

Dec. 19, 1972

T. M. SMITH ET AL

3,706,626

PRESSURE SENSITIVE LABELS

Original Filed July 31, 1970

2 Sheets-Sheet 1

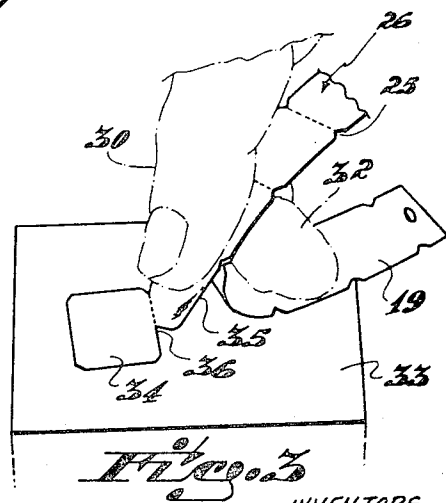
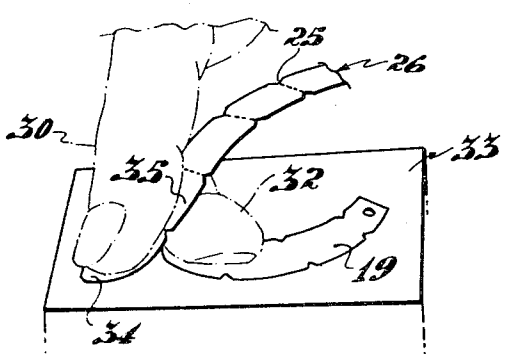
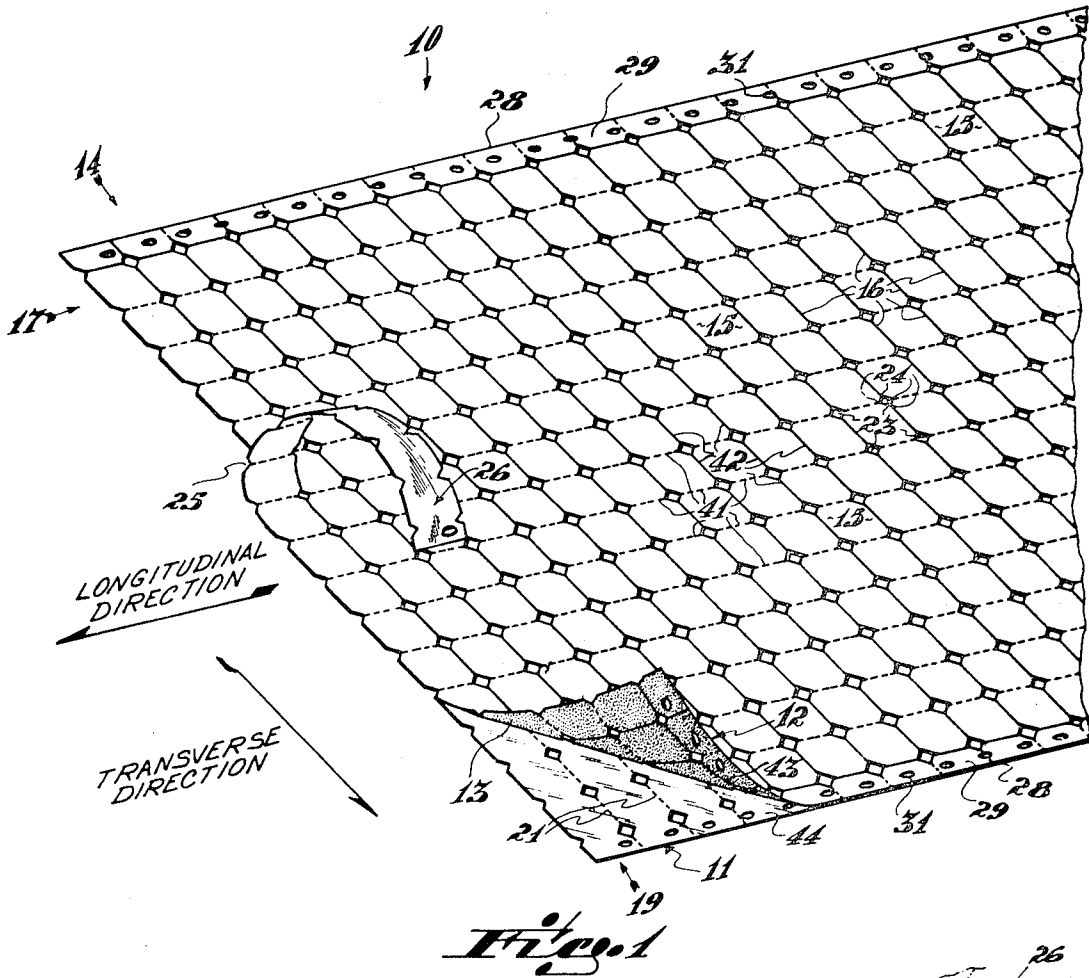


Fig. 2

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Dec. 19, 1972

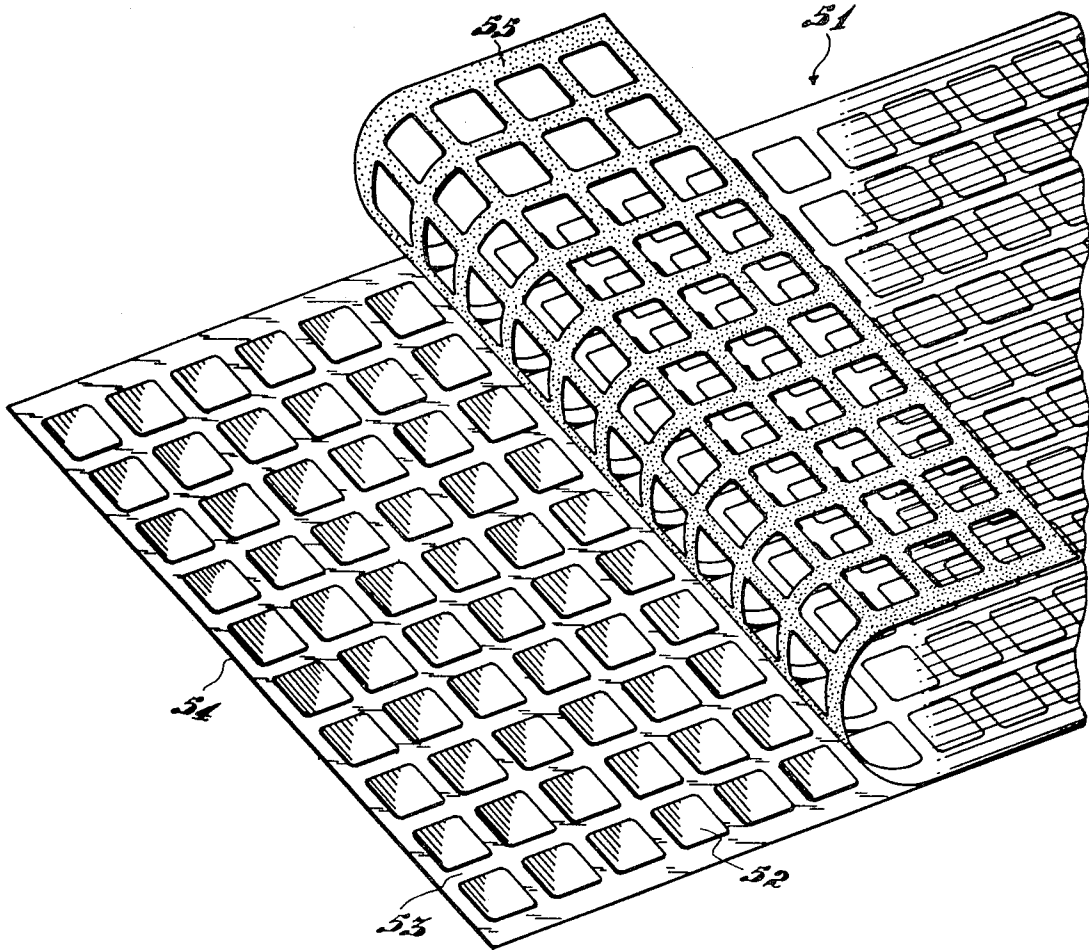
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PRESSURE SENSITIVE LABELS

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2 Sheets-Sheet 2



*Fig. 4*

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3,706,626

## PRESSURE SENSITIVE LABELS

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Continuation of abandoned application Ser. No. 60,013,  
July 31, 1970. This application June 29, 1971, Ser.  
No. 157,913

Int. Cl. B32b 7/06, 3/16; C09j 7/02  
U.S. Cl. 161—37

12 Claims

### ABSTRACT OF THE DISCLOSURE

A sheet of pressure sensitive labels adapted for use in a machine that is computer operated to print prices and other desired information on the individual labels of the sheet. The sheet of labels is backed by a stratum of glassine backing material and, with the exception of the two side edges of the sheet, the labels completely cover the backing. The labels are arranged in longitudinal and transverse rows with each label in juxtaposition to those labels at its sides and at its ends. Further, the labels in transverse rows are completely severed from the labels of adjacent transverse rows by lines of slitting. The backing is partially severed by lines of perforations along the same transverse line beneath the slitting. On the other hand, the labels of the longitudinal rows are only partially severed, as by lines of perforations from those labels at their sides, and the backing is not severed at all along these longitudinal lines of partial label separation. As a result, transverse strips of labels with backing thereon can be torn easily from the sheet, after pricing information has been printed thereon, for application of the individual labels to merchandise as the backing is stripped from the labels of the transverse strip.

This application is a continuation of copending application Ser. No. 60,013, filed July 31, 1970, now abandoned.

This invention relates to pressure sensitive labels. More particularly, this invention relates to a sheet of pressure sensitive labels adapted for use in a machine that is computer operated, as well as to a method for producing such labels.

The ink pad and hand stamp have been commonly used in the past when marking certain types of goods and merchandise by hand. However, the hand applied label with a pressure sensitive adhesive backing has largely supplanted the ink pad and hand stamp in many merchandising fields. Actually, the pressure sensitive label has become a modern necessity for the attractive marketing of goods in the advertisement and public image conscious stores of today. Not only may a greater amount of information regarding the merchandising be conveyed to the consumer through labels than through the ink pad and hand stamp, but inventory control information may also be placed thereon, thus increasing efficiency with the concomitant effect of reducing sales costs. However, accompanying the greatly increased use of pressure sensitive, hand applied labels have been problems associated with the manufacture, as well as problems associated with the marking and applying, of such labels to merchandise in a simple and efficient manner.

Pressure sensitive labels adapted to be printed by a computer operated machine are known in the prior art, and they have been supplied to the user on a backing of glassine paper. But, the labels have been attached to the backing in such a pattern that they have been separated on all sides one from the other by some finite distance, for example,  $\frac{1}{8}$  inch to  $\frac{1}{4}$  inch, that is, the labels were not in juxtaposition. Thus, a plurality of pressure sensitive labels were individually carried by the backing.

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When removing the prior art labels from the backing and applying the labels by hand, the user must strip each pressure sensitive label by itself from the backing; there is no cooperation between labels whereby upon removal of one label another is partially removed. For each label to be removed from the backing, and thereafter applied to merchandise, the user must first start removal of the label from the backing by raising a corner of the label such as by picking it up with the fingernail. This is often a time consuming and frustrating task, particularly where a good deal of merchandise is involved.

In manufacturing the pressure sensitive labels of the prior art the first step generally is to adhere an uncut label sheet coated with a pressure sensitive adhesive to the backing. The label sheet backing combination is then exposed to a slitter roll or other type device that cuts the label sheet into the desired label configuration but does not slice through the backing. The cutting of the labels is done so as to provide a finite distance between the labels, as mentioned, on the backing. The label cutting configuration thus forms a web from the label sheet because the individual labels are separated one from the other. The web is, of course, formed of the interconnected lengths of the label sheet between adjacent labels.

Subsequently, the web must be removed from around the labels so as to make the labels easier to remove from the backing and accessible to the user. This web removal step causes manufacturing problems in that the web has a tendency to break during removal. In addition, by making the labels so that they are individually carried by the backing a good percentage of the label sheet constitutes waste material.

This invention is based on the novel concept of a sheet of pressure sensitive labels adapted for use in a machine that is computer operated to print prices and other desired information on the labels that comprises, for example, (a) a multiplicity of labels arranged in longitudinal and transverse rows with each label in juxtaposition to those labels at its sides and at its ends, the labels in transverse rows being completely severed from the labels of adjacent transverse rows and the labels of longitudinal rows being only partially severed from the labels of adjacent longitudinal rows, and (b) a backing on which the labels are supported, the backing being partially severed along the same transverse lines only as the labels.

In addition, this invention is based on a method of manufacturing the above described sheet of multiple pressure sensitive labels that includes the steps of, for example, providing a pressure sensitive label sheet-backing combination, severing the label sheet into transverse rows, severing at least partially but less than completely the backing sheet into transverse rows along the same transverse lines as the label sheet is severed, and severing at least partially but less than completely the label sheet only into longitudinal rows, thereby establishing a multiplicity of labels on the backing.

The above described sheet of pressure sensitive labels permits a transverse row of the labels with the backing thereon to be easily torn from the sheet of labels after pricing information has been printed on the labels. This, in turn, permits easy and simple application of the labels to the goods by the user as the backing is stripped from the labels of the transverse strip.

Thus, it has been one objective of this invention to provide a sheet of pressure sensitive labels adapted for use in a machine that is computer operated to print prices and other desired information on the individual labels of the sheet.

It has been another objective of this invention to provide a sheet of pressure sensitive labels that are easily and simply applied to goods.

It has been a further objective of this invention to provide a sheet of labels that substantially eliminates the presence of waste materials in the final sheet as well as during the manufacture of the sheet.

Further objectives and advantages of this invention will be more apparent from the following detailed description taken in conjunction with the drawings in which:

FIG. 1 illustrates a sheet of pressure sensitive labels formed in accordance with this invention;

FIG. 2 partially illustrates one way to apply such labels to goods;

FIG. 3 further illustrates the application of such labels to goods; and

FIG. 4 illustrates a backing with labels thereon in accordance with the prior art.

As can be seen from FIG. 1, a sheet 10 of pressure sensitive labels comprises a backing 11 of, for example, glassine paper, and a label sheet 12 in combination. The label sheet 12 is provided with a coating 13 of pressure sensitive adhesive on the bottom thereof. The label sheet 12 material has a higher affinity for the pressure sensitive adhesive coating 13 than does the backing 11 material so that if the label sheet is stripped from the backing the pressure sensitive adhesive remains adhered to the label sheet.

The label sheet 12 is provided with a multiplicity of labels 15 arranged in longitudinal rows 17, and transverse rows 14. The labels 15 themselves completely cover the backing 11 and the label rows 14, 17 provide each label in juxtaposition with those label(s) at its sides and at its ends. Thus, all the labels 15 in the sheet, as well as all the longitudinal 17 and transverse 14 rows, are in juxtaposition to their immediately adjacent labels and rows. The label sheet 12 is shown as being fifteen labels in width but the width dimension is primarily dependent on the limits of the computer operated printing machine that prints prices and other desired information on the labels.

Each transverse row 14 of labels 15 in the label sheet 12, even though it is juxtaposed to an adjacent row on each side, is at least partially severed from the adjacent row; such partial severing may be by way of lines of perforation or the like. However, it is preferred that each transverse row 14 is completely severed by lines of slitting from its adjacent rows along side edges 16 of the row; nonetheless, the rows 14 remain juxtaposed on the backing 11 because of the pressure sensitive adhesive coating 13 on the label sheet 12.

The longitudinal rows 17 are at least partially but less than completely severed one from another, thereby defining the four side edges of each label 15. Such partial severing may be accomplished by lines of perforation, too. Of course, the size of the rectangular labels 15 is determined by regulating the width dimension of the transverse rows 14 and the width dimension of the longitudinal rows 17.

The backing 11 is at least partially but not completely severed, such as by line of perforation, into transverse rows 19, the rows 19 having side edges 21 that correspond to the side edges 16 of the label transverse rows 14. Thus, the backing 11 is partially severed along the same transverse line as is the label sheet 12.

At each corner of each of the rectangular labels 15 illustrated in FIG. 1 there is provided a hole 23 that passes through both the label sheet 12 and the backing 11. Preferably, the hole 23 is diamond shaped with opposite tips 24 of the diamond geometry being aligned, respectively, with the longitudinal label edges 41 and the transverse label edges 42. Such a hole geometry provides notches 25 in the edges of the strip 26 of labels when the strip is removed from the label sheet 10. The notch 25 has been found to aid in subsequent removal of each individual label 15 from its adjacent label during the labeling of merchandise because it has been found easier to commence the tear across longitudinal perforated lines 41.

A cog strip 29 is provided at either longitudinal edge 28 of the sheet 10 of labels as shown in FIG. 1, the cog

strip having a series of holes 31 punched therein. The holes 31 pass through the label sheet 12 as well as the backing sheet 11. The edges 28 of the label sheet 12 are preferably completely severed as by slitting from the label sheet portion 43 of the cog strip 29, but the backing portions 44 of the cog strip are preferably not severed at all from the backing. The evenly spaced holes 31 in the cog strip 29 cooperate with a drive sprocket, not shown, so that the sheet 10 of labels can be easily fed through a printing machine, not shown. The printing machine is computer operated and prints prices and other desired information on the individual labels of the sheet, thereby promoting efficiency in labeling of merchandise.

When applying the labels 15, transverse strip 26 is removed from the sheet 10 of labels. The relationship of the cut lines defining the label rows 14 and backing rows 19 in the transverse direction along with the cut lines for the rows 17 in the longitudinal direction permits a transverse strip 26 of labels to be easily removed from the label sheet 10 but makes it relatively difficult to remove a longitudinal strip of labels from the sheet.

The cog strip 29 section may then, for example, be bent around the forefinger of the user so as to commence stripping away of the backing strip 19 from the row 14 of labels 15. Generally speaking, the strip 26 of labels can be held between the thumb 30 and forefinger 32 and the first label applied to goods 33 as desired, see FIG. 2. As a label 34 is applied, and in order to expose the longitudinal cut line 36 between successive labels 15 in the row 14, the backing strip 19 is partially removed from a second label 35 so as to easily separate the first label 34 from the second 35 along the tear line 36, see FIG. 3. By exposing the cut line 36 the backing 11 has already been partially removed from the next label 35, and removal of label 35 from the backing is made just that much easier. Thus, by providing the labels 15 in immediate juxtaposition one to the other in both longitudinal 17 and transverse rows 14, application of the labels to goods is easily performed by hand. In addition, by providing the notches 25 between successive labels 15 in a row 14 it is relatively easy to start the separation of one label from another along tear line 36 after the backing strip 19 has been removed from beneath the tear line.

To manufacture the sheet 10 of labels illustrated in FIG. 1, it has been found preferred to first completely sever the label sheet 12 into the transverse rows 14 by lines of slitting. This slitting aids in permitting the transverse strips 26 of label 15 to be separated from the remaining sheet 10 of labels. Thereafter, the backing 11 is partially severed by lines of perforation into transverse rows 19 along the same slit lines that define the label rows 14. The transverse backing rows 19 thus conform in dimensions to the label rows 14 and, in combination therewith, provide the strips 26 of labels 15.

The label sheet 12 is thereafter partially severed or cut by lines of perforation into longitudinal rows 17 to establish the label configuration. The label sheet 12 is not completely slit into longitudinal rows 17 so that as one label 34 is removed from the backing row 19 a second label 35 starts to be removed from that row, see FIG. 3. This continuity aids in the ease with which the labels can be applied.

Thus, the labels 15 may be said to be oriented in the transverse direction in the sense that a strip 26 of the label sheet 12-backing 11 combination may be more easily separated from the sheet 10 of labels in the transverse direction that it may be separated from the sheet 10 in the longitudinal direction.

A sheet 51 of pressure sensitive labels 52 adapted for use in a machine that is computer operated to print prices and other desired information, as known in the prior art, is illustrated in FIG. 4. As can be seen from FIG. 4, the labels 52 are substantially removed or separated one from the other by a gap 53 on the backing 54, that is,

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the labels 52 are not in juxtaposition, thereby creating waste backing material.

In addition, the known manufacturing method for producing such labels 52 in combination with the backing 54 includes first providing a label sheet in combination with the backing. Thereafter the label sheet is contacted by a rotary cutting cylinder or other means, not shown, that cuts the label sheet in such a manner so as to establish the label 52 configuration thereon. Such a cutting step, because of the distance of gap 53 between labels 52, causes material waste of the label sheet because a web 55 is formed therefrom. The web 55 must be removed to achieve the ultimate label-backing combination 51, and this establishes another processing step which must take place in the manufacture of the prior art label sheet 51. Such a web 55 removal step has been eliminated according to the method of this invention.

In removing the labels 52 from the sheet 51, each label must be removed individually from the backing sheet 54. The step of removing one label 52 from the backing sheet 54 does not aid whatsoever in the separation of an adjacent label from the backing sheet. On the other hand, with our invention as described above, when a label 15 is removed, as illustrated in FIGS. 2 and 3, from the backing strip 19, the removal and separation of one label 34 from the label strip 26 aids in starting removal of an adjacent label 35 from the backing strip, thereby establishing a continuity of label removal.

Having described the preferred embodiment of our invention in detail, what we desire to claim and protect by Letters Patent is:

1. A composite web of pressure sensitive labels for use in a printing machine that is adapted to be computer operated to print prices or other desired indicia on the individual labels, comprising: a web of pressure sensitive label material, a web of backing material adhered to the web of label material, the label material having pressure sensitive labels arranged in transverse strips, the labels being in juxtaposition to each other, the labels in the transverse strips being severed from the labels of adjacent transverse strips along transverse lines of slitting, a multiplicity of individual labels in each transverse strip being formed by longitudinal lines of partial severing, the web of backing material being partially severed along transverse lines, thereby enabling label strips to be stripped as units from the backing material and enabling the individual labels to be detached and applied to merchandise.

2. A composite web of labels as defined in claim 1, wherein the partial severing of the backing material and the severing of the label material exists along the same transverse lines.

3. A composite web of labels as defined in claim 1, including a cog strip provided along each side edge of the composite web, each cog strip including a plurality of equally longitudinally spaced apart cog holes, each cog strip including a portion of said label material and a portion of said backing material, said label material portion being severed from adjacent labels, the backing material portion of each cog strip being connected to the remainder of the backing material.

4. A composite web of labels as defined in claim 1, including a cog strip provided along each side edge of the composite web, each cog strip being partially severed into

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lengths by partially severing its backing material portion.

5. A composite web as defined in claim 1, including structure defining an aperture through said composite web at the corners of each of the labels, said apertures being substantially diamond shaped with each corner of each aperture lying on a line defining an edge of a respective label.

6. A composite web of labels as defined in claim 1, including a feed strip connected along a side edge of said composite web, said feed strip including a portion of said backing material, said feed strip being partially severed along the same transverse lines as the partial severing in the backing material.

7. A composite web of labels as defined in claim 1, including a cog strip connected along a side edge of said composite web, said cog strip including a portion of said backing material.

8. A composite web as defined in claim 1, including structure defining an aperture through said composite web at the corners of each of the labels.

9. A composite web of labels as defined in claim 1, wherein the web of backing material underlying the longitudinal lines of partial severance in the web of labels is continuous along any longitudinal lines.

10. A composite web of labels as defined in claim 1, including structure defining an aperture through said composite web at the corners of each of the labels, and a cog strip along each longitudinal side edge of the composite web.

11. A composite web of labels as defined in claim 1, including structure defining an aperture through said composite web at the corners of each of the labels, a cog strip at each longitudinal side of the composite web, each cog strip having a line of at least partial severing of the label material along a longitudinal line which forms one side of each label at the respective side of the composite web, and spaced apart cog holes in each cog strip.

12. A composite web of labels as defined in claim 1, including structure defining an aperture through said composite web at the corners of each of the labels, said apertures being substantially diamond shaped with each corner of each aperture lying on a line defining an edge of a respective label, a cog strip at each longitudinal side of the composite web, each cog strip having a line of severing in the label material along a longitudinal line which forms one side of each label at the respective side of the composite web, and spaced apart cog holes in each cog strip.

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PHILIP DIER, Primary Examiner

U.S. Cl. X.R.

40—2; 156—268; 161—40, 44, 109, 167, 406; 282—28

UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,706,626 Dated December 19, 1972

Inventor(s) Thomas M. Smith and Walter D. Gregory

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 38, after "abandoned" change the period "." to a comma --,-- and insert --which is a continuation of application Ser. No. 662,818, filed August 23, 1967, now abandoned.--. Column 1, lines 48 and 49, after "many", "merchandising" is misspelled. Column 4, line 44, after "To", "manufacture" is misspelled. Column 4, line 48, "label" should be --labels--.

Signed and sealed this 15th day of May 1973.

(SEAL)  
Attest:

EDWARD M. FLETCHER, JR.  
Attesting Officer

ROBERT GOTTSCHALK  
Commissioner of Patents