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DETECTOR FOR COUNTERFEIT MONEY

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FIG. 1

FIG. 2

FIG. 4

FIG. 3

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DETECTOR FOR COUNTERFEIT MONEY

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1 Claim. (Cl. 35—24)

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This invention relates generally to means for detecting and identifying counterfeit United States paper money, and more particularly to a method and device for identifying such spurious bills by means of the serial number and check letter on the bill.

Counterfeiting is a continuously existing evil which is as old as money itself. Although Treasury experts and certain others, such as bank personnel, who handle large quantities of money, are adept at detecting obvious counterfeits by visual inspection, the general public is not qualified to recognize spurious bills. The Government officials who are engaged in detecting counterfeiting have by repeated public announcements made it clear that the most effective method of apprehending counterfeiters is to detect the spurious money at the time it is given to storekeepers and the like. More often than not, it is impossible to trace the origin of the counterfeit bill if it is detected for the first time at a bank or by a Government expert.

It is the primary object of my invention to provide means for identifying and detecting counterfeit paper money which may be utilized effectively by members of the general public, such as storekeepers.

Another object of my invention is to provide a simple, non-technical method for detecting counterfeit bills.

Still another object of my invention is to provide a detecting device of the character described which is so inexpensive that it can receive wide distribution.

A further object of my invention is to provide a detector of the character described which is simple in construction and adapted to mass production.

Other objects and advantages of my invention will be apparent during the course of the following description. In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same.

Fig. 1 is a plan view of the face of a counterfeit money detector embodying the features of my invention.

Fig. 2 is a plan view of the blank out of which the detector of Fig. 1 is formed.

Fig. 3 is a rear plan view of the detector of Fig. 1 in the assembled unfolded condition.

Fig. 4 is a transverse cross-sectional view taken as indicated by line 4—4 of Fig. 1.

Referring more particularly to Fig. 2 of the drawings, I have shown a die-cut paper board blank 10 of generally rectangular form which is scored as at 11 and 12 to define a rectangular

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panel 13 and a rectangular panel 14. The blank 10, for convenience in manufacture, may be cut from an oversize sheet 15 of paper board stock, indicated by the dotted outline in Fig. 2.

One portion of the blank 10 is of slightly greater width than the remainder of the blank, and thus defines a panel 16 which is severed from the blank along the line 17. That portion of the blank which lies intermediate the score line 12 and the cutting line 17 forms a flap 18 as will appear more fully hereinafter.

The panel 14 has portions thereof removed to provide three horizontally aligned rectangular apertures or windows 19, 20 and 21, which are disposed substantially centrally of the panel 14, for a purpose to be described.

The panel 16 is slit as at 22 to provide a longitudinally extending opening in the panel. This slit is of predetermined length and does not extend to the margins of the panel, that is, it is not open at either end thereof. The slit 22 in effect provides a loop portion 23 on the panel 16.

The flap 18 is provided with two horizontally extending parallel slits 24 and 25 which terminate at the cutting line 17 so that when the panel 16 is severed from the blank 10, a tongue 26 is defined by the parallel slits 24—25.

In Fig. 3 I have shown one step in the assembly of the detector, the same being viewed from the rear prior to the final folding thereof. It will be seen that the blank 10 has now been severed into two separate sections, one section comprising the panels 13 and 14 and the flap 18, and the other section being the panel 16 which, as will become apparent, is a slide card and will be so referred to hereinafter.

The slide card 16 is assembled to the flap 18 by means of the tongue 26 which underlies the loop 23 of the card 16 and traverses the slit 22. It will be noted that the engagement of the tongue 26 with either end of slit 22 serves to limit the range of vertical movement of the slide card 16 relatively to the panel 14.

The flap 18, holding slide card 16, is then folded inwardly on score line 12 so that the tongue 26 lies adjacent the panel 14. The panel 13 is also folded inwardly toward panel 14 on score line 11 so that it overlies flap 18. An adhesive, or other similar securing means, is then utilized to secure flap 18 to panel 13, the resulting arrangement of parts being shown in section in Fig. 4 and in plan in Fig. 1.

Thus the panel 14 and the flap 18 and panel 13 form an open-end envelope 27 in which the slide card 16 is slidably received for vertical movement, as indicated by the dotted lines in Fig. 1. However, as aforementioned, the slide

card 16 does not have unrestricted vertical sliding movement but is limited in its movement by the tongue 26 which traverses the loop 23. The slit 22 is so positioned that it permits the card 16 to be moved downwardly until its lower edge is even with the lower edge of the envelope, but no further.

In this position of the slide card, the upper portion 28 thereof, projects from the envelope and serves as a convenient means for manually grasping it.

It will be noted that the tongue 26 lies horizontally below the apertures 19, 20 and 21 so that the tongue does not intercept these apertures when the device is assembled. Thereby, three isolated portions of slide card 16 are at all times simultaneously visible through the apertures.

On the face of slide card 16 are imprinted three columns 29, 30 and 31, of identifying characters. These columns are so positioned that column 29 is visible through window 19, column 30 is visible through window 20, and column 31 is visible through window 21.

On the exterior face of panel 14 is imprinted a rectangle 32 having dividing lines 33 which outline or frame the apertures 19, 20 and 21. Imprinted above each of the apertures is an identifying character and, as illustrated in Fig. 1, I have arbitrarily used the letters X, Y and Z to identify the windows 19, 20 and 21, respectively. Below windows 19 and 20 are printed the words "Key Number" and below window 21 are printed the words "Check Letter."

Now I will proceed to describe my method of identifying counterfeit currency and the manner in which the detector device is used.

Each bill which is issued by the United States Treasury carries on its face a serial number consisting of several numerals and one or more letters of the alphabet. Each bill also has in its lower right hand corner and in its upper left hand corner, a small characteristic letter of the alphabet. In genuine currency, the serial numbers and the characteristic letters bear a definite relationship to each other which can be expressed by the following mathematical formulae:

If S is the sum of the digits in a serial number, and M is the largest multiple of six which is less than S, then $S-M=Q$.

In those instances where Q and the serial number itself are both odd or both even, then Q is the numerical equivalent of the characteristic alphabetical letter appearing on the currency. That is, if Q is 1 then it represents the letter A; if K is 2, it represents B; etc.

In those instances where Q and the serial number itself are not both odd or both even, then Q is three less than the numerical equivalent of the characteristic alphabetical letter appearing on the currency. That is, if Q is 1 then the numerical equivalent of the alphabet is 4 or D; if Q is 2 it represents E; etc. Each alphabetical letter also has an alternate or substitute letter according to the following table:

Q letter	Alternate	Numerical Difference
A	G	6
B	H	6
C	I	6
D	J	6
E	K	6
F	L	6

From the foregoing data it will be apparent that Q ranges in numerical value from 1 to 6,

and that each value of Q represents a certain letter of the alphabet from A to F or their alternates from G to L.

Using this data, a genuine bill will have the following characteristic letters appearing thereon:

Q	Serial No. is—	
	Odd	Even
1	A or G	D or J
2	E or K	B or H
3	C or I	F or L
4	A or G	D or J
5	E or K	B or H
6 (or 0)	C or I	F or L

If the characterisic letter does not appear in upper left-hand corner on the currency, then the bill is not genuine.

The foregoing data is printed on the slide card 16, thusly: column 31 lists the various combinations of characteristic letters, column 30 lists values of Q matching those letters if Q and the serial number are not both odd or even, column 29 lists values of Q matching the letters if the serial number and Q are both either odd or even.

It will be apparent that as slide card 16 is moved vertically in the envelope 27, column 29 will appear in window 19, column 30 will appear in window 20 and column 31 will appear in window 21.

The detector can then be utilized to determine the genuineness of currency by proceeding as follows:

1. Add all the numerals in the serial number to obtain the sum.

2. Subtract from the sum the largest multiple of six which is less than the sum, to find the key number.

3A. Find the key number in "X" window if the key number and the serial number are both odd or even.

3B. Find the key number in "Y" window if one is odd and the other is even.

4. The check letters appear in "Z" window. If either of the check letters appear on the bill, it is genuine; if not, it is counterfeit.

Instructions, such as the above, could conveniently be printed on the outer side of panel 13.

This procedure can be applied specifically to the following typical examples. A $10 bill has serial number D75797729B. The sum of the number is 53, and 48, which is the nearest multiple of six, is subtracted therefrom leaving a key number 5. Since both the key number and the serial number are odd, the slide card 16 would be moved until 5 appears in window X. The letters E—K would then appear in window Z and one or the other of these letters will be the characteristic letter of the bill, if it is genuine.

Similarly to check a $5 bill having serial number R46477700A, it will be found that the sum is 35 from which is subtracted 30 to give a key number of 5. Inasmuch as the key number is odd and the serial number is even, the slide card 16 is moved until 5 appears in window Y, thus giving the characteristic letters B—H.

Similarly serial number R46477697A which is odd, would give an even key number, 2, and the characteristic letters would be E—K.

It will thus be apparent that my method of identifying a spurious bill is simple and can be easily used by non-experts. The detector device quickly correlates the necessary data and is so inexpensively made, that it is within the finan-

cial means of every person handling bills, and thus can receive wide distribution.

It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention, or the scope of the subjoined claim.

Having thus described my invention, I claim:

A detector of the character described, comprising an open-ended envelope, consisting of an apertured front panel, a back panel integral with said front panel, and a flap integral and coextensive with said front panel and secured to the inner face of said back panel, said flap having a linear longitudinally extending edge, a data card, visible through said apertures in said front panel, slidably contained in said envelope and longitudinally movable relatively thereto, said card having a longitudinally extending slit therein overlying said flap, and means traversing said slit and abutting one end of said slit when said card is aligned with an open end of said envelope, whereby to limit longitudinal movement of said

card, said means comprising a portion of said flap bounded by the longitudinal edge of said flap and parallel longitudinally-spaced slits extending from said edge to the juncture between said flap and said front, whereby the longitudinally extending marginal portion of said card which overlies said flap is spaced from said back panel by the thickness of said flap and is equally spaced from the front panel by the thickness of said means.

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