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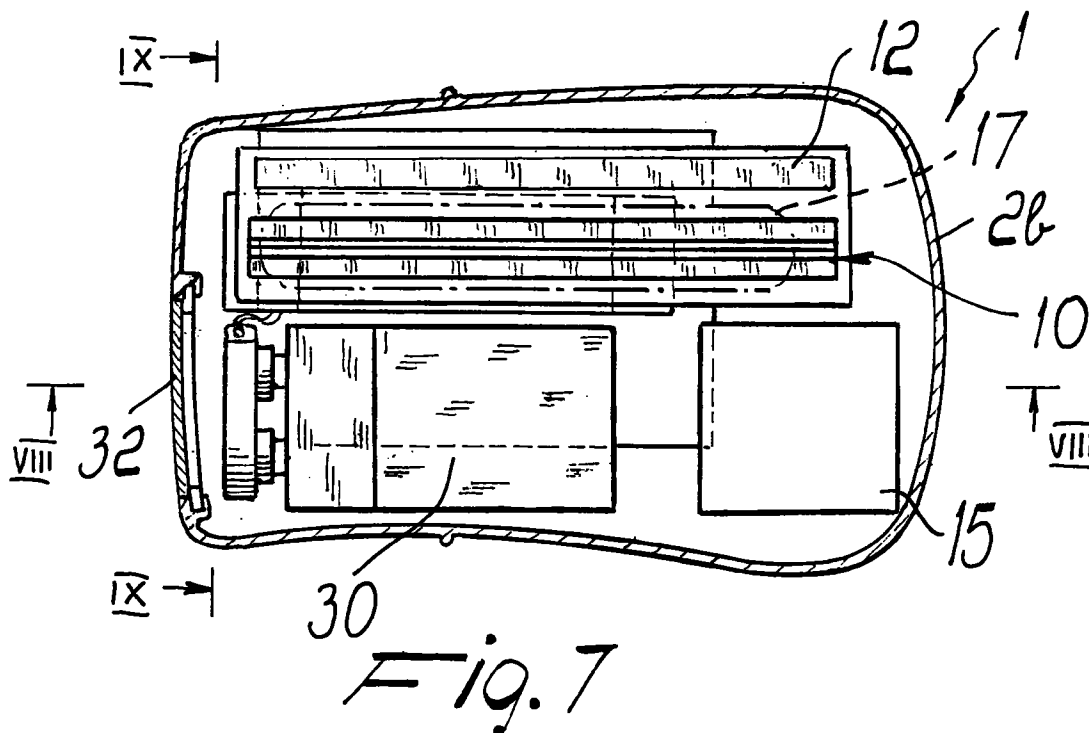
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(54) **Device for reading and validating documents in general which are provided with magnetic bar codes and the like**

(57) A device for reading and validating documents in general which are provided with magnetic bar codes and the like, comprising a casing (2) which can be moved manually over a document to be validated and supports, in a lower part thereof, a magnetic reading

head (10) flanked by a permanent magnet (12). The magnetic reading head (10) is operatively connected to a data processing unit (15) which is connected to a display accommodated in the casing (2).



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Description

[0001] The present invention relates to a device for reading and validating documents in general which are provided with magnetic bar codes and the like.

[0002] Documents in general and particularly bank notes are conventionally validated by using devices which are not always able to fully guarantee the authenticity of the document.

[0003] In particular, so-called black-light lamps are currently used which by virtue of the particular optical effects that are produced are able to indicate to an expert whether the document is false or genuine.

[0004] So-called pen systems are also available which detect the presence or absence of magnetic particles provided on wires arranged within the document, but in this case too they do not allow to identify the specific document.

[0005] A prior patent in the name of this same Applicant (Italian patent No. 1,249,581), assumed included herein as reference, describes a device which allows to recognize and read bands with magnetic bar codes arranged within bank notes.

[0006] This device, which has proved to be valid from many points of view, is however not very handy, since it entails a fixed structure or base on which a slider is made to slide; the bank note is placed inside said slider and is thus read by the device.

[0007] This device cannot be transported easily, since although it has a compact size it is not of the so-called pocket type.

[0008] The aim of the invention is to solve the above problems by providing a device for reading and validating documents in general which are provided with magnetic bar codes and the like which can be handled very simply and quickly by being of the pocket type and also allows to perform a reading which identifies the type of document in which the magnetic bar code is included.

[0009] Within the scope of this aim, a particular object of the present invention is to provide a device in which it is possible to neutralize any forgeries in which the magnetic code is applied by means of a recording, for example of the audio type, on a magnetic band, since the device is capable of automatically erasing conventional magnetic tapes.

[0010] Another object of the present invention is to provide a device which by virtue of its particular constructive characteristics is capable of giving the greatest assurances of reliability and safety in use.

[0011] Another object of the present invention is to provide a device which can be easily obtained starting from commonly commercially available elements and materials and is also competitive from a purely economical point of view.

[0012] This aim, these objects and others which will become apparent hereinafter are achieved by a device for reading and validating documents in general which are provided with magnetic bar codes and the like,

according to the invention, characterized in that it comprises a casing which can be moved manually over a document to be validated and supports, in a lower part thereof, a magnetic reading head flanked by a permanent magnet, said magnetic reading head being operatively connected to a data processing unit which is connected to a display accommodated in said casing.

[0013] Further characteristics and advantages of the present invention will become apparent from the following detailed description of a preferred but not exclusive embodiment of a device for reading and validating documents in general which are provided with magnetic bar codes and the like, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a schematic perspective view of the device of the invention with the electric power source extracted from it;

Figure 2 is a view of the device arranged next to a document to be validated;

Figure 3 is a view of the device, taken from its bottom face;

Figures 4, 5 and 6 are sequential views of the steps for using the device, which is moved over the document to be validated at the region where the wire with the magnetic bar codes is arranged;

Figure 7 is a schematic plan view of the device according to the invention, with part of the casing removed;

Figure 8 is a schematic sectional view, taken along the plane VIII-VIII of Figure 7; and

Figure 9 is a schematic sectional view, taken along the plane IX-IX of Figure 7.

[0014] With reference to the above figures, the device for reading and validating documents in general which are provided with magnetic bar codes and the like, according to the invention, generally designated by the reference numeral 1, is constituted by a casing 2 which is provided by means of two half-shells, an upper one 2a and a lower one 2b, which are mutually coupled and preferably have an ergonomic shape.

[0015] The casing 2 has, in its lower part, a window 3 which is closed by a covering plate 4 and whereat a magnetic reading head 10 is provided which reads the code; said head is flanked by a permanent magnet 12 which is meant to orientate codes formed with magnetic material and at the same time erase any forgeries caused by signals recorded on conventional magnetic wires.

[0016] The magnetic head 10 is operatively connected to a data processing unit 15 which drives a display 16 arranged at an opening 17 provided on the upper half-shell 2a of the casing.

[0017] It should also be noted that in order to make the device compact and monolithic an electronic circuit board 6 is provided to which the magnetic head 10, the data processing unit 15 and the display 16 are rigidly

connected.

[0018] A power-on switch 20 is furthermore provided on the upper half-shell 2a of the casing and allows to switch on the device and optionally switch it off; the device is provided with a timer which performs automatic power-off if it is not used for a preset period of time.

[0019] The data processing unit 15 is powered by means of a battery 30 which is accommodated in a compartment 31 formed inside the casing 2 and closed by a cover 32.

[0020] In practical use, it is sufficient to make the casing slide so as to arrange the reading head at the code, so as to read the code. By means of the data processing unit 15, a message related to the document, for example the value of the bank note if the document is a bank note, appears on the display.

[0021] Advantageously, an acoustic indication which is different according to the value of the bank note is also emitted in addition to the display.

[0022] It should also be noted that the device is particularly adapted to read and decode security wires used in bank notes which have magnetic codes, for example, illustrated in EP-0 310 707.

[0023] The device is furthermore provided with dedicated programs which allow to read security wires provided by discontinuous deposition of oxide, such as for example the I.M.T. code.

[0024] The device allows to decode magnetic codes provided both on a surface and on a medium which is then inserted in another support, such as for example paper or plastics; reading and decoding can in fact occur both by direct contact and at a distance.

[0025] From the above description it is evident that the invention achieves the intended aim and objects and in particular the fact is stressed that a device for reading and validating documents in general which are provided with magnetic bar codes and the like is provided which, by having a compact size, is portable and can be used easily simply by moving it over a document without requiring the availability of static devices or in any case of devices which are bulky or difficult to use.

[0026] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

[0027] All the details may also be replaced with other technically equivalent elements.

[0028] In practice, the materials employed, as well as the contingent shapes and dimensions, may be any according to requirements.

[0029] The disclosures in Italian Patent Application No. MI97A002247 from which this application claims priority are incorporated herein by reference.

[0030] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting

effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A device for reading and validating documents in general which are provided with magnetic bar codes and the like, characterized in that it comprises a casing which can be moved manually over a document to be validated and supports, in a lower part thereof, a magnetic reading head flanked by a permanent magnet, said magnetic reading head being operatively connected to a data processing unit which is connected to a display accommodated in said casing.
2. The device according to claim 1, characterized in that it comprises a circuit board to which said magnetic reading head, said data processing unit and said display are rigidly fixed.
3. The device according to claim 1, characterized in that said casing, in the lower part thereof to be placed in contact with the document to be validated, has a window whereat said magnetic reading head and said permanent magnet are arranged.
4. The device according to claim 1, characterized in that said window is closed by a covering plate.
5. The device according to claim 1, characterized in that said display is arranged on an opposite part of said casing, with respect to said lower part thereof, at an opening provided in said casing.
6. The device according to claim 1, characterized in that it comprises, inside said casing, a battery for supplying power to said data processing unit, said magnetic reading head and said display.
7. The device according to claim 1, characterized in that it comprises an acoustic emitter which is controlled by said central data processing unit and is suitable to emit a sound which corresponds to the type of document that has been validated.
8. The device according to claim 1, characterized in that said magnetic reading head is suitable to read magnetic codes arranged on the surface of said document and on a medium inserted within said document.
9. The device according to claim 1, characterized in that said casing has an ergonomic shape.
10. The device according to claim 1, characterized in that said casing is formed by two mutually coupled half-shells.

11. The device according to claim 1, characterized in that it comprises a power switch on said casing, on the face provided with said display.

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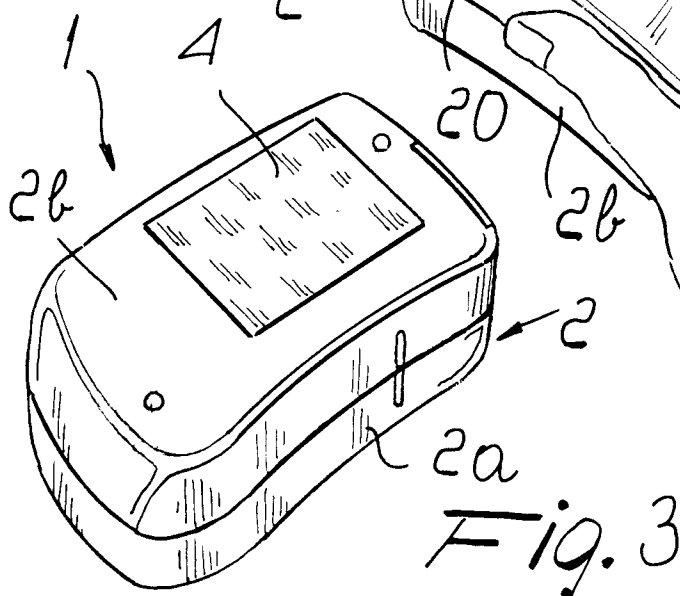
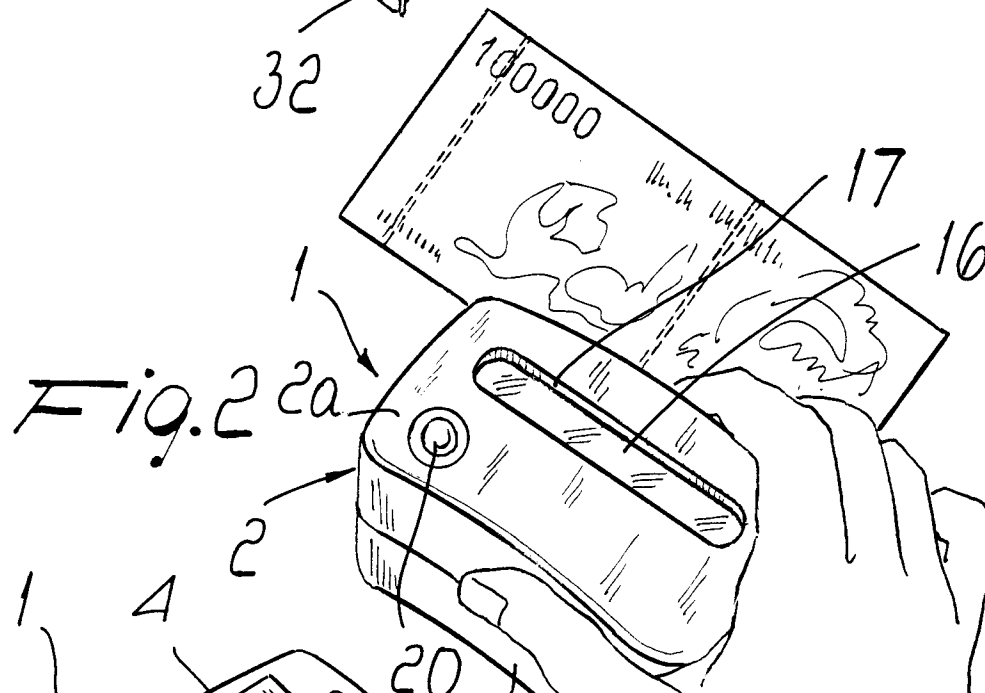
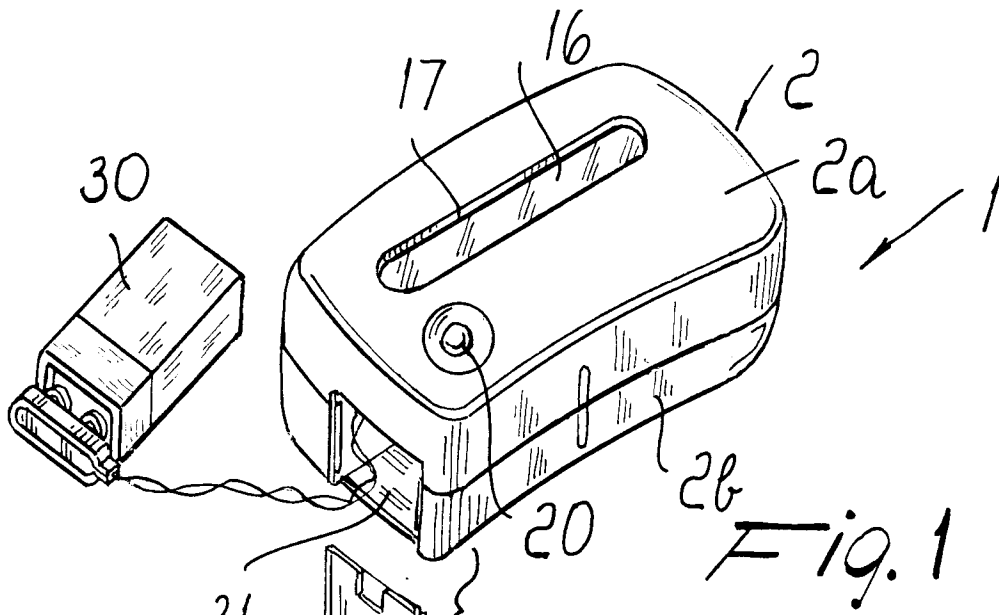
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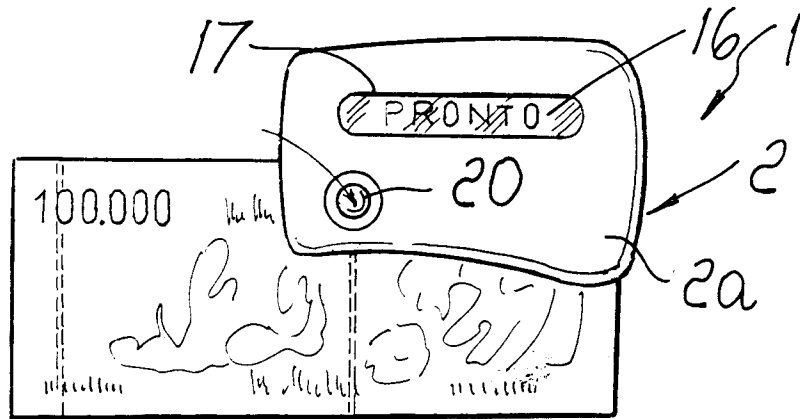


Fig. 4

Fig. 5

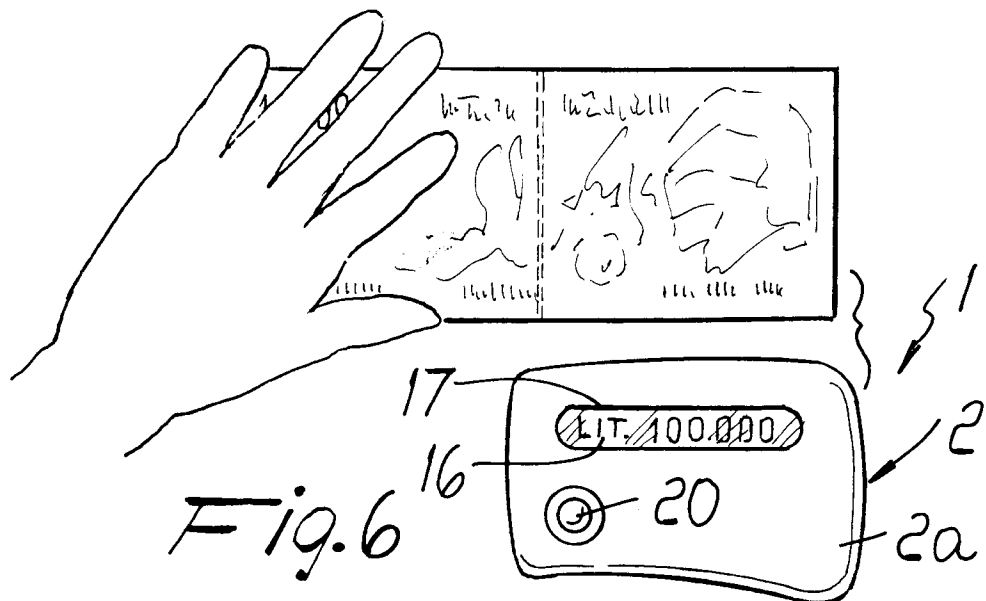
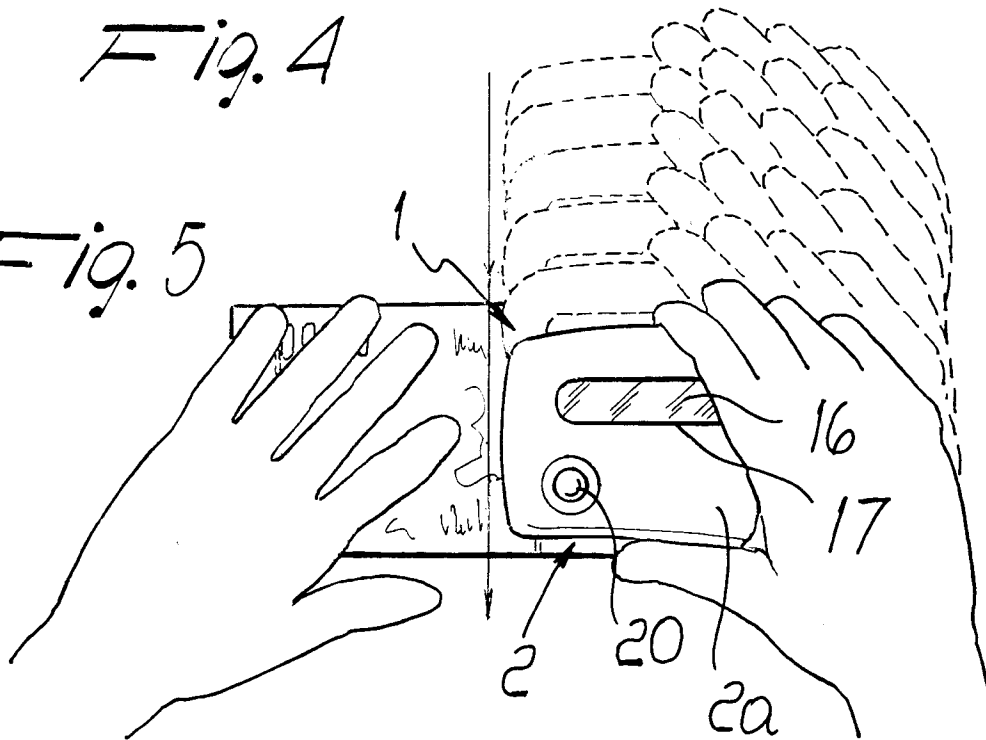


Fig. 6

