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### (54) IMPROVED EXERCISE ROLLER

VERBESSERTER ÜBUNGSROLLER

ROULEAU D'EXERCICE AMÉLIORÉ

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## Description

### Field of Invention

[0001] This invention relates to exercise rollers and improvements to make a more versatile exercise roller.

### Background

[0002] Foam rollers are used in the exercise and therapy industries for strength and conditioning as well as self massage and flexibility training. These foam rollers come as a single unitary piece, traditionally either 300 mm or 900 mm long.

[0003] For some uses a 900 mm long roller is desired whilst for other uses a 300 mm long roller is desired. Generally a short roller cannot be used where a long roller is desired and vice versa. Thus it is necessary to have two or more rollers of different lengths. In a similar manner there are situations where one may desire to have rollers of different diameters. Again this has required the use of separate rollers of different diameters.

### Summary of the Invention

[0004] In an attempt to overcome at least one of the aforementioned problems the invention provides a roller as specified in claim 1.

[0005] The sub units may be generally tubular, cylindrical or rod like foam rollers that engage end on end. The sub units may be other shapes or may be rigid.

[0006] Each sub unit may itself be formed of two or more parts. One or more sub units may comprise a first tubular or cylindrical part having an internal longitudinally extending passageway with a second part engaging, preferably snugly, within the passageway. The second part may be a solid rod like part or may be a tubular or cylindrical part. Where the second part is tubular or cylindrical a third (solid) part may be located within the second part.

[0007] Thus the roller according to invention may comprise two, three or more separate sub units or components.

[0008] Where a tubular part is provided, whether or not it has a component within itself, the tubular part may be formed of a relatively rigid material, such as PVC, or may be formed of a foamed material.

[0009] If desired a roller may be provided with an outer rigid tube, an inner tubular foamed core and a central solid foamed core. The rigid outer tube may be the full length of the roller or may be formed of two or more lengths joined together. The number of parts of each sub unit need not be equal. Thus the outer tube may be a single unit whilst the inner tube and/or central core may be formed of two or more lengths.

[0010] Where a sub unit is formed of end on end lengths the lengths may be of equal or unequal lengths.

[0011] Providing a roller in two or more parts allows

individuals that travel the ability to take all or part of the roller with them anywhere. The user has the choice, depending on the configuration of the roller, of taking the whole unit, a shorter length but full diameter roller or a smaller diameter roller, both long and short versions. In addition, if the roller is comprised of two end on end sub units both may be taken and joined together when needed, making a more easily transported roller. Having separate parts can be a discerning factor of whether an athlete or individual brings the roller along with them as the standard roller doesn't allow this, hence maximising the use of the tool and it's benefits.

[0012] In the preferred form of the invention the roller is comprised of two sub units and each sub unit is comprised of a first tubular or cylindrical part with a longitudinally extending internal passageway with a second part snugly engaging within the passageway.

[0013] The internal bore of the first part and the corresponding second part are preferably circular in cross section.

[0014] Where the sub units are attached to each other end on end means for attachment are provided on one or both ends on the sub units. In the preferred form of the invention this is comprised of hook and loop fastener material, such as that sold under the Trade Mark of Velcro. Other means for attachment may be used. As examples, complementary press stud type fasteners or tongue and groove type fasteners may be used. A tongue and groove arrangement that engages by rotation about the roller axis, such as found on containers for bulk CD's, may be used. A tongue and groove arrangement that engages by sideways movement of the sub units relative to each other may be used.

[0015] Unless the context clearly requires otherwise, throughout the description and the claims the words 'comprise', 'comprising', and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

### Brief Description of the Drawings

#### [0016]

Figure 1 shows an outline perspective view of a first example of the invention;

Figure 2 shows a detail view of the end of part of the first example of figure 1;

Figure 3 shows an outline perspective view of a second example of the invention;

Figure 4 shows a detail view of the end of part of the second example of figure 3;

Figure 5 shows a side cross section of a variation of the second example;

Figure 6 shows a detail view of the end of a variation of the first example, and

Figure 7 shows a detail view of the end of a variation of the second example.

### **Detailed Description of Preferred and other Embodiments**

**[0017]** Referring to figures 1 and 2 there is shown a roller 10 according to an example of the invention. The roller 10 is comprised of two sub units 12 and 14. The sub unit 12 is about 560 mm long whilst the sub unit 14 is about 360 mm long.

**[0018]** The two sub units 12 and 14 are joined end on end using attachment means, which in this example is hook and loop fastener material 16a, 16b, shown in figure 2 on the end 18 of sub unit 14. It will be appreciated that there will be complementary strips on the opposed end 20 of sub unit 12. The strips 16a, 16b may both be hook or loop material or one may be hook material and the other loop material.

**[0019]** The two sub units, when joined thus form a single roller about 900 mm long. The two sub units may be separated, so providing two separate rollers of shorter length. Thus a single 900 mm long roller may provide the functionality of both a long roller and a short roller. The two sub units 12, 14 need not be of unequal length and may be of equal lengths.

**[0020]** Each sub unit is comprised of a hollow tubular or cylindrical outer shell 12a, 14a and a solid rod like inner part 12b, 14b. The inner and outer parts of a sub unit are preferably the same length. The outer shells 12a, 14a have an outside diameter of about 6 inches (-150 mm) and the inner bore 22a, 24a of each is about 4 inches (-100 mm) in diameter. The solid inner parts 12b and 14b have a diameter similar to that of the inner bores 22a, 24a and are dimensioned so that they are a snug fit but may be readily removed from the corresponding outer part 12a, 14a. The ends of the sub units may be provided with means to secure the inner and outer components together and prevent or resist the inner parts accidentally sliding out of the outer parts.

**[0021]** Thus when a large diameter roll is required (whether it is short or long) the roller is used with the inner part(s) inserted within the outer part(s).

**[0022]** When a small diameter roller is required one or both of the inner parts is removed from the corresponding outer part and used either alone or attached together. As seen in figure 2 at least part of the attachment means 16 is attached on the inner part and so the two inner parts may be attached together.

**[0023]** It will be appreciated that the inner parts 12a and 12b together may be considered sub units of part 12 and similarly parts 14a and 14b together may be considered sub units of part 14.

**[0024]** Whilst the inner parts 12b and 14b extend the full length of the respective parts 12a and 14a they need

not. The bores 22a, 24a may be closed at one end or may extend the full length with the inner parts 12b and 14b being shorter.

**[0025]** Referring to figures 3 and 4, there is shown a roller 30 according to another example of the invention. The roller 30 is comprised of two sub units 32 and 34. The sub unit 32 is about 560 mm long whilst the sub unit 34 is about 360 mm long. Again sub unit 32 and 34 may be of equal lengths.

**[0026]** The two sub units 32 and 34 are joined end on end using attachment means, which in this example is rod 36, shown in figure 4 on the end 38 of sub unit 34. The rod 36 is preferably of wood but may be formed of other materials. The rod 36 is about 27 mm in diameter and about 210 mm long. The rod may be shorter or longer and, particularly for large users, may be 270 mm long. The rod is received in a bore 40 about half the length of the rod. The other part 34 has a similar bore in its opposing face. The rod 36 is a preferably a snug fit in the bore 40 so that when inserted and the two parts 32, 34 are joined together they are relatively rigidly joined.

**[0027]** The rod is preferably sized so that it may be used as a foot roller and the dimensions mentioned above are chosen for this purpose. The dimensions of the rod 36 may be different, particularly if it is not intended that the rod 36 be used as a separate item of exercise equipment.

**[0028]** The example of figures 3 and 4 is similar to that of figures 1 and 2 and each sub unit is comprised of a hollow tubular or cylindrical outer shell 32a, 34a and a solid rod like inner part 32b, 34b. The inner and outer parts of a sub unit are preferably the same length. The outer shells 32a, 34a have an outside diameter of about 6 inches (-150 mm) and the inner bore 22a, 24a of each is about 4 inches (-100 mm) in diameter. The solid inner parts 32b and 34b have a diameter similar to that of the inner bores 22a, 24a and are dimensioned so that they are a snug fit but may be readily removed from the corresponding outer part 32a, 34a. The ends of the sub units may be provided with means to secure the inner and outer components together and prevent or resist the inner parts accidentally sliding out of the outer parts.

**[0029]** Whilst a simple bore in the inner portions 32a and 34a is preferred, the rod 36 may be received in a locking type bore to more securely retain the rod 36 in the respective bore.

**[0030]** Figure 5 shows a variation in which an insert 40 is located in the end of each sub unit 32, 34. The insert 40 has a bore 42 sized to receive the rod 36. The rod 36 has a circumferential groove 44 at each end and each insert has one or more spring loaded balls 46 that are urged to partially enter the bore 42 by spring 48. When the rod 36 is inserted into the bore 42 the ball 46 is deflected and then biased against the groove, thereby retaining the rod 36 in the bore 42.

**[0031]** A roller may be assembled of more than two sub units.

**[0032]** Whilst the two sub units of the example shown

are each comprised of two parts, it is not essential that this be so. Two solid sub units may be used. Where two sub units are used one may be solid and the other may be a two piece unit. Where two or more two piece sub units are used, the diameters of the inner bore and corresponding inner part need not be the same. For example, one inner part may be 4 inches in diameter and the other part 3 inches in diameter. Whilst a two piece sub unit is shown, if desired a sub unit may be formed of three or more generally concentric components.

**[0033]** Figures 6 and 7 show variations of the first two examples, in which at least one sub unit 12a, 32a respectively is formed of a single piece of foam. The foam is 4 or 6 inches in diameter (100 or 150 mm).

**[0034]** Whilst the examples shown have a solid roller, this is not essential - it is merely necessary that the roller has the desired amount of resilience. Depending on the material used the roller may be solid or may have one or more longitudinally extending passageways. These passageways may extend through a unitary sub unit, or one or more components of a multi piece sub unit. Whilst hook and loop fastener is preferred other appropriate detachable and re-attachable fasteners may be used.

#### Claims

1. A cylindrical exercise roller (10; 30) for self-massage and flexibility training for an athlete comprised of at least two sub exercise roller units (12, 14; 32, 34) connected together to form a single exercise roller and separable so as to be usable as separate exercise rollers, wherein each sub-exercise roller unit and the single exercise roller have the same radius (R1, R2), said connection prevents relative rotation of the separable sub exercise roller units (12, 14; 32, 34), said cylindrical exercise roller has a length of 900 mm and said radius (R1, R2) is 50 or 75 mm.
2. The cylindrical exercise roller of claim 1, wherein adjacent sub exercise roller units (12, 14; 32, 34) engage end on end.
3. The cylindrical exercise roller of claim 1 or 2, wherein at least one sub exercise roller unit (12, 14; 32, 34) is tubular or rod like.
4. The cylindrical exercise roller of any one of claims 1 to 3, wherein at least one sub exercise roller unit (14, 32) is substantially unitary.
5. The cylindrical exercise roller of any one of claims 1 to 4, wherein at least one sub exercise roller unit (12, 14; 32, 34) comprises a first tubular part (12a, 14a; 32a, 34a) having an internal longitudinally extending passageway with a second part (12b, 14b; 32b, 34b) snugly engaging within the passageway.

6. The cylindrical exercise roller of claim 5, wherein the second part is rod like or tubular (12b, 14b; 32b, 34b).
7. The cylindrical exercise roller of claim 5 or 6, wherein the second part (12b, 14b; 32b, 34b) is a sub exercise roller unit snugly engaged within the passageway.
8. The cylindrical exercise roller of any one of claims 5 to 7, wherein the second part (12b, 14b; 32b, 34b) is tubular and a third part is located within the second part.
9. The cylindrical exercise roller of any one of claims 5 to 8, wherein the passageway extends the length of the first sub exercise roller unit.
10. The cylindrical exercise roller of any one of claims 1 to 9, wherein at least two said sub exercise roller units are attached to each other end on end and means for attachment (16a, 16b; 36, 40) are provided on one or both adjacent ends on the sub exercise roller units.
11. The cylindrical exercise roller of claim 10, wherein the means for attachment (16a, 16b) is comprised of hook and loop fastener material.
12. The cylindrical exercise roller of claim 10, wherein the means for attachment includes a bore (40) in each of the adjacent ends of the two sub exercise roller units and a joiner (36) received within said bores.
13. The cylindrical exercise roller of claim 12, wherein the joiner (36) is a roller.
14. The cylindrical exercise roller of any one of claims 1 to 13, wherein at least one sub exercise roller unit (12, 14; 32, 34) is formed of a foamed material
15. A method of exercising comprising separating at least one said sub exercise roller unit from a cylindrical exercise roller as claimed in any one of the preceding claims and exercising using said at least one sub exercise roller unit separated from said cylindrical exercise roller as a separate exercise roller.

#### Patentansprüche

1. Eine zylindrische Übungsrolle (10; 30) zur Selbstmassage und zum Training der Beweglichkeit eines Sportlers, bestehend aus mindestens zwei Unterübungsrolleneinheiten (12, 14; 32, 34), die zu einer einzigen Übungsrolle verbunden und so trennbar sind so dass sie als separate Übungsrollen verwendbar sind, wobei jede Unterübungsrolleneinheit und die einzelne Übungsrolle den gleichen Radius (R1,

- R2) haben, wobei die Verbindung eine relative Drehung der trennbaren Unterübungsrolleneinheiten (12, 14; 32, 34) hat die zylindrische Übungsrolle eine Länge von 900 mm und der Radius (R1, R2) beträgt 50 oder 75 mm.
2. Zylindrische Übungsrolle nach Anspruch 1, wobei benachbarte Unterübungsrolleneinheiten (12, 14; 32, 34) Ende an Ende ineinandergreifen.
  3. Zylindrische Übungsrolle nach Anspruch 1 oder 2, wobei mindestens eine Unterübungsrolleneinheit (12, 14; 32, 34) röhrenförmig oder stabförmig ist.
  4. Zylindrische Übungsrolle nach einem der Ansprüche 1 bis 3, wobei mindestens eine Unterübungsrolleneinheit (14, 32) im Wesentlichen einheitlich ist.
  5. Zylindrische Übungsrolle nach einem der Ansprüche 1 bis 4, wobei mindestens eine Unterübungsrolleneinheit (12, 14; 32, 34) einen ersten rohrförmigen Teil (12a, 14a; 32a, 34a) mit einer inneren Längsrichtung umfasst sich erstreckender Durchgang mit einem zweiten Teil (12b, 14b; 32b, 34b), der genau in den Durchgang eingreift.
  6. Zylindrische Übungsrolle nach Anspruch 5, wobei der zweite Teil stabförmig oder rohrförmig ist (12b, 14b; 32b, 34b).
  7. Zylindrische Übungsrolle nach Anspruch 5 oder 6, wobei der zweite Teil (12b, 14b; 32b, 34b) eine Unterübungsrolleneinheit ist, die genau in den Durchgang eingreift.
  8. Zylindrische Übungsrolle nach einem der Ansprüche 5 bis 7, wobei der zweite Teil (12b, 14b; 32b, 34b) rohrförmig ist und ein dritter Teil innerhalb des zweiten Teils angeordnet ist.
  9. Zylindrische Übungsrolle nach einem der Ansprüche 5 bis 8, wobei sich der Durchgang über die Länge der ersten Unterübungsrolleneinheit erstreckt.
  10. Zylindrische Übungsrolle nach einem der Ansprüche 1 bis 9, wobei mindestens zwei der Unterübungsrolleneinheiten Ende an Ende aneinander befestigt sind und Mittel zur Befestigung (16a, 16b; 36, 40) an einem oder mehreren vorgesehen sind beide benachbarten Enden an den Nebenübungsrolleneinheiten.
  11. Zylindrische Übungsrolle nach Anspruch 10, wobei die Befestigungsmittel (16a, 16b) aus Klettverschlussmaterial bestehen.
  12. Zylindrische Übungsrolle nach Anspruch 10, wobei die Mittel zur Befestigung eine Bohrung (40) in jedem

der benachbarten Enden der beiden Unterübungsrolleneinheiten und eine Verbindung (36) umfassen, die in den Bohrungen aufgenommen ist.

- 5 13. Zylindrische Übungsrolle nach Anspruch 12, wobei das Verbindungsstück (36) eine Rolle ist.
14. Zylindrische Übungsrolle nach einem der Ansprüche 1 bis 13, wobei mindestens eine Unterübungsrolleneinheit (12, 14; 32, 34) aus einem geschäumten Material besteht
- 10 15. Trainingsverfahren, das das Trennen mindestens einer Unter-Übungsrolleneinheit von einer zylindrischen Übungsrolle nach einem der vorhergehenden Ansprüche und das Training unter Verwendung der mindestens einen Unter-Übungsrolleneinheit, die von der zylindrischen Übungsrolle getrennt ist, als separate Einheit umfasst Übungsrolle.
- 15 20

## Revendications

- 25 1. Rouleau d'exercice cylindrique (10 ; 30) pour l'auto-massage et l'entraînement de flexibilité pour un athlète, composé d'au moins deux sous-unités de rouleaux d'exercice (12, 14 ; 32, 34) reliées ensemble pour former un seul rouleau d'exercice et séparables de manière à de manière à pouvoir être utilisé comme rouleaux d'exercice séparés, chaque unité de rouleaux d'exercice secondaire et le rouleau d'exercice unique ayant le même rayon (R1, R2), ladite connexion empêche la rotation relative des unités de rouleaux d'exercice secondaires séparables (12, 14 ; 32, 34), ledit rouleau d'exercice cylindrique a une longueur de 900 mm et ledit rayon (R1, R2) est de 50 ou 75 mm.
- 30 2. Rouleau d'exercice cylindrique selon la revendication 1, dans lequel des unités de rouleaux d'exercice secondaires adjacentes (12, 14; 32, 34) s'engagent bout à bout.
- 35 3. Rouleau d'exercice cylindrique selon la revendication 1 ou 2, dans lequel au moins une unité de rouleau d'exercice secondaire (12, 14; 32, 34) est tubulaire ou semblable à une tige.
- 40 4. Rouleau d'exercice cylindrique selon l'une quelconque des revendications 1 à 3, dans lequel au moins une unité de rouleau d'exercice secondaire (14, 32) est sensiblement unitaire.
- 45 5. Rouleau d'exercice cylindrique selon l'une quelconque des revendications 1 à 4, dans lequel au moins une sous-unité de rouleau d'exercice (12, 14; 32, 34) comprend une première partie tubulaire (12a, 14a ; 32a, 34a) ayant une paroi longitudinale interne. pas-
- 50 55

sage s'étendant avec une seconde partie (12b, 14b; 32b, 34b) s'engageant parfaitement dans le passage.

rouleaux d'exercice secondaire séparée dudit rouleau d'exercice cylindrique en tant qu'unité séparée. rouleau d'exercice.

6. Rouleau d'exercice cylindrique selon la revendication 5, dans lequel la seconde partie est en forme de tige ou tubulaire (12b, 14b; 32b, 34b). 5
7. Rouleau d'exercice cylindrique selon la revendication 5 ou 6, dans lequel la seconde partie (12b, 14b; 32b, 34b) est une unité de rouleau d'exercice secondaire étroitement engagée dans le passage. 10
8. Rouleau d'exercice cylindrique selon l'une quelconque des revendications 5 à 7, dans lequel la deuxième partie (12b, 14b; 32b, 34b) est tubulaire et une troisième partie est située à l'intérieur de la deuxième partie. 15
9. Rouleau d'exercice cylindrique selon l'une quelconque des revendications 5 à 8, dans lequel le passage s'étend sur la longueur de la première unité de rouleau d'exercice secondaire. 20
10. Rouleau d'exercice cylindrique selon l'une quelconque des revendications 1 à 9, dans lequel au moins deux desdites sous-unités de rouleau d'exercice sont fixées l'une à l'autre bout à bout et des moyens de fixation (16a, 16b; 36, 40) sont prévus sur l'un ou l'autre, les deux extrémités adjacentes sur les unités de rouleaux d'exercice secondaires. 25  
30
11. Rouleau d'exercice cylindrique selon la revendication 10, dans lequel les moyens de fixation (16a, 16b) sont constitués d'un matériau de fixation à crochets et boucles. 35
12. Rouleau d'exercice cylindrique selon la revendication 10, dans lequel les moyens de fixation comprennent un alésage (40) dans chacune des extrémités adjacentes des deux unités de rouleaux d'exercice secondaires et un élément de jonction (36) reçu dans lesdits alésages. 40
13. Rouleau d'exercice cylindrique selon la revendication 12, dans lequel le dispositif de jonction (36) est un rouleau. 45
14. Rouleau d'exercice cylindrique selon l'une quelconque des revendications 1 à 13, dans lequel au moins une unité de rouleau d'exercice secondaire (12, 14; 32, 34) est formée d'un matériau en mousse. 50
15. Procédé d'exercice comprenant la séparation d'au moins une dite unité de rouleaux d'exercice secondaire d'un rouleau d'exercice cylindrique selon l'une quelconque des revendications précédentes et l'exercice en utilisant ladite au moins une unité de 55

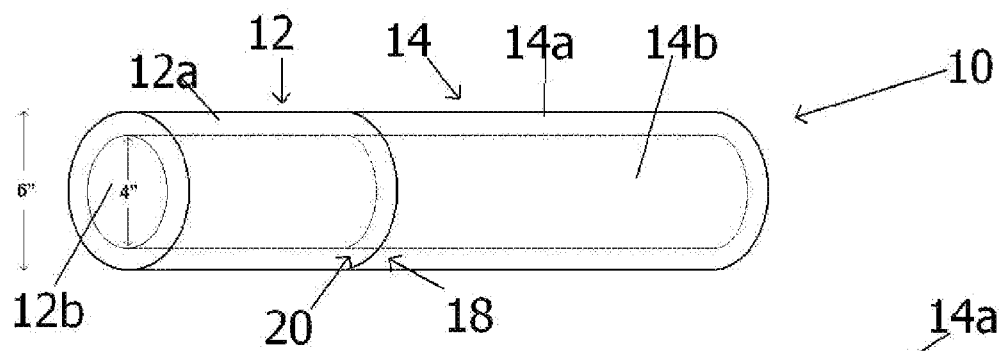


Figure 1

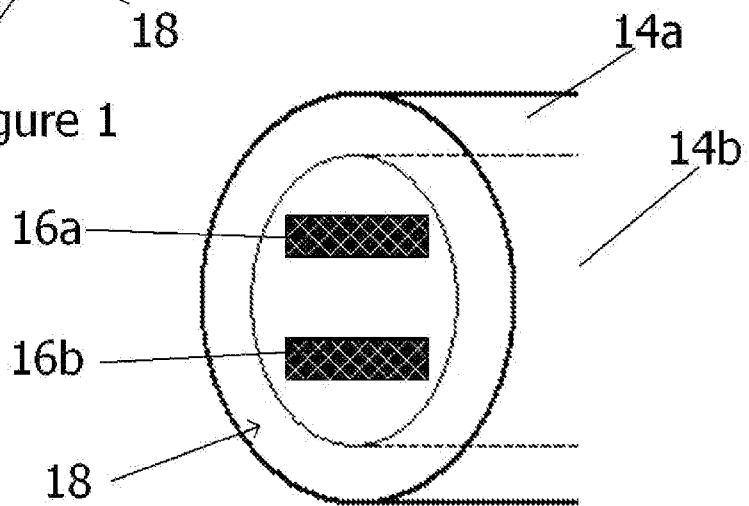
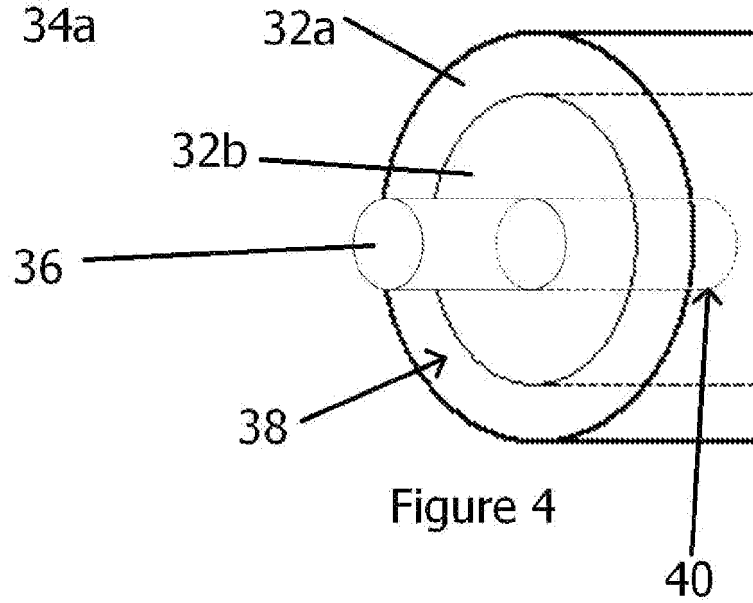
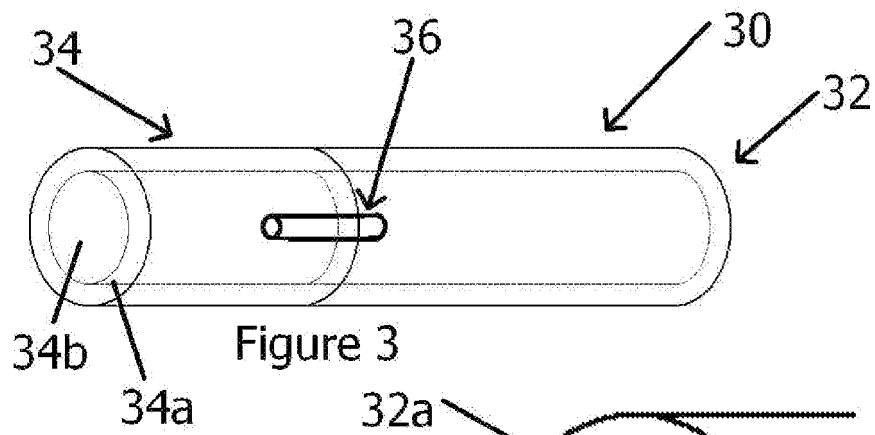


Figure 2





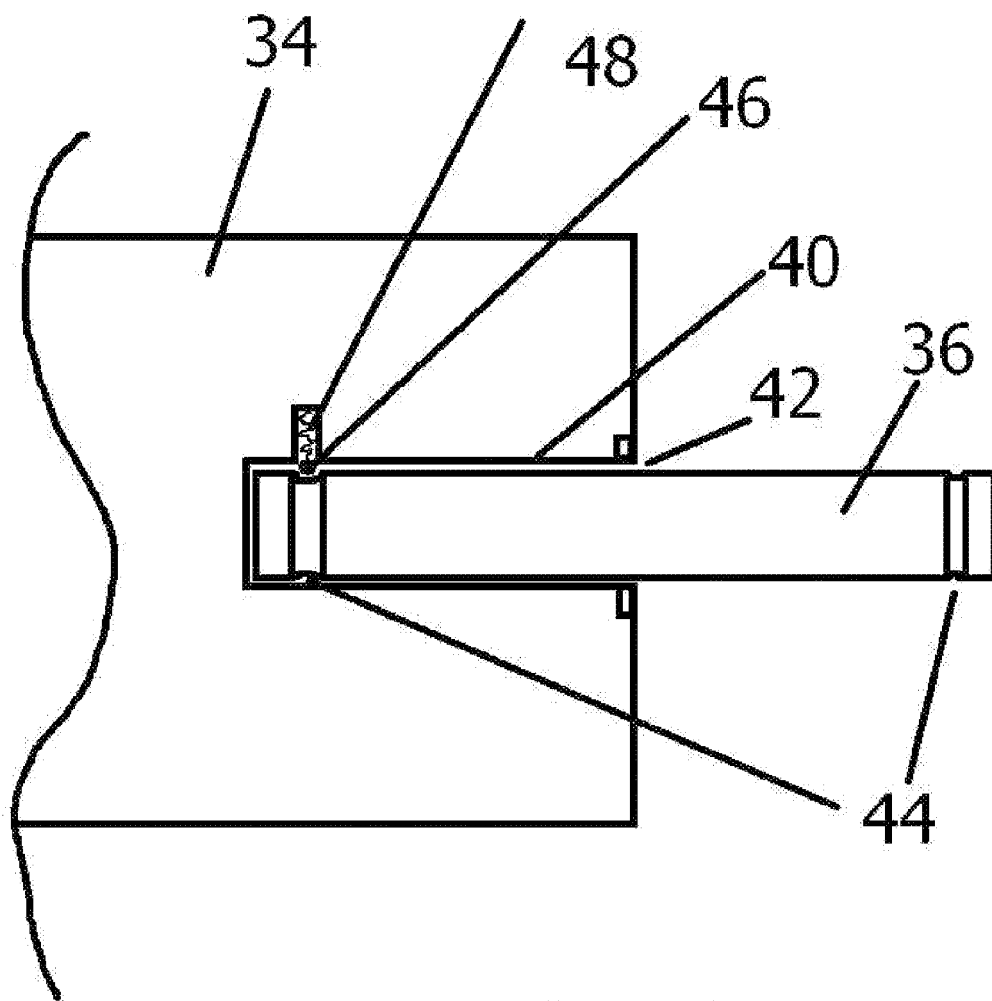


Figure 5

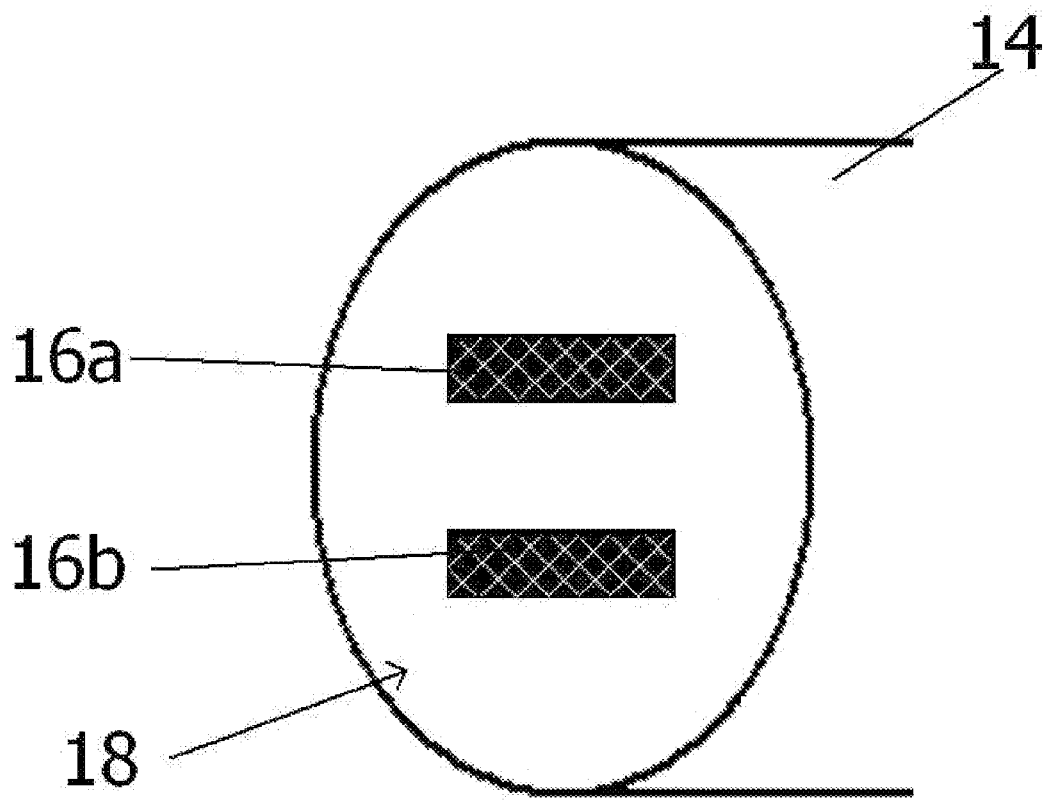


Figure 6

