Nov. 29, 1966 R. V. MATHISON ETAL 3,288,141

CATAMENIAL SUPPORT GARMENT

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Fig. 1

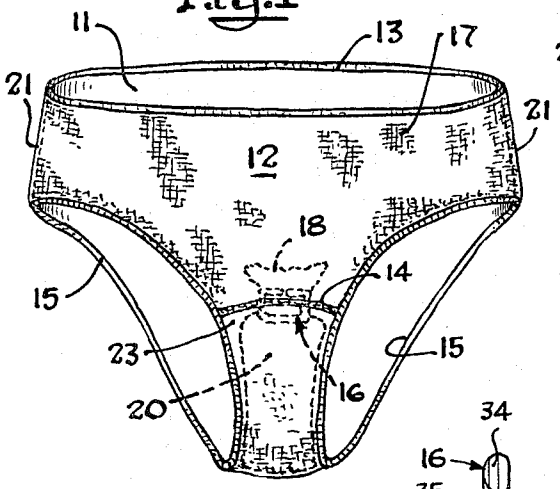
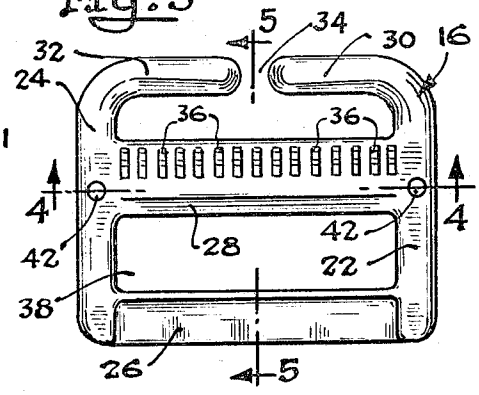


Fig. 3



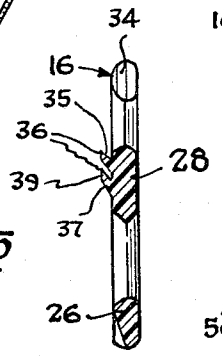
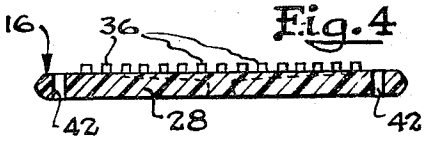


Fig. 5

Fig. 4



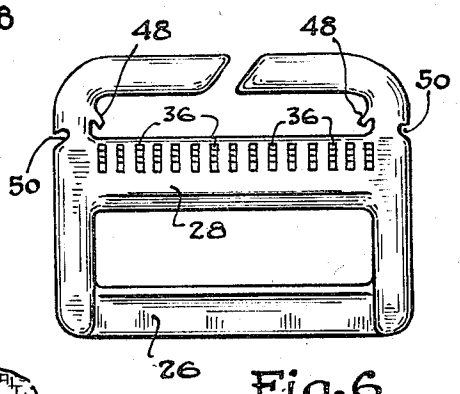
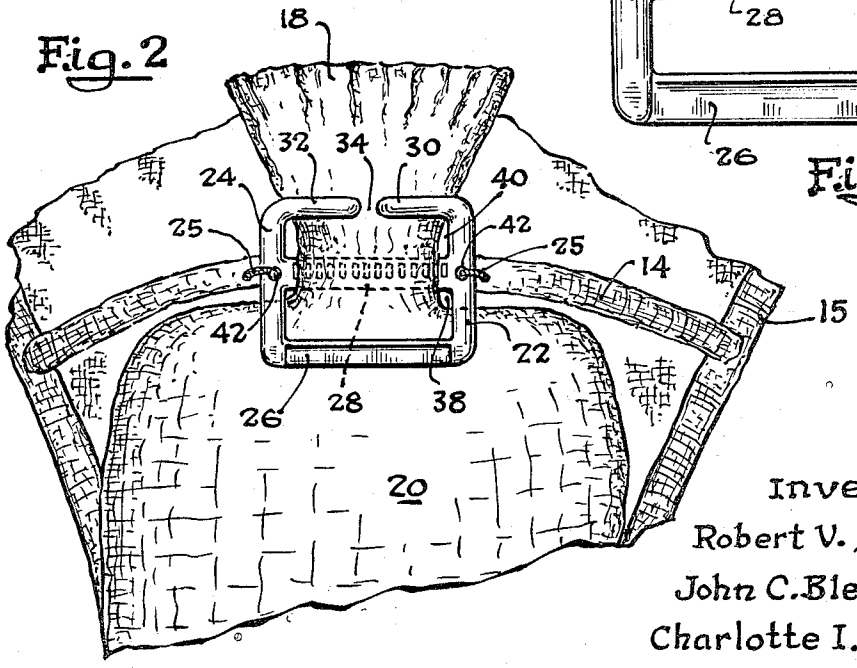


Fig. 6

Fig. 2



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CATAMENIAL SUPPORT GARMENT

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Fig.7

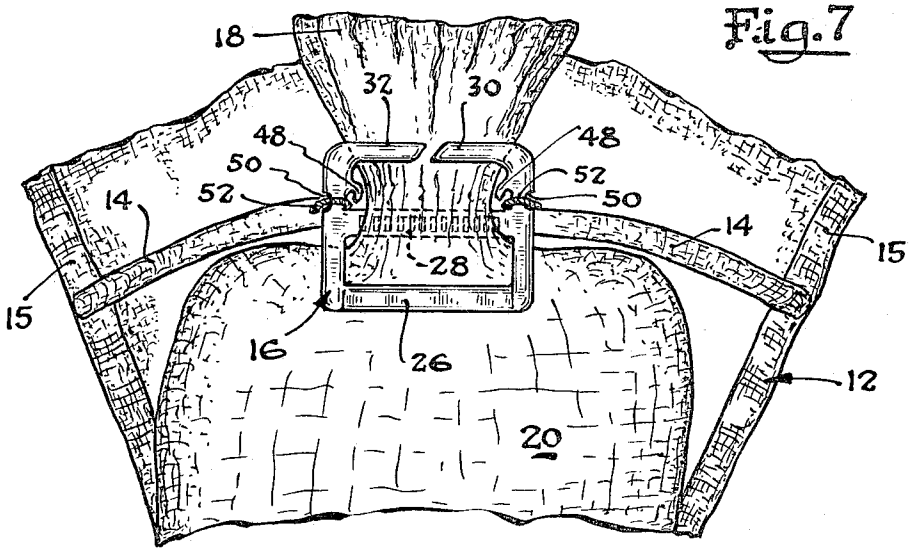
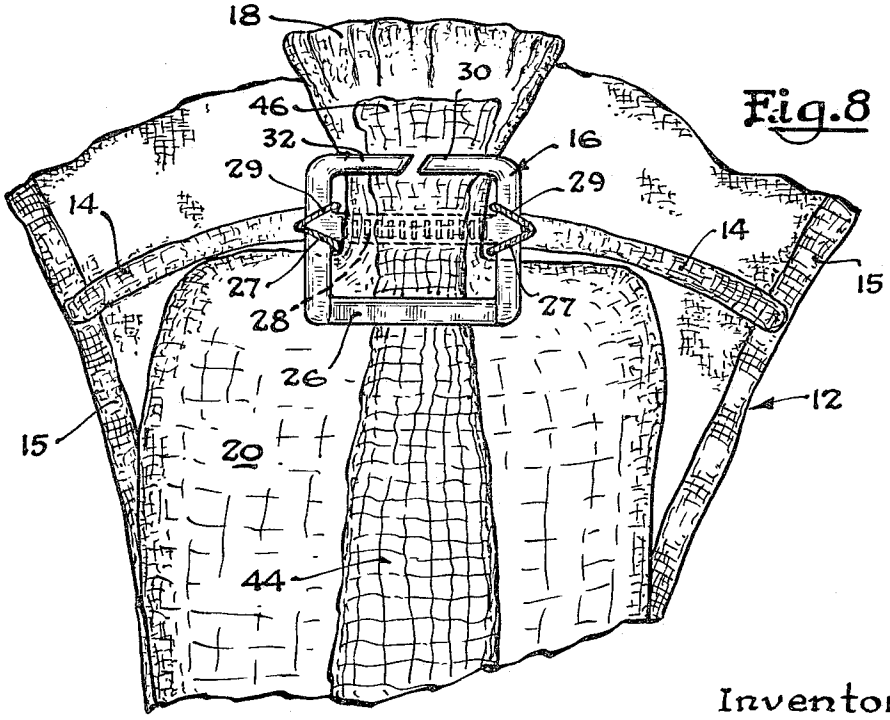


Fig.8



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CATAMENIAL SUPPORT GARMENT

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20 Claims. (Cl. 128—288)

This invention relates to an improved means for the attachment and support of sanitary napkins in combination with feminine garments such as conventional panties, bikini-type panties, panty briefs, or sanitary panties.

Sanitary napkins or catamenial bandages are commonly supported and held in position against the body by means of sanitary belts, sanitary panties, or pad holders having suitable suspension tape arrangements, to which the napkin is attached by pins, buckles, or fasteners of various types.

In recent years, panties also have been designed which incorporate stretch yarn construction in a manner which enables sanitary napkins to be supported without the use of suspension tapes, pins, buckles, or similar attachment means. Such stretch yarn construction permits easy stretching of the garment in all directions; thus, when a sanitary napkin is used in conjunction therewith, the crotch area of the garment conforms to the shape of the napkin to closely engage the lower surface and outer edges of the napkin, and with gentle pressure hold the napkin snugly against the perineal area of the body. When these stretch panties are used for supporting napkins, the customary napkin tab ends usually employed for attachment purposes may be omitted.

The latter arrangement works satisfactorily while the panty is in normal position during use and when physical activity is moderate. However, when the wearer must displace the garment to perform necessary toilet functions, or for other reasons, the napkin is retained in the panty only with difficulty, and often falls out entirely even though it is not ready to be discarded. Many women will not use the above-described stretch panty for catamenial purposes because the sanitary napkins are not positively attached thereto. Unless some positive means of attachment is provided, the wearer lacks confidence in the ability of such supporters to retain the napkin securely in place.

Accordingly, the principal object of this invention is to provide convenient attachment means for sanitary napkins which may be used in combination with panties, bikinis, or briefs, especially those of stretch yarn construction, without substantially increasing the bulk thereof, detracting from wearing comfort, or greatly complicating its use.

Another object is to provide sanitary garments with a fastener especially adapted for use with napkins having a short tab end, which tab end may conveniently be threaded through and held by the fastener, the arrangement being such that the napkin may be adjusted in snug fitting position by upward tensioning of the tab end, while the fastener holds the leading edge of the napkin substantially flat to eliminate objectionable bulges.

Still another object is to provide feminine panties with a positive attachment means for sanitary napkins, which means requires no supplementary tapes or other suspension devices.

An additional object is to provide a sanitary garment with a removable sanitary napkin fastener which may be easily detached from such garment, enabling the garment to be worn as conventional lingerie during the time when catamential protection is not required.

Other objects and advantages of the invention will become apparent from the following description and accompanying drawings.

In the drawings:

FIGURE 1 is a front elevation of a bikini-type panty in the approximate shape the panty assumes on a wearer during use, and shows the relative location of attachment means in association with a sanitary napkin.

FIGURE 2 is an enlarged view taken of the interior of the front portion of the panty shown in FIG. 1, to illustrate the method of threading the short tab end of a sanitary napkin through the attachment means.

FIGURE 3 is a plan view of a preferred embodiment of the attachment means.

FIGURE 4 is a section taken through 4—4 of FIG. 3.

FIGURE 5 is a section taken through 5—5 of FIG. 3.

FIGURE 6 is another embodiment of the attachment means designed in a manner which permits the fastener to be easily removed from the garment at the wearer's option.

FIGURE 7 is another enlarged view taken of a portion of the interior of a panty to show in place the detachable embodiment of the attachment means illustrated by FIG. 6.

FIGURE 8 is an enlarged view of a panty interior similar to FIG. 2 showing another embodiment of the attachment means as well as showing how a supplementary pad may be secured in place over a regular sanitary napkin.

The panty **12** as shown in FIG. 1 is of bikini-type construction, having a rear panel **11**, a front panel **17**, side seams **21**, a crotch piece **23**, a waistband **13** and leg openings **15**. The garment preferably, but not necessarily, is made of stretch yarn and has a reinforced construction in the crotch area **23**, such as double-plies of material, starting at seam **14** and extending a similar distance to a seam at the rear of the garment.

At seam **14** where there is adequate strength of fabric, there is secured a special attachment means or fastener **16**, as shown in more detail in FIGS. 2 and 3, through which the short tab end **18** of sanitary napkin **20** is threaded.

The fastener **16**, which is a modified version of the fastener described in connection with a sanitary belt in copending application Serial No. 312,230, filed concurrently on September 27, 1963, is of flat, generally oblong configuration and comprises a pair of side bars **22, 24** interconnected at their lower ends by transverse bar **26** and intermediate their ends by transverse bar **28** to form aperture **38**. The opposite or upper end of said side bars is provided with a split top bar in the form of end bars **30, 32** extending toward each other to form an access slot **34** above aperture **40** which slot provides an easy access passage for tab ends **18** to aperture **40**.

It is understood that lower transverse bar **26** may also be provided with a central slot to facilitate threading and removal of tab ends **18**. The fastener may also be designated without slots in either the top or bottom bar, but in that case is more difficult to thread and not as convenient in use.

Center bar **28** is provided with a plurality of spaced pointed protuberances **36** arranged in parallel rows and extending obliquely outward therefrom. While two parallel rows are shown, it is understood that a single row or more than two rows may also be employed. It is preferred that the protuberances **36** be located near the upper edge of center bar **28**.

For the purpose of securing the fastener to the panty, small thread holes **42** may be provided in said bars **22** and **24** on either end of center bar **28**. The fastener is secured to the panty by sewing or stitching a thread **25** through holes **42** and through the reinforced portion of the panty which comprises forward crotch seam **14**

while the panty is held under tension for proper spacing.

While the fastener in FIGS. 2 and 3 is shown as having thread holes **42** for securement to the panty, the fastener may also be secured by double stitches **27, 29** located on both sides of center bar **28**, as shown in FIG. 8. An alternative removable arrangement for securement of the fastener is shown in FIGS. 6 and 7 and described hereinafter.

The fastener may be made of any suitable material, including metal, but preferably is of a somewhat flexible plastic, such as polypropylene, nylon, acetal resins, and the like. Alternatively, the side bars, bottom bar, and top end bars may be of metal with the center bar and pointed protuberances preferably being of a suitable durable plastic material.

When the gauze-like fabric tab end **18** of sanitary napkin **20** is threaded under lower bar **26**, through aperture **38**, over center bar **28**, through slot **34** into aperture **40** and under upper bars **30** and **32**, the upwardly angled protuberances **36** penetrate the gauze or covering sufficiently to hold the tab end **18** and pad **20** securely in place. The position of pad **20** may be adjusted upwardly by pulling on tab end **18**. The protuberances **36** hold the gauze securely, so that the pad cannot be displaced, pulled downward, or removed unless tab end **18** is subsequently pulled back up through slot **34** and away from protuberances **36**.

It is important that the protuberances be of sufficent length to hold onto the fabric of the tab ends. While they must not be sharp, such as needles are, they should have a somewhat pointed edge so that the fabric is easily caught. In one specific embodiment, as shown in FIGS. 3 to 5, the fastener is made of durable plastic, and is about 0.078" thick, the horizontal dimension is about 1.125" and the vertical dimension is about 0.86". The protuberances **36** are located at the upper side of center bar **28** and have the shape of truncated oblique triangular prisms, the upper side **35** angles away from center bar **28** at an angle of about 45° while the lower side **37** is at an angle of 30°. The height of the flat top is about 0.021" from the surface of center bar **28**. The width of each protuberance is about 0.020", and they are spaced from each other about 0.040". The dimensions can, of course, be varied in a reasonable range from those given in this specific embodiment. The flat truncated top **39** is important to eliminate the possibility of irritating or scratching the wearer's body.

When the above-described fastener was first contemplated for use with panties, it was tried with a suspension strap as is customary in panty usage, in the same manner as with the sanitary belt arrangement described in the above-identified copending application. For example, when the fastener is used on the suspension straps of such a sanitary belt arrangement, the fastener would be inverted and turned upside down when viewed in relation to the drawings shown herein. Bottom bar **26** thus becomes an upper suspension bar for hanging the fastener from the belt suspension strap and the protuberances **36** face outward at a downward angle, pointing away from the body when worn. The upper tab ends of a sanitary napkin, which now must be of the usual long tab length, are threaded underneath bar **28**, up through aperture **38**, over bar **28** and angled protuberances **36**, and then back through slot **34** into aperture **40**. Pulling down on the tab end presses the gauze into engagement with the protuberances across the full width of center bar **28**, and when the forces are reversed, which happens when worn, the obliquely angled protuberances hold the napkin securely in place. The lower or rear tab end of the napkin is fastened to the rear of the belt by a similar fastener or by other more conventional fasteners.

While this arrangement of the fastener works very well with a sanitary belt, it was found generally unsatisfactory in combination with panties or similar garments because threading the tab end through the fastener required awkward manipulation between the fastener and the front or crotch area of the panty. Sufficient space is not available in that limited area to adjust the napkin tightly against the body.

Reversing the fastener so that the protuberances face inwardly while still pointing generally downward does not solve the problem either, since, while threading is facilitated, the front tab end drapes down over the upper surface of the napkin and becomes soiled and interferes with absorption of discharged body fluids by the main element of the napkin itself.

The problem of providing a suitable arrangement for use with panties was solved only when the fastener was reversed and turned over, as illustrated in the drawings, with the protuberances pointing upward and facing toward the body. At the same time securing means were provided at each end adjacent the central bar for pivotable securement of the fastener to the panty by sewing through thread holes **42**, by thread loops **52** in a removable manner, or by sewing on either side of center bar as shown in FIG. 7 by double stitches **27, 29**. By positioning the securing means adjacent the central bar **28**, the fastener is easily pivoted up or down by the user with the attachment thread acting as a fulcrum or pivot point, to facilitate threading of the sanitary napkin tab end.

The tab end is threaded as shown in FIG. 2 and may be adjusted in place by pulling upwardly on the tab. Additionally, because the fastener holds the napkin securely and prevents sideways displacement, no rear tab or fastening means is required as with the belt arrangement. The napkin can be pulled up firmly against the fastener as shown with the leading edge of the pad positioned near the crotch seam and cannot be displaced sideways when in position. At the same time, the end of the napkin is flattened as it comes into firm contact with lower bar **26** and remains flat during use, thus minimizing any tendency for unsightly bulging.

When additional protection is desired by the wearer, as during periods of heavy flow, a small supplementary pad **44**, as shown in FIG. 8, also having a short tab end **46**, may be positioned above regular napkin **20**, with the tab end **46** also threaded through the fastener to be held securely in place thereby in much the same manner as the large pad.

When a second or auxiliary pad is employed, it is not necessary for the protuberances to penetrate deeply into the tab of the second pad, if at all, since close frictional engagement of the two pads assists in holding the top pad in place.

In some cases it is desirable to have the fastener made easily detachable when not in use, so that the garment may be employed as conventional lingerie when catamenial protection is not necessary. For such purposes, a fastener as shown in FIG. 6 may be used. Instead of having thread holes **42** (FIG. 3) for permanent securement to the garment by stitching therethrough, this embodiment of the fastener has interior hooks **48** provided on the interior portion of side bars with matching notches **50** on the exterior of the side bars immediately adjacent the upper side of center bar **28**. The panty then is provided with permanent thread loops **52**, as shown in FIG. 7, which hold this type fastener in place by said hooks and notches while the fastener is inserted therein.

Preferably these loops **52** are sewed to the front crotch seam **14** and are so spaced that the garment must be stretched to hold the fastener in place. Thus, when the panty is worn, the material intermediate the loops will not bunch up and will lie flat. Additionally, by having the loops under stress, any tendency for the fastener to sag below the seam is minimized.

If a split lower bar is employed for easier threading of the tab ends, the hooks and notches for thread loop at-

tachment may be located immediately below center bar 28. In either case, it is important that the hooks and notches be positioned as near as possible to center bar 28 to provide the necessary pivot points.

The arrangements herein defined provide a sanitary undergarment which for the first time is equipped with a positive fastening means for a sanitary napkin without having need for cumbersome auxiliary straps and suspension devices. The sanitary napkin used in combination therewith requires only a short tab at its forward end and is held snugly in place without danger of displacement during use. The fastener is secured to the garment in such a manner that it may be easily pivoted up or down around its center bar to permit convenient threading. The removable features of one embodiment of the arrangement also provides additional advantages in that the garment may be used as conventional lingerie when the fastener is removed.

While several specific embodiments of the inventive concept have been set forth herein, it is understood that the invention is not to be construed as limited thereby, and that suitable changes, modifications, and variations may be made without departing from the spirit and scope of the invention as defined in the appended claims.

The invention is hereby claimed as follows:

1. A device for supporting sanitary napkins comprising a panty and sanitary napkin attachment means in combination therewith, said panty having the usual waistband, leg openings, and crotch area defined by front and back seams extending transversely of the garment, said attachment means comprising a fastener of flat, generally oblong configuration having a pair of side bars, a bottom bar, a top bar and an intermediate bar, said intermediate bar having on its face at least one row of spaced pointed protuberances extending obliquely upward, said fastener being pivotably secured at points adjacent the ends of said intermediate bar to the inside front portion of said panty intermediate the leg openings at the forward edge of the crotch area of said panty with the protuberances facing inward.

2. The device of claim 1 in which each of said protuberances is in the form of a truncated, oblique, triangular prism.

3. The device of claim 1 wherein the panty is constructed of stretch yarns.

4. The device of claim 1 in which said protuberances comprise a plurality of spaced parallel rows.

5. The device of claim 1 in which the fastener is made of flexible plastic.

6. The device of claim 1 in which the said fastener is provided with hole-like apertures in said side bars adjacent the ends of said intermediate bar whereby said fastener is permanently secured to said panty by stitching.

7. The device of claim 1 in which the top, bottom, and side bars are made of metal and the center bar is made of flexible plastic.

8. The device of claim 1 in which the top bar is split to define a centrally disposed slot.

9. The device of claim 8 in which the bottom bar is also split to define a centrally disposed slot.

10. A device for supporting sanitary napkins comprising a panty and a removable sanitary napkin attachment means in combination therewith, said panty having the usual waistband, leg openings, and crotch area defined by front and back seams extending transversely of the garment, said attachment means comprising a fastener of flat, generally ablong configuration having a pair of side bars, a bottom bar, a split top bar, and an intermediate bar, the upper face area of said intermediate bar having at least one row of spaced pointed protuberances extending obliquely upward, said panty having means for pivotably securing said fastener to the inside front portion of said panty intermediate the leg openings, and at the forward edge of the crotch area thereof with the protuberances facing inward, said securement means comprising a pair of thread loops attached near the midpoint of the crotch seam, said fastener having interior hooks on each of the side bars immediately adjacent said intermediate bar and exterior notches on said side bars immediately opposite said hooks, said fastener being capable of removable insertion in said thread loops whereby said fastener is held in place by said hooks and notches.

11. The device of claim 10 wherein the panty is constructed of stretch yarns.

12. The device of claim 10 wherein each of the protuberances is in the form of a truncated, oblique, triangular prism.

13. The device of claim 10 in which said protuberances comprise a plurality of spaced parallel rows.

14. The device of claim 10 wherein the fastener is made of flexible plastic.

15. The device of claim 10 in which the top, bottom, and side bars are made of metal and the center bar is made of flexible plastic.

16. The device of claim 10 in which the bottom bar is also split.

17. The combination of the supporting device of claim 1 and a sanitary napkin, said sanitary napkin having a short front attachment tab, said tab being threaded under the bottom bar, over a central bar, and under the top bar of said fastener.

18. The combination of the supporting device of claim 1, a sanitary napkin, and a smaller supplementary pad, said napkin and said pad having short front attachment tabs, said pad being positioned over said napkin in a manner whereby both attachment tabs are threaded under the bottom bar, over the central bar, and under the top bar of said fastener.

19. The combination of the supporting device of claim 10, and a sanitary napkin, said sanitary napkin having a short front attachment tab, said tab being threaded under the bottom bar, over the central bar, and under the top bar of said fastener.

20. The combination of the supporting device of claim 10, a sanitary napkin, and a smaller supplementary pad, said napkin and said pad having short front attachment tabs, said pad being positioned over said napkin in a manner whereby both attachment tabs are threaded under the bottom bar, over the central bar, and under, the top bar of said fastener.

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