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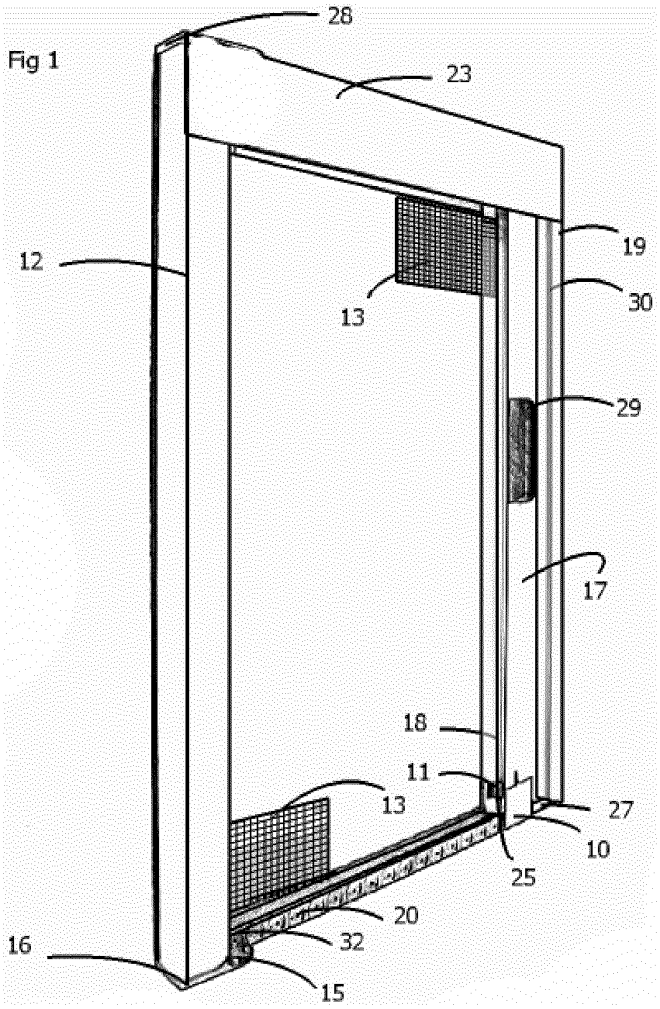
(54) **Retractable fly-screen with a handicapped accessible lower guide**

(57) A roller screen device including a fixed vertical roller-box (12) with a winding roller (26) inside, and a track (20). When the screen is opened by moving a mobile profile (17) the tracks (20) pass out of the mobile profile (17) onto a guided floor strip (27) a few millimetres in height, when the mobile profile (17) is moved towards the fixed roller-box (12) the tracks re-enter into the mobile profile (17), making the tracks (20) concealed. The device according to the invention enables easy access for wheelchairs and pushchairs.

Fig 1



EP 3 023 574 A1

Description

Technical Field

[0001] The present invention relates to an insect screen device and more particularly a device preventing the entry of insects, used for example as a blind, a partition or a screened door which permits opening and closing operation in a smooth and simple manner.

Background Art

[0002] It is known that fly-screens are barriers which prevent the entry of insects and vermin.

[0003] The traditional type of side mounted roller fly-screen devices for a door openings have shortcomings as these devices use 4 cm U-shaped aluminium guides shown in Fig. 9 (36). These U-shaped aluminium guides are commonly fitted to the bottom of the door openings, a thin hand rail fixed to the end of screen netting allows the screen to pulled across the opening, both edges of the screen stay within the U-shaped aluminium guides, the lower U-shaped aluminium guides is 4 cm shown in Fig. 9 (36) thereby greatly increasing a risk of accident. the U-shaped aluminium guide by design make it difficult to keep clear dust and leaves, when opening the roller fly-screen device the dust and leaves are rolled up with the netting, causing the netting to stretch and become out of shape. These shortcomings discourage wider use of this type.

Solution to Problem

[0004] The objective of the present invention is to provide a side mounted roller fly-screen device where the 4 cm U-shaped aluminium guide is no longer used, this is substituted by a track. When the fly screen is not in use the track disappears leaving the door-way clear, making this device safe and easy to use especially for people that are depend on wheel chair access.

[0005] When the Retractable fly-screen advanced is fitted to an opening of one or two doors, the screen can be pushed back the desired width, making this invention more user friendly than the prior art. The prior art shown in Fig. 9 is a traditional type of side mounted roller fly-screen screen designed to roll completely into the roller-box.

Description of invention

[0006] The present invention relates to a side mounted roller fly-screen for doors or windows where the U-shaped aluminium lower guide is substituted by a plastic "track" which becomes concealed. In this way the only part that remains on the floor is a plastic profile a few millimetres high. The roller netting is contained inside a box which is fixed by screws to the floor and to the top of the opening.

[0007] The user opens and closes the fly-screen by simply moving the handle bar profile, which allows the netting to slide smoothly inside and out of the vertical roller box.

[0008] When the user moves the handle bar profile to open or close the fly-screen this allows the tracks to move in and out of the containing profile.

[0009] The upper last track inside the handle bar profile is connected to a cord which passes through a top cap to the anchor plate inside the top guide, maintaining that the handle bar profile is always in a vertical position.

[0010] When the handle bar profile is moved towards the vertical roller box, the tracks are pushed into the containing profile so that the track becomes concealed. Moving the handle bar profile towards the closing profile moves the tracks out of the containing profile so that they form the lower guide.

[0011] A cord anchor plate fixed to the top guide, a 3 mm spacer is used under the spring roller end cap to raise the mesh netting. This combination of components allows the retractable screen to be stopped up-to 105 cm in width, making this fly screen extremely easy to operate. After a width of 105 cm a slight resistance can be felt from the vertical winding spring.

[0012] The screen is held open by the magnets, a plastic profile holds the magnet inserted into the mobile profile, the magnet is inserted into the wall magnet profile. The wall magnet profile is fixed to the opening wall by screws.

[0013] A single Retractable fly-screen advanced can be opened to maximum of 240 cm, the net tensioning mechanism is built into the modified scorpion tail end cap, which always keeps perfect tension to the bottom edge of the netting.

[0014] Closing the screen with the handle bar profile, allows the netting to move smoothly back into the vertical roller box. Only the floor strip a few millimetres in height is visible, making this invention easy access for wheelchairs and pushchairs.

Advantageous effect of invention

[0015] Retractable fly-screen advanced is a new concept for fly-screen doors; it combines the benefits of making use of most Standard Roller Retractable mosquito doors with the advantages of using modified components of the Pleated Plisse mesh doors.

[0016] When the Retractable fly-screen advanced is fitted to an opening of two doors, the screen can be pushed back the desired width thanks to the tracking system of this invention, the screen can stop at any width up to 105 cm. making this invention more user friendly than the prior art shown in Fig. 9.

[0017] Retractable fly-screen advanced doors can be supplied in height 260 cm widths from 140 cm to 240 cm.

[0018] Reducible in height making the Retractable fly-screen advanced makes easy stock handling and more flexibility.

[0019] Retractable fly-screen advanced is available with the 3 following heights: 220 cm, 240 cm and 260 cm, and follow the range of 3 different widths: 140 cm, 180 cm and 240 cm.

[0020] Retractable fly-screen advanced invention is effective in stabilizing the shape of the screen, without the need of an aluminium guide profile on the floor. The simplicity of its construction allows for easy installation, no particular expert skills are required.

[0021] Many different types of side mounted roller fly-screen can be easily adapted to this invention.

[0022] Only the floor strip a few millimetres in height is visible, making this invention easy access for wheelchairs and pushchairs.

Brief description of drawings

[0023] Further features and advantages of this invention will become apparent from the description of an embodiment which follows with reference to the drawings, given purely by way of a non limiting example, in which:

Figure 1 is a perspective view of the entire fly-screen according to the present invention.

Figure 2 is an exploded view showing the components of the fly-screen according to the present invention.

Figure 3 shows a cross-sectional of the fly-screen according to the present invention.

Figure 3A shows a exploded view of the lower part of the fly-screen where the netting track spacer and 3mm spacer keeps the netting clear from the tracks according to the present invention.

Figure 4A shows an exploded view of the lower part of the mesh being slightly tensioned by the tensioning mechanism while the netting is withdrawn and retracted from the vertical roller box. The track passes from the horizontal position to the vertical position and vice versa according to the direction of movement according to the present invention.

Figure 4B shows a detail view of the lower corner part of the fly-screen where the end of the tracking meets the vertical roller-box, the modified end track is fixed to the floor by a screw according to the present invention.

Figure 4C shows a detail view of the upper corner part of the fly-screen where the cord and cord anchor plate is fixed in position to the top guide by two screws according to the present invention.

Figure 4D is a horizontal cross section of the handle bar profile according to the present invention.

Figure 4E is a horizontal cross section of the wall magnet profile according to the present invention.

Figure 5A shows a plan view of the track.

Figure 5B shows a plan view of the cord anchor plate and cord

Figure 5C shows a plan view of the netting carrier profile.

Figure 5D shows a detail view of the netting tensioning mechanism inside the modified scorpion tail end cap.

Figure 5E shows a detail view of the modified netting carrier inserted into a 1 cm slot of the modified scorpion tail end cap.

Figure 6 shows a detail view of the fly-screen cord tensioning mechanism with top guide profile and the handle bar profile.

Figure 7 shows a perspective view of the fly-screen cord tensioning mechanism

Figure 8 shows a detail view of the fly-screen with the connected tracking passing through the modified scorpion tail end cap to the handle bar profile.

Figure 9 shows a detail view of the prior art together with U-shaped aluminium guide.

Description of at least one way of carrying out the invention

[0024] Referring to the drawings and initially to Fig 1 a side mounted roller fly-screen devices for door openings in accordance with the preferred embodiment of the present invention.

[0025] The vertical roller box (12) which holds netting (13) is fixed to the wall by screws (15). It has a spacer (34) and a netting guiding spacer (36) these keep the netting edge away from the tracks (20), a spring built into the end cap (16) is wound clockwise 10 turns before inserting into the vertical roller box (20). As shown in Fig. 2.

[0026] The screen netting (13) slides into the netting carrier (18), the net carrier slides into the handle bar profile (17) thus allowing the handle bar profile (17) to keep the netting mesh evenly tensioned.). As shown in Fig. 3.

[0027] A plastic profile with a magnetic strip (31) is attached to the closing side of the handle bar profile (17) the netting is held across the opening by a fixed wall profile (19) carrying a magnet (30). As shown in Fig. 3.

[0028] The modified scorpion tail end cap (10) push fits into the lower end of the handle bar profile (17), the connected tracks (20) pass through the modified scorpion tail end cap (10) sliding smoothly into and out off the handle bar profile (17). As shown in Fig. 8.

[0029] Where the modified track (32) meets with the vertical roller box (12) a plastic track spacer (37) is placed under the track, this is secured to the floor by a screw (14) the tracking and handle bar profile moves smoothly along floor strip (27). As shown in Fig. 4B.

[0030] The modified scorpion tail end cap (10) is equipped with a netting tensioning mechanism (11) attached by a screw (15) this maintains the tension to the lower edge of the netting. As shown in Fig. 4A.

[0031] Two screws (15) fix the cord anchor plate (21) to the top guide (23) the cord is then passed through the top cap (24) attached to the top of the handle bar profile (17), the cord is then connected to the last track with a lock screw (35). As shown in Fig. 6 and Fig. 7

[0032] The screen is held open by the magnets (30)

(31) inserted into the plastic profile (22) and the wall magnet profile (19). The wall magnet profile (19) is fixed to the opening wall by screws (15).

[0033] 10 turns clockwise of the spring end cap (16) will allow the Retractable fly-screen advanced to smoothly slide to opening of 105 cm in width, the tracking system of this invention allows the Retractable fly-screen advanced to stop at any width up to 105 cm, no resistance is felt. After a width of 105 cm a slight resistance can be felt from the spring of the vertical winding roller (16). The amount of turns of the spring end cap (16) together with the tracking (20) allows the handle bar profile (17) to be pushed smoothly back to the vertical roller box (12).

[0034] The cord (33) maintains an upright position of the handle bar profile (17), As the screen is opened and closed the cord keeps the handle bar profile (17) always in a vertical position maintaining the netting (13) tensioned correctly.

[0035] The screen opens and closes by means of a handle bar profile (17). As shown in Fig. 2.

[0036] This invention permits the screen widths up to 240 cm width a single version. A double version permits the screen widths up to 480 cm where the handle bar profile (17) meets at the centre. The maximum screen width is governed by the height as the connected tracks that determine the width are inside the vertical channel of the handle bar profile. Therefore the width can open to a maximum 1.5 cm less than the height in a single version. The double version the width can open to a maximum 3.0 cm less that the height.

[0037] When the Retractable fly-screen advanced is fitted to an opening of one or two doors, the screen can be pushed back the desired width, making this invention more user friendly than the prior art. The prior art shown in Fig. 9 is a traditional type of side mounted roller fly-screen screen designed to roll completely into the roller-box.

[0038] Although the invention has been explained in relation to its preferred embodiment(s) as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the present invention. It is, therefore, contemplated that the appended claim or claims will cover such modifications and variations that fall within the true scope of the invention.

Claims

1. A side-mounted roller screen device for use as a curtain, a blind, a partition, or a screen door comprising: a fixed vertical roller box (12), a circular roller profile (26) holds the rolled-up netting (13), a spacer of 3.0mm (34) fitted below the spring attached to the end cap (16) the spring is tensioned by rotating the end cap clockwise (16). A vertical roller top end cap (28) is fitted to the top of the vertical roller box (12)

2. A side-mounted roller fly-screen according to the foregoing claim that the screen opens and closes by means of a handles (29) fitted to the handle bar profile (17), the screen netting (13) is attached to a netting carrier profile (18) this is inserted into the handle bar profile (17) then into the modified scorpion tail end cap (10) allowing the handle bar profile (17) to keep the netting evenly tensioned.

3. A side-mounted roller fly-screen according to the foregoing claim that the modified scorpion tail end cap (10) allows the modified netting carrier profile (18) to clear the tracks (17) when the handle bar profile (17) is opened and closed.

4. A side-mounted roller fly-screen, according to the foregoing claims where the end of the connected track (32) meets with the vertical roller box (12) a plastic track spacer if fitted (37) then secured to the floor by a screw (14).

5. A side-mounted roller fly-screen according to the foregoing claims, the modified scorpion tail end cap (10) is equipped with a netting tensioning mechanism (11) attached by a screw (15) maintaining slight tension to the lower edge of the netting (13).

6. A side-mounted roller fly-screen according to the foregoing claim **characterised in that** the lower end of the handle bar profile (17) has a modified scorpion tail end cap (10) this allows the connected tracks (20) to pass through the modified scorpion tail end cap (10) sliding smoothly vertically up and down inside the handle bar profile (17).

7. A side-mounted roller fly-screen according to the foregoing claim that the modified scorpion tail end cap (10) has been modified to clear the vertical roller end cap with spring (16) when the handle bar profile (17) is closed.

8. A side-mounted roller fly-screen, according to the foregoing claims, Inside the top guide (23) at the opposite end from the fixed roller screen (12) a cord passes through the anchor plate (21) the cord is secured with a double knot to the anchor plate (21) this is fixed to the top guide (23) by means of two screws (15), this anchor plate (21) can also be fixed to the wall of the opening, the cord (33) passes through the end cap (24) down into the handle bar profile (17) to connect to the last track by means of a locking screw (35).

9. A side-mounted roller fly-screen according to the foregoing claim that a plastic profile (22) with a magnetic strip (30) is attached to the closing side of the handle bar profile (17), the netting is held across the opening by a magnet (31) inserted into the wall profile

(19).

10. A side-mounted roller fly-screen according to the foregoing claims that when the screen is opened and closed in accordance with the sliding movement, the cord keeps the handle bar profile (17) in a upright position ensuring perfect tension to the netting.

11. A side-mounted roller fly-screen according to the foregoing claims that when the screen is moving into the vertical roller box the Retractable fly-screen advanced can stop at any width up to 105 cm, no resistance is felt.

Fig 1

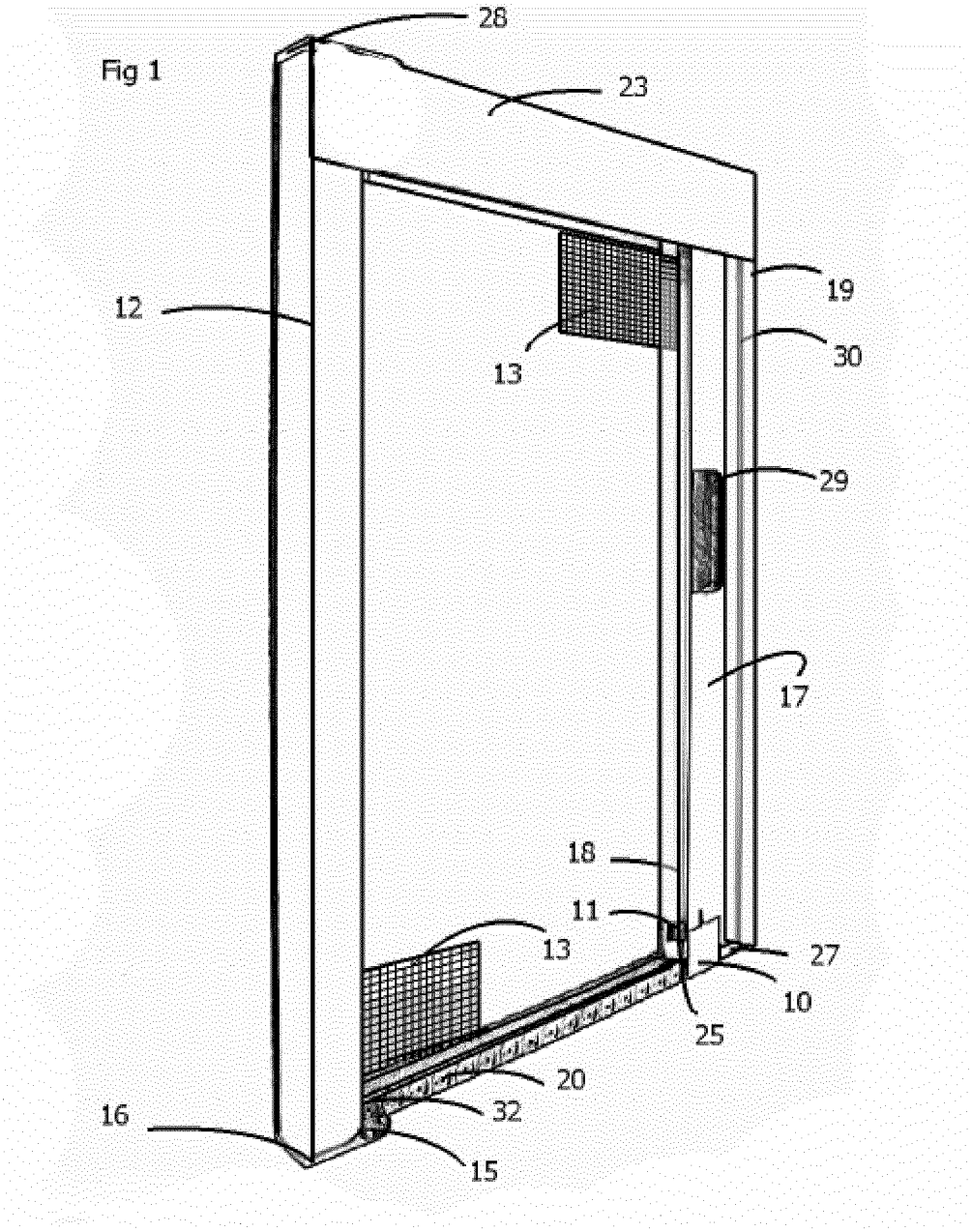


Fig 2

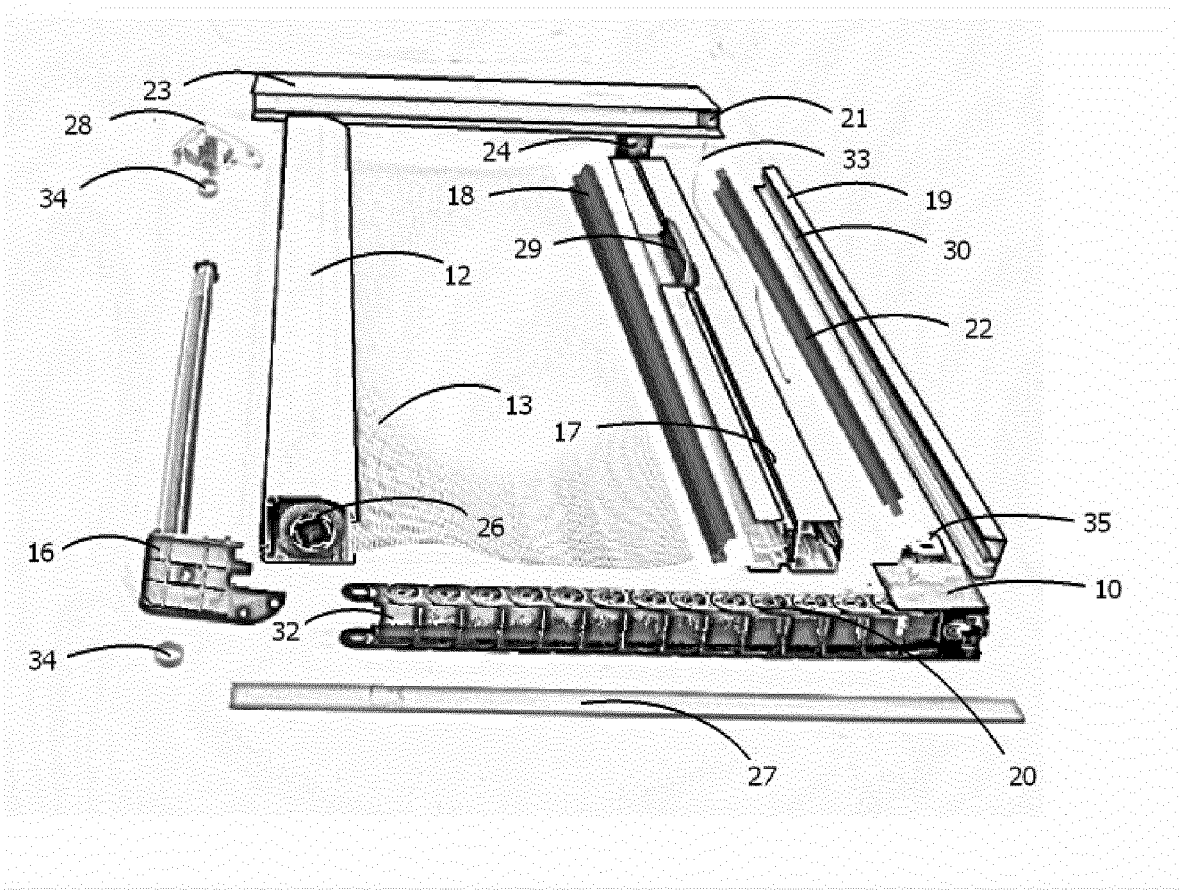

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Fig 3

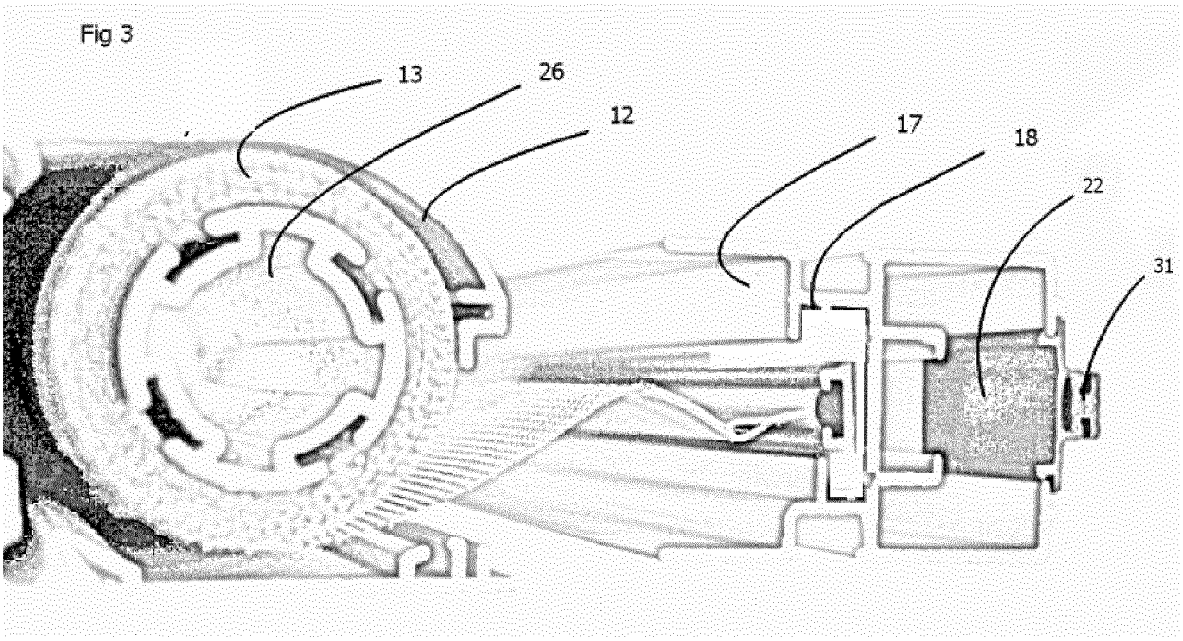
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Fig 3 A

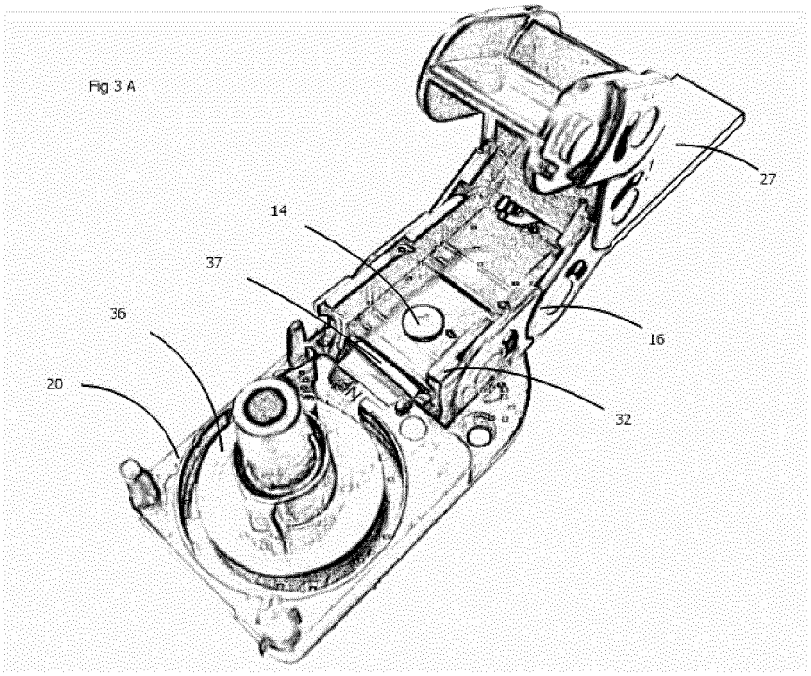


Fig 4 A

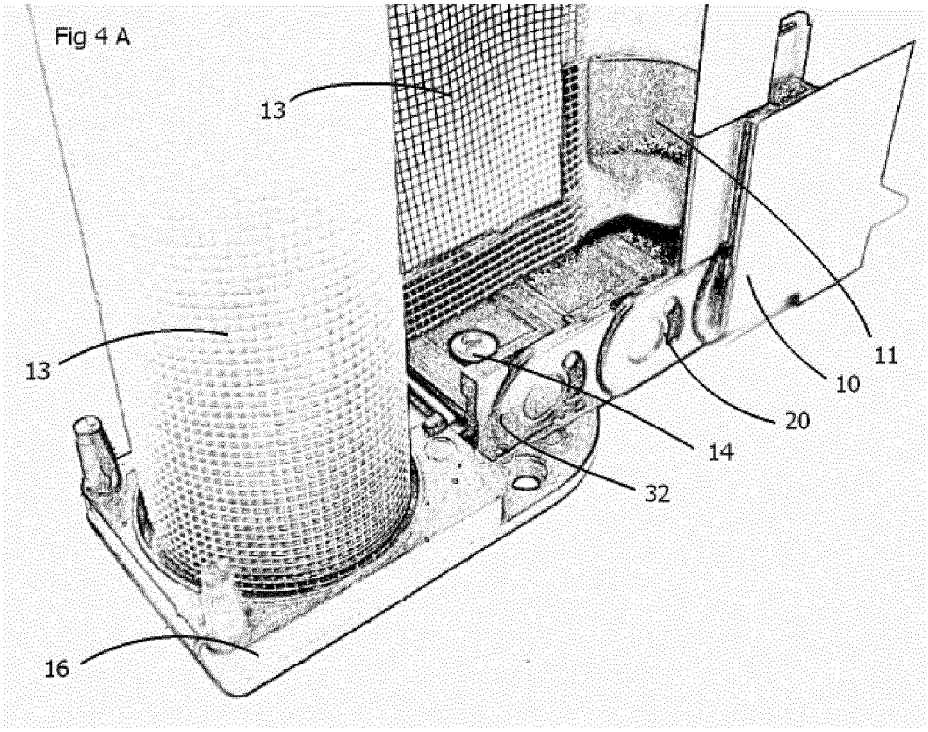


Fig 4 B

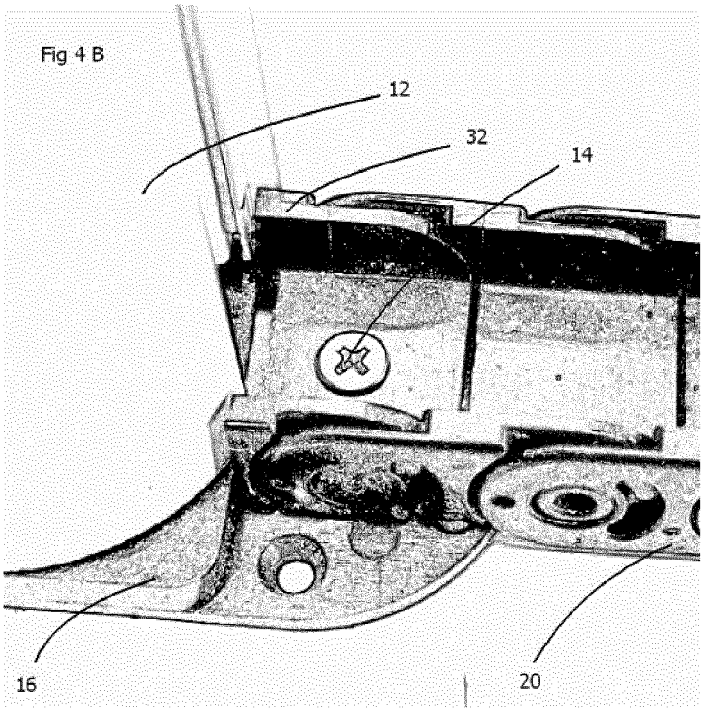


Fig 4 C

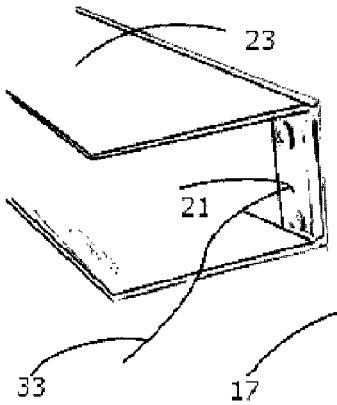


Fig 4 D

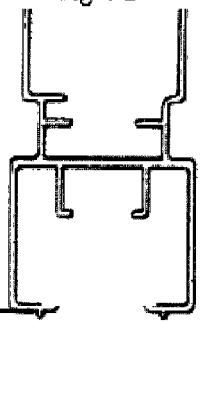


Fig 4 E

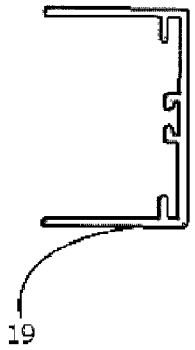


Fig 5 A

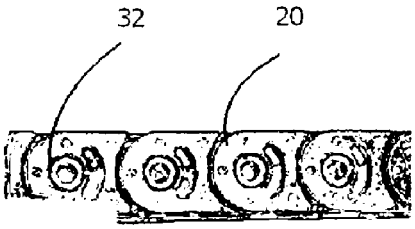


Fig 5 B

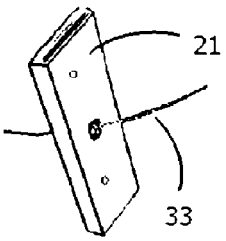


Fig 5 C

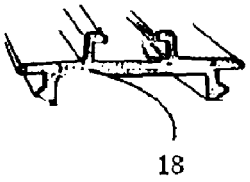


Fig 5 D

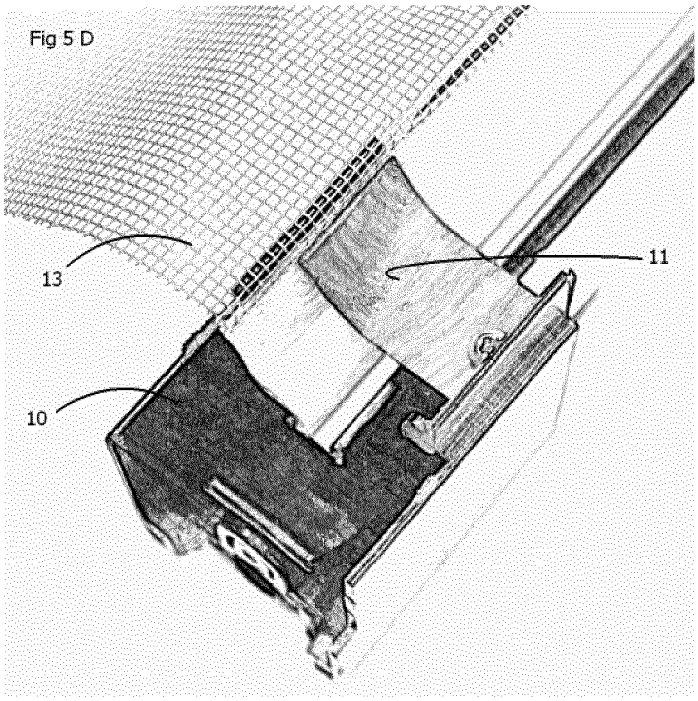


Fig 5 E

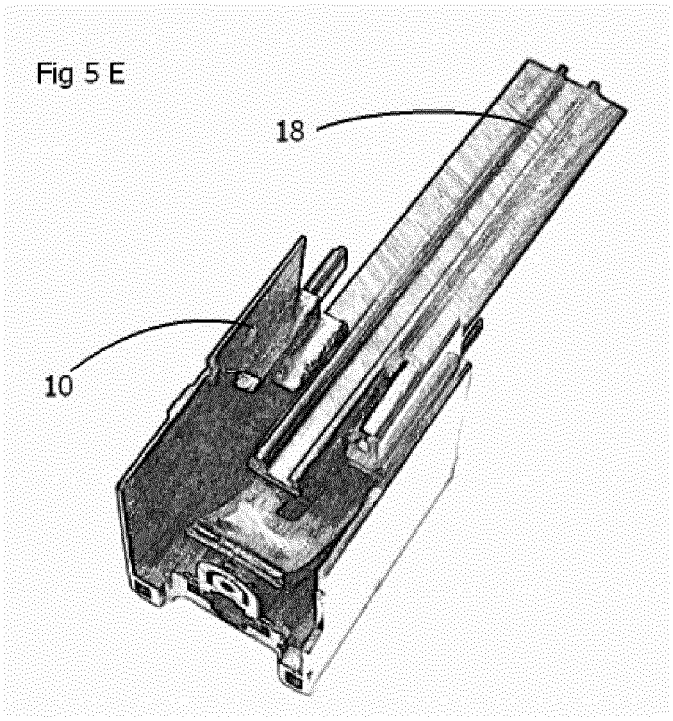


Fig 6

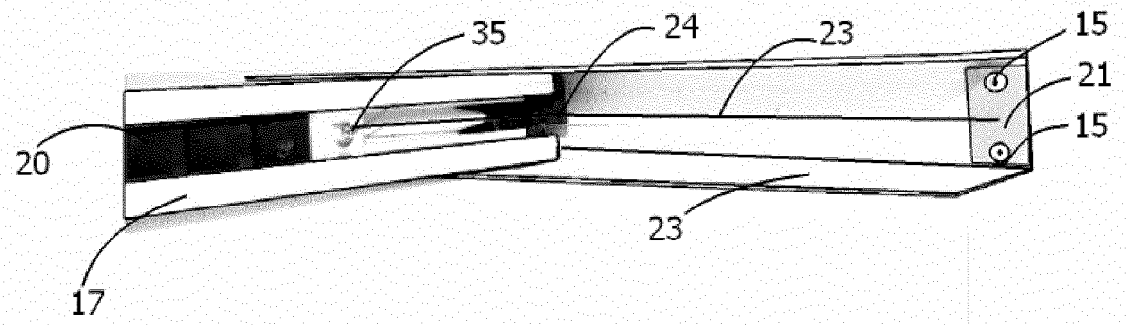


Fig 7

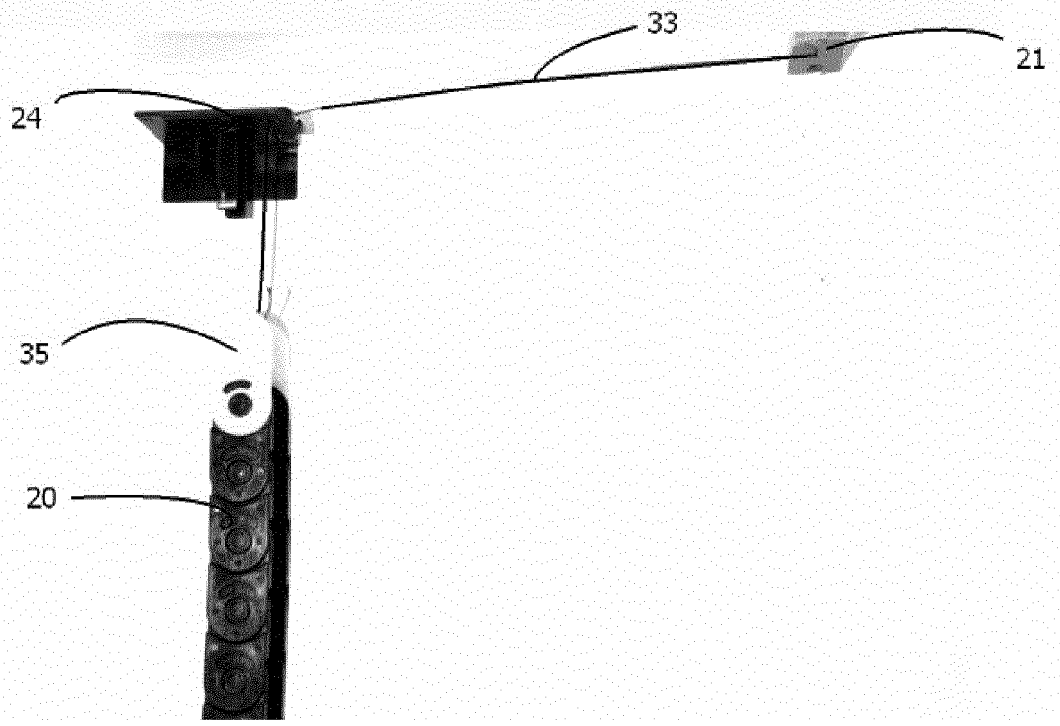
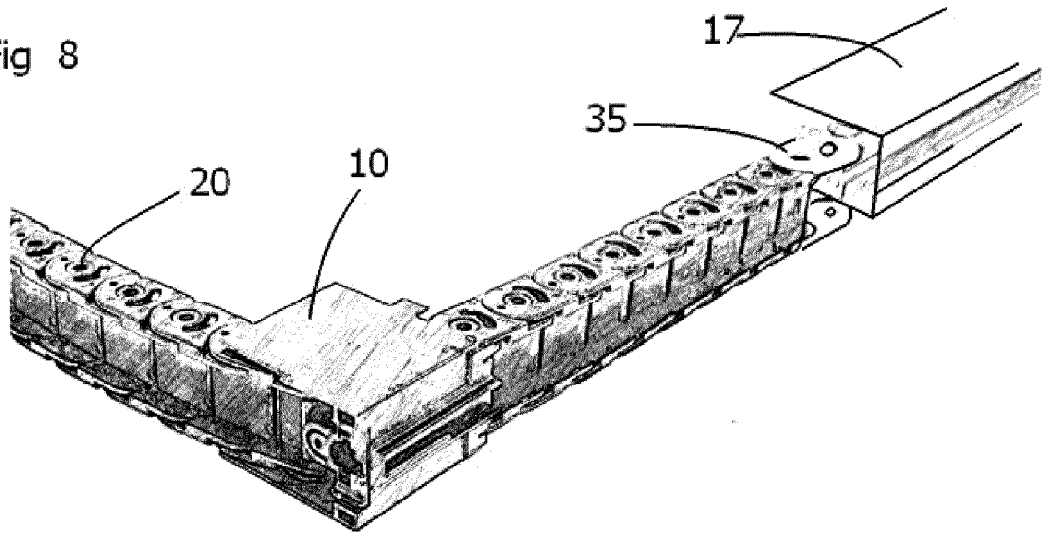


Fig 8



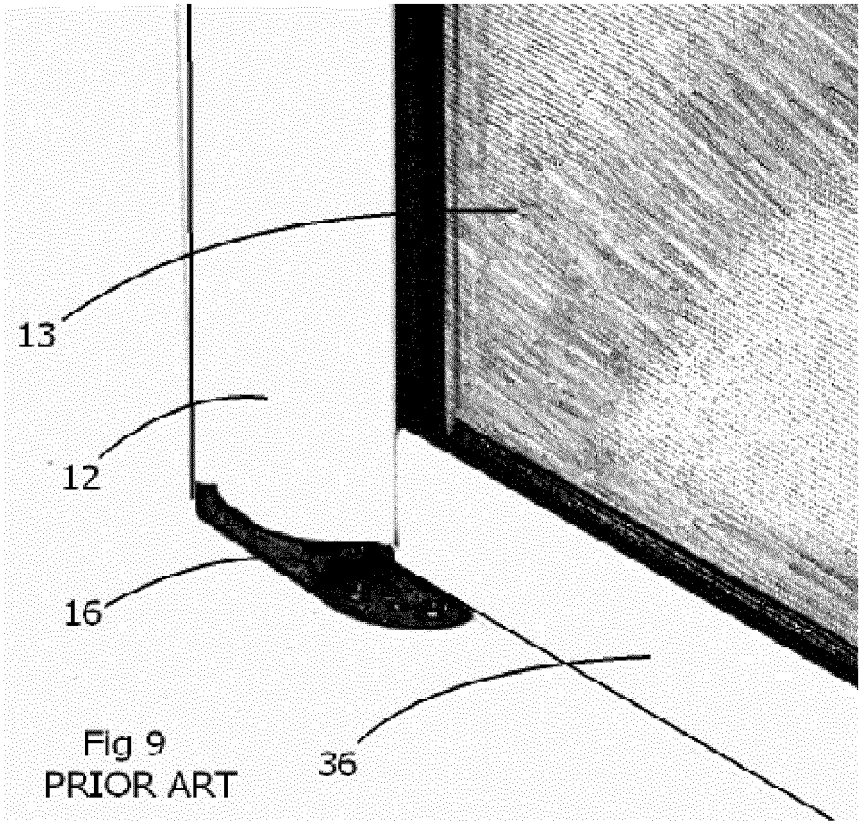


Fig 9
PRIOR ART

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EUROPEAN SEARCH REPORT

Application Number
EP 14 19 4409

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X	US 2004/154753 A1 (TAGTOW GARY E [US] ET AL) 12 August 2004 (2004-08-12) * figures 1,2,3,4,5,9,10,11 * * paragraphs [0042], [0043], [0047] *	1	

TECHNICAL FIELDS SEARCHED (IPC)

E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	12 June 2015	Tänzler, Ansgar

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 14 19 4409

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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12-06-2015

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82