Oct. 11, 1960 W. A. CRAIG 2,955,594

HIP SPLINT

Filed July 9, 1959

FIG. 1

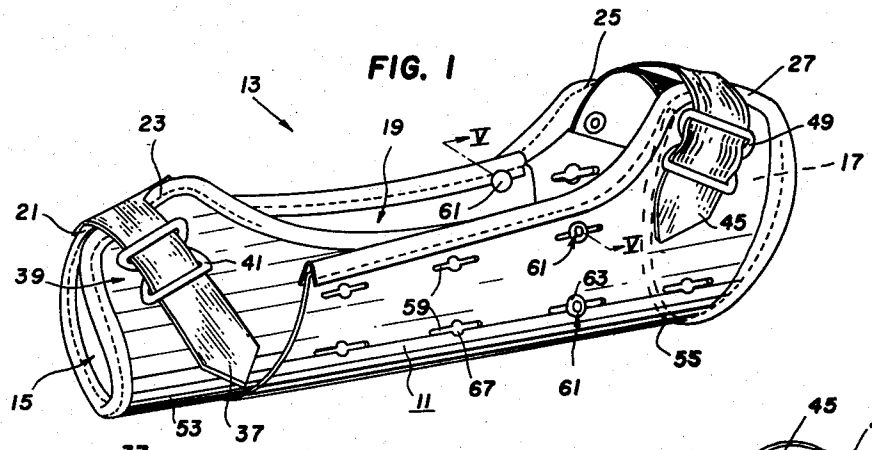


FIG. 2

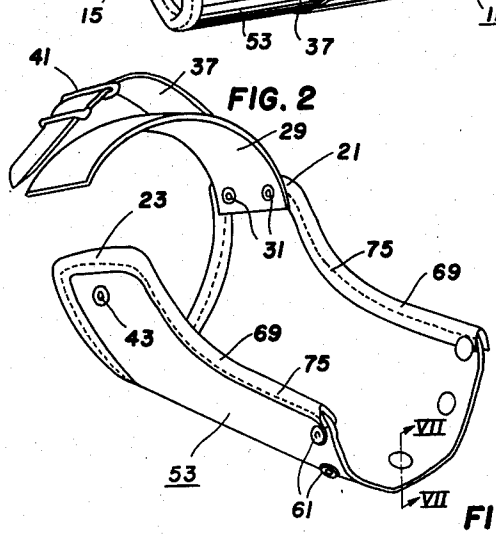


FIG. 3

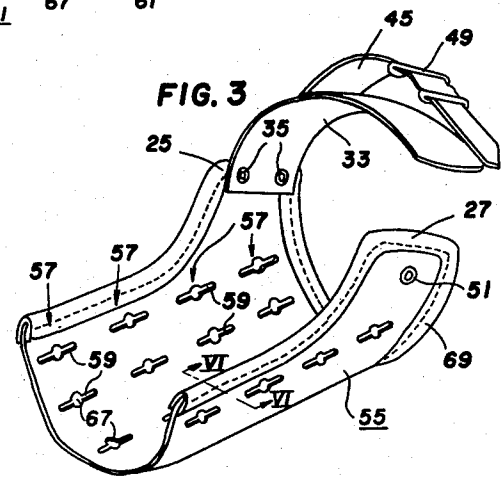


FIG. 4

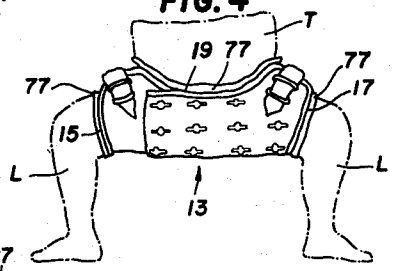


FIG. 5

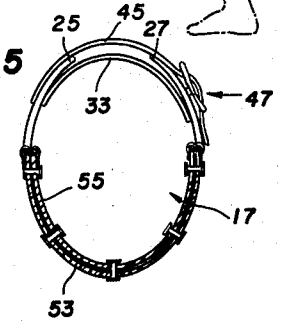


FIG. 6

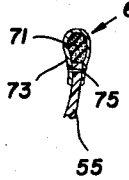
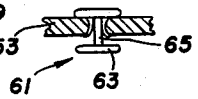


FIG. 7



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HIP SPLINT

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2 Claims. (Cl. 128—87)

This invention relates to a hip splint, particularly adapted for the treatment of the hips of infants from birth to approximately three and one-half years of age.

The difficulty of treating infants for any hip ailment can readily be appreciated when the following problems are considered. In the treatment of congenital dysplasia and dislocation of the hips, the ideal splinting position is with the hips at 90 degrees flexion and 90 degrees abduction. There is the problem of keeping the hips in this correct position for healing without making the infant extremely uncomfortable and without causing rigid immobilization. Another problem is that of the necessity of frequent changes of the diapers and the related problem of keeping the splint sanitary. Still another problem is that of irritation of the infant due to the rubbing of the splint which is particularly aggravated by the activeness of infants. Also, there is the problem of correctly fitting the splint to the infant.

The present invention is directed towards overcoming the above mentioned and other problems, and thus one of the objects of the present invention is to provide a hip splint for infants which holds the hips comfortably in an ideal splinting position without casing rigid immobilization.

A further object is to provide such a splint which is formed of plastic whereby making it impervious to moisture and completely sanitary, yet which is so constructed that despite the resiliency of the plastic, the hips are held in the correct position.

A further object is to provide a cushioned border around the edges of the splint to prevent irritation.

A further object is to provide such a splint which serves as a holder for the infant's diaper to eliminate the need for safety pins.

A further object is to provide a splint which can be quickly and easily put on and removed from the infant so that the diapers can be changed quickly and easily.

A further object is to provide adjustment means for varying the size of the splint so that it is suitable for all infants from birth to approximately three and one-half years.

A further object is, generally, to improve the design and construction of splints for infants.

These objects are accomplished by the present invention which, in general, comprises a substantially tubular plastic body, having openings adjacent the opposite ends thereof through which openings the legs of the infant are adapted to extend substantially in opposite directions and having a trunk opening intermediate the ends of said body at 90 degrees relative to said first mentioned openings, through which the trunk of the infant is adapted to extend. This unique tubular construction of the splint which forms an important feature of the present invention permits the splint to be formed of a resilient plastic which would not hold the hips in the correct position except for the fact that the splint is tubular in shape. In other words, the tubular shape of the splint gives structural strength to the plastic, and by forming the splint

of plastic, a structure is provided with is impervious to moisture and thus completely sanitary.

The present invention will now be more specifically described with reference to the accompanying drawings, wherein:

Fig. 1 is a perspective view of the present invention, with the fastening means being shown in a fastened disposition.

Fig. 2 is a perspective view of one of the portions of the splint of the present invention disassembled from the other portion and with the fastening means being shown in an unfastened disposition.

Fig. 3 is a similar view of the other portion.

Fig. 4 is an elevational view showing the splint in use on an infant, with only the lower part of the infant's body being shown, and which lower part is shown in broken lines.

Fig. 5 is a cross-sectional view taken as on the line V—V of Fig. 1.

Fig. 6 is an enlarged fragmentary sectional view taken as on the line VI—VI of Fig. 3.

Fig. 7 is an enlarged fragmentary sectional view taken as on the line VII—VII of Fig. 2.

Referring now to the drawings, in which the various parts are indicated by reference characters, in the assembled disposition as shown in Fig. 1, the body **11** of the splint **13** of the present invention is substantially tubular in shape and is formed of resilient plastic or the like. The opposite ends of body **11** define openings **15**, **17**, through which the infant's legs indicated as at L in Fig. 4, are adapted to extend. An elongated opening **19** is provided in the upper part of body **11** for the trunk T of the infant to extend.

Body **11** is interrupted along a longitudinal line adjacent the upper part thereof, which line extends between elongated opening **19** and the end of the body at opening **15** to provide adjacent longitudinal edges **21**, **23** of the body. Body **11** is also interrupted along another longitudinal line adjacent the upper part thereof, which extends between elongated opening **19** and the end of the body at opening **17** to provide adjacent longitudinal edges **25**, **27** of the body.

A flap **29**, formed of resilient plastic or the like, is fixedly attached adjacent one end thereof as by brads **31** or the like to body **11** adjacent edge **21** and extends generally towards edge **23**. Likewise, a flap **33**, formed of resilient plastic or the like, is fixedly attached adjacent one end thereof as by brads **35** or the like to body **11** adjacent edge **25** and extends generally towards edge **27**. It will be understood that the purpose of flaps **29**, **33** is to form arcuate extensions of body **11** when the edges **21**, **23** and the edges **25**, **27** are respectively spread apart, as for example, to accommodate an infant having large legs. In other words, flaps **29**, **33** prevent a gap being formed in body **11**, which would be uncomfortable to the infant. The free ends of flaps **29**, **33** are adapted to extend under the opposite edges **23**, **27**, respectively. Thus, as best seen in Fig. 5, the free end of flap **33** is shown extended under edge **27**.

A strap **37**, formed of resilient plastic or the like, is attached adjacent one end thereof to body **11** adjacent edge **21**, preferably by the same brads **31** that attach flap **29**. Strap **37** extends over flap **29**, and suitable attaching means is provided for attaching strap **37** adjacent its free end to body **11** adjacent edge **23**. Said attaching means preferably comprises a snap fastener **39**, of well-known construction, one part of which is movably engaged on the strap as by the buckle-like member **41** and the other part of which is fixedly secured to body **11** adjacent edge **23** as at **43**. Thus, member **41** is adjustable along strap **37** to form the correct size of opening **15**. In a similar manner, a strap **45**, formed of resilient plastic or the

like, is fixedly attached adjacent one end thereof to body **11** adjacent edge **25** and extends over flap **33**. Also in a like manner, attaching means is provided for strap **45** in the form of a snap fastener **47**, one part of which is movably engaged on the strap as by the buckle-like member **49** and the other part of which is fixedly secured to body **11** adjacent edge **27** as at **51**.

Body **11** is preferably divided into two halves or portions **53**, **55**. The adjacent ends of portions **53**, **55** are adapted to overlap as best seen in Fig. 1, when the body **11** is assembled. In other words, portion **53** is slidably received in portion **55** so that body **11** is of telescopic construction whereby the length of the body from end-to-end may be varied by sliding the portions **53**, **55** together for contraction of body **11** or sliding the portions in the opposite direction for expansion of the body. Co-acting means is provided for holding portions **53**, **55** at the desired positions relative to each other. Said co-acting means preferably comprises a plurality of longitudinally spaced rows **57** of spaced slots **59** extending substantially around portion **55**, along a line in a plane substantially perpendicular to the longitudinal center-line of body **11**, and a row of spaced protruding members **61**, fixedly attached to portion **53** and arranged to respectively extend into a selected one of the rows **57** of slots **59** to join portions **53**, **55**. The construction of each of protruding members **61** is similar to a brad and extends outwardly from portion **53** with the outer head **63** thereof being spaced somewhat from the outer surface of portion **53** so that the shank **65** of member **61** can extend through a selected one of slots **59** with the head **63** anchored against the outside surface of portion **55** to lock the portions **53**, **55** together. Each of slots **59** is preferably enlarged intermediate the ends thereof, as at **67**, to facilitate passage of head **63** through the slot in fastening and unfastening. From the foregoing, it will be understood that the above described co-acting means securely locks the portions **53**, **55** together substantially along a line extending around an intermediate portion of body **11** so that there can be no relative movement of the portions **53**, **55**.

A cushion-like border **69** is mounted around the top and outer end edges of portions **53**, **55** so as to prevent irritation of the infant. Border **69** preferably comprises a sponge-rubber interior **71**, covered by a strip of material **73** of plastic or the like which is secured to the edges of portions **53**, **55** as by stitching **75** or the like.

In using splint **13**, the splint is first adjusted to the size of the infant as by placing protruding members **61** in the proper row **57** to give the desired length of body **11** and by adjusting members **41**, **49** along straps **37**, **45**, respectively, for the proper size of the infant's legs. Then with fasteners **39**, **47** unfastened, and with a diaper **77** laid in position around the inner surface of body **11**, the infant is placed in the splint on diaper **77**, and snap fasteners **39**, **47** are fastened. Thus, as best seen in Fig. 4, the hips of the infant are held in an ideal splinting position with the hips at 90 degrees flexion and 90 degrees abduction. It will be understood that splint **13** can easily and quickly be removed for the changing of the diaper.

From the foregoing description, it is apparent that the splint of the present invention is washable, and is light in weight, yet is strong due to its tubular shape. In addition, such a splint is easy to take off and put on. It requires no special fitting and is adjustable to the proper size for a patient.

Although the invention has been described and illustrated with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes and modifications may be made therein which are within the full intended scope of this invention as hereinafter claimed.

I claim:

1. A splint for treatment of the hips of an infant, said splint comprising a substantially tubular plastic body having openings adjacent the opposite ends thereof through which the legs of the infant are adapted to extend in opposite directions and said body having a trunk opening intermediate the ends of said body at 90 degrees relative to said first mentioned openings through which the trunk of said infant is adapted to extend whereby said splint is arranged to hold the hips of said infant in a splinting position of 90 degrees flexion and 90 degrees abduction without rigid immobilization, in which said body is divided into two portions telescopically arranged for varying the end-to-end length of said body and the length of said trunk opening, one of said portions being provided with a plurality of longitudinally spaced rows of spaced slots extending substantially around the portion, and the other of said portions being provided with a row of protruding members corresponding to a row of said slots and arranged to respectively extend into a selected row of said slots to hold said portions at the correct relative position for the desired size of said splint.

2. A device of the character described comprising a splint for infants, said splint including a substantially tubular plastic body having openings adjacent the opposite ends thereof through which the legs of the infant are adapted to extend substantially in opposite directions and having a trunk opening intermediate the ends of said body at 90 degrees relative to said first mentioned openings through which the trunk of said infant is adapted to extend, a diaper disposed in said body, said body being interrupted along longitudinal lines respectively extending between opposite ends of said body and said trunk opening to provide two pairs of adjacent longitudinal edges of said body whereby providing access for the legs of said infant to respectively pass for removing and putting on said splint, means for respectively coupling said longitudinal edges to hold said body around the legs and trunk of said infant and to hold said diaper in place on the infant without the aid of safety pins, in which said body is divided into two portions telescopically arranged for varying the end-to-end length of said body and the length of said trunk opening, one of said portions being provided with a plurality of longitudinally spaced rows of spaced slots extending substantially around the portion, and the other of said portions being provided with a row of protruding members corresponding to a row of said slots and arranged to respectively extend into a selected row of said slots to hold said portions at the correct relative position for the desired size of said splint.

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