July 1, 1941. H. GREENHILL 2,247,490

SPRING CLIP

Filed Dec. 22, 1939

Fig. 1.

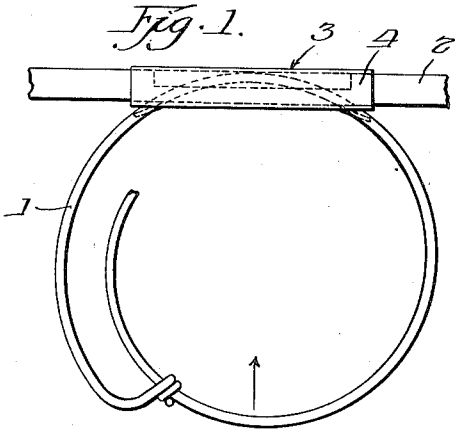


Fig. 4

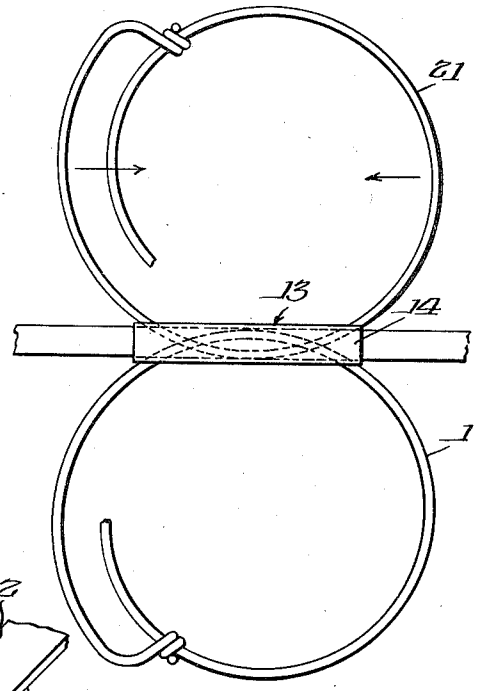


Fig. 3.

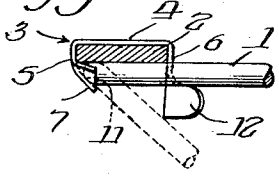


Fig. 2.

Fig. 5.

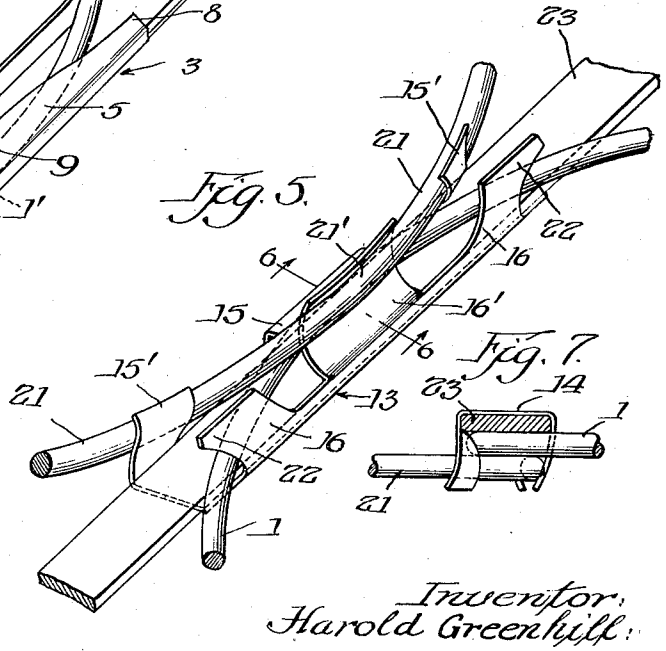
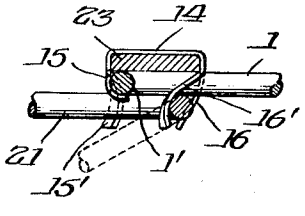


Fig. 7.

Fig. 6.



Inventor:
Harold Greenhill:

By: Hiee & Hiee Attys:

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2,247,490

SPRING CLIP

Harold Greenhill, Chicago, Ill.

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11 Claims. (Cl. 5—267)

The invention relates generally to fastening devices, and more particularly to fastening devices for securing coil springs to one another or to a border wire or the like.

The invention has among its objects the production of a fastening means of the kind described which is simple in construction, efficient, durable, and very inexpensive.

Another object of the invention is the production of a fastening device which may be secured to the spring coils in one operation without the use of tools or the like.

Another object of the invention is the construction of such a device which may be constructed to secure either one or a pair of springs to a border or intermediate wire or bar.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described and more particularly pointed out in the appended claims.

In the drawing wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a top plan view of a portion of a coil spring and border wire fastened together by a device made in accordance with the present invention;

Fig. 2 is a view of the device in inverted position;

Fig. 3 is an end elevational view of the device;

Fig. 4 is a top plan view similar to Fig. 1 of the device constructed to secure two spring coils to an intermediate wire or tape;

Fig. 5 is a perspective view similar to Fig. 2, showing the device illustrated in Fig. 4 in an inverted position;

Fig. 6 is a sectional view taken approximately on the line 6—6 of Fig. 5 with the device in its normal position; and

Fig. 7 is an end elevational view similar to Fig. 3 of the clip in its normal position.

The present invention is intended to be primarily used for fastening spring coils such as those used, for example, in mattresses, box springs, or the like, to connecting border or intermediate elements, the construction shown in Figs. 1 through 3 being intended for use in securing a single spring coil to a border strip or the like, while the construction shown in Figs. 4 through 7 is intended for use in securing a pair of coils together or to an intermediate connecting strip. In both constructions, however, the same principles of the invention are utilized.

Referring to the construction illustrated in Figs. 1 through 3, 1 represents the upper or end loop of coil spring similar to that used in inner spring mattresses or box springs, which is secured to the flat wire strip 2 by the fastening member or clip designated generally by the numeral 3. The clip 3 comprises a base member or portion 4 positioned on one side of the strip 2. Extending transversely to the base portion along opposite longitudinal edges thereof are side portions 5 and 6, respectively, these side portions in the construction shown in the drawings being constructed from the same piece of material forming the base portion 4 by bending such material along substantially parallel lines. The portion 5 is bent inwardly adjacent its free edge to partially overlie the base portion 4 and strip 2, as shown at 7, the extreme ends 8 being positioned relatively close to the strip 2, while the intermediate or central portion 9 is spaced a greater distance therefrom to provide a recess or pocket 11. The other side portion 6 is provided with projections or ears 12 adjacent the ends thereof, as shown particularly in Figs. 2 and 3. The loop 1 of the spring coil is positioned adjacent the face of the strip 2 opposite the base portion 4 with the portion 1' of the loop positioned in the pocket 11, as shown. The projections or ears 12 on the side portion 6 engage the loop 1 of the coil, thereby securely locking the strip 2 and spring to one another.

The clip, spring coil and strip are assembled as follows:

The clip is placed upon the strip as shown in Fig. 3, this being readily accomplished by passing the strip between the side walls 5 and 6 of the clip. The portion 1' of the spring is then positioned adjacent the pocket 11 in approximately the position shown in dotted lines in Fig. 3, after which the loop is rotated into the position shown in Fig. 3, the loop being spread adjacent the projections 12 by laterally compressing the loop towards the portion 1' thereof as indicated by the arrow, which will thereby allow the loop to clear the projections. Upon expansion of the loop into its normal position, the projections 12 will engage and at least partially overlie the loop, thus locking the same to the clip and the strip. It might be mentioned that while the elements will be securely held in place, if desired, either or both of the side portions 5 or 6 could be deformed inwardly towards the strip by means of a suitable tool, thereby providing additional se-

curement. However, as previously stated, one of the advantages of the present construction is that such deforming is not required, although if desired, it may be performed. The elements as illustrated will securely fasten and maintain the parts in locked relation.

The construction shown in Figs. 4 through 7 embodies the general construction shown in Figs. 1 through 3, but is provided with additional means for securing the second coil. Referring to Figs. 5, 6, and 7, in the device designated generally by the numeral 13, the base 14 corresponds to the base 4 illustrated in Figs. 1 and 3. Similarly, the side member 15 corresponds to the side portion 5, the two side portions 16 to the side portions 6, and projections 22 to the projections 12. The portion 1' of the spring is engaged with the portion 5, with projections 22 overlying the loop, thereby locking it to the strip in the same manner as the clip 3. The base portion 14 of the clip 13 is also provided with a pair of additional side members 15' adapted to engage the loop 21 of the second spring coil, while disposed intermediate the two side portions 16 is a side member 16' adapted to engage the loop 21 on the side of the wire forming the same opposite the side members 15'. Both the members 15' and 16' are curved to overlie the loop, and as the member 16' is on the opposite side of the wire from the members 15', the loop member will be securely held in place therebetween. The loop 1, clip 13, and the strip 23 are assembled in the same manner as described for the construction shown in Figs. 1 through 3. In connecting the loop 21 with the clip, the portion 21' of the loop is engaged with the intermediate side member 16', the loop being positioned approximately as shown in dotted lines in Fig. 6. The loop is then compressed on opposite sides of the clip as indicated by the arrows in Fig. 4 until the same will clear the portions 15' when the loop is rotated from the position shown in dotted lines to the actual position shown in Fig. 6. When the loop is released, it will assume the position shown in Fig. 5 and be securely locked to the intermediate wire strip 23.

It will be noted from the above description that I have provided a device for securing single or double spring coils to a border or intermediate wire strip, in which the coil may be readily secured to the strip without use of tools, etc., to deform the device. In the present device, the coils or wire strip may be assembled merely by interlocking them with the clip.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit and scope of my invention; hence, I do not wish to be understood as limiting myself to the exact form, construction, arrangement, and combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a fastening device, the combination of a base portion, side portions extending transversely to said base portion at opposite sides thereof, one of said side portions constructed to engage an intermediate part of a spring coil, and the other side portion having means overlying said spring coil on both sides of said intermediate part, said means being so positioned and inclined relative to the coil that the latter may be sprung over and interlocked with said means.

2. In a spring construction embodying a plurality of coils and stay members, fastening means for securing the coils and stay members in operative relation, comprising a series of elements each comprising a plate member constructed to embrace a respective stay member and the coil of a spring, said plate members having a transversely extending overlapping edge portion providing a pocket for receipt of an intermediate portion of a spring coil, the opposite edge portion of the plate providing a pair of oppositely extending ears adapted to respectively overlie portions of the coil adjacent opposite ends of the pocket, said ears being so positioned and inclined relative to the coil that the latter may be sprung over and interlocked with said ears.

3. In a fastening device for securing spring coils to a wire strip or the like, the combination of a base member, side portions extending transversely from said base on opposite sides thereof, one of said side portions being formed with means for receiving a part of said spring coil, the other side portion having means overlying said spring coil to prevent removal thereof from said first mentioned means, the distance between said side portions being sufficient to allow the spring to be inserted between said side portions and interlocked with the respective means thereon.

4. In a fastening clip for securing spring coils to a wire strip or the like, the combination of a relatively elongated base member, side portions extending transversely to said member from opposite longitudinal edges thereof, one of the side portions partially overlying said base member to form a pocket for receiving a portion of a spring coil, the opposite side portion having ears extending from the ends thereof of a length to overlie the spring coil on opposite sides of the portion thereof disposed in said pocket, and thereby interlock the clip and spring coil to one another.

5. In a fastening device, the combination of a base member, side portions extending transversely of said base from opposite sides thereof, one of said side portions constructed to engage an intermediate part of a spring coil adjacent the inner side thereof and the other side portion having means adjacent the outer side of said coil overlying the same on both sides of said intermediate part.

6. In a fastening device, the combination of a base member, side portions extending transversely of said base from opposite sides thereof, a wire strip positioned between said portions adjacent said base member, one of said side portions constructed to engage an intermediate part of a spring coil adjacent the inner side thereof and overlie the same and the other side portion having means adjacent the outer side of said coil overlying the same on both sides of said intermediate part, the distance between said portions being sufficient to allow said coil to be interlocked in place therewith.

7. In a fastening device for securing spring coils to one another, the combination of a pair of spring coils, a base member, side portions extending transversely from said base on opposite sides thereof, each side portion constructed to receive an intermediate part of one coil and having spaced members extending from that side overlying the other coil.

8. In a fastening device for securing spring coils to one another, the combination of a pair of spring coils, a base member, side portions extending transversely from said base on opposite sides thereof, a wire strip positioned between said portions adjacent said base member, each

side portion constructed to receive an intermediate part of one coil and having spaced members extending from that side overlying the other coil, the distance between the side members being greater than the thickness of the spring stock.

9. A fastening device comprising a base member having one edge portion extending transversely to and overlapping said member, said overlapping portion being spaced from the member to provide a pocket adapted to receive a portion of a spring coil, and a pair of detents or ears extending transversely from the opposite edge of said base member, said ears having oppositely projecting ends respectively adapted to overlie the spring coil adjacent opposite ends of said pocket, said ears being so positioned and inclined relative to the coil that the coil may be positioned in the pocket and be sprung over said ears to interlock therewith.

10. A fastening device comprising a base member having one edge portion extending transversely and overlapping the base member, the ends of the overlapping portion being spaced closer to said member than the middle of said overlapping portion to provide a pocket adapted to receive a portion of a spring coil, a pair of ears extending transversely from the opposite edge of said base member, said ears having oppositely projecting ends respectively positioned to overlie the spring coil on opposite sides of that portion within the pocket, said ears being so inclined and positioned relative to the portions of the coil which they respectively overlie that the coil is interlocked therewith when positioned in the pocket.

11. A fastening device comprising a base member having one edge portion extending transversely thereto and terminating in a projection spaced from the adjacent face of the base member and overlapping a portion of a spring coil having contiguous portions extending across the base member, a pair of ears extending transversely from the opposite edge of the base member, said ears having oppositely extending ends respectively positioned to overlie and engage said contiguous portions of the spring coil, said ears being so inclined that the coil may be sprung thereover and into operative interlocking position therewith and with said transversely extending portion of the base member.

HAROLD GREENHILL.