United States Patent

Glassman

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[54] **METHOD OF FORMING CATAMENIAL NAPKINS**

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[52] **U.S. Cl.** **264/294,** 264/320, 264/322, 264/324

[51] **Int. Cl.**.....**B29c 3/00**

[58] **Field of Search**.....264/324, 322, 320, 294; 128/290 R

[56] **References Cited**

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[57] **ABSTRACT**

A method of forming a catamenial napkin into a longitudinal arch-shape with spaced parallel longitudinal channels on its concave surface defining between them a compacted tampon-like central ridge. The method also includes the step of forming a central longitudinal channel on the convex surface to facilitate folding when in place on a wearer and the formation of a lateral crease inwardly of each end adapting the napkin to compact package and storing.

3 Claims, 3 Drawing Figures

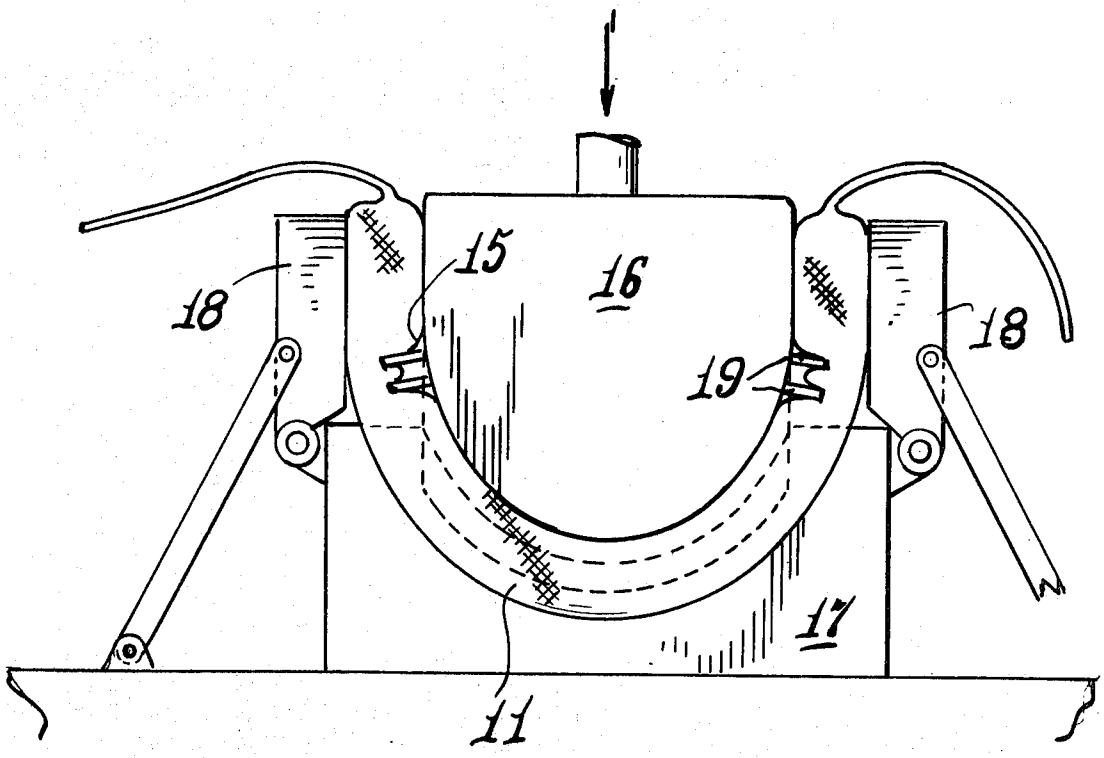


Fig. 1.

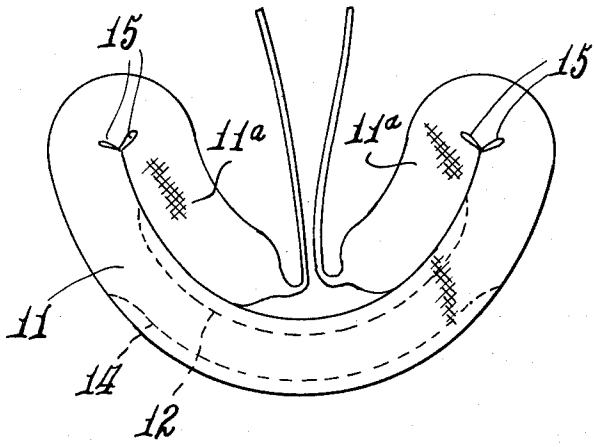


Fig. 2.

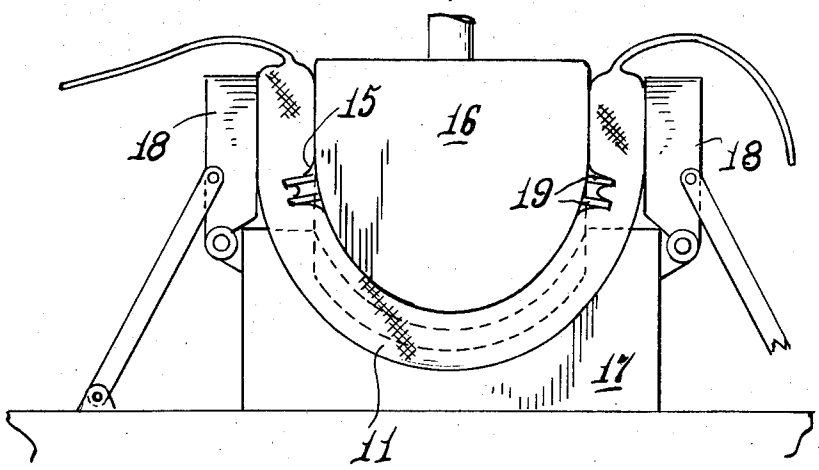
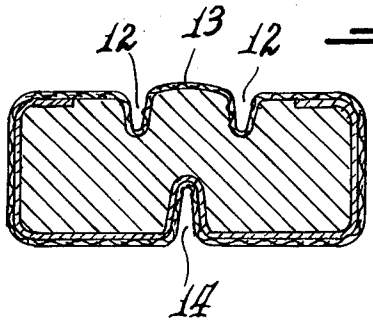


Fig. 3.



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METHOD OF FORMING CATAMENIAL NAPKINS

The invention relates to improvements in the steps of fabricating a catamenial napkin of a type shown in my U.S. Pat. No. 3,411,504, issued Nov. 19, 1968.

In many known earlier types of catamenial napkins it was customary to provide an elongated pad that is flat or substantially flat throughout its length and which is devoid of any means to control the flow direction of menstrual waste fluids with the result that such napkins become saturated prior to their intended useful life or they overflow principally in the direction of their side edges thus causing the wearer to experience a feeling of wetness long before the useful life of the napkin is attained. In fact, such sidewise flow is enhanced in such napkins owing to the generation of lateral wrinkles in the effective surface of the napkin resulting from its being arched as it is applied to conform to the curvature of the crotch of the wearer.

The napkin formed by the present method avoids all of the foregoing objectionable characteristics.

In particular, the napkin produced by the present method of manufacture is initially formed flat as it comes from a conventional napkin forming machine. It is subsequently molded by heated dies into an arcuate configuration, in a longitudinal direction, so as to eliminate the generation of lateral wrinkles, when it is manually applied. It further is formed on its concave surface, by heat, moisture and compression, with a pair of laterally spaced apart longitudinal grooves defining between them a compacted tampon-like ridge. It is similarly formed on its bottom or convex surface, by heat, moisture and compression, with a longitudinal groove provided to facilitate the downward folding of the napkin when arranged between the thighs of a wearer. A further step in the fabrication of the herein disclosed napkin is the generation of one or more lateral creases, by heat, moisture and compression, inwardly of each end of the napkin. The end portions can therefore be easily folded over inwardly to facilitate packaging and preserving the exaggerated arcuate from of the central portion of the napkin during packaging and storage.

A napkin embodying these characteristics retards the flow of menstrual wastes toward the side edges thereof inasmuch as such waste fluids are initially absorbed by the compacted central tampon-like ridge as the overflow enters into the channels and is distributed throughout a longitudinal direction for subsequent absorption by the entire remainder of the napkin. Additionally, the exaggerated U-shaped arching of the napkin removes and further prevents the generation of lateral wrinkles as so often occurs when a flat or substantially flap napkin is manually curved or positioned around the crotch of a wearer. A moisture impervious barrier may or may not be provided on the bottom and side edges of the napkin and the whole is enclosed in a loose outer mesh fabric gauze or wrapper.

It is therefore an object of the invention to provide a novel method of forming a catamenial napkin.

Another object is to subject a catamenial napkin to a shaping operation so as to form it into an exaggerated U-shaped arch in longitudinal direction.

Another object is to provide a method of catamenial napkin formation which includes the step of generating by the application of heat, moisture and compression, longitudinal channels therein.

Another object is to provide a method of catamenial napkin formation which includes the step of transversely creasing the napkin adjacent to its ends.

Another object is to provide a method of catamential napkin formation which is not difficult to perform and which is very effective for the purposes intended and which can be cycled into a napkin fabricating machine.

Other object and advantages of the invention will become apparent with reference to the following description and accompanying drawings.

In the drawings:

FIG. 1 is an elevational view of a catamenial napkin fabricated by the herein disclosed method.

FIG. 2 is a view of the dies used in performing the steps of the method.

FIG. 3 is a transverse central sectional view of the napkin.

A catamenial napkin formed by the herein disclosed method is shown in FIG. 1. As illustrated, the napkin comprises a body **11** of soft highly absorbent fibrous material, such as cotton paper fluff, crepe wadding, or similar materials of the type commonly used for absorbing purposes, including end portions **11***a*. The napkin is formed by the herein disclosed method, into an exaggerated U-shaped longitudinal arch having on its concave surface a pair of longitudinal channels **12** (FIG. 3) formed by heat, moisture and compression, and defining between them a compacted tampon-like ridge **13**. The bottom or convex surface of the napkin is formed, by heat, moisture and compression, with a longitudinal channel **14** and, inwardly of each end portion **11a**, there is formed, by heat, moisture and compression, at least one but preferably two creases **15**.

Specifically, a prefabricated napkin comprised of a flat elongated body of soft non-woven absorbent material is initially moistened by the application of a water spray or steam. It is then positioned between two spaced apart matching shaping dies **16**, **17**, the effective surfaces of which are arcuate in shape in a longitudinal direction. The shaping dies are brought together under pressure, as shown in FIG. **2**, so as to form the napkin into an exaggerated arch shape longitudinally and, co-incidentally therewith, the longitudinal groove or channel **14** is formed by compression on the bottom or convex surface of the napkin and a pair of laterally spaced apart longitudinal channels **12** are formed by compression in the concave or top surface of the napkin, the central compacted portion created between them functioning as a tampon.

During this shaping and compression operation heat and steam is applied to the napkin to cause it to retain the formed configuration after its removal from between the dies. Also, during movement of the dies into napkin shaping and channel compressing position, the end portions **11***a* of the napkin are defined from the main body **11** thereof by at least one lateral crease **15** that is formed therein by compression, through upward movement of wing dies **18** which press the end portions against crease forming ribs **19** on the upper die **16**. The napkin is compressed only in the regions of its channels **12**, **14** and creases **15**, the remaining portions thereof retaining their soft loosely matted highly absorbent condition, except for the top central tampon-like portion which is compacted to function as a tampon.

Although I have described a preferred embodiment of my invention in considerable detail, it will be understood that the description thereof is intended to be illustrative rather than restrictive, as details of the steps of the method may be modified or changed without departing from the spirit or scope of the invention.

I claim

1. The method of forming a catamenial napkin fabricated from an elongated mass of soft fibrous material, said method including the steps of; causing the mass to be moistened, providing shaping dies the effective surfaces of which are arcuate in shape in a longitudinal direction and at least one of which has shaping ribs thereon, positioning said moistened mass between said dies, heating at least one of said dies, applying pressure to said dies to compress selected areas of the mass to form at least one longitudinal channel in one face of the mass, providing wing dies on the ends of one of the shaping dies and providing at least one rib on each end of the other of said shaping dies, and causing the wing dies to compress the end regions of the mass into engagement with the related ribs so as to generate lateral creases in said mass.

2. The method recited in claim 1, with the addition of providing shaping ribs on the shaping dies to form channels in both faces of the mass.

3. The method recited in claim 1, wherein there are two ribs on each end of the other of said shaping ides to form two lateral creases in each end portion of the mass.

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