

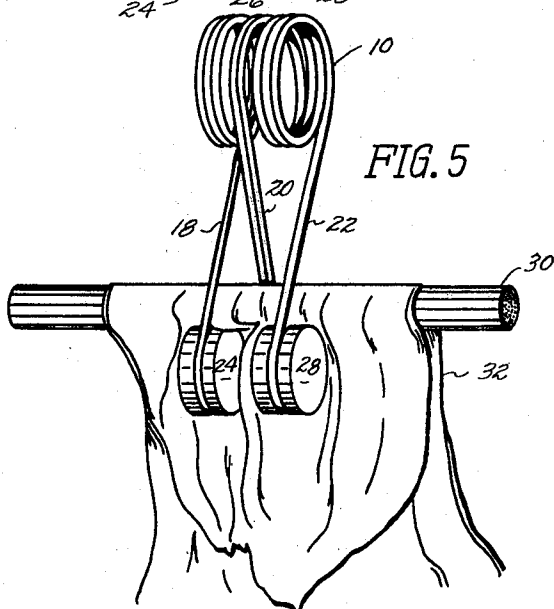
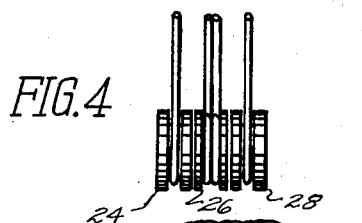
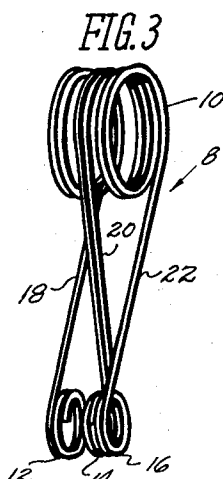
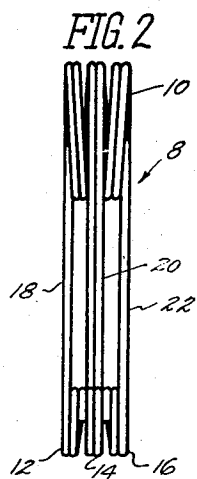
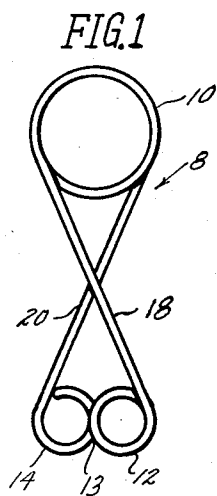
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CLOTHESPIN

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CLOTHESPIN

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2 Claims. (Cl. 24—139)

This invention relates to improvements in clothespins and, more specifically, to a clothespin of the resilient wire type.

It is the general object of this invention to provide a clothespin which will provide for positive retention of a fabric article on a line in such a manner as not to damage the fabric, which will exhibit characteristics of simplicity, durability and long life, and which may be manufactured easily and inexpensively.

The drawing shows preferred embodiments of the invention and such embodiments will be described, but it will be understood that various changes may be made from the constructions disclosed, and that the drawing and description are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

In this connection it will be noted that the drawing shows and the description is directed at a clothespin construction wherein a configuration commonly referred to as a coil is utilized. It is to be understood that it is within the scope of the invention to utilize any of a variety of types of "open loops" in the place of the said coils, an open loop being defined as a term which includes as well as a coil any configuration wherein a wire is bent back upon itself in spaced relation with itself whether or not a complete convolution is formed.

Of the drawing,

Fig. 1 is a side elevation of a clothespin embodying the invention;

Fig. 2 is a front elevation of the same;

Fig. 3 is a perspective view of the improved clothespin prior to engagement with the fabric article and the customary line;

Fig. 4 is a fragmentary illustration of an alternative construction of the invention wherein small rollers are inserted within the minor coils of the clothespin and;

Fig. 5 is a perspective view illustrating the practical application of the improved clothespin and showing the alternative structure of Fig. 4.

Referring particularly to the drawing, the clothespin 8 of this invention comprises a single strand of resilient wire, preferably of a non-corrosive material or plated with such a material, which is formed to provide a major coil 10, a plurality of arms 18, 20 and 22 extending from the said major coil 10, and additional minor coils 12, 14 and 16 disposed at the free ends of the said arms 18, 20 and 22.

The central or inner arm 20 of the clothespin 8 may be formed by reversing a central portion of a resilient wire 180° upon itself such that the two portions of the wire extending from the doubled back portion are adjacent one another. A fabric retaining member taking the form of the minor coil 14 may then be provided by turning the doubled back end of the wire arm 20 back upon itself in spaced relation with itself and in circular form as best illustrated in Fig. 1.

The major or hinge coil 10 may be formed by turn-

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ing the two portions of wire intermediate the minor coil 14 and the free ends of the wire in a rotational direction opposite that utilized in forming the coil 14. The free ends of the wire may then be extended generally tangentially from the major coil 10 so as to comprise the arms 18 and 22 and the free ends of the arms 18 and 22 may then be provided with fabric retaining members by forming the minor coils 12 and 16 respectively.

The arms 18 and 22 are extended from the major coil 10 on that side of the coil opposite the arm 20 and the minor coils 12 and 16 are generally tangential to the their respective inner faces such that the arms 18, 20 and 22 are in crossed over relation, with the coils 12 and 16 facing the coil 14 when the clothespin is viewed from the end of the coils as in Fig. 1.

While in the preferred embodiment of the invention shown, any suitable number of wire surfaces may comprise the fabric-contacting surfaces of the minor coils 12, 14 and 16, a minimum of approximately two strands of $\frac{1}{16}$ inch diameter wire forming approximately one-half inch diameter minor coils is preferred in order that delicate fabrics contacted and retained may thereby not be damaged. It is, of course, desirable to limit the number of turns in each coil in order to preserve the simplicity of the device so that it may be easily and inexpensively manufactured.

An important feature of this invention, as will be explained more fully hereinafter, is that a slight peripheral overlap, as best illustrated by Fig. 1 of the point 13, be provided between the inner coil 14 and the outer coils 12 and 16. This may be provided for by a proper selection of the sizes of the major and minor coils, the length of the arms 18, 20 and 22 and the circumferential point at which the arms 18, 20 and 22 are tangentially extended from the major coil 10.

The alternative construction of the invention illustrated by Fig. 4 incorporates the small rollers 24, 26 and 28 which are preferably of a wooden or plastic material and which serve to present additional, smooth, fabric-contacting surfaces. This construction is believed to be most desirable in cases where the fabric to be secured is of a delicate nature.

The formation of the major coil 10, the arms 18, 20 and 22, and the coils 12, 14 and 16 is in all essential respects identical with that described above in the case of the basic configuration. Sufficient lateral clearance between the minor coils 12, 14 and 16 for placement of the rollers 24, 26 and 28 may be assured by the formation of an appropriate number of turns in the major coil 10 and the minor coils 12 and 16 and a judicious selection of the roller length. The slight peripheral overlap of the coils 12, 14 and 16, described above, may be accomplished in this alternative construction in the same manner as before.

The rollers 24, 26 and 28 may be located within their respective coils 12, 14 and 16 by inserting them, after formation of the coils, with a slight force sufficient to overcome the retractile action of the resilient wire comprising the coils 12, 14 and 16 or, in the alternative, the coils 12, 14 and 16 may be formed about the rollers 24, 26 and 28. In either event, it is felt that the number of turns in the minor coils 12 and 16 may be reduced to the minimum required to positively retain the rollers 24 and 28 therewithin, the principal fabric-contacting surface in this alternative construction being provided by the rollers 24 and 28.

Accordingly, the coils 12 and 16 are illustrated in Fig. 4 as each having one complete turn whereas they are shown in Figs. 1, 2 and 3 as each having two complete turns. The inner coil 14 is comprised of a portion of wire turned back 180° upon itself and then formed at its end portion into a coil, as described above, must of

necessity constitute two widths of wire in both the basic and the alternative construction.

It is to be understood that while but one alternative construction is herein illustrated and described in detail, the inventive concept includes further variations wherein, for example, a small roller is disposed within a central coil 14 while the end coils 12 and 16 are constructed in accordance with the configuration of Figs. 1, 2 and 3 and, conversely, the construction wherein the end coils 12 and 16 carry rollers while the central coil 14 does not.

To secure the clothespin 8 in its operative position, the clothesline, indicated at 30 in Fig. 5, is held with the fabric article 32 placed thereon in the customary manner immediately under the lower angle formed at the peripheral overlap of the inner roller 26 and the outer rollers 24 and 28. A slight force is applied at the top of the major coil 10 and due to the resilient nature of the wire of which the clothespin 8 is constructed, the arms 18, 20 and 22 flex slightly allowing the roller-carrying coils 12, 14 and 16 to move apart and the line 30 to be moved upward therebetween. The retractile action of the arms 18, 20 and 22 will tend, once the line 30 has been moved upward past the major diameter of the rollers 24, 26 and 28, to urge the line 30 further in an upward direction until its upper surface abuts the arms 18, 20 and 22 in the angle formed therebetween below their cross-over point. This results in a snap action whereby the user is advised that the clothespin 8 is securely engaged in its operative position thereby eliminating the necessity of gauging precisely the applied force in order to assure positive fastening of the fabric article without the attendant deformation or tearing of the same.

When thus disposed in its operative position, the clothespin 8 by reason of the retractile action of the arms 18, 20 and 22 exerts positive retaining forces at a plurality of points of application. The fabric is firmly pressed down upon the upper portion of the line 30 at three triangularly spaced points by the arms 18, 20 and 22. In addition, the fabric is pressed upwardly in contact with the under portion of the line 30 also at three triangularly spaced points by the three rollers 24, 26 and 28. Because of this triangularly spaced application of retaining forces, both above and below the clothesline 30, the resistance to twisting action exhibited by the clothespin 8 of this invention is of extremely high order.

A final retaining action is provided by the peripheral overlap of the roller 26 with the rollers 24 and 28. The fabric may be expected to form itself about the central roller 26 and be forced into binding contact with the inner surfaces of the outer rollers 24 and 28. Operation of the clothespin having the basic configuration of the Figs. 1, 2 and 3 is similar in all respects to that described above.

While the last interlocking retaining action may not be expected to be operative in all cases, especially where lines of varying diameters and fabrics of varying thicknesses are encountered, it is felt that by judicious selection of the diameters of the several coils, the large majority of line and fabric combinations may be benefited by all three retaining actions. Additional utility is achieved even where this third retaining action is not operative since the first two retaining actions, of themselves, will afford ample retention under the great majority of conditions of use.

From the foregoing, it will be seen that an improved clothespin has been provided which affords a multiplicity of retaining forces and a consequent positive retention of fabric upon the line. It is, yet, extremely simple to pro-

duce and to operate. It is adaptable to a wide range of conditions of use and, with only a slight reduction in its effectiveness of retention, is adaptable to a still wider range.

While the constructions of this invention herein shown and described are referred to as devices for securing a fabric article to a line, it will be apparent that the invention may be useful for a variety of other purposes. It is, for example, envisioned as having utility in production line techniques where small objects such as vacuum tubes are required to be held securely. Accordingly, the word "clothespin" is not to be taken either in the description or in the claims as a word of limitation.

The invention claimed is:

1. A clothespin comprising a length of resilient wire having a central portion which is bent into a double wire arm, the free end of which is formed to provide a first coil of relatively small diameter and the other end of the double wire arm extending generally tangentially into a second coil of relatively larger diameter having a plurality of convolutions which are formed between said arm and the respective end portions of the wire, and each end portion of the wire comprising an arm extending generally tangentially from the said second coil and which crosses the double wire arm when viewed from an end of the said coils, each arm formed by an end portion of the wire being provided with a relatively small diameter coil at its free end, said first coil and said coils on the free ends of the arms on the end portions of wire all being generally tangential to the inner faces of their respective arms and said first coil being disposed partially between and in peripheral overlapping relation with each of said coils on the free ends of said arms with said clothespin in a free state whereby to cooperatively provide securing means.

2. A clothespin comprising a length of resilient wire having a central portion which is bent into a double wire arm, the free end of which is formed to provide a first coil of relatively small diameter and the other end of the double wire arm extending generally tangentially into a second coil of relatively larger diameter having a plurality of convolutions which are formed between said arm and the respective end portions of the wire, and each end portion of the wire comprising an arm extending generally tangentially from the said second coil and which crosses the double wire arm when viewed from an end of the said coils, each arm formed by an end portion of the wire being provided with a relatively small diameter coil at its free end, said first coil and said coils on the free ends of the arms on the end portions of wire all being generally tangential to the inner faces of their respective arms and said first coil being disposed partially between and in peripheral overlapping relation with each of said coils on the free ends of said arms with said clothespin in a free state whereby to cooperatively provide securing means, and three small rollers retained respectively in said first coil and the coils on the free ends of said arms so as to provide additional bearing surface for a fabric article held by the clothespin.

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