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(71) Applicant: **Tafla Rabinovitch, Nathan**
Sao Paulo (BR)

(72) Inventor: **Tafla Rabinovitch, Nathan**
Sao Paulo (BR)

(74) Representative: **Capitán García, Maria Nuria**
ARS Privilegium, S.L.
Felipe IV no. 10, bajo iz.
28014 Madrid (ES)

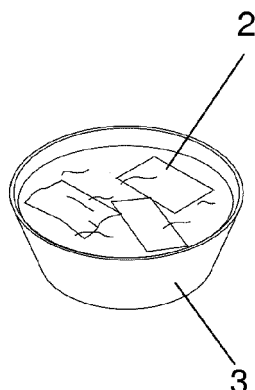
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(54) **Process for obtaining magnetic cellulose paper and the respective product**

(57) "PROCESS FOR OBTAINING MAGNETIC CELLULOSE PAPER AND THE RESPECTIVE PRODUCT" refers to a method for the production of magnetic paper and the respective paper, belonging to the field of paper products; in its usual form, the magnetic sheets, known as magnetic paper, are composed by magnetic blankets covered with cellulose sheets, and this setting results in a sheet of high thickness and high cost, in order to solve these disadvantages, the object of the present

patent application was developed, referring to a magnetic paper, which differentiates itself from others because it has magnetic particles in its fibers, and also in its production process, more specifically in the magnetic cellulose sheet, in presentation is comprised by paper sheet (17) which can be of varied densities and has magnetized (11) ferrous-magnetic granules or particles of magnets inserted between its cellulose fibers during the manufacturing process of the sheet.

FIG. 1



Description

Field of invention

[0001] The object of the present patent of invention is a practical and innovative process for the manufacture of paper with magnetic properties and the respective product, under the category of stationary articles, more precisely used attached to metallic panels, after receiving prints, graphic arts or other works; it was developed to improve its use and performance in relation to other products normally found in the market.

[0002] Therefore, the patent application in question is a process and product especially designed and developed to obtain high practicality and that provides great advantages in its use and manufacture.

[0003] Also, the objective of the present application is to present a process for obtaining magnetic cellulose paper and the respective product at low costs for its industrial feasibility, however, allied to the requirements of robustness, safety and utilitarian practicality, thereby providing consumers an additional option in the market, which contrary to the normal products, it offers its users with numerous possibilities and benefits, becoming a product of great acceptance in the consumer market.

Background of invention

[0004] Normally, the magnetic papers consist of magnetic sheets covered with cellulose papers.

[0005] They are found in several sizes, having certain flexibility, accept different types of graphics, and can be used in inkjet printers.

Deficient points of the state of the art

[0006] The major disadvantage of these magnetic paper models lies in its high production cost. This is because the manufacture of magnetic sheets, besides being a complex process, demands the use of high operating cost machinery.

[0007] Another disadvantage related to these papers is its relatively high thickness resulting from the characteristic of the magnetic sheet, which is worsened with the addition of cellulose papers on their surfaces.

[0008] Till present, there is no document that reflects the state of the art.

Summary of the invention

[0009] It was based on these disadvantages that, after several researches and studies, the inventor, person connected to the field, created and developed the object of the present patent, devising a process to obtain magnetic cellulose paper and the respective product, in which not only the mechanical and functional qualities were considered in the production but also the simplicity of obtaining it, as well as the reduced number of compo-

nents, which resulted in a product of better quality with lower production cost.

[0010] Therefore, the present patent was designed to obtain a process with a lower number of components and stages possible and the respective product, with unequalled characteristics, without the aforementioned disadvantages.

[0011] The present patent application presents a practical and innovative process for obtainment of magnetic cellulose paper with all the physical and functional qualities, designed and developed according to the most modern techniques, enabling the obtainment of magnetic paper for various uses, from domestic to institutional use, as well as industrial use in different cases.

[0012] Its innovative concept enables the obtainment of an excellent level of functionality, providing a process for obtaining magnetic cellulose paper and the respective product of high simplicity, created mainly to solve the disadvantages of the conventional magnetic papers.

[0013] The configuration of the magnetic paper, object of the present patent, in its new constructive form, different from other similar products existing in the market, does not consist of one thin sheet of flexible magnet covered by a layer of paper. The product comprises a traditional cellulose paper but with magnet particles in between its fibers. Therefore, the paper looks like a traditional sheet of paper, which, for instance, can be an A4 paper, however, with the possibility of being attached to metallic surfaces through the magnetic force of attraction exerted by the magnet particles on the metallic surface.

[0014] It is understandable that the process in question is extremely simple in its conception, therefore, being of easy feasibility but with excellent practical and functional results, providing an innovative process and process.

[0015] Devised with an innovative concept, results in a very simple above all characteristic process, from which a product is obtained highlighted by its versatility and ease of use.

Brief description of the drawings of the invention

[0016] For better understanding and comprehension of the "PROCESS FOR OBTAINING MAGNETIC CELLULOSE PAPER AND THE RESPECTIVE PRODUCT" claimed herein, illustrative drawings in annex are presented below, showing:

FIGURE 1 - Shows a view of the start of the process for obtaining magnetic cellulose paper, which shows post-use papers being prepared for the formation of cellulose pulp in a container.

FIGURE 2 - Shows a view of the cellulose pulp being poured into a mixer to prepare the mixture.

FIGURE 3 - Shows a view of the mixture being poured into a container.

FIGURE 4 - Shows a view of the mold dipped in the mixture.

FIGURE 5 - Shows a view of the mixture in the mold

being flattened.

FIGURE 6 - Shows a view of the mold with the already flattened mixture receiving the ferromagnetic granules.

FIGURE 7 - Shows a view of the demolded cellulose paper being placed between newspapers, to be pressed between two hard plane surfaces, in order to proceed with drying it.

FIGURE 8 - Shows a view of the cellulose paper being placed between two metallic blocks.

FIGURE 9 - Shows a view of the cellulose paper placed between two metallic blocks being inserted in an electrical wire spool.

FIGURE 10 - Shows a view of the cellulose paper between two metallic blocks inserted in an electrical wire spool whose ends are connected to the poles of an electric battery produce a magnetic field, in order to magnetize the metallic particles in the paper.

Detailed description of the invention

[0017] In compliance with the drawings above, the "PROCESS FOR OBTAINING MAGNETIC CELLULOSE PAPER AND THE RESPECTIVE PRODUCT" refers to a manufacturing method of a magnetic paper and the respective product.

[0018] The presented magnetic cellulose paper comprises a sheet of paper that can have different densities and have magnetized metallic particles or magnet particles embedded in its cellulose fibers.

[0019] Its manufacturing process involves the use of the following equipments and components:

- Paper.
- Water.
- Mold with thin screen.
- Cloth.
- Spatula or spoon.
- Containers.
- Granules of ferromagnetic material.
- Hard magnet.
- Neodymium plate magnet.
- Two wooden boards.
- Newspaper.

[0020] The method for obtaining the magnetic cellulose paper (1) consists of the following stages:

1. Leave the post-use papers (2) to soak for 24 hours in a container (3), making sure all are covered with water.
2. Then pour the obtained cellulose pulp (4) in a mixer (5) and blend carefully.
3. Pour the resulting mixture (6) in a container (7).
4. Dip the mold (8) in the container (7) until it is covered by the mixture (6).
5. Carefully remove the mold (8) from the container and smoothen the paste or mixture with a spatula

(9) or spoon.

6. Once the paste or mixture (6) is conveniently placed on the mold (8), place the said mold (8) on a flat, smooth and leveled surface.

7. Then place a neodymium plate magnet (10) under the mold (8).

8. Sprinkle granules of the ferromagnetic material (11) over the mold (8), uniformly covering the entire surface of the mixture (6). The ferromagnetic granules (11) can be obtained by scraping a metallic material (12), like a nail or similar item, with a file (13).

9. Then, place the flattened mixture (14) between two sheets of newspaper (15) (to aid in the absorption of water) and press this arrangement with two wooden boards (16).

10. The sheet of paper (17) obtained after drying is placed between two metal cubes (18) and this set is placed in a spool (19) made of electrical wire.

11. Then, connect the ends of the spool's wires to a direct current source (20) to create a magnetic field inside it and magnetize the metallic particles contained in the cellulose paper.

12. After magnetizing, the magnetic cellulose paper is ready.

[0021] Optionally, the process provides an alternative form where the metallic particles are replaced by neodymium magnet particles.

[0022] In this case the process ends after drying the magnetized cellulose sheet, as shown below:

1. Leave the post-use papers (2) to soak for 24 hours in a container (3), making sure all are covered with water.

2. Then pour the obtained cellulose pulp (4) in a mixer (5) and blend carefully.

3. Pour the resulting mixture (6) in a container (7).

4. Dip the mold (8) in the container (7) until it is covered by the mixture (6).

5. Carefully remove the mold (8) from the container and smoothen the paste or mixture with a spatula (9) or spoon.

6. Once the paste or mixture (6) is conveniently placed on the mold (8), place the said mold (8) on a flat, smooth and leveled surface.

7. Then place a neodymium plate magnet (10) under the mold (8).

8. Sprinkle granules of the magnetic material or magnet over the mold, uniformly covering the entire surface of the mixture (6). The magnetic granules can be obtained by scraping a neodymium magnet with a file.

9. Then, place the mixture between two sheets of newspaper (15) (to aid in the absorption of water) and press the arrangement with two wooden boards (16).

10. After drying, the magnetic cellulose paper is ready.

[0023] In view of the above, it can be said that the "PROCESS FOR OBTAINING MAGNETIC CELLULOSE PAPER AND THE RESPECTIVE PRODUCT" in question is characterized as a process and respective product of great utility, presenting all the practical and functional qualities that fully justify the patent application of the invention.

Claims

1. "PROCESS FOR OBTAINING MAGNETIC CELLULOSE PAPER AND THE RESPECTIVE PRODUCT" refers to a method for the production of magnetic paper and the respective paper, and the major disadvantage of the magnetic papers existing in the market till present lies in its high production cost, besides the relatively high thickness resulting from the structure of the magnetic sheet, placed between cellulose papers; in order to solve these disadvantages, the object of the present patent application was developed, denominated as method for obtaining magnetic cellulose paper (1), **characterized by** comprising the following stages: initially leave the post-use papers (2) soaked for 24 hours in a container (3), making sure they are all covered with water; then pour the cellulose pulp (4) obtained into a mixer (5) and carefully blend; pour the resulting mixture (6) into a container (7); dip the mold (8) in the container (7) until it is covered by the mixture (6); carefully remove the mold (8) from the container and smoothen the paste or mixture with a spatula (9) or spoon; once the paste or mixture (6) is conveniently placed on the mold (8), put the said mold (8) on a flat, smooth and leveled surface; then, place a neodymium plate magnet (10) on the mold (8); sprinkle granules of ferromagnetic material (11) over the mold (8), uniformly covering the entire surface of the mixture (6), the ferromagnetic granules (11) can be obtained by scraping a metallic material (12), such as a nail or similar item, with the use of a file (13); then, place the flattened mixture (14) between two sheets of newspaper (15) (to aid in the absorption of water) and then press this arrangement with two wooden boards (16); the sheet of paper (17) obtained after drying is placed between two metallic cubes (18) and this set is placed in a spool (19) made of electrical wire; then, connect the ends of the spool's wire to a direct current source (20), to create a magnetic field inside it in order to magnetize the metallic particles embedded in the cellulose paper; after magnetizing, the magnetic cellulose paper is ready.
2. "PROCESS FOR OBTAINING MAGNETIC CELLULOSE PAPER AND THE RESPECTIVE PRODUCT", according to claim 1, **characterized by** the fact that the process optionally establishes the sub-

stitution of the metallic particles by neodymium magnet particles, where in this case the process has the following stages: initially leave the post-use papers (2) soaked for 24 hours in a container (3), making sure they are all covered with water; then pour the cellulose pulp (4) obtained into a mixer (5) and carefully blend; pour the resulting mixture (6) into a container (7); dip the mold (8) in the container (7) until it is covered by the mixture (6); carefully remove the mold (8) from the container and smoothen the paste or mixture with a spatula (9) or spoon; once the paste or mixture (6) is conveniently placed on the mold (8) put the said mold (8) on a flat, smooth and leveled surface; then, place a neodymium plate magnet (10) on the mold (8); sprinkle granules of magnetic material or magnet over the mold, uniformly covering the entire surface of the mixture (6), the magnetic granules can be obtained by scraping a neodymium magnet with a file; then, place the mixture between two sheets of newspaper (15) (to aid in the absorption of water) and then press this arrangement with two wooden boards (16); after drying, the magnetic cellulose paper is ready.

FIG. 1

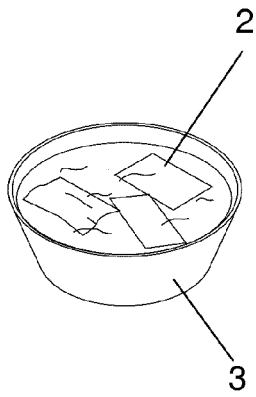


FIG. 2

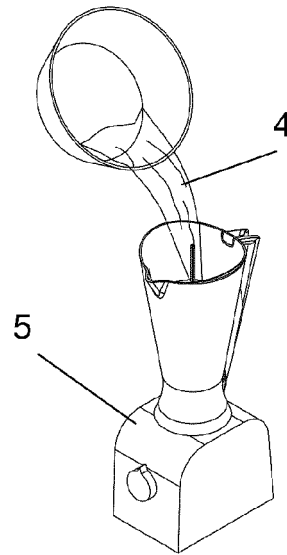


FIG. 3

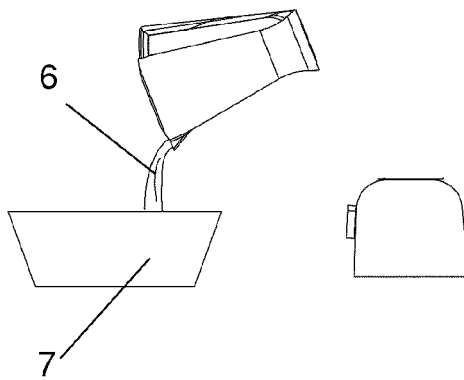


FIG. 4

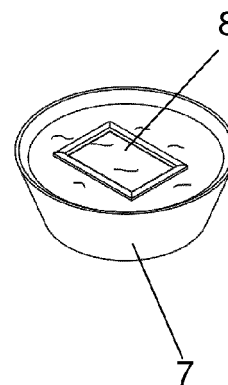


FIG. 5

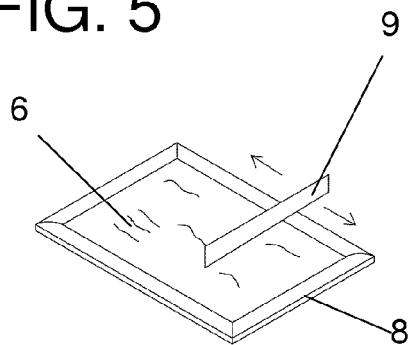


FIG. 6

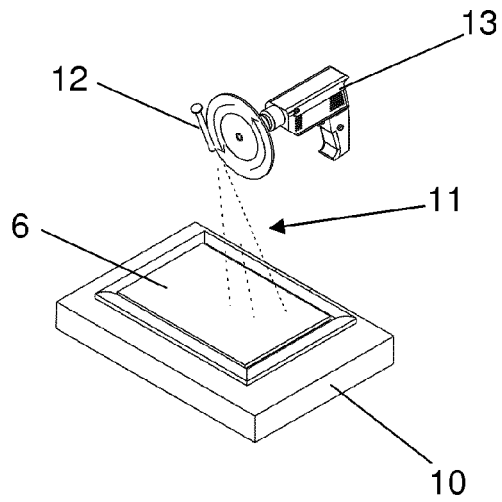


FIG. 7

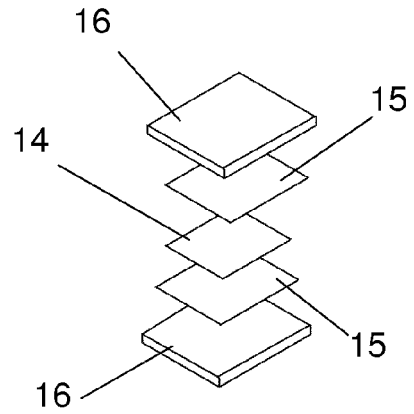


FIG. 8

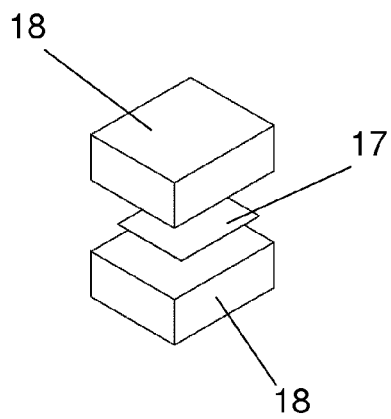


FIG. 9

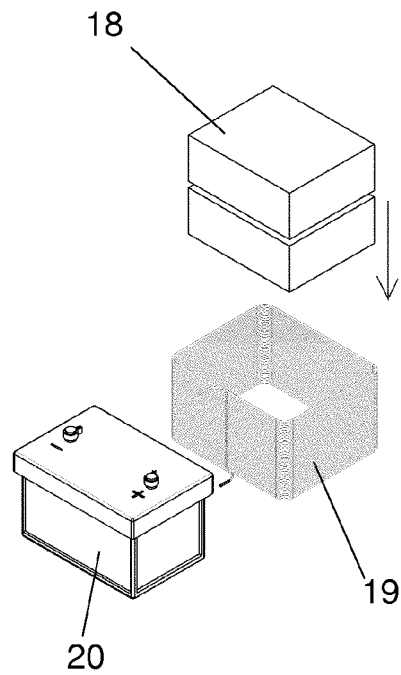
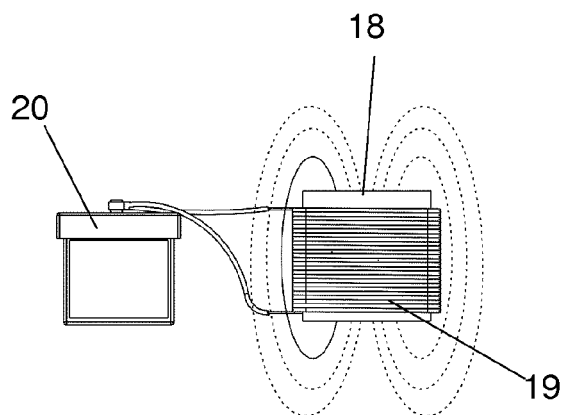


FIG. 10





EUROPEAN SEARCH REPORT

Application Number
EP 13 16 4097

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 3 September 2013	Examiner Ponsaud, Philippe
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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03-09-2013

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