

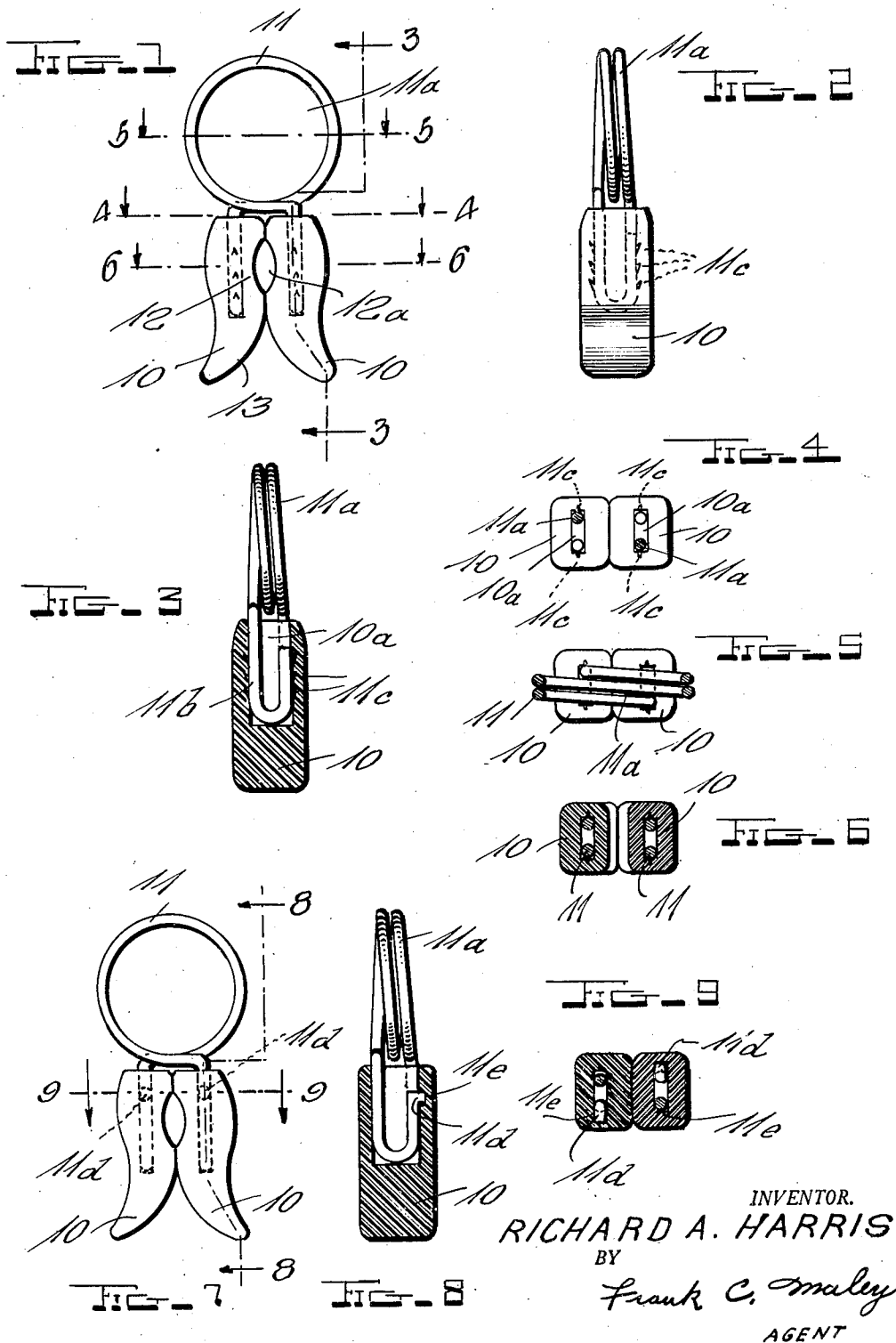
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CLOTHESPIN

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CLOTHESPIN

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The present invention relates to clothespins designed primarily for suspending clothes from a clothes line, but it is understood that a suspension device in accordance with this invention is for use in any connection for which it may be found applicable.

Many forms of such structures have been contemplated in service, these usually including a pair of jaws carried by a handle zone with the jaws arranged to provide a gripping action upon the work. In clothespin service, the work is provided by a clothes line on which the garment article is mounted, the pin being designed to retain the garment in its position on the line. Such use requires that the jaws be capable of yield outwardly to permit positioning and removal of the pin, and yet be capable of gripping the work when the pin is in service position. Some, as with the ordinary clothespin, are formed of wood having one end bifurcated to produce the jaws, the natural resilience of the wood being relied upon to produce the yield; others have the jaw members as individual elements connected together at an intermediate point by a spring construction, the latter generally including a coil zone, the coil serving to hold the jaws in their closed position and serve as a pseudo pivot to permit the jaws to yield. Various elaborations of these general characteristics have been developed to meet particular conditions, but inasmuch as they fundamentally embrace the above characteristics, the latter may be considered as a standard for the type.

The present invention is designed to produce a structure of this type which is simple in formation, capable of ready assembling, the invention being primarily developed to permit assembly by blind persons, comparatively compact structurally but exceedingly efficient in operation, of low cost of manufacture, and capable of production with jaws of different forms and materials.

The invention is formed generally of a pair of formed jaws anchored to the end zones of a spring the intermediate portion of which presents a coil, preferably of a pair of turns in side-by-side relation. The coil is of considerable diameter to thereby permit it to serve as a handle for positioning and removing the pin relative to the work, for providing an exceedingly efficient power source for producing the gripping action on the work when the pin is in service, and to permit a number of the clothespins to be retained on the fingers of each hand on the order of rings.

To these and other ends, therefore, the nature of which will be better understood as the inven-

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tion is hereinafter disclosed, said invention consists in the improved constructions and combinations of parts as hereinafter more fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the accompanying drawings, in which similar reference characters indicates similar parts in each of the views:

Figure 1 is a front elevation of one form of the assembly.

Fig. 2 is a side elevation of the same.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a horizontal sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a horizontal sectional view taken on line 5—5 of Fig. 1.

Fig. 6 is a horizontal sectional view taken on line 6—6 of Fig. 1.

Fig. 7 is a front elevation of a modified form of the assembly.

Fig. 8 is a vertical section taken on line 8—8 of Fig. 7.

Fig. 9 is a horizontal sectional view taken on line 9—9 of Fig. 7.

The assembly of the present invention is formed of a pair of jaw members 10 and the coil handle member 11.

The jaw members 10 are substantially duplicates, being formed of suitable material, preferably of the plastic type, but may be made of other materials, such as wood, metal, glass, rubber, etc. The contour configuration of each jaw member may be of any preferred type, but preferably, as shown in Figs. 1, 2 and 7, which disclose (Fig. 2) that opposite sides are substantially planar with rounded corners at top and bottom, while the outer and inner faces are of curved outline, the two faces differing in curvature. For instance, the inner face, which cooperates in producing the gripping face, is formed with a concaved zone 12 in its upper zone, the lower zone being flared outwardly as at 13. The outer face is shown as of compound curvature, but this is simply illustrative, since this face may be of any preferred form as long as it provides a substantial body formation carrying the configuration of the inner face referred to, with the lower zone effective to produce the lower lip zone shown. In the assembly, the inner faces of the pair of members oppose each other, so that the faces 12 combinedly produce an opening 12a, while the faces 13 produce a mouth, the walls of which flare outwardly. The mouth permits of readily posi-

tioning the assembly on the laden clothes line, the opening receiving the laden line with the concave faces partially encircling the line to retain the assembly in position

The coil handle member 11 is formed of resilient metal, such as wire, to illustrate the type, of a length sufficient to produce the structure being described. The intermediate zone of the wire length is coiled into a circular loop formation 11a, preferably of circular contour and formed of a pair of turns, these being arranged side by side, the end zones of the wire projecting from the same side of the contour. Each end zone is bent into a U-shape formation 11b with the leg which carries the free end of the end zone preferably of shorter length. The spacing of the two legs in the direction of the loop axis is approximately equal to the axial length of the turns of the loop, so that the plane of the end zone extends in the same direction as the axis of the coil loop. The shorter leg may be provided with a succession of barbs 11c, as in Fig. 2, or may have the free end bent laterally, as at 11d in Fig. 8. As is apparent, the opposite end zones of the coil member 11 have the U-shaped formations in reversed relation, while each formation has its opposite legs positioned on a common plane, the two formations present the longer leg of one formation as on a common plane with the shorter leg of the other formation, but with such latter plane extending in a direction at right angles to the plane of the two legs of the formation itself. Hence, the longer leg positions substantially correspond to the axial dimensions of the coil loop, being continuations of the loop, while the shorter leg of one formation is aligned with the longer leg of the other formation.

As will be understood, this arrangement of the U-shape contour places the two legs of the contour as extending in a plane parallel with a vertical plane through the coil axis and thus parallel to the mouth face of the jaw member, with the longer leg of the contour opposite the shorter leg of the U-shape contour of the other jaw member. While this positions the longer legs of the two contours out of direct opposition, and similarly with the shorter legs, such arrangement does not tend to set up unequal pressure conditions such as to tend to disturb the proper operation of the assemblage. This can be understood from the fact that the wire is of heavy gauge, and the common plane of the two legs of a contour extending parallel to the face of the mouth of the jaw member causes the width of such face together with the line to which the assemblage is applied to cooperate to prevent any such turning movement. The advantage of such arrangement comes from the fact that the legs (although spaced) and the connection therebetween provide a contour which includes an extensive area of the jaw member recess, and since the spring pressure is being applied in such manner as to be effective throughout the length of the contour, the pressure application is being applied in the direction of the face of the mouth and effective throughout the extensive area, although the legs and their connection are of wire and more or less skeleton in type. As will be apparent, the U-shape contour permits relative yielding between the legs within the jaw recess, but the yield is in a direction normal and angular to the direction of spring pressure application so that any yield which may be present has no effect upon the spring pressure application; the latter

being applied uniformly regardless of any leg yield which might be produced.

To permit assembly of the jaw members 10 with the coil loop member 11, each jaw member 10 is provided with an opening 10a leading inward from the upper end of the member to a depth slightly less than the length of the longer leg of the U-shape formation 11b including the curved zone which connects the pair of legs of the formation. The opening has a width equaling the thickness of the wire and a breadth equal to the overall dimensions of the two legs of a formation. In other words, the opening 10 will receive a formation and bring the upper end of the jaw member into proximity to the periphery of the coil by pushing the formation into the opening. The openings are similar in both jaw members so that when in position, the jaw members will have their side faces aligned, with the opposing inner faces in contact, indicated, for instance, in Figs. 1 and 7.

Since the coil member is of resilient wire form, the short leg can spring inward to permit the barbs 11c or the bent end 11d to pass over the adjacent wall of the opening during insertion of the formation. When the formation is seated, the resilience of the short leg will cause the holding features, the barbs 11c or the lateral end 11d, to engage in such wall, the latter having a depression 11e to receive the end 11d when the arrangement of Fig. 7 is being employed. Each jaw member thus becomes anchored to an end zone formation 11b.

The coil is so formed that when the members 10 have been anchored, the inner faces of the members will be in contact with the jaws under at least a slight tension, thus assuring the jaws will remain closed when the assembly is not in use. The amount of such normal tension is readily controlled by the positions of the longer legs relative to the turns of the loop, the positions being such, normally, that the two formations must be sprung apart to permit entrance into the openings of the pair of jaws into which the formations are to be received when the opposing inner faces of the jaws are in contact; the greater the amount of tension at such time, the stiffer becomes the assembly.

In practice, after the garment has been placed on the line, the assembly is simply applied by placing the flared mouth zone of the jaws on the laden line and applying downward pressure on the loop 11. This movement of the assembly causes the jaws to spread in opposition to the spring tension, the movement continuing until the laden line enters the opening 12a, whereupon the spring tension causes the jaws to close upon the laden line. To remove the assembly, it is necessary only to draw upon the loop 11, the concave faces 12 causing the jaws to spread sufficient to permit the laden line to escape.

The jaw members are substantial duplicates and can be formed of any suitable material, preferably plastic. Their form is such as to permit of ready production. The third member of the assembly, the handle coil loop, is preferably formed of a suitable resilient wire, the general shape, with either form, being such as to permit ready formation, including the formation of the barbs 11c and the bent free end 11d. The assembly of the elements is easily provided, as above pointed out, the invention was developed in such form as to permit assembly by a blind person, thus opening up an additional field of activity for those thus afflicted.

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As is apparent from the drawings, the assembly presents a structure which is not only highly efficient under actual service conditions, but presents such structure in a very compact form, thus making it suitable with lines of considerable variation in cross-sectional dimensions, thus being serviceable not only for the usual clothes line service, but providing for efficient service within the home where small articles are "hung up to dry." The jaw members have a length sufficient to meet normal service conditions, and the large coil loop provides power for producing the desired tensions, and, in addition, provides an efficient handle for manipulating the structure, since, if circumstances require, the withdrawal action can be provided by inserting a finger within the loop, the latter having dimensions permitting free entrance of the finger. The large coil loop also serves an additional purpose. As a rule, when hanging clothes, the clothespins are contained in a separate receptacle and the user is obliged to reach into such receptacle, extract a pin and then apply it over the clothes and line. To avoid this continued stooping and arm fatigue, it is now customary in some instances for the user to position or carry several pins in the mouth. The present invention, by providing the large coil loop, eliminates both of the above tiresome and unsanitary practices. This is possible by assembling a number of the pins on the fingers of each hand similar to finger rings. Thus, a supply of the pins is always available at the point of use and both hands are free to carry on the clothes hanging fastening procedure.

The assembly elements are of such forms as to permit their production under quantity production methods, while the assembly is such as to permit rapid development even under the hand operations contemplated, hence, the cost of production is comparatively low. One important advantage is the fact that inasmuch as the jaw members are individual, they can be produced from a variety of materials, thus making possible the production of assemblies of this type within various price ranges ranging from the cheaper wood structures to any expensive elaborate formations desired.

In addition to the above mentioned advantages, the assembled structure presents the coil 11 as having a diameter length approaching the length of the jaw members, in addition to which the coil is formed with at least one complete convolution so that the opposite end zones are spaced apart a distance at least equal to the cross-sectional diameter of the lower zone of such convolution which lies between such end zones; and since the end zones leading to the juncture with the legs extend across a vertical plane extending through the axis of the coil, they also extend across the line which divides the jaw members and which extends in such plane. As a result, the coil has its lower zone adjacent to and in proximity to the inner ends of the jaw members where such spaced end zones of the coil form spaced barriers at such inner end of the jaw members with the spacing placing the two barriers as spaced in the direction of length of the line; hence, the assembly can be quickly placed over the line and "pressed home" with assurance that it will be properly positioned, the spaced barriers causing the jaw members to extend directly downward due to the contact of the pair of barriers at spaced points with the line or the articles carried thereby.

And in this positioning the fact that the U-

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shaped contour of the legs of the coil extends from such end zones of the coil presents a definite advantage, due to the condition that the longer side of the leg from one end zone is located at one end of its receiving recess while the similar side of the other end zone is located at the opposite end of its receiving recess; since the receiving recesses are in different jaw members, and the recesses extend parallel with such plane, the shorter side of the U-shape contour of one jaw member is located directly opposite the longer side of the contour of the other jaw member; hence, the two sides of the contour as well as the bridging portion between them extend in a plane substantially parallel with the axis plane referred to when the jaw members are inactive, with the result that the U-shaped contour is active as a pressure-applying means for the jaw member to which it is secured throughout the complete length of the U-shape formation, thus applying pressure over an area of considerable width, thus tending to prevent jaw member movements such as would apply non-uniform pressure within the width of the opposing faces of the members.

In other words, the structure provides a highly efficient article for its particular service, with the article of compact form, but so arranged as to maintain serviceability and enable rapid application to service position with assurance of a proper positioning of the assembly.

Another advantage lies in the fact that should the jaw members become unfit for use, they may be readily replaced and thus only a portion of the total cost of the pin is wasted. It is proposed to sell jaw members alone in addition to the assembled pin so that a purchaser may always have replaceable jaws on hand.

While I have herein disclosed several forms in which the invention may be developed for efficient service, it will be understood that changes and/or modifications may be found desirable or essential in meeting the exigencies of a particular service or the individual desires of a user, and I therefore reserve the right to make any and all such changes and/or modifications so deemed essential or desirable, insofar as the same may come within the spirit and scope of the invention as expressed in the accompanying claims, when broadly construed.

I claim:

1. In suspension devices, wherein a pair of jaws are supported to provide a gripping action on the work for service with the jaws yieldable relative to each other to permit service positioning and removal of the device relative to the work, and assemblage of such type comprising a pair of jaw members, and a spring formation having its opposite end zones in the form of legs and an intermediate zone of coil characteristic, the coil presenting a plurality of convolutions with the point of juncture of a coil end zone and leg located beyond a vertical plane extending through the axis of the coil to thereby extend the coil end zone across such plane and across the dividing line between the opposing jaw members adjacent to and in proximity with the inner ends of such jaw members to thereby locate the coil end zones and leg continuations as in spaced apart relation by the thickness of at least one convolution with the leg entrance into the respective jaw members located on spaced apart parallel planes intersecting the vertical plane of the coil axis, the legs of the spring formation being located and applied within recesses of the jaw members

with a jaw member and leg presenting one side of the gripping throat, the housed leg portions being of open loop characteristic with each loop extending in a plane parallel to the vertical plane of the coil axis and being forcibly engaged with walls of the recesses, the coil zone diameter having a length approaching the length of a jaw member and being operative to provide the gripping power of the jaw members during service and to function as the assemblage handle in the positioning and removal of the assemblage relative to the work, said jaw members having configurations such as to combinedly produce a flared mouth and throat at the entrance to the gripping zone and a work-receiving opening within the throat and in spaced relation to the flared mouth.

2. An assemblage as in claim 1 characterized in that the recess of each jaw member is formed rectangular in cross-section with the greater length of the recess cross-sectional contour extending parallel to such vertical plane of the coil axis, and further characterized in that the open loop formations of the leg zones of the spring formation are each formed as of U-shaped contour adapted to be bodily received in the respective recesses and anchored to a wall thereof to thereby present the housed portion of a leg as having the legs of the U-shape contour extending in a common plane parallel to the vertical plane through the coil axis to thereby apply the pressure of the spring to a jaw member over an extensive area and throughout the length of such contour with the pressure exerted in a direction normal to such vertical plane through the coil axis.

3. An assemblage as in claim 1 characterized in that the legs of the spring formation are each formed as of U-shape contour adapted to be received in a jaw member recess and anchored to a wall thereof, the length of the end zone of the

leg which forms one of the sides of the U-shape contour being less than that of the other side of the contour, with the side of less length carrying anchoring means for securing the U-shape contour within the recess.

4. An assemblage as in claim 2 characterized in that the sides of the U-shaped contour structure of the respective zones present the leg formed from the terminal portion of the end zone as of less length than that of the other leg and with the leg of lesser length carrying anchoring means for securing the U-shaped contour within the recess, and further characterized in that the leg positions within the respective recesses present the legs in reversed relationship to thereby cause the positioned U-shaped contour structures of the assembled jaw members to present a long and a short side member on the same plane, with the latter extending normal to the plane of an individual U-shaped structure, and with such sides carried by different end zones.

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