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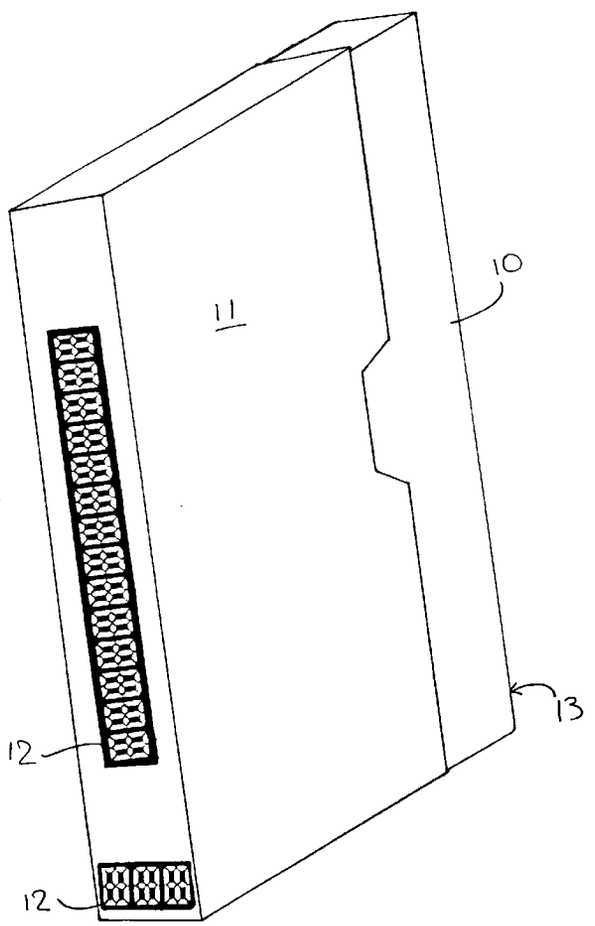
(54) Erasable marking method and apparatus therefor

(57) A method of erasably marking a substrate, for example a video cassette sleeve (11), comprises marking with a waterproof ink a substrate surface (12) which is smooth and impermeable to the ink and subsequently removing the marking by rubbing with a non-abrasive eraser. Apparatus for marking an article by this method includes a pen containing a waterproof ink, the substrate surface and a non-abrasive eraser, for example a block eraser of the type sold for erasing pencil markings.



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Description

This invention relates to a method of marking or writing upon a substrate, and subsequently removing the markings when required, and also to apparatus for enabling the method to be put into effect.

Erasable marking systems are well known. One such system employs a pen having a solvent-based ink which may be erased by wiping or dabbing with solvent carried on a cloth or pad. The solvent used is often water, for health and safety reasons and because it is readily available. Dry-wipe marking systems, using ink formed from a pigment carried in a solvent which evaporates completely after use, are also known. Provided a suitable substrate is used, markings made with a dry-wipe pen may be wiped away without the use of any solvent.

One problem with erasable marking systems is that of ensuring that the marking remains until it is required to remove it. Using water-soluble or dry-wipe inks, a marking may be erased or smudged accidentally by touching it with a dry or damp finger, for example. Where the item to be marked is an article which may be handled frequently the problem of accidentally erasing the markings may be particularly troublesome. One situation where this problem may be apparent is in the marking of video cassettes because it is common to record and re-record on the same cassette many times. A labelling system for marking such items is disclosed in Patent Specification No. GB 2118135 and entails writing upon an impermeable substrate label with a pen containing either a water-soluble or a waterproof ink and then wiping the writing away using water or an organic solvent as appropriate. When water-soluble ink is used for the purpose, the writing may easily be smudged if the labelled tape is handled with damp or sweaty hands. Waterproof inks are less convenient to use in this application than water-soluble inks because the solvent must be dispensed on to a suitable wiping article when it is required to remove the writing and the dispensing, use and subsequent disposal of the solvent can create potential health problems or a fire hazard.

It is an object of the present invention to overcome some at least of the foregoing problems.

According to the invention, a method of erasably marking a substrate and subsequently erasing said marking comprises marking with a waterproof ink on the substrate, said substrate having a surface which is smooth and impermeable to said ink, and subsequently removing said marking by rubbing with a non-abrasive eraser.

Apparatus according to the invention for enabling an article to be erasably marked with ink and subsequently erasing said marking comprises a pen containing a waterproof ink, a surface which is smooth, impermeable and able to be marked with said pen and a non-abrasive eraser.

The pen preferably delivers "indelible" or waterproof ink and is preferably a felt-tip or fibre-tip pen. Examples of suitable commercially available pens include the "STAEDTLER LUMOCOLOR 317", "EDDING 142M" permanent OHP marker and the "BEROL PERMANENT LABELLING PEN" and other similar pens which are sold as permanent, indelible or waterproof marking pens.

The substrate which is marked upon has a surface which is smooth and impermeable to the ink used in the pen. That is to say, the surface should not absorb or be etched by any component of the ink to any significant extent. The surface should have physical and chemical properties which enable it to be wetted by and to bond to the ink sufficiently for it to be clearly written upon by the pen. The markings, when dry, should not be easily removable on contact with wet or dry skin. The surface should be selected to bond to the ink sufficiently weakly for the markings to be removable by rubbing with an eraser. The substrate may be transparent, opaque or translucent. The substrate is preferably a plastics film and most preferably is either oriented polypropylene or oriented polyester film or a gloss-finished polyvinyl chloride film. An unfilled high-gloss film may have a surface which is generally smoother than a film which contains particles of a filler material.

The non-abrasive eraser is preferably a block eraser of the type sold for erasing pencil markings. Non-abrasive in this context means that the eraser does not abrade the impermeable surface on which the erasable markings are formed to any significant degree. If the permeable surface were to be abraded then ink would be trapped within the small irregularities or scratches on the surface and that ink would be difficult to remove without recourse to wiping with a solvent. One example of a suitable block eraser is the "STAEDTLER MARS PLASTIC ERASER" although many suitable erasers exist, which, typically, are made from vinyl compounds. The eraser may be used dry but for removal of certain markings, especially where the markings are relatively old, it is advantageous to moisten the eraser or the marked surface to achieve a faster, more complete removal of the markings.

The impermeable surface, which is preferably a plastics film, may form part of a laminate structure. The laminate preferably includes an opaque layer, which may be paper, board or opaque film or a layer of an opaque ink printed upon the under-surface of the impermeable markable substrate, so that writing etc. which is marked on the surface can be clearly seen. It is preferred that where such a laminate and a pen are provided together as a 'kit', the colour of the ink contrasts with that of the opaque layer so that the markings of the pen are clearly visible. In certain forms, the laminate structure may include an adhesive layer on its lower surface so that the surface may be adhered to an article such as a video tape for example, for labelling purposes.

The surface may have non-erasable markings upon it such as a border, grid, words or graphics. Those mark-

ings may be printed or etched upon the surface or, more preferably where the surface is a clear plastics film, they may be printed on the reverse of the film or on a separate layer located beneath the surface, e.g. on an opaque layer of a laminate structure. In one preferred form of the invention, the impermeable surface is the upper surface of a clear film laminated to or overlaying an opaque layer, which may be an opaque film, paper or board for example, upon which is printed a grid pattern. The grid is preferably an alphanumeric grid. The grid is preferably printed in reverse i.e. so that the background is relatively dark and the alphanumeric grid lighter in colour. By selecting a pen having ink of a similar colour to the background of the grid, selected parts of the grid may be overwritten by the pen, leaving the remainder of the grid visible to form letters or numbers. This form of the invention is particularly preferred for providing labels for video cassettes and for labelling the spine of video cassette cases because words or numbers formed from such a grid are usually neater and therefore more acceptable to someone who wishes to display his collection of tapes than a handwritten label. By providing an alphanumeric grid printed on or beneath an impermeable surface located on the spine of cardboard or plastics video cassette cases and designing the surrounding area of the video case in an appropriate manner, it is possible to achieve a high standard of presentation for the video cassette case, whilst retaining the versatility of being able to erase and re-mark the label or box when the contents of the tape are changed.

The application of the method and apparatus of the present invention to video cassette cases or sleeves may take different forms, depending in part on the material of which the case or sleeve is made. In the case of cases or sleeves made of paper or card, the whole case or sleeve may be formed as a laminate for marking according to the invention or its spine may bear a laminated label attached to it. When the case or sleeve is formed in a plastics material, it may be formed as a whole in the desired impermeable markable material or as a laminate or the material may be adhered in the form of a label. In another form, the case or sleeve may be moulded in a suitable plastics material such as polypropylene with one or more areas formed with a gloss surface to receive the identity markings. As one alternative, the markable substrate may be attached to the spine of the case or sleeve by welding, gluing or clips.

A further form of the invention comprises one or more laminated sheets of which the top layer is a smooth impermeable clear film and having an opaque layer which is optionally printed with an alphanumeric grid and, preferably, other markings such as a list of numbers. This sheet or sheets may then be used as an index to record information pertaining to the contents of a number of video cassettes. In a preferred form, the sheets are adapted to be placed into a binder which is itself adapted to fit neatly into a video cassette sleeve and preferably also adapted to hold a waterproof pen and non-abrasive eraser, for example in a loop or pocket secured to the binder. The binder may then be stored together with the video tapes about which information is contained therein.

Some examples of other suitable uses for this form or any other form of the invention are camcorder and audio cassette labelling, insert cards for tape cassettes, name and address recording systems, e.g. for personal organisers, and computer disk labels.

One example of an end-use of the present invention will now be further described with reference to the accompanying drawing, which is a perspective view of a video cassette in a case.

The drawing shows a video cassette 10 partially inserted into a video cassette sleeve 11. The sleeve 11 is made of a cardboard base layer laminated to a top layer of a clear impermeable plastics film. Areas 12 of the cardboard are printed with an alphanumeric grid. The grid is formed in white on a black background so that if a white part of the grid is overwritten in black, that part is no longer clearly visible. The remainder of the cardboard may be printed with an attractive design. By marking the film over the alphanumeric grid with a pen delivering waterproof ink so as to cover selected parts of the grid, a word, words or numerals may be formed so as to indicate the contents of the tape contained within the sleeve. When it is required to change the words or numerals so formed, for example when the tape has been re-recorded, the markings may be removed by rubbing with a non-abrasive eraser and different letters may be formed on the grid by remarking the area 12 with the pen.

The sleeve 11 may alternatively simply have a clear area, perhaps surrounded by a decorative border, in which a user may write words or numbers with a waterproof pen.

The back spine 13 of the video cassette may itself have a label which is a laminate structure having at its top layer a clear impermeable film. That label preferably comprises an alphanumeric grid printed on an opaque layer of the laminate. The label may then be marked upon and erased in the manner described above.

Claims

1. A method of erasably marking a substrate and subsequently erasing said marking, characterised in that the method comprises marking with a waterproof ink a substrate (11) having a surface (12) which is smooth and impermeable to said ink and subsequently removing said marking by rubbing with a non-abrasive eraser.

2. Apparatus for enabling an article to be erasably marked with ink and for subsequently erasing said marking, characterised in that the apparatus comprises a pen containing a waterproof ink, a surface

(12) which is smooth, impermeable and able to be marked with said pen, and a non-abrasive eraser.

3. Apparatus according to Claim 2, characterised in that said pen is a felt-tip or fibre-tip pen.

4. Apparatus according to Claim 2 or Claim 3, characterised in that said substrate is a plastics film.

5. Apparatus according to Claim 4, characterised in that said film is an oriented polypropylene or oriented polyester film.

6. Apparatus according to Claim 4, characterised in that said film is a gloss-finished polyvinyl chloride film.

7. Apparatus according to any of Claims 2 to 6, characterised in that said eraser is a block eraser.

8. Apparatus according to Claim 7, characterised in that said block eraser is made of a vinyl compound.

9. Apparatus according to any of Claims 2 to 8, characterised in that said substrate is part of a laminate structure wherein the markable material is transparent and is backed by an opaque layer.

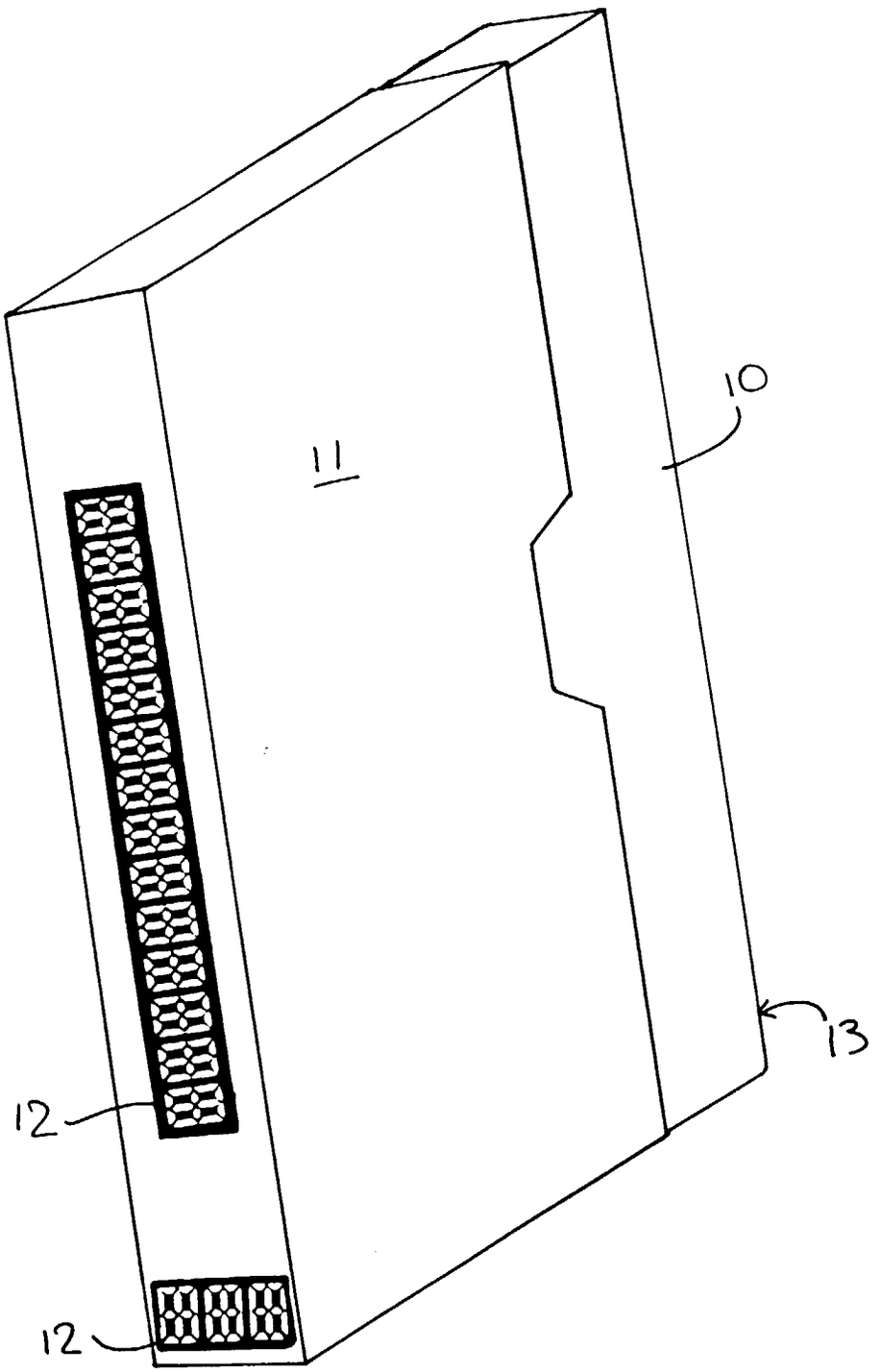
10. Apparatus according to Claim 9, characterised in that said opaque layer is of paper, board or film or is a layer of ink printed upon the under-surface of the markable material.

11. Apparatus according to any of Claims 2 to 10, characterised in that said markable surface (12) displays one or more non-erasable markings, marked upon said surface or visible through it.

12. Apparatus according to Claim 11, characterised in that said non-erasable markings comprise an alphanumeric grid pattern.

13. Apparatus according to Claim 12, characterised in that said alphanumeric grid pattern is relatively lighter upon a relatively darker background.

14. Apparatus according to any of Claims 2 to 13, characterised in that said markable surface is upon a sleeve for a video cassette.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EUROPEAN SEARCH REPORT

Application Number
EP 95 30 8924

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.6)
Y	FR-A-1 176 638 (MONTECATINI) * the whole document *	1-5	B43L1/00 B43L1/10
Y	US-A-5 079 851 (SILL) * column 2, line 24 - line 48 * * column 3, line 9 - line 59; figures *	1-5	
A		7-13	
Y,D	GB-A-2 118 135 (MARTIN WARNES) * the whole document *	1-4,6	
A		7,9,14	
Y	FR-A-844 668 (FAYET) * the whole document *	1-4,6	
A	FR-A-1 398 949 (GINESTET) * page 1, left column, paragraph 4 - paragraph 6; figure 1 *	1-4,7,8	
A	EP-A-0 142 257 (TENGS) * the whole document *	1-4	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	GB-A-2 262 483 (DONALD GORDON JOHNSTON) * the whole document *	1,2,4, 10-13	B43L
A	US-A-4 722 145 (PREST) * abstract; figures *	1,3, 11-13	
A	US-A-3 642 562 (KAWAGUCHI) * column 2, line 23 - line 37 *	1,5,6	
A	GB-A-2 250 238 (KYRIACOU) * abstract; figures *	1,2	
A	FR-A-917 352 (RHONE-POULENC) * the whole document *	1,6	

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	7 March 1996	Perney, Y

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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Application Number
EP 95 30 8924

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.6)
A	FR-A-905 883 (FABER-CASTELL) * page 1, line 1 - line 48 * -----	7,8	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)

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THE HAGUE	7 March 1996	Perney, Y

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