CLAIMS

What is claimed is:

1. A method of making elasticized absorbent pants having a waist opening and a pair of leg openings, the method comprising the steps of:

continuously applying multiple distributions of elastics on a moving material sheet to form a moving web of an elastic composite;

periodically applying a core section onto the moving web;

applying a second material sheet onto the moving web to define a web of discrete elastic composite bodies; and

shaping the elastic composite bodies into absorbent pants with leg openings and waist openings.

2. The method of claim 1, wherein the shaping step includes joining each of a bottom half portion and a top half portion of each composite body to form a plurality of substantially continuous elastic distributions in the elastic composite body.

3. The method of claim 2, wherein the joining step forms annular elastic regions about a waist opening and each of a pair of leg openings.

4. The method of claim 2, wherein the joining step is preceded by the step of folding the web along a longitudinal centerline and the joining step includes sealing the two half portions along two side seams to define at least a waist opening.

5. The method of claim 4, wherein the joining step is preceded by the step of periodically cutting a cut-out section of the finished web at a location adjoining adjacent elastic composite bodies such that, after the joining step, each lateral boundary of the elastic composite body consists of a lateral side seam and the cut-out section.

6. The method of claim 4, wherein the shaping step further includes severing the finished web along a cut line bisecting the cut-out section.

7. The method of claim 6, wherein the joining step precedes the severing step so that the severing step produces an elastic absorbent pants having a waist opening, a pair of leg openings, and multiple elastic distributions extending through two lateral side seams.

8. The method of claim 1, further comprising the step of periodically severing one or more of the multiple distributions of elastics to create gaps in the elastic distributions, the gaps being prelocated to correspond to areas on the web free of elastics.

9. The method of claim 1, wherein each of the applying steps include applying a layer element of the moving web of discrete elastic composite bodies in a machine direction.

10. A method of making an elastic composite web from which elastic composite bodies of an absorbent article may be separated, the method comprising:

conveying a continuous web of material sheet in a longitudinal or machine direction;

applying multiple continuous distributions of elastics onto the moving web to form a web of elastic composite, whereby the elastic distributions generally extend in the machine direction;

periodically applying a core section on the moving elastic composite web; and

continuously applying a top material sheet onto the web including the core sections.

11. The method of claim 10, wherein the step of applying continuous distributions of elastics establishes at least two periodic distributions of elastics on the moving web by varying the lateral position of the distribution of elastics as the elastic distributions are advanced in the machine direction toward the moving web of elastic composite.

12. The method of claim 11, wherein the step of applying the continuous distributions includes periodically varying the lateral position of the elastic distribution prior to engagement with the material sheet.

13. The method of claim 12, wherein the step of applying the continuous distributions includes periodically varying the lateral position to establish two curvilinear patterns on the moving web of elastic composite.

14. The method of claim 13, wherein the step of applying the continuous distributions includes directing the curvilinear patterns to intersect such that, the step of applying a core section, an annular elastic region is provided about the periphery of the core.

15. The method of claim 11, wherein the step of applying continuous distributions establishes a pair of generally sinusoidal patterns periodically defining elastic annular regions in the web.

16. The method of claim 10, further comprising folding the moving web about a longitudinal centerline to define a web of folded elastic composite bodies, each body being severable about a pair of cross-machine cutting lines to define a finished absorbent article having a waist opening.

17. The method of claim 16, further comprising, before the severing step, sealing along the cross-machine cutting line to define an upper waist region of the absorbent article.

18. The method of claim 17, further comprising the step of periodically cutting a section of the moving web bounded by an elastic annular region to define leg openings having elastic annular regions thereabout.

19. The method of claim 18, wherein the cutting step includes periodically cutting a hole in the moving web asymmetrically about the longitudinal centreline, thereby producing leg openings having uneven back and front sections.

20. An elasticized disposable absorbent article in the form of absorbent pants, the article comprising:

an elastic composite body having a backsheet, a topsheet, an absorbent core between the backsheet and topsheet, and multiple elastic distributions between the topsheet and backsheet, wherein the elastic composite body has a front end edge, a rear end edge, and two lateral side edges each having a top segment, a bottom segment, and non-linear cut-out section therebetween;

a waist opening defined by the end edges;

a pair of leg openings each defined, at least partly, by the cut-out section of one of the lateral side edges; and

a pair of side seams each defined by the joining of the top and bottom segments of one of the lateral side edges; and

wherein the elastic distributions are joined at the side seams to form a substantially annular elastic region about each leg opening.

21. The absorbent article of claim 20, further comprising a pair of elastic distributions joined at the sealed side edges to form a substantially annular elastic region about the waist opening.

22. The absorbent article of claim 21, wherein the elastic composite body includes a pair of elastic distributions extending laterally across the lateral width of the composite body and joined at the sealed edges to form substantially annular elastic regions.

23. The absorbent article of claim 22, wherein the pair of elastic distributions form an annular elastic region coincident with the core.

24. The absorbent article of claim 22, wherein one or more of the elastic distributions traverse the core imparting elasticity thereto.

25. The absorbent article of claim 20, wherein the elastic distributions are gapped in the area of the core.

26. A system of making a web of elastic composite bodies, the web having a plurality of layer elements, the system comprising:

a centralized joining station for receiving continuous linear inputs of each of the layer elements and delivering a continuous web of the elastic composite bodies, the station including a first roller;

an input feed of multiple distributions of elastics, including one or more input feeds having laterally movable guides for variably laterally directing the elastic distribution to the roller;

a plurality of linear input feeds of sheet material; and

an input feed for periodically delivering a core section to the station.

27. The system of claim 26, wherein station and the input feeds are arranged such that each of the input feeds apply a layer element to the roller in the machine direction.

28. The system of claim 27, wherein each of the input feeds are positioned to feed the roller from a direction generally normal to the axis of the roller.

CLAIMS

1. A method of making elasticized absorbent pants having a waist opening and a pair of leg openings, the method comprising the steps of:

continuously applying multiple distributions of elastics on a moving material sheet to form a moving web of an elastic composite;

periodically applying a core section onto the moving web;

applying a second material sheet onto the moving web to define a web of discrete elastic composite bodies; and

shaping the elastic composite bodies into absorbent pants with leg openings and waist openings; and

wherein the step of continuously applying multiple distributions of elastics establishes at least two periodic distributions of elastics on the moving web by varying the lateral position of the distribution of elastics as the elastic distributions are advanced in the machine direction toward the moving web of elastic composite, and

wherein periodically applying a core section applies a core section onto a region of the moving web such that the elastic distributions traverse the region imparting elasticity to said core section.

2. The method of claim 1, wherein the shaping step includes joining each of a bottom half portion and a top half portion of each composite body to form a plurality of substantially continuous elastic distributions in the elastic composite body.

3. The method of claim 2, wherein the joining step forms annular elastic regions about a waist opening and each of a pair of leg openings.

4. The method of claim 2, wherein the joining step is preceded by the step of folding the web along a longitudinal centerline and the joining step includes sealing the two half portions along two side seams to define at least a waist opening.

5. The method of claim 4, wherein the joining step is preceded by the step of periodically cutting a cut-out section of the finished web at a location adjoining

adjacent elastic composite bodies such that, after the joining step, each lateral boundary of the elastic composite body consists of a lateral side seam and the cut-out section.

6. The method of claim 4, wherein the shaping step further includes severing the finished web along a cut line bisecting the cut-out section.

7. The method of claim 6, wherein the joining step precedes the severing step so that the severing step produces an elastic absorbent pants having a waist opening, a pair of leg openings, and multiple elastic distributions extending through two lateral side seams.

8. The method of claim 1, further comprising the step of periodically severing one or more of the multiple distributions of elastics to create gaps in the elastic distributions, the gaps being prelocated to correspond to areas on the web free of elastics.

9. The method of claim 1, wherein each of the applying steps include applying a layer element of the moving web of discrete elastic composite bodies in a machine direction.

10. The method of claim 1, further comprising:

conveying a continuous web of material sheet in a longitudinal or machine direction wherein said applying multiple continuous distributions of elastics onto the moving web forms said moving web of elastic composite, whereby the elastic distributions generally extend in the machine direction; and

continuously applying a top material sheet onto the web including the core sections.

11. The method of claim 10, wherein the step of applying the continuous distributions includes periodically varying the lateral position of the elastic distribution prior to engagement with the top material sheet, and wherein the step of applying the continuous distributions includes periodically varying the lateral position to establish two curvilinear patterns on the moving web of elastic composite.

12. The method of claim 11, wherein the step of applying the continuous distributions includes directing the curvilinear patterns to intersect such that, the step of applying a core section, an annular elastic region is provided about the periphery of the core.

13. The method of claim 10 , wherein the step of applying continuous distributions establishes a pair of generally sinusoidal patterns periodically defining elastic annular regions in the web.

14. The method of claim 10, further comprising folding the moving web about a longitudinal centerline to define a web of folded elastic composite bodies, each body being severable about a pair of cross-machine cutting lines to define a finished absorbent article having a waist opening.

15. The method of claim 14, further comprising, before a severing step, sealing along the cross-machine cutting line to define an upper waist region of the absorbent article.

16. The method of claim15, further comprising the step of periodically cutting a section of the moving web bounded by an elastic annular region to define leg openings having elastic annular regions thereabout.

17. The method of claim16, wherein the cutting step includes periodically cutting a hole in the moving web asymmetrically about the longitudinal centreline, thereby producing leg openings having uneven back and front sections.

18. The method of claim 1, wherein the step of applying continuous distributions of elastics establishes at least two periodic distributions each having a curved section and wherein the curved sections of the periodic distributions are spaced apart to approximate an elliptical shape; and

wherein the shaping step includes joining each of a bottom half portion and a top half portion of each composite body to form a plurality of substantially continuous elastic distributions in the elastic composite body and the joining step forms annular elastic regions about a waist opening area and each of a pair of leg openings areas defined by the approximated elliptical shape, the method further comprising:

periodically cutting a section of the moving web within the approximated elliptical shape to define leg openings having elastic annular regions thereabout.

19. The method of claim 12, further comprising periodically cutting a section of the moving web between the two curvilinear patterns within to define leg openings having elastic annular regions thereabout, wherein the elastic annular regions are

formed by the curvilinear patterns approximating an elliptical shape about the leg openings, and wherein the leg openings define a leg opening angle greater than about 75 degrees.

20. The method of claim 19, wherein the two curvilinear patterns feature continuous alternating sections of high amplitude and low amplitude, wherein the section of low amplitude provide the elliptical shape, the method further comprising:
placing a core section in locations of the moving elastic web corresponding to the sections of high amplitude.

21. The method of claim 10, further comprising:

continuously applying an intermediate material sheet onto the moving elastic web prior to applying the core section, wherein continuously applying a top material sheet applies a backsheet material and wherein folding the moving web includes folding inwardly toward the first material sheet such that the backsheet material is located on the outside; and

wherein the core section is applied lengthwise onto and generally perpendicularly to the longitudinally moving direction of the moving elastic web.

22. The method of claim 1, wherein said applying multiple continuous elastic distributions applies two sets of elastic distributions and wherein, after periodically placing a core section, the two sets of elastic distributions include sections approximating the periphery of the core section.

23. The method of claim 1, wherein said applying multiple continuous elastic distributions applies two sets of continuous elastic distributions and wherein, after periodically placing a core section, the two sets of elastic distributions include sections coincident with the core section.

24. The method of claim 1, wherein the elastic distributions engage the placed core sections to create an elasticized core shape; and

wherein a material sheet is applied over the moving elastic web prior to said placing the core sections, and wherein the elastics in the elastic distributions are

varied in the location of the core sections such that the core section is elasticized with a narrowed central region.

25. The method of claim 1, wherein said applying multiple elastic distributions applies elastic distributions to engage the core section proximate the periphery of the core section after said placing the core section to create an elasticized core shape, whereby the elasticized core shape is cup shaped.

26. The method of claim 1, wherein said applying multiple elastic distributions apply elastic distributions to engage the core section after said placing the core section to create an elasticized core shape, whereby the elasticized core shape is an elasticized, upwardly biased pocket.