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⑦① Applicant: **NORTON & WRIGHT GROUP PLC,**
67-77 Kirkstall Road, Leeds West Yorkshire (GB)

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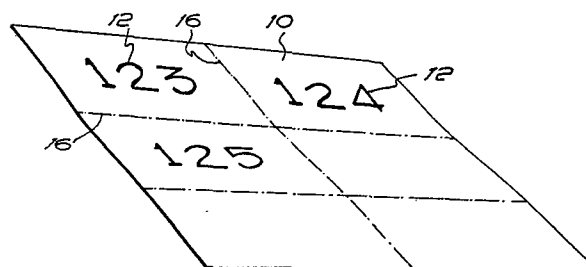
⑦② Inventor: **Benson, William Victor, 1, Crofton Terrace,**
Shadwell Leeds, LS17 8LD (GB)

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⑦④ Representative: **Denmark, James, c/o Bailey Walsh &**
Co. 5 York Place, Leeds LS1 2SD Yorkshire (GB)

⑤④ **Grain effect ticket.**

⑤⑦ The invention defines a method of producing a lottery ticket with card stock material which has been subjected to an upsetting treatment after the application thereto of an image to be concealed by an opaque coating 19, so that the relief of the image is concealed, and the image cannot be identified without the moving of the coating. The upsetting is preferably carried out by passing the stock material between nip rollers (18, 20).



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Grain-Effect-Ticket

This invention relates to tickets of the type including an opaque irreversibly removable coating, which covers information to be revealed in the use of the ticket. Such tickets can be used in lotteries, games, 05 promotions, education and/or amusement, but will be referred to hereinafter as lottery tickets used in a lottery in the interests of simplicity of description. In the use of the ticket, the coating is removed to reveal the information, the act of removing the coating 10 destroying the integrity of the ticket, so that the ticket can be used only once. Lotteries in connection with which such tickets are used are known as "instant" lotteries, because the user instantly knows when he has revealed the information, whether or not a prize has 15 been won. Such lottery tickets are in use, and have come to be known by the description "rub-off" tickets.

As can be appreciated, it is most important that the tickets should be secure, or in other words, it should 20 not be possible to identify the information concealed by the coating without removing the coating, because then it would be possible for example, for an agent handling the tickets to extract the winning tickets before putting the tickets on sale.

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It is sometimes possible to identify the concealed information without removing the coating if the information has been impressed upon the card stock material by a means or in such a fashion as to create 30 an image in relief (recessed or raised), because when the coating is applied, which coating may typically be a rubber latex based liquid, the relief of the concealed information will still be visible as the coating will follow the relief shape. Such image 35 reliefs are frequently created, because typically the

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concealed information may be a number which is applied by letterpress, which involves impacting the card stock, leading to the creation of an image in relief in the card stock. Also, when the images are created
05 xerographically, there is an image created in relief resulting from the thickness of the toner deposit on the card stock.

The present invention is concerned with a method of
10 producing rub-off lottery tickets having the characteristic that it is difficult to ascertain the concealed information without removing the coating.

In accordance with the invention there is provided a
15 method of making lottery tickets wherein an image to be concealed is applied to the ticket stock material, and after the image is imparted to the stock material, the material is subjected to an upsetting step, which has the effect of embossing, shearing and/or cutting of the
20 stock material, by using a multiplicity of upsetting edge regions which are brought into pressure contact with the card stock in the area of and over the said information, thereby to remove the relief effect mentioned above, followed by the application of the
25 opaque coating.

The said upsetting may be applied over the whole of the stock material from which a plurality of tickets are subsequently produced, so that the upsetting has the
30 effect not only of concealing the said information, but also has the effect of giving the ticket an embossed feel and appearance.

Any suitable upsetting means may be used, and in one
35 arrangement we use a roller nip defined by a first roller having a compliant surface, and the second roller having a plurality of upsetting edges arranged



side by side and having a wavy shape. It is preferred that the edges which may be formed for example by knurling or by etching should be pitched and shaped so as to be neither too close nor too spaced, and that
05 these edges should in fact penetrate into but not through the stock material to impart a cutting, shearing and/or embossing thereto, whilst a semi-compliant surface of the other roller at least partly bulges into the spaces between the edges thereby to
10 give an embossed effect to the stock.

Appropriate nip pressure between the rollers would be required in order to upset the card stock material.

15 As an alternative to using rollers, which operate on a continuous rotation basis, it is possible to use semi-rotary equipment or flat bed equipment or any combination of such equipment.

20 Also, the stock material may be in the sheet form or web form, appropriate sheet or web fed equipment being used as the case may be.

An embodiment of the invention will now be described,
25 by way of example, with reference to the accompanying diagrammatic drawings, wherein:-

Fig. 1 is a perspective view of a portion of card stock material on which are printed numbers to form concealed
30 information of lottery tickets;

Fig. 2 is a sectional elevation of the card stock of Fig. 1, the section being in line II-II, showing how such numbers do in fact form a relief pattern;

35 Fig. 3 indicates in perspective view how a number covered by an opaque coating may still be identifiable



without revealing the coating;

Fig. 4 shows how the card stock is treated in accordance with this embodiment of the invention in order to upset same and to remove the relief effect indicated in Figs. 2 and 3;

Fig. 5 is an enlarged developed view showing the arrangement of the upsetting edges of one of the rollers shown in Fig. 4;

Fig. 6 is an enlarged sectional view of part of the roller nip with the card stock passing therethrough;

Fig. 7 is a perspective view of a portion of the card stock after passing between the roller nip to receive the upsetting process, and after application of the opaque covering coating; and

Fig. 8 is a sectional view of the stock shown in Fig. 7 to indicate how the relief effect has been removed.

Referring to the drawings, a section 10 of card stock is shown and is provided with a plurality of individual numbers 12. These numbers are to be concealed with an opaque coating 14 (Fig. 3) in accordance with any known process for the production of lottery tickets, and then the stock is severed along the lines 16 in order to provide individual lottery tickets. In use of the lottery ticket, the opaque coating 14 is removed by scratching or scraping to reveal the number 12 and the user knows instantly whether or not the number is a winning number. Numbers have been used to illustrate the invention in this embodiment, but it is to be mentioned that symbols or signs can be used, and there need not be one number; there may be several or several signs or symbols to be revealed randomly or in a

sequence. The numbers 12 illustrated have in fact been applied by letterpress printing, which involves impacting the card stock and this results in a recessed relief effect as shown in Fig. 2. When the image is in
05 relief as shown, and it is subsequently covered by means of the opaque coating as shown in Fig. 3 and a light is shone at the surface and at a suitable angle, the image can often be read quite clearly as shown in Fig. 3 without removing the coating. This is
10 unsatisfactory as concerns lottery tickets, because it is important that instant lottery tickets should be extremely secure, so that there can be no compromising of the lottery as a whole.

15 The present invention seeks to obviate this problem, by upsetting the board stock material to remove the relief effect. It should be mentioned at this time that the relief effect can occur as a recessing, or it can occur with different forms of image creation other than
20 impacting. Thus, in creating a xerographic image, a relief effect is produced resulting from the thickness of toner which exists on the stock. It will also be understood that when the images are created, an appropriate printing ink or toner 15 is applied to the
25 stock to provide the colour contrast necessary for viewing the image when revealed.

The method of upsetting the stock in the present embodiment, is to pass the stock through the pressure
30 nip defined by a pair of rollers 18, 20 as shown in Fig. 4. This has the effect of upsetting the stock sufficiently to remove the relief effect. It is desirable that a plurality of upsetting edges 23 be used for in fact upsetting the surface of the stock
35 material as shown in Fig. 6, and therefore one 18 of the rollers is provided with a plurality of cutting upsetting edges 23 arranged circumferentially of the



roller surface. The edges are of the wavy and opposite hand configuration as shown in the developed view of Fig. 5, and it is preferred that the other roller 20 should have a semi-compliant type surface 24 such as a
05 cotton scrim fabric surface which will enable the process to be carried out on cardboard the caliper of which varies slightly from place to place. The nip pressure which is used, as well as the radial length of each upsetting edge and the spacing between the edges
10 have to be selected for the best effect. If the edges are too close together then the desired upsetting effect will not be achieved, and equally the effect will not be achieved if the edges are too far apart. The pressure between the rollers should be such as to
15 give an upsetting and in fact an embossing effect to the card stock as illustrated in Fig. 7. The upsetting edges 23 should be fine enough to cut into the stock 10, but not to break up the ink 15 of the image.

20 The said upsetting edges may be formed in the roller 18 by a knurling or etching process.

It is to be appreciated that a different pattern of upsetting edges can be used and although in the example
25 shown, the upsetting effect is applied over all of the card stock, it is not necessary that this should be done, and in fact the upsetting effect may be applied only in the areas of the images, the relief effect of which is to be removed.

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Also, the invention can be applied in linear and rotary reciprocable equipment, such as flat bed and semi-rotary presses.

35 Fig. 8 shows in section the stock after the upsetting process, and after the covering of the images with the opaque coating, and it will be seen that the stock

has an overall embossed effect which conceals any relief of the image making it difficult for the image to be identified without removing the opaque coating. The sectional view of Fig. 8 corresponds to Fig. 2, the
05 number of the image being 125 and the ink 15 of the image also being shown.

In using the cutting blade arrangement described and illustrated herein, the resulting stock has a "grain"
10 appearance and feel.

CLAIMS.

1. A method of making lottery tickets, wherein an image to be concealed is applied to the ticket stock material, and after the image is imparted to the stock material, the material is subjected to an upsetting
05 step, which has the effect of embossing, shearing and/or cutting of the stock material, by using a multiplicity of upsetting edge regions which are brought into pressure contact with the card stock in the area of and over the said information, thereby to
10 remove the relief effect mentioned above, followed by the application of the opaque coating.

2. A method according to claim 1, wherein the said upsetting is applied over the whole of the stock
15 material from which a plurality of tickets are subsequently produced, so that the upsetting has the effect not only of concealing the said information, but also has the effect of giving the ticket an embossed feel and appearance.

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3. A method according to claim 1 or claim 2, wherein the upsetting means comprises a roller nip defined by a first roller having a compliant surface, and the second roller having a plurality of upsetting edges
25 arranged side by side and having a wavy shape.

4. A method according to claim 3, wherein the edges are pitched and shaped so as to be neither too close nor too spaced, and that these edges should in fact
30 penetrate into but not through the stock material to impart a cutting, shearing and/or embossing thereto, whilst a semi-compliant surface of the other roller at least partly bulges into the spaces between the edges thereby to give an embossed effect to the stock.

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5. A method of producing lottery tickets substantially as hereinbefore described with reference to the accompanying drawings.

05 6. A lottery ticket produced according to the method of any preceding claim.

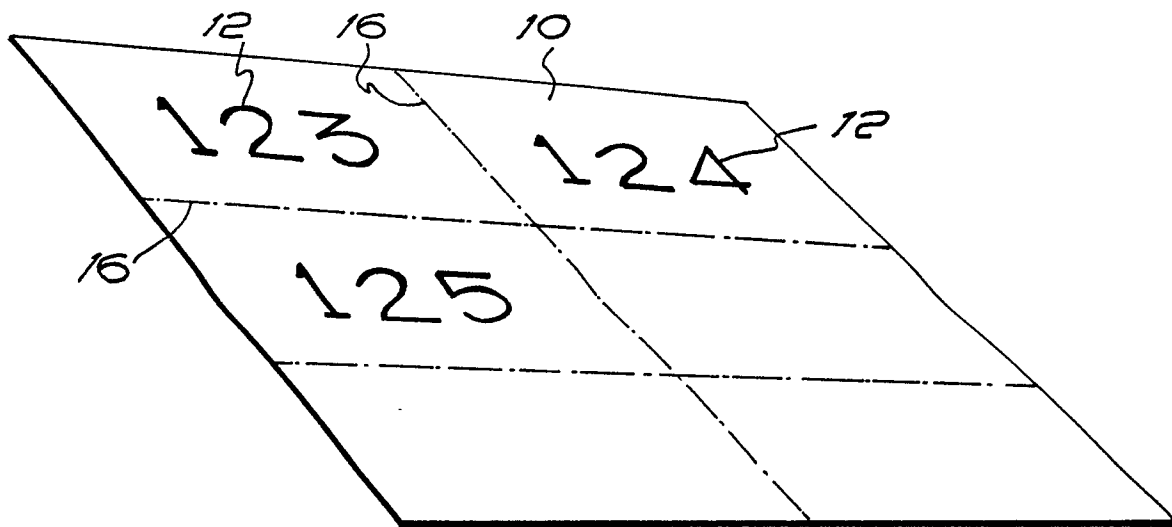


FIG. 1

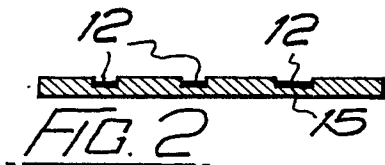


FIG. 2

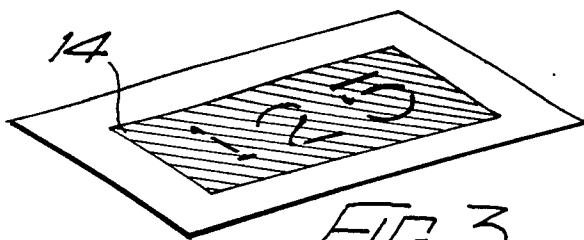


FIG. 3

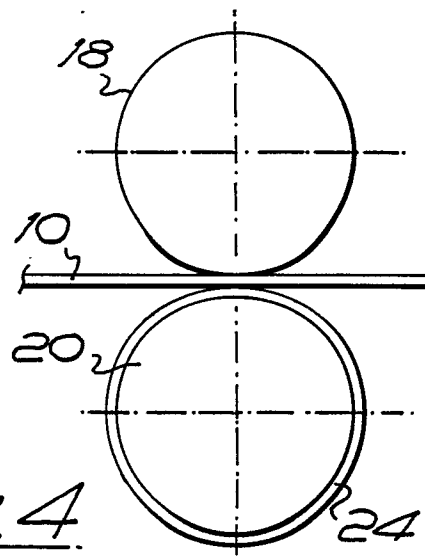


FIG. 4

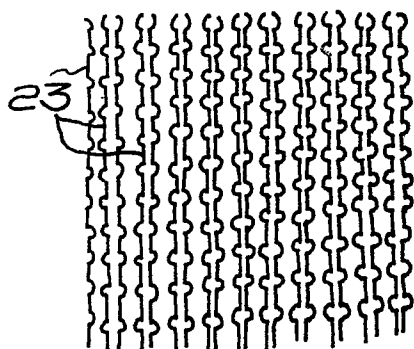


FIG. 5

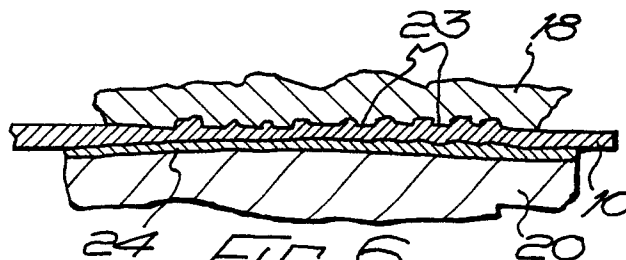


FIG. 6

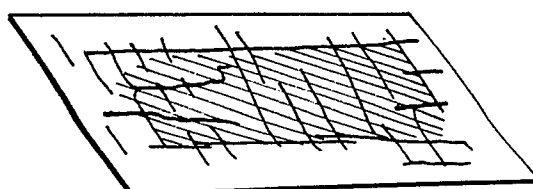


FIG. 7



FIG. 8



European Patent
Office

EUROPEAN SEARCH REPORT

0088481

Application number

EP 83 20 0328

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
X	FR-A-2 428 883 (CANADIAN TAG & LABEL LTD.) * Page 19, line 9 - page 20, line 12; claim 14 *	1	A 63 F 3/06
Y		2-4	
Y	--- US-A-3 247 785 (SHULTZ) * Whole document *	2-4	
A	--- FR-A-1 483 651 (CHAMPION) * Whole document *	2-4	
A	--- US-A-4 241 942 (BACHMAN) * Whole document *	1	
A	--- GB-A- 851 749 (VAN VALKENBURGH) * Page 4, lines 20-54; figures 3,4 *	1,2	TECHNICAL FIELDS SEARCHED (Int. Cl. ³) B 42 D A 63 F B 41 M B 41 F
A	--- GB-A-1 090 843 (SPOT-O-GOLD) * Page 2, lines 24-42; figures * -----	1,2	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26-05-1983	Examiner MEULEMANS J.P.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	