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(54) **ADHESIVE ROLLER CONSTRUCTION**

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(57) **ABSTRACT**

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An adhesive roller having an elongated strip with a backing layer and an adhesive layer overlying at least a portion of one side of the backing layer. The strip has a first end, a second end, and two spaced apart sides. The strip is wound from its first end and to its second end into a tubular cylindrical roll in which multiple layers of the strip overlap each other. An elongated perforation is formed transversely across the strip at spaced intervals therealong. This perforation, furthermore, includes an outwardly protruding tab at a position intermediate the ends of the perforation. This tab registers with a non-adhesive portion of an immediately inner layer of the strip so that the tab pops out from the roll to facilitate removal of the individual layers of the roller.

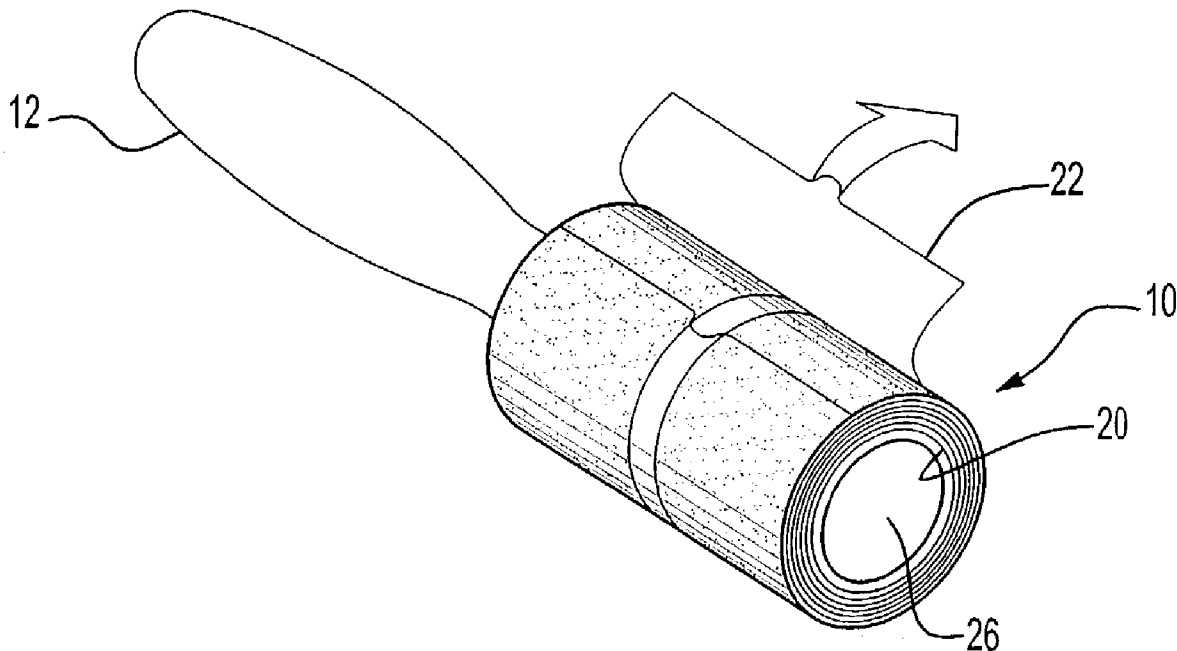
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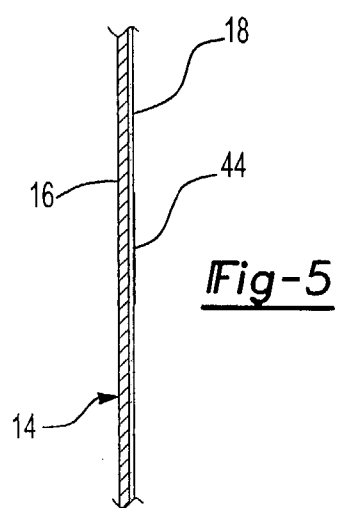
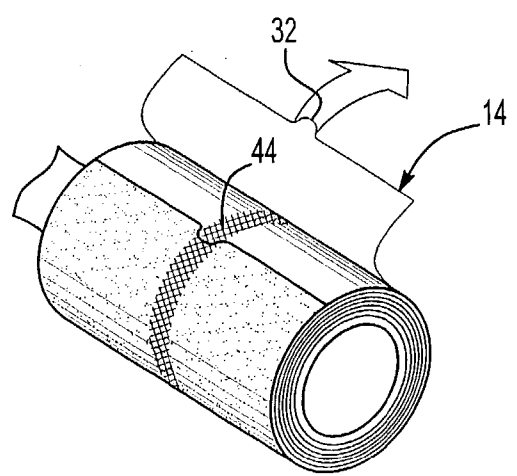
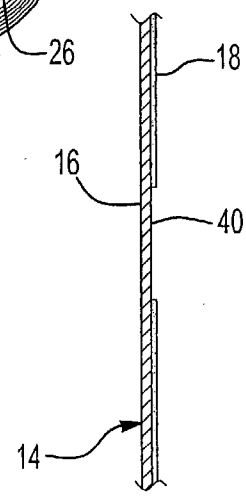
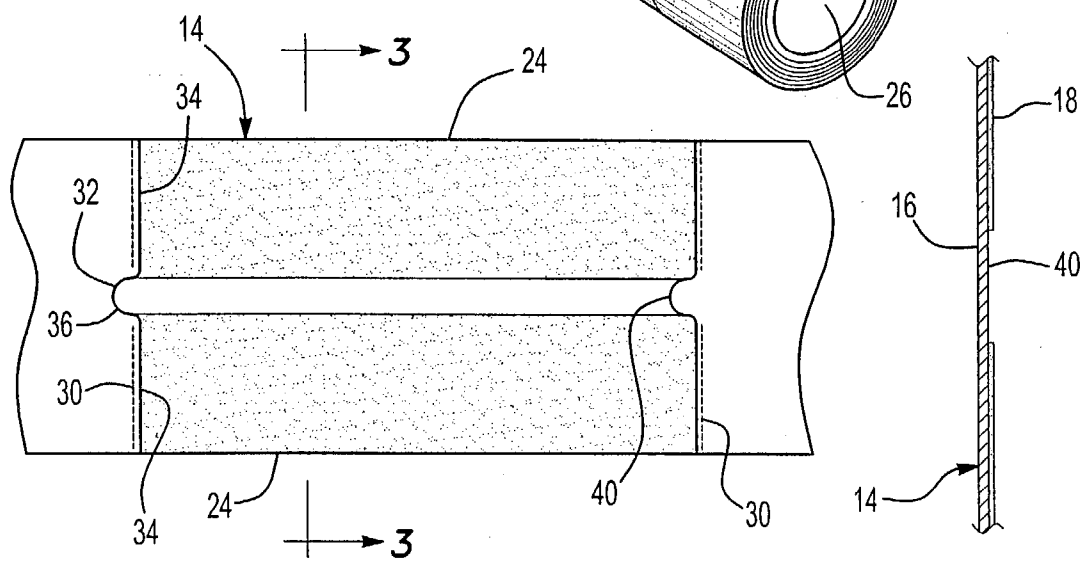
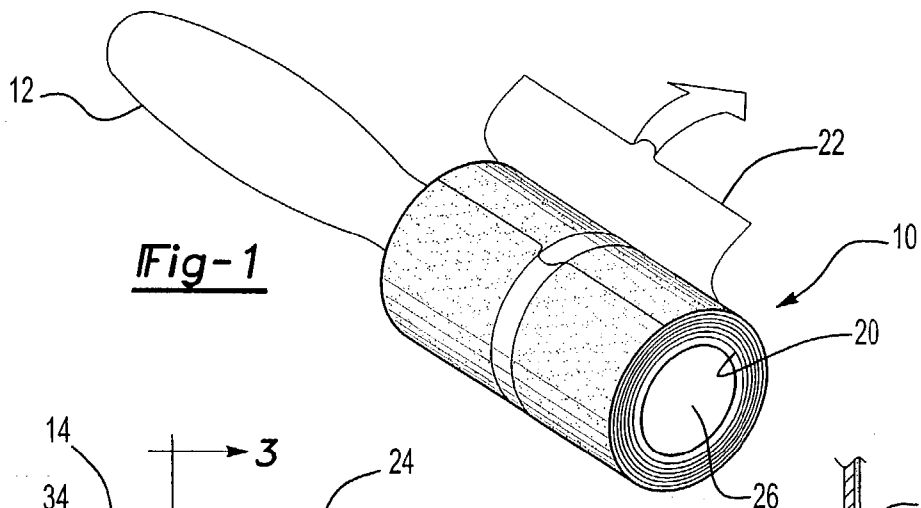
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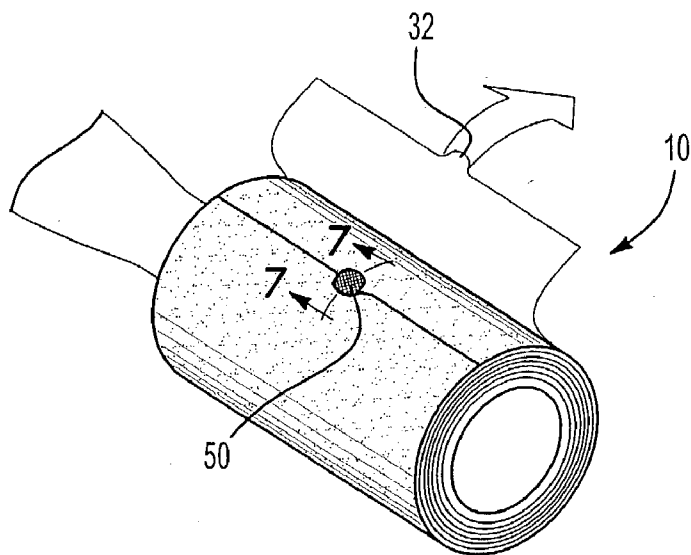


Fig-6

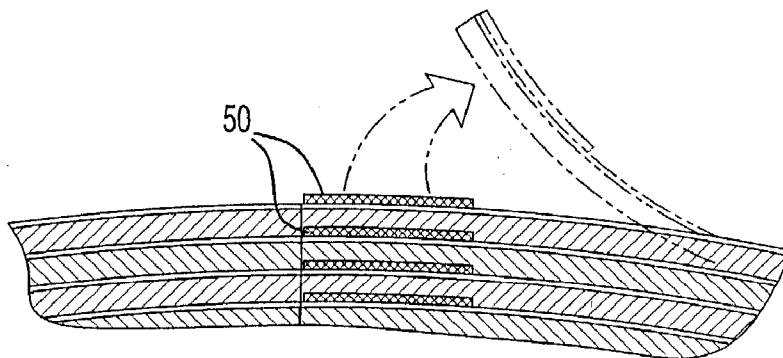


Fig-7

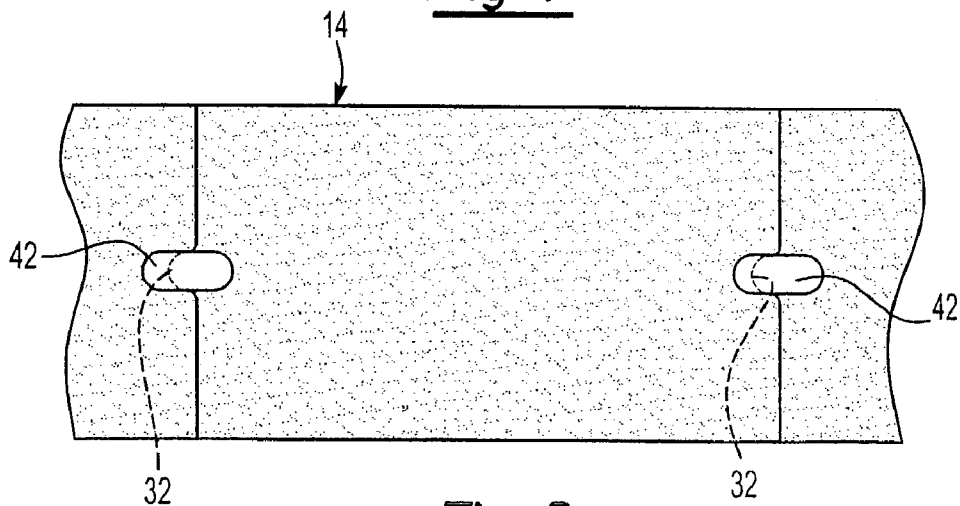
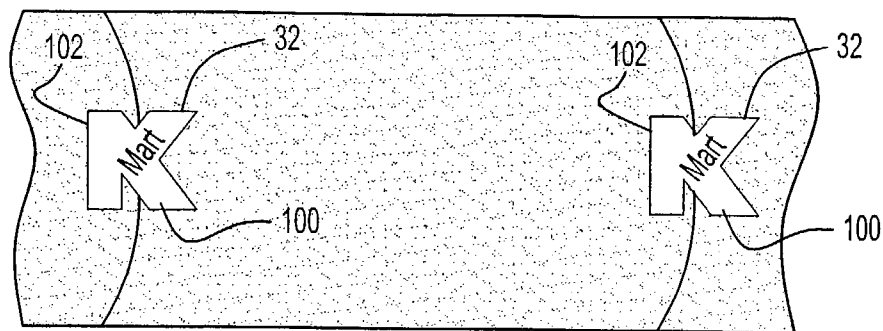
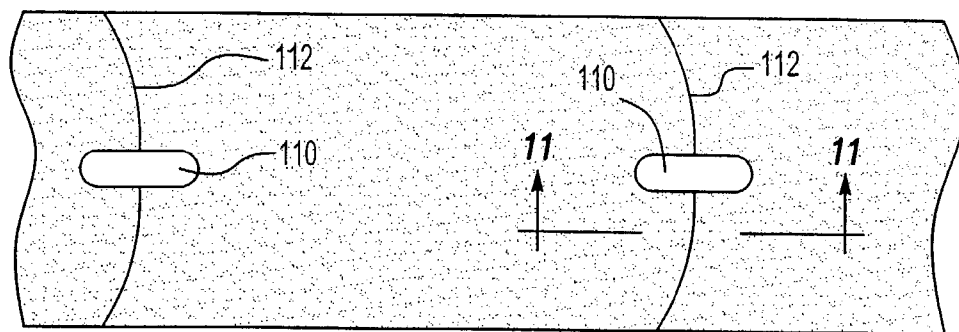


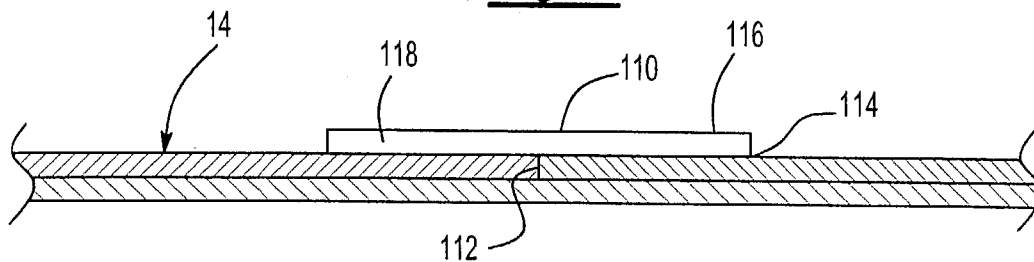
Fig-8



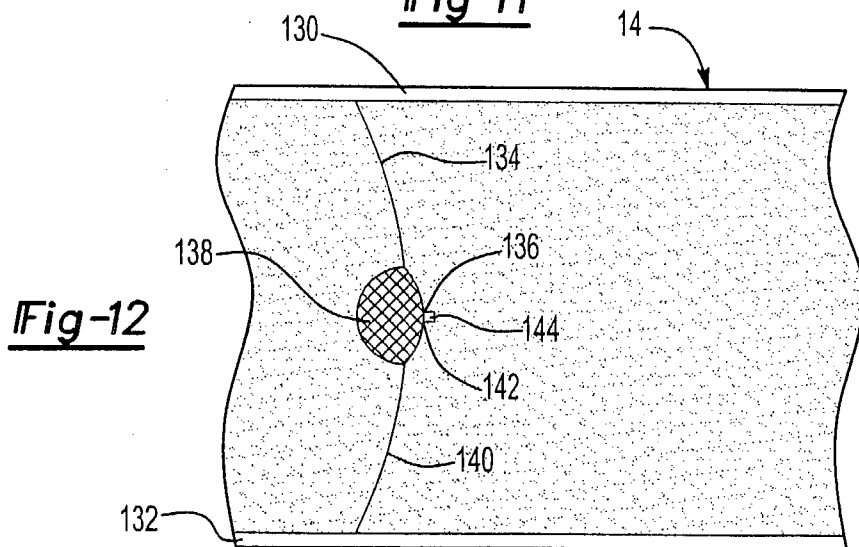
**Fig-9**



**Fig-10**



**Fig-11**



**Fig-12**

**ADHESIVE ROLLER CONSTRUCTION**

**BACKGROUND OF THE INVENTION**

**[0001] I. Field of the Invention**

**[0002]** The present invention relates generally to adhesive rollers and, more particularly, to such a roller used for detritus removal.

**[0003] II. Description of the Prior Art**

**[0004]** Lint rollers have long been known and widely used for removing detritus, such as pet hair, dandruff, lint and the like, from clothing, furniture, floors, etc. These previously known lint rollers typically comprise a handle having a tubular and cylindrical tape roll rotatably mounted to the handle.

**[0005]** Many of the previously known adhesive rollers for detritus removal comprise a continuous strip having a backing and with an adhesive layer provided on one side of the backing. This layer is then wound into a tubular and cylindrical roll, typically around a tubular roller support, so that the strip overlaps itself to form multiple layers. As the adhesive becomes depleted from use, a portion of the strip is then torn away from the roll to expose fresh adhesive. This process is repeated until the entire roll has been depleted at which time a new adhesive roll is mounted to the handle.

**[0006]** In order to provide a uniform removal of the individual layers of the strip after the adhesive on the layer has been depleted, it has been previously known to provide a transversely extending perforation laterally across the strip at spaced intervals along the strip. Each spaced interval, furthermore, corresponds substantially to one full revolution of the adhesive roll. Consequently, by tearing the layer along the perforation, not only is a uniform separation between adjacent layers achieved, but also wastage of the adhesive is minimized.

**[0007]** In practice, however, it has proven somewhat difficult to remove a single layer of the strip from the roll in a single piece without tearing the layer in the process. The primary difficulty in removing the layer from the roll is initiating the separation of the layer from its immediately adjacent inner layer. Typically, the layer being removed from the roll becomes torn in the process so that, rather than removing the used layer from the adhesive roll in a single piece, the individual layer must be removed in two or even more pieces. This is disadvantageously time consuming and can be somewhat messy.

**SUMMARY OF THE PRESENT INVENTION**

**[0008]** The present invention provides an adhesive roller construction which overcomes all of the above-mentioned disadvantages of the previously known adhesive roller constructions.

**[0009]** In brief, the adhesive roller construction of the present invention comprises an elongated strip having a backing layer and an adhesive layer overlying at least a portion of one side of the backing layer. The strip has a first end, a second end, and two spaced apart sides.

**[0010]** The strip is wound from its first end and to its second end into a tubular cylindrical roll in which multiple layers of the strip overlap each other with one layer consti-

tuting substantially a full revolution around the roll. Additionally, a tubular roller support, typically constructed of cardboard, forms an inner core for the adhesive roller.

**[0011]** An elongated perforation is formed transversely across the strip at spaced intervals therealong wherein each interval corresponds to substantially one full revolution of the strip around the roll. Additionally, the perforation includes a tab at a position intermediate its ends.

**[0012]** This tab, in turn, registers with a non-adhesive portion of the immediately adjacent inner layer of the roll. Since the tab registers with a non-adhesive portion on the roll, the tab "pops" out from the adhesive roll. As such, the tab provides a portion that can be easily manually manipulated by the user to facilitate the removal of the individual layers of the adhesive roll as the adhesive on those layers become depleted.

**[0013]** Optionally, the tab may be created with a substrate having shape members in a direction concave to the surface of the adhesive roll. Such a substrate would ensure that the tab protrudes outwardly from the adhesive roll for enhanced accessibility for the user.

**BRIEF DESCRIPTION OF THE DRAWING**

**[0014]** A better understanding of the present invention will be had upon reference to the following detailed description, when read in conjunction with the accompanying drawing, wherein like reference characters refer to like parts throughout the several views, and in which:

**[0015] FIG. 1** is an elevational view illustrating a preferred embodiment of the present invention;

**[0016] FIG. 2** is a plan view of a portion of the preferred embodiment of the present invention;

**[0017] FIG. 3** is a sectional view taken substantially along line 3-3 in FIG. 2 and enlarged for clarity;

**[0018] FIG. 4** is a view similar to FIG. 1, but illustrating a further preferred embodiment of the present invention;

**[0019] FIG. 5** is a view similar to FIG. 3, but illustrating the preferred embodiment of FIG. 4;

**[0020] FIG. 6** is a view similar to FIG. 1, but illustrating still a further preferred embodiment of the present invention;

**[0021] FIG. 7** is a fragmentary sectional view taken substantially along line 7-7 in FIG. 6 and enlarged for clarity;

**[0022] FIG. 8** is a view similar to FIG. 2, but illustrating a further modification thereof;

**[0023] FIG. 9** is a plan view illustrating a modification to the invention;

**[0024] FIG. 10** is a plan view illustrating still a further embodiment of the present invention;

**[0025] FIG. 11** is a sectional view taken along lines 11-11 in FIG. 10; and

**[0026] FIG. 12** is a plan view illustrating still a further embodiment of the present invention.

**DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE PRESENT INVENTION**

**[0027]** With reference first to FIGS. 1-3, a preferred embodiment of the adhesive roller construction 10 of the

present invention is shown rotatably mounted to a handle 12 in any conventional fashion. The adhesive roller construction 10 includes an elongated strip 14 having a backing layer 16 and an adhesive layer 18 on at least a portion of one side of the backing layer 16. The elongated strip 14 also includes a first end 20 (FIG. 1), a second end 22 and two spaced apart sides 24. The adhesive layer 18 may cover the entire surface of one side of the backing layer 16 or, alternatively, a longitudinally extending dry, non-adhesive, edge may be provided along one, or both, edges 24.

[0028] As best shown in FIG. 1, the strip 14 is wound from its first end 20 and to its second end 22 into a tubular and cylindrical roll so that the adhesive layer 18 faces outwardly. Preferably, the strip 14 is wound about a tubular and cylindrical roller support 26 which is made of any suitable material, such as cardboard. In doing so, the strip 14 forms a plurality of successive layers around the roll 10 with each layer corresponding to substantially one revolution of the strip 14 around the roller construction 10.

[0029] The adhesive roller construction 10 is used for the removal of detritus from clothing, furniture and the like. As the adhesive becomes depleted on the outermost layer after extended use, the outermost layer must be removed to expose the next adjacent inner layer with its fresh adhesive.

[0030] With reference now particularly to FIGS. 2 and 3, in order to facilitate the removal of individual layers of the strip 14 from the adhesive roll 10, transversely extending perforations or slits 30 (hereinafter collectively referred to as "perforations") are formed at spaced intervals along the strip 14. The spacing between the perforations 30 corresponds substantially to one full revolution of the strip 14 around the roll 10 and is preferably exactly equal to or slightly less than one full revolution. Since the diameter of the roller construction 10 decreases from the outer layer to the innermost layer of the strip 14, the longitudinal spacing between the perforations 30 on adjacent sheets also decreases from the outermost layer to the innermost layer of the strip. Additionally, the perforations 30 preferably terminate short of each side 24 of the strip 14 to ensure the integrity of the roll 10. Alternatively, the perforation 30 may extend through one or both of the edges 24.

[0031] As best shown in FIG. 2, each perforation 30 includes an outwardly protruding tab 32 at a position intermediate the sides 24 of the strip 14. Preferably, the perforation 30 includes two aligned perforation sections 34 with the tab 32 positioned in between the perforation sections 34. The tab 32 may be of any desired shape, but is illustrated in FIG. 2 as having a curvilinear portion 36 protruding outwardly from the aligned perforation sections 34.

[0032] With reference again to FIGS. 1-3, each tab 32 registers with a non-adhesive portion 40 of the immediately adjacent inner layer of the roll 10. Consequently, since the tab 36 registers with the non-adhesive portion of the immediately adjacent inner layer, the tab 32 pops outwardly from the adhesive roll 10 to facilitate the removal of the individual layers of the roll 10 when desired.

[0033] The non-adhesive portion 40 can be formed in any of several different fashions. As shown in FIGS. 2 and 3, the non-adhesive portion 40 comprises a longitudinally extending non-adhesive strip 40 which extends along the entire length of the strip 14. This non-adhesive strip 40, which is

formed by applying the adhesive to the backing 16 only along the sides of the strip 40, is aligned with the tab 32 and ensures that each tab 32 registers with a non-adhesive portion of the strip 14.

[0034] With reference now to FIG. 8, a modification of the present invention is shown in which longitudinally spaced non-adhesive spots 42 are provided at spaced intervals along the strip 14 corresponding to a single layer or single revolution of the strip 14 around the roll 10. The spots 42 register with the tabs 32 on the immediately adjacent outer layer of the roll 10. However, in the event that the spacing between the perforations 30 is not varied along the strip 14 to compensate for the reduction in the diameter of the roller construction as the sheets are removed, the non-adhesive spots 42 are preferably somewhat oblong in shape as shown in FIG. 8. The oblong shape of the spots 42 ensures that the tabs 32 align with a non-adhesive spot 42 despite the diameter reduction of the roller construction 10.

[0035] Alternatively, the non-adhesive spots 42 and tabs 32 are formed such that each tab 32 is aligned with one non-adhesive spot 42. In this event, it is not necessary that the non-adhesive spots be oblong in shape. Furthermore, the tabs 32 are optionally circumferentially and/or laterally staggered around the roller construction 10 so that the tabs 32 on adjacent layers of the roller construction 10 do not overlie each other. Such staggering may prevent a thickness buildup that might be caused by overlying tabs 32.

[0036] In order to prevent the tabs 32 from adhering to the immediately adjacent inner layer of the roller construction 10 so that the tabs 32 "pop up" from the roller construction 10, a release agent, i.e. a material which prevents adhesion to the adhesive layer 18, may alternatively be applied to the inwardly facing surface of the tab 32. Since the release agent prevents the tab 32 from adhering to the immediately adjacent inner layer of the roller construction 10, the tab 32 pops outwardly from the roller construction as desired.

[0037] With reference now to FIGS. 4 and 5, a still further modification of the present invention is shown in which the adhesive layer 18 covers the entire side of the backing 16. In order to provide the non-adhesive portion which registers with the individual tabs 32 along the strip 14, any type of masking material 44, e.g. ink or silicone, is provided over the top of the adhesive layer 18. This material 44 may be provided along the strip 14 in a continuous strip 46, as illustrated in FIG. 4, or may be simply applied to the adhesive strip at elongated spots along the strip 14 in a fashion similar to that shown in FIG. 8.

[0038] With reference now to FIGS. 6 and 7, a still further preferred embodiment of the present invention is shown in which individual patches 50 of material are applied to the adhesive layer 18 of the strip 14 at spaced intervals along the strip 14. The spaced intervals correspond to one layer of the adhesive strip 14 and are aligned on the strip 14 so that each patch 50 is aligned with one tab 32. The patches 50 thus preclude the tab 32 from adhering to the next inner layer and facilitating the removal of the individual layers from the strip 14.

[0039] The patches 50 are optionally made of a material that has shape memory and are concavely curved relative to the outer surface of the adhesive roller. The concave curve of the patch 50 coupled with its shape memory ensures that

the tab **32** pops outwardly from the roller construction **10** even after repeated use of the roller construction.

[0040] In the event that the spacing between the perforations on opposite ends of the sheets exceeds the diameter of the roller construction **10**, it is desirable to use both a patch **50** as well as a masking material **44** to ensure that the tab **32** does not adhere to the roller construction.

[0041] With reference now to **FIGS. 10 and 11**, a still further embodiment of the adhesive roller is there shown in which a tab **110** is applied across the perforation line **112** of the strip **14**. A release film **114** is applied to the portion **116** of the tab **110** overlying the next adjacent layer of the roll so that the portion **116** of the tab **110** does not stick to the next inner layer of the roll. Conversely, the release film is not applied to the other portion **118** of the tab **110** so that the tab portion **118** adheres to the roll. This embodiment also enables the tabs **110** to be staggered around and/or laterally across the roll and eliminate a thickness buildup that might otherwise occur if all of the tabs **110** were aligned with each other.

[0042] With reference now to **FIG. 12**, a still further embodiment of the invention is shown in which the strip **14** includes two dry edges **130** and **132**. A first perforation set **134** extends from one dry edge **130** to a point **136** just short of the center of a tab **138**. Similarly, a second perforation set **140** extends from a point **142** just past the center of the tab **138** to the other dry edge **132** thus leaving at least one uncut portion **144**. This uncut portion **144** serves to hold the roll together. Furthermore, the first perforation set **134** and second perforation set **140** may be of any desired shape, such as curvilinear or straight.

[0043] It will also be understood that the length of the individual perforations **30** along each end of the sheets may vary in length. For example, the perforations **30** may be elongated around and immediately adjacent the tabs **32** but decrease in length as the perforations extend towards the sides **24** of the strip **14**. Such variation in length of the perforations **30** may enhance the integrity of the roller construction **10** and/or decrease the likelihood of shredding of the strip **14** as the individual sheets are removed.

[0044] The entire tab **138** overlies and is adhered to the adhesive roll. However, since the tabs **138** overlie each other and have a release coating on their top surface, they do not adhere to each other and, rather, pop up from the roll and facilitate removal of its associated adhesive layer after the adhesive is depleted.

[0045] A prime advantage of the embodiment of the invention shown in **FIG. 12** is that, since the tab **138** is aligned with the uncut portion **144**, the tab **138** effectively prevents shredding, i.e. tearing of the adhesive strip **14**, as the individual adhesive layers are removed from the roll.

[0046] With reference to **FIG. 9**, the tabs **32** may contain graphics **100** or may be cut in a shape **102** specific to a particular retailer or business or specific to the manufacturer's or a licensee's brand.

[0047] From the foregoing, it can be seen that, by providing a non-adhesive portion aligned with each of the tabs **32**, the tabs **32** pop up from the adhesive roll and facilitate the removal of the individual layers from the adhesive roll. Preferably, the tab **32** is centered in between the sides **24** of

the strip **14**, but alternatively the tab may be positioned at any desired location along the roll **10** including along the edge. Optionally, the tabs **32** are staggered or migrate circumferentially and/or laterally along the roller construction **10**.

[0048] Additionally, even though the perforations **30** extending transversely across the strip **14** are illustrated in the drawing as extending perpendicularly across the strip **14**, it will be understood that these perforations **30** may be at an angle with respect to the strip **14** if desired.

[0049] Having described my invention, however, many modifications thereto will become apparent to those skilled in the art to which it pertains without deviation from the spirit of the invention as defined by the scope of the appended claims.

I claim:

1. An adhesive roller construction comprising:

an elongated strip, said strip having a backing layer and an adhesive layer overlying one side of said backing layer, said strip having a first end, a second end and two spaced apart sides, said strip being wound from said first end to said second end into a tubular cylindrical roll in which multiple layers of said strip overlap each other,

a perforation set formed transversely across said strip at spaced intervals therealong, said perforation set having a tab at a position intermediate the ends of the perforation set,

means for preventing said tab from adhering to its immediately adjacent inner layer of said roll.

2. The invention as defined in claim 1 wherein said preventing means comprises a plurality of longitudinally spaced non-adhesive spots along said strip, each said non-adhesive spot registering with the tab on the immediately adjacent outer layer of said strip.

3. The invention as defined in claim 1 wherein said preventing means comprises a non-adhesive portion extending longitudinally along said strip, said non-adhesive portion being positioned between said edges of said strip and in registration with said tabs.

4. The invention as defined in claim 3 wherein said non-adhesive portion is positioned at a midpoint between the edges of said strip.

5. The invention as defined in claim 1 wherein said preventing means comprises a plurality of non-adhesive patches attached at spaced intervals to said strip so that each said patches registers with said tab on the immediately adjacent outer layer of said strip.

6. The invention as defined in claim 5 wherein each patch is constructed of a material which has shape memory.

7. The invention as defined in claim 6 wherein said patch has shape memory in a concave direction with respect to an outer surface of the roller construction.

8. The invention as defined in claim 1 wherein said preventing means comprises a release agent applied to an inwardly facing surface of each tab.

9. The invention as defined in claim 1 wherein said preventing means comprises a plurality of adhesive masked spots at spaced intervals to said strip so that each said masked spot registers with said tab on the immediately adjacent outer layer of said strip.

**10.** The invention as defined in claim 1 wherein said perforation set terminates short of at least one edge of said strip.

**11.** The invention as defined in claim 1 wherein said perforation set terminates short of both edges of said strip.

**12.** The invention as defined in claim 1 and comprising a tubular cylindrical roller support, said strip being wound around said roller support.

**13.** The invention as defined in claim 9 wherein said roller support is constructed of cardboard.

**14.** The invention as defined in claim 9 wherein said roller support is constructed of plastic.

**15.** The invention as defined in claim 1 wherein said perforation set comprises two aligned perforated sections, said tab being positioned between said perforated sections.

**16.** The invention as defined in claim 15 wherein said tab has a curvilinear portion which protrudes outwardly from said aligned sections.

**17.** The invention as defined in claim 1 wherein said perforation set comprises a plurality of perforations, said perforations varying in length from said tab and to the sides of said strip.

**18.** The invention as defined in claim 1 wherein said perforation comprises a continuous slit formed transversely across said strip.

**19.** The invention as defined in claim 6 wherein each spot is masked with ink.

**20.** The invention as defined in claim 6 wherein each spot is masked with a deadening agent containing silicone.

**21.** The invention as defined in claim 1 wherein said tabs on adjacent layers of said roller construction are circumferentially spaced from each other.

**22.** The invention as defined in claim 2 wherein said non-adhesive spots are oblong in shape.

**23.** The invention as defined in claim 1 wherein said tab comprises a patch having a release agent applied to a portion of the patch, said patch being applied to said strip so that said portion of said patch is positioned on one side of said perforation and a remainder of said patch is positioned on the other side of said perforation.

**24.** The invention as defined in claim 1 and comprising graphics applied to said tab.

**25.** The invention as defined in claim 1 wherein said tab has a shape associated with a particular business entity.

**26.** The invention as defined in claim 1 wherein said tab is aligned with an uncut portion of said perforation.

**27.** The invention as defined in claim 26 wherein said perforation set comprises a first cut extending from a point adjacent one edge of the strip to a point aligned with but short of the center of the tab, and a second cut extending from a point adjacent the other edge of the strip to a point aligned with but short of the center of the tab.

**28.** The invention as defined in claim 27 wherein each cut is curvilinear in shape.

\* \* \* \* \*