

12

## EUROPEAN PATENT APPLICATION

21 Application number: 85300693.0

51 Int. Cl.<sup>4</sup>: **B 44 F 1/12**  
**D 21 H 5/10**

22 Date of filing: 01.02.85

30 Priority: 07.02.84 US 577936

43 Date of publication of application:  
 02.10.85 Bulletin 85/40

84 Designated Contracting States:  
 BE DE FR GB NL SE

71 Applicant: BURROUGHS CORPORATION (a Delaware corporation)  
 Burroughs Place  
 Detroit Michigan 48232(US)

72 Inventor: Gorall, Donald J.  
 11 Kimbark Road  
 Rochester New York 14610(US)

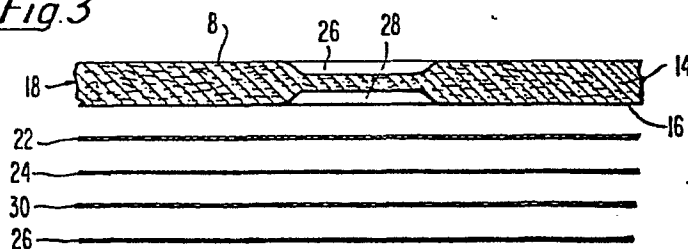
74 Representative: Kirby, Harold Douglas Benson et al,  
 G.F. Redfern & Company Marlborough Lodge 14  
 Farncombe Road  
 Worthing West Sussex BN11 2BT(GB)

54 Protection of legal documents by reverse penetration.

57 A document has a paper substrate with a front surface upon which information is marked in ink. The document is improved to resist alterations by erasure of selected information on its front surface. In the improvement the substrate has a back surface upon which the selected information is marked in ink in identical underlay position as the selected

information on the front surface. Ink penetrates into the front and back surfaces of the substrate to such an extent in the identical underlay positions that the selected information on the front face may not be erased without damage to the substrate to expose ink penetration from the back surface.

*Fig.3*



- 1 -

PROTECTION OF LEGAL DOCUMENTS BY REVERSE PENETRATION

## BACKGROUND OF THE INVENTION

## 1. Field of the Invention

The invention relates to protection of a document from alterations by erasure. More specifically, it relates to protection from erasure by printing selected information in ink in the identical positions on the front and back surfaces of the document.

## 2. Description of the Prior Art

Documents, for example checks, may have the amount printed by a check writer. The amount is subject to alteration by erasing. Some of the older check writers are hand operated. Typically, a hand crank is used to push a plate with raised numerals against a ribbon which will leave an imprint on the paper substrate. The pressure will cause fibers on the surface of the check to crush and ink will be deposited into the substrate. The ink may have an oil base which will also help in penetrating the fibers of the substrate. However, even, with this penetration, a skilled check forger can use an eraser to erase the portion of the substrate that the ink has penetrated.

The problem is made more difficult by modern electronic check writers. Some of these are rolling platten type writers which do not exert substantial pressure on the substrate and do not crush the substrate surface fibers to aid in ink penetration.

-2-

What is needed is a document that will have increased penetration by ink in areas of selected information that will resist attempts at alteration by erasing and will allow attempted alterations to be detected.

## 5 SUMMARY OF THE INVENTION

State of the Art documents, such as a check or money order, have a paper substrate upon which information is marked in ink on the front surface. The invention improves the document so it will resist alteration of selected information, for example, the dollar amount, on its front surface. The improvement comprises the substrate having a back surface upon which the selected information is marked in ink in identical underlay position as the selected information on the front surfaces. The ink from the front and back surfaces penetrates to the extent that the selected information on the front face may not be erased without removing a portion of the substrate to expose ink penetration from the back surface.

In an alternative embodiment of the document, the ink on the front surface is a first color and the ink on the back surface is a second color. If the front surface is erased, the second color from the back surface will show through, indicating an attempted alteration of the document.

The first novel feature of the invention is the imprinting of the selected information on both the front and back surfaces in exact underlay positions such that an alteration attempt will fail.

The second novel feature of the invention is printing the selected information of front and back surfaces in first and second colors respectively so that an alteration attempt will be indicated.

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows the front surface of a document included in a manifold form.

Figure 2 shows the back of a document included in a manifold form.

Figure 3 is a cross section of a manifold form including a check and double faced carbon.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 shows the front surface 8 of a document 10 of a manifold form. The document may be a check, money order, or any paper with marked information on its front surface that is subject to being altered by an eraser. Normally, the information causing the most concern is the amount 12. Other selected information of concern could be the payee. Presently on a check, such as that shown in Fig. 1, the amount is marked or printed on the check by a check writer, such as that referred to previously. The check writer will impress the amount through a ribbon onto the surface 8 of the check. The check has a paper substrate 14 (Fig. 3). As mentioned previously, the surface fibers of substrate 14 are crushed and the ink penetrates the fibers. This is shown in more detail in Fig. 3.

Fig. 2 shows the amount 12 printed on the back surface 16 of the substrate in exact underlay position of the amount printed on the front of the money order. Marking of the amount on the back of the substrate is accomplished by the use of carbon paper with an inked surface beneath the back surface of the substrate. When the check writer prints the front surface of the substrate, the carbon paper marks the identical image on the back surface of the substrate. Fig. 3 provides more details of the document.

Fig. 3 shows a cross section of a manifold form 18 having a substrate 14 with a front surface 8 and a back surface 16. The manifold form also includes double faced carbon paper 22, record copy plies 24, 26 and carbon 30. Additional carbons and plies could also be used. As described in Fig. 1, a check writer uses pressure to imprint an amount on substrate 14 in area 26. The ink is pressed from the ribbon into the surface and then into the crushed fibers of the check. Because of the pressure the carbon 22 prints the exact image on the bottom surface of the substrate in area 28. The fibers are crushed and

ink is allowed to penetrate into the check substrate. Areas 26, 28 are part of substrate 14. The clear areas merely illustrate where ink would penetrate into the substrate.

5 The ink from the ribbon which penetrates the front surface of the substrate is normally an oil base ink which penetrates readily into the substrate fibers. The ink used in the carbon paper is a wax base pigmented ink which will penetrate the substrate fibers but not as readily as the oil based ink. An example of the substrate paper stock may be 20 lb. stock. Using this particular stock, the regions of penetration of ink 26 from the front surface and the region of penetration of ink from the back surface will not penetrate entirely through the substrate. However, experimentation has shown that the penetration from the front and back surfaces has been sufficient that alteration by erasure was not possible. The extent of penetration from the front and back surfaces will vary depending on the paper stock used, inks used, and check writers used.

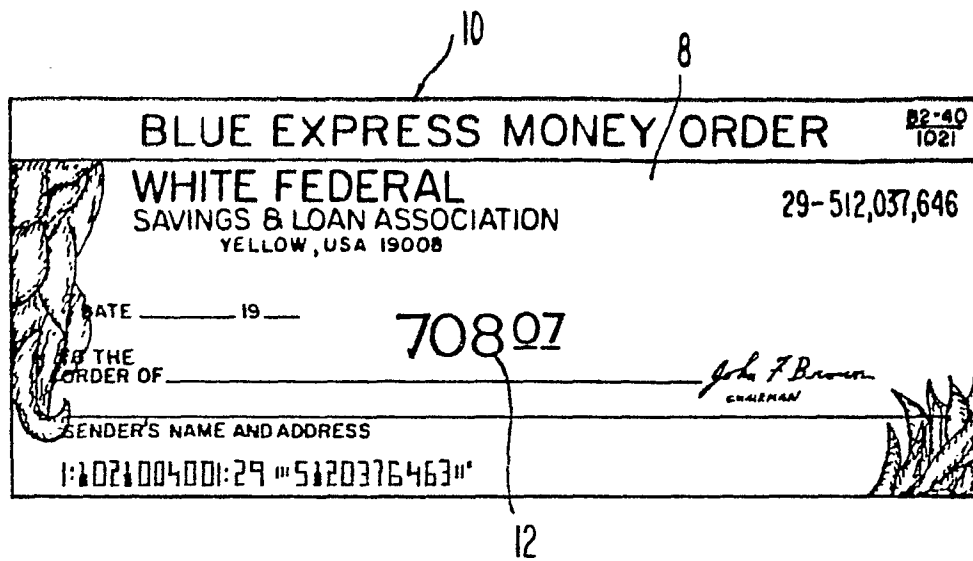
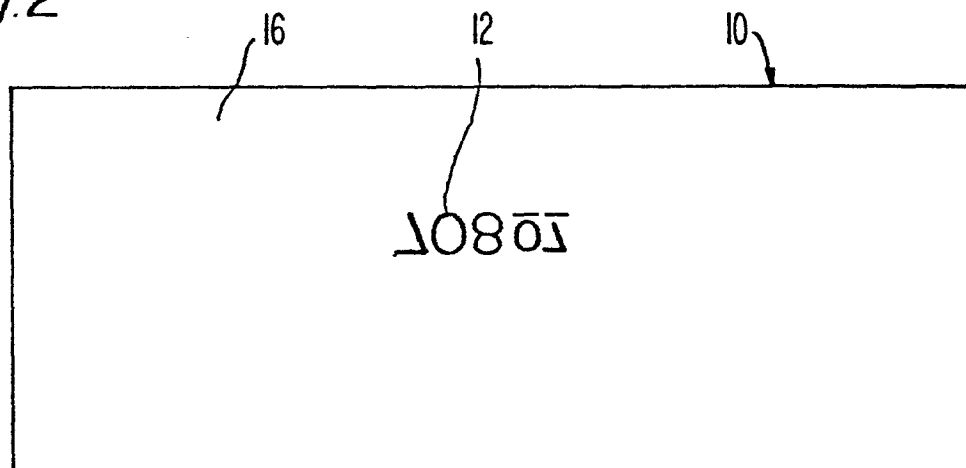
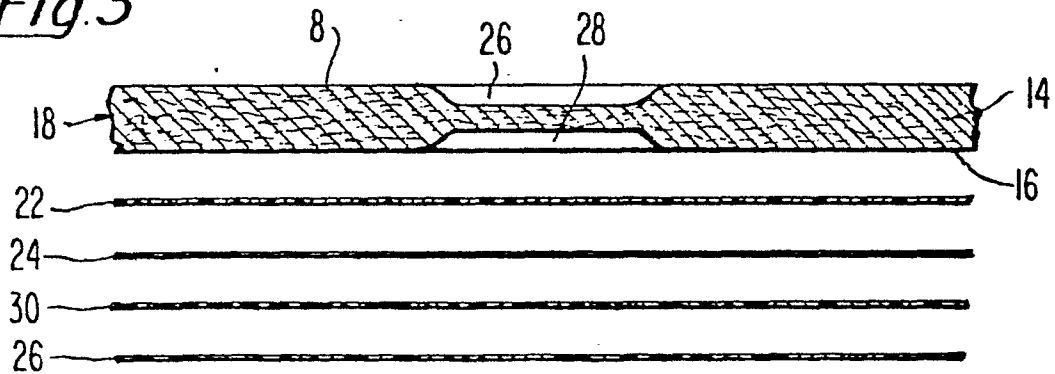
20 New formulas for ink are being developed which will assist the penetration of the ink and enhance the protection of the above technique. Dye inks with lowered viscosities and no pigment will absorb more readily through the substrate. These inks have more oil and less dye than typical inks in use now. With these inks, the areas of penetration 26, 28 in Fig 3 will overlap and increase protection against alteration.

25 Another embodiment of the present invention is to use a first color of ink for imprinting the front surface of the substrate and a second color carbon paper for marking the back surface of the substrate. For example, the check writer ribbon may print the amount 12 in black on the front surface of the substrate and the carbon may imprint the back surface of the substrate in red. If the black amount on the front surface is erased, the red will begin showing through, indicating that an attempt was made to alter the document.

-5-

## What Is Claimed Is:

1. In a document having a paper substrate with a front surface upon which information is marked in ink, said document is improved to resist alterations by erasure of selected information on its front surface, the improvement comprising:  
said substrate having a back surface upon which said selected information is marked in ink in identical underlay position as said selected information on said front surface, said ink penetrating said front and back surfaces into said substrate to an extent in said identical underlay position that said selected information on said front face may not be erased without damage to said substrate to expose ink penetration from said back surface.
2. The document of claim 1 in which the ink used to print said selected information on said front surface is a first color and the ink used to print said selected information in identical underlay on said back surface is a second color different from said first color, said second color showing through to said front surface if alteration of said selected information on said front surface is attempted by erasure.
3. The document of claim 1 in which said substrate is part of a manifold form, said manifold form including a carbon paper for marking said selected information in identical underlay on the back surface of said substrate.
4. The document of claim 3 in which said manifold form includes one or more plies, in addition to said substrate, said carbon paper being double faced to mark on the back face of said substrate and on one of said plies.

Fig. 1Fig. 2Fig. 3



European Patent  
Office

# EUROPEAN SEARCH REPORT

**0156463**

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 85300693.0
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int Cl 4)
A	<u>DE - A1 - 2 951 486</u> (GAO) * Claim 1; page 1, lines 1-21 * --	1	B 44 F 1/12 D 21 H 5/10
A	<u>US - A - 1 910 568</u> (SNYDER) * Page 1, lines 31-71 * --	1	
A	<u>US - A - 2 333 979</u> (REXFORD) * Claim * --	1	
A	<u>DE - A1 - 2 452 202</u> (WATERBURY) ----		
			TECHNICAL FIELDS SEARCHED (Int Cl 4)
			B 44 F 1/00 D 21 H 5/00
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 12-06-1985	Examiner SCHMIDT
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	