(54) Title of the Invention: A counterfeiting detection device
Abstract Title: Counterfeiting detection pen that can be worn on users finger

(57) A counterfeiting detection device comprises a reservoir 3 for holding liquid and a liquid dispensing nib (1, fig 2) the device can be worn on a user’s finger, thumb, wrist or hand; the device is preferably a ring or thimble shaped pen that includes a valve 5 to enable filling of the reservoir 3 with an iodine solution. Depositing the solution on a bank note will show whether it is real or counterfeit depending on whether the solution marks the note.
A COUNTERFEITING DETECTION DEVICE

Field of the Invention

5 The present invention relates to a counterfeiting detection device, more particularly but not exclusively a means of marking a banknote.

Background

10 Criminals have long tried to make counterfeit money, in particular banknotes. A number of specialist features are consequently included in banknotes today to ensure that it is very difficult to make one. However with improved printing facilities some Criminals have stepped away from trying to make a convincing replica of a note and simply make a copy of a banknote on standard wood based paper and hope to be able to introduce it to circulation with small amounts at a time.

Over recent years this has become an increasing problem with more and more counterfeit banknotes being found of all denominations. As illegal to hold, counterfeit money is recorded and returned wherein the banknote holds no monetary value.

20 Guidelines are provided on how to identify a counterfeit banknote and the recommended steps that should be taken to help reduce inadvertent acceptance of a counterfeit banknote, for example key features to identify on the banknote and counterfeiting detection aids, such as ultraviolet (UV) lights and identifier pens.

25 In particular in work environments such can be time consuming steps for a user and viewed as undesirable in high pressure environments when the user may be busy with customers or clients and lacking time.

30 However potential losses to any business or user are considerable and it is therefore preferable to make arrangements for all banknotes to be checked so as to avoid problems. Consequently additional staff may be required to do this, leading to additional expense.
The present invention therefore arose in order to overcome problems associated with identifying counterfeit notes by providing a means of quickly identifying counterfeit banknotes from genuine ones.

5 **Prior Art**

Accordingly a number of patent applications have been filed in an attempt to resolve the problem or similar, including the following:

10 Chinese patent application CN 101 908 240 (LIU et al) relates to a handheld currency detector, which comprises a light source system, a photoelectric translating system, a master control processing system, a signal recognition system, a warning system and a power supply transition system. The miniaturized handheld currency detector performs identification by adopting an infrared signal, processes the infrared signal for the first time, and performs recognition by combining ultraviolet recognition. A specific anti-counterfeit material is adopted in a specific region of Renminbi to prevent counterfeiting. In the handheld currency detector, the anti-counterfeit material is detected, and the interference of system error, environment error and personal error is eliminated through an analytical decision rule in a signal processing system to distinguish the true and false of paper money accurately.

United States patent application US 2010 067 776 (DOBBS) discloses a counterfeit currency detector, comprising: a detector body having a forward end and a rearward end and a middle body by which the detector is configured to be held by in a user's hand; an ultraviolet light source assembly mounted at the forward end of the detector body; and a counterfeit solution applicator mounted at the rearward end of the detector body, to enable the user to use either or both of the ultraviolet light source assembly and the solution application to test currency.

30 Chinese patent application CN 1 234 425 (XIA) discloses a chemical reagent for money-checking pen is a water-soluble reagent prepared by using iodine as oxidant, using ethyl alcohol as solvent and adding glucose of low concentration through a certain preparation process. Said reagent is mutually exclusive with printing ink of true money, so that it does not display mark, but said reagent possesses affinity interaction with the printing ink of forged money, and produces oxidation reaction and
can display blue mark, so that it can conveniently and quickly identify true money from forged one.

In contrast the present invention provides a simple to use means of ensuring that false or counterfeit banknotes in particular are easily identified.

**Summary of the Invention**

According to the present invention there is provided a counterfeiting detection device comprising: a reservoir for holding liquid, a filler and a liquid dispensing nib, and a mounting wherein said mounting allows said device to be hand mounted in use.

In preferred embodiments the device’s mounting is on or comprises an annular ring worn on a finger or thumb of a user to avoid requirements for the user to have to hold or manipulate the device, freeing the user to be able to hold a banknote or banknotes or money and count and check money naturally and easily.

For example the user is enabled to run money through their hand smoothly in plural repetitive movements.

More particularly the device may be situate in use in a natural location for passage of money through the user’s hand so as to allow the money to be passed past the device.

In this way the device additionally or alternatively serves as a visual indicator to people attempting to use counterfeit money, that the money is being checked, so as preliminary discouragement to use such money.

Advantageously the ring has a body that is tubular and/or hollow and therefore the body may serve as the reservoir, being capable of holding liquid such as ink.

Ideally the ink is adapted to change colour in response to properties of the banknote so as to identify a counterfeit. For example the ink may include an iodine solution such as causes a visible mark if applied to wood-based paper, but not if and when applied to fibre based paper such as in use for banknotes.
In some preferred embodiments the ring may be flexible, or including flexible portions, typically formed of a resiliently deformable, durable material such as rubber, silicon or elastomer so as allow the ring to be fitted to different sizes, fingers and thumbs and so as to be comfortable for differing users to wear.

Use of rubber or silicon for the ring may also assist the user to separate the banknotes whilst counting by making separation quicker and more accurate.

Preferably the ring has at least one opening or channel into the reservoir to enable the reservoir to be filled and to allow ink to be dispensed. In preferred embodiments the ring therefore has at least two openings, said openings being the filler and the nib.

Ideally the nib is positioned distally on at least one finger or thumb in use so as to be easily connected with banknotes. Typically the filler is positioned distally to the nib.

In some embodiments the filling and dispensing opening or openings may be combined at a valve.

In preferred embodiments the openings are encased, embedded or defined by similar cuff mountings around the ring said cuff ideally a rigid portion formed of a synthetic plastic or carbon.

Typically the cuff or cuffs serve/s to support the opening or openings to the reservoir so as to create a reinforced opening that is not liable to be bent or twisted due to movement of the user, which movement may compromise filling or dispensing of liquid. The cuffs also extend around part of the ring, so as to help protect the reservoir.

Ideally the cuff is arcuate so as to match curvature of the ring. Preferably each mounting is formed of at least two parts, or into halves, so as to be able to be placed over the ring without requirements for the ring to split. Both halves may be connected by means of a clip-fitting or detent mechanism.
In some embodiments the halves or parts may be incomplete, or spurs, which are discontinuous across a finger or thumb, in use for example being formed of such as spring biased resiliently deformable members.

5 In preferred embodiments the filler includes a valve so as to be able to accept liquids such as ink but to limit loss of liquid in use. Preferably the valve is glued to the ring by use of adhesive so as to keep the valve in position.

In preferred embodiments the reservoir is capable of being refilled. Ideally refills are facilitated by a secondary and/or remote store, said store which has a channel through which the liquid can be passed from the store to the reservoir.

Typically the channel has a nib which is inserted on the filler so as to allow transfer of liquid through the channel. It is envisaged that the reservoir may be squeezed in order to force liquid through the channel to the store.

Preferably the nib opening a porous pad for absorbing and holding liquid; until the pad is applied to or against a surface wherein the liquid may be transferred for example to the note.

20 Ideally the nib has a cap which may be added when the device is not in use, so as to prevent the pad from drying up and from any ink being lost. In preferred embodiments the cap may be hinged, removed and attached to the filler. Preferably the cap fits to the filler by means of a detent mechanism or push fitting.

25 In some embodiments the filler includes a lid to protect the opening and in particular the valve. Preferably the lid may be adapted so as to accept the cap from the nib.

Alternatively or additionally the cap may also be adapted so as to accept the lid.

30 In another embodiment the device may be in the form of a thimble placed on the thumb or finger of the user. Ideally the thimble is formed or a durable, resiliently deformable material such as rubber or silicon.

35 In preferred embodiments of the thimble a distal tip of the thimble may include the reservoir that may be refilled from within the thimble. Typically the nib is mounted
exterior to the thimble to allow for improved dexterity, enabling the user to be able to apply ink by pressure through finger-tip or -tips.

**Brief Description of Figures**

5 Figure 1 shows an isometric view of a preferred embodiment of the device with cap over nib;

Figure 2 shows an isometric view of the embodiment of Figure 1 with the cap removed from the nib;

Figures 3 show side views of the embodiment of Figure 1 with cap removed and over nib respectively;

Figures 4 show end views of the embodiment of Figure 1 with cap removed and over nib respectively;

and

Figures 5 show end views of the embodiment of Figure 1, focusing on filler, nib with cap over, and nib with cap removed respectively.

**Detailed Description of Figures**

25 The pictured and preferred embodiment of the counterfeiting detection device is a thumb/finger attachment with a marker that when used to mark money, will identify whether or not the money is counterfeit. In this way money or banknotes is marked whilst holding or counting the banknotes; negating a need to constantly have to reach for a marker pen. The process of marking the money is automatically made a lot easier due to the attachment to the finger/thumb.

The pictured and preferred embodiment includes the following:

Felt tip nib 1, Figure 2, located wherein ink seeps through felt tip giving an even distribution of ink;
Cap 2 to ensure the nib and ink do not dry out. In some embodiments the cap is on a live hinge to go over the nib;

Reservoir 3 of transparent material to allow user to see how much ink is left;

Hollow elastic or silicon tubing body 4 to help dispense ink, wherein said silicon body forms an entire circumference of the device and allows ink to flow down to the nib;

One way valve filler 5 allows ink to be injected into reservoir through pipette or dispenser;

The device is attachable to any finger or thumb, depending on how the user counts their money so as to provide a thumb or finger attachment designed to hold and dispense an iodine solution commonly used to detect counterfeit bank notes.

The product allows the user to mark the notes with the iodine solution whilst holding or counting the money; eliminating the need to continually reach for a marker pen to check each note which consequently speeds up the process.

The above listed parts are ideally ultrasonically welded together around the body giving strength and support.

The user applies pressure to the nib to release the ink onto a bank note, and in some embodiments where ink is depleting is able to place pressure on the body to encourage ink release.

In use the user will: place the device on a desired finger or thumb; connect a nozzle of a refill bottle to the one way valve and squeeze to fill the inner chamber; remove the nib cap from the nib and click it over the one way valve to keep safe whilst the device is in use; begin counting and checking the money; and when finished replace the cap over the nib to prevent ink drying out.

The device allows the user to mark the notes with the iodine solution whilst holding or counting the money; eliminating the need to continually reach for a marker pen to check each note, which consequently speeds up the process.
The parts would be ultrasonically welded together around the rubber tube giving strength and support.

The invention has been described by way of examples only and it will be appreciated that variation may be made to the above-mentioned embodiments without departing from the scope of invention.

With respect to the above description then, it is to be realised that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.
Claims

1. A counterfeiting detection device comprising: a reservoir for holding liquid, a liquid dispensing nib, and adapted to be worn on the hand, wrist or one or more fingers or and/or thumb.

2. A counterfeiting detection device according to claim 1 which is substantially annular or arcuate or having a mounting portion which is annular or arcuate.

3. A counterfeiting detection according to claims 1 or 2 having a valve for filling the reservoir.

4. A counterfeiting detection according to any of claims 1, 2 or 3 having a porous nib.

5. A counterfeiting detection according to any of claims 1, 2, 3 or 4 wherein the reservoir holds iodine solution.

6. A device as claimed in any preceding claim which is worn by a user like as a ring.

7. A method of monitoring banknotes or certificates by utilising a device as claimed in any preceding claim.

8. A system of monitoring banknotes with reference to the figures.
### Patents Act 1977: Search Report under Section 17

**Documents considered to be relevant:**

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<tr>
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<td>1-7</td>
<td>US 5391010 A (GORBUNOV) See whole document especially the figures.</td>
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<td>US 4127338 A (LAYBOURNE) See whole document especially the figures.</td>
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<td>US 5662735 A (PIFFERI) See whole document especially column 2 lines 3-8.</td>
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<td>US 5261954 A (COLLINS) See whole document especially column 5 lines 8-14.</td>
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<td>US 5063163 A (CARMELI) See whole document especially column 3 lines 6-13.</td>
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**Categories:**
Field of Search:
Search of GB, EP, WO & US patent documents classified in the following areas of the UKC:

Worldwide search of patent documents classified in the following areas of the IPC
B43K; G07D

The following online and other databases have been used in the preparation of this search report
EPODOC, WPI

International Classification:

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