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(54) **Mechanism for the controlled retracting movement of a roller insect-blocking foil means**

Mechanismus für das kontrollierte Einziehen eines rollbaren Fliegengitters

Mécanisme pour l'enroulement contrôlé d'une moustiquaire enroulable

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EP-A- 0 919 854 DE-U- 9 203 450
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Description

[0001] The present invention relates to a mechanism for effecting a controlled retracting movement of a roller insect-blocking foil means adapted for blocking the entrance of insects through doors or windows.

[0002] Such roller blind means have a textile structure with a mesh allowing lighting and fresh air passage, but blocking the intrusion of undesirable insects. These roller insect-blocking foil means are wound round a drum installed within a housing on top of the door/window opening, said drum being set in a rotational winding or unwinding movement to enable retraction or deployment of the roller insect-blocking foil means respectively.

[0003] The roller insect-blocking foil means when deployed is locked onto hook means at the bottom of the opening and is automatically wound round the drum when released from these hook means. Such winding retracting movement of the roller insect-blocking foil means is effected at undesirably high speed resulting from the resilient spring means acting upon the drum, such high speed possibly leading to accidents, whilst reliable operation of the roller blind means may be deteriorated due to frequent high speed retracting movement thereof.

[0004] With the scope of overcoming the abovementioned drawbacks, mechanisms have been developed for effecting a controlled retracting rolling up movement of such roller insect-blocking foil means. Such mechanisms, either mechanical or hydraulic, are often complex clutch arrangements and lack reliable operation with the passage of time due to rapid wear of their mechanical components and/or unreliable controlling of temperature dependent viscosity in fluid operated brake means. By way of example, the viscosity of water varies between the value of $1,1 \times 10^3 \text{ Nsm}^{-2}$ at a temperature of 15° C , the value of $0,8 \times 10^{-1} \text{ Nsm}^{-3}$ at a temperature of 30° C and $0,6 \times 10^{-3} \text{ Nsm}^{-2}$ at a temperature of 50° C . Such problems are enhanced when the mechanisms are operated in both directions of winding or unwinding the roller insect-blocking foil means, whilst it must be emphasized that such retarding mechanisms are only necessary to act in the rolling up direction of winding of said roller insect-blocking foil means.

[0005] US-6,155,328 discloses a winding mechanism for controlling the retraction and deployment of an architectural covering, such as a window blind or shade according to the preamble of claim 1. US-6,155,328 thereby proposes a fluid brake comprising a fluid light compartment containing a liquid and an impeller, wherein rotation of the liquid relative to the impeller or to the compartment leads to retarding the rotation of the winding element. This mechanism is however subject to the abovementioned drawbacks of complexity and dependency of the viscosity of the liquid agitated through the impeller on the varying temperature thereof.

[0006] It is therefore the object of the present invention to propose a mechanism for the controlled retracting

movement of a roller insect-blocking foil means, said mechanism comprising wear-free, reliable components and being of simple construction and assembly, incorporating means for selective activation thereof in the retracting, rolling up direction of movement of the roller insect-blocking foil means only, and being based in the connection of the drum moving under the action of resilient spring means during rolling up or raising of said insect-blocking foil means to a shaft means moving within a chamber being filled with a filling medium creating a constant, independent of temperature, frictional environment for the movement of shaft means, thereby causing the retarding effect, the retarding mechanism remaining independent of viscosity variations with temperature, said chamber filling medium being either a malleable solid substance or a fluid means acting in association with an arrangement of diaphragms being provided with a plurality of perforations for selectively allowing passage of the fluid means. The above mentioned mechanism for the controlled retracting movement of a roller insect-blocking foil means according to the present invention is characterized by the features of claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

Fig. 1 shows an illustrative arrangement of a roller insect-blocking foil means particularly adapted for blocking the entrance of insects.

Figs. 2-4 show illustrative diagrams of the employment of perforated diaphragm means adapted in the shaft means moving within a chamber incorporating a relatively viscosity independent chamber filling means for controlling passage of fluid from one to the other side thereof.

Figs. 5-6 show a perspective and cross sectional view respectively of the layout of the shaft means moving within a chamber incorporating a relatively viscosity independent chamber filling means, preferably a malleable solid substance, said shaft means being connected to the winding drum of the roller insect-blocking foil device.

Figs. 7-8 show alternative arrangements of mounting of the shaft means of Figs. 5-6.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0008] Fig. 1 shows a typical configuration of a roller insect-blocking foil means 1 being wound around a drum means 8 installed on top of the door or window opening wherein the foil means is deployed, within a housing unit 4. When the foil means 1 is deployed, it slides within side profile guide rails 2 that are mounted onto the side wall structure around the opening by means of bolts 6. A horizontally extending profile 3 at the bottom end of the foil means 1 constitutes the means of hooking the foil means and maintaining it at a deployed position by means of

hooking mechanisms 5.

[0009] A shaft 16 extends along the drum unit 8 and a resilient spring means 10 is wound around the shaft 16, said spring means 10 operating so as to be loaded during deployment of the foil means 1 and unloaded in the reverse direction of movement thereof. The drum unit 8 and spring carrying shaft 16 are located within the housing unit 4, that is closed by side plug means 13 being fixedly mounted onto the side wall structure of the opening.

[0010] The present invention is directed towards handling the problem encountered with the excessive energy being released by the resilient spring means 10 when the foil means 1 is unhooked and free to rise upwards winding around the drum unit 8. The solution proposed is the connection of the drum unit 8 to a shaft means 9 that is allowed to rotate within an environment of increased friction established within the chamber 7, thereby acting so as to retard the movement of the drum unit 8.

[0011] As shown in Fig. 5 or 6, the shaft 9 is provided with a frontal connecting end 19a that fits within a correspondingly shaped recession 17a of the chamber 7 and with a rear connecting end 19b being provided with a longitudinally extending opening 19c. A plug means 17b is fitted around the rear connecting end 19b of the shaft 9 and is employed in water tightly closing the chamber 7. The side plug means 13 is provided with an inwardly projecting tubular element 13a that receives the frontal projecting end 7a of chamber 7, a bolt 18 being used in securely connecting the two elements.

[0012] The shaft 9 is selectively engaged to the drum unit 8 in the retracting, rolling up direction of movement of the roller insect-blocking foil means 1 only, by means of an engaging mechanism comprising in combination a pair of cooperating members 20,21 and a spring means 22.

[0013] Member 20 is provided with a first tubular body 20a that is fixedly fitted within the open end of the drum unit 8, so that it becomes rotatable together with the latter. Member 20 is further provided with a second tubular body 20b with an opening 20c adapted to receive the equivalently shaped tubular body 21 b of cooperating member 21.

[0014] Member 21 is provided with a tubular body 21 a that extends into the abovementioned tubular body 21b at one end thereof, whilst its other end is provided with a central rectangularly shaped opening 21c within which is fixedly inserted the abovementioned, correspondingly shaped rear connecting end 19b of shaft 9. An elongated pin 8a passes sequentially through the opening 20c of member 20, the opening 21c of member 21, the opening 17c of chamber plug means 17b and through the longitudinally extending opening 19c of the rear connecting end 19b of shaft 9, such connection defining a condition of engagement of shaft means 9 to the drum unit 8.

[0015] The spring means 22 is alternatively located, as depicted in Fig. 7 or Fig. 8 either in between the side plug means 13 and member 21 or in between abovementioned

members 20, 21 of the engaging mechanism, that operates so as to engage shaft means 9 of the retarding mechanism to the drum unit 8 during the upward movement of the roller insect-blocking foil means 1 only and disengage the same in the opposite direction of movement.

[0016] In accordance to a preferred embodiment of the invention, chamber 7 is filled with a malleable solid material, that creates a constant, independent of temperature, frictional environment for the movement of shaft means 9, thereby causing the desirable retarding effect. Such malleable solid substance may be selected from a variety of available substances that have this property of malleability, whilst they maintain their humidity without being petrified. Suitable chemical compositions of this category are polyester plasticizers, that have been inorganically thickened and contain a certain additive quantity of silicon resins that impart to them the friction enhancing desired stick grade, as well as corrosion resistant characteristics. An example is the commercially available valve sealant AUDCO VALVE SEALANT 733 that contains a saturated polyester resin in a proportion of 70%, bentone clay-silica in a proportion of 29.4%, 2-imidazoline in a proportion of 0.3% and n-oleoyl sarcosine. 1-(2-hydroxyethyl)-2-heptadecenyl in a proportion of 0.3%.

[0017] In accordance to an alternative embodiment of the invention, chamber 7 is being filled with a fluid medium, but the mechanism still remains independent of viscosity variations with temperature, since fluid flow is primarily controlled by a predefined plurality and shape of perforations 12a in diaphragm means 12 (Figs. 2-4), said diaphragms 12 being located longitudinally along shaft means 9 within the chamber 7 and dividing the chamber 7 in two parts and operating so as to effect a retarding movement of shaft means 9 and accordingly of the drum unit 8 engaged therewith as the fluid contained within the chamber 7 moves from one part of the chamber to the other. An alternative simpler engaging mechanism of shaft means 9 to the drum unit 8 is depicted in Figs. 2-4, wherein a simple nut structure 11a mounted along shaft means 9 is fixedly inserted within the open end of the drum unit 8 and effects engagement of the drum unit 8 to the shaft means 9 only in the aforementioned direction of withdrawal of the roller insect-blocking foil means 1.

[0018] It must herein be noted that the invention is limited to the scope of the appended claims and not limited to the above illustrative embodiments that serve the purpose of adequately disclosing the scope of the invention to those skilled in the art.

Claims

1. Mechanism for the controlled retracting movement of a roller insect-blocking foil means (1) used in door or window openings, said mechanism being installed in a housing unit (4) being closed by side plug means

(13) fixedly mounted onto the side wall structure of the opening, a drum unit (8) around which winding of said roller insect-blocking foil means (1) takes place during retracting movement thereof being located within said housing unit (4), said drum unit (8) being connected to a shaft (16) bearing resilient spring means (10), said spring means (10) operating so as to be loaded during deployment of said foil means (1) and unloaded in the reverse retracting direction of movement thereof, said mechanism being adapted to handle the excessive energy being released by the resilient spring means (10) when the foil means (1) is let free to rise upwards winding around the drum unit (8) by connection to means rotatable within an environment of increased friction established within a chamber (7), said means acting so as to retard the movement of the drum unit (8) being **characterized by** that it comprises in combination:

a shaft means (9) moving within said chamber (7), said chamber (7) being filled with a filling medium creating a constant, independent of temperature, frictional environment for the movement of shaft means (9), thereby causing the retarding effect, said shaft means (9) being provided with a frontal connecting end (19a) that fits within a correspondingly shaped recession (17a) of said chamber (7) and with a rear connecting end (19b) being provided with a longitudinally extending opening (19c), a plug means (17b) being fitted around said rear connecting end (19b) of the shaft (9) and employed in water lightly closing said chamber (7), said side plug means (13) being provided with an inwardly projecting tubular element (13a) that receives the frontal projecting end (7a) of chamber (7), a bolt (18) being used in securely connecting said chamber (7) to said side plug means (13), and means for selective activation of said mechanism in the retracting, rolling up direction of movement of the roller insect-blocking foil means (1) only by selective engagement of said shaft means (9) to said drum unit (8), said mechanism remaining independent of viscosity variations with temperature.

2. Mechanism as claimed in the above claim 1, **characterized by** that said filling medium is a malleable solid material that creates a constant, independent of temperature, frictional environment for the movement of said shaft means (9), thereby causing the desirable retarding effect, said malleable solid material being selected from the category of polyester plasticizers that have been inorganically thickened and contain a certain additive quantity of silicon resins imparting to them a friction enhancing stick grade and corrosion resistant characteristics.

3. Mechanism as claimed in above claim 2, **characterized by** that said malleable solid material filling medium is a chemical composition of a saturated polyester resin in a proportion of 70%, bentone clay-silica in a proportion of 29.4%, 2-imidazoline in a proportion of 0.3% and n-oleoyl sarcosine. 1-(2-hydroxyethyl)-2-heptadecenyl in a proportion of 0.3%.
4. Mechanism as claimed in the above claim 1, **characterized by** that said engaging mechanism comprises in combination a pair of cooperating members (20,21) and a spring means (22), wherein said member (20) is provided with a first tubular body (20a) that is fixedly fitted within the open end of said drum unit (8), so that it becomes rotatable together with the latter and with a second tubular body (20b) with an opening (20c), and wherein said member (21) is provided with a tubular body (21a) that extends into a tubular body (21b) at one end thereof and into a central rectangularly shaped opening (21c) within which is fixedly inserted said correspondingly shaped rear connecting end (19b) of said shaft means (9), an elongated pin (8a) passing sequentially through the opening (20c) of member (20), the opening (21c) of member (21), the opening (17c) of chamber plug means (17b) and through the longitudinally extending opening (19c) of the rear connecting end (19b) of shaft (9), such connection defining a condition of engagement of said shaft means (9) to the drum unit (8).
5. Mechanism as claimed in the above claim 4, **characterized by** that said spring means (22) is alternatively located either in between the side plug means (13) and said member (21) or in between said members (20, 21) of the engaging mechanism that operates so as to engage said shaft means (9) to said drum unit (8) during the upward movement of the roller insect-blocking foil means (1) only and disengage the same in the opposite direction of movement.
6. Mechanism as claimed in above claim 1, **characterized by** that said filling medium is a fluid means acting in association with an arrangement of diaphragms (12) being provided with a plurality of perforations (12a) for selectively allowing passage of the fluid means, fluid flow being primarily controlled by a predefined plurality and shape of said perforations (12a) in said diaphragms (12), said diaphragms (12) being located longitudinally along said shaft means (9) within the chamber (7) and dividing said chamber (7) in two parts and operating so as to effect a regarding movement of said shaft means (9) and accordingly of the drum unit (8) engaged therewith as the fluid contained within the chamber (7) moves from one part of the chamber to the other.

Patentansprüche

1. Mechanismus für das kontrollierte Einziehen eines rollbaren Fliegengitters (1), das für Türöffnungen oder Fenstern angewendet wird, wobei der Mechanismus innerhalb einer Gehäuseeinheit (4) eingerichtet wird, die sich mit Seitenstößeln (13) schliesst, die stabil an den Seitenwänden der Öffnung eingerichtet werden, eine Trommeleinheit (8) innerhalb des Gehäuses (4) ringsherum dessen, wo das rollbare Fliegengitter (1) während seines Einziehens eingewickelt wird, wobei die Trommeleinheit (8) sich in einer Achse (16) anschliesst, die einen elastischen Federmittel (10) trägt, wobei dieses Federmittel (10) so funktioniert, dass es während des Einziehens des Fliegengitters (1) beladet wird und während der umgekehrten Richtung des Einziehens des Fliegengitters (1) es ausladet, wobei der Mechanismus so angeordnet wird, dass er die übermässige Energie, die aus den elastischen Feder (10) befreit wird, handhaben kann, wenn das Gitter (1) frei wird und sich nach oben ringsherum der Trommeleinheit (8) durch einen Anschluss an einem drehbaren Mittel innerhalb einer Umgebung von erhöhten Reibung, die innerhalb eines Raumes (7) gebildet wird, einwickelt, wobei dieses Mittel so wirkt, dass es die Bewegung der Trommeleinheit (8) verzögert, **dadurch gekennzeichnet dass** der Mechanismus in Zusammenhang mit den folgenden besteht aus:

einer Achse (9) innerhalb eines Raumes (7), wobei dieser Raum (7) mit einem Füllungsmittel gefüllt wird, das eine stabile, unabhängig von der Temperatur, Reibungsumgebung für die Bewegung der Achse (9) bildet, veranlassend auf diese Weise die Verzögerungseinwirkung, wobei die Achse (9) mit einem vorderen Verbindungsende (19a) ausgestattet ist, das innerhalb eines entsprechenden Vertiefungsschemas (17a) des Raumes (7) angepasst wird und mit einem hinteren Verbindungsende (19b), welches eine der Länge nach erstreckende Öffnung (19c) trägt, wobei ein Stößelmittel (17b) ringsherum des hinteren Verbindungsendes (19b) der Achse (9) angepasst wird und wird für das wasserdichte Schliessen des Raumes (7) verwendet;

Der Seitenstößel (13) ist mit einem rohrförmigen Element (13a) ausgestattet, das sich nach innen erstreckt, welches das vordere hinausstreckende Ende (7a) des Raumes (7) aufnimmt, wobei eine Schraube (18) für den sicheren Anschluss des Raumes (7) mit den Seitenstößeln (13) verwendet wird;

einem Mittel für die auswählende Aktivierung des Mechanismus nur in der Richtung des Einziehens durch das Einwickeln nach oben des rollbaren Fliegengitters (1) durch das auswäh-

lende Blockieren der Achse (9) innerhalb der Trommeleinheit (8), wo der Mechanismus unabhängig der Viskösänderungen der Temperatur bleibt.

2. Mechanismus nach dem oberen Anspruch 1, **dadurch gekennzeichnet, dass** das Füllungsmittel ein schmieedes, festes Material ist, das eine stabile, unabhängig von der Temperatur, Reibungsumgebung, für die Bewegung der Achse (9) bildet, veranlassend auf diese Weise, die gewünschte Verzögerungseinwirkung, wobei das schmiede, feste Material von der Kategorien der polyester-Plastifizierungsmitteln ausgewählt wird, die anorganisch dick geworden sind und enthalten eine bestimmte zugefügte Quantität von Silikonharzen, die deren eine verstärkende der Reibung klebrige Eigenschaft und Korrosionsverhütende Kennzeichen geben.
3. Mechanismus nach dem oberen Anspruch 2, **dadurch gekennzeichnet, dass** das schmiede, feste Material, Füllungsmittel eine chemische Zusammensetzung eines gesättigten polyester-Harzes ist, in einem Anteil von 70%, Tonerde-Silicium bentone in einem Anteil von 29,4%, 2-imidazoline in einem Anteil von 0,3% und n-oleoyl-1-(-hydroxyethyl)-2-heptadecenyl-1 in einem Anteil von 0,3%.
4. Mechanismus nach dem oberen Anspruch 1, **dadurch gekennzeichnet, dass** der blockierende Mechanismus eine Kombination von einem zusammenarbeitenden Stengelpaar (20, 21) und einer Feder (22) umfasst, wobei der Stengel (20) mit einem ersten rohrförmigen Körper (20a) ausgestattet ist, der innerhalb eines offenen Endes der Trommeleinheit (8) stabil angepasst wird, so dass er zusammen mit der letzten und einen zweiten rohrförmigen Körper (20b), der eine Öffnung (20c) hat drehbar wird, und wobei der Stengel (21) mit einem rohrförmigen Körper (21 a) ausgestattet ist, der sich bis zu einem rohrförmigen Körper (21 b) von der eine Seite und bis zu einer zentralen rechteckig gebildeten Öffnung (21c) erstreckt, innerhalb deren das entsprechende Schema des hinteren Verbindungsendes (19b) der Achse (9) stabil hineindringt, wobei ein länglicher Zapfen (8a) durch die Öffnung (20c) den Stengel (20), die Öffnung (21c) den Stengel (21), die Öffnung (17c) das Stößelmittel des Raumes (17b) und durch der Länge nach der erstreckenden Öffnung (19c) des hinteren Verbindungsendes (19b) der Achse (9) nacheinander durchgeht, wobei diese Verbindung setzt einen blockierenden Zustand der Achse (9) in der Trommeleinheit (8) fest.
5. Mechanismus nach dem oberen Anspruch 4, **dadurch gekennzeichnet dass**, die Feder (22) wechselweisend sich entweder zwischen des Seitenstößeln (13) und des Stengels (21) oder zwischen der

Stengeln (20, 21) des blockierenden Mechanismus befindet, der so funktioniert, damit er die Achse (9) in der Trommeleinheit (8) nur während der Bewegung des rollbaren Fliegengitters (1) nach oben blockieren kann und sie ausser Blockieren bringen wenn es sich entgegen bewegt.

6. Mechanismus nach dem oberen Anspruch 1, **dadurch gekennzeichnet dass** das Füllungsmittel eine Flüssigkeit ist, die in Zusammenhang mit einer Blendenanordnung (12), die mit vielfachen Öffnungen (12a) ausgestattet ist, funktioniert, damit sie das Durchfließen der Flüssigkeit auswählend erlauben, wobei das Fließen der Flüssigkeit erstens von einer vorher festgesetzte Menge und der Form der Öffnungen (12a) innerhalb der Blenden (12) kontrolliert wird, wobei die Blenden (12) der Länge nach der Achse (9) innerhalb des Raumes (7) angeordnet sind und trennen den Raum (7) in zwei Räume und funktionieren so, damit sie eine verzögerte Bewegung der Achse (9) veranlassen und entsprechend der Trommeleinheit (8), die innerhalb der Achse blockiert ist, die enthaltene im Raum (7) Flüssigkeit sich von einem Abteil zu dem anderen bewegt.

Revendications

1. Mécanisme pour l'enroulement de rétraction contrôlée d'une moustiquaire enroulable (1) utilisé sur les ouvertures des portes ou des fenêtres, où ledit mécanisme est installé dans une unité à coque (4) laquelle se ferme avec des tampons latéraux (13) qui sont installés fixement sur les parois latérales de l'ouverture, une unité à tambour (8) à l'intérieur de ladite coque (4) autour duquel est enroulé ladite moustiquaire enroulable (1) pendant son mouvement d'enroulement de rétraction, où ladite unité à tambour (8) est reliée à un pivot (16) lequel comporte un ressort élastique (10), où ledit ressort (10) fonctionne afin d'être chargé pendant le déploiement de ladite moustiquaire enroulable (1) et d'être déchargé dans la direction inverse du mouvement d'enroulement de rétraction de la moustiquaire enroulable, où ledit mécanisme est adapté afin de gérer l'excédant d'énergie qui est libéré par le ressort élastique (10) lorsque la moustiquaire enroulable (1) est librement laissée pour s'enrouler vers le haut autour de l'unité à tambour (8), à travers la connexion d'un moyen rotatif dans un environnement de friction accrue qui est créée dans un compartiment (7), où ledit moyen agit afin de retarder le mouvement de l'unité à tambour (8), mécanisme **caractérisé en ce qu'**il comporte en combinaison:

un pivot (9) dans ledit compartiment (7), où ledit compartiment (7) est muni d'un moyen de remplissage qui crée un environnement de friction

constante indépendant à la température pour le déplacement du pivot (9), provoquant de ce fait l'effet de retardement, où ledit pivot (9) est équipé d'une extrémité frontale de connexion (19a) qui s'ajuste à l'intérieur d'une enfonçure de forme analogue (17a) dudit compartiment (7) et est équipé d'une extrémité arrière de connexion (19b) laquelle est munie d'une ouverture longitudinalement extensive (19c), où un moyen de bouchage (17b) s'ajuste autour de ladite extrémité arrière de connexion (19b) du pivot (9) et est utilisé pour la fermeture imperméable dudit compartiment (7), ledit tampon latéral (13) est équipé d'un élément tubulaire (13a) qui s'étend à l'intérieur, lequel reçoit l'extrémité frontale saillante (7a) du compartiment (7), où un boulon (18) est utilisé pour la connexion assurée dudit compartiment (7) avec ledit tampon latéral (13), et un moyen pour l'activation sélective dudit mécanisme seulement dans la direction du mouvement d'enroulement de rétraction à travers l'enroulement vers le haut de ladite moustiquaire enroulable (1) par le couplage sélectif dudit pivot (9) avec ladite unité à tambour (8), où ledit mécanisme reste indépendant aux variations de viscosité par rapport à la température.

2. Mécanisme selon la revendication 1 ci-dessus, **caractérisé en ce que** ledit moyen de remplissage est un matériau solide malléable qui crée un environnement frictionnel constant, indépendant à la température, pour le déplacement dudit pivot (9), provoquant de ce fait l'effet de retardement souhaité, où ledit matériau solide malléable est choisi parmi la catégorie des plastifiants en polyester qui ont été inorganiquement épaissis et contiennent une certaine quantité additive de résines de silicium qui leur donne une propriété gluante qui amplifie la friction et mais aussi des caractéristiques anticorrosives.
3. Mécanisme selon la revendication 2 ci-dessus, **caractérisé en ce que** ledit matériau solide malléable de remplissage est un composant chimique d'une résine en polyester saturé à un pourcentage de 70%, de silicate de bentonite à un pourcentage de 29.4%, 2-imidazoline à un pourcentage de 0.3% et n-oleyl sarcosine.1-(2-hydroxethyl)-2-heptadecenyl à un pourcentage de 0.3%.
4. Mécanisme selon la revendication 1 ci-dessus, **caractérisé en ce que** ledit mécanisme de couplage comporte en combinaison une paire de membres coopérants (20, 21) et un ressort (22), où ledit membre (20) est équipé d'un premier corps tubulaire (20a) qui s'ajuste fixement à l'extrémité ouverte de ladite unité à tambour (8), de sorte qu'il devient rotatif avec la dernière et d'un second corps tubulaire (20b)

avec une ouverture (20c), et où ledit membre (21) est équipé d'un corps tubulaire (21a) qui s'étend à un corps tubulaire (21b) d'un côté et à une ouverture centrale orthogonalement configurée (21c) dans laquelle est insérée fixement ladite extrémité arrière de connexion de forme analogue (19b) dudit pivot (9), où une goupille oblongue (8a) passe séquentiellement à travers l'ouverture (20c) du membre (20), l'ouverture (21c) du membre (21), l'ouverture (17c) du moyen de bouchage du compartiment (17b) et à travers l'ouverture longitudinalement étendue (19c) de l'extrémité arrière de connexion (19b) du pivot (9), où une telle connexion définit un état de couplage dudit pivot (9) sur l'unité à tambour (8).

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5. Mécanisme selon la revendication 4 ci-dessus, **caractérisé en ce que** ledit ressort (22) est alternativement placé soit entre le tampon latéral (13) et le membre (21) ou entre lesdits membres (20, 21) du mécanisme de couplage qui fonctionne afin de coupler ledit pivot (9) à ladite unité à tambour (8) seulement pendant le mouvement ascendant de la moustiquaire enroulable (1) et de le découpler dans le sens opposé.

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6. Mécanisme selon la revendication 1 ci-dessus, **caractérisé en ce que** ledit moyen de remplissage est un fluide qui fonctionne en combinaison avec un arrangement de diaphragmes (12) qui sont équipés d'une multitude d'orifices (12a) pour permettre sélectivement la circulation de ce fluide, où le flux du fluide est principalement contrôlé par la pluralité et la forme prédéfinies desdits orifices (12a) dans lesdits diaphragmes (12), où lesdits diaphragmes (12) se trouvent arrangés le long dudit pivot (9) à l'intérieur du compartiment (7) et scindent ledit compartiment (7) en deux parties et fonctionnent afin d'effectuer un mouvement de retardement dudit pivot (9) et par conséquent de l'unité à tambour (8) qui est couplée au pivot (9) pendant que le fluide contenu dans le compartiment (7) se déplace d'une partie à l'autre partie du compartiment.

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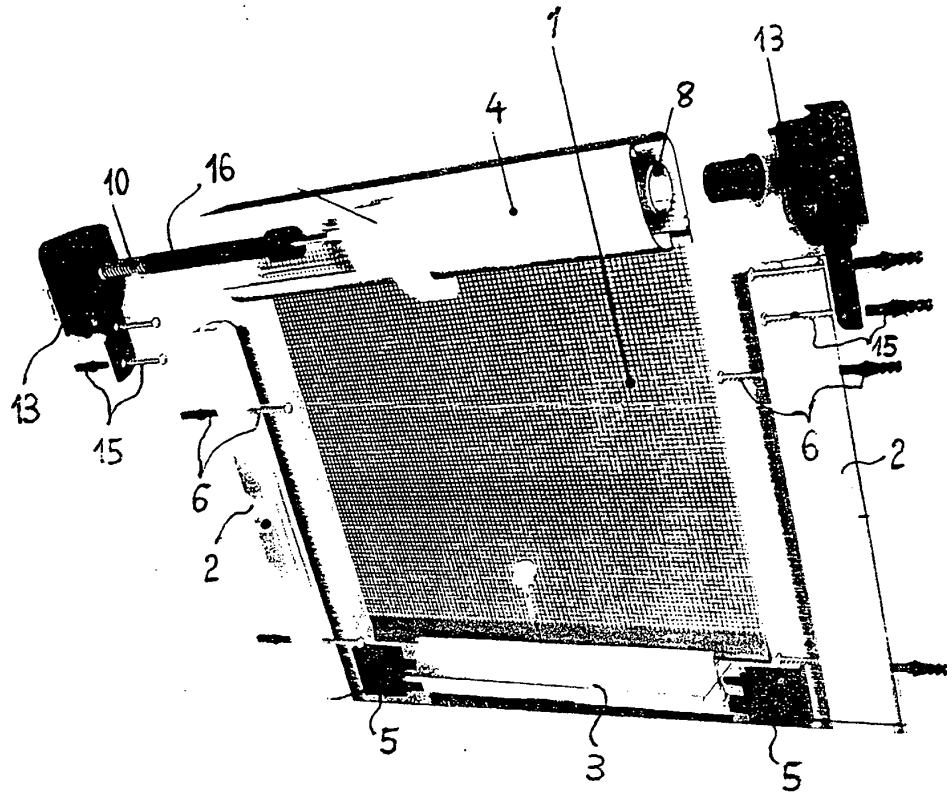


FIG. 1

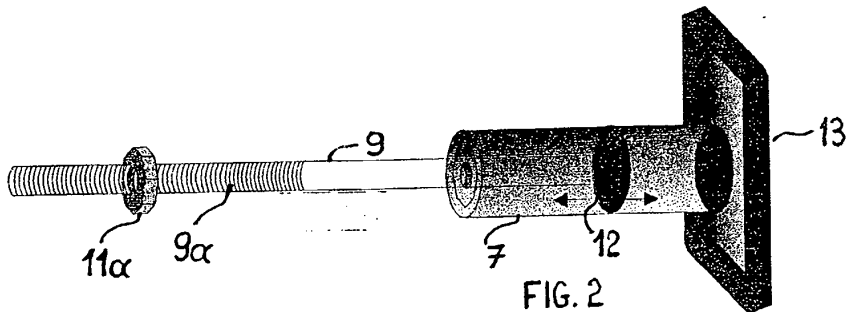


FIG. 2

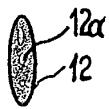


FIG. 3

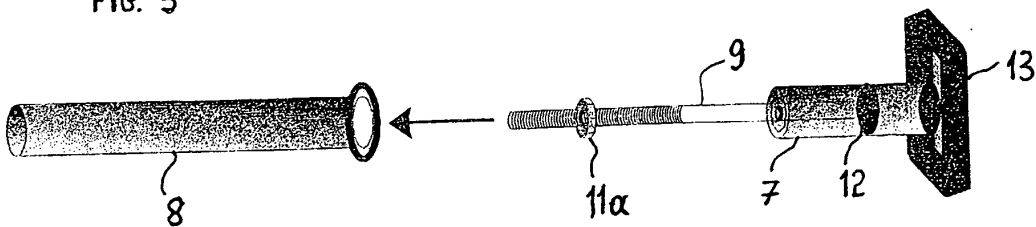


FIG. 4

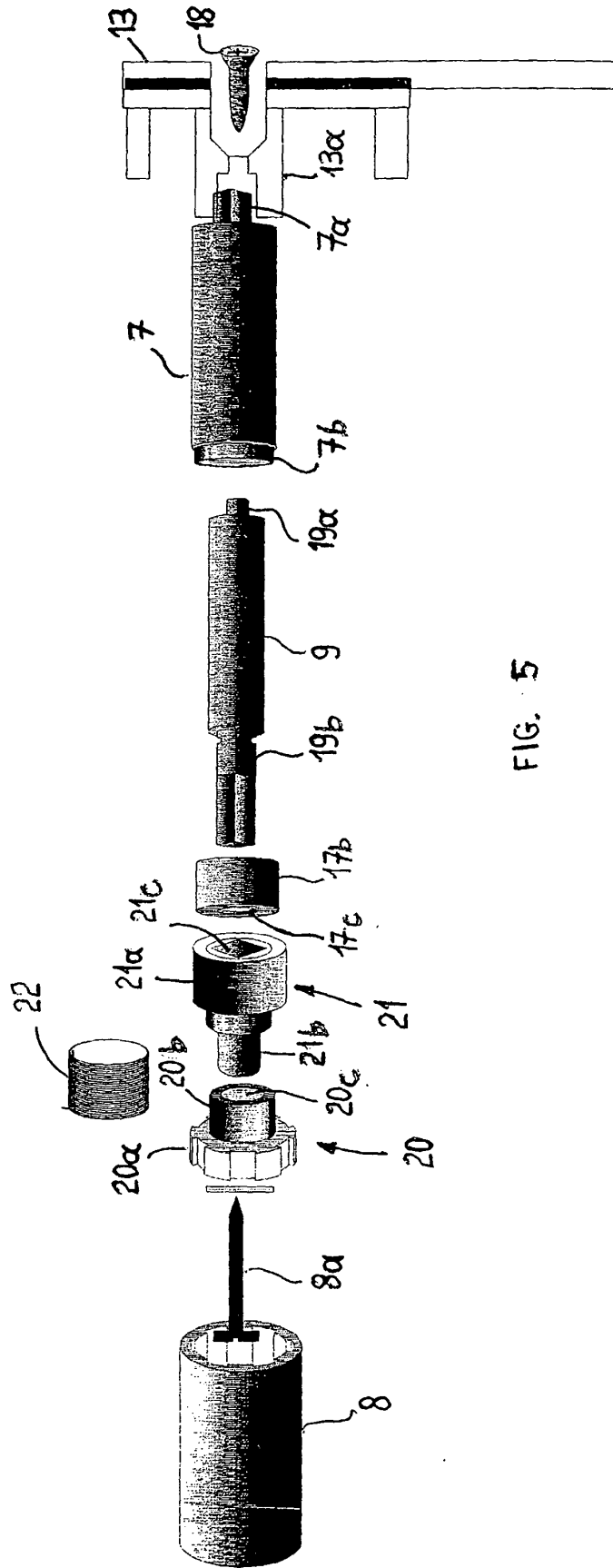


FIG. 5

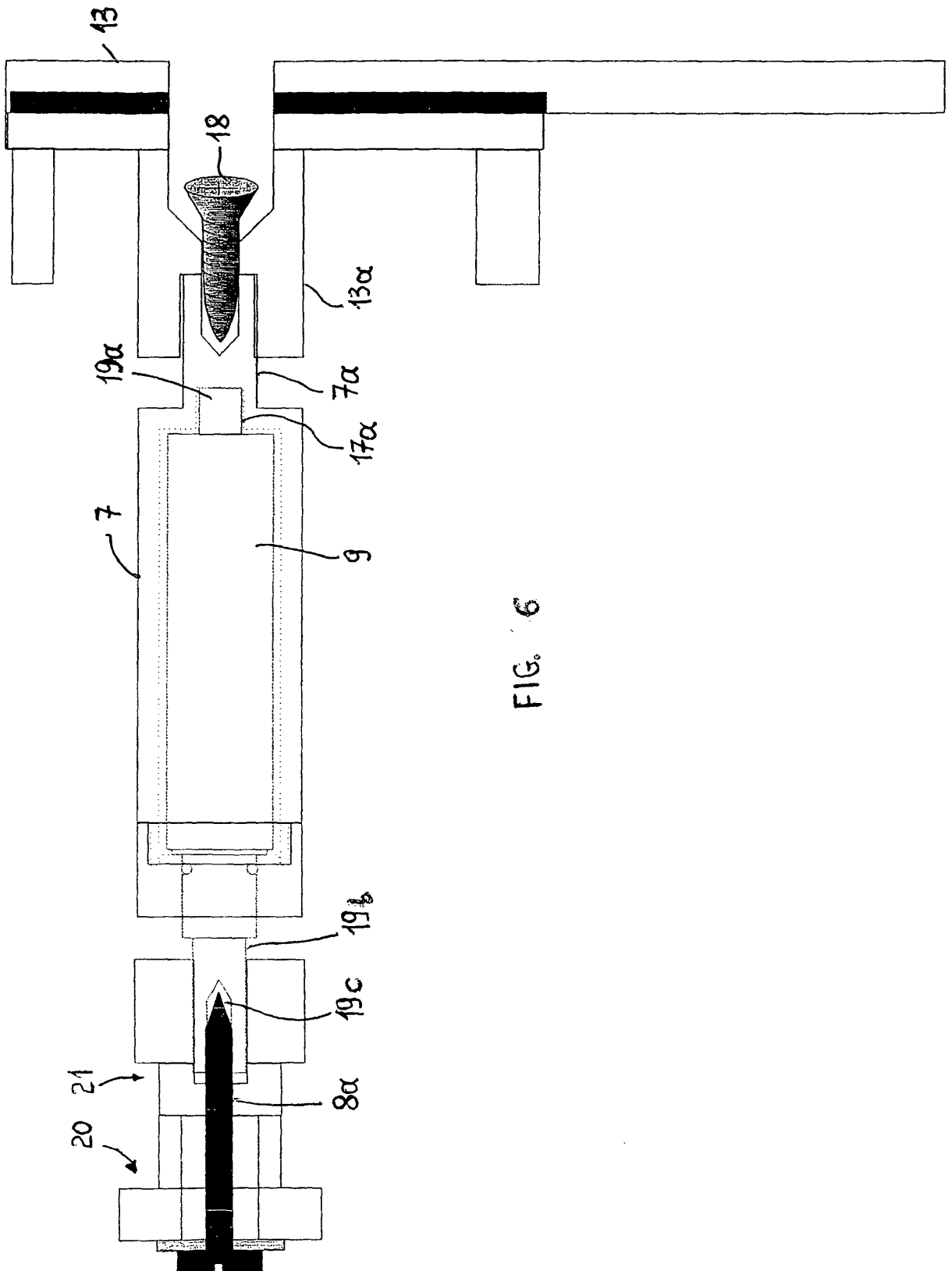


FIG. 6

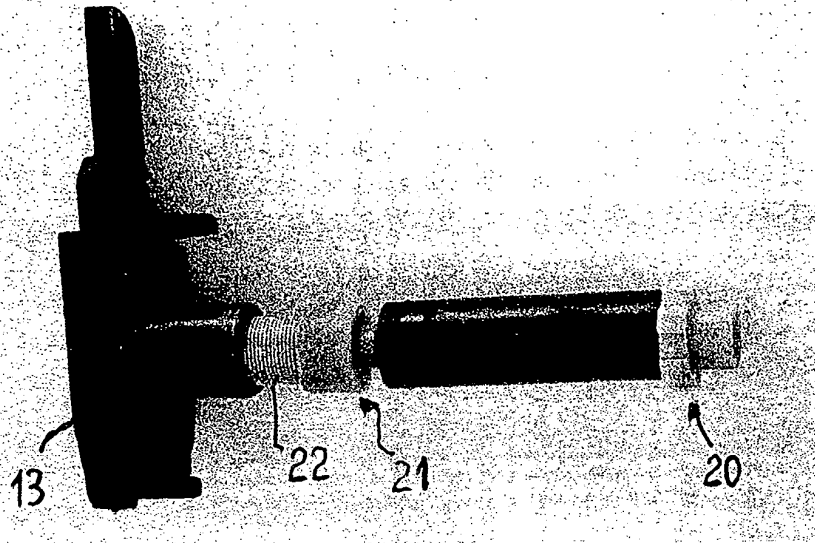


FIG. 7

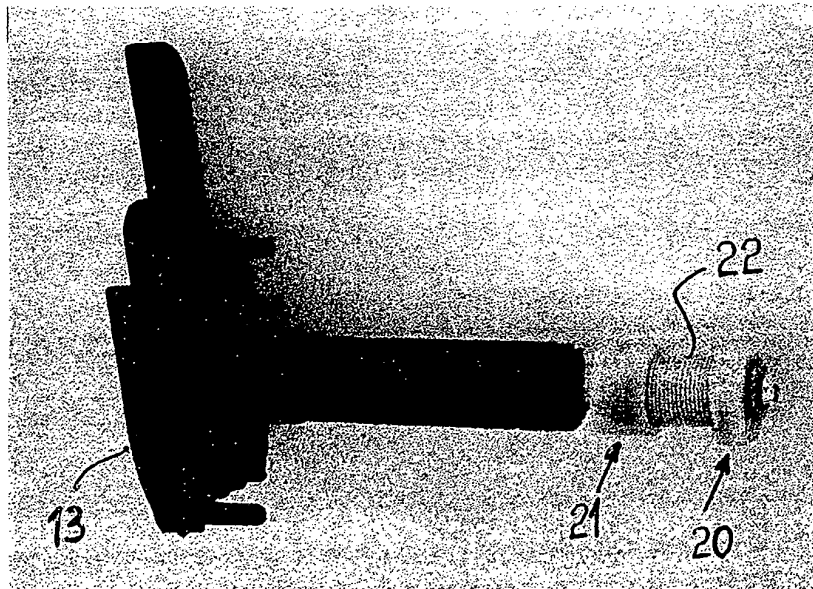


FIG. 8