

TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

Apparatus and a method for the preparation of a play, craft and/or toy compound

The invention to which this application relates is apparatus and a method for the manufacture and preparation of a compound which can subsequently be used in a play and/or craft environment and as a toy and used independently or in conjunction with other toys and/or apparatus.

In particular, although not necessarily exclusively, the compound to which the application relates is a material of the type for use in play and/or crafts, and is hereonin referred to in a non-limiting manner as a play compound. The play compounds of this type conventionally include a cross-linked polymer, such as an adhesive, such as white glue, and which is manufactured under factory conditions by combining polyvinyl alcohol solutions with borate ions. The compound can be odourless or a particular odour can be added to the same and the compound, which is liquid or at least semi fluid, can be formed of a particular colour and is cold and slimy to the touch. The compound can also be referred to as a non-Newtonian fluid in that the viscosity of the fluid can be affected by factors other than temperature, such as, for example, by the application of a shear stress caused by any of squeezing, stirring, agitating or applying mechanical pressure to the compound. One form of this compound is sold under the registered Trade Mark Slime owned by Viacom.

While it is known to be able to form other similar types of compound in the home rather than the factory environment, these compounds can be difficult to make, can require a relatively long list of ingredients and/or ingredients such as Borate which are difficult to obtain, at least in certain

countries and, most often, do not lead to the production of a compound which acts in the same manner as the factory made versions of the compound and, as such, it is found that the compound, once made, is generally unsatisfactory in terms of its performance in comparison with the factory made versions.

Furthermore, while the use of borates is legally allowed there are, at least in certain countries and regions, such as the European Union, concerns about the long term impact of the same on humans, animals and soil. Various studies have shown that excess boron in the soil can have an adverse effect on rootstocks for various crops of fruit and other studies show that boron deficiency is also a problem. Having considered the existing evidence from different animal species which showed that borates have an adverse effect on fertility (rat, mouse and dog) and development (rat, mouse and rabbit) the European Commission Specialised Experts in the field of Reprotoxicity have advised that the compounds should be classified. Furthermore, in certain areas of the world Local Authorities are restricting the discharge of Boron into solid and liquid waste. As such there is a need to reduce or remove borate from the play compounds of the type of interest in this application. It is known to be able to make play compounds which do not include borates and one known form includes the use of a PVA glue, a detergent which are mixed together and bicarbonate of soda which is mixed with a liquid and then added and mixed with the glue detergent mixture to form the play compound. However it is found that in practice the formation of this play compound can be difficult to achieve in a consistent and reliable manner as the use of the incorrect ratios of the three ingredient components can result in significantly different, and in many cases, unusable play compounds.

Furthermore, despite the advantages of using factory made compositions, there are problems with the same in terms of the expense of purchasing the same and the feeling of detachment of the child in that they have not been able to take part in the making of the compound.

An aim of the present invention is therefore to provide apparatus and a method for making a play compound of a type which, once formed, has similar qualities of use as an equivalent type of compound which is made under factory conditions, whilst the apparatus allows the compound to be made by a person in their home environment. A further aim is to provide the ingredients required to make the compound in a manner which allows the same to be used in the manufacture of the compound in a manner which can be used by children and in a safe manner. A further aim is to provide the ingredients in a form which allows a play compound to be formed in a factory or home environment and have predetermined characteristics. It is a yet further aim of the current invention to provide a play compound which has the characteristics of a "Slime" type of compound whilst removing the need to use borates as one of the ingredients.

In a first aspect of the invention there is provided apparatus to aid the formation of a play compound, said apparatus including a base, a cavity and mixing means which, when operated, cause agitation and mixture of the play compound components and a liquid located in the cavity, to form the play compound.

In one embodiment the apparatus base includes the cavity or receives an item in which the cavity is formed and the mixing means include an arm which is movable with respect to the base. In one embodiment the arm is rotatable.

In one embodiment the arm includes at least one, or a number of portions which are located with respect to the cavity so as to cause an agitating, and hence mixing, effect on the liquid and components which are located in the cavity at that time. In one embodiment the said components are provided in a powder form which is premixed and a liquid is also present in the cavity to be mixed with the powder.

In one embodiment the said arm includes one or more ports through which the powder can be poured to introduce the same for mixing with the liquid in the base. In one embodiment the powder is introduced as the arm is moved.

In one embodiment the apparatus includes one or more capsules into which the formed play compound can be placed and stored prior to subsequent use.

In one embodiment the powder is provided in a predetermined quantity such that when the user adds the full quantity to a predetermined quantity of water then they can be confident that a play compound with predetermined characteristics will be formed.

In one embodiment the apparatus includes a plurality of different powder types which can be selectively used alone or in combination to form a particular play compound. In one embodiment the powders may differ in terms of any or any combination of colour, consistency, ingredients, additional components such as glitter, and the like.

In a further aspect of the invention there is provided apparatus for use in the formation of a play compound by mixing a powder and water, said apparatus including a base, a cavity included in, or received by, the base in which the powder and liquid are mixed and wherein a mixing means is provided in a form such that relative rotational movement of the base and at least an arm of the mixing means causes agitation and mixing of the powder and liquid together to form the play compound.

In one embodiment the said relative movement is caused by the application of a manual movement force on a handle of the mixing means located externally of the cavity. Alternatively a powered movement means can be provided.

Typically the handle extends through an aperture in a lid and into the cavity to perform the mixing and the lid prevents spillage of the liquid and/or powder as the same are mixed to form the play compound.

Typically the lid is selectively removable from the cavity to allow access to be gained to introduce the liquid and powder and/or remove the formed play compound.

In one embodiment the movement means are provided as an arm which is rotatably movable with respect to the base about a substantially central axis of the cavity.

In one embodiment the arm includes at least one portion which is located with respect to the base so as to cause an agitating, and hence mixing, effect on the liquid and ingredients which are located in the base

at that time. In one embodiment the said ingredients are provided in a powder form which is premixed.

In one embodiment the said arm includes one or more ports through which the powder can be poured to introduce the same for mixing with the liquid in the base. In one embodiment the powder is introduced as the arm is moved and thereby allows the powder to be introduced to the liquid in a manner which reduces the risk of lumping.

In one embodiment the apparatus includes one or more capsules into which the formed play compound can be placed and stored prior to subsequent use.

In one embodiment the apparatus includes containers for a plurality of different powder types which can be selectively used, alone or in combination, to form a particular play compound. In one embodiment the powders may differ in terms of any, or any combination of colour, consistency, ingredients, additional components such as glitter, and the like.

In a further aspect of the invention there is provided a play compound said play compound formed by adding a powder with a liquid into a cavity of a container, said powder including a plurality of components required to form the play compound and mixing the powder and liquid for a period of time sufficient to cause the play compound to be formed.

In one embodiment the mixing is performed by a person grasping and moving, typically by shaking, the container.

In another embodiment the mixing is performed by a person operating mixing means.

In a further aspect of the invention there is provided a method for the manufacture of a play compound which is pliable in use, said method comprising the steps of adding a quantity of a powder composition to a liquid in a cavity, and applying an agitating force to cause the mixing of the powder and liquid for a period of time so as to cause the said play compound to be formed.

In one embodiment the powder is formed under factory conditions to include the ingredients which are required in predefined percentages and the powder is then provided to a person to be used in conjunction with the liquid.

In one embodiment the liquid is water.

In one embodiment the user is provided with instructions relating to the ratio of the powder to water in the mixture. In one embodiment a range of ratios are provided and the person can select which ratio to use at the time of manufacture.

In one embodiment a specific mixing container is provided and the container has marked thereon one or more levels which indicate the quantity of liquid and/or powder which should be poured into the container in order to form a suitable play compound with specific characteristics.

In one embodiment each ratio is linked to a particular composition of the play compound which will be formed. For example, if there is a greater quantity of powder added to an amount of liquid, then the play compound will have greater viscosity and/or other characteristic and if a smaller quantity of powder is added to the amount of liquid the play compound will have a lower viscosity and/or other characteristic.

In one embodiment each of the compounds is linked to a particular identifiable type or characteristic of play compound such as, clay, dough, rubber, certain resins, sand, gel, slimy substance and/or other art/craft compound.

In one embodiment the specific ingredients contained within the compound are provided in a set percentage level under factory conditions and converted into a powder under factory conditions such that the user is only required at the time of making the compound to add the supplied powder to water in a ratio which is predetermined in order to make the play compound with the user selected characteristics.

In one embodiment the powder contains a combination of the following ingredients Gum, such as Guar gum, Borax, a suitable colour pigment or combination of colour pigments, starch, a phosphate such as Sodium Hydrogen phosphate, an ethanol, and an acetate such as Sodium dehydroacetate.

In one embodiment Borax or a borate is not included.

In one embodiment a further component includes one or more colour pigments and/or other components to provide a visual or tactile effect.

In a further aspect of the invention there is provided a play compound which is pliable in use wherein said play compound includes any or any combination of Silicon, starch, flour and /or talcum powder.

In one embodiment the Silicon is provided as a Silicon Dioxide.

In one embodiment the play compound includes any, or any combination, of a homopolymer, latex, emulsion and/or one or more colour pigments.

Typically said silicon, starch, flour, talcum powder, homopolymer, latex and/or emulsion are, when provided, mixed together, and provided in a powder form.

In one embodiment there is provided a greater percentage of silicon dioxide in the said play compound powder than any of the other ingredients. In one embodiment there is a greater percentage of silicon dioxide in the play compound powder than the total of the other ingredients in the play compound powder.

Typically the powder is created under factory conditions.

In one embodiment the powder is added to a liquid, such as water, in a required ratio and the liquid and powder are mixed to form the play compound. In one embodiment the adding and mixing is performed under factory conditions and the play compound is then provided in a retail pack for purchase by consumers. Alternatively the powder is provided as part of a retail pack for purchase by consumers and the powder is then mixed with the liquid by the consumer to form the play compound.

Typically the mixing of the powder and liquid requires the application of an agitating force to cause the mixing of the powder and liquid for a period of time so as to cause the said play compound to be formed.

In one embodiment when the mixing is performed by the consumer instructions are provided which relate to the ratio of the powder to liquid to be used in the mixture. In one embodiment a range of ratios are provided and the consumer can select which ratio to use at the time of mixing.

In a further aspect of the invention there is provided a play compound which is pliable in use wherein said play compound includes no borates, boron or borax.

In one embodiment the play compound is formed by mixing a combination of ingredients with a liquid. In one embodiment the combination of ingredients is provided in a powder form.

In one embodiment the play compound includes a gelling agent and/or a cross linking agent.

In one embodiment the play compound formed is a Non-Newtonian fluid.

Typically the play compound viscosity varies depending on the amount of force put on it at that instant of time and the viscosity increases with the increase in force applied.

In one embodiment the play compound molecular structure includes tangled, long-chain polymer molecules.

In one embodiment a specific mixing container is provided and the container has marked thereon one or more levels which indicate the quantity of liquid and/or powder which should be poured into the container in order to form a suitable play compound with specific characteristics.

In one embodiment each ratio is linked to a particular composition of the play compound which will be formed. For example, if there is a greater quantity of powder added to an amount of liquid, then the play compound will have greater viscosity and/or other characteristic and if a smaller quantity of powder is added to the amount of liquid the play compound will have a lower viscosity and/or other characteristic.

In one embodiment each of the compounds is linked to a particular identifiable type or characteristic of play compound such as, clay, dough, rubber, certain resins, sand, gel, slimy substance and/or other art/craft compound.

In one embodiment apparatus is provided to aid the formation of the play compound by the consumer, said apparatus including a base and mixing means which, when operated, cause agitation and mixture of powder and liquid to form the play compound. In one embodiment the apparatus includes a base and an arm which is movable with respect to the base. In one embodiment the arm is rotatable with respect to the base as hereinbefore described.

It should also be appreciated that although the method as herein described is particularly suited to allowing the play compound to be effectively formed by an end user, without the need of factory scale apparatus, the method can be used to advantage with all of the steps being performed under factory conditions for the large volume manufacture of the play compound.

Specific embodiments of the invention are now described with the reference to the accompanying diagrams; wherein

Figures 1a-c illustrate a play compound in accordance with one embodiment of the invention;

Figures 2a-c illustrate one embodiment of the method of formation of a play compound in accordance with the invention;

Figures 3a-d illustrate features of an embodiment of apparatus for use in forming the play compound in accordance with the invention.

Referring firstly to Figures 1a-c there is illustrated a play compound 2 in accordance with one embodiment of the invention. The play compound is shown being manipulated by a user's hands 4,6 to take selected forms such as a stretch form 8 shown in Figures 1a and c and a ball form 8 shown in Figure 1b and it will be appreciated that the compound, once moved into a particular shape has tendency to stay in that shape until further manipulated by the user. It is found that this type of compound, and the manipulation of the same can provide entertainment for many hours to children and therefore is a popular plaything.

The play compound can be made using the ingredients described under factory conditions or at least partially formed by the end consumer. In either embodiment a powder can be first be formed and the powder and hence play compound is borate free. A number of different combinations of ingredients from those described herein can be used so as to provide specific forms of the play compound. Furthermore, the subsequent mixing of the powder with liquid in different ratios allows further variations of the type of play compound which is formed and the consistency of the same to be adjusted to suit particular consumer requirements.

In one embodiment when the play compound is made under factory conditions the mixing of the ingredients and mixing of the same with liquid may be done without the specific preparation of the powder prior to adding to the liquid. However when at least part of the formation is to be performed by the consumer the preferred steps are to mix and prepare the powder under factory conditions and then to supply the powder to the consumer for them to perform the steps of mixing the

powder and liquid in a particular ration and agitating the same to form the play compound.

Figures 2a-c illustrate one embodiment of the method of forming the play compound 2 in accordance with the invention. In this embodiment a container in the form of a container 12 is provided and into the container is poured a quantity of water 14. Also poured into the container is a quantity of a premixed powder 16 which includes the ingredients required to form the compound in conjunction with the liquid, and in required percentages, in order to form the play compound 2 such as over 50% by weight Guar gum, in the range of 15 to 30% by weight, Starch such as starch potato, single figure percentages by weight of a phosphate, borax and colour pigment and smaller quantities of ethanol and dehydroacetate. In one embodiment Borax may not be included.

As shown in Figure 2a the powder initially lies on top of the water 14. When the powder and water are located in the container, the lid 18 is placed on the opening in the container to seal the same and the container is then grasped by the user with their hand and shaken as indicated by arrows 19 so as to cause the water and powder to mix. The shaking and mixing is performed for a period of time and after this the powder and liquid have mixed together as shown in Figure 2b. The jar may be provided with markings thereon at one or more levels which indicate the quantity of liquid and/or powder which should be poured into the container in order to form a suitable play compound with specific characteristics when the powder and liquid are mixed together in the jar.

In addition to the mixing, the mixture has also changed condition into the consistency of the play compound which is illustrated in Figure 2c

being pulled out of the jar by the persons finger of their hand 6. Once in the consistency then the same is pliable, remains as a body of the play compound and can be manipulated as illustrated in Figures 1a-c.

Turning now to Figures 3a-d there is illustrated an alternative form of apparatus in accordance with one embodiment of the invention which can be used to form the play compound. It is envisaged that the apparatus 20 will be provided along with one or more containers 22 of the powder as part of a retail pack 24, an example of which is shown in Figure 3a.

Figures 3b and d illustrate two forms of the apparatus 20 in greater detail. It will be seen that the apparatus includes a base 26 with a handle 28 which allows the same to be gripped by the hand 4 during use. The base is provided in the form of a bowl with a cavity in which the powder and water is added and subsequently the play compound 2 is formed. A mixing means in the form of an arm 30 which is provided with a handle 32 to be gripped by the user's other hand 6 is provided. The arm is provided to be rotatable as indicated by arrows 34, 36 about an axis 38 provided centrally of the base 26. The arm has depending downwardly from the same and towards the base, a series of mixing members 40 which depend into the powder and water and serve to mix the same together as the arm is rotated. A lid can be provided to enclose the cavity during mixing although not shown in the Figures 3a-d for clarity purposes.

The arm, in this embodiment, is also provided with one or more ports 42 which allow the pouring of the powder through the same and into the bowl and ports 44 which allow the pouring of the water through the same and into the bowl. These allow the powder and water to be

introduced into the bowl in a measured and spread manner and thereby reduce the tendency of the powder and water to form lumps during the mixing process.

Once the arm has been rotated for a sufficient time as to cause the play compound to be created from the powder and water the same can be removed from the base, in one embodiment using a funnel 46 as shown in Figure 3c and poured into one or more capsules 48 which are typically formed of two parts 50, 52 and once the capsule has been filled with sufficient of the play compound the parts 50, 52 are sealed to thereby enclose the play compound 2 in the same and hence maintain the consistency of the play compound until it is desired to be used for play.

It should be appreciated that the apparatus can take any suitable form and may in one embodiment be shaped to match an animal, cartoon character or other format.

There is therefore provided in accordance with the invention apparatus and a method for producing a play compound which allows the play compound to be made by a non-skilled person and outside of a factory environment whilst ensuring that the play compound which is formed has the desired characteristics.

Claims

1. Apparatus to aid the formation of a play compound, said apparatus including a base, a cavity and mixing means which, when operated, cause agitation and mixture of the play compound components and a liquid located in the cavity, to form the play compound.
2. Apparatus according to claim 1 wherein the apparatus includes a base and an arm which is movable when operated by a user with respect to the base.
3. Apparatus according to claim 2 wherein the arm is rotatable with respect to the base.
4. Apparatus according to claim 3 wherein the arm is manually moveable.
5. Apparatus according to claim 1 wherein the base includes or receives thereon a container in which the said cavity is formed.
6. Apparatus according to claim 2 wherein the arm includes at least one portion which is located with respect to the base so as to cause an agitating, and hence mixing, effect on the components and liquid which are located in the base at that time.
7. Apparatus according to claim 1 wherein the play compound components are provided in a powder form which is premixed.
8. Apparatus according to claim 7 wherein the said arm includes one or more ports through which the powder is poured to introduce the same into the cavity to be mixed with the liquid in the cavity.
9. Apparatus according to claim 8 wherein the powder is introduced as the arm is moved.
10. Apparatus according to claim 1 wherein the apparatus includes one or more capsules into which the formed play compound is stored prior to subsequent use.

11. Apparatus according to claim 7 wherein the powder is provided in a predetermined quantity such that when the user adds and mixes the said predetermined quantity of powder with a predetermined quantity of liquid a play compound with predetermined characteristics is formed.

12 Apparatus according to claim 11 wherein the apparatus includes stores of a plurality of powder types which can be selectively used alone or in combination to form a particular play compound.

13 Apparatus according to claim 12 wherein the powder types differ in terms of any, or any combination, of colour, consistency, and/or additional components.

14. Apparatus according to claim 1 wherein the liquid is water.

15. Apparatus for use in the formation of a play compound by mixing a powder and water, said apparatus including a base, a cavity included in, or received by, the base in which the powder and liquid are mixed and wherein a mixing means is provided in a form such that relative rotational movement of the base and at least an arm of the mixing means causes agitation and mixing of the powder and liquid together to form the play compound.

16 Apparatus according to claim 15 wherein the mixing means is rotated about an axis located on the central axis of the cavity.

17 Apparatus according to claim 15 wherein the said relative movement is caused by the application of a manual movement to a handle of the mixing means which is located externally of the cavity.

18. Apparatus according to claim 15 wherein the arm includes one or more ports through which the powder can be poured to introduce the same for mixing with the water in the cavity.

19 Apparatus according to claim 18 wherein the powder is introduced as the arm is moved and water is already present in the cavity to thereby

allow the powder to be introduced in a manner which reduces the risk of lumping.

20. Apparatus according to claim 1 wherein the apparatus includes a mixing container, said container including indicators marked thereon at one or more levels to indicate the quantity of liquid and/or powder which should be used to form a play compound with specific characteristics.

21. Apparatus according to claim 20 wherein the said cavity in which the mixing of the liquid and powder occurs is provided in the mixing container.

22. Apparatus according to claim 20 wherein the mixing container is provided separately to the said cavity.

23. A play compound, said play compound formed by adding a powder with a liquid in a cavity of a container, said powder including a plurality of components required to form the play compound and mixing the powder and liquid for a period of time sufficient to cause the play compound to be formed.

24 A play compound according to claim 23 wherein the mixing is performed by a person grasping and moving the container.

25 A play compound according to claim 23 wherein the mixing is performed by a person operating mixing means.

26. A method for the manufacture of a play compound which is pliable in use, said method comprising the steps of adding a quantity of a powder composition to a liquid in a cavity, and applying an agitating force to cause the mixing of the powder and liquid for a period of time so as to cause the said play compound to be formed.

27. A method according to claim 26 wherein the powder is formed under factory conditions to include the components which are required in

predefined percentages and the powder is then provided to a person to be mixed in conjunction with liquid in the form of water.

28. A method according to claim 26 wherein the user is provided with a range of ratios for mixture of the water and the powder and the user selects which ratio to use at the time of mixing to thereby select the consistency of the play compound which is formed.

29 A method according to claim 28 wherein the quantities of powder and liquid which are used are selected with respect to indicators marked on a mixing container into which the powder and/or liquid are added.

30 A method according to claim 26 wherein the components contained within the powder are provided in a predetermined percentage level under factory conditions and converted into a powder under factory conditions and then supplied to the end user to add the same to water in a ratio which is predetermined in order to make the play compound with user selected characteristics.

31 A method according to claim 30 wherein the powder contains a combination of two or more of the following components; Gum, , Borax, a colour pigment or combination of colour pigments, starch, a phosphate, an ethanol, and an acetate..

32 A method according to claim 31 wherein the Gum is Guar gum, and/or the phosphate is Sodium Hydrogen Phosphate and/or the acetate is Sodium dehydroacetate.

33 A play compound which is pliable in use wherein said play compound includes any or any combination of Silicon, starch, flour and /or talcum powder.

34. A play compound according to claim 33 wherein the Silicon is provided as a Silicon Dioxide.

35. A play compound according to claim 33 wherein the play compound includes any, or any combination, of a homopolymer, latex, emulsion and/or one or more colour pigments.

36 A play compound according to claim 35 wherein said silicon, starch, flour, talcum powder, homopolymer, latex, emulsion and/or colour pigment are mixed together, and turned into a powder form.

37 A play compound according to claim 36 wherein there is provided a greater percentage of silicon dioxide in the said play compound powder than any of the other ingredients.

38 A play compound according to claim 36 wherein there is a greater percentage of silicon dioxide in the play compound powder than the total of the other ingredients in the play compound powder.

39 A play compound according to claim 36 wherein the powder is created under factory conditions.

40 A play compound according to claim 33 wherein the compound is created by adding the said ingredients in a powder form to a liquid and mixing the same.

41 A play compound according to claim 40 wherein the mixing is performed under factory conditions.

42 A play compound according to claim 40 wherein the powder is provided as part of a retail pack for purchase by consumers and the powder is then mixed with the liquid by the consumer to form the play compound.

43. A play compound according to claim 41 wherein instructions are provided which relate to a range of possible ratios of the powder to liquid to be used in the mixture and the consumer can select which ratio to use at the time of mixing.

44. A play compound according to claim 33 wherein the compound is free from borates, boron and/or borax.

45 A play compound which is pliable in use wherein said play compound includes no borates, boron or borax.

46 A play compound according to claim 45 formed by mixing a powder and a liquid.

47 A play compound according to claim 46 wherein the play compound includes a gelling agent and/or a cross linking agent.

48 A play compound according to claim 44 wherein the compound exhibits the properties of a Non-Newtonian fluid.

49 A play compound according to claim 44 wherein the play compound molecular structure includes tangled, long-chain polymer molecules.

50 A play compound according to claim 44 wherein apparatus is used to aid the formation of the play compound by the consumer, said apparatus including a base and mixing means which, when operated, cause agitation and mixture of powder and liquid to form the play compound.

51 A play compound according to claim 50 wherein the mixing means includes an arm which is movable by the consumer with respect to the base to cause the mixing of the liquid and powder.

52. A play compound according to claim 51 wherein the said arm includes one or more ports through which the powder can be poured to introduce the same for mixing with the liquid in the apparatus as the arm is moved.

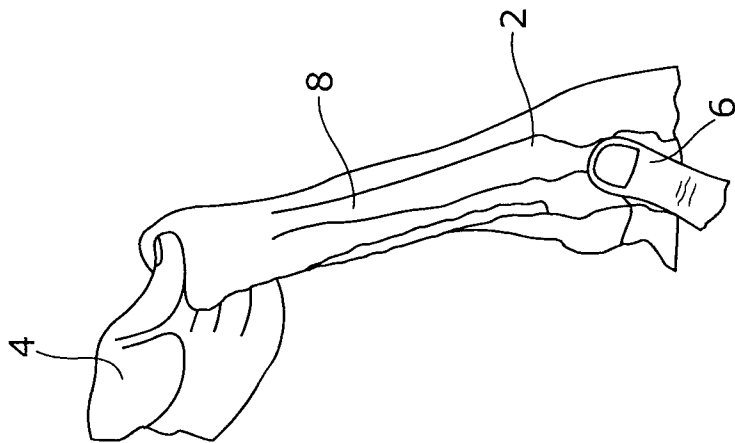


Figure 1c

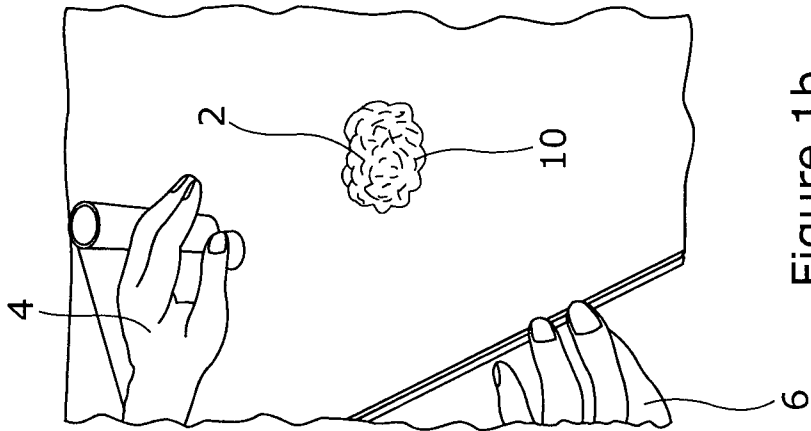


Figure 1b

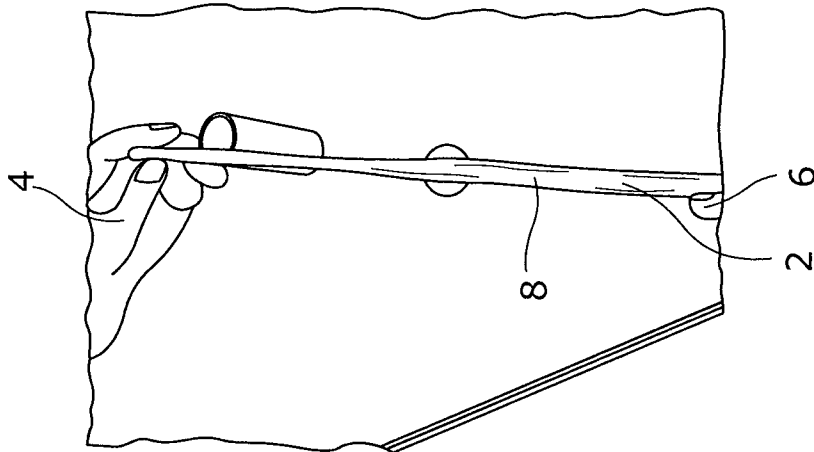


Figure 1a

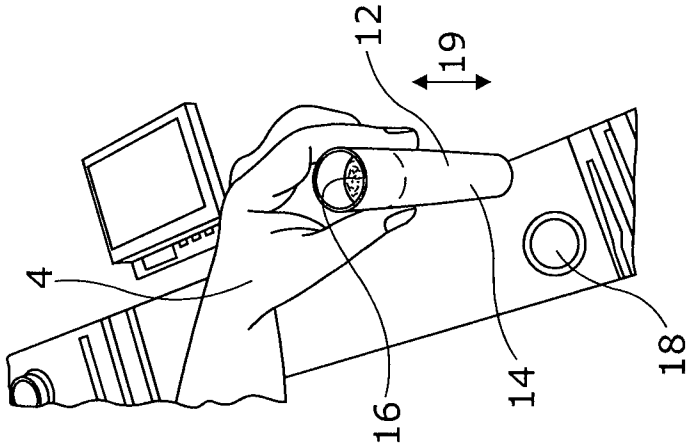


Figure 2a

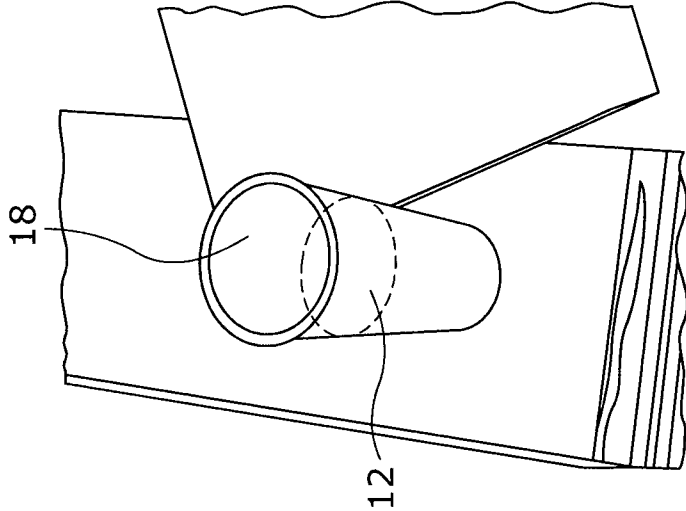


Figure 2b

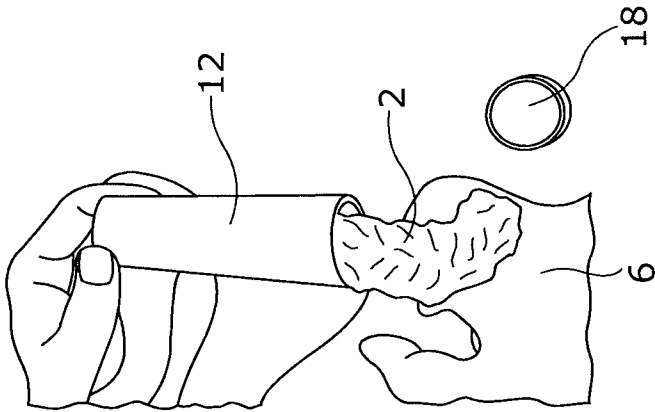
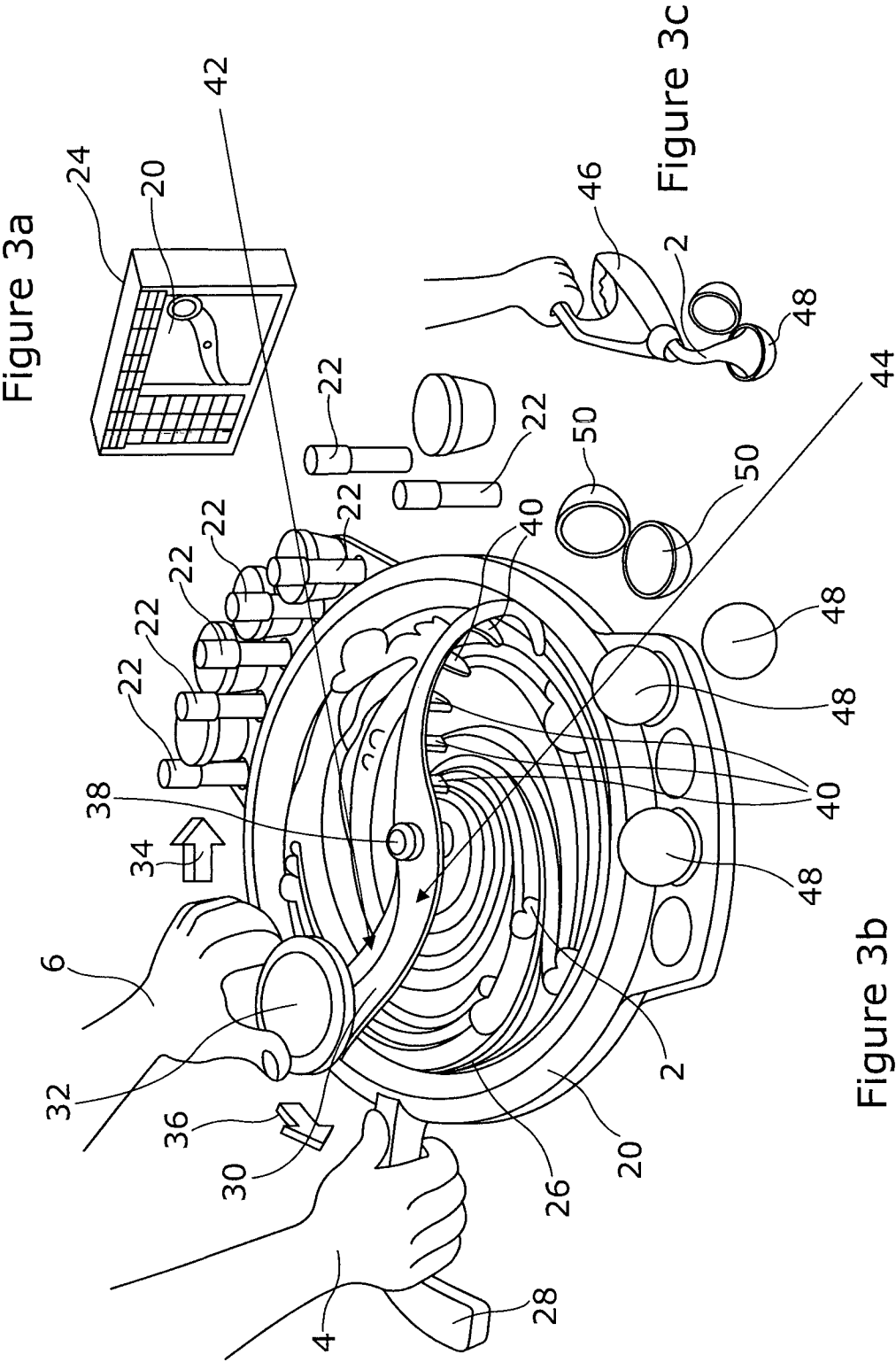


Figure 2c



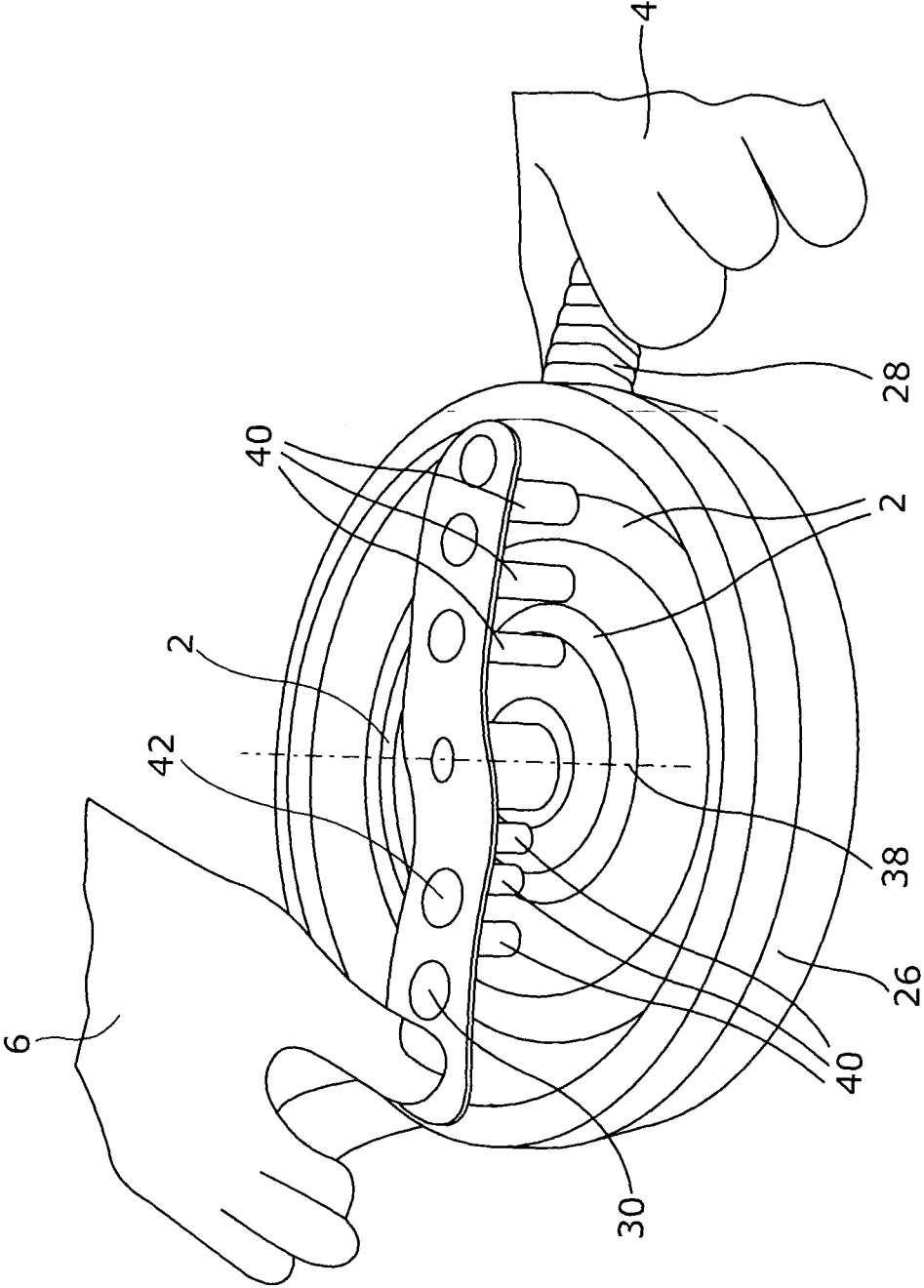


Figure 3d

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2018/000398

A. CLASSIFICATION OF SUBJECT MATTER
INV. A63F9/00 A63H33/32 A63H33/00
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)
A63F A63H A23L A21C A47J B01F

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 210 974 A2 (DEPUY ORTHOPAEDICS INC [US]) 5 June 2002 (2002-06-05) paragraph [0046] - paragraph [0053]; figure 7	1-22
X	US 802 199 A (CROSS JAY B [US]) 17 October 1905 (1905-10-17) claims 1,2; figures 1,2	1-22
X	US 2009/129200 A1 (BREVIERE MARC [GB] ET AL) 21 May 2009 (2009-05-21) paragraph [0043] - paragraph [0049]; figures 1,2	1-22
X	JP 2002 191307 A (OKUBO YASUHIRO) 9 July 2002 (2002-07-09) paragraph [0007] - paragraph [0016]; figures 1-15	1-14, 20-22



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

Date of the actual completion of the international search

3 July 2018

Date of mailing of the international search report

10/09/2018

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Shmonin, Vladimir

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2018/000398

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-22

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-22

an apparatus to aid formation of the play compound
comprising cavity and mixing means

2. claims: 23-32

means and a method of manufacturing a play compound by
mixing powder with liquid

3. claims: 33-44, 48-52

pliable playing compound comprising any or any combination
of Silicon, starch, flour and /or talcum powder

4. claims: 45-47

a play compound which is pliable in use wherein said play
compound includes no borates, boron or borax

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2018/000398

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1210974	A2	05-06-2002	AT 315435 T 15-02-2006
		AU 778168 B2 18-11-2004	
		DE 60116583 T2 02-11-2006	
		EP 1210974 A2 05-06-2002	
		JP 2002326022 A 12-11-2002	
		US 2002067658 A1 06-06-2002	

US 802199	A	17-10-1905	NONE

US 2009129200	A1	21-05-2009	AT 472282 T 15-07-2010
		CN 101438940 A 27-05-2009	
		EP 2060216 A1 20-05-2009	
		FR 2923698 A1 22-05-2009	
		US 2009129200 A1 21-05-2009	

JP 2002191307	A	09-07-2002	NONE
