Feb. 17, 1953 A. J. GORE 2,628,399

THREE-PART CLAMP HOLDER

Filed Dec. 27, 1951

FIG. 1.

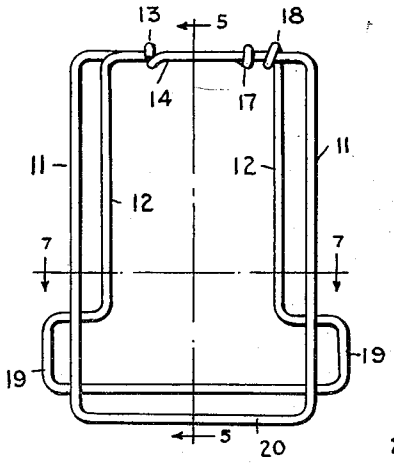


FIG. 2.

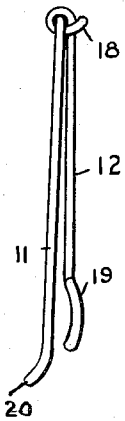


FIG. 3.

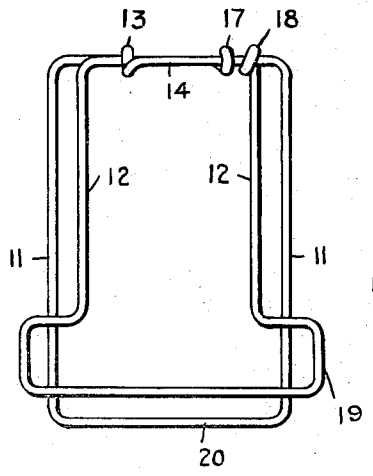


FIG. 4.

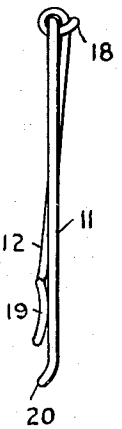


FIG. 5.

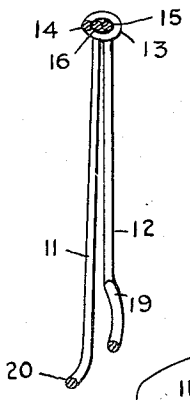


FIG. 6.

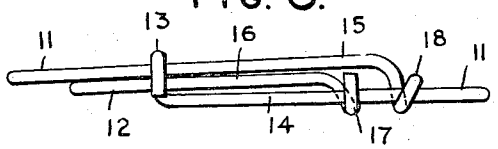


FIG. 7.

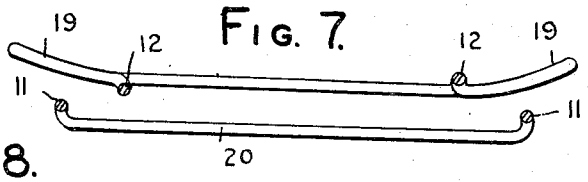


FIG. 8.

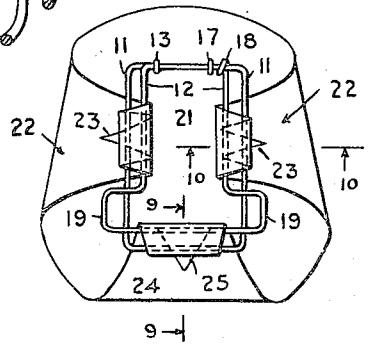


FIG. 9.

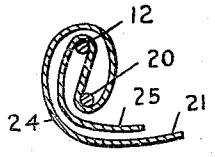
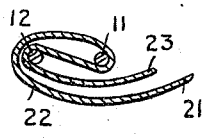


FIG. 10.



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UNITED STATES PATENT OFFICE

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THREE-PART CLAMP HOLDER

Albert J. Gore, Washington, D. C.

Application December 27, 1951, Serial No. 263,550

7 Claims. (Cl. 24—74)

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This invention relates to flexible holding devices for fastening together a plurality of ends or folds of material such as stocking supporters, diaper holders and belt attaching devices, particularly to devices for clamping three parts at a common point convenient to the wearer.

The invention aims to provide a simple, inexpensive clamping device bent from metal or plastic wire-like material and having no sharp edges or ends to tear or snag the clothing or flesh of the wearer. The invention further aims to provide a secure holding means which can be readily engaged or disengaged by hand and which can be locked against accidental loosening.

The advantages of the invention will be apparent to all persons who are at all familiar with the disadvantages of safety pins, tongue type buckles and other clamping devices having sharp prongs or edges for engaging the material to be secured.

Further aims and advantages of the invention appear in connection with the following description of a preferred form of diaper holder illustrated in the accompanying drawings, wherein Fig. 1 is a front view of the device in unlocked position, and Fig. 2 is a side view thereof; Fig. 3 is a front view of the device in locked position, and Fig. 4 is a side view thereof; Fig. 5 is a longitudinal sectional view on the line 5—5 in Fig. 1; Fig. 6 is a top end view of the upper runs of the device and Fig. 7 is a transverse sectional view on the line 7—7 in Fig. 1, looking in the direction of the arrows, showing the bottom runs in unlocked position, Figs. 6 and 7 being drawn to a larger scale than the other figures for clarity; Fig. 8 is a front view of the holder as applied to a diaper, the device being shown in locked position; and Figs. 9 and 10 are enlarged cross-sectional fragmentary views of the holder and diaper on the lines 9—9 and 10—10, respectively, in Fig. 8.

The device shown in the drawings is composed of a single length of relatively stiff but bendable material such as aluminum wire, or plastic covered soft steel wire, shaped to provide a front loop 11 and a rear loop 12, the bottom and side runs of which are substantially parallel and are slidably connected at their top runs as shown in Fig. 6, one end 13 of one top run 14 of the front loop 11 being bent to encircle both the other top run 15 of the front loop 11 and also the opposite end of the wire forming the top run 16 of the rear loop 12, as shown in Fig. 5, the end 17 of which in turn is bent to encircle the top run 14 of the front loop 11, as shown in Fig. 6. The top run

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15 of the front loop 11 is bent around the top run 14 of the other end of this loop 11 in a turn 18 and extends down forming one side run of the rear loop 12, as shown in Figures 1, 2, 3 and 4.

The side runs of the rear loop 12 are inside of the side runs of the front loop 11 except at their lower or free ends where they are bent outwards to form locking elements 19 adapted to be shifted laterally and forward in succession through the front loop 11 to reverse the front and rear relationship of these loops, the loop 11 then becoming the rear loop as shown in Figs. 3, 4 and 8. The lateral edge portions of these elements 19 are slightly curved towards the plane of the loop 11 in locked position, tending to increase the locking effect by opposing the reverse lateral sliding action necessary to restore the loop 12 to its normal position as shown in Figs. 1, 2 and 5. The bottom run 20 of the front loop 11 is bent slightly away from the plane of the rear loop 12 as shown in Figs. 2, 5, and 7.

This arrangement of flexible front and rear loops having their top runs slidably connected and their side runs laterally flexible to move towards or away from each other, with their bottom runs also free to move apart when not locked by the elements 19, makes it easy to apply the device to the parts of an article which it is desired to secure. Fig. 10 illustrates one mode of application of the device to hold the three corners of a baby's diaper in place so as to encircle the legs of the child as is well known to those accustomed to caring for young children. The drawing is illustrative only, not being drawn to exact proportions, but is sufficient to enable the modus operandi to be understood.

The diaper 21, folded diagonally as is customary, is placed by the attendant on a convenient support, such as the top surface of a bed or table, with the two 45° corners spread apart laterally and the square corners towards the attendant, and the child (not shown) is laid thereon face up with its bottom about in the center of the folded diaper. The two lateral corners 22 are picked up and brought together around the child's hip and waist and the ends passed up through the space within the loops 11 and 12, the longer front loop 11 being on top, and folded around the side runs of both loops and back under the side runs of the top loop 11 and over and around the inner sides of the side runs of the under loop 12, the tip ends 23 of the diaper being pulled out laterally until taut. By springing one side run of the loop 12 inwards away from the adjacent side run of the loop 11 either 45° corner of the

diaper can be readily adjusted to suit the comfort of the child. Both square corners **24** of the diaper are then picked up together and passed under both bottom runs of the loops and brought down forwards and passed under the bottom run **20** of the front loop **11** and back up towards the front and over and around behind the bottom run of the rear loop **12** which is free to move away from the bottom run **20** to permit as much of the two square corners of the diaper to be passed between the two bottom runs as is necessary to suit the size and comfort of the child. The ends **25** can then be pulled taut to complete the adjustment of the diaper in the holder.

To lock the parts of the holder in place and retain the corners **22, 24** of the diaper in their adjusted positions it is only necessary to press one side run element **19** laterally inwards until it can be passed through the loop **11** to the front, followed by repeating the operation with the other element **19**, whereupon the rear loop **12** will be on top as shown in Fig. 8, thereby clamping the holder in place and preventing likelihood of accidental loosening of the diaper from the natural movements of the child. By reversing this locking operation the side and bottom runs may readily be spread apart and the diaper removed.

The device may be applied to the ends of a garter encircling the lower leg and the upper hem of a stocking secured between the lower runs of the loops in much the same manner as described for holding a diaper. Other applications of the device to comparable uses will readily occur to those concerned with designing aviation harness belts, and other articles of personal wear.

Reference is made to my Patents Nos. 2,430,928, dated November 18, 1947, for a buckle and 2,552,957, dated May 15, 1951, for an adjustable locking buckle, showing similar fastening devices for other purposes.

The invention is not restricted to the exact dimensions and proportions shown in the drawings, but what is claimed and desired to be secured by patent is as follows.

I claim:

1. A three position fastening device comprising two connected generally symmetrical loops of continuous flexible wire-like material formed at each end with a guiding portion encircling the opposite end guiding portion, each loop having at least three adjacent sides with their major lengths closely parallel to the corresponding sides of the other loop, said loops being slidably hinged together by said encircling end portions about an axis formed by said guiding portions remote from and parallel to the intermediate one of said sides to form a joint permitting both swingable movement of said loops towards and from each other and independent relative sliding movement of said parallel sides transverse to the axis of symmetry thereof, whereby the spaces between said parallel portions of said three sides are severally adjustable in width.

2. A fastening device as set forth in claim 1 wherein the encircling end portions are spaced apart leaving a length of the material at the joint which provides torsional spring resistance to the hinge action.

3. A fastening device as set forth in claim 1 wherein the corners of one of said loops remote from the hinge are extended laterally to overlap the contiguous portions of the other loop to provide locking means for securing said device in fastening engagement.

4. A diaper fastener comprising two generally rectangular loops of a continuous length of resilient wire symmetrically arranged and joined at a common end and each consisting of two side portions and an end portion disposed in parallel relationship to the corresponding portions of the other, said wire having three runs at the common end of said loops two of which runs are formed by the two end lengths of said wire each of which terminates in a turn around the other permitting relative lengthwise movement thereof and forming a slidable connection between said loops, and the third end run forming a resilient connection between said loops permitting angular movement of one loop with respect to the other, whereby said parallel side and end loop portions may be shifted independently both sidewise and transversely with respect to the principal axis of symmetry of said fastener.

5. A diaper fastener as set forth in claim 4 wherein at least one of said end length turns surrounds the third end run of said wire.

6. A diaper fastener as set forth in claim 4 wherein the third end run has a turn encircling at least one of said end length runs.

7. A diaper fastener as set forth in claim 4 wherein one of said loops is narrower than the other and the two side portions of said narrower loop have laterally extending parts overlapping the contiguous parts of the side portions of the wider loop and adapted to be projected behind them for locking said loops in fastening position, substantially as described.

ALBERT J. GORE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,179,657	Rotermund	Apr. 18, 1916
2,430,928	Gore	Nov. 18, 1947