

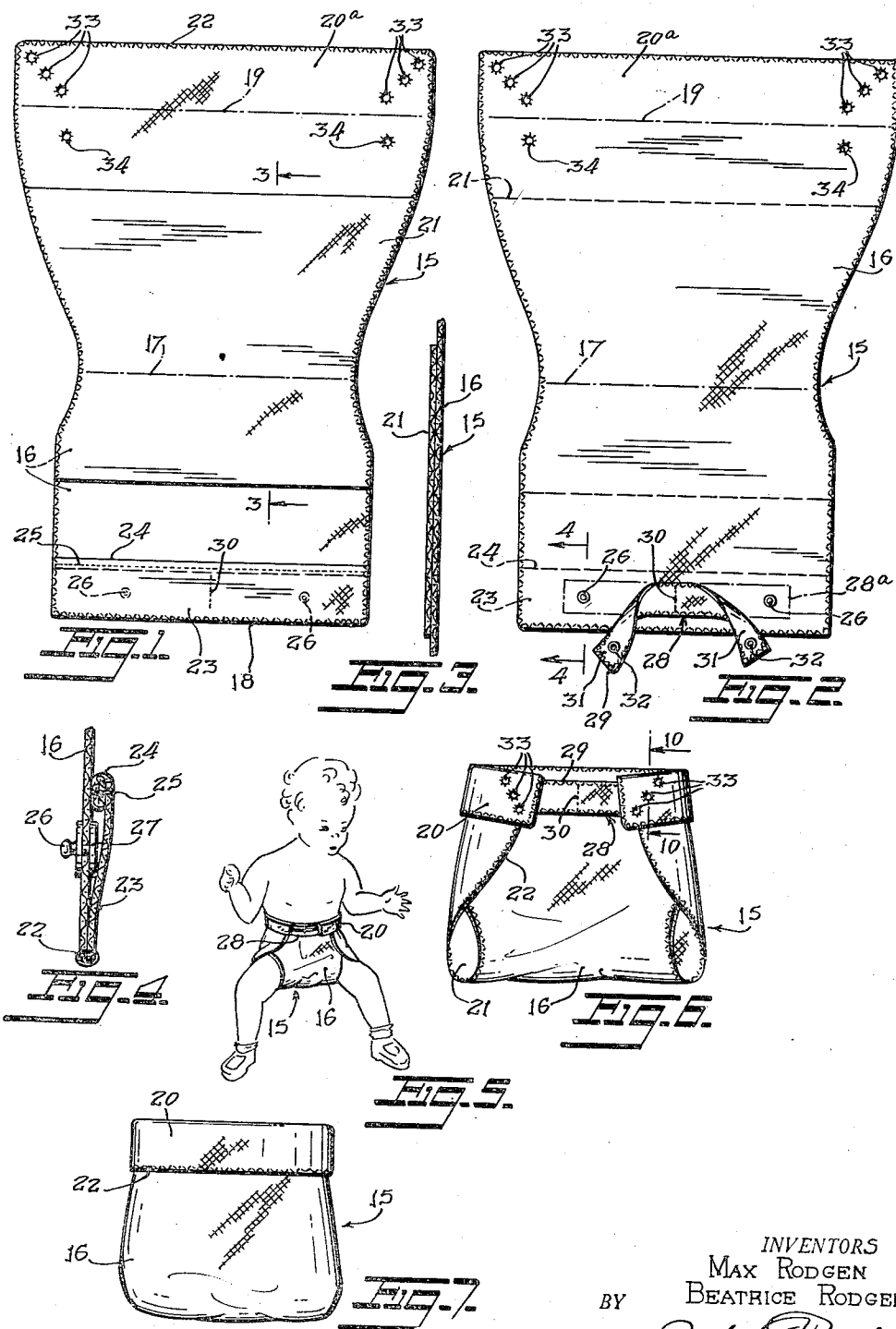
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M. RODGEN ET AL
PINLESS DIAPER

2,494,312

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2 Sheets-Sheet 1



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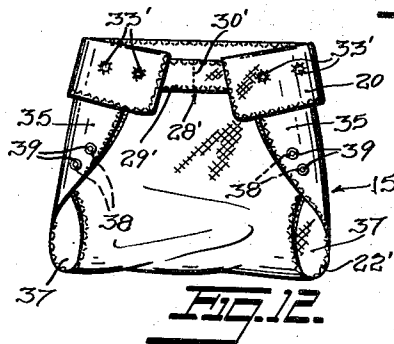
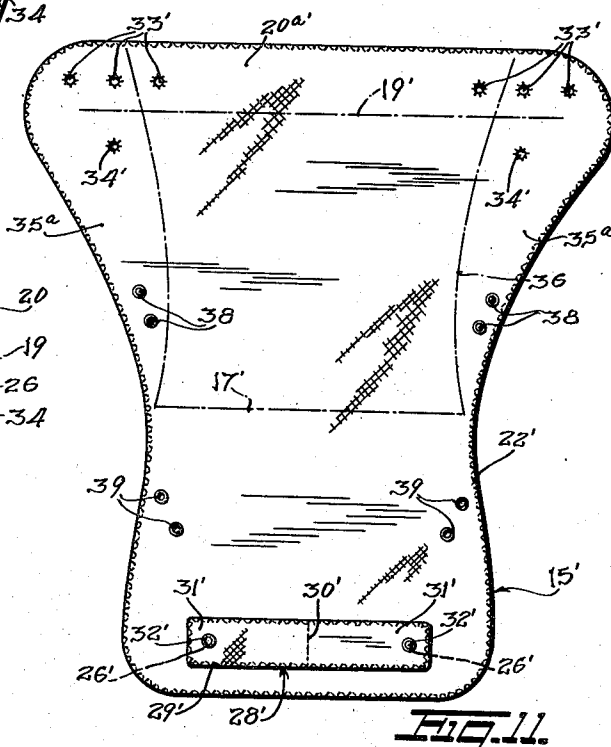
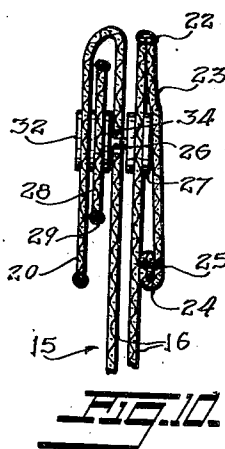
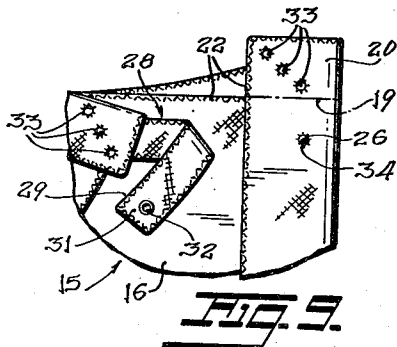
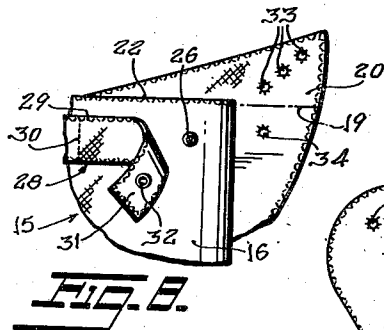
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2 Sheets-Sheet 2



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PINLESS DIAPER

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Application December 10, 1948, Serial No. 64,491

11 Claims. (Cl. 128—284)

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This invention relates to new and useful improvements in pinless diapers, and, more particularly, the aim is to provide a novel and valuable such diaper characterized by the inclusion of a single sheet-structure which after being washed and pressed to establish a turn-down collar or fold at one end thereof requires no folds to be made preparatory to putting the diaper on the infant.

Said single-sheet structure, which may be of one or several plies of material, and also with one of such plies of less expanse than a main ply or sheet, is when spread flat somewhat elongate and of an outline suggesting rudimentarily an hour-glass yet with such unusually slight differences in width at different places along the length of the diaper as to involve a trifling waste of material; otherwise stated, said outline is essentially substantially rectangular.

By the provision of said collar or fold, which may simply be an end subdivision of said single-sheet structure extending all the way across the latter, a special cushioning structure is present all around the waist of the baby while the diaper is being worn. When this fold is opened and when the snaps are adjusted through the appropriate eyelets, the diaper becomes longer to accommodate a larger size baby, i. e. when the child grows, the collar is opened up and adjusted accordingly. Also, a uniquely attractive appearance is given to the diaper while it is being worn.

A further feature of the invention is the avoidance of tying tapes and the like, but, instead, the inclusion of quick-releasable fastening means, such, for instance, as snap fasteners, for fitting the diaper snugly and efficiently yet comfortably to the body of the child. One pair of snap fastener post and socket elements may be used at each of two points oppositely located across the width of the diaper and yet each such pair may be employed to participate in changing the waist size of the diaper incidental to arranging the diaper on the infant.

Still another feature of the invention is the provision of an elongate strip extending longitudinally in the direction of width of the diaper, near one end thereof, and stitched near the center of its length to near the center of width of the diaper, to leave free both end portions of said strip and so constitute each such portion a manipulable tab; with each of these tabs carrying one element of a pair of said snap fasteners, and with the main part of the diaper at the last-named end thereof carrying the snap fastener elements complementary to those on said tabs.

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Various other features and advantages of the invention will become apparent or be pointed out hereinafter.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 shows a now favored embodiment of the new diaper, spread flat, and looking at the inside thereof.

Fig. 2 is a view similar to Fig. 1, but looking at the outside of the diaper, with the above-mentioned tabs allowed to droop away from the main structure of the diaper.

Fig. 3 is a fragmentary detail view, this being a section taken on the line 3—3 of Fig. 1.

Fig. 4 is, on an enlarged scale, a fragmentary detail view, this being a section taken on the line 4—4 of Fig. 2.

Fig. 5 is a perspective view, showing the diaper on the body of a very young child.

Fig. 6 front elevationally shows the diaper with its portions arranged as in Fig. 5.

Fig. 7 is a view like Fig. 6, but looking at the back of the diaper.

Fig. 8 is a fragmentary perspective view, indicative of a step in the putting on of the diaper.

Fig. 9 is a view similar to Fig. 8, illustrative of another such step.

Fig. 10 is an enlarged detail view, this being a section taken on the line 10—10 of Fig. 6.

Fig. 11 is a view similar to Fig. 2, but showing another now favored embodiment.

Fig. 12 is a view corresponding to Fig. 6, but in regard to the diaper of Fig. 11.

Preliminarily it may be noted that Figs. 4 and 10 are drawn about to actual scale, for one size of diaper.

Now referring to the drawings in detail, and first to Figs. 1—10, the new diaper includes a single-sheet structure 15 incorporating a single blank 16 of suitable textile material, as diaper cloth; which sheet 16, it will be observed, is generally of elongate rectangular shape and yet having an outline rudimentarily suggesting an hour-glass as already stated.

The approximate location of the portion of the diaper to lie at the crotch of the child is indicated by the dot and dash line 17. With the diaper thus arranged the bottom edge 18 thereof will reach up to about a fold line shown in dot and

dash at 19. The already mentioned collar is marked 29 in Figs. 5-10, and the portion of the sheet 16 to establish such collar, when the diaper is washed and ironed, is designated 20^a in Figs. 1 and 2; said portion 20^a being the portion of the sheet 15 above the fold line 19 of Figs. 1 and 2 (note said line 19 as also shown in Figs. 8 and 9).

The new diaper may have, and desirably does have, an extra piece 21 (Figs. 1, 2 and 3) of diaper cloth, for extension as a liner over a zone substantially at the central portion of the diaper, for absorption purposes. If desired, although not thus shown, the upper and lower edges of the liner piece 21 which extend transversely of the sheet 16 may be finished off in any way as by edge stitching or otherwise. As herein illustrated, the liner 21 is floatingly present along its last-named edges; and said liner, along its end edges, is secured to the sheet 16 by a line of flat-zig-zag or loop-over edge stitching 22 running all around the perimeter of the sheet 16.

Also, a narrow elongate panel 23, which, too, may be of diaper cloth, is, along its bottom and along both its ends, secured in place on the main sheet 15, by said stitching 22; this panel being placed at the very bottom of the diaper and extending all the way across the same, at the inside of the diaper. While said panel could be an end extension of the sheet 16, it is shown as a separate piece, finished off along its top edge by a doubly-folded edge seam 24 bound down by a line of stitching 25.

The panel 23 not only acts to participate with the collar 20 in providing a soft cushion around the waist of the infant while the diaper is being worn, in a manner which will become clear in a moment, but is also used for protectively backing the rear basal portions of two snap fastener elements 26. Said elements 26, as shown perhaps best in Figs. 4 and 10, preferably are snap fastener elements of the post type, so that, as will be understood when Figs. 8-10 are below in detail described, the posts of said elements will be directed away from the body of the infant; with, at the same time, the basal clenching members applied to the elements 26 to secure them to the diaper protectively housed behind the panel 23, as will be noted from Figs. 4 and 10, where such a basal clenching member is designated 27.

The strip previously mentioned, for carrying the snap fastener elements complementary to the elements 26, and which strip also may be of ordinary diaper cloth, as marked 28. The strip 28 may be made of several plies, finished off all around by a line of stitching 29 similar to the stitching 22. At a point midway along its length the strip 28 is secured by a transverse line of stitching 30 to the midpoint along the width of the diaper near its bottom, this stitching engaging the sheet 16 and the panel 23. The strip 28 is placed at the outside of the diaper, and when stitched-anchored as just described provides two like manipulable tabs 31. Secured to each of these tabs is one of said complementary snap fastener elements, each of these marked 32. The outline of the strip 28 when spread flat over the sheet 16 is indicated in dot and dash lines at 28^a in Fig. 2; the elements 32 being so placed on the tabs 31 that when the strip 28 is thus spread flat the fastener-elements 32 are positionally in mating adjacency to the post-type snap fastener elements 26.

At each of its opposite ends the subdivision 20^a of the sheet 16 of Figs. 1 and 2, is provided with a plurality of eyelets or apertures 33. Also, as

here shown, these apertures at each side of the diaper are spaced along a line which is downwardly inclined in a direction inwardly of the diaper. However, these eyelets or apertures may be placed on a horizontal line if so desired. In addition to the apertures 33, there is another aperture 34 at each side of the diaper and below the line 19. Preferably, each of these apertures is finished off all around the same by buttonhole stitching as indicated. More than three of such eyelets or apertures 33 may be present, and also one or more apertures additional to, and spaced from the aperture 34.

Next considering particularly Figs. 5-10, the diaper, after being arranged on the body of the child to have the collar 20 at the baby's back, and, with the infant's crotch covered by the portion of the diaper paralleling and adjacent to the line 17 of Figs. 1 and 2, the lower portion of the diaper carrying the strip 28 is brought up as indicated in Fig. 8, where, for clarity of explanation, most of the collar 20 is shown as broken away. This Fig. 8 may be taken to represent the portion of the diaper corresponding to the portion thereof seen at the right in Fig. 6. Assume that it is the snap fastener element 32 seen in Fig. 8 which is decided to be first attached to the complementary snap fastener element 26 seen in Fig. 8. This attachment is done by first placing the adjacent side portion of the upper end of the diaper carrying the aperture 34 (after such portion has been drawn around the adjacent hip of the child so that said portion now lies somewhat over the front of such hip) over the portion of the diaper at the same side thereof which carries the post-type element 26. The adjacent end of the collar 20 being lifted, the post of said element 26 is sent in a direction outward from the infant's body through the aperture 34; and then said post is snapped into the complementary socket-type fastener element 32 now carried by the adjacent tab 31 with the socket of said element 32 facing toward the baby's body.

Fig. 9, showing the collar 20 partly raised, illustrates the completion of such an operation as just above described, but performed at the side of the diaper seen at the left in Fig. 6.

Should the waist fit thus obtained not be that precisely desired, as temporarily in the case of an attack of flatulency, or in the case of a more permanent condition resulting from the natural growth and increase in size of the abdominal region of the child, in putting on the diaper the end portion of the diaper which carries the snap fastener elements 26 may be brought up so as to be projected in under the collar 20, and with the tabs 31 laid over the collar, the posts of the elements 26 may be sent through the selected ones of the apertures 33 and then snapped into the elements 32.

Referring to the modification of Figs. 11 and 12, here the parts to which are applied reference numerals with primes added correspond, respectively, to the part in Figs. 1-10 to which are applied reference numerals without primes. The main sheet 16', while differing somewhat in outline from the sheet 16, is, it will be noted, made in accordance with the rudimentary hour-glass principle hereinabove mentioned. While a liner piece corresponding to the liner piece 21 is not shown, the same may be, and desirably is, included. The diaper here illustrated omits the panel 23, and instead the post-type fastener elements 26' are secured to the sheet 16', but, of

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course, at locations positionally in mating adjacency to the socket-type fastener elements 32' as indicated in Fig. 11. Also, the apertures 33' are shown as spaced along a horizontal line instead of along an inclined line as in Figs. 1 and 2. As stated in connection with Figs. 1-10, there may be more of the apertures 33' provided, and also more of the apertures 34', than as shown.

When the diaper is placed on the child, the side portions of the sheet 16' indicated at 35 are the portions of said sheet designated 35^a in Fig. 11, that is, the portions of the sheet 16 lying outwardly of the dot and dash lines 36 of Fig. 11. The diaper shown in Figs. 11 and 12 illustrates another feature of the invention, which may be present in any embodiment thereof; to wit, the use of a suitable auxiliary plurality of snap fasteners for securing said portions 35 of the sheet 16 to close in comfortably yet snugly the leg openings to be established as at 37. In the present case, two sets of such auxiliary snap fasteners are illustrated at each side of the diaper; each of these including a post-type snap fastener element 38 and a socket-type complementary fastener element 39. As said elements are shown in Fig. 11, the posts thereof are directed away from the observer; while, as the diaper is shown arranged in Fig. 12, said posts are directed toward the observer and hence away from the infant's body.

As in the case of the diaper of Figs. 1-10, should the waist fit obtained be not that precisely desired, when the diaper of Figs. 11 and 12 is secured on the body of the child in the manner first described in connection with the diaper of Figs. 1-10, the parts may be arranged and snap fasteners 26'-32' may be coupled as described in the second preceding paragraph, in putting on the diaper.

While we have illustrated and described the preferred embodiments of our invention, it is to be understood that we do not limit ourselves to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described our invention, what we claim as new, and desire to secure by United States Letters Patent is:

1. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper.

2. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision there-

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of extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, said diaper having an outline suggesting rudimentarily an hour-glass.

3. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, said diaper having an outline suggesting rudimentarily an hour-glass, said tabs being the end portions of an elongate strip which adjacent a midpoint along its length is stitched to the diaper.

4. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, said snap fastener elements carried by said tabs being socket-type such elements.

5. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a

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plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, the second-named snap fastener elements being post-type such elements with their posts directed away from the outside of the diaper.

6. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, the second-named snap fastener elements being post-type such elements with their posts directed away from the outside of the diaper, there being a plurality of said apertures through the collar.

7. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, the second-named snap fastener elements being post-type such elements with their posts directed away from the outside of the diaper, there being a plurality of said apertures through the collar, the last-named apertures being spaced along a line downwardly inclined inwardly of the diaper.

8. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof

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extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, the second-named snap fastener elements being post-type such elements with their posts directed away from the outside of the diaper, there being a plurality of said apertures through the collar, the last-named apertures being spaced along a line substantially parallel with the direction of width of the diaper.

9. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, the second-named snap fastener elements being post-type such elements with their posts directed away from the outside of the diaper, there being a facing inside the diaper and along its bottom for providing a protective housing for the basal clenching members for the said post-type snap fastener elements.

10. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, there being auxiliary snap fastener means on the

diaper and so arranged thereon that when the mutually complementary elements of said auxiliary fasteners are coupled the leg openings to be established in the diaper as arranged on the body of an infant are drawn up snugly.

11. A pinless diaper, comprising a sheet element generally of elongate rectangular shape and so adapted to have an upper end subdivision thereof extending all the way across the diaper to be folded down about a rectilinear line to provide a depending collar at the outside of the diaper, a plurality of apertures through the diaper some of which apertures are through said collar and some others of which are through the portion of the diaper to underlie said collar, said apertures of a size to permit passage therethrough of the shank of a post-type snap fastener element of standard size, a pair of oppositely horizontally extended tabs secured to the outside of the diaper and near the bottom thereof, elements of two snap fasteners each of which elements is carried

by one of said tabs, and two snap fastener elements each complementary to one of the first-named such elements and carried by the diaper near its bottom at points both spaced outwardly from the longitudinal center line of the diaper, there being a liner sheet secured to and at the inside of the diaper, said liner sheet of less length than the length of the diaper.

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