

June 20, 1944.

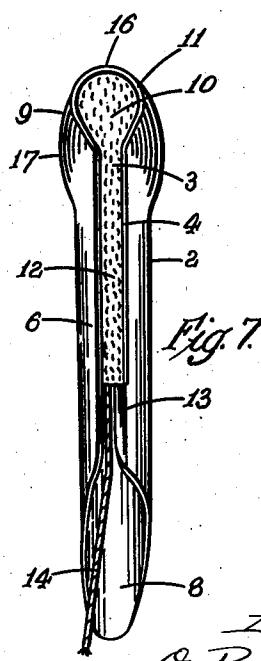
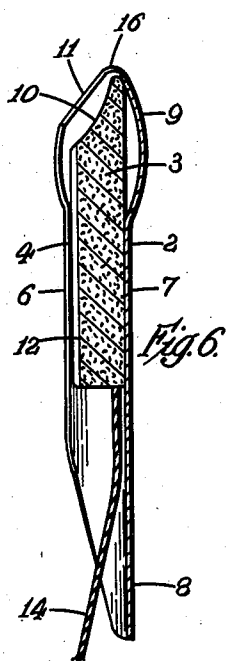
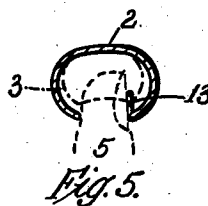
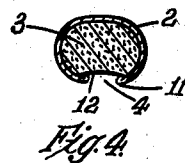
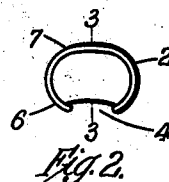
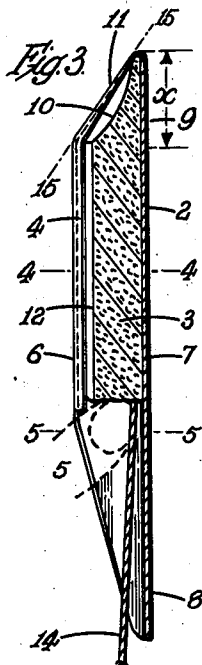
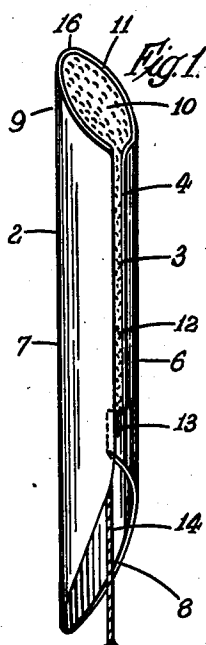
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2,351,836

VAGINAL PACK DEVICE

Filed March 24, 1941

2 Sheets-Sheet 1



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VAGINAL PACK DEVICE

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2 Sheets-Sheet 2

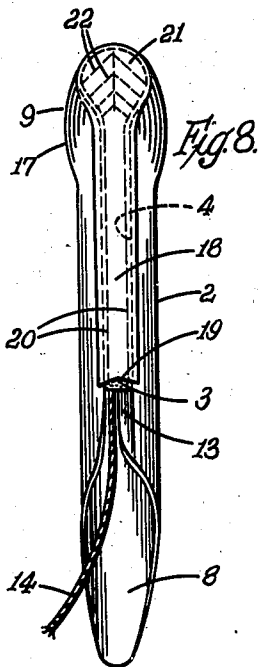


Fig. 8.

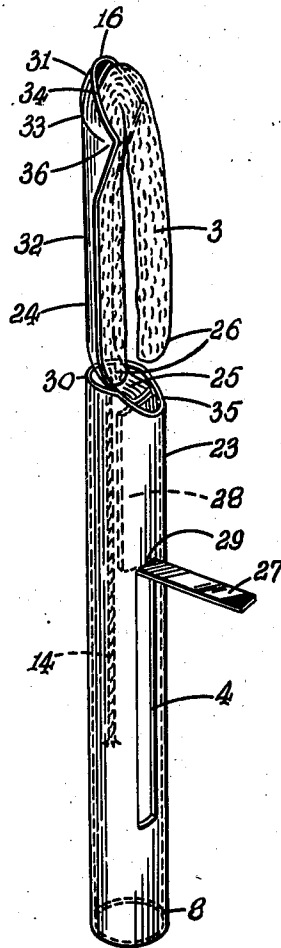


Fig. 10.

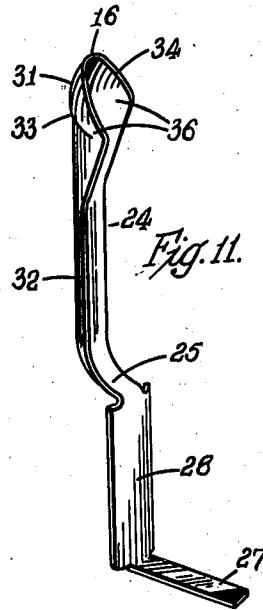


Fig. 11.

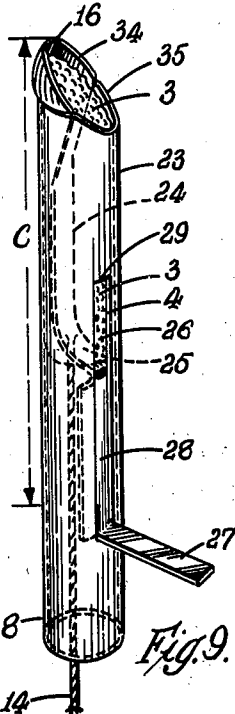


Fig. 9.

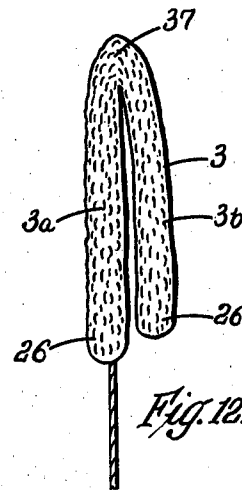


Fig. 12.

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UNITED STATES PATENT OFFICE

2,351,836

VAGINAL PACK DEVICE

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In the Union of South Africa October 18, 1938

11 Claims. (Cl. 128—285)

This invention relates to vaginal pack devices, comprising an absorbent pack and an applicator which serves the purpose of facilitating the introduction of the pack into the vagina and is then withdrawn; said applicator comprising a pack-enclosing member which contains the pack during insertion, with or without another member or other members hereafter described; and the applicator being made of material suitable to enable it to be discarded and disposed of after being once used.

This application is a continuation-in-part of application Serial No. 258,051, filed February 23, 1939; application Serial No. 283,298, filed July 7, 1939; and application Serial No. 308,717 filed December 11, 1939.

The absorbent pack is usually made of cotton wool or like fibre too rough to be slid with impunity in contact with the vaginal walls; and it is an object of the invention to provide a pack device by which the pack can be passed fully into the proximal end of the vaginal cavity without, during such movement, contacting with the vaginal walls, so that friction between the pack and said walls is avoided. A more specific object is to enable the entire operation of so positioning the pack and the subsequent withdrawal of the enclosure to be effected by manipulation external of the vagina, without the device being of inconvenient length.

Another object is to form the proximal end of the pack device of the applicator, that is the end which is passed first into the vagina, in a particular manner well adapted for ease of introduction into the vagina and avoidance of injury to the body tissues.

According to this invention a vaginal pack device comprises a pack of absorbent material and of elongated form, and an externally smooth applicator therefor which shields the pack against contact with the walls of the vagina during movement of the applicator and pack together to position the pack in the upper vaginal cavity; the applicator comprising a hollow elongated casing of easily discardable material such as paper formed at one side with a longitudinal gap forming a path for a member which when extended transversely through said gap from the exterior of the applicator is adapted to hold the pack stationary while the applicator is being drawn back therefrom; the applicator shell being of sufficient length to have, when positioned with its proximal end in the upper vaginal cavity, a graspable portion of it projecting from the vagina.

Preferably the pack device comprises a pack-

5 10 15 20 25 30 35 40 45 50 55

detaining member which contacts with the distal end of the pack and provides a digit contacting point spaced distally away from the pack; said digit contacting point being accessible through the longitudinal gap of the shell or being provided by a portion of the pack-detaining member projecting through said gap.

Several forms of the invention are illustrated in the accompanying drawings in which:

Figure 1 is a perspective view of an assembled pack device, including an applicator casing formed with a longitudinal gap.

Figure 2 is a plan of Figure 1.

Figure 3 is a side elevation sectioned on 3—3 of Figure 2.

Figure 4 is a cross section taken on 4—4 of Figure 3.

Figure 5 is a cross section taken on about 5—5 of Figure 3; but showing parts displaced.

Figure 6 is a section respectively a front elevation and a longitudinal section similar to Figure 3, but showing the applicator formed with a bulbous end.

Figure 7 is a front elevation of the device of Figure 6.

Figure 8 is a front elevation of a form of the pack device in which the applicator gap is closed by a strip of easily rupturable material.

Figure 9 is a perspective view of a pack device, in which the applicator comprises a casing and a pack-detaining member.

Figure 10 shows the same, with the pack-enclosing member stripped from the pack.

Figure 11 shows the pack-detaining member separately.

Figure 12 shows the pack separately.

In the pack device illustrated in Figures 1 to 8 the applicator consists only of the pack-enclosing member, which in this case is shaped as a hollow elongated shell 2 which materially encloses the pack 3. The shell is formed with a longitudinal slot 4 at one side. The function of said slot is to admit a finger through it and into contact with the pack 3—as indicated at 5 in Figures 3 and 5—after the device has been brought into position within the vagina. The normal width of the slot 4 is usually made less than the width of the finger so that the finger widens the slot and, by thereby expanding the shell, frees the latter to a considerable extent from the pack and so facilitates its withdrawal therefrom.

The shell, which is intended to be discarded after use, is made of paper, moulded cellulose pulp, or like inexpensive material which is stiff

enough to enable the shell to perform its inserting function, but which softens and loses its form when thrown into water. The external surface, at least, of the shell 2 is made smooth, and the shell is materially cylindrical but preferably somewhat flattened between its anterior surface 6 and its posterior surface 7. The shell is of sufficient length to have, when it is so positioned with the pack in the upper vaginal cavity, a graspable portion 8 of it projecting from the vaginal canal.

The proximal end 9 of the shell is left open sufficiently to enable the pack 3 to pass relatively out of the shell when the latter is withdrawn; but steps are taken to prevent or minimize contact of the pack material with the vaginal wall since as pointed out above the pack material is fibrous and so apt to set up undesirable friction. For this purpose, the end surface 10 of the pack 3 may be depressed below the adjacent terminal edge 11 of the shell; and the surface of the pack immediately within the slot 4 may be similarly depressed as shown at 12. The said edge 11 may be rounded as by doubling or rolling it over, as shown more particularly in Figures 3 and 4. The edges of the shell at the sides of the slot 4 do not need rounding, at any rate to the same extent as the forward edge 11; and they may be simply turned inward.

The distal end 8 of the shell which provides the above-mentioned graspable portion may be shaped as a tab, and is so shown.

The pack is retained in the shell principally by the frictional grip of the latter on it, but there may be provided, in addition, a mechanical stop to ensure the pack being kept properly positioned in the shell during the insertion of the device. For this purpose the shell material on one side of the slot 4 may be formed with a lateral extension which is bent inward to form a lug 13 positioned beneath the pack. The pack is provided in the usual way, with a cord 14 for withdrawing it from the vagina when it has served its purpose.

In order to facilitate the introduction of the device into the vagina, it is preferred to terminate the proximal end of the shell 2 at a plane indicated by 15—15 Figure 3, inclined to the length of the shell. In this way so much of the length of said proximal end which is thereby slanted off, viz., the length x , becomes a hollow ungula in which the oblique terminal edge 11 corresponds to the oblique face of the corresponding solid ungula. This ungual form possesses the advantages of a wedge in its capacity for gently parting the opposite sides of the vaginal walls—which normally lie flat against one another; with the added advantage that its forward end is transversely tapered and curved towards its apex which further facilitates its entry and avoids the sharp corners of a true wedge.

In the form of the invention shown in Figures 6 and 7 the proximal end of the device, whilst retaining the described ungual shape, is also given a bulbous form which further facilitates the introduction of the device into the vagina. Such bulbous form provides at a short distance from its apex 16, a bulged section 17 of greater lateral extent than the general body portion of member 2. Said section 17 by locally distending the vaginal cavity, avoids or minimizes contact of said general body portion with the vaginal walls and so minimizes friction thereon. Also the edge 11 near to the apex 16 is, by the bulbous formation, turned materially transversely to the

direction of penetrating movement, so facilitating its easy movement over the vaginal wall.

In the use of the device, the shell with the pack positioned within it is passed into the upper vaginal cavity. A finger 5, Figures 3 and 5, is then inserted through the slot 4 and pressed against the underside of the pack, as shown. The insertion of the finger into the slot expands the shell as indicated in Figure 5 and so frees the pack to a considerable extent from the shell. While the pack is thus retained, the shell is grasped by its tab 8 and drawn past the pack and the finger; whereupon the latter is withdrawn, leaving the pack in position in the upper vaginal cavity.

Figure 8 shows the same shell as that of Figure 7 but having its slot 4 covered by smooth-surfaced thin sheet material 18 suitable to be split by pressure of the finger against it. The commencement of the split is facilitated by providing a V-cut 19 at the point where the finger first contacts with the sheet and lines of weakness 20 leading from said V-cut. The proximal end of the shell may be left open, with the pack material sunk below it, as in the first described examples; or the end of the shell may be covered by an extension 21 of the sheet material 18. Said extension 21 may be formed with lines of weakness 22 at which it splits by pressure against the proximal end of the pack when the shell is withdrawn, so enabling the pack to emerge relatively to the shell.

Figures 9 to 11 show a form of the invention in which the applicator comprises a pack-enclosing member and a pack-detaining member.

The pack-enclosing member is a tube 23 which, like the tube 2 of Figures 1 to 8, presents a smooth external surface adapted to make easy sliding contact with the vaginal walls; and has the pack 3 arranged within its proximal end. The tube 23 has the slot 4 formed at one side of it and towards its distal end; said slot being of substantially not less length than the length of the pack and, preferably, closed at both ends.

The applicator further comprises the pack-detaining member 24 which is relatively slidable within the tube 23 and comprises a portion 25 extending materially transversely of the tube and contacting with the distal end 26 of the pack for the purpose of maintaining the pack in its high position in the vagina when the tube 23 is stripped back from it.

The member 24 is constructed to enable it to be digitally retained against endwise movement. For this purpose it is shown as being provided with a laterally directed lug 27 extending out of the slot 4 so that it may be grasped by the fingers. Said lug is connected to the transverse portion 25 by the spacing strip 28 which spaces the lug away from the pack and towards the distal end 8 of the tube 23. The strip 28 is wider than the slot 4 so as to be retained within the tube 23 while the lug 27 projects through the slot. The distance between the apex 16 and the lug 27 is made greater than the length of the normal vagina, for instance more than three and one-half inches, thus ensuring that the lug 27 is external of the vagina, when the pack is fully inserted therein.

The pack device is made use of with its parts in the relative positions shown in Figure 9, that is with the pack enclosed in the proximal end of the tube 23 and the member 24 positioned with its portion 25 in contact with the distal end 26 of the pack and with its lug 27 rest-

ing against or positioned near to the distal end of the slot 4. Without change of such relative positions, the device is inserted into the vagina to the extent of bringing the apex 16 fully into the upper vaginal cavity. In this way the result is achieved—as in the other examples—that the pack is transported into its proper position in the upper vaginal cavity without having contacted with the vaginal walls. The distance through which the pack has to be thus transported is indicated in the drawings by dimension c and averages three and one-half inches as mentioned above.

The pack having been thus positioned, the tube 23 is withdrawn from it, as illustrated in Figure 10, by downward traction applied at its distal end 8; while the pack is held in position in the upper vaginal cavity, by means of the member 24 which in turn is held stationary by means of the lug 27. The slot 4 allows the tube 23 to have the freedom of movement relatively to the member 24 necessary for such withdrawing movement of the tube; that is to say said slot is about as long as the pack.

As soon as the proximal end of tube 23 has been drawn away from the distal end 26 of the pack (Figure 10), the latter is held in position by its contact with the vaginal walls and the function of the applicator is completed. The digital hold on lug 27 can then be relinquished and the applicator parts 23, 24 are withdrawn together by continued traction on the distal end 8 of tube 23; the proximal end 29 of the slot possibly contacting with the lug 27 to ensure the withdrawal of the member 24.

In order that the above described steps of insertion and withdrawal may be effected wholly by digital operation external of the vagina it is necessary that the length of the tube 23 shall be so much greater than the above-mentioned dimensions c, that when said tube is fully inserted as described, enough of its distal end 8 remains projecting from the vagina to enable it to be effectively grasped.

However, such length of tube is the maximum length the whole device need have, since although the lug 27 must also be external to the vagina when the pack is fully inserted in order that it also may be externally manipulated, the fact of said lug being exposed through the slot 4—which is within the length of 23—enables the combined length of the pack 3 and the member 24 to be no greater than the length of the tube 23.

The proximal end of the tube 23 may be of ungual shape as illustrated in Figure 1, or of ungual and bulbous shape as shown in Figures 6 to 8.

According to a further feature of the invention, the member 24 is extended beyond its pack-contacting element 25 and beyond the proximal end 30 of the tube 23, and is there formed as a head 31 which embodies either wholly in itself or in conjunction with the proximal end 30 of the tube, the aforesaid ungual or ungual and bulbous formations which facilitate the insertion of the pack device. In the specific form shown, the member 24 is continued from 25 and in the direction of the proximal end of the applicator as a portion 32 which lies within the tube 23 and alongside the pack and terminates in the head 31 outside the tube. Said head continues the cross-sectional form of the tube 23 to the extent of being of hollow arcuate form in cross-section; and

in order that the head may be of maximum size consistent with free release of the pack therefrom, its greatest cross-section, viz., at the base 33 where it joins the tube, is preferably made of the circular extent of about 180°. The portion 32 is also made arcuate to merge into the head; and this form also gives it stiffness and occupies the minimum space between the pack and the tube.

The hollow ungual end formation already described, is in the present instance formed partly in the head 31 and partly in the proximal end of the tube, owing to the limited circular extent of the head. That is to say, the sloped ungual face is represented in part by the edge 34 of the head and the extension 35 of it on the tube which is necessary to complete the ellipse.

To assist in freeing the pack, the cross-section of the member 24 at the base 33 of the head may be originally made of greater radius than the tube 23, so that the wings 36 at the base of the head are pressed towards one another when the member 24 is within the tube, but spring apart, when released from the tube, sufficiently to ensure that they do not grip the pack.

The head moreover is preferably of bulbous form on the side opposite the edge 34; and this bulbous form may be well developed by bulging the base 33 of the head beyond the periphery of the tube.

A preferred kind of pack to use with the applicator just described is shown more clearly in Figure 12. It consists of a length of absorbent material such as cotton wool, laterally compressed to give it a degree of stiffness, and then bent at 37 to form two legs 3a, 3b which, owing to the elasticity of the compressed material, tend to separate. When such a pack has been brought into its position in the vagina by means of the applicator in the manner described and the tube 23 is withdrawn to free the pack, the free ends of the legs move apart thus tending to propel the pack as a whole laterally out of the concavity of the member 24 and with one leg in anchoring engagement with the vaginal wall so that the subsequent withdrawal of the member 24 has little tendency to carry the pack with it.

I claim:

1. A vaginal pack applicator comprising a smooth-surfaced pack-enclosing member adapted to contain a pack at its proximal end and also adapted to be stripped from the pack by digital traction exerted on its distal end, and a pack-detaining member comprising a portion adapted to make contact with the distal end of the pack and thereby retain the pack while the pack-enclosing member is stripped from it, and comprising also a digit-contacting portion and a spacing portion extending in the direction of the length of the applicator and connecting said first mentioned two portions while spacing them, said pack-detaining member further comprising a portion extending beyond the proximal end of the pack-enclosing member and being there formed as a head shaped to facilitate insertion of the applicator into the vagina.

2. A vaginal pack applicator comprising a smooth-surfaced pack-enclosing member adapted to contain a pack at its proximal end and also adapted to be stripped from the pack by digital traction exerted on its distal end, and a pack-detaining member comprising a portion

adapted to make contact with the distal end of the pack and thereby retain the pack while the pack-enclosing member is stripped from it, and comprising also a digit-contacting portion and a spacing portion extending in the direction of the length of the applicator and connecting said first mentioned two portions while spacing them, said pack-detaining member further comprising a portion extending beyond the proximal end of the pack-enclosing member and being there formed as a head, said head and the adjacent portion of the pack-enclosing member terminating substantially at a plane oblique to the length of the applicator so as to have substantially the form of a hollow ungula.

3. A vaginal pack applicator comprising a smooth-surfaced pack-enclosing member adapted to contain an absorbent pack at its proximal end and also adapted to be stripped from the pack by digital traction exerted on its distal end, said pack-enclosing member being longitudinally slotted at one side, and a pack-detaining member comprising a portion adapted to make contact with the distal end of a pack contained in the proximal end of the pack-enclosing member, together with a tab extending through the slot and a spacing portion extending in the direction of the length of the applicator and connecting said tab to said pack contacting portion and spacing it therefrom towards the distal end of the applicator, said pack-detaining member further comprising a portion extending beyond the proximal end of the pack-enclosing member and being there formed as a head tapering forwardly and of hollow arcuate section transversely to the length of the applicator.

4. A vaginal pack applicator comprising a smooth-surfaced pack-enclosing member adapted to contain a pack at its proximal end and also adapted to be stripped from the pack by digital traction exerted on its distal end, and a pack-detaining member comprising a portion adapted to make contact with the distal end of the pack and thereby retain the pack while the pack-enclosing member is stripped from it, and comprising also a digit-contacting portion and a spacing portion extending in the direction of the length of the applicator and connecting said first mentioned two portions while spacing them, said pack-detaining member further comprising a portion extending beyond the proximal end of the pack-enclosing member and being there formed as a head of hollow arcuate transverse section and of bulbous form larger in diameter than the pack-enclosing member.

5. A vaginal applicator comprising a tube longitudinally slotted towards its distal end, the tube slot being substantially of not less length than the length of the unslotted proximal end of the tube, and a detaining member the longitudinal dimension of which extends within the length of the tube, said member being slidable within the tube and providing a finger contacting point rendered accessible by the tube slotting and also providing a pack contacting point spaced from said finger contacting point in the direction towards the proximal end of the tube by a distance approximating the length of a pack.

6. A vaginal applicator comprising a tube made of material which softens and loses its form when immersed in water, said tube being longitudinally slotted towards its distal end, the tube slot being substantially of not less length than the length of the unslotted proximal end of the tube, and a

detaining member, the longitudinal dimension of which extends within the length of the tube, said member being slidable within the tube and providing a pack detaining portion and a finger contacting point spaced from said portion by a distance approximating the length of a pack and rendered accessible by the tube slotting; said finger contacting point being provided by a lug which extends outward through said slotting.

7. A vaginal pack device comprising a smooth-surfaced tubular pack-enclosing member, a pack having the characteristic of being elastically laterally expansible enclosed in the proximal end of the pack-enclosing member and thereby restrained against lateral expansion, said pack-enclosing member being adapted to be stripped from the pack by digital traction exerted on its distal end, and a pack-detaining member comprising a portion adapted to make contact with the distal end of the pack and thereby retain the pack while the pack-enclosing member is stripped from it, and comprising also a digit-contacting portion and a spacing portion extending in the direction of the length of the applicator and connecting said first mentioned two portions while spacing them, said pack-detaining member further comprising a portion extending within the pack-enclosing member alongside the pack and terminating beyond the proximal end of the pack-enclosing member and being there formed as a head shaped to facilitate insertion of the applicator into the vagina.

8. For a vaginal pack device, a pack-detaining member comprising a head of hollow arcuate transverse section and of bulbous form, an extension piece integral with the head and carrying said head at its one end, and bent at its other end to provide a portion materially transverse to the longitudinal axis of the head, a tab materially parallel with the aforesaid transverse portion, and a spacing strip spacing said tab from said transverse portion and connecting said tab to it.

9. For a vaginal pack device, a pack-detaining member comprising a strip formed at its one end with a head and being bent at a point distant from the head to provide a portion which is materially transverse to the main extension of said strip, a tab materially parallel to said transverse portion and a strip spacing and connecting said transverse portion and said tab.

10. For a vaginal pack device, a pack-detaining member consisting of a strip formed at its one end with a head and bent three times along its length to provide, at a point distant from said head, a portion materially transverse to the longitudinal axis of the head, and to provide also a tab substantially parallel to said transverse portion, and a strip spacing said tab from said transverse portion.

11. A vaginal applicator comprising a tube longitudinally slotted towards its distal end, the tube slot being closed at both ends and substantially of not less length than the length of the unslotted proximal end of the tube, a detaining member the longitudinal dimension of which extends within the length of the tube, a tab on said detaining member projecting through said slot, said member being slidable within the tube and providing a pack contacting point spaced from said tab in the direction towards the proximal end of the tube by a distance approximating the length of a pack.

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