# SECURITY PRINTING OF CARDS AND THE LIKE

This invention relates to the printing of cards, tickets, sheets and the like, wherein secure information is covered by a layer of material which obscures the information, but which, at the appropriate time, can be irreversibly removed by scratching or rubbing with a coin, finger nail or the like, to reveal the information to the user.

Such items of printed matter may take any form, such as cards for lotteries and promotional games, and indeed such cards, known as scratch cards are in wide use in the United Kingdom and in many other countries of the world. These scratch cards are used in connection with "instant" lotteries in that when the user uses the card, he or she knows instantly whether or not a prize has been won. Winning cards are therefore predetermined. Other forms of cards to which the invention relates are the so called "telephone" cards, which are cards charged with credit amounts which can be used for making telephone calls from public and other appropriate telephone boxes.

The obscuring scratch off material is typically a synthetic rubber latex material containing metal particles, which effectively obscures the information, but which exhibits a desirable tactile but disintegrating characteristic during the scratching off of the material.

The scratch off material has the function of keeping the concealed information (which can take any form) hidden until the card is legitimately used, but unfortunately as knowing the information to identify the winning cards or knowin a telephone card code, without removing the scratch off material or by removing it and replacing it, is of monetary value, there are many unscrupulous individuals who

seek to compromise the cards in this way. Accordingly, much effort has been put into making the cards difficult to compromise, and much of this effort is the subject of patent protection, for example as set forth in United States Patents Nos. 5569512 and 5704647, which are concerned with providing overprinting on the scratch off material.

In the first patent, the idea is to provide an overprint layer which extends over the boundaries of the scratch off layer, so that they cannot be seen. In the second patent, the inventor suggests printing over the scratch off material using at least two halftone printing steps.

In the case of instant lottery cards, where the there are only so many winners in a large number of losers compromising usually has to be organised, and the benefit can only be obtained once, but compromising telephone cards is much more lucrative.

The scratch off concept has recently been extended to telephone cards, and is used in that a purchaser purchases (through stores or dispensing machines) a telephone card which has a predetermined code printed thereon. That code typically is a twelve or fourteen digit number, and it is covered by the scratch off material. The user scratches of the material when he or she desires to use the card, and then to make a telephone call, he or she punches in the number or gives it to an operator over the phone, to validate the card, and then the user can make the telephone call. The card is pre programmed with a credit value equal to the cost of the card, and the user can make any number of telephone calls up to the value of the card price.

Whilst lottery tickets may cost as little as £1, telephone cards can be of any value, typically £5 or £25, and they are particularly valuable.

Also every one is of value, as compared to the many instant lottery tickets which are losers, and so security of the telephone cards should be greater. Surprisingly, however, this need has not been realised, and it has in the past been possible for unscrupulous people to purchase these telephone cards, remove the scratch off material, memorise the code, apply new scratch off material, and resell the ticket. Such a person then uses the code to make calls, each time depleting the credit from the card which has been bought by another.

Also, such an unscrupulous person may duplicate the cards with the same code and sell them to others, whereby there may be a number of people tying to use the same code, and of course they will not all be able to have the same credit to which they believed they were entitled.

The present invention aims to provide a means whereby the above disadvantage is addressed and it possibility is at least reduced. Although the invention has particular application to telephone cards of the scratch off type, it can be used in any scratch off type of item, including lottery tickets and promotional game tickets.

According to the invention there is provided a printed item carrying information which is concealed by scratch off material which is irreversibly removed to use the item, wherein the scratch off material is overprinted with a layer which is an "active" layer in that it exhibits a changing characteristic under particular conditions.

The changing nature of the layer may be any of a number of possibilities.

For example, the layer may be an ink with an iridescent pigment, and the change referred to above is that the ink is of a different colour when the angle of viewing is changed.

Secondly, the layer may be of a photochromic ink which changes colour depending upon the illumination of the area in which it is located. Thus, the layer would be of a different colour depending upon whether or not it was in daylight.

Thirdly, the layer might be thermochromic, which means that it changes colour when subjected to heat. A person could therefore assess whether or not the card had been compromised by applying his or her finger to the layer. The heat of the finger would be enough to cause the layer to change colour, and when the heat is removed, the layer reverts to the original colour.

Fourthly, the layer may be metameric or holographic, which means that it is in a number of segments which provide different images when viewed in different directions.

The active overprint layer is of course of a type which is irreversibly removed when the scratch off material is removed.

If an active overprint layer is used as provided for by the present invention, it becomes more difficult for the card to be compromised in the ways indicated above, and a purchaser can ascertain easily be observing the change in the layer when he is asked to purchase a card from another.

The overprint layer may extend over all of the scratch off layer or only part thereof, and it may be opaque or transparent or any mixture thereof.

One example of the invention is illustrated in the accompanying drawing, wherein;-

Fig. 1 is perspective view of a card according to the embodiment; and

Fig. 2 shows the card of Fig. 1 after the overprint layer has been subjected to its active change.

In the drawing, reference 10 indicates a telephone card of the type which might be bought from a dispenser, and it carries a code number of fourteen digits, referenced 12. The code (although visible in the drawing) is in fact obscured from vision by means of an irreversible scratch off layer 14 of synthetic rubber latex or the like. Printed over the layer 14 is an active layer 16 which may be opaque or transparent, which in this embodiment is a thermo-chromic layer 18, of a character which change colour with heat, and so Fig. 2 shows the card of Fig. 1 after the user's thumb has been applied to the layer 16, as a validation check. The thumb mark 18 is of a different colour from the remainder 20 of the layer, but will return to the colour of part 20 with the passage of time. By this means the user can make the assumption that the card is genuine, and has not been tampered with. He or she can use it with confidence.

The use of active layers in accordance with the present invention provides excellent security in that it is expensive to set up equipment to apply active layers.

As shown, the card may carry in an area separate from the scratch off material, other printed matter 24 of for example an informative and/or promotional nature.

CLAIMS



1. A printed item carrying information which is concealed by scratch off material which is irreversibly removed to use the item, (wherein) characterised in that the scratch off material is overprinted with a layer which is an "active" layer in that it exhibits a changing characteristic under particular conditions and such changing characteristic is observable by the user whereby he can check if the item has been compromised before irreversibly removing the scratch off material.

2. A printed item according to claim 1, wherein the changing nature of the layer is achieved by an ink with an iridescent pigment, and the change is that the ink is of a different colour when the angle of viewing is changed.

3. A printed item according to claim 1, wherein the layer is of a photochromic ink which changes colour depending upon the illumination of the area in which it is located.

4. A printed item according to claim 1, wherein the layer is thermochromic, which means that it changes colour when subjected to heat.

5. A printed item according to claim 1, wherein the layer is metameric or holographic, which means that it is in a number of segments which provide different images when viewed in different directions.

6. A printed item according to any preceding claim, wherein the overprint layer extends over all of the scratch off layer or only part thereof, and it is opaque or transparent or any mixture thereof.

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