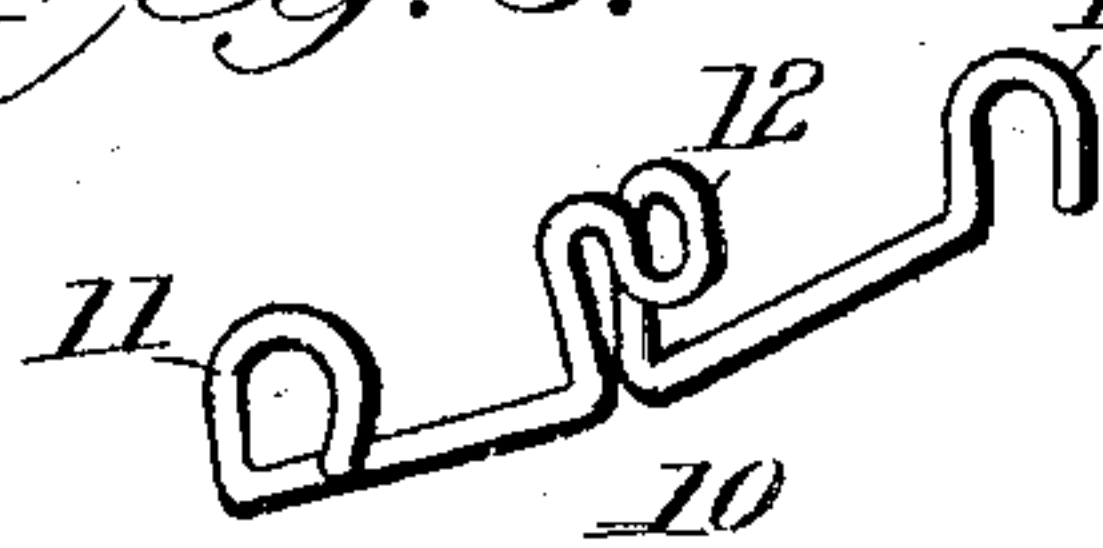
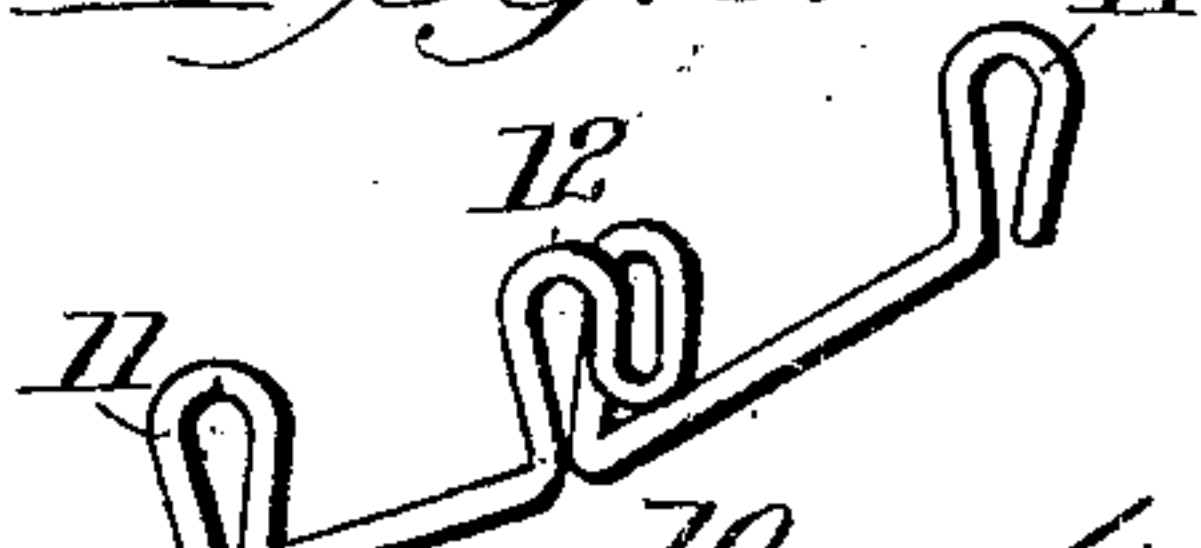


Fig. 6.



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WATSON R. SMITH, OF JACKSON, MICHIGAN.

SPRING-CUSHION.

No. 803,933.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed March 22, 1905. Serial No. 251,481.

To all whom it may concern:

Be it known that I, WATSON R. SMITH, a citizen of the United States, residing in the city of Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Spring-Cushions, of which the following is a specification.

This invention relates to cushion-work for vehicle and chair seats, beds, couches, or the like, and has for one of its objects to provide a light, rigid, inexpensive, durable, and efficient cushion.

Another object of the invention resides in the arrangement of a number of convolute or other springs within a frame and associating these springs with support and stay wires and other connections in such a manner that they may be firmly and yieldably seated within the frame between the support and stay wires.

Another object of the invention is to provide peculiarly-formed connecting-clips, the hooks of which are so formed with relation to the body of the same as to render it a comparatively easy matter to manufacture them.

A still further object of the invention is to so form the ends of the support and stay wires and associate them with a peculiar formation in the frame to hold them against lateral displacement without the employment of separate clips and whereby clips may be associated with the upper and lower convolutions of the springs and the stay or support wires without necessarily connecting the upper and lower convolutions of the intermediate springs with the frame.

A still further object of the invention is to provide suitable connections between the upper ends or convolutions between the adjacent springs to permit of their yielding one spring with relation to another when pressure is brought to bear thereupon and to return the different springs to their normal position when relieved of pressure.

A still further object of the invention is to provide a frame consisting of upper and lower edge wires, the edge wires being provided with inwardly-directed kinks for the reception of flattened ends of the stay and support wires, whereby the stay and support wires are prevented from lateral displacement and the ends of the stay and support wires lie flush with the outer edge of the edge wires.

With these and other objects in view the

present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the present invention.

In the drawings, Figure 1 is a perspective view of a cushion embodying my invention. Fig. 2 is a top plan view of another form embodying my invention. Fig. 3 is an enlarged detail view of an edge wire having a stay or support wire engaged therewith. Fig. 4 is a view similar to Fig. 3, illustrating the stay or support wire sprung into engagement with the edge wire. Fig. 5 is an enlarged detail perspective view of one of the connecting-clips; and Fig. 6 is a detail perspective view similar to Fig. 5, illustrating the form of the clip when designed to be sprung into engagement with the respective elements of the cushion.

Referring now more particularly to the accompanying drawings, the reference characters 1 and 2 respectively designate upper and lower edge wires, the edge wires 1 being provided with pairs of inwardly-directed kinks 3, the pairs of kinks alining with respect one pair of each edge wire with relation to the kinks of the other edge wire. Pairs of support-wires 4, each having their ends flattened, as at 5, are bent or sprung into engagement with the corresponding kinks 3, the ends of the bent portions of the support-wires lying flush with the part of the lower edge wire intermediate the kinks, as clearly shown in the drawings. It will be observed that the ends 2^a and 2^b of the lower edge wire 2 serve as support-wires. Arranged immediately above the support-wires are stay-wires 6, having their ends flattened, as at 7, and adapted to fit over or be sprung into engagement with the kinks 8 of the upper edge wire.

Arranged within the upper edge wires 1 and 2 between the corresponding support and stay wires are springs 9, which have their upper and lower convolutions connected to corresponding support and stay wires through the instrumentality of clips 10. It will be seen that in Fig. 1 of the drawings the clips do not connect with the sides of the edge wires, although the clips are engaged

with the stay and support wires. By reason of the fact that clips are not connected to the edges of the frame-wires and that the ends of the support and stay wires lie flush with the body portion of the edge wires intermediate their kinks, preferably smooth edges are provided along the sides of the cushion.

The clips 10, referred to above, are formed of a single piece of wire, and each has its ends bent to form hooks 11, the intermediate portion of each clip being doubled upon itself and bent to form an intermediate hook 12, the wire between the intermediate and end hooks diverging from each other from the intermediate hook toward the respective ends of the clip in preference to lying in a straight plane throughout. The free ends of each clip 10 are designed to embrace a stay or support wire and also the corresponding upper or lower convolution of the corresponding spring, the intermediate hook 12 being arranged between the upper and lower convolution of the corresponding spring and the corresponding stay or support wire and passing around the latter. The hooks of these clips may simply engage over the elements set forth or they may be constructed to be sprung into engagement with said elements.

In Fig. 2 there is shown a somewhat different form of cushion. The only difference, however, resides in the fact that the stay-wires are arranged at a direct right angle to the plane of the support-wires, the kinks in the upper and lower edge wires being formed in the ends and sides thereof, and the lower edge wire has clips 12 associated therewith and the lower convolutions of the corresponding springs. However, since there are no clips associated with the upper edge wire along the sides of the cushion it is obvious that the sides will present a practically smooth edge, as should be fully understood from the description hereinbefore given in connection with the other form and arrangement of cushion.

The ends of the edge wires are connected together through the instrumentality of suitable couplings 13, as clearly shown in the drawings.

It will now be understood that the ends of the stay and support wires are flattened and that they are engaged in kinks formed in the edge wires for their reception, and it is to be still further understood that these stay or support wires may or may not be sprung into engagement with the edge wires. It will also be understood that the support-wires may be arranged transversely of the cushion and the stay-wires longitudinally thereof or that the stay and support wires may be both arranged longitudinally or transversely of the cushion. I wish it understood also that the clips hereinbefore referred to may or may not be sprung into engagement with their respective elements.

As premised in the foregoing, it is to be understood that my improvement in spring-cushion work is designed for use in connection with vehicle and chair seats, beds, and analogous uses, and I may state, too, that my peculiar formation of the different elements and their arrangement one element with another possesses all the desirable features of a spring-cushion work for the purposes named, and in practice it will be found that when pressure is applied to any portion of the cushion it will be distributed over any portion of the cushion and that therefore the farther the cushion is depressed the larger the area over which the pressure is distributed, and consequently the greater will be the resistance of the cushion, the ends of the stay and support wires by reason of their flattened shape positively preventing their lateral displacement, and thereby not only firmly supporting the springs, but also resulting in the presentment of comparatively smooth edges to the cushion.

What is claimed is—

1. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire being flattened and engaged in the corresponding kink of the corresponding edge wire, and springs arranged within the said edge wires between the support and stay wires.

2. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire being flattened and sprung into engagement with the corresponding kink of the corresponding edge wire, and springs arranged within said edge wires between the support and stay wires.

3. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support-wire being flattened and engaged in the corresponding kink of the corresponding edge wire, springs arranged within said edge wires between the support and stay wires, and clips associated with the springs for firmly supporting them within the edge wires.

4. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires the ends of each support and stay wire being flattened and sprung into engagement with a kink of the corresponding edge wire, springs arranged within the said edge wires between the support and stay wires, and clips sprung into engagement with the springs to firmly support them within the edge wires.

5. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire being flat-

tened and engaged in a kink of the corresponding edge wire, the support-wires being arranged at a direct right angle to the stay-wires and springs arranged within said edge wires between the support and the stay wires.

6. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire being flattened and engaged in a kink of the corresponding edge wire, the support-wires being arranged at a direct right angle to the stay-wires, springs arranged within said edge wires between the support and stay wires, and clips associated with the springs to firmly support them within the edge wires.

7. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire being flattened and engaged in a kink of the corresponding edge wire, the support-wires being arranged at a direct right angle to the stay-wires, springs arranged within said edge wires between the support and stay wires, and clips sprung into engagement with the springs to firmly support them within the edge wires.

8. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire engaged in a kink of the corresponding edge wire, the support-wires being arranged at a direct right angle to the stay-wires, springs arranged within said edge wires between the support and stay wires, and clips sprung into engagement with the springs to firmly support them within the edge wires.

9. A spring-cushion including an edge wire having kinks therein, and a wire connecting the opposite sides of the edge wire and having its opposite ends flattened and

sprung into engagement with the kinks of the edge wire.

10. A spring-cushion including an edge wire having kinks therein, and a wire connecting the opposite sides of the edge wire and having its opposite ends flattened for engagement with the kinks of the edge wire.

11. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire engaged in a kink of the corresponding edge wire, springs arranged within said edge wires between the support and stay wires, and clips sprung into engagement with the springs to firmly support them within the edge wires.

12. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire engaged in a kink of the corresponding edge wire, the support-wires being arranged at a direct right angle to the stay-wires, springs arranged within said edge wires between the support and stay wires, and clips secured in engagement with the springs to firmly support them within the edge wires.

13. A spring-cushion comprising upper and lower edge wires, each wire having inwardly-directed kinks, support and stay wires, the ends of each support and stay wire engaged in a kink of the corresponding edge wire, springs arranged within said edge wires between the support and stay wires, and clips secured in engagement with the springs to firmly support them within the edge wires.

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

WATSON R. SMITH.

Witnesses:

KATE DENTON,
MACY A. PHELPS.