April 5, 1938. P. E. FENTON 2,113,132

RESILIENT ATTACHING CLIP

Filed May 8, 1936

Fig. 1.

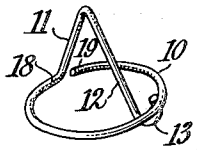


Fig. 2.

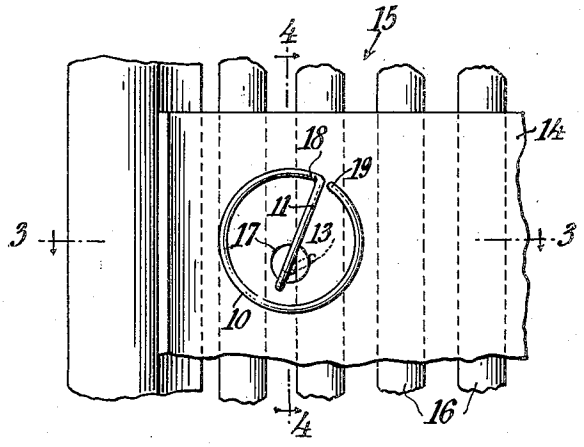


Fig. 4.

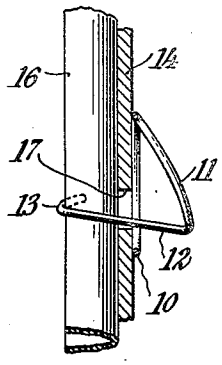


Fig. 3.

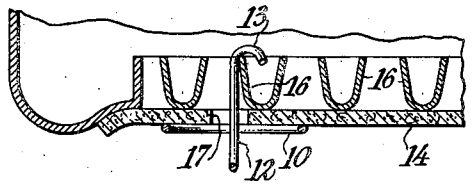


Fig. 5.

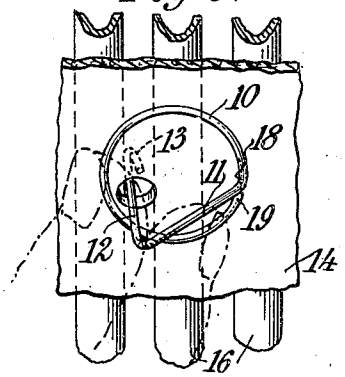
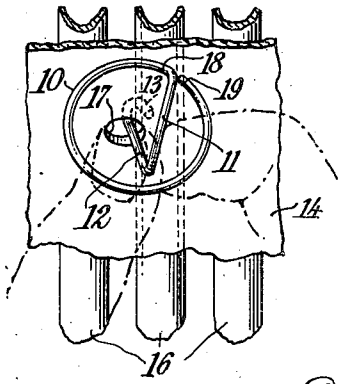


Fig. 6.



INVENTOR
Paul E. Fenton,
BY
Fraser, Myers & Manley
ATTORNEYS.

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RESILIENT ATTACHING CLIP

Paul E. Fenton, Thomaston, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut

Application May 8, 1936, Serial No. 78,531

4 Claims. (Cl. 24—261)

This invention relates to fasteners, and more particularly to an improved form of resilient attaching clip adapted to hold two adjacently disposed parts in frictional engagement.

The principal object of the invention is to provide a simple, inexpensive, resilient attaching clip which may readily be engaged with two adjacently disposed parts to hold them together, or easily removed therefrom whereby the parts may be separated.

It is a further object of the invention to provide an attaching clip of the foregoing type, which may be inexpensively manufactured from a single piece of wire by turning and bending it so that in its final form one part forms a closed ring or analogous element adapted to serve as a base for the clip, from which another part extends upwardly away from the ring and substantially diametrically thereof so as to serve as a lever, a third part extends downwardly from the end of the lever through the ring in such fashion as to constitute a stem, and the end of the stem passes reversely upwards to form a hook which may be used to engage an article disposed below a general plane defining the ring.

Other objects and various features of the invention making for efficiency in operation and economy in manufacture will be more apparent from the following description when read in connection with the accompanying drawing in which

Figure 1 is a perspective view of a resilient fastener formed from a single piece of wire and embodying the principles of the invention;

Fig. 2 is an elevational view of a fragment of an automobile radiator assembly, and of a part of a cover therefor, the latter being attached to the former by means of a resilient clip constructed in accordance with the present invention;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is another sectional view taken on the line 4—4 of Fig. 2; and

Figs. 5 and 6 are perspective views which depict the manner of applying the clip to hold the cover to the grille.

In general an attaching clip of the type herein considered comprises a base element which is adapted to rest upon the outer side of one of two adjacently disposed articles, a hook element which is adapted to engage the outer side of the other of the articles, and a spring so disposed with respect to the foregoing elements as to draw them together whereby to force the two intervening articles into frictional engagement one with the other. Preferably, for purposes of manufacturing economy, all parts of such clips are made from wire.

Considering the clip of the present invention, and referring particularly to Figure 1, it will be noted that the clip comprises a single piece of wire, a part of which is first bent to form a substantially closed geometrical figure, here shown as a ring 10, which, as will later be apparent, is adapted to serve as a base. From Figures 3 and 4, it will be apparent that all parts of this base lie between two parallel planes spaced apart by the thickness of the wire, and for purposes of description, it may be said that all parts thereof lie in a single general plane. A portion of the wire is then turned upwardly from the plane of the base and crosswise thereof to form an arm 11. From the upper extremity of this arm the wire is extended downwardly through the ring to form a stem 12, and the lower end of the stem is then turned reversely upwardly to form a hooked portion 13. It will be noted (Figs. 2 and 3) that all parts of the wire comprising the arm 11 and the stem 12 preferably lie in a single plane which is disposed substantially perpendicular to the plane of the base, and looking downwardly upon the clip (Fig. 2) it may be noted that that arm extends diametrically of the ring but terminates therewithin. Further, it may be seen that the hooked portion 13 and the adjacent part of the stem lie in a plane which is at an angle to the plane of the base and at an angle to the plane of the arm and the stem.

The spring element in this foregoing clip resides either in the ring 10, or in the arm 11, or in a combination of the two. Thus, assuming the ring to be supported on its under side, pressure applied to the upper end of the arm will result in twisting that portion of the wire which constitutes the ring, whereby it will act as a torsion spring. At the same time, of course, the arm will bend to a greater or lesser extent and will itself act as a cantilever spring. If that portion of the wire constituting the arm 11 is relatively stiff, as compared to that portion of the wire which comprises the ring, then the latter element will be most effective in supplying the desired resilient characteristics. On the other hand, if the ring is very stiff as compared to the arm, then this element will furnish the desired spring qualities.

The particular use of such a clip, and the operations incident thereto, may best be seen by a consideration of Figs. 2 to 6 inclusive wherein is shown the attachment of a cover 14 to the ornamental grille 15 of an automobile radiator

assembly. In applying such a cover, the operator takes it, usually with his left hand, and places it against the front surfaces of the bars 16. He then grasps the arm 11 and stem 12 of the clip between the thumb and forefingers of his right hand and disposes the base 10 against the cover. In so doing he moves the hooked portion 13 into registry with the hole 17 in the cover and, simultaneously, the plane of the hook into substantial parallelism with the bars 16. Then by pressing upon the arm 11 the hook and the stem may be forced from the hole and past the bars, all as shown in Fig. 5. At this time the entire clip is twisted so as to dispose the hook crosswise of the rear edge of the immediately adjacent bar 16 and, also, to rotate the ring so that parts thereof will overlie the bars between which the stem passes, all as shown in Fig. 6. Then, upon the release of the arm the spring qualities, either of the ring or the arm, or the combination of the two, as previously described, will draw the hook firmly against the rear edge of the bar which it overlies and, simultaneously, will force the base 10 against the outer surface of the cover. The total result, as can be seen particularly in Figs. 3 and 4, is to effect a firm frictional engagement between the rear surface of the cover and the front surfaces of the bars of the grille.

In the preferred embodiment it will be noted that the parts of the clip are so disposed relative to each other that the aforementioned twist during the attaching operation results in bringing that portion 18 of the ring, immediately adjacent the upturned arm 11, directly over one of the bars 16. This is of considerable importance in securing a firm foundation for the base, and particularly is this true when the cover is made of flexible material. In the latter instance, it is evident that if the bar 16 immediately underlaid the free end portion 19 of the ring, then the portion adjacent the arm 11 would be substantially unsupported, and would tend to indent the flexible cover, resulting either in an upsetting of the clip or a reduction of the effective spring pressure on the adjacently disposed articles.

It will be seen from the figures and understood from the foregoing description that the extreme simplicity of this type of clip lends itself readily to construction from a single piece of wire. In other words, the design of the clip is such that the bending operations incidental to the formation thereof are relatively simple as compared with the bending operations required for the formation of a one piece clip utilizing a helically coiled spring through the axial center of which an integrally formed stem is extended. Further, the amount of material which is required for the manufacture of the clip of the present invention is considerably less than that required for comparable clips of the prior art.

While the present clip has been described in connection with one particular practical use, namely, the attachment of a cover to an automobile radiator, it is evident that there are many uses to which such a clip may be put.

Since certain changes may be made in the embodiment of the invention which are well within the skill of the ordinary mechanic, it is intended that the foregoing shall be construed in a descriptive rather than in a limiting sense.

What I claim is:

1. A spring attaching clip comprising a single piece of wire having one of its end portions bent to form a substantially closed split ring lying in a single general plane with its opposite terminals spaced apart so as to serve both as a base and as a torsion spring, an intermediate portion extending upwardly from one terminal and crosswise of the ring in such fashion that its projection on the plane of the ring extends diametrically and terminates within the ring, such intermediate portion being adapted to serve both as a cantilever spring and as an arm for applying a torsional force to the ring, and another end portion extending downwardly from the upper end of the intermediate arm portion through the ring so as to serve as a stem, said latter part having its lower free end turned reversely upward to form a hook portion.

2. A spring attaching clip comprising a single piece of wire having an end portion disposed in the form of a split ring lying substantially in a single plane with its opposite terminals spaced apart so as to serve both as a base and a torsion spring, an intermediate portion extending upwardly from one terminal and crosswise of the ring in such fashion that its projection on the plane of the ring extends diametrically beyond the center of and terminates within the ring, such intermediate portion being adapted to serve both as a cantilever spring and as an arm for applying a torsional force to the ring, and another end portion extending downwardly from the upper end of the intermediate portion through the ring so as to serve as a stem, said latter part having its lower free end turned reversely upward to form a hook.

3. A spring attaching clip comprising a single piece of wire substantially as defined by claim 2 in which the parts of the wire adapted to serve as the arm and the stem lie in a single general plane which extends perpendicularly to the general plane of the base.

4. A spring attaching clip comprising a single piece of wire substantially as defined by claim 2 in which the parts of the wire adapted to serve as the arm and the stem lie in one general plane extending perpendicularly to the general plane of the base and passing through one diameter of the ring, and the hooked portion lies in another general plane which is disposed at an angle to the plane of the base and passes through another diameter of the ring.

PAUL E. FENTON.