

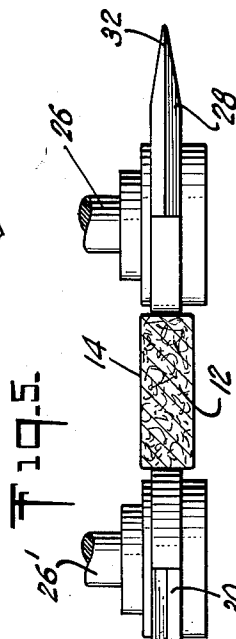
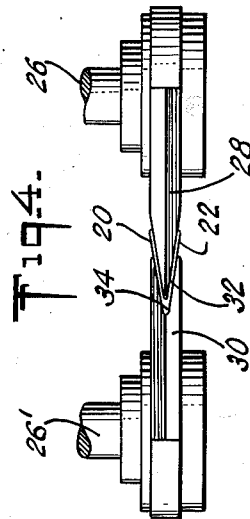
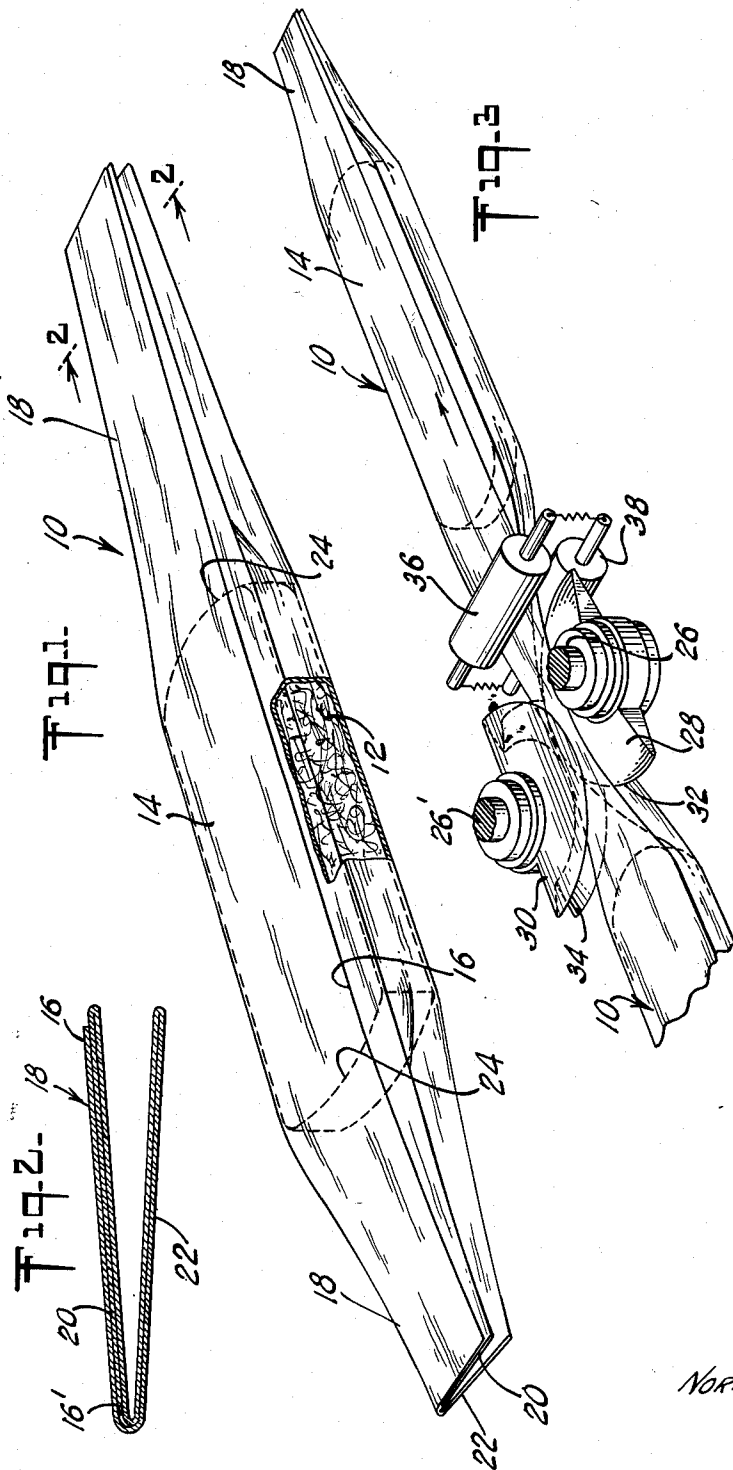
Feb. 5, 1963

N. A. HARRISON

3,076,460

SANITARY NAPKIN

Filed Dec. 16, 1959



INVENTOR
NORMAN A. HARRISON

BY *John Sumner*
ATTORNEY

1

3,076,460

SANITARY NAPKIN

Norman A. Harrison, Old Bridge, N.J., assignor, by mesne assignments, to Johnson & Johnson, New Brunswick, N.J., a corporation of New Jersey

Filed Dec. 16, 1959, Ser. No. 860,029

4 Claims. (Cl. 128—290)

This invention relates to sanitary napkins and more particularly to sanitary napkins having folded attachment tabs.

Sanitary napkins of conventional form include an elongated absorbent core wrapped within a liquid pervious covering material which extends beyond the ends of the core to form tabs for attaching the napkin in position on the body of the wearer. Due to the manner in which the covering material is wrapped around the core, the attachment tabs are usually simple flattened extensions of the covering material, having substantially the same width as the width of the absorbent core around which the cover is wrapped. In view of the tab dimensions, it is customary to first rope or bunch up the tabs before attaching a napkin having such tabs in position by pinning or by fitting the tabs into a clasp on a sanitary napkin belt or the like. This practice is not satisfactory in that the tabs are thus made bulky and may be uncomfortable. Further, the random manner in which the tabs are roped or bunched may result in insecure attachment of the napkin.

It is an object of this invention to provide a sanitary napkin having attachment tabs which are pre-folded. It is another object of this invention to provide sanitary napkins with attachment tabs which are neat in appearance and which may be readily secured in position by attaching to a sanitary napkin belt or by pinning. It is a further object of this invention to provide a sanitary napkin having attachment tabs of increased strength. Other and further objects of this invention will become apparent from a consideration of the following specification and attached drawings.

In the drawings:

FIG. 1 is a perspective view of a sanitary napkin incorporating the invention;

FIG. 2 is a sectional view, on an enlarged scale, taken along lines 2—2 of FIG. 1;

FIG. 3 is a perspective view of a folding device and illustrates the manner in which the tab portions of the napkin may be folded;

FIG. 4 is a view in elevation of the tab portion of a napkin being folded by the folding device; and

FIG. 5 is a side elevation of the absorbent pad portion of a napkin passing through the folding device.

In accordance with the invention, the tab of the napkin is folded in the shape of a flattened V, the extent of folding becoming increasingly greater from the end of the core of the napkin to the end of the tab.

Referring to the drawings, a sanitary napkin 10 comprising an elongated, generally rectangularly shaped core 12 of an absorbent material such as cotton, comminuted wood pulp fibers, paper and the like, is enclosed within a cover 14 of sufficient width to envelop the core, with the longitudinal side edge portions 16, 16' of the cover overlapping on an upper or lower surface of the core. Preferably, the overlapped side edges of the cover are positioned on a surface opposite the surface which is placed against the body when the napkin is in use. The cover is of sufficient length to extend beyond the ends of the absorbent core to form tabs 18 at each end for attaching the napkin in position on the body of the wearer. The tabs may be of the same or different lengths.

The tabs, which are initially of approximately the width as the absorbent core, are folded in the form of a

2

flattened V as illustrated in FIG. 2, by folding the tab in a zig-zag manner, to form two sets of plies 20, 22 in the tab. The degree and extent of folding may be varied but preferably tapers down from the end 24 of the core to the end of the tab to minimize squeezing and reduction in bulk of the absorbent core.

By folding in the manner noted above, the multi-ply form which results imparts increased strength and resistance to tearing to the tabs when the napkin is attached. In addition, the folding provides neat tabs which may be more readily pinned, and threaded through clasps, and which are less visible and bulky than the bunched tabs of conventional size and configuration.

A device for folding the tabs of sanitary napkins incorporating the invention is illustrated in FIGS. 3-5. A pair of spaced vertically mounted shafts 26, 26' which revolve in directions opposed to each other at substantially equal speeds have attached thereto rigidly mounted horizontally positioned substantially flat folding blades 28 and 30 which may be of a flexible material such as a heavy layer of vulcanized rubber, or of metal, plastic or the like. The folding blades are substantially semi-circular in shape and project radially from the shafts.

The size of the folding blades and the location of the shafts are so selected with respect to each other that the folding blades move in a manner to come opposite and then away from each other at each complete revolution of the shafts, thereby first narrowing the space between the shafts and then enlarging the space. To provide a V-shaped fold in the tabs, the outer edge portion of folding blade 28 is tapered as at 32 at an angle from the top and bottom surface of the blade and the outer edge portion of the other folding blade 30 is provided with a peripheral V-shaped notch or recess 34 to receive the tapered portion 34 of folding blade 28 so that the two blades when opposite each other are in substantially matching relationship but somewhat spaced from each other. The tapered surface on folding blade 28 and the recess in the other folding blade define a V-shaped opening. It will be thus observed that when the folding blades are opposite each other, they fold the cover portion extending between an adjacent pair of absorbent cores into a V shape, the cover portion so extending being the portion which forms the tab portions of the sanitary napkin, and fold the cover portion as the cover portion moves past and between the folding blades. The peripheral length of the folding blades is preferably slightly less than the length of the cover which extends between an adjacent pair of absorbent cores.

In operation, the elongated cover of continuous length folded around and containing a plurality of absorbent cores which are spaced apart lengthwise within the cover, passes between the opposed, spaced apart vertically mounted shafts. The cover containing the spaced absorbent cores is moved longitudinally and its movement so correlated to the cyclic movement of the folding blades that the blades engage the longitudinally extending sides of the cover extending between an adjacent pair of absorbent cores to produce the fold in this cover portion. Each rotation of the shafts, and thus the folding blades, produces a V-shaped fold in the cover portion between an adjacent pair of absorbent cores. As an absorbent core approaches the folding blades, the blades are rotated out of contact with the cover portion to provide a free space between the shafts to enable the absorbent core to pass through without compression or folding. Directly after an absorbent core has cleared the shafts, the folding blades are rotated into folding contact with the cover portion extending between an adjacent pair of absorbent cores at or adjacent the end of the absorbent core which has just cleared the shafts. As the cover portion extending between the adjacent pair of absorbent

3

cores moves through the folding device, the folding blades rotate into engagement with the cover portion and progressively fold the cover portion between the absorbent cores and continue until the next absorbent core is moved into the folding device whereupon, as noted above, the folding blades are rotated out of contact with the cover. The synchronized movement of the cover material containing the spaced absorbent cores is such that the cover portion extending between an adjacent pair of absorbent cores is pleated or folded in the manner described whereby sanitary napkins having folded tabs may be efficiently mass-produced.

Preferably, a compressing or ironing device is positioned directly after the folding operation to press the folded tabs to provide a neat and finished fold. The pressing operation may be accomplished in various ways. The drawings disclose a horizontally disposed upper roller 36 and a horizontally disposed lower roller 38 on each side of the cover which may be moved toward and away from the cover so that the rollers may be brought into pressing engagement as the folded tabs pass between them and out of pressing engagement as the absorbent cores pass therethrough. After the cover portion between adjacent absorbent cores has been folded and pressed in the manner described, suitable cutting devices, not shown, may be used to sever the folded cover portion between an adjacent pair of absorbent cores to provide individual napkins.

It is to be understood that the foregoing illustrative embodiment may be varied, modified or altered and still come within the spirit and scope of the invention and that such changes are contemplated.

What is claimed is:

1. A sanitary napkin comprising an absorbent core and an elongated cover of liquid pervious foldable material enclosing said core, said cover extending beyond the ends of said pad to provide tabs for attaching the napkin, a tab being folded in the form of a flattened

4

V to form at the center of said tab at least four plies of said cover material composed of two sets of plies each comprising at least two plies.

2. A sanitary napkin comprising an absorbent core and an elongated cover of liquid pervious foldable material enclosing said core, said cover extending beyond the ends of said pad to provide tab portions for attaching the napkin, said tabs being folded in the form of a flattened V to form at the center of said tabs at least four plies of said cover material composed of two sets of plies each comprising at least two plies.

3. A sanitary napkin comprising an absorbent core and an elongated cover of liquid pervious foldable material enclosing said core, said cover extending beyond the ends of said pad to provide tabs for attaching the napkin, said tabs being folded in the form of a flattened V to form at the center of said tabs at least four plies of said cover material composed of two sets of plies each comprising at least two plies, said folds being progressively deeper from the ends of said core to the ends of said tabs.

4. A sanitary napkin comprising an absorbent core and an elongated cover of liquid pervious foldable material enclosing said core, the longitudinal edges of said cover overlapping on a face of said core, said cover extending beyond the ends of said pad to provide tabs for attaching the napkin, said tabs being folded to form at the center of said tabs five plies of said cover material.

References Cited in the file of this patent

UNITED STATES PATENTS

1,723,543	De Santis	Aug. 6, 1929
1,771,328	Gabel	July 22, 1930
2,464,640	Fourness	Mar. 15, 1949
2,918,065	L'Hommedieu	Dec. 22, 1959

FOREIGN PATENTS

520,576	Great Britain	Apr. 29, 1940
---------	---------------	---------------