Jan. 16, 1973 K. R. ZIMMER 3,711,353

METHOD OF PRODUCING HIDDEN REGISTERED PRINTING

Filed Oct. 22, 1970 2 Sheets-Sheet 1

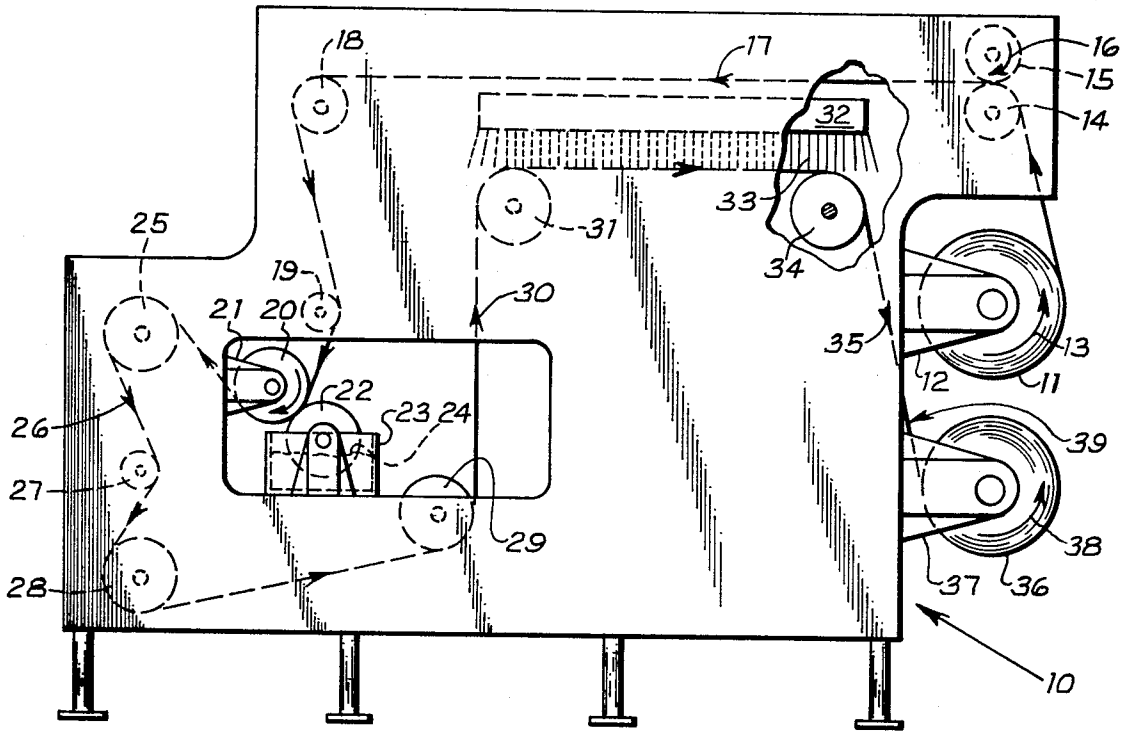


Fig. 1

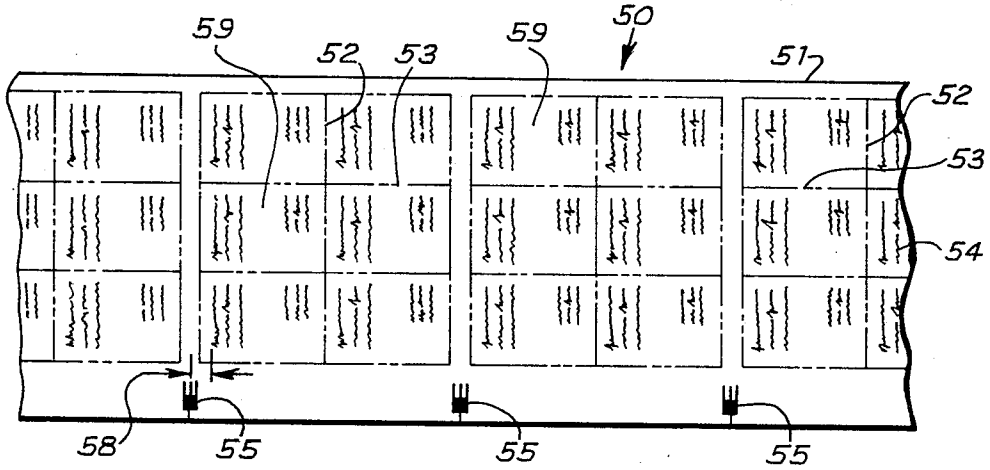


Fig. 2

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METHOD OF PRODUCING HIDDEN REGISTERED PRINTING

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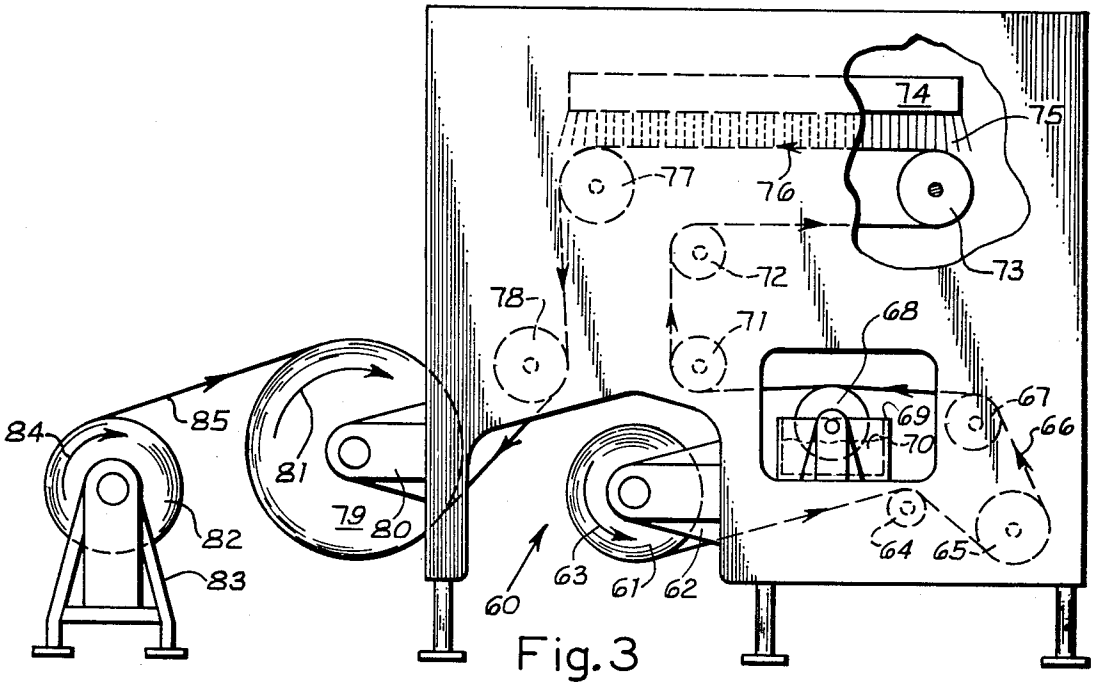


Fig. 3

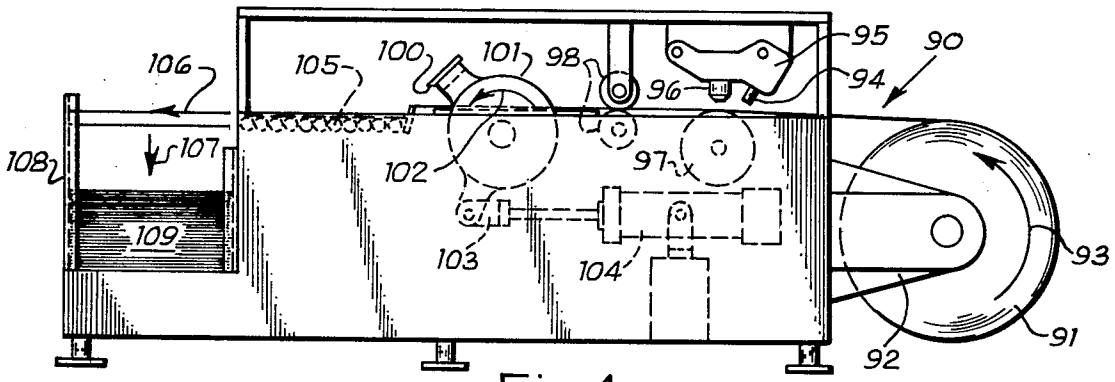


Fig. 4

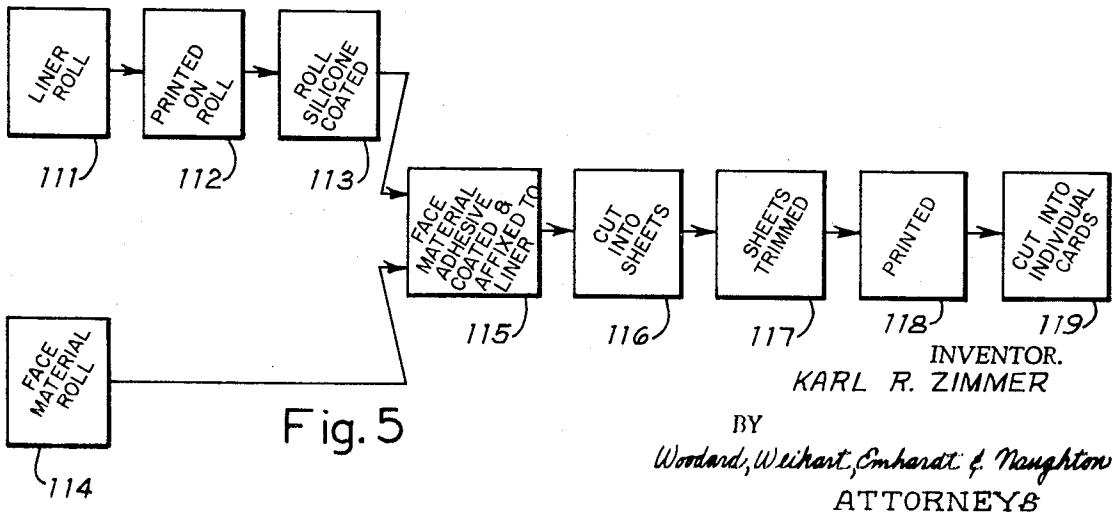


Fig. 5

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3,711,353

METHOD OF PRODUCING HIDDEN REGISTERED PRINTING

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Continuation-in-part of abandoned application Ser. No. 708,115, Feb. 26, 1968. This application Oct. 22, 1970, Ser. No. 83,119

Int. Cl. B32b *31/12, 31/18*

U.S. Cl. 156—267 6 Claims

ABSTRACT OF THE DISCLOSURE

A method of registering printing on a release liner covered with face material. The hidden printing is first printed on a roll of liner material. Eyespots are also printed adjacent one edge of the liner material. The roll is then silicone coated and laminated with a second roll of face material. The face material covers the printing except for the eyespots. A reading device triggers on the eyespots activating a cutter severing the laminated material into individual sheets. The laminated sheets are then trimmed and printing of the top surface of the face material of the laminated sheets is accomplished. The sheets can then be cut into individual cards.

CROSS-REFERENCE TO RELATED APPLICATION

The present invention is a continuation-in-part of copending application Ser. No. 708,115, filed Feb. 26, 1968 and now abandoned.

BACKGROUND OF THE INVENTION

Field of the invention

This invention is in the field of printing.

Description of the prior art

Generally, bubble gum is sold in packages also containing trading cards. Recently, these cards have been produced with self-sticking adhesive on their back surfaces. A liner is placed on the back surface to protect the adhesive. It is desirable to accomplish printing on the top surface of the release liner. For example, the printing on the card may be in the form of a question, with the answer printed and hidden on the top interior surface of the release liner.

In order to produce the previously described product inexpensively, the printing of the liner to be release coated is accomplished with several individual printings across the width of a roll of liner. The roll of liner is laminated to the face material and the top card surface is printed. A problem occurs in locating the printing on the top exterior surface of the face material directly over the hidden printing on the release liner. This invention is a method which solves the problem and discloses the steps necessary to register the hidden printing on the release liner with the printing on the face material.

SUMMARY OF THE INVENTION

This invention is a method for registering hidden printing on a release liner with a printed face material covering the liner. The hidden printing is printed on a roll of liner not having its release coating thereon with several individual printings occurring across the width of the liner. Eyespots are also printed adjacent one edge of the roll of liner. The printed surface of the liner is then coated with a release agent such as silicone, and is then laminated to an adhesive backed roll of face material. The eyespots are not covered by the face material. A cutting device activated by a reader triggering on the eyespots, cuts the laminated web into sheets. These laminated sheets

are then trimmed, and printing is accomplished on the top exterior surface. The laminated sheets can then be cut into individual cards.

It is an object of the present invention to provide a method of producing hidden registered printing.

It is a further object of the present invention to provide a method of producing an approved adhesive product relatively inexpensively.

Yet another object of the present invention is to provide a method for producing a paperboard novelty which can present certain information and hide related information until it is desired the related information be exposed.

Related objects and advantages of the present invention will be apparent from the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of an apparatus utilized to accomplish the printing and coating steps of the present method with minor components deleted for clarity.

FIG. 2 is a top view of a fragment of a roll of release liner with printing thereon.

FIG. 3 is a side view of an apparatus utilized to accomplish the laminating step of the present method with minor components deleted for clarity.

FIG. 4 is a side view of an apparatus utilized to accomplish the registered sheeting step of the present method with minor components deleted for clarity.

FIG. 5 is a block diagram illustrating the steps of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

For the purpose of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawing and specific language will be used to describe the same. It will nevertheless be understood that no limitations of the scope of the invention are thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated herein being contemplated as would normally occur to one skilled in the art to which the invention relates.

My U.S. patent application, Ser. No. 708,115, filed Feb. 26, 1968, now abandoned, discloses face material having self-sticking adhesive on its back surface removably mounted atop a liner. Printing exists on the top exterior surface of the face material and also on the top interior surface of the liner. For example, the printing on the top exterior surface of the face material may be in the form of a question, whereas the printing on the top interior surface of the liner would be in the form of an answer. Thus, the question may first be read, then the face material may be removed and the answer revealed. In order to accomplish economic manufacture of the liner, it is printed on large rolls of paper or other suitable material. A roll of face material and a roll of liner are laminated together and can be cut into individual cards.

As a result, the printing on the release liner must be registered or located immediately under the printing on the face material. FIG. 2 shows a fragmentary view of the top interior surface of a roll of release liner. Fragment **50** of the roll of release liner has printing **54** located on its top surface which eventually abuts the adhesive back surface of the face material. Spaced equidistant along the length of the roll are eyespots **55** printed on the surface. After the release liner and face material are laminated, the resulting construction is then cut into individual sheets. Eyespots **55** serve as marks for cutting the sheet. Located between eyespots **55** are six individual printed units **59**, each having a length **53** and a width

52. Of course, more than or less than six individual printed units 59 may be included between eyespots 55. The eyespots are located a fixed distance 58 from the start of each group of six individual printed units 59. For example, eyespot 55 may be located two inches from the start of the first printed line. Each eyespot 55 is proportioned on a one to one basis with each display group of six units as shown in FIG. 2.

The first step of the present method is to print the answer or other similar printing on the roll of liner material shown in FIG. 2. FIG. 5 is a block diagram of all of the steps of the present invention. Blocks 111 and 112 are the first steps, namely printing the roll of liner material. This printing is accomplished by unwinding the release liner and printing a portion thereof, and then subsequently rewinding the liner material.

FIG. 1 is a side view of a commercially available apparatus 10 for accomplishing the printing of block 112 (FIG. 5) as shown in FIG. 2. The roll of liner material 11 is rotatably mounted by mounting brackets 12 to apparatus 10 and is rotated in the direction of arrow 13 by feed roller 14 and pressure roller 15. The web of liner material is forced in the direction of arrow 17 as roller 14 rotates in the direction of arrow 16. The web is then routed around guide rollers 18 and 19, where it then passes between impression rollers 20 and etched roller 22 for the printing, block 112 of FIG. 5, of the liner. Roller 22 is rotatably mounted in an ink pan 23. The exterior surface of roller 22 is etched with the desired printing to be applied to the surface of the liner material. Roller 22 is rotated into ink 24 and then presses against the web of liner material leaving an image thereon. The web of liner material is then driven by impression roller 20 rotatably mounted to bracket 21 to guide rollers 25, 27 and 28 in the direction of arrow 26. The web is routed to a drying oven by rollers 29 and 31 in the direction of arrow 30, where the printed image is subjected to forced warm air 33 from dryer 32. The web passes from dryer 32 via roller 34 in the direction of arrow 35 and is then rewound on roller 36. Brackets 37 serve as a mounting for roller 36 which is rotated in the direction of arrow 38. In the present embodiment, the web is wound in such a manner so as to have the printed surface 39 facing into the center of the roll.

The liner material is then coated with silicone, block 113 of FIG. 5, by an apparatus very similar to that just described. In fact, the identical apparatus may be utilized by replacing ink 24 in pan 23 with a suitable release agent. In addition, roller 22 should be replaced with a roller having an etched surface for transferring the release agent to the board. Such a release agent is sold under the trademark Syl-Off 23, manufactured by the Dow-Corning Corporation of Midland, Michigan. Such an apparatus as disclosed in FIG. 1 is available from Faustel, Insorporated, of Butler, Wis., under Coater Model No. RG 7. After the printing of the liner material has been accomplished, the printed roll should be mounted to bracket 12 (FIG. 1) in such a manner that the printed surface will contact roller 22. Thus, the release coating will be applied only to the printed surface to facilitate ease of removal of the liner from the adhesive-backed face material.

FIG. 3 is a side view of an apparatus utilized to accomplished the lamination step of the present method. The next step 115 (FIG. 5) of the method is to laminate or combine the printed and coated release liner with the pressure sensitive face material 114. Rotatably mounted to holding fixture 83 is the silicone coated printed release liner roll 82. Face material roll 61 is rotatably mounted to bracket 62 and is unwound and routed to the adhesive coating and lamination apparatus 60. The pressure sensitive adhesive is applied to the one surface of the face material and then subsequently laminated and rolled contiguous with the silicon coated surface of the release liner on roller 79. Laminated roller 79 is rotatably mounted to brackets 80 and is driven in the direction of arrow 81.

Face material roll 61 is rotatably driven in the direction of arrow 63 with the face material passing over and routed via rollers 64 and 65 in the direction of arrow 66. The face material then passes over roller 67 and applicator roller 68 which is rotatably suspended within pan 69 having liquid adhesive 70 surrounding the bottom portion of roller 68. Thus, as roller 68 rotates, a portion of the liquid adhesive is applied to the bottom surface of the face material passing over the roller. The adhesive backed face material is then routed via rollers 71, 72 and 73 to dryer 74, which emits forced warm air 75 thereby partially drying the adhesive. The face material is then routed in the direction of arrow 76 by rollers 77 and 78 to roller 79 where it is laminated to and wound upwith the release liner. Of course, the adhesive backed surface of the face material contacts the printed surface 85 of the release liner. Roll 82 is rotated in the direction of arrow 84 with the printed surface 85 facing into the center of the roll. The width of the face material is less than the width of the release liner. Thus, when the webs are laminated together a portion of the release liner roll will not be covered by the face material. The two webs should be adjusted so that edge 51 (FIG. 2) of the release liner web is directly under one edge of the web of face material. Thus, eyespots 55 will not be covered. Apparatus 60 is produced by many companies. For example the "Mayer Coater" produced by Mayer Machine Company of Rochester, N.Y., may be used.

The next step in the present method is to cut the laminated webs into sections. FIG. 4 discloses a sheeting apparatus 90 for cutting and stacking laminated roll 79 (FIG. 3) into individual sheets 109. Such an apparatus is available from Charles Beck Machine Corporation of King of Prussia, Pa., under the model name of "Beck Spot Sheeter." Apparatus 90 has a photocell lamp 94 directed towards eyespots 55 (FIG. 2). The laminated roll 91 is rotatably mounted to brackets 92 and is rotated in the direction of arrow 93, passing over roller 97 and under photocell lamp 94 and photocell receiver 96 mounted on bracket 95. Rollers 98 are provided to guide the web towards cutter 100. Cutter blade 100 is positioned across the top of the laminated web and is attached on its ends to two drums 101 rotatably mounted to the frame outside the edges of the laminated web. Drums 101 are rotated in the direction of arrow 102 by motor 104 attached by bracket 103. Motor 104 is time sequenced by photocell receiver 96. That is, photocell receiver 96 reads the passing eyespots 55 printed on the release liner and sequences blade 100 to cut across the laminated web at every eyespot. The severed laminated sheet then passes across the rollers 105 in the direction of arrow 106 falling onto stack 109. Guide rails 108 are positioned so as to cause the severed laminated sheet to fall in the direction of arrow 107 thereby forming stack 109 Block 116 of FIG. 5 illustrates the cutting of the laminated sheet accomplished by the apparatus shown in FIG. 4.

The severed laminated sheets are then trimmed 117 along their length and the top exterior surface of the face material is printed 118 with the desired question or other similar printing. Any standard sheet feed printing process, such as letterpress, offset lithography, silk screen, and gravure, may be utilized to accomplish printing step 118. The hidden printing on the release liner is located a known distance from the top edge of the severed laminated sheets since the severing occurred along a line defined by eyespots 55. Thus, printing 118 must be located with respect to the top edge of the severed sheets in order to register or locate the printing of the face material with the hidden printing on the release liner. The last step in the method is to cut these printed laminated sheets into individual labels 119 by cutting along the lines 52 and 53 shown in FIG. 2.

It will be obvious from the above description that the

present invention provides a method of producing hidden registered printing. It will be further obvious from the above description that the present method of producing an improved adhesive product may be accomplished relatively inexpensively. In addition, it will be obvious that the present method may be utilized to produce a paper and paperboard novelty which can present certain information and hide related information until it is desired that the related information be exposed.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

The invention claimed is:

1. A method for producing hidden registered printing comprising the steps of:

printing one surface of a web of liner with cutting marks along one edge of said liner and with a plurality of identical displays along the length of said liner, said marks being positioned along the length of said web, said marks being proportioned on a one to one basis with said displays with each mark being located in the same position with respect to its corresponding display;

mounting a web of adhesive backed face material atop said liner so as to produce a laminated roll, said surface of said liner being partially hidden by said face material covering said displays with said cutting marks being visible;

cutting said laminated roll into laminated sheets, said cutting occurring in a definite relationship with respect to said cutting marks providing said displays in registry with each of said laminated sheets;

said cutting step is accomplished with an automatic severing device controlled by a reader triggering on said cutting marks; and,

printing the top surface of said laminated sheets.

2. The method of claim **1** additionally comprising the steps of:

coating said surface of said web of liner with a release agent prior to said mounting step;

coating said web of face material with adhesive prior to said mounting step;

trimming the side edge of said laminated sheets subsequent to said cutting step so as to cut off said cutting marks but not said displays.

3. The method of claim **2** additionally comprising the step of:

cutting said laminated sheets into individual cards subsequent to said printing of said laminated sheets.

4. The method of claim **3** wherein: said release agent is silicone.

5. A method for producing hidden registered printing comprising the steps of:

printing a surface of a web of liner with cutting marks and a surface of said web with certain other matter, said marks being positioned along the length of said web in a definite relationship with respect to said other matter;

mounting a web of adhesive backed face material to said liner so as to produce a laminated roll, said certain other matter being at least partially hidden by said face material with said cutting marks being visible;

cutting said laminated roll into laminated sheets, said cutting occurring in a definite relationship with respect to said cutting marks;

said cutting step is accomplished with an automatic severing device controlled by a reader triggering on said cutting marks; and

printing the top surface of said laminated sheets.

6. The method of claim **5** additionally comprising the steps of:

coating said surface of said web of liner with a release agent prior to said mounting step;

coating said web of face material with adhesive prior to said mounting step;

cutting said laminated sheet into individual cards subsequent to said printing of said laminated sheets.

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U.S. Cl. X.R.

156—250, 269, 277, 289, 353, 388