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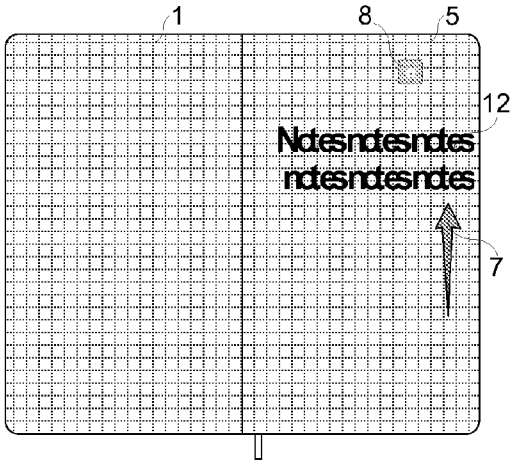

Fig.7

(57) Abstract: Notebook comprising a plurality of pages (1) of paper bound together with a cover (2), in which a plurality of substantially vertical and/or substantially horizontal lines are printed on the pages (1) and are formed by a plurality of dots (5) aligned with each other, which have a maximum dimension, in particular diameter, comprised between 0,21 and 0,35 mm, the distance between two adjacent dots (5) of a same line being comprised between 0,43 and 0,7 mm and the color of the dots (5) being darker than the color of the page (1), in which the sum of the four quadrichrome CMYK values of the color of the page (1) is comprised between 0 and 20, in particular comprised between 10 and 20, with the K value less than 10, and the sum of the four CMYK values of the color of the dots (5) is comprised between 15 and 50, in particular between 25 and 40, with the value K less of 40. The present invention also relates to a method for digitizing notes by means of said notebook.

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NOTEBOOK AND METHOD FOR DIGITIZING NOTES

The present invention relates to a notebook particularly suitable for the digitization of the notes taken on its pages. The present invention also relates to a method for digitizing notes by means of said notebook.

In known methods for digitizing notes a user photographs with a digital camera notes on a page of a notebook, after which the digital image of this page is processed by a local or remote computer to convert the notes into digital data. These known methods suffer from conversion errors of the notes due not only to the inevitable low graphic quality of the notes, which are written by hand, but also to chromatic aberrations, distortions, misalignments, light variations and/or other errors induced in the image of the notebook page photographed by the digital camera.

As a matter of fact, the conversion of the pages of a notebook using a digital camera requires algorithms for the conversion of the notes which are substantially different from those used for the conversion of notes written on single pages, namely unbound, acquired by a scanner, wherein said conversion errors not are present since the single pages remain still, flat and in close contact with a scanner during their conversion, which however is not possibile by photographing pages of a notebook, which tend to bend due to the binding and always have light, distance and angle variations with respect to the digital camera. To overcome these drawbacks conversion algorithms could exploit the horizontal and/or vertical present in the known striped or checked notebooks, however in this case the lines would be confused with the notes, or vice versa, creating further conversion errors.

Object of the present invention is therefore to provide a method for digitizing notes that is free from such drawbacks. Said object is achieved with a notebook and a method whose main features are specified respectively in claims 1 and 8, while other features are specified in the remaining claims.

Thanks to the particular lines formed by dots which in turn have particular colors, sizes and distances, the notebook according to the present invention can be advantageously used to take notes that can be converted into data in a much more precise way compared to known notebooks and methods. In fact, these particular lines

are not confused with the notes, even in difficult lighting and orientation conditions, so that they can serve as a guiding grid both to write the notes in an neat manner and to correct any conversion errors due to the binding or to the inclination of the notebook pages.

According to a particular aspect of the invention, the notebook is provided with sheets of special adhesive labels that can be converted into digital commands together with the notes. With this arrangement the notebook, while being free of electrical or electronic elements, is transformed into a complete input device not only of data but also of commands, which also allows inexperienced users to interact in an advanced manner with electronic devices and systems (smartphones, tablet PCs, data servers, cloud and web applications, etc..), in particular to log in or activate these systems, or to catalog and/or format the acquired data, which can then be easily stored in local and/or remote databases.

The present invention also relates to particular ranges of values of the colors of the pages, lines and labels, which have provided unexpected and surprising results in terms of conversion precision of the photographed images, namely of reduction of the errors due to possible mutual confusions between notes, lines, adhesive labels and light reflections on the pages of the notebook.

Further advantages and features of the notebook and the method according to the present invention will become apparent to those skilled in the art from the following detailed and non-limiting description of an embodiment thereof with reference to the attached drawings in which:

- Figure 1 shows a top view of the closed notebook;
- Figure 2 shows a side view of the notebook of Figure 1;
- Figure 3 shows a top view of the notebook of Figure 1, when opened;
- Figure 4 shows the enlarged detail IV of Figure 3;
- Figure 5 shows a sheet of adhesive labels;
- Figure 6 shows a detail of a page of the notebook of Figure 1; and
- Figure 7 shows the notebook of Figure 3 with some notes and labels.

Referring to Figures 1 to 3, it is seen that the notebook comprises a plurality of pages 1 of paper, bound together with a cover 2 which can be provided with an elastic

tape 3 to keep the notebook closed. The notebook may also include a bookmark 4. A plurality of substantially vertical and/or substantially horizontal lines are printed on pages 1.

Referring also to Figure 4, it is seen that said substantially vertical and/or substantially horizontal lines are formed by a plurality of dots 5 aligned with each other, which have a maximum size, in particular a diameter, comprised between 0,21 and 0,35 mm. The distance between two adjacent dots 5 of a same line is comprised between 0,43 and 0,7 mm. The color of dots 5 is darker than the color of the page 1. The color of page 1 is white or a color tending to white, particularly ivory, light beige or vanilla, preferably the color PANTONE 11-0104 TPX. The sum of the four quadrichrome CMYK values (percentages of cyan, magenta, yellow and black) of the color of page 1 is comprised between 0 and 20, in particular between 10 and 20, with the fourth value K (black) less than 10. The sum of the four CMYK values of the color of dots 5 is instead comprised between 15 and 50, in particular between 25 and 40, with the fourth value K (black) less than 40. The difference between the sums of the CMYK color values of dots 5 and of page 1 is greater than 10. The four CMYK values of the color of dots 5 are preferably comprised between 0 / 3 / 6 / 16 and 0 / 5 / 11 / 23, namely between the colors PANTONE 400 U and 401 U.

Referring to Figure 5, it is seen that the notebook is also provided with one or more sheets 6 comprising one or more adhesive labels 7, 8 which can be detached from a sheet 6 and applied on a page 1 of the notebook. The adhesive labels 7, 8 have a shaped profile and/or include a graphic symbol 9 (one or more figures and/or alphanumeric characters) printed on them. In particular, one or more adhesive labels 7 have a profile and/or a graphical symbol in the form of an arrow. The sum of the four CMYK values of the color of the adhesive labels 7, 8 and/or of their graphic symbol 9 is comprised between 50 and 150, in particular between 70 and 150, with the fourth value K (black) less than 50, as preferably the colors Pantone 109, 1495, 232, 2665, 319, 376 and Process Blue.

Referring to Figure 6, it is seen that the notebook is preferably also provided with a code 10, in particular a sequence of alphanumeric characters, that is printed on a page 1 (which can also be devoid of dots 5) and/or on cover 2. In particular, code 10 is

printed on an adhesive label 11 which is in turn applied on a page 1 and/or on cover 2 of the notebook.

The method of digitizing notes comprises the following steps:

- writing one or more notes 12 on at least one page 1 of the notebook;
- apply at least one adhesive label 7, 8 on page 1;
- photographing page 1 with a digital camera (not shown in the figures), which can be incorporated in another digital device, such as a smartphone or a tablet PC.

The digital image of page 1 photographed by said digital camera is then digitally processed by a computer (smartphone, tablet, notebook, PC, web server, etc.) so as to convert notes 12 into digital data and the adhesive label 7, 8 into one or more digital commands associated with notes 12, such as a classification command (work, travel, home, etc.) of the contents of notes 12.

If the adhesive label 7 is and/or includes an arrow, the data corresponding to the notes indicated by the arrow 12 are extracted by the computer from the rest of the data corresponding the notes 12, for example a storage in a separate field (title, subject , address, etc.) of a data base.

In a preliminary step of said method, the user photographs code 10, which code is then scanned to provide a unique digital command to a computer, in particular a unique command of activation and/or registration of a web service suitable to provide the above digital processing of notes 12 and labels 7, 8.

Possible variations and/or additions may be made by those skilled in the art to the embodiment of the invention herein described and illustrated remaining within the scope of the following claims. In particular, further embodiments of the invention may comprise the technical features of one of the following claims with the addition of one or more technical features, taken singularly or in any mutual combination, described in the text and/or illustrated in the drawings.

CLAIMS

1. Notebook comprising a plurality of pages (1) of paper bound together with a cover (2), in which a plurality of substantially vertical and/or substantially horizontal lines are printed on the pages (1), characterized in that said substantially vertical and/or substantially horizontal lines are formed by a plurality of dots (5) aligned with each other, which have a maximum dimension, in particular diameter, comprised between 0,21 and 0,35 mm, the distance between two adjacent dots (5) of a same line being comprised between 0,43 and 0,7 mm and the color of the dots (5) being darker than the color of the page (1), in which the sum of the four quadrichrome CMYK values of the color of the page (1) is comprised between 0 and 20, in particular comprised between 10 and 20, with the K value less than 10, and the sum of the four CMYK values of the color of the dots (5) is comprised between 15 and 50, in particular between 25 and 40, with the value K less of 40.

2. Notebook according to the preceding claim, characterized in that the difference between the sums of the CMYK values of the colors of the dots (5) and of the page (1) is greater than 10.

3. Notebook according to one of the preceding claims, characterized in that the four CMYK values of the color of the dots (5) are comprised between 0 / 3 / 6 / 16 and 0 / 5 / 11 / 23.

4. Notebook according to one of the preceding claims, characterized in that it is also provided with one or more sheets (6) comprising one or more adhesive labels (7, 8) having a shaped profile and/or comprising a graphic symbol (9) printed on them.

5. Notebook according to the preceding claim, characterized in that one or more adhesive labels (7) have an arrow-shaped profile and/or graphical symbol.

6. Notebook according to claim 4 or 5, characterized in that the sum of the four CMYK values of the color of the adhesive labels (7, 8) and/or of their graphic symbol (9) is comprised between 50 and 150, in particular between 70 and 150, with the K value less than 50.

7. Notebook according to one of the preceding claims, characterized in that it is also provided with a code (10) printed or applied on a page (1) and/or on the cover

(2).

8. Method for digitizing notes (12), characterized in that it comprises the following steps:

- writing one or more notes (12) on at least one page (1) of a notebook according to one of the preceding claims;
- photographing this page (1) with a digital camera;
- processing the digital image of the page (1) photographed by said digital camera so as to convert said notes (12) into digital data.

9. Method according to the preceding claim, characterized in that at least one adhesive label (7, 8, 11) is applied on the page (1) before photographing it, so that the adhesive label (7, 8, 11) is converted into one or more digital commands when processing the digital image of the page (1).

10. Method according to the preceding claim, characterized in that if the adhesive label (7) is and/or comprises an arrow, the data of the notes (12) indicated by the arrow are extracted from the rest of the data corresponding to the notes (12) when processing the digital image of the page (1).

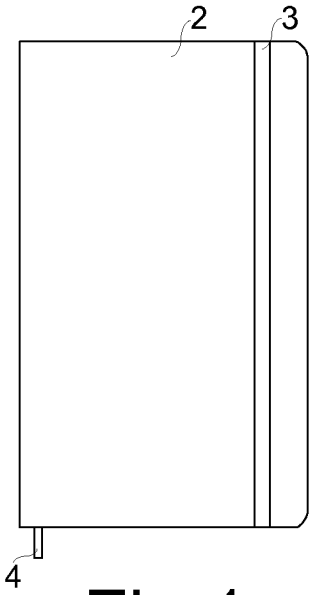

Fig.1

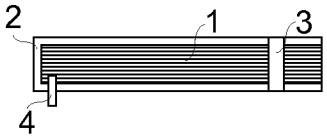

Fig.2

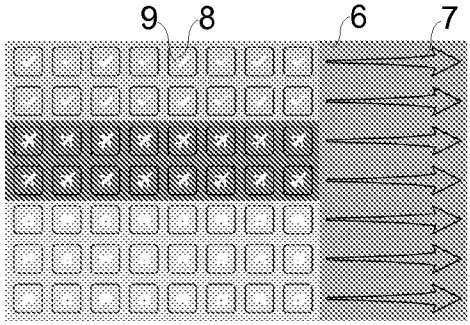

Fig.5

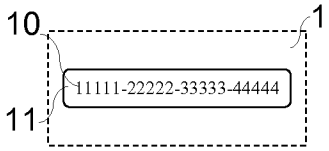

Fig.6

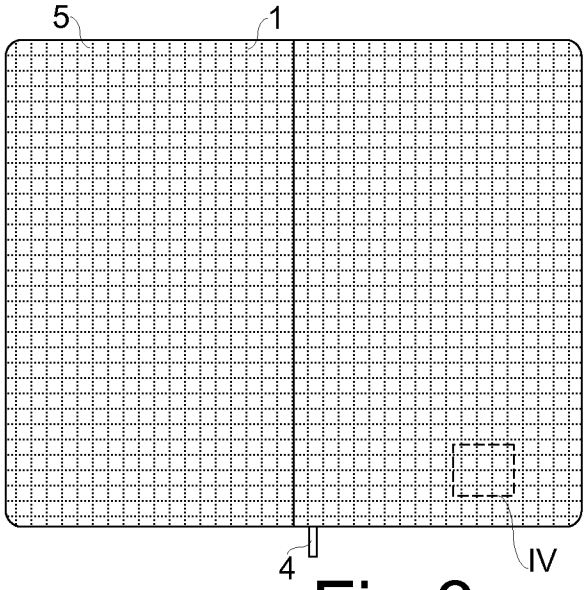

Fig.3

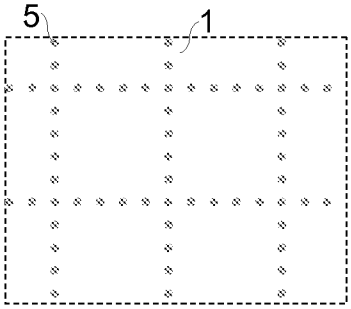

Fig.4

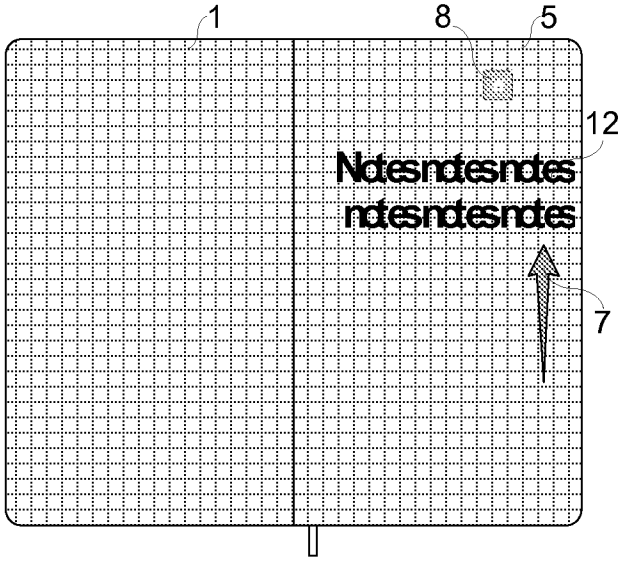

Fig.7

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2013/056573

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06K9/20
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06K B41L B42D B42F G09B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 743 323 A (HOUSS M) 3 July 1973 (1973-07-03) column 2, line 9 - column 3, line 5 -----	1-10
A	US 5 014 328 A (RUDAK PETER [US]) 7 May 1991 (1991-05-07) column 1, line 33 - column 4, line 51; figures -----	1-10
A	US 2009/096204 A1 (WALKER JOHN [US]) 16 April 2009 (2009-04-16) paragraphs [0018] - [0022]; figures 1,2 -----	1-10
A	CA 1 148 190 A1 (NAT COMPUTER SYSTEMS INC) 14 June 1983 (1983-06-14) figures ----- -/--	1-10

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12 December 2013	02/01/2014

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2013/056573

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2007 307714 A (KUGA HIROMI) 29 November 2007 (2007-11-29) paragraphs [0004], [0007]; figures -----	1-10

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2013/056573

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