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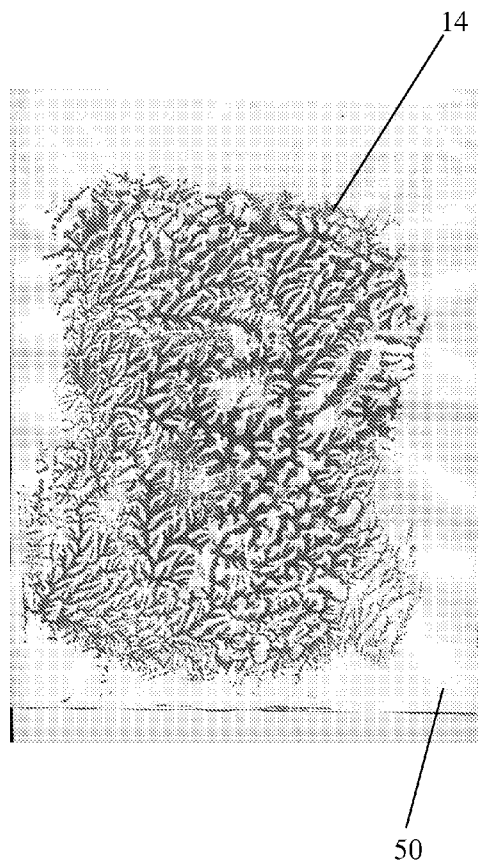
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[Continued on next page]

(54) Title: METHOD OF PRODUCING IMAGES

Fig. 4



(57) Abstract: Images that have pleasing appearance and research potential are made of fluent material that is placed on semi-rigid structures that are brought together and then separated. The semi-rigid structures can be pieces of acrylic sheeting that is transparent, and the fluent material can be liquid paint. A quantity of the paint is poured onto one of the sheets and the other sheet is placed parallel to the first sheet, thereby sandwiching the paint in a gap therebetween. The paint is made relatively thin, such as by compression, and then the sheets are separated starting at one edge and progressing to the opposite edge. This makes an interesting image of the paint, which can then be pressed onto a medium, such as cloth or paper, and viewed.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

— *of inventorship (Rule 4.17(iv))*

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a patent (Rule 4.17(ii))*

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— *as to the applicant's entitlement to claim the priority of
the earlier application (Rule 4.17(iii))*

TITLE**METHOD OF PRODUCING IMAGES****BACKGROUND OF THE INVENTION**5 **[0001]** 1. Field Of The Invention

[0002] This invention relates generally to methods of forming liquids and pastes to produce aesthetically pleasing images and/or to test the properties of the materials for science education regarding pattern formation.

10 **[0003]** 2. Description Of The Related Art

[0004] It is well known to apply liquids, pastes, extremely fine powders and other fluent materials to two and three dimensional objects. Painters use pastes and liquids of different colors to form a desired image on a medium, such as canvas. Paint is commonly applied to a medium using a brush or knife, with the instrument being moved by the artist
15 in strokes that provide a planned resulting image, such as a human face or a scene in nature. This manner of applying paint to a medium requires substantial skill in hand and arm movements. Such a skill level is essentially unattainable to the average person who cannot commit many years to training in an art form.

[0005] Fluent materials can also be applied to a medium using random
20 movements, such as dripping and splattering. This results in a relatively unplanned resulting image, which can be aesthetically pleasing. However, the random nature of such images can be confounding to those expecting a recognizable and familiar end result. Nevertheless, even a relatively new artist can produce such random images from such an application, and such an artist may be pleased with the results.

25 **[0006]** The need exists for a method of applying fluent materials to form an image on a medium where the method requires a level of skill that virtually everyone possesses. Furthermore, such a method should produce an image that most or all people find aesthetically pleasing, and/or that permits study for science education regarding pattern formation.

BRIEF SUMMARY OF THE INVENTION

[0007] The invention includes a method of forming an image. A first step of the method is the step of placing a fluent material, such as liquid paint, on a substantially planar surface of a first semi-rigid structure, such as a piece of transparent acrylic sheet, sold under the trademark PLEXIGLASS. Next a substantially planar surface of a second semi-rigid structure, such as a second sheet of transparent acrylic, is placed adjacent the substantially planar surface of the first semi-rigid structure. In this manner, the fluent material is sandwiched in a gap between the first and second semi-rigid structures. Once the fluent material is between the semi-rigid structures, the fluent material is spread in the gap, such as by compressing the semi-rigid structures or moving them relative to one another in the same plane. A force is then applied to at least one of the semi-rigid structures, wherein the force has a component substantially perpendicular to the substantially planar surface of said at least one of the semi-rigid structures. The force is sufficient to separate the first and second semi-rigid structures, thereby forming an image of the fluent material on at least one of the substantially planar surface.

[0008] A preferred embodiment includes the step of pressing the image of the fluent material against a medium, such as paper or cloth, after applying the force to separate the semi-rigid structures. This step thereby adheres at least some of the fluent material to the medium, which then can be observed while the semi-rigid structure is cleaned of the fluent material.

[0009] In a preferred embodiment, the step of applying a force comprises grasping at least one edge of the first semi-rigid structure with a human hand. At least one edge of the second semi-rigid structure is also preferably grasped with a human hand. In this embodiment, said at least one edge of the second semi-rigid structure is adjacent said at least one edge of the first semi-rigid structure. One then manually separates the adjacent edges of the semi-rigid structures by hand while simultaneously maintaining the opposite edges of the semi-rigid structures in contact. This provides a simulated “hinge” effect.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0010] Fig. 1 is a view in perspective illustrating an example of the materials used to practice the present invention during initial stages of the method.

[0011] Fig. 2 is a view in perspective illustrating the materials of Fig. 1 during a second stage of the method.

[0012] Fig. 3 is a view in perspective illustrating the materials of Fig. 1 during a second stage of the method.

[0013] Fig. 4 is a front view illustrating an example of an image resulting from performing the present invention.

5 [0014] In describing the preferred embodiment of the invention which is illustrated in the drawings, specific terminology will be resorted to for the sake of clarity. However, it is not intended that the invention be limited to the specific term so selected and it is to be understood that each specific term includes all technical equivalents which operate in a similar manner to accomplish a similar purpose. For example, the word
10 connected or term similar thereto are often used. They are not limited to direct connection, but include connection through other elements where such connection is recognized as being equivalent by those skilled in the art.

DETAILED DESCRIPTION OF THE INVENTION

15 [0015] A method is described herein for forming patterns having pleasing, interesting and educational images. The method involves a fluent material with desired viscosity, color and other characteristics. Such materials include, but are not limited to, liquids, semi-liquids, pastes, gels and extremely fine powders that flow under pressure and have other liquid characteristics, such as taking the shape of a container in which they
20 are placed. The method also includes two semi-rigid plates. The term “semi-rigid” is defined herein as a compositional and/or dimensional characteristic of a structure that, when placed with one substantially planar surface parallel to a substantially planar surface of another semi-rigid structure with a fluent material therebetween, the structures can be separated from one another by applying a force to one edge of at least one of the
25 structures in a direction having a component of force perpendicular to the plane of the surface being pulled. During this separation, neither such semi-rigid structure will bend along a line that lies in the plane of the second structure, with the bent structure aligned substantially in the direction of the applied force. In such a situation, the force is applied only at the line of bending, as is the case with very thin films made of papers, foils and
30 polymers. Instead, a semi-rigid structure remains substantially planar and maintains a relatively large radius of curvature even if it bends. Such a structure applies the force of separation over an appreciable portion of the space between the sheets, not merely along a line where the bent sheet bends.

[0016] In one example of the invention, shown in Fig. 1, the fluent material is opaque liquid latex art paint 14. The semi-rigid structures are one-eighth inch thick transparent acrylic sheets 10 and 12, such as those sold under the trademark PLEXIGLASS. The sheets 10 and 12 are preferably similar in size, for example about one foot square each.

[0017] A small amount, such as one teaspoon, of paint 14 is applied to the center of one of the sheets. The sheets 10 and 12 are then placed in a parallel relation to one another with the paint 14 sandwiched therebetween. The parallel sheets 10 and 12 are preferably moved relative to one another in a circular path to spread the paint to a larger circle, which can be about four to six inches in diameter as shown in Fig. 2. This step of spreading is not necessary, but is preferred with liquid paint in order to enlarge the area of contact between the paint and the sheets, and to reduce the thickness of the paint for reasons that will become apparent. It is contemplated to also or alternatively compress the sheets together to reduce the thickness, and increase the diameter, of the paint layer therebetween.

[0018] The next step is to grasp, such as with the fingers or a tool, one edge 20 of one sheet 10, and apply a force perpendicular to the planes of the sheets 10 and 12, while simultaneously applying an equal and opposite force to the other sheet's adjacent edge 22 (see Fig. 3). It is of course contemplated that the manual grasping with the fingers can be replaced by a suitable machine that grasps the edges of the sheets. Regardless of how a force is applied, the sheets 10 and 12 will begin to separate at the edges to which the force is applied, and the opposite edges act as a "hinge" and stay together. As the two sheets 10 and 12 begin to separate on the side of the paint 14 closer to the edges 20 and 22, a front 30 is formed where the paint begins to be drawn back toward the "hinge" edge of the sheets due to the increasing gap caused by separation of the sheets on one side and the smaller gap due to the close proximity of the sheets on the opposite side. If the paint 14 has sufficient viscosity and/or sufficient adhesion to the sheets, the sheets may bend as the edges to which the forces are applied separate slightly, and before the regions of the sheets to which the paint is applied have similarly separated.

[0019] When a sufficient force is applied to pull the painted surfaces apart, the front 30 progresses across the width of the sheets 10 and 12 as air penetrates the thin layer of paint from the more spread apart edges of the sheets 10 and 12. If this separation of the sheets occurs with sufficient speed and with paint and sheet characteristics that are

desired, unique and aesthetically pleasing patterns or images are formed in the paint remaining on the sheets 10 and 12. The patterns can be described as having dendrites, much like a snowflake, and can last a substantial amount of time if the paint is thick enough (high enough viscosity) that it does not rapidly run together under the force of gravity, surface tension, interaction with the sheet material, etc.

[0020] The pattern formed by the fluent material remaining on the surfaces of the sheets can be transferred to any other medium, such as paper, cloth or wood, for example, as shown in Fig. 4 (after being applied to the paper 50). This is accomplished by simply pressing one of the sheets 10 and 12 onto the paper 50 when the paper preferably lies on a planar, horizontal surface. This creates a pattern on the paper 50 that can be retained after the paint dries or cures, and is of interest for its aesthetic beauty and perhaps also its pattern formation for scientific education and research. A mirror image of the pattern can be created using the other sheet. In a preferred embodiment, the fluent material has a desired color, or is made of combined colors, whether completely or partially mixed, and the process can be used to form an art craft printing, such as on paper or cloth. As noted above, such images can be used for purposes other than personal enjoyment, such as research into fluid dynamics that occur as the sheets 10 and 12 are separated with the paint therebetween.

[0021] Although transparent acrylic material is preferred, it is contemplated to use different materials for either or both sheets. For example, the sheets can be made of the same material as each other, or they can be made of different materials than each other. It is contemplated that sheets can be made of plywood, glass, polycarbonate, medium density fiberboard, steel, aluminum, composites or any other material that can be handled and separated as described herein by a human, a machine or a combination. The sheets are contemplated to be any size that can be manually separated by hand by a child, a large adult or a machine, and thus can vary between a few inches square to about as much as eight feet square. Of course, different sizes are contemplated, such as two feet square, as are different shapes, such as a two feet by one foot rectangle, circles of similar diameter ranges, ellipses, rectangles, triangles or any other shapes, including irregular shapes. Still further, although the thickness of the acrylic sheet is stated as one-eighth inch, different materials of different thicknesses that also form semi-rigid structures are contemplated.

[0022] The fluent material can include almost any material that flows under pressure. It may be desirable to discourage the use of liquids with viscosity lower than

water, which has viscosity of 1.0 centipoise or 1/100 poise, or higher than honey, which has viscosity of about 2 to 10 million centipoise. Additionally, any fluent material that is too tacky relative to the sheet material, or which reacts chemically with the sheet would be discouraged. It is preferred that the material have a color that is visible to the naked
5 eye, but it is also contemplated that the material could be transparent or translucent when the method is carried out, and then mechanically, electrically, optically or chemically altered after formation of the image in order to make it visible, more readily viewed or to modify the image.

[0023] In another example, applicant used two planar plastic plates of a size of
10 about ten inches long by eight inches wide. A small amount of undiluted colored, semi-liquid material was placed on at least one of the plates and the plates were placed together, thereby sandwiching the colored semi-liquid between the plates (forming a large, circular shape). Upon slow separation of the plates, a pattern was formed similar to that shown in Fig. 4. Rapid separation results in a slightly different pattern than slower
15 separation.

[0024] When the sheets are separated, the fluent material forms patterns depending upon a number of factors, including viscosity, sheet material properties (adhesion to the liquid), liquid material properties (adhesion to sheets), rate of separation of the sheets and direction of separation of the sheets.

[0025] This detailed description in connection with the drawings is intended
20 principally as a description of the presently preferred embodiments of the invention, and is not intended to represent the only form in which the present invention may be constructed or utilized. The description sets forth the designs, functions, means, and methods of implementing the invention in connection with the illustrated embodiments.
25 It is to be understood, however, that the same or equivalent functions and features may be accomplished by different embodiments that are also intended to be encompassed within the spirit and scope of the invention and that various modifications may be adopted without departing from the invention or scope of the following claims.

CLAIMS

1 1. A method of forming an image comprising:

2 (a) placing a fluent material on a substantially planar surface of a first semi-rigid
3 structure;

4 (b) placing a substantially planar surface of a second semi-rigid structure adjacent
5 the substantially planar surface of the first semi-rigid structure, thereby
6 sandwiching the fluent material in a gap between the first and second semi-rigid
7 structures;

8 (c) spreading the fluent material in the gap; and then

9 (d) applying a force to at least one of the semi-rigid structures, wherein said force
10 has a component substantially perpendicular to the substantially planar surface of
11 said at least one of the semi-rigid structures, the force being sufficient to separate
12 the first and second semi-rigid structures, thereby forming an image of the fluent
13 material on at least one of the substantially planar surface.

1 2. The method in accordance with claim 1, further comprising the step of pressing the
2 image of the fluent material against a medium after applying a force to separate the semi-
3 rigid structures, thereby adhering at least some of the fluent material to the medium.

1 3. The method in accordance with claim 1, wherein the step of applying a force
2 comprises grasping at least one edge of the first semi-rigid structure with a human hand,
3 grasping at least one edge of the second semi-rigid structure with a human hand, wherein
4 said at least one edge of the second semi-rigid structure is adjacent said at least one edge
5 of the first semi-rigid structure, and manually separating the adjacent edges of the semi-
6 rigid structures while simultaneously maintaining opposite edges of the semi-rigid
7 structures in contact.

1 4. The method in accordance with claim 2, wherein the step of applying a force
2 comprises grasping at least one edge of the first semi-rigid structure with a human hand,
3 grasping at least one edge of the second semi-rigid structure with a human hand, wherein
4 said at least one edge of the second semi-rigid structure is adjacent said at least one edge

5 of the first semi-rigid structure, and manually separating the adjacent edges of the semi-
6 rigid structures while simultaneously maintaining opposite edges of the semi-rigid
7 structures in contact.

1 5. The method in accordance with claim 4, wherein the step of spreading the fluent
2 material further comprises moving the first semi-rigid structure closer to the second semi-
3 rigid structure, thereby decreasing the size of the gap therebetween.

1 6. The method in accordance with claim 5, wherein the step of spreading the fluent
2 material further comprises moving the first semi-rigid structure relative to the second
3 semi-rigid structure through a plane substantially parallel to the substantially planar
4 surface of at least one of the semi-rigid structures, thereby decreasing the size of the gap
5 therebetween.

1 7. The fluent material image on the medium produced according to the process of claim
2 2.

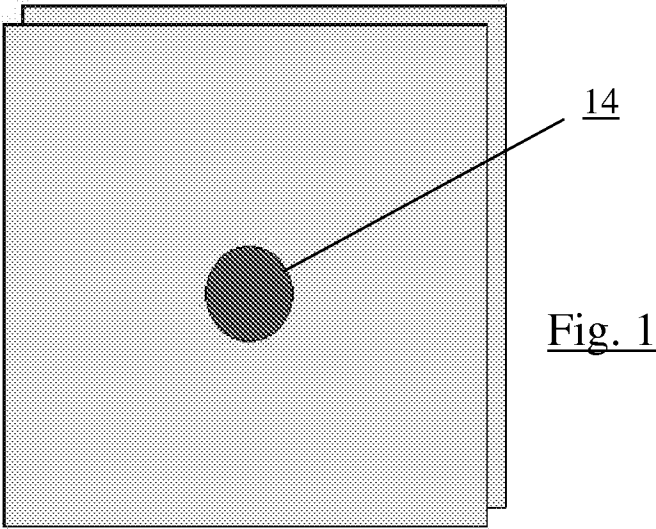


Fig. 1

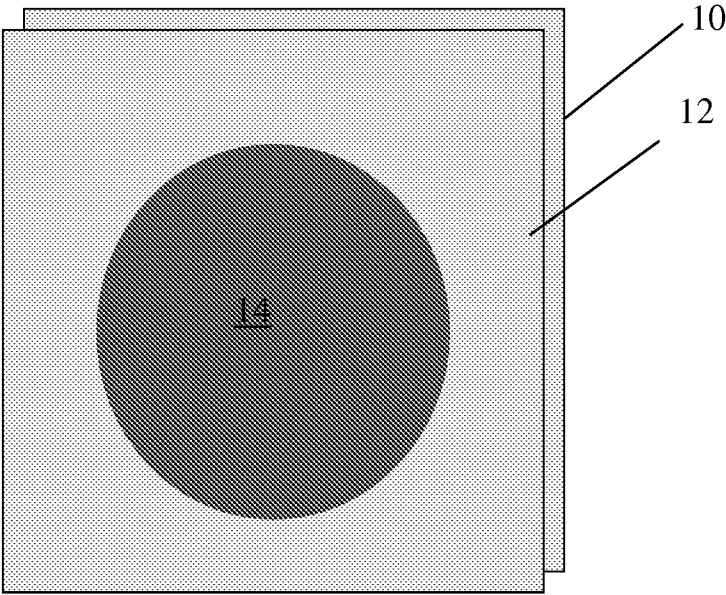


Fig. 2

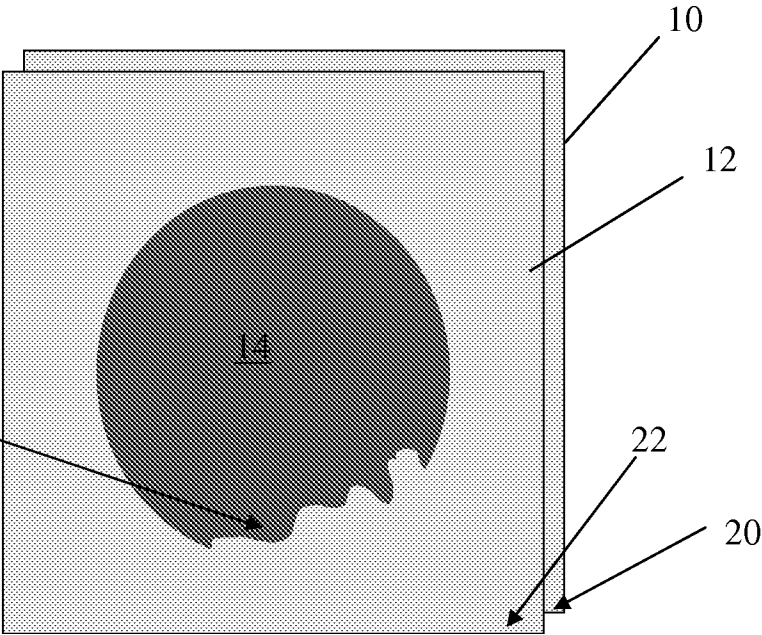
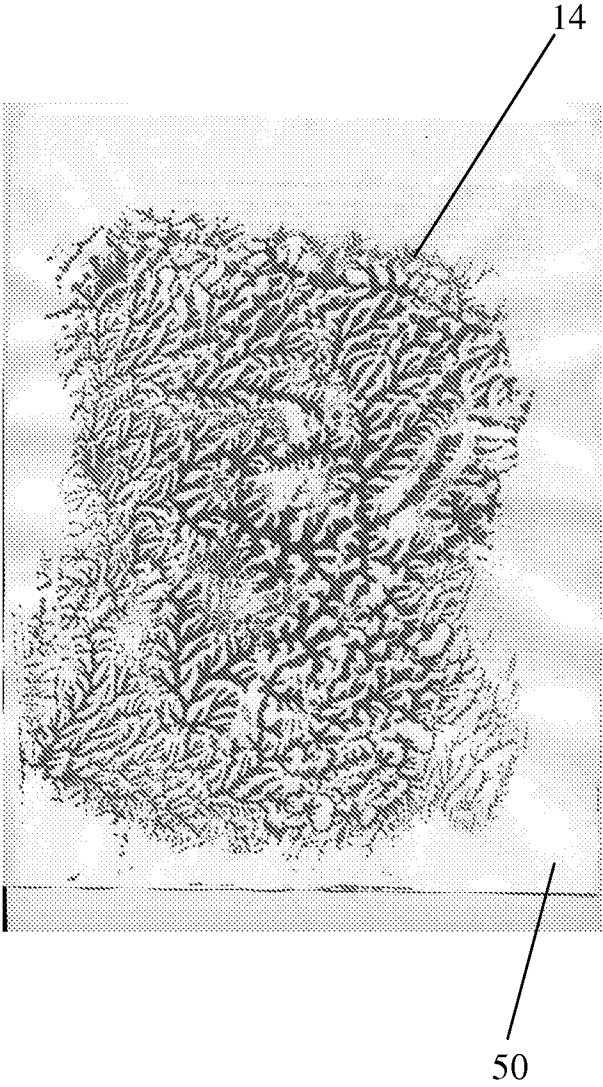


Fig. 3

Fig. 4



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 10/21959

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G03G 13/20; 15/08 (2010.01)

USPC - 430/108.4; 399/252

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)

USPC - 430/108.4; 399/252

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 430/108.4; 399/252; 430/124.23, 430/137.14

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

USPTO WEST (PGPB,USPT,USOC,EPAB,JPAB), Google Patent/Scholar: image, paint, press, impression, fluent, fluid, paint, coating, rigid, fixed, solid, planar, flat, spread, deliver, apply, adhere, separate, remove, hand

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,098,772 A (AF STROM) 24 March 1992 (24.03.1992), FIG 8; col 8, ln 26-30, 33-35; col 12, ln 39-46; col 16, ln 50-53; col 17, ln 1-12; col 19, 6-20	1-7
A	US 6,110,317 A (SANDOR) 29 August 2000 (29.08.2000), entire reference	1-7
A	US 5,871,837 A (ADAIR) 16 February 1999 (16.02.1999), entire reference	1-7

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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