March 15, 1955 J. C. DONELAN 2,704,069

ARM RESTRAINING DEVICE

Filed July 21, 1953

FIG. 1.



FIG. 3.

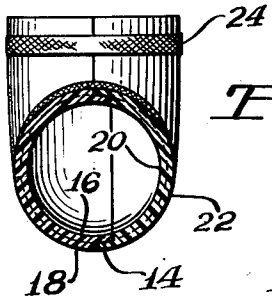


FIG. 5.

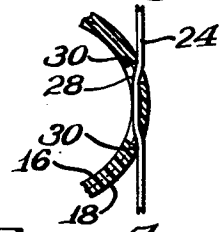


FIG. 2.

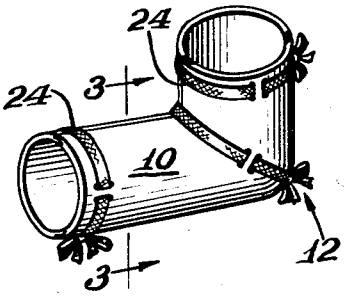
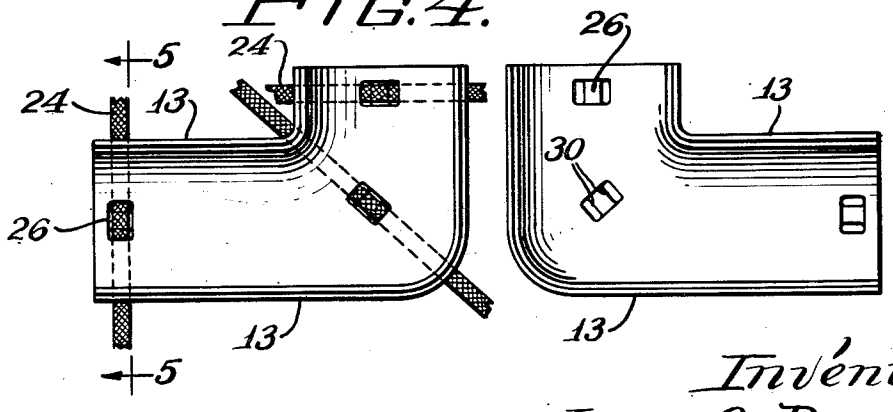


FIG. 4.



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ARM RESTRAINING DEVICE

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Application July 21, 1953, Serial No. 369,370

4 Claims. (Cl. 128—133)

My invention relates to an arm restraining device for children.

It is frequently desirable that children, or more particularly babies, be restrained from bringing their hand to their face as for instance, in controlling thumb sucking, nail biting, nose picking, scratching, etc. On the other hand, it is well to permit the child as much other arm activity as would be compatible with the restraint, and the device for such restraint should be as comfortable as possible.

One object of my invention, therefore, is to provide a device which will prevent a baby from touching his face with his hand.

Another object of my invention is to provide such a device which permits uninhibited hand and shoulder movement, and additionally, some limited elbow movement.

Still another object is the provision of such a device which is easily attached and removed from the arm of the baby, which may be secured to the arm without any pressure on the arm or ties thereto and which, when positioned on the arm, will not come off.

Still another object is to provide a device of the kind described which is loose fitting, light, airy and comfortable.

Other objects and advantages of my invention will be apparent from the following description and drawings of which:

Fig. 1 is a view of the child wearing a brace embodying my invention;

Fig. 2 is a perspective of the brace;

Fig. 3 is a transverse section which may be considered as being taken along the line 3—3 of Fig. 2 looking in the direction of the arrows;

Fig. 4 is an elevation of the disassembled halves thereof; and

Fig. 5 is a section which may be regarded as being taken substantially along the line 5—5 of Fig. 4 looking in the direction of the arrows.

The illustrated device embodying my invention may be defined generally as a two part sleeve **10** having an elbow bend **12** therein. It is preferably composed of a light, plastic material with fabric laminations therein for purposes of obtaining maximum strength along with maximum lightness. The sleeve should be highly rigid but should be formed to fit a child's arm loosely.

The sleeve is formed in two halves which represent, in general, a longitudinal separation thereof. Although other constructions are possible, I prefer that the sleeve halves be formed of two or more plastic-impregnated fabric plies bonded together and molded to shape in any conventional fashion. The joining edges **13** of the sleeve halves are specially formed to define a lap joint **14** upon assembly. The plies may be varied in width to match the structure of this joint. Thus, in the left half of the sleeve of Fig. 3 the inner ply **16** is substantially wider than the outer ply **18** and in the right half, the inner ply **20** is narrower than the outer ply **22**. A very feasible alternative material for the brace, however, would be aluminum in which case the lap joint will be formed by stamping an overlapping flange on the edges of one of the members. The lap joints **14** accurately maintain together the two sleeve halves while at the same time providing smooth interior and exterior surfaces.

The two halves of the brace are secured together by two or more light straps **24** which may be tied tightly around the two assembled halves. The number of straps, of course, is non-critical to the practice of my invention, the only requisite being sufficient strength to hold the parts together despite the efforts of the child to remove it.

The straps are maintained in position on the sleeve by a series of loops **26** formed in the sleeves. In the event the ply construction is employed, the procedure for forming the loops would be to blank out holes **28** in the inner ply and two slots **30** in the outer ply, which slots overlie the ends of the hole **28** in the inner ply. The straps may be of any width but they should be no thicker than the inner ply of my device. Upon the molding together of the two plys into the completed sleeve halves, loops will result, the inside surfaces of which are recessed behind the inside surface of the rest of the sleeve. The straps will generally pass around the outside of the sleeve, but lie under the loops for purposes of retention, the recessed loops permitting the strap to lie flush with the inside surfaces of the sleeve. It is desirable that each sleeve half have one loop in it for each strap to prevent the slipping of the straps on the sleeve, particularly when the straps are situated close to the ends of the sleeve and only two straps are employed. Without a loop on each half, the strap could be displaced from one of the halves over the ends thereof to permit a disassembly of the sleeve while it was being worn. The aluminum sleeve will have the loops formed therein by slotting the metal and pressing out the loops so formed to define upstanding saddles under which the straps may be passed. This likewise will maintain the smooth interior contour of the sleeve.

The use of the sleeve will be apparent from the foregoing description. The separate halves are placed about the arm of the child and joined together to make the lap joints **14** and the halves are then tied together by the straps **24** passing through the loops **26**.

The illustrated and described embodiment is but one of many ways of effectuating my invention. Although a right angle elbow bend is shown, the bend is by no means so limited. The limitations thereon are, on the one hand, not so much of a bend as to permit the child to touch its face and, on the other hand, not so little a bend that the device can slip down over the elbow of the child. This leaves a wide latitude in the bend from, for instance, about 75° to about 135°. The described method of fabrication has very material advantages over any other of which I can conceive but certainly others are possible. For instance, the two halves could be molded of solid plastic rather than the ply structure described. The possible use of a light metal has been mentioned before, and would probably have substantial expense advantages. The loops for containing the straps could be on the exterior of such a sleeve in the form of additions thereto although this would leave an undesirably rough exterior surface. The ply structure, however, has advantages of lightness and strength over a solid plastic sleeve and of comfort and smooth exterior over the metal sleeve.

Although a true lap joint is shown and described, it will be obvious that other joints will serve as well. A tongue and groove joint or a wedge fit are instances. The term "lap joint," therefore, as used in the claims is intended to cover broadly any joint involving overlapping of material and not just the specific joint described.

Other alternatives in my structure will likewise readily suggest themselves and I, therefore, desire that my invention be regarded as being limited only as set forth in the following claims.

I claim:

1. An arm restraining device adapted to enclose a child's elbow and adjoining arm parts to limit the movements of the elbow comprising a rigid tubular loose-fitting sleeve having an elbow bend therein, the maximum angle of said bend being sufficient to prevent the child touching its face and the minimum angle being sufficient to prevent the sleeve sliding over the elbow, said sleeve being formed in two longitudinal halves, the meeting edges of the halves being formed to provide a lap joint upon assembly thereof, and means for securing the halves together.

2. An arm restraining device as set forth in claim 1 wherein said securing means comprise straps encircling the two halves.

3. An arm restraining device as set forth in claim 1

wherein said halves are comprised of at least two plies of plastic-impregnated fabric bonded together.

4. An arm restraining device as set forth in claim 1 wherein said halves are comprised of two plies of plastic-impregnated fabric bonded together, the inner of said plies having holes formed therein and the outer of said plies having slots formed therein overlying the ends of said holes, and said securing means comprise straps passing through said slots to lie in said holes in said inner plies.

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