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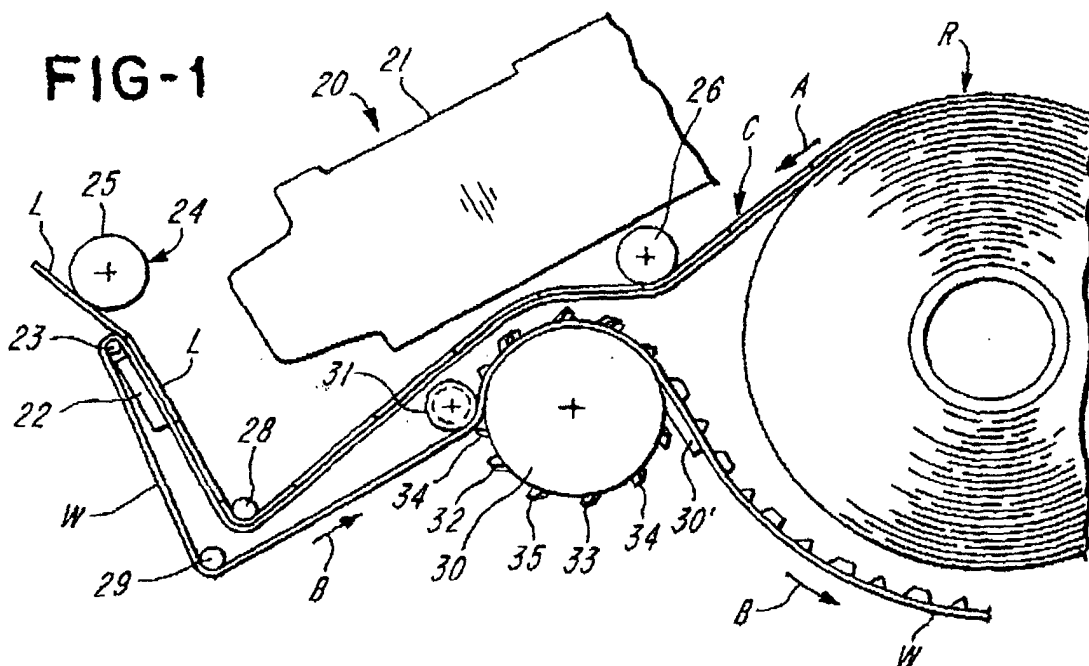
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(54) **Composite label web and method of using the same**

(57) There is disclosed a composite label web that can be used in different labelers having different feed wheels. The different feed wheels have different arrangements or patterns of feed teeth. The composite label web is comprised of a carrier web and labels releas-

ably adhered by pressure sensitive adhesive to the carrier web. There is a separate feed aperture pattern in the carrier web for each pattern of feed teeth. The number of feed apertures is kept to a minimum, and more particularly the number of feed apertures is less than the total number of feed teeth.



Description

Background of the Invention

Field of the Invention

[0001] This invention relates to the field of composite label webs and to method of using composite label webs.

Brief Description of the Prior Art

[0002] The following U.S. patents are made of record: 4,280,862; 4,309,468; 4,393,107; 4,521,267; 4,556,442; 5,705,245; and 5,988,249. In addition, it is known in the art to provide composite label webs that are usable in labelers having different feed wheels, wherein one pattern of feed apertures in the carrier web of the composite label web is solely for the pattern of feed teeth of one feed wheel, and the other pattern of feed apertures in the carrier web is solely for the pattern of feed teeth of the other feed wheel. This results in a large number of feed apertures in the carrier web, which may subject the carrier web to increased likelihood of tearing when used in a labeler. All of the teeth on the one feed wheel of the one labeler enter and engage only all of the one feed apertures in the label-carrying web; or all of the teeth on the other feed wheel of the other labeler enter and engage only all of the other feed apertures in the label-carrying web.

[0003] In general, feed wheels differ in width and diameter depending upon the width and length of the labels which the labeler is intended to dispense. The number of teeth on a feed wheel of a labeler is dependent on the amount of drag or force required to advance the carrier web through a serpentine path through the labeler. There is normally a safety factor so that the number of teeth are more than adequate for advancing the carrier web without unduly stressing the carrier web at the feed apertures. This safety factor means that the feed wheels are sometimes designed with more feed teeth than are absolutely necessary to advance the carrier web through the labeler

Summary of the Invention

[0004] The invention relates to an improved composite label web and to method of using a composite label web. The invention takes advantage of the fact that the entire safety factor or overdesign may not be absolutely necessary in a properly functioning labeler.

[0005] According to the invention, an improved composite label web is provided that can be used in different labelers having different feed wheels with different feed tooth patterns, without unduly weakening the carrier web of the composite label web or otherwise increasing the tendency of the carrier web to tear.

[0006] According to the invention, the number of feed

apertures in the carrier web can be reduced by using less than all the feed teeth of the two different feed wheels. For example, one feed wheel can have four laterally spaced circumferentially extending rows of feed teeth, only three of which are used to advance the carrier web. Thus, only three columns of feed apertures are required in the carrier web for the three rows of feed teeth. The unused feed teeth of the remaining row can enter or be received in another column or line of feed apertures in the carrier web but do not drivingly engage the carrier web; the other feed wheel can have three laterally spaced, circumferentially extending rows of feed teeth, only two of which are used to advance the carrier web. Thus, only two columns of feed apertures are required in the carrier web for these two rows of feed teeth. The unused feed teeth of the remaining row can enter or be received in another column or line of feed apertures in the carrier web but do not drivingly engage the carrier web. In this way, the unused teeth of each feed wheel merely enter but do not engage feed apertures which would normally be used by the other feed wheel to advance the carrier web.

[0007] It is a feature of the invention to provide an improved composite label web having labels releasably adhered to a carrier web, wherein the carrier web can be advanced either by a labeler having M number of teeth engageable with less than M number of feed apertures of a first pattern in the carrier web, or by a labeler having N number of teeth engageable with less than N number of feed apertures of a second pattern in the carrier web.

[0008] It is a feature of the invention to provide an improved composite label web which can be advanced by either one of two feed wheels having different feed tooth patterns, wherein the number of feed apertures in the carrier web is less than the number of engaging teeth of the two feed wheels.

[0009] It is another feature of the invention to provide an improved method of advancing a composite label web, wherein the carrier web is advanced by either one of two feed wheels, but some of the teeth of each feed wheel do not engage the carrier web to keep the number of feed apertures in the carrier web to a minimum.

[0010] In one specific embodiment, a composite label web can be used in labelers having different first and second feed wheels. The first feed wheel has a plurality of like first feed tooth patterns. The second feed wheel has a plurality of like second feed tooth patterns which differ from the first feed tooth patterns. The composite label web includes a longitudinally extending carrier web and labels releasably adhered thereto. The carrier web has first repetitive patterns of first feed apertures and second repetitive patterns of second feed apertures. The first apertures are engageable with some but not all of the first feed teeth and the second apertures are engageable with some but not all of the second feed teeth. The sum of the feed apertures in the first pattern and the second pattern is less than the sum of the feed teeth

in the first feed tooth pattern and the second feed tooth pattern.

[0011] It is a feature of the invention to provide an improved composite label web for use with either one of first and second feed wheels with respective first and second feed teeth arranged in different feed tooth patterns, wherein the composite label web has labels releasably adhered to a carrier web, and wherein the carrier web has repetitive composite feed aperture patterns wherein at least one but not all the feed apertures of a composite feed aperture pattern are engageable by a first tooth of the first feed wheel, at least one different feed aperture is engageable by a second tooth of the second feed wheel, and at least one of the other feed apertures is engageable by another first tooth of the first feed wheel when the first feed wheel is used and by another second tooth of the second feed wheel when the second feed wheel is used.

[0012] It is another feature of the invention to provide an improved composite label web for use with either one of first and second feed wheels with respective first and second feed teeth arranged in different first and second feed tooth patterns, wherein the composite label web includes a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, a composite pattern of feed apertures including a first pattern of first feed apertures and a second pattern of second feed apertures, and wherein the first and second feed aperture patterns overlap so that at least one first feed aperture is engageable by a first feed tooth when the first feed wheel is used, at least one second feed aperture is engageable by a second feed tooth when the second feed wheel is used and at least one of the feed apertures common to the first and second feed apertures pattern is engageable by one of the first teeth when the first feed wheel is used to advance the composite label web or by one of the second teeth when the second feed wheel is used to advance the composite label web.

[0013] It is a feature of the invention to provide an improved composite label web for use with either one of first and second feed wheels with first and second feed teeth arranged in different feed tooth patterns, wherein the composite label web includes a longitudinally extending carrier web having spaced side edges, labels releasably adhered by pressure sensitive adhesive to the carrier web, feed apertures arranged in a pattern in the carrier web between the side edges wherein the pattern provides for entry of the first feed teeth in less than all the feed apertures when the first feed wheel is used or for entry of the second feed teeth in less than all of the feed apertures when the second feed wheel is used and wherein at least one of the feed apertures is positioned to be used alternately by both at least one first feed tooth and at least one second feed tooth.

[0014] It is a feature of the invention to provide an improved composite label web for use with either one of first and second feed wheels with first and second feed

teeth arranged in different feed tooth patterns, the composite label web including a longitudinally extending carrier web having spaced side edges, labels releasably secured by pressure sensitive adhesive to the carrier web, effectively five feed apertures per label in the carrier web between the side edges arranged so that a pair of the apertures are engageable solely by the first teeth, another aperture is engageable solely by a second tooth, and the remaining pair of apertures is engageable by the first feed teeth when the first feed wheel is used and by the second feed teeth when the second feed wheel is used.

[0015] It is another feature of the invention to provide an improved composite label web for use with either one of first and second feed wheels with first and second teeth arranged in different first and second feed tooth patterns, the composite label web comprising: a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, a composite pattern of feed apertures including a first pattern of first feed apertures arranged to be driven by the first feed teeth and a second pattern of a second feed apertures arranged to be driven by the second feed teeth, the first and second feed aperture patterns being arranged so at least one of the first feed apertures is engaged by one of the first teeth while at least one of the second feed apertures receives and engages one of the first feed teeth, or so at least one of the second feed apertures is engaged by one of the second feed teeth while at least one of the first apertures receives and engages one of the second feed teeth.

[0016] It is a feature of the invention to provide an improved method of advancing a composite label web with either one of first and second feed wheels having first and second teeth by providing a composite label web having a longitudinally extending carrier web having spaced side edges and labels releasably adhered to the carrier web, providing the carrier web with feed apertures arranged in a pattern in the carrier web between the side edges wherein the pattern provides for entry of at least one first feed tooth in less than all the feed apertures when the first feed wheel is used or for entry of at least one second feed teeth in less than all the feed apertures when the second feed wheel is used and wherein at least one of the feed apertures is positioned to be used by both at least one first feed tooth and at least one second feed tooth, and advancing the carrier web with either of the first and second feed wheels.

Brief Description of the Diagrammatic Drawings

[0017]

FIGURE 1 is a diagrammatic view of one arrangement for using the composite label web of the invention;

FIGURE 2 is a perspective view of a toothed feed wheel shown diagrammatically in end elevation in

FIGURE 1, wherein the feed wheel rotates counter-clockwise as seen in FIGURE 2;

FIGURE 3 is a left end elevational view of the feed wheel as seen in FIGURE 2, wherein the feed wheel rotates counterclockwise;

FIGURE 4 is a side elevational view of the feed wheel as seen by looking at the right side of FIGURE 3;

FIGURE 5 is a fragmentary view showing another arrangement for using the composite label web of the invention;

FIGURE 6 is a more detailed end elevational view of the toothed feed wheel shown diagrammatically in FIGURE 5;

FIGURE 7 is a side elevational view of the toothed feed wheel as seen by looking at the right side of FIGURE 6;

FIGURE 8 is a fragmentary top plan view of a composite label web in accordance with the invention;

FIGURE 9 is a fragmentary, perspective, developed view of the carrier web showing the feed wheel of FIGURES 1 through 4 advancing the carrier web; and

FIGURE 10 is a developed view similar to FIGURE 9, but showing the feed wheel of FIGURES 5 through 7 advancing the carrier web;

FIGURE 11 is a perspective view of a toothed feed wheel similar to FIGURE 2 but with a different feed tooth pattern and differently shaped feed teeth;

FIGURE 12 is a left end elevational view of the feed wheel as seen in FIGURE 11;

FIGURE 13 is a side elevational view of the feed wheel as seen by looking at the right side of FIGURE 12; and

FIGURE 14 is a fragmentary top plan view of a composite label web in accordance with the invention which is adapted to be used by either the feed wheel of FIGURES 5, 6 and 7 or by the feed wheel of FIGURES 11, 12 and 13.

Detailed Description of a Preferred Embodiment

[0018] With reference to FIGURE 1, there is shown a diagrammatic representation of a labeler generally indicated at 20 and a composite label web C. For further details of such a labeler 20, reference may be had to a labeler of the type disclosed in U.S. patent 5,988,249, the disclosure of which is incorporated herein by reference. The labeler 20 is shown to include a print head 21, a platen 22 with which the print head 21 cooperates, a delaminator in the form of a peel roller 23, and an applicator 24 in the form of an applicator roll 25. A composite label web roll R is comprised of the wound up composite label web C having a carrier web W to which labels L are releasably adhered by pressure sensitive adhesive 26 (FIGURE 8). The composite label web C passes in the direction of arrow A from the roll R to beneath a brake roll 26, beneath a roll 28, over the platen

22 and to the peel roller 23 where labels L are successively delaminated as the carrier web W is advanced through a sharp angle bend as shown. From there the web W passes partly about a roll 29 and passes in the direction of arrow B between a toothed feed wheel 30 and a grooved die roller 31. The feed wheel 30 has four rows of teeth 32 through 35 which are staggered in the circumferential direction as best shown in FIGURES 2 and 4. The feed wheel 30 is designed to feed a carrier web having four columns of feed apertures. The teeth 32 are disposed in row R1, the teeth 33 are disposed in row R2, the teeth 34 are disposed in row R3, and the teeth 35 are disposed in row R4. There are three sets of like patterns of feed teeth, namely, the sequence or pattern of teeth 34, 32, 35 and 33. Thus, there are three, one-two-three-four patterns of teeth 34, 32, 35 and 33 around the feed wheel 30. As shown, each of the teeth 34, 32, 35 and 33 of each row is axially offset around the periphery of the feed wheel 30, and the rows R1 through R4 are axially offset or spaced from each other.

[0019] As the feed wheel 30 and die wheel 31 rotate and with the teeth 32 through 34 in engagement with the web W (FIGURE 9), the composite label web C is advanced to bring a label L to a printing position between the print head 21 and the platen 22. When the print head 21 cooperates with the platen 22, the label L is printed, and thereafter the feed wheel 30 is again rotated to bring the just printed label L to the label applying position in underlying relationship to the applicator roll 25. A stripper 30' strips the carrier web W from the feed wheel 30 as the carrier web W is advanced by the feed wheel 30.

[0020] The labeler 20' of the embodiment of FIGURES 5 through 7 operates in the same way in many respects, and includes a grooved die roller 31', a cooperating feed wheel 36 and a stripper 36'. For further details of such a labeler 20', reference may be had to the type of labeler disclosed in U.S. patent 4,280,862, the disclosure of which is incorporated herein by reference. The feed wheel 36 is designed to feed a carrier web having three columns of feed apertures.

[0021] The arrangement of FIGURES 5 through 7 differs from the arrangement shown in FIGURES 1 through 4. The arrangement shown in FIGURES 5 through 7 is identical to the arrangement of FIGURES 1 through 4 except that the feed wheel 36 differs from the feed wheel 30. As best shown in FIGURE 7, the feed wheel 36 has three rows R5, R6 and R7 of teeth 37, 38 and 39 arranged in three sets of like two-one patterns around the periphery or circumference of the feed wheel 36. Each two-one pattern has two teeth 37 and 39 and one tooth 38. The teeth 37, 38 and 39 of respective rows R5, R6 and R7 are axially offset or spaced, and the teeth 38 are staggered with respect to the pairs of teeth 37 and 39.

[0022] With reference to the composite label web C shown in detail in FIGURE 8, there is shown the carrier web or liner W which has a release coating such as silicone on its upper surface 40. A series of labels L is releasably adhered by the pressure sensitive adhesive 26

to the carrier web W. The adhesive 26 on the underside of labels L releasably adheres the labels L to the silicone on the surface 40. The carrier web W has a composite pattern of feed apertures made by forming cuts or slits in the carrier web W between spaced side edges of the web W. There are five different cut configurations of feed apertures formed in a repeating arrangement in the carrier web W. Each cut configuration is disposed in a different column C1 through C5 in the carrier web W. The configuration of three cuts define feed apertures 41 disposed in column C1, angle-shaped cuts which extend in one lateral direction define feed apertures 42 in column C2, generally I-shaped cuts define feed apertures 43 in column C3, angle-shaped cuts which extend in the opposite lateral direction in column C4 define feed apertures 44, and generally I-shaped elongate cuts define feed apertures 45 in column C5. The feed apertures 41 are longer than feed apertures 44, and feed apertures 45 are longer than feed apertures 43. The cuts 41 through 45 which underlie the labels L are shown by broken lines. The feed apertures 41 through 45 preferably extend completely through the web W but preferably do not penetrate the labels L.

[0023] The composite pattern of feed apertures includes a pattern of feed apertures 44, 41 and 42 engaged by the feed teeth 34, 32 and 33, respectively, and a pattern of feed apertures 43 and 45 engaged by the feed teeth 38 and 39, respectively.

[0024] Neither the teeth 35 nor the teeth 37 are used to advance the carrier web W, so less than all the feed teeth of the feed wheel 30 are used and less than all of the feed teeth of the feed wheel 36 are used.

[0025] As best shown in FIGURE 9, the carrier web W is being advanced in the feed direction shown by arrow B. When the web W is used with the feed wheel 30 in the labeler 20 of FIGURES 1 through 4, the feed teeth 32 enter the feed apertures 41 and fold flaps 41' out of the plane of the web W as shown, and engage feed faces or surfaces 32'. As the teeth 33 enter the web W at the feed apertures 42, the teeth 33 fold a flap 42' out of the plane of the web W. Engagement of one or more teeth 33 with the feed faces 33' helps to advance the web W. The teeth 34 engage the feed apertures 44 at feed faces 34'. The teeth 34 fold flaps 44' out of the plane of the web W. The feed apertures 45 enable the teeth 35 to enter the web W, however, the teeth 35 do not engage any feed face. As seen in FIGURE 9, when the teeth 32 through 34 engage the web W, the teeth 35 are spaced from both ends of the feed apertures 45. Therefore, the teeth 35 can enter the web W at the feed apertures 45 but do not engage any feed face. The feed teeth 35 merely passively enter into the feed apertures 45. It is apparent that only the feed apertures 41, 42 and 44 in columns C1, C2, and C4 are used by the feed wheel 30 to advance the web W.

[0026] With respect to FIGURE 10, the web W is advanced by the feed wheel 36 in the feed direction shown by the arrow B. Rows R5, R6 and R7 are aligned with

columns C1, C3 and C5. There is no tooth of the feed wheel 36 aligned with columns C2 and C4. The teeth 38 and 39 which are aligned with columns C3 and C5 open feed apertures 46 and 45 and lift the respective flaps 43' and 45' and engage folded edges of flaps 43' and 45' for advancing the web W. The teeth 37 lift the flaps 41' but do not engage any feed face. The feed apertures 41 form convenient places for the teeth 37 to enter the web W.

[0027] It is noted that less than all the teeth of each feed wheel 30 and 36 are used to feed the web W. However, those teeth 32, 33 and 34 of the feed wheel 30 and those teeth 38 and 39 of the feed wheel 36 can advance the composite label web C through the respective labeler 20 or 20'. The teeth 35 and 37 of the respective feed wheels 30 and 36 which are not used do not impede or in any way affect the operation or functioning of labeler 20 or 20'.

[0028] It is readily apparent that the same composite label web C can be used in either the labeler 20 or the labeler 20'. Yet the web W is wide enough and the cut configurations 41 through 45 are spaced far enough apart so that the integrity or strength of the web is not unduly compromised. Thus, the carrier web W is not as apt to tear as would be the case if there were a feed aperture for every feed tooth or if there were so many apertures in the carrier web W that the feed apertures had to be too close to each other.

[0029] The feed apertures 41 through 45 are in a repeating composite pattern along the web W. As the web W is advanced either by the feed wheel 30 or by the feed wheel 36, multiple teeth engage the web W. When using the feed wheel 30, one or more teeth 32 in column C1, one or more teeth 33 in column C2 and one or more teeth 34 in column C4 engage the carrier web W while teeth 35 enter the feed apertures 45 without engagement of with any feed face on the web W, and specifically, when using the feed wheel 36, one or more teeth 38 in column C3 and one or more teeth 39 in the column C5 engage the web W while teeth 37 enter the feed apertures 37 without engagement of any feed face in the web W.

[0030] As seen, if M number of feed teeth 32 through 35 are on the feed wheel 30, then less than M number of feed teeth engage the web W to advance it. Similarly, if M number of feed teeth 37 through 39 are on the feed wheel 36, then less than the M number of feed teeth engage the web W to advance it. Also, the number of feed apertures 32 through 36 in the web W which could be engaged at any one time is less than the sum of M plus N.

[0031] The composite label web Ca of FIGURE 14 is similar in certain respects to the composite web C best shown in FIGURES 1 and 8 and hence components are with the same construction, function and relative location are designated with the same reference characters with the addition of the letter "a". Similarly, the feed wheel of FIGURES 11, 12 and 13 is similar in certain

respects to the feed wheel 30 and hence components with the same construction, function and relative location are designated with the same reference characters with the addition of the letter "a". In that column C1, C2, Ce, C4 and C5 have the same significance in FIGURE 14 as in FIGURE 8, 9 and 10 and arrow A has the same significance in FIGURE 14 as in FIGURES 1 and A, these same reference characters are used.

[0032] With reference to FIGURES 11, 12 and 13, the feed wheel 30a is the same as the feed wheel 30 except as indicated hereafter. The feed teeth 32, 33, 34 and 35 are staggered in a lateral and a peripheral pattern as shown. The feed wheel 30a has feed teeth 33a and 34a which are staggered with respect to each other and feed teeth 132 and 135 which are laterally aligned in pairs. There are three sets of feed teeth 132 and 135 and three sets of feed teeth 33a and 34a. There is one set of feed teeth 33a and 34a between two pairs of feed teeth 132 and 135 in the peripheral direction about the feed wheel 30a.

[0033] As in the embodiment of FIGURES 1 through 10, the feed teeth 33a and 34a engage the web Wa in respective feed apertures 42a and 44a. Feed apertures 141 and 145 in carrier web Wa are identical to each other and are laterally aligned, and thus differ from feed apertures 41 and 45 in carrier web W. The feed apertures 141 and 145 are engaged by respective teeth 132 and 135 on the feed wheel 30a. The feed wheel 30a thus advances the carrier web Wa and, indeed, the composite label web Ca, by teeth 33a, 34a, 132 and 135 engaged with the carrier web Wa in respective feed apertures 42a, 44a, 141 and 145.

[0034] Alternatively, the feed wheel 36 (FIGURES 5, 6 and 7) can advance the carrier web Ca and, indeed, the composite label web Ca, by teeth 38 engaged in feed apertures 43a and teeth 37 and 39 engaged in respective feed apertures 141 and 145.

[0035] It is readily apparent that the feed wheel 36 engages feed aperture 43a whereas feed wheel 30a does not engage feed aperture 43a. The feed wheel 30a engages feed apertures 42a and 44a whereas the feed wheel 36 does not engage feed apertures 42a and 44a. However, both feed wheels 30a and 36 engage in feed apertures 141 and 145. Therefore, of the repeating composite pattern of feed apertures 42a, 43a, 44a, 141 and 145, the feed apertures 141 and 145 are used, or shared, or are common to both feed wheels 30a and 36. Accordingly, the composite label web Ca can alternately be used in a labeler with the feed wheel 30a and in a labeler with the feed wheel 36. That is, the composite label web Ca can be used in two different labelers having feed teeth with different feed tooth patterns. The composite feed tooth pattern shown in FIGURE 14 is thus constructed and arranged to receive teeth in two different feed tooth patterns, wherein some of the feed apertures are common to both feed tooth patterns. It is apparent that the composite label web Ca can be used either in an older model labeler having a feed wheel as

in FIGURES 5, 6 and 7 or in a newer model labeler having a feed wheel as in FIGURES 11, 12 and 13.

[0036] According to one specific embodiment, referring to FIGURE 14, the pitch of the web is equal to the length of a label La in the longitudinal direction. The feed apertures of one label La, or one pitch, includes the trailing half of aperture 43a, apertures 42a, 44a, 141, and 145, and the leading half of another aperture 43a. Thus, a first feed aperture pattern includes feed apertures 42a, 44a, 141 and 145. The second feed tooth pattern effectively includes one feed aperture 43a and feed apertures 141 and 145, the feed apertures 141 and 145 being common or shared by both of the first and second feed aperture patterns. Thus, per label, the feed wheel 30a engages four feed apertures and the feed wheel 36 engages three feed apertures.

[0037] The feed wheel 30, the feed teeth 34, 32, 35 and 33, and feed apertures 44, 41 and 42 can be characterized as "first", and the feed wheel 36, feed teeth 38 and 39 and feed apertures 43 and 45 can be characterized as "second" solely for clarity of identification, without in any way intending to limit the invention. The feed wheel 30a and its feed teeth 33a, 34a, 132 and 135 can be characterized as "first" and the feed wheel 36 and its feed teeth 37, 38 and 39 can be characterized as "second" solely for clarity of identification. The composite pattern of the embodiment of FIGURE 14 can be considered to have a "first" feed aperture pattern which comprises feed apertures 42a, 44a, 141 and 145 and the feed wheel 36 can be considered to comprise a "second" feed aperture pattern, with the feed apertures 141 and 145 being common to both the first and second feed tooth patterns.

[0038] Depending on the diameter of the feed wheel 30 and the number of teeth, more than one first pattern of engaging teeth 34, 32 and 33 can be engaged with the carrier web W at any one time as shown in FIGURE 1; and depending on the diameter of the feed wheel 36 and the number of teeth, more than one second pattern of engaging teeth 39 and 38 can be engaged with the carrier web W at any one time as shown in FIGURE 5.

[0039] Other embodiments and modifications of the invention will suggest themselves to those skilled in the art, and all such of these as come within the spirit of this invention are included within its scope as best defined by the appended claims.

Claims

1. A composite label web for use with either one of first and second feed wheels with respective first and second feed teeth arranged in different first and second feed tooth patterns, the composite label web comprising: a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, a composite pattern of feed apertures including a first pattern of first

feed apertures and a second pattern of second feed apertures, and wherein the first and second feed aperture patterns overlap so that at least one first feed aperture is engageable by a first feed tooth when the first feed wheel is used, at least one second feed aperture is engageable by a second feed tooth when the second feed wheel is used and at least one of the feed apertures common to the first and second feed apertures patterns is engageable by one of the first teeth when the first feed wheel is used to advance the composite label web or by one of the second teeth when the second feed wheel is used to advance the composite label web.

2. A composite label web for use with either one of first and second feed wheels with respective first and second feed teeth arranged in different feed tooth patterns, the composite label web comprising: a longitudinally extending carrier web having spaced side edges, labels releasably adhered by pressure sensitive adhesive to the carrier web, feed apertures arranged in a pattern in the carrier web between the side edges, wherein the pattern provides for entry of the first feed teeth in less than all of the feed apertures when the first feed wheel is used or for entry of the second feed teeth in less than all of the feed apertures when the second feed wheel is used, and wherein at least one of the feed apertures is positioned to be used alternatively by both the at least one first feed tooth and the at least one second feed tooth.
3. A composite label web for use with either one of first and second feed wheels with first and second feed teeth arranged in different feed tooth patterns, the composite label web comprising: a longitudinally extending carrier web having spaced side edges, labels releasably secured by pressure sensitive adhesive to the carrier web, effectively five feed apertures per label in the carrier web between the side edges arranged so that a pair of the apertures is engageable solely by the first teeth, another of the apertures is engageable solely by a second tooth, and the remaining pair of apertures is engageable by the first feed teeth when the first feed wheel is used and by the second feed teeth when the second feed wheel is used.
4. A composite label web for use with either one of first and second feed wheels with first and second teeth arranged in different first and second feed tooth patterns, the composite label web comprising: a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, a composite pattern of feed apertures including a first pattern of first feed apertures arranged to be driven by the first feed teeth and a second pattern of a second feed apertures arranged to

be driven by the second feed teeth, the first and second feed aperture patterns being arranged so at least one of the first feed apertures is engaged by one of the first teeth while at least one of the second feed apertures receives and engages one of the first feed teeth, or so at least one of the second feed apertures is engaged by one of the second feed teeth while at least one of the first apertures receives and engages one of the second feed teeth.

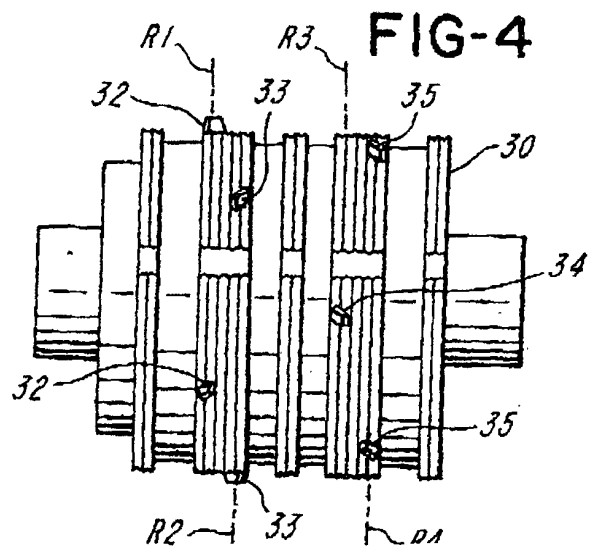
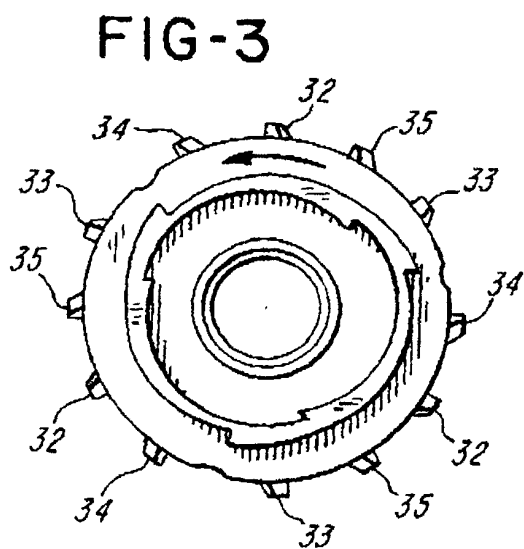
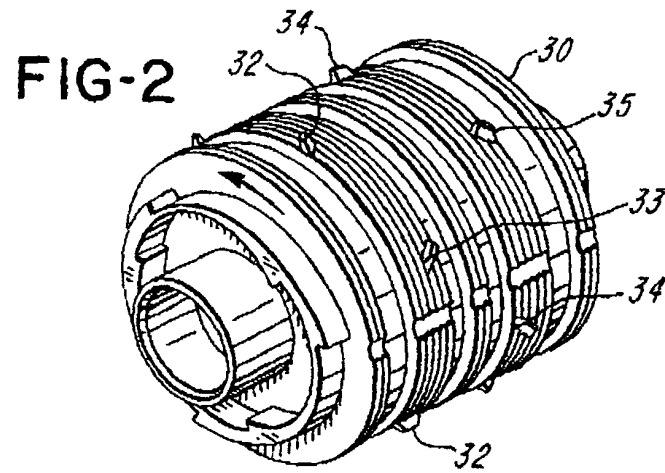
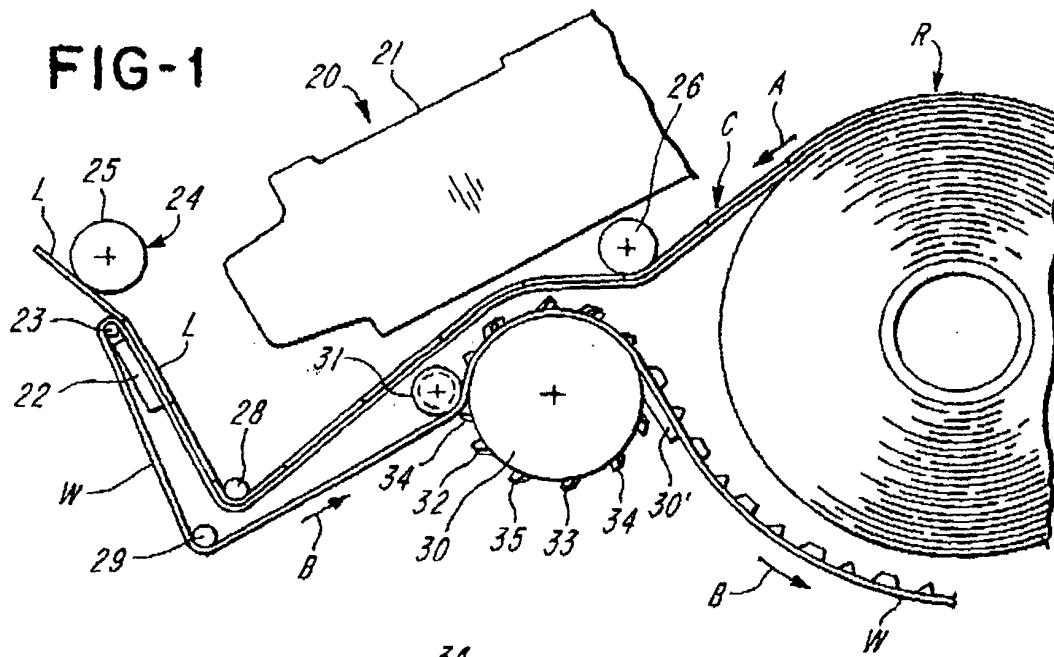
5. Method of advancing a composite label web with either one of first and second feed wheels having first and second teeth, comprising: providing a composite label web having a longitudinally extending carrier web having spaced side edges and labels releasably adhered to the carrier web, providing the carrier web with feed apertures arranged in a pattern in the carrier web between the side edges wherein the pattern provides for entry of at least one first feed tooth in less than all the feed apertures when the first feed wheel is used or for entry of at least one second feed teeth in less than all the feed apertures when the second feed wheel is used and wherein at least one of the feed apertures is positioned to be used by both the at least one first feed tooth and the at least one second feed tooth, and advancing the carrier web with either of the first and second feed wheels.
6. A composite label web for use with either first and second feed wheels with first and second feed teeth arranged in different first and second feed tooth patterns, the composite label web comprising: a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, a first repetitive pattern of first feed apertures in and along the carrier web, a second repetitive pattern of second feed apertures in and along the carrier web, wherein the first feed apertures and at least one of the second feed apertures are positioned to receive the first feed teeth, wherein the second feed apertures and at least one of the first feed apertures are positioned to receive the second feed teeth, wherein the carrier web can be advanced by less than all the first teeth engaging in first feed apertures, and wherein the carrier web can be advanced by less than all of the second teeth engaging in second feed apertures.
7. A composite label web for use with either first and second feed wheels with first and second feed teeth arranged in different first and second feed tooth patterns, the composite label web comprising: a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, a first repetitive pattern of first feed apertures in and along the carrier web, a second repetitive pattern of second feed apertures in and along

the carrier web, wherein the first feed apertures are arranged to receive some of the first teeth and some of the second teeth, wherein the second feed apertures are arranged to receive some of the first teeth and some of the second teeth, the first feed apertures being arranged to be drivingly engaged by only the first feed teeth, and the second feed apertures being arranged to be drivingly engaged by only the second feed teeth.

8. A composite label web for use with either first and second feed wheels with first and second teeth arranged in different first and second feed tooth patterns, the composite label web comprising: a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, a composite pattern of feed apertures including a first pattern of first feed apertures arranged to be driven by the first feed teeth and a second pattern of a second feed apertures arranged to be driven by the second feed teeth, the first and second feed aperture patterns being arranged so at least one of the first feed apertures is engaged by one of the first teeth while at least one of the second feed apertures receives one of the first feed teeth, or so at least one of the second feed apertures is engaged by one of the second feed teeth while at least one of the first apertures receives one of the second feed teeth.
9. A composite label web for use with either a first feed wheel with first feed teeth arranged in a first pattern or a second feed wheel with second feed teeth arranged in a different second pattern, comprising: a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, the carrier web having a composite pattern of feed apertures including a first pattern of first feed apertures for engaging with the first teeth and a second pattern of second feed apertures for engaging with the second feed teeth, wherein the number of first feed apertures engageable by the first teeth is less than the corresponding number of first teeth, wherein the number of second feed apertures engageable by the second teeth is less than the corresponding number of second teeth, wherein some of the first feed apertures are arranged to receive second teeth without engagement, and wherein some of the second feed apertures are arranged to receive first teeth without engagement.
10. A composite label web having labels releasably adhered to a carrier web for use with either a first feed wheel having M number of feed teeth designed to engage its carrier web in a first feed aperture pattern or a second feed wheel having N number of feed teeth designed to engage its carrier web in a different second feed aperture pattern, the composite la-

bel web comprising: a longitudinally extending carrier web, labels releasably adhered by pressure sensitive adhesive to the carrier web, feed apertures in the carrier web, and number of engageable feed apertures of the first pattern being less than M and the number of engageable feed apertures of the second pattern being less than N.

11. A composite label web for use with either first and second feed wheels with differently arranged feed teeth, first and second feed teeth in the composite label web comprising: a longitudinally extending carrier web having spaced side edges, labels releasably adhered by pressure sensitive adhesive to the carrier web, a composite pattern of feed apertures in the carrier web between the side edges, and wherein the total number of feed apertures in the composite pattern per label is less than the total number of feed teeth per label in a corresponding feed tooth pattern of the first and second feed wheels.
12. Method of advancing a composite label web with either first and second feed wheels with differently arranged first and second teeth, comprising: providing a carrier web with labels releasably adhered thereto by pressure sensitive adhesive, and providing feed apertures in the carrier web in a composite pattern wherein the total number of feed apertures in the composite pattern per label is less than the total number of feed teeth per label in a corresponding feed tooth pattern of the first and second feed wheels.



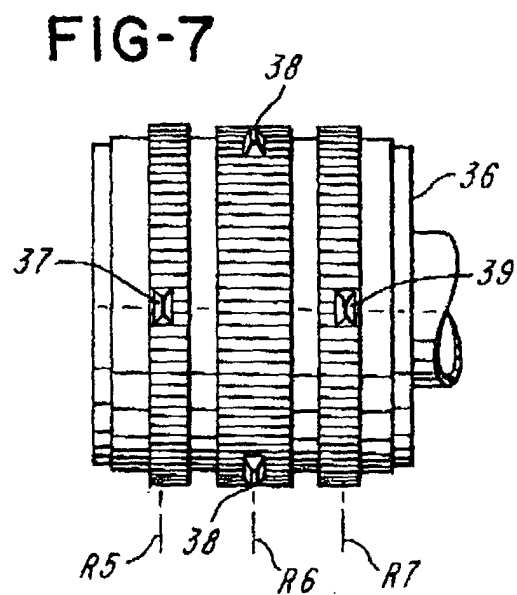
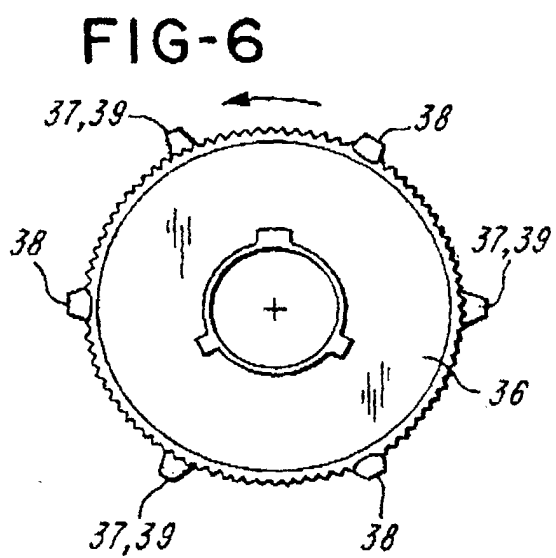
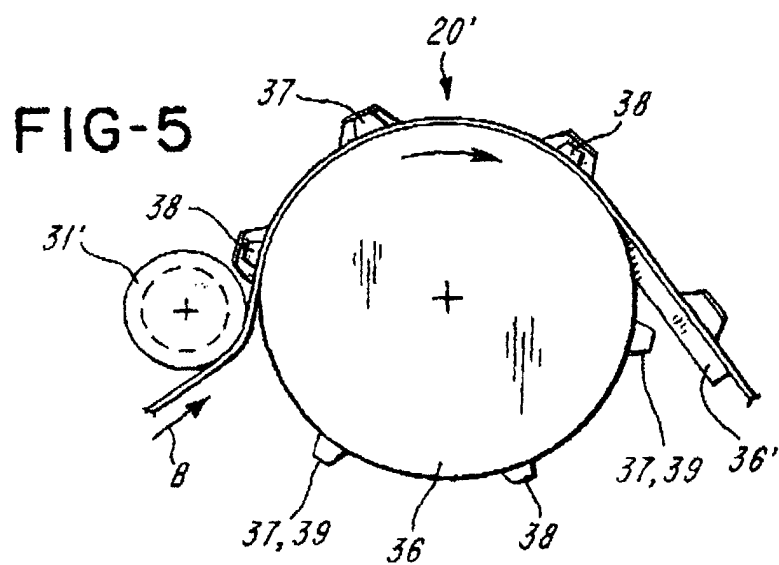


FIG-8

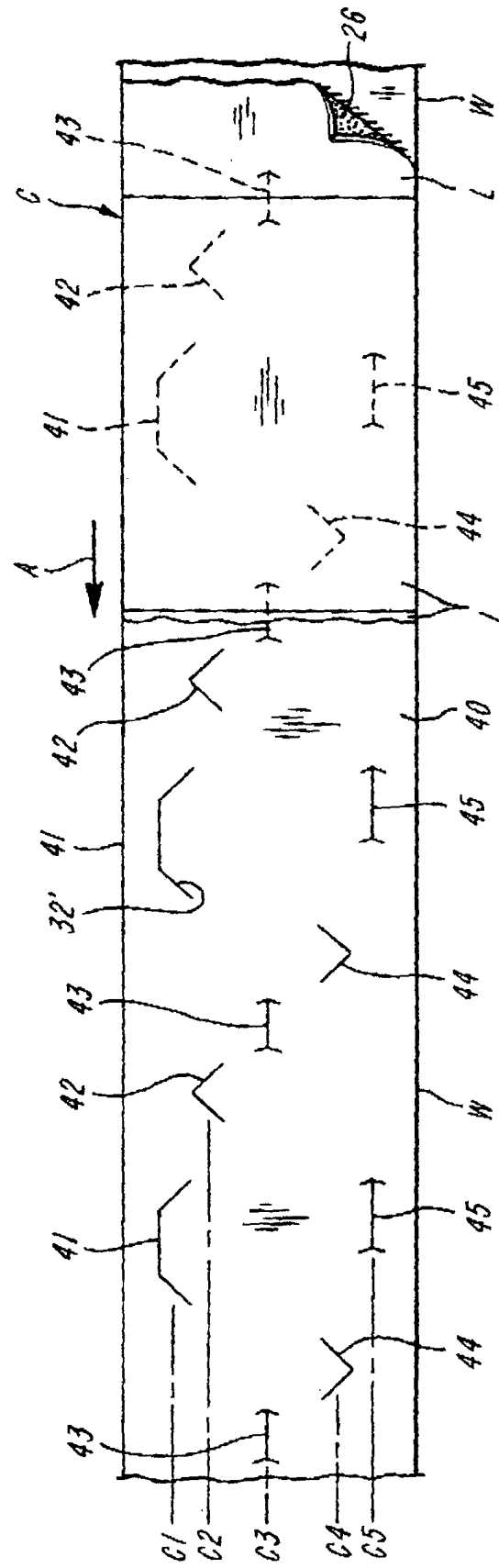


FIG-9

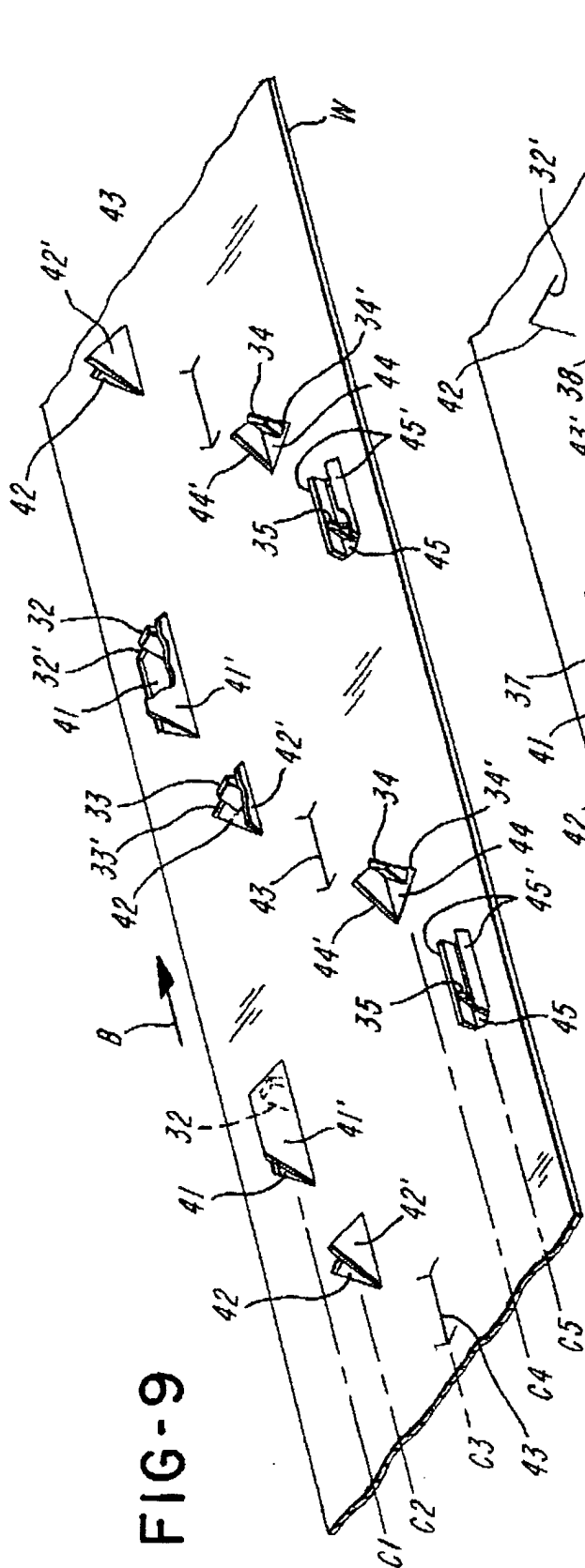
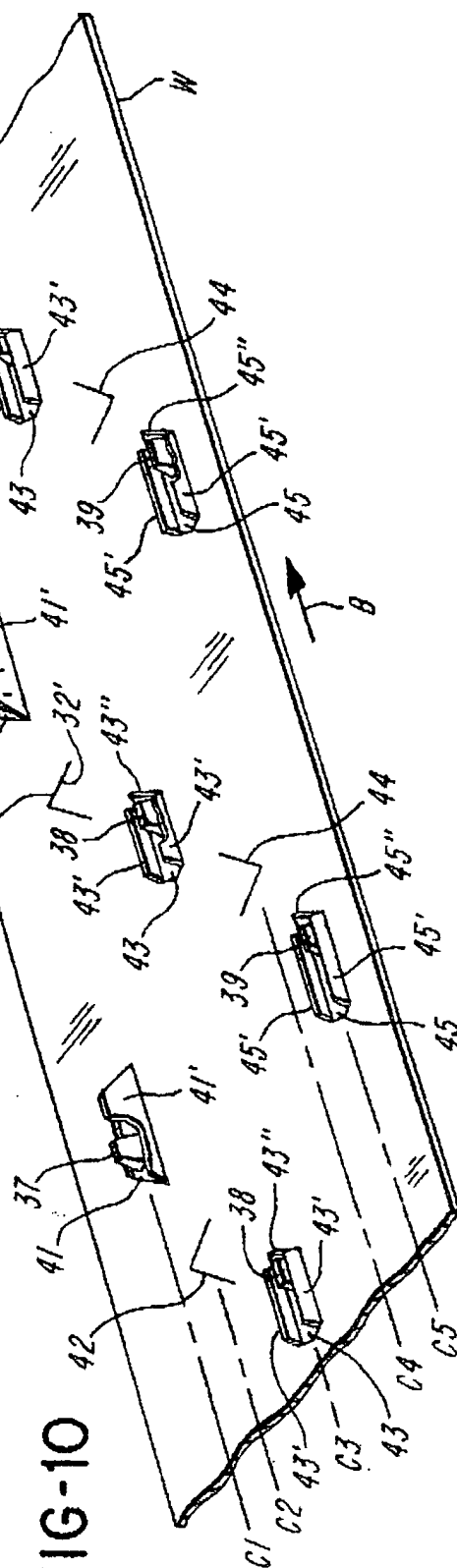
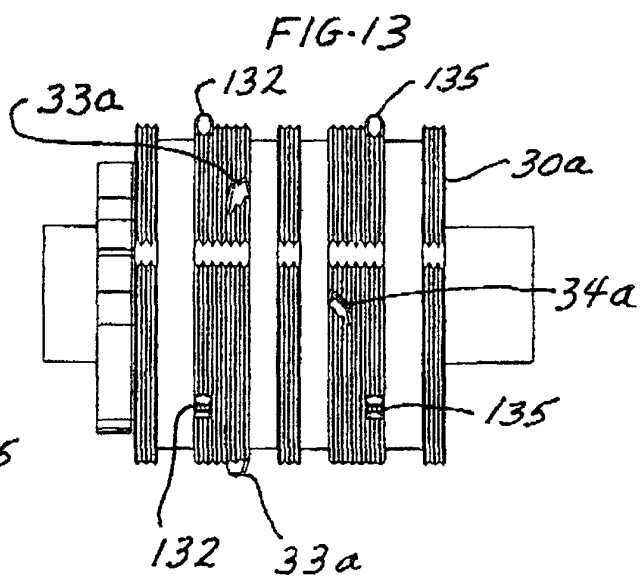
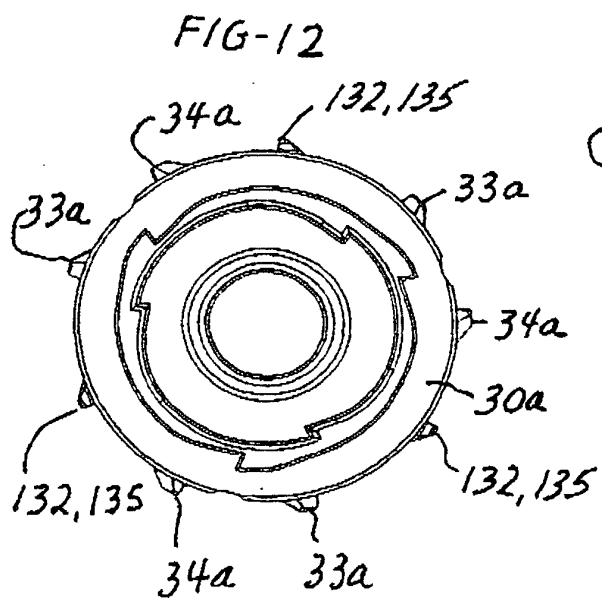
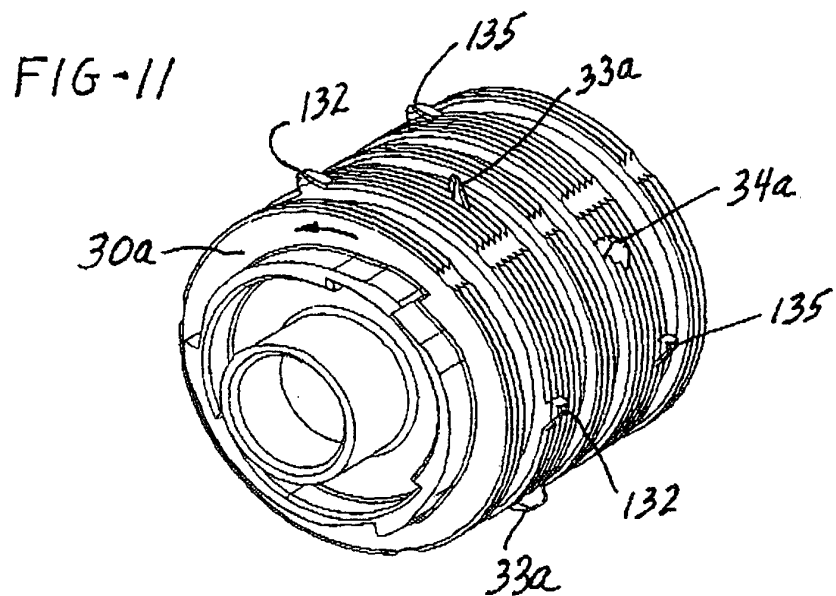


FIG-10





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