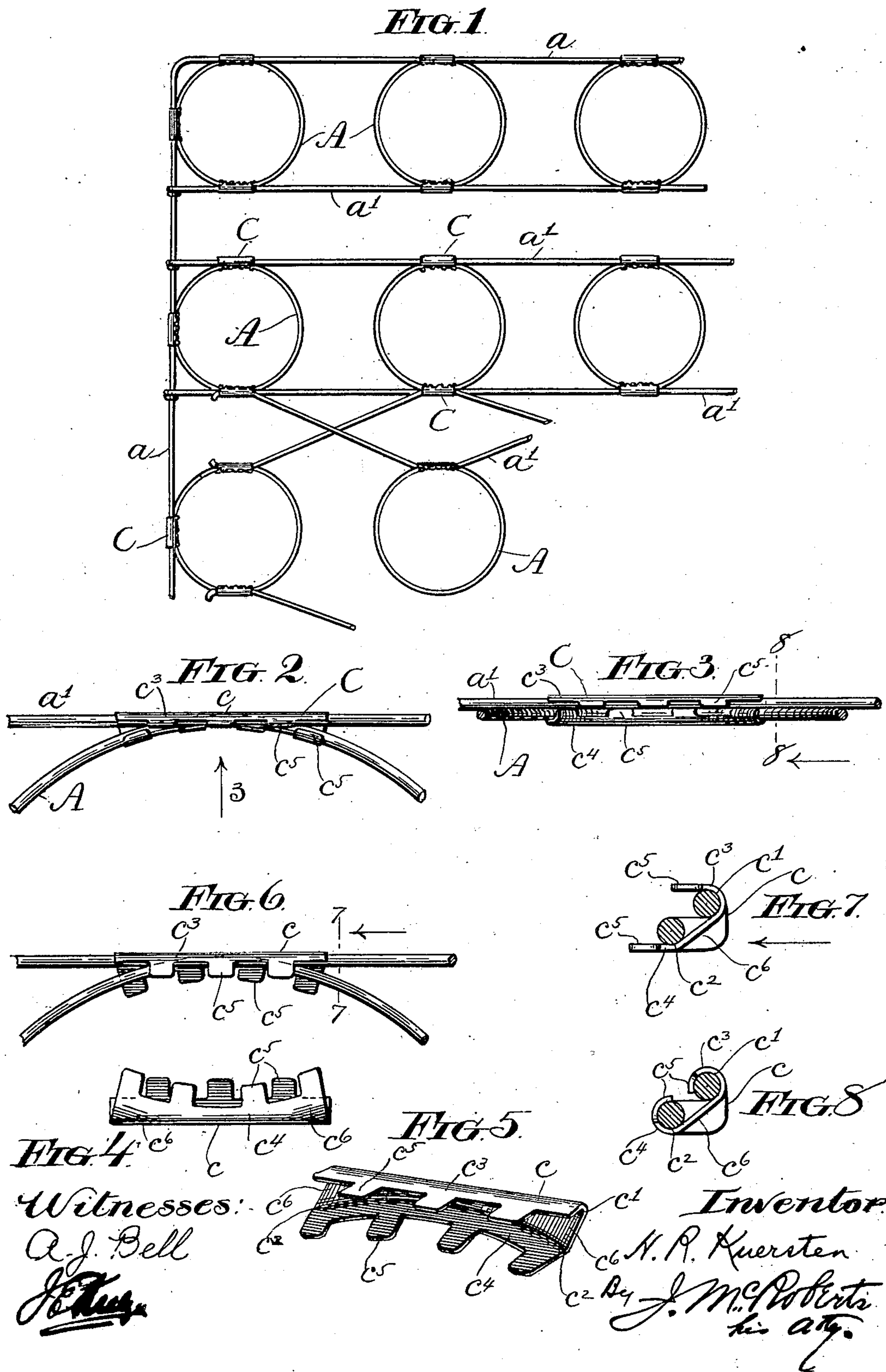


H. R. KUERSTEN.
 SPRING WIREWORK.
 (Application filed Oct. 20, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

HUGO R. KUERSTEN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE STAPLES & HANFORD COMPANY, OF NEWBURGH, NEW YORK, A CORPORATION OF NEW YORK.

SPRING-WIREWORK.

SPECIFICATION forming part of Letters Patent No. 694,391, dated March 4, 1902.

Application filed October 20, 1900. Serial No. 33,705. (No model.)

To all whom it may concern:

Be it known that I, HUGO R. KUERSTEN, 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-Wirework, of which the following is a specification.

The object of my invention is to simplify the assembling and to improve and strengthen the construction of springwork for springbeds, sofas, chairs, and all similar articles, so that the springs may be more readily and securely attached to the edge wire and also to the interior bracing-wires, when these latter are employed, in the assembling of the parts, and the bracing-wires and the edge wire will act as more effective supports and braces for the springs than heretofore. I accomplish these objects by means of my improved clip, which serves as the means to attach the top coils of the springs to either the edge wires or the bracing-wires, or both.

In employing my invention any form of bracing-wires or interior connecting-wires may be employed, and the springs may be connected thereto in any desired arrangement.

In the accompanying drawings, Figure 1 is a plan view of spring-wirework constructed according to the principle of my invention. Fig. 2 is a top plan view representing my improved clip securing the top coil of one of the springs to the edge wire. Fig. 3 is an inner side view in the direction of the arrow 3 of Fig. 2 and showing the relative arrangement of the spring, edge wire, and clip. Fig. 4 is a plan view of the clip as seen from the under or lower side. Fig. 5 is a perspective of my clip. Fig. 6 is a top plan view of the clip as it appears when placed upon the spring and edge wire, but before it is clamped thereto. Fig. 7 is a part sectional end view on the line 7 7 of Fig. 6, and Fig. 8 is a similar view on the line 8 8 of Fig. 3.

In making spring-wirework it is customary to arrange for the supporting or base wires in proper longitudinal and transverse relation and secure them to the base-edge-wire support, as in the case of springwork for beds, or to secure the supporting-wires to the frame

of a sofa or chair-seat when upholstered furniture is to be made, the base edge wire and the frame, together with the supporting-wires, not being shown in the drawing for sake of greater clearness of illustration and as their arrangement is well understood. To these supporting-wires the coil-springs are attached in any suitable manner. The tops or upper ends of the springs are then united, those of the edge rows usually being tied or connected with an edge wire, as *a*, and the inner springs are connected to suitable interior connecting wires or braces *a'* of any preferred form. Various means have been employed to effect these connections, and my invention relates especially to a new and improved clip for making these attachments in a more substantial manner and for facilitating the assembling of these parts.

The reference-letter C represents this clip, which is of sheet metal. The body *c* of the clip is so shaped at its top as to lie along the edge of the edge wire or interior brace and at its bottom so as to conform to the curve of the wire of the coil-springs. For this purpose the clip is provided with an upper channel *c'*, which receives the edge wire or brace, and with a lower channel *c''* for the spring. The edge wires and the interior bracing-wires are usually straight or are provided with short straight portions at the points of contiguity with the coils of the springs, as shown in Fig. 1, so that generally the upper channel *c'* of the clip will be substantially straight, though it may, of course, be varied according to the formation of the corresponding parts. The lower channel *c''* will be upon a curve corresponding to the curve of the top coil of the spring. Each of these channels is formed, preferably, by providing the body with a small top and bottom flange *c³* and *c⁴*, respectively. The top flange may be extended bodily, so as to clamp or bend more or less about the edge wire when the clip is in its final position, but saving of material and greater ease of assembling will be effected by making the flange of such size that it will merely rest upon the top edge of the edge wire and providing it with tongues *c⁵*, adapted to be bent by a suitable pliers, as shown

in the drawings. The lower flange is also provided with tongues c^5 , arranged, preferably, opposite the intermediate openings or interstices of the tongues of the top flange and adapted to be bent more or less around the top coil of the spring, as shown. While it is preferred to employ the flanges, as above set forth, it is obvious that they may be omitted and that the tongues may start directly from the top and bottom edges of the body c . In the drawings these flanges are shown as somewhat exaggerated for purposes of illustration. In practice the top flange is about to the vertical central line of the edge wire, and the lower flange decreases in width from each end toward the center, where it approximates the line of the body, as shown in Fig. 5. In any case the channels are formed at the junction of the extensions with the body. This clip is especially designed and intended to be applied to springwork wherein the edge wire or interior braces, as the case may be, rest directly upon the top coils of the springs and to be applied laterally or to the sides of the wires. For these reasons the portion that engages the coil of the spring is struck on the arc of a circle, which lies in a plane parallel to the plane of the top portion and which is tangential to the vertical plane of the central part of the body portion. In the drawing this is clearly illustrated in Figs. 4 to 8. As there shown, the upper and lower portions formed by the flanges or tongues, as the case may be, are in parallel horizontal planes, which are substantially at right angles to the vertical plane of the central part of the body portion c , as most clearly shown in Figs. 7 and 8, where this central part is indicated by a heavy black line. The upper channel extends parallel with the vertical plane of this central portion, as shown in Figs. 2, 6, and 5, and the lower channel, while substantially coinciding with or approximating this plane at the center, by reason of the superposing of the parts, as shown in Figs. 2 and 6, extends away tangentially upon either side, this being accomplished by a bevel c^6 , which begins at substantially the center and extends one on each side thereof upon an inward slant in a gradually-increasing angle until it reaches an angle of approximately forty-five degrees at its end, as shown in Figs. 7 and 8. In this manner the lower channel is formed so as to conform to the coil of the spring. The slanting or beveled portions c^6 also form braces to hold the top wire securely on the spring, so it cannot slip off in front, as they afford a purchase to prevent the wire and clip from turning.

The clips are held in a suitable tool or pliers and are applied to the side of the wire structure or laterally with relation thereto, as shown by the arrow in Fig. 7. The pliers then clamp the upper and lower portions about their respective wires, as clearly shown in Figs. 3 and 8.

It will be observed that each point of contiguity between the edge wire and the top coils of the springs and between the latter and the brace-wires when the latter are used is connected by one of my improved sheet-metal clips. In some constructions, such as chair-seats, it is usual to employ but two rows of springs, in which case the interior connecting-wires may be omitted, the springs being secured together as a unitary structure by means of the edge wire and clips. In spring-bed work, however, it is customary to employ interior bracing-wires, and my improved clip in such case is adapted to bind the springs to the inner wires in the manner shown. It will also be observed that these clips are attached to the sides of the wires instead of being applied upon their tops. This difference in the mode of application of the clips is important, as it facilitates the processes of assembling the parts.

The peculiar construction of my improved clip makes it possible to rest the edge wire or the interior brace-wires directly on the top coils of the springs, whereby a much stronger construction is produced than if they were merely placed side by side, as heretofore.

As before stated, the top lateral extension or wing of each clip may be made by an integral flange extending out the required distance or by the tongues alone, which may extend from the body c , or by employing both the flange and tongues. The lower wing may be constituted of the tongues alone or of the tongues and flange combined. In whatever form these various parts are made, it is obvious that the edge of the top wing, either before or after its application to the wire, will be in a substantially straight line and that the edge of the lower wing, either before or after its application to the wire, will be in a curve whose plane is parallel to the plane of the upper edge and that the clip is applied laterally, so that danger of its displacement from the pliers is obviated and greater despatch is obtained, the wings occupying substantially parallel horizontal planes while the clip is being placed on the wires and springs.

I have thus described my invention. What I claim as new, and desire to secure by Letters Patent, is—

1. In spring-wirework, the combination of suitably-supported springs, edge wires adapted to rest on the top coils of the springs at their points of contiguity, and sheet-metal clips, each having parallel lateral wings, one of the wings engaging an edge wire and the other one engaging a coil of a spring.

2. In spring-wirework, the combination of suitably-supported springs, edge wires and interior bracing-wires adapted to rest on the top coils of said springs at their points of contiguity, and sheet-metal clips, each having a body and two lateral wings, the body impinging upon the sides of said wires and springs,

one of the wings engaging a wire and the other one engaging a coil of a spring.

3. In spring-wirework, the combination of suitably-supported springs, wires resting thereon at their points of contiguity, and sheet-metal clips each having a straight top channel to receive the wire and a curved bottom channel to receive the coil of a spring.

4. A sheet-metal clip for spring-wirework, having a body formed with a straight upper side and with a curved lower side adapted respectively to the sides of spring-coils and superposed wires, and upper and lower parallel wings to engage the coils and wires respectively.

5. A sheet-metal clip for spring-wirework, having a body and two lateral wings in parallel horizontal planes, one having a straight edge and one a curved edge.

6. A sheet-metal clip for spring-wirework, having a body and two wings, the upper one

being substantially straight and the lower one tangential to the plane of the body.

7. A sheet-metal clip for spring-wirework, having a body and two lateral wings lying in parallel horizontal planes, the body slanting inwardly from about its central line toward each end.

8. A sheet-metal clip for spring-wirework, having a body the central portion of which is substantially vertical and wings constituting upper and lower channels, the upper channel extending substantially parallel with the plane of the central portion and the lower channel extending away from said plane on each side of the central portion.

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

HUGO R. KUERSTEN.

Witnesses:

CLARA A. BLACKWELL,
J. McROBERTS.