AUTHENTICATION SYSTEM FOR SPECIFIC SPECTRUM

PATENTED TECHNOLOGY

CONTACT DETAILS:

Research Results Transfer Office-OTRI
University of Alicante
Tel.: +34 96 590 99 59
Email: areaempresas@ua.es
http://innoua.ua.es

ABSTRACT

The research group has developed a new system of authentication for specific spectrum in document security and authentication of all products type (tickets, passport, drugs, credit cards, clothes, handbags, belts, shoes, glasses…).

It is characterized for a non limitations of existing anti-piracy systems in a way very simple.

This will make use of a new strategy of marking and recognition.

INTRODUCTION

A lot of systems and devices are currently used to authenticate documents and products. For example:

HOLOGRAPHIC STICKERS: identified as genuine any object that is adhered to only look at the sticker and observe its multidimensionality.

- Disadvantages: although the technology needed to manufacture holographic is not public available, but it is available in the industrial level, making it possible falsification of the sticker. And the copying digital images facilitates their reproduction. Other problem is that objects or documents can be replaced while retaining the original holographic sticker.

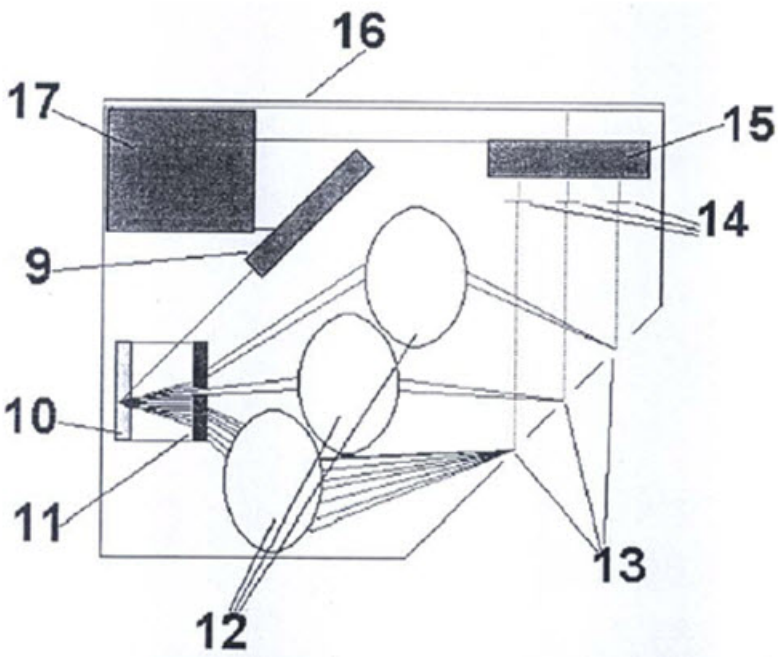
BRANDS WITH FLUORESCENT PIGMENTS: These pigments absorb only within the ultraviolet spectrum and emit in the visible. Although they are undetectable to the human eye in standard lighting conditions, its authenticity can be verified easily by exposing this system to ultraviolet light.

- Disadvantages: is easy to obtain commercial fluorescent pigments, so the technical difficulty of this measure is invalid. While ultraviolet light is a low cost and there is a wide availability, is not used as a source of illumination usual, so it only protects you from counterfeiting to those who have these type of sources.

TECHNICAL DESCRIPTION

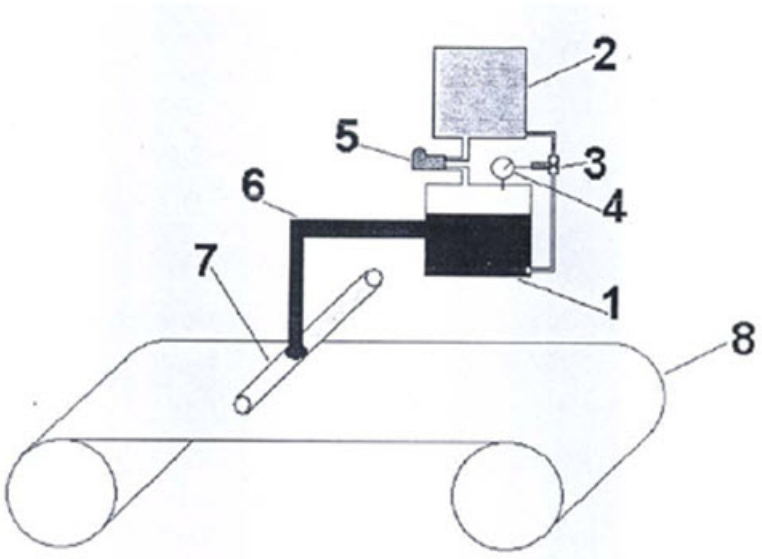
It is an authentication system for specific spectrum in document security and authentication products. Allows identify specific spectrum emitted by the original object, as well themselves as belonging to the object or additives put into it.

The device is constituted by nine pieces that attached to one another, that make the authentication system. They can distinguish the optical components (quartz lenses, monochromator, etc.), and electrical components (diode laser, CCD sensors, processors, monitors, power sources, etc.).



Authentication system for specific spectrum mounted with all its parts.

To detect if a document is genuine or false, it is marked with deuterium at the time of manufacture (for do it used carbonic acid from heavy water chilled with high-pressure carbon dioxide). The brand will be of a size of approximately 100 microns in an easily identifiable point of the document.



Deuterium marking system.

To determine its authenticity, that point is placed in the windows of exposure and there is a display system. If the document is original, will be seen clearly from a peak absorbance at 656.12 nm, while around that point the graph be flat.

And, it is possible to create multiple brands that are used for checking the authenticity at different levels (for the manufacturer, distributor, seller and user), assuring each level a system of independent guarantee.

Therefore, identification of the object will not be based on identifying the authenticity of a sticker attached to it, but the spectrum is typically following exposure to a monochrome laser.

TECHNOLOGY ADVANTAGES AND INNOVATIVE ASPECTS

ADVANTAGES:

· The marking is done at the microscopic resolution and capable of resolving its wide spectrum of Armstrong, allowing reduce the chance of detecting the mark by the forger in order of one billion.

· The optical increased use resolutions that can obtain the order of particles per million, making it possible to expose and make a minimum area of the same, and in a very tenuous.

· The difficulty of obtaining deuterium in a illegal market, coupled with the difficulty to distinguish it from conventional hydrogen and wide area given its application to analyze microscopic, mean that these brands are virtually undetectable without information from the manufacturer, who also can make each document / object in a different way.

INNOVATIVE ASPECTS:

It presents a new strategy to identify the authenticity of products and / or documents.

Instead of marking the objects that are intended to protect with marks clearly visible, are marking these objects in a timely manner, so that only the manufacturer knows where to look for marks (and the latter providing the information to each customer in a timely manner). It gets so each product can be marked in different ways, so that counterfeiting is impossible, since the anti-piracy measures only known manufacturer.

CURRENT STATE OF DEVELOPMENT

Have been successfully carried out all technical tests that determine the proper functioning of the system.

MARKET APPLICATIONS

This new authentication system can be applied to any type of product and / or document, by far surpassing the limitations of the methods used at present. Used, for example, to prevent counterfeiting of:

· Paper money.
· Passports.
· Drugs (vaccines, viagra, etc.).
· Credit cards.
· Fashion (brand clothing and accessories).
· Shoes.
· Glasses.
· Other...

Using this technology, various business sectors can benefit from the advantages of this system.

COLLABORATION SOUGHT

The research group seeks companies interested in acquiring the technology for exploitation. To that, he was prepared to sign any of the various forms of technology transfer (license, assignment, etc.).

INTELLECTUAL PROPERTY RIGHTS

The technology is protected under patent:

- Patent number: ES2259519.

- Title: Sistema de autentificación por espectro concreto.

MARKET APPLICATION (3)

Footwear and Textile