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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- of inventorship (Rule 4.17(iv))

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(54) **Title:** MOLDED OR EXTRUDED CATNIP COMPOSITE AND METHOD OF MANUFACTURING COMPRESSED CATNIP PET TOYS AND PET TOYS MADE FROM THE SAME

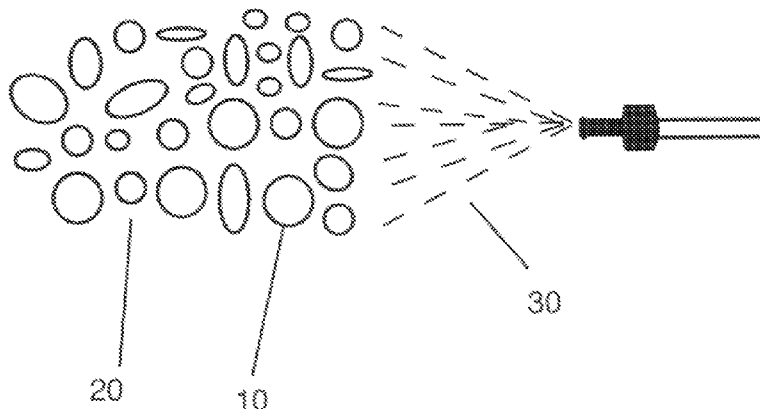


FIG. 1

(57) **Abstract:** A cork-catnip composite material is provided that is capable of being molded, compressed, extruded or similarly processed into small or large bodies or sheets and allow for the economic manufacture of a variety of products for domestic pets, especially felines. Dried and granulated catnip (or similar olfactory attractant) is blended with a fill material such as powdered or granulated agglomerate cork material are then mixed with a bonding agent. Lignosulfates bonding agent can be used, as well polyurethane food grade adhesives such as urethane, melaminic and phenolic resins.

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MOLDED OR EXTRUDED CATNIP COMPOSITE AND METHOD OF
MANUFACTURING COMPRESSED CATNIP PET TOYS AND PET TOYS MADE
FROM THE SAME

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BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates generally to pet products that include the delivery of aromatic attractant for encouraging pet interaction and, more particularly, to such a pet products formed of a catnip composite and a method for making the same.

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2. Description of the Related Art

[0002] *Nepeta cataria*, commonly known as catnip, or catswort or catmint, is a herbaceous perennial, resembling a mint in appearance, that is widely naturalized elsewhere, as well as commercially grown for specialty purposes. It is commonly used in herbal tea blends related to sleep, stress reduction, and relaxation, as well as used as a culinary herb for cooking and many dishes.

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[0003] The plant terpenoid nepetalactone is the main chemical constituent of the essential oil of *Nepeta cataria* (and some other species within the genus *Nepeta*). This

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essential oil is known for their behavioral effects on the
cat family, and especially on domestic cats. Nepetalactone
acts as the behavioral attractant, with the chemical
entering the feline's nose and stimulating the olfactory
5 receptors. Other plants that also have this effect on cats
include valerian (*Valeriana officinalis*) and plants that
contain actinidine.

[0004] Used as a recreational substance for pet cats'
enjoyment, catnip and catnip-laced products are designed
10 for use with domesticated cats and are available to
consumers. Used generally as an attractant to encourage
play and interaction, catnip commonly causes domesticated
felines to rub on the plant, roll on the ground, pawing at
it, licking it, and chewing it. Consuming catnip is often
15 followed by drooling, sleepiness, anxiety, leaping about
and purring.

[0005] There are many pet toys available that
incorporate these effects to provide entertainment to the
pet and the owner. The most direct method of forming
20 such toys is to compress chopped catnip material directly
into the shape of a pet toy itself. As first described in

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U.S. Patent No. 1,022,113, issued in the name of Smith, a ball made entirely of compressed catnip is described, as well as a ball formed of wood, rubber, papier-mache or wood pulp pressed into a shape and formed with recesses that are
5 filled with catnip compound. More recently, numerous design patents exist for compressed catnip pet toys formed into various shapes.

[0006] It is still another object of the present invention to provide a composite material that is naturally
10 hydrophobic.

[0007] It is still yet another object of the present invention to provide for use of durable, warm, soft, skid resistant and resilient material for use in conjunction with domestic pet products that is formed substantially of
15 natural ingredients.

[0008] It is yet still another object of the present invention to provide for the use of a catnip composite material that results in a soft, textured "feel" that can be grasped, clawed or chewed in a manner that is positively
20 received by domestic pets.

[0009] Further, the present invention provides a

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hydrophobic, naturally mold resistant, nontoxic material that can be robustly incorporated into a variety of pet products and product surfaces

[0010] Further still, the present invention provide a material that has a long lasting, positive aroma for domestic pets that can encourage use and interaction with those pet related products incorporating such material.

[0011] Such toys are popular for their efficacy, but the cost of the plant material results in only small sized devices being commercially available. requires that such devices durations. As such, these toys often provide for the replenishment of catnip, either in the form of solid or liquid extract, into or within the toy for subsequent dispensing based on movement or rotation of the toy or its interaction with the surrounding air. The present invention is markedly different by providing a less expensive aromatic composite material that can be molded, compressed, extruded, or otherwise shaped into small or large structures economically for extended delivery of an effective rate of aromatic compounds efficacy.

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[0012] This, among other disclosed advantages and features, overcome many of the deficiencies outlined and inherent within the known prior art.

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SUMMARY OF THE INVENTION

[0013] Therefore, it is an object of the present invention to provide a catnip composite and a method for making the same.

[0014] It is another object of the present invention to provide for such a catnip composite used to produce domestic pet toys and other pet products.

[0015] It is yet another object of the present invention to provide a catnip composite material capable of being molded, compressed, extruded or otherwise shaped into small or large sheets or bodies of aromatic attractant material.

[0016] As described in one embodiment of the present invention, a catnip-cork composite material is provided that is capable of being molded, compressed, extruded or similarly processed into small or large bodies or sheets and allow for the economic manufacture of toys and products for domestic pets, especially felines. Dried and

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granulated catnip (or similar olfactory attractant) is blended with a fill material such as powdered or granulated agglomerate cork material that is typically a waste product of cork stopper manufacturing. It is envisioned that similar materials can be alternately used, such as, for example, waste cedar wood shavings or sawdust or other types of lignocellulose material. The use of various types of low cost waste products or woody biomass materials have been found to effectively extend the economic viability of the compression molded catnip products available in the prior art. The blended chipped, granulated or powdered materials are then mixed with a bonding agent. An effective bonding agent has been found in the use of lignosulfates. Lignosulfates can also be obtained as a recovered waste product from the wood or paper pulping industries, and further will make the completed product of an "all natural" construction. Other effective bonding agents are known and can be used, such as, for example, polyurethane food grade adhesives.

[0017] As described above, a low cost, all (or substantially) natural composite material can be formed economically into various shapes. The blended, bonded

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material can be extruded, compressed or molded into shapes or sheets, and given the economy of using a composite material whose components have an overall lower blended cost than a material made substantially of 100% molded catnip, it is now possible to make much larger bodies, be it pet toys or larger structures, such as claw scratching posts, that provide the attractant benefit to the domestic feline of catnip.

[0018] The foregoing and other aspects will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawing figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] The advantages and features of the present invention will become better understood with reference to the following more detailed description and claims taken in conjunction with the accompanying drawings, in which like elements are identified with like symbols, and in which:

[0020] FIG. 1 is a schematic view of a catnip composite material being formed according to an exemplary embodiment of the present invention;

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[0021] FIG. 2 is cross sectional view of a composite material made according to the exemplary method of FIG. 1;

[0022] FIG. 3 is an exploded perspective views of a cover for use with a pet feeder or water bowl made according to the preferred embodiment of the present invention;

[0023] FIG. 4 is top perspective view thereof;

[0024] FIG. 5 is a bottom perspective view thereof;

[0025] FIG. 6a is a perspective view of a underlayment mat made according to the preferred embodiment of the present invention for use in conjunction with a feline litter box;

[0026] FIG. 6b is a perspective view of a underlayment mat made according to the preferred embodiment of the present invention for use in conjunction with a pet feeder or water bowl;

[0027] FIG. 7a through FIG. 7d are domestic cat scratchers incorporating the composite material according to the preferred embodiment of the present invention; and

[0028] FIG. 8a through FIG. 8d are domestic pet furniture of alternate designs formed of the composite material according to the preferred embodiment of the

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present invention.

[0029] It should be understood that the composite material of the present invention can be formed through a number of extrusion or compression methods to be adapted to various designs, including sheets, laminates, bulk shapes or net molded shapes, and that the present disclosure is intended to describe preferred embodiments of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0030] The best mode for carrying out the invention is presented in terms of its preferred embodiment, herein depicted within the Figures.

1. Detailed Description of the Figures

[0031] Before explaining the present invention in detail, it is important to understand that the invention is not limited in its application to the details of the construction illustrated and the formulations described herein. The invention is capable of other embodiments and of being practiced or carried out in a variety of ways. It is to be understood that the phraseology and terminology

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employed herein is for the purpose of description and not of limitation.

[0032] In the following detailed description of a first preferred embodiment and a second preferred embodiment of the present invention, reference is made to the accompanying drawings which, in conjunction with this detailed description, illustrate and describe a first preferred embodiment and a second preferred embodiment of a pet toy ball feeder in accordance with the present invention. Referring now to the drawings, in which like-referenced characters represent corresponding elements throughout the several views, attention is first directed to FIG. 1 and FIG. 2, a composite material is shown being formed and formed, respectively, of three main components: a solid attractant 10; a lignocellulose filler material 20; and a binding agent 30.

[0033] A solid attractant 10 is preferably a dried and granulated catnip. It should be obvious to a person having ordinary skill in the relevant art, in light of the present teachings, that equivalent replacements for dried and granulated catnip can be utilized, including, but not limited to, any plant containing a terpenoid nepetalactone

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or similar chemical to the essential oil of *Nepeta cataria* and other species within the genus *Nepeta*, as well as other

[0034] It is anticipated that other additives may be incorporated to accommodate particular uses or design choices, such as, for example, the incorporation of dyes in order to provide colors or otherwise alter the aesthetic of the final article. Other functional additives, such as odor absorbing materials, can further be incorporated into the agglomerated finished composite material. Such odor absorbing materials may include bentonite, zeolite, or other clays or odor absorbant materials. Again, the selection and function of such additional additives will be more apparent in conjunction with the additional description below.

[0035] A solid attractant 10 is preferably a dried and granulated catnip. It should be obvious to a person having ordinary skill in the relevant art, in light of the present teachings, that equivalent replacements for dried and granulated catnip can be utilized, including, but not limited to, any plant containing a terpenoid nepetalactone or similar chemical to the essential oil of *Nepeta cataria* and other species within the genus *Nepeta*, as well as other

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plants that are known to have effects on cats, including valerian (*Valeriana officinalis*) and plants that contain actinidine.

[0036] The lignocellulose filler material 20 is preferably granulated or agglomerated cork. Cork is commercially harvested from the bark tissue of the Cork Oak (i.e. *Quercus suber*). While a majority of the cork harvest is used each year in the manufacture of wine bottle stoppers and other closures, for the purpose of the present invention it is intended that less value added waste streams from such production be re-purposed. As such, it is intended that flaked, chipped, ground, agglomerate or manufacturing "dust" from other cork manufacturing processes are to be sourced and reused as the filler material 20 of the present invention. To date, such "powder" created from grinding or cutting in cork manufacturing has been burned in boilers for steam and energy production.

[0037] It should be obvious to a person having ordinary skill in the relevant art, in light of the present teachings, that equivalent replacements for ground or agglomerated cork can be utilized, including, but not

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limited to, any plant containing lignocellulase such as, by way of example and not meant as a limitation, sawdust, wood chips, wood pellets or wood shavings of any type, such as cedar, pine, or the like, as well as various woody biomass materials. The use of cedar or pine is preferred as an alternate material in that these all natural materials are already utilized in domestic pet products, such as for use in cat litter or small animal bedding, and their use is generally accepted by both pets and pet owners.

[0038] In the preferred embodiment, the binding agent 30 can be a lignosulfate binder, which has been found to be an effective bonding agent for both dried and ground catnip as well as for cork. Other effective bonding agents are known and can be used, such as, for example, various thermoplastic resins and polyurethane food grade adhesives.

2. Operation of the Preferred Embodiment

[0039] As described in the present invention, a catnip-cork composite material is provided that is capable of being molded, compressed, extruded or similarly processed into small or large bodies or sheets and allow for the

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economic manufacture of toys and products for domestic pets, especially felines. As described above, a low cost, all (or substantially) natural composite material can be formed economically into various shapes. The blended, bonded material can be extruded, compressed or molded into shapes or sheets, and given the economy of using a composite material whose components have an overall lower blended cost than a material made substantially of 100% molded catnip, it is now possible to make much larger bodies, be it pet toys or larger structures, such as claw scratching posts, that provide the attractant benefit to the domestic feline of catnip.

[0040] Referring now to FIG. 3 through FIG. 5, an exemplary design for a cover 50 for use with a pet feeder or water bowl 52 is shown made according to the preferred embodiment of the present invention. In this exemplary design, a pet food and/or water bowl 52, such as a plastic or stainless steel pet feeder, is shown in conjunction with a cork composite material cover 50 that is preferably durable and lightweight, and provides an aesthetically pleasing appearance, protection to both the bowl and the surface on which the bowl may be set upon, and possibly

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some insulating properties to the contents placed therein. The use of a composite material incorporating a catnip or functional equivalent solid attractant may be agglomerated with a cork filler material and molded with a binding agent to provide a domestic pet feeder that is attractive to domestic pets, especially felines. Further, the consistency and texture of the cover 50 is quiet when contacted with hard surfaces, unlike a molded plastic body. Further, it is formed of a closed cellular structure that is hydrophobic and inhibits mold growth. The cover 50 may be placed about at least a portion of an exterior of the bowl, or completely encase the bowl sidewall. The cover 50 can remaining affixed to the bowl, or merely contact the bowl through an interference or friction contact fit. Further, an adhesive may be placed between the exterior of the bowl and the interior of the cover.

[0041] As shown in conjunction with FIG. 6a and FIG. 6b, exemplary designs for underlayment mats 58 are shown for use in conjunction with a small animal litter box 60 (FIG. 6a) or a pet feeder or water bowl (FIG. 6b), and incorporating the composite material according to the preferred embodiment of the present invention. The cork-

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catnip materials can further incorporate odor absorbing materials, as described above, to counteract the odors generated by use of a small animal litter box. Further still, the natural hydrophobicity of the cork materials will prevent water damage due to spills or overflow from the pet food and water bowls 62.

[0042] As shown in conjunction with FIG. 7a through FIG. 7d, exemplary designs for domestic cat scratchers are shown incorporating the composite material according to the preferred embodiment of the present invention. The cork-catnip composite material can be affixed as a functional surface element 72, as shown in FIG. 7b through FIG. 7d, or as assembled into a scratching post design 70, as shown in FIG. 7a.

[0043] As shown in FIG. 8a through FIG. 8d, domestic pet furniture 80 of alternate exemplary designs are shown further formed of the composite material according to the preferred embodiment of the present invention.

[0044] The foregoing descriptions of specific embodiments of the present invention have been presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the

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precise forms disclosed, and obviously many modifications and variations are possible in light of the above teaching. The embodiments were chosen and described in order to best explain the principles of the invention and its practical application, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the Claims appended hereto and their equivalents. Therefore, the scope of the invention is to be limited only by the following claims.

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CLAIMS

What is claimed is:

1. A composite material substantially comprising:

- a. a solid attractant;
- b. a lignocellulose filler material; and
- c. a binding agent;

wherein said composite material provides sufficient delivery aromatic olfactory attractant to be effective in having an interactive response with a domestic feline.

2. The composite material of Claim 1, wherein said solid attractant is selected from the group consisting of: dried and granulated catnip; any plant containing a terpenoid nepetalactone or similar chemical to the essential oil of *Nepeta cataria*; other species within the genus *Nepeta*; other plants that are known to have effects on cats; valerian (*Valeriana officinalis*); and plants that contain actinidine.

3. The composite material of Claim 1, wherein said lignocellulose filler material is selected from the group

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consisting of: granulated or agglomerated cork; sawdust, wood chips, wood pellets, and wood shavings of cedar; and, sawdust, wood chips, wood pellets, and wood shavings pine.

4. The composite material of Claim 1, wherein said solid attractant comprises between about 10% to about 60% of the overall composition, by weight.

5. The composite material of Claim 1, wherein said filler material comprises between about 80% to about 20% of overall composition, by weight.

6. The composite of Claim 1, wherein said binding agent comprises about 20% or less of the overall composition, by weight.

7. The composite material of Claim 1, wherein said binding agent is selected from the group consisting of: food grade polyurethanes; dextrin; casein; gelatin; urea-formaldehyde; amine; urethane resins; melaminic resins; phenolic resins; and lignosulfate binders.

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8. The composite material of Claim 2, wherein said filler material is selected from the group consisting of:

granulated or agglomerated cork; sawdust, wood chips, wood pellets, and wood shavings of cedar; sawdust, wood chips, wood pellets, and wood shavings pine; calcium carbonate; calcite; bentonite; zeolite; and or other clays materials.

9. The composite material of Claim 8, wherein said solid attractant comprises between about 10% to about 60% of the overall composition, by weight.

10. The composite material of Claim 9, wherein said filler material comprises between about 80% to about 20% of overall composition, by weight.

11. The composite of Claim 10, wherein said binding agent comprises about 20% or less of the overall composition, by weight.

12. The composite material of Claim 2, wherein said binding agent is selected from the group consisting of: food grade polyurethanes; dextrin; casein; gelatin; urea-

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formaldehyde; amine; urethane resins; melaminic resins; phenolic resins; and lignosulfate binders.

12. The composite material of Claim 8, wherein said binding agent is selected from the group consisting of: food grade polyurethanes; dextrin; casein; gelatin; urea-formaldehyde; amine; urethane resins; melaminic resins; phenolic resins; and lignosulfate binders.

14. The composite material of Claim 1, further comprising the incorporation of dyes in order to provide colors or otherwise alter the aesthetic of the final article.

15. An underlayment mat for placement under a pet food or water bowl formed substantially of a moldable or extrudable catnip composite material of Claim 1.

16. The underlayment mat for placement under a small animal litter box formed substantially of a moldable or extrudable catnip composite material of Claim 1.

17. A cat scratcher formed substantially of a moldable or extrudable catnip composite material of Claim 1.

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18. Pet furniture adapted for use with domestic pets formed substantially of a moldable or extrudable catnip composite material of Claim 1.

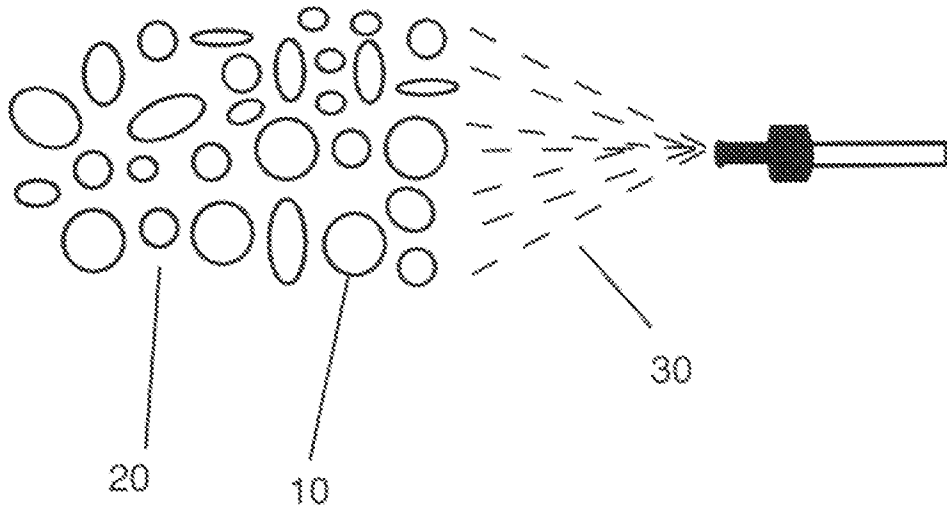


FIG. 1

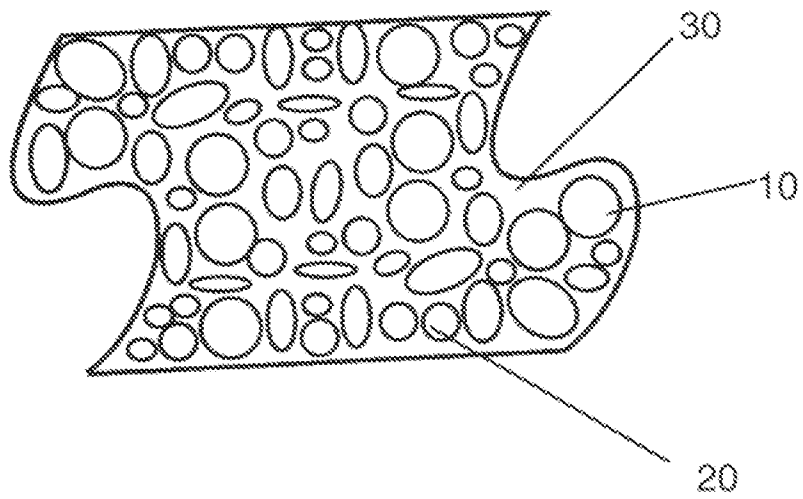


FIG. 2

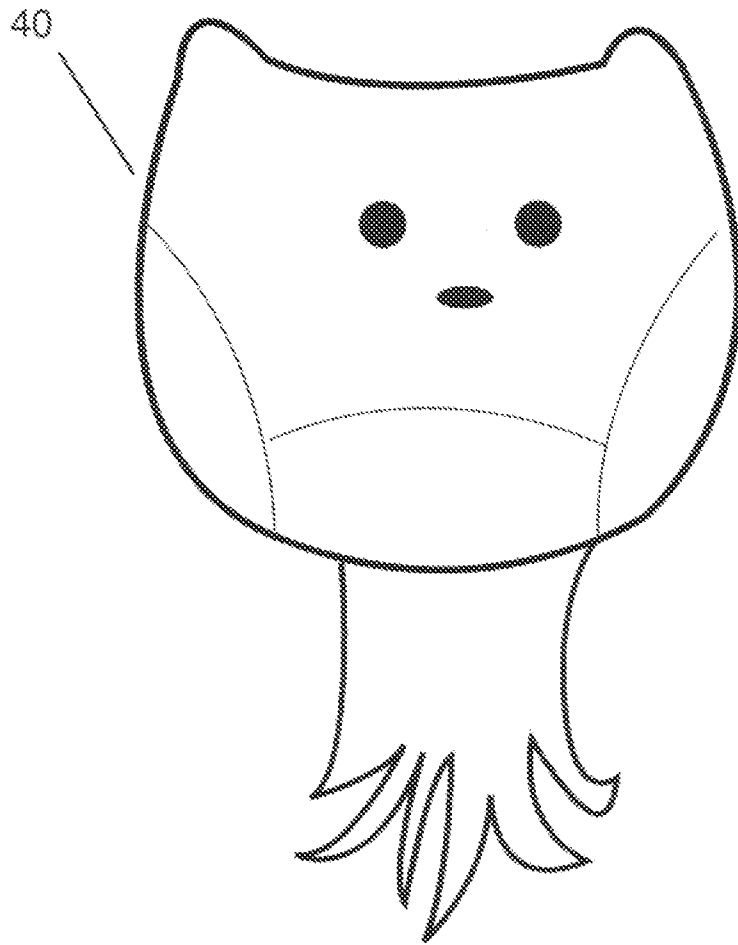


FIG. 3a

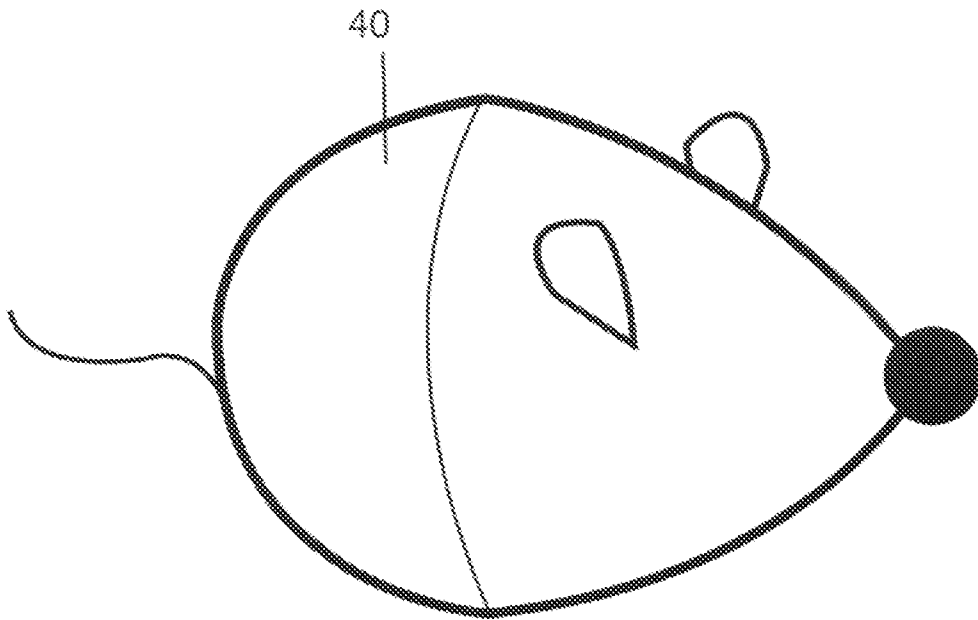


FIG. 3b

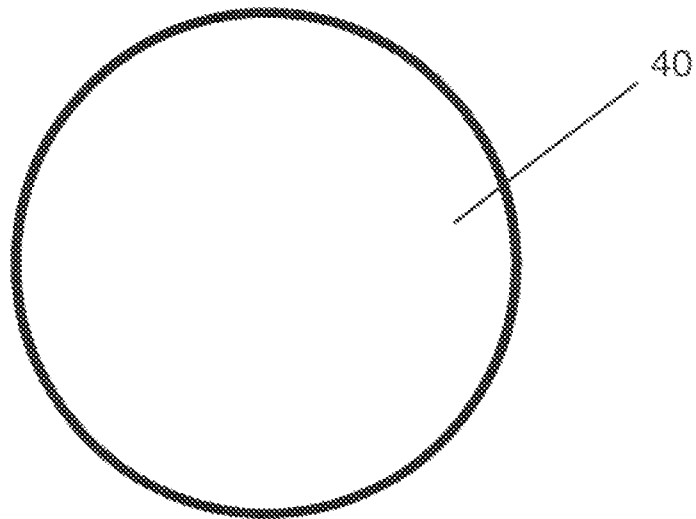


FIG. 3c

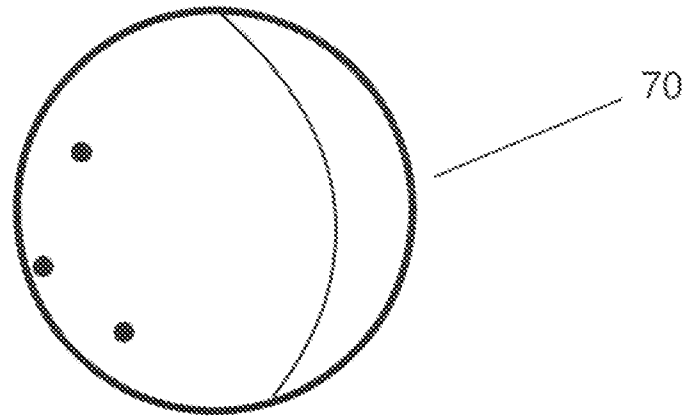


FIG. 5a

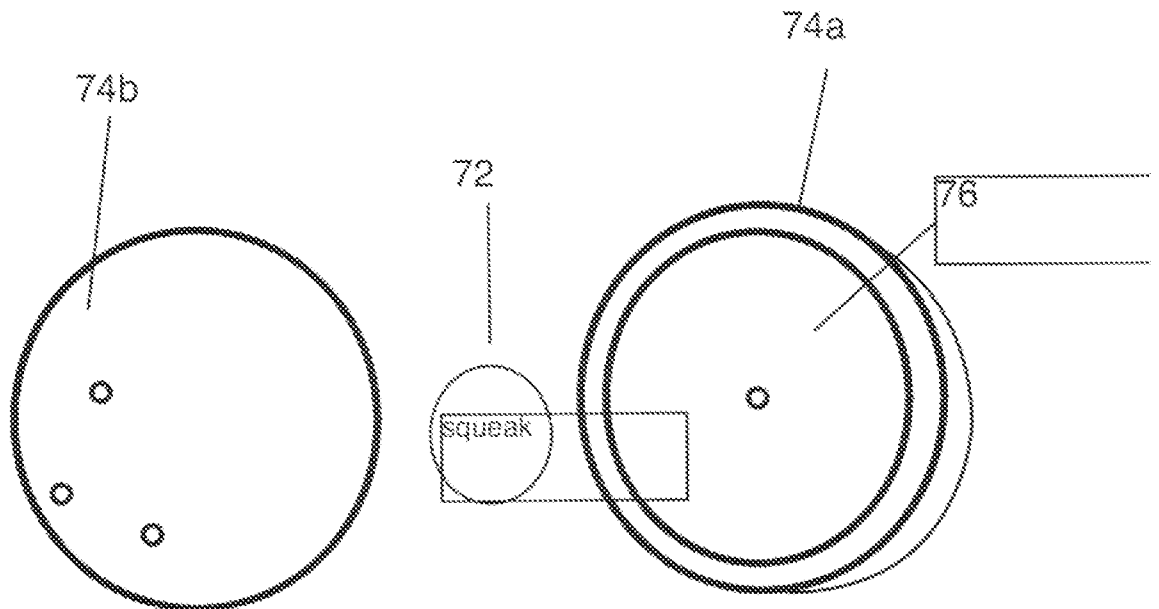


FIG. 5b

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/021286

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - A01K 15/02 (2014.01)
 USPC - 119/711
 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)
 IPC(8) - A01K 15/02 (2014.01)
 USPC - 119/705, 706, 707, 708, 709, 710, 711

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 CPC - A01K 15/02, 15/025 (2014.02)

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 1,022,113 A (SMITH) 02 April 1912 (02.04.1912) entire document	1-3, 8
Y		4-7, 9-18
Y	US 5,797,353 A (LEOPOLD) 25 August 1998 (25.08.1998) entire document	4, 5, 9, 10, 14-18
Y	US 8,367,130 B1 (TSENGAS) 05 February 2013 (05.02.2013) entire document	6, 7, 11-13

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 02 June 2014	Date of mailing of the international search report 23 JUN 2014
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