Patents Act 1977 **Opinion Number** **26/24**

OPINION UNDER SECTION 74A

Patent	EP 3356635 B1
Proprietor(s)	RYSE INC.
Exclusive Licensee	
Requester	Maucher Jenkins on behalf of Aqara LLC
Observer(s)	Waterfront Law on behalf of RYSE INC.
Date Opinion issued	05 February 2025

The request

1. The Comptroller has been requested by Maucher Jenkins ("the requester") to issue an opinion as to whether claim 1 of EP 3356635 B1 ("the patent") is infringed by the Roller Shade Driver E1 known as an Aqara Zigbee 3.0 ("the product") detailed in the request.

2. The request includes the following evidence:

   Exhibit A – EP 3356635 B1

   Exhibit B – Register entry for EP 3356635 B1

   Exhibit C – User manual for Roller Shade Driver E1

Observations and observations in reply

3. Observations were received from Waterfront Law on behalf of RYSE INC ("the observer") which include argument as to why the product infringes claim 1 of the patent.

4. Observations in reply were subsequently received from the requester.

Scope of the opinion

5. In their request, the requester has asked for an opinion as to whether claim 1 of the patent is infringed by the product. In the request, the requester has identified a specific feature of claim 1 (identified as f1.5) that they believe is absent from the product. Their argument for non-infringement of the patent is based upon the

absence of this feature from the product.

6. The observer has invited the UK IPO to conclude that the requester has effectively limited its request to feature f1.5 of claim 1 and it is not open to the UK IPO to come to a conclusion of non-infringement on any other integer of claim 1 or indeed any other claim of the patent other than claim 1.

7. The requester disagrees with the observer's view and considers such a limitation to constrain the IPO's ability to provide a comprehensive opinion.

8. I agree with the requester on this point. The request asks for an opinion as to whether claim 1 of the patent is infringed by the product. In their arguments for non-infringement of the product, they have identified a feature of claim 1 which they consider absent from the product. The identification of this feature in no way limits my analysis of claim 1 to this feature alone. I will consider all of the features of claim 1 in interpreting its scope and whether it is infringed by the product.

The patent

9. The patent, EP 3356635 B1, is titled "EXTERNAL MOTOR DRIVE SYSTEM FOR WINDOW COVERING SYSTEM WITH CONTINUOUS CORD LOOP". It was filed on 30TH September 2016 with a priority date of 2nd October 2015, published on 8th August 2018 and granted on 17th July 2024. The patent remains in force.

10. The patent relates to a motor drive system for spreading and retracting window coverings that use continuous cord loops.

11. The patent explains that systems for spreading and retracting coverings for architectural openings such as windows, archways and the like are commonplace. Systems for spreading and retracting such retractable coverings, may operate for example by raising and lowering the coverings, or by laterally opening and closing the coverings. Such systems can include various control devices, such as pull cords that hang from one or both ends of a headrail. In the type of window covering systems addressed by the patent, the pull cord may be a continuous cord loop formed of a closed loop of flexible material such as a rope, cord, or beaded chain.

12. In some instances, window covering systems have incorporated a motor and controlling electronics that actuate the mechanism for spreading and retracting the blind or shade material. Using such motor-operated systems or devices, the shade or blind material can be spread or retracted by user actuation or by automated operation e.g. triggered by a switch or photocell. Such window covering systems in which the motor and controlling electronics have been mounted within the headrail are sometimes herein called an "internal motor", "internal motor device" or "internal motor system".

13. The drive system of the patent incorporates a motor and controlling electronics mounted externally to the mechanism for spreading and retracting the blind or shade material. Such a drive system is herein called an "external motor", "external motor device" or "external motor system", and alternatively is sometimes called an "external actuator". External motor systems are typically mounted externally on the

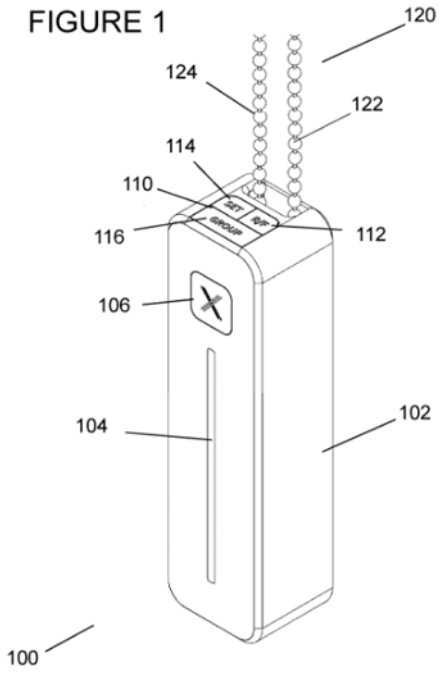
window frame or wall and engage the cords or chains (continuous cord loop) of window coverings in order to automate opening and closing the blind.

14. Automated control over window covering systems can provide various useful control functions. Examples of such automated window control functions include calibrating the opening and closing of blinds to meet the preferences of users and controlling multiple blinds in a coordinated or centralized fashion. There is a need to effectively integrate various automated window control functions in on-device control for external actuators.

15. Figure 1 illustrates an external motor 100 including a housing 102 that houses a motor, associated drive mechanisms, and control electronics. External actuator 100 includes various on-device controls for user inputs and outputs. For example, external actuator 100 may include a touch strip 104 (also called a slider or LED strip). Touch strip 104 includes a one-axis input device and a one-axis visual display. External actuator 100 further includes various button inputs including power button 106 at the front of the housing, and a set of control buttons 110 at the top of the housing. In an embodiment, control buttons 110 include an R/F button 112, a Set button 114, and a Group button 116.

16. In an embodiment, buttons 106, 110 are physical (moveable) buttons. The buttons may be recessed within housing 102 or may project above the surface of housing 102. In lieu of or in addition to the touch strip and the physical buttons seen in FIG. 1, the input controls may include any suitable input mechanism capable of making an electrical contact closure in an electrical circuit, or breaking an electrical circuit, or changing the resistance or capacitance of an electrical circuit or causing other state changes of an electrical circuit or an electronic routine. The R/F button 112 may be used to pair or sync the external motor to a mobile phone via radio-frequency chips (RF) including, but not limited to BLE (Bluetooth Low Energy), WIFI or other RF chips.

FIGURE 1



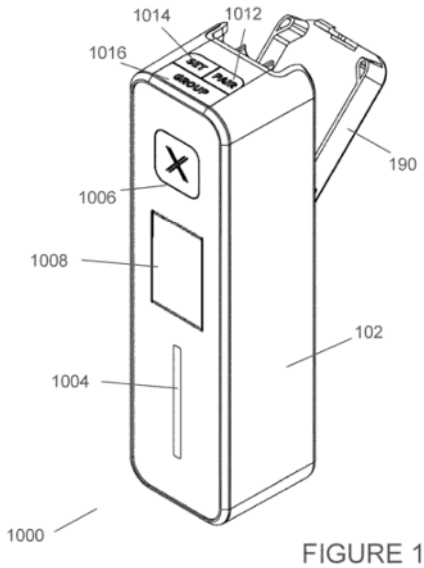


FIGURE 14

17. Figure 14 shows an alternative external motor 1000 that includes input devices 1004, 1006, 1012, 1014, and 1016 generally corresponding to input devices of motor 100. Additionally, the external motor 1000 includes a two-dimensional screen 1008 located on the front face of external motor 1000 above the LED strip 1004 and below the power button 1006. Two-dimensional screen 1008 may be a touch screen and may provide various input/output functions such as a virtual keypad, an alphanumeric display, and a graphical user interface, among others.

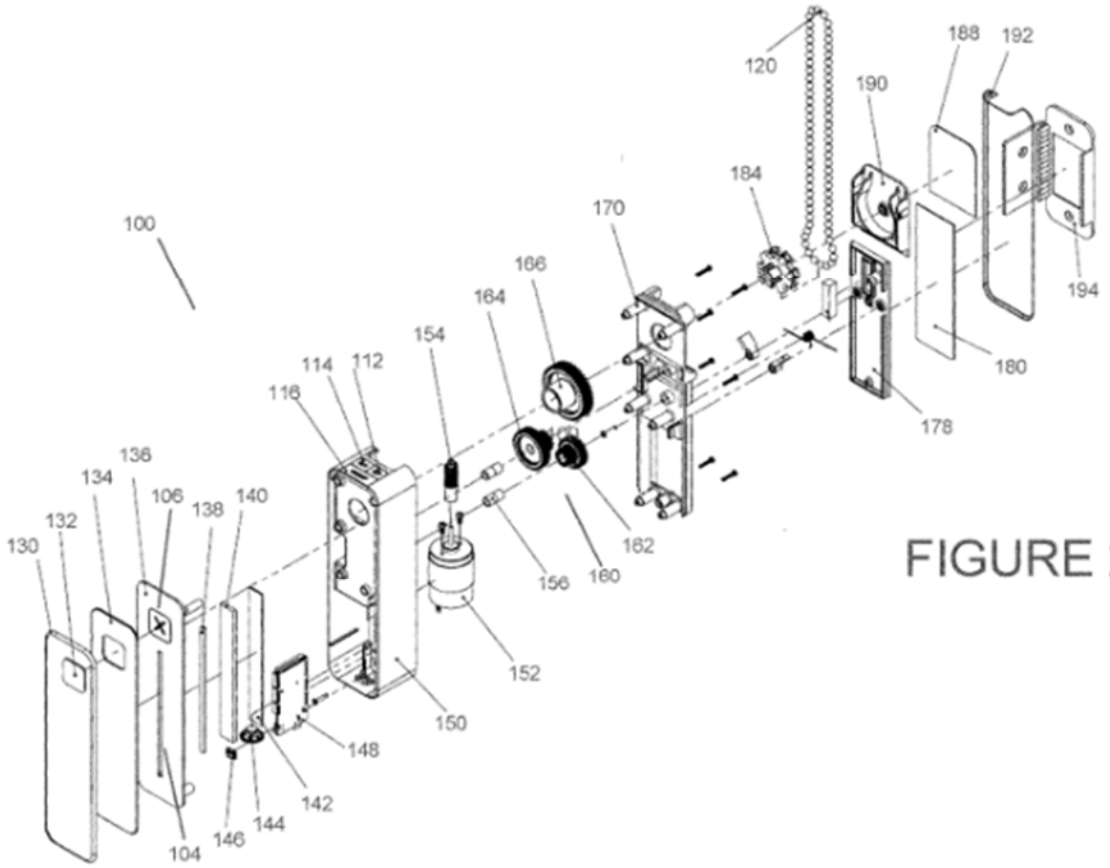


FIGURE 2

18. Figure 2 is an exploded view of the components of the external actuator 100. Front lid 136 houses the power button 106 and serves as a transparent cover plate for the touch strip 104. Visual display components of the one-axis strip 104 include LEDs strip (also called LEDs) 140 and diffuser 138. The input sensor for one-axis strip 104 is a capacitive touch sensor strip 142. These components serve as an input-output device for the external motor 100, including an input interface that receives user inputs along an input axis, and a visual display aligned with the input axis. When fully assembled, the input-output device extends vertically on the exterior of the housing 102.

19. The patent has 15 claims including a single independent claim 1. Independent claim 1, adopting the references used by the requester, reads:

> 1. *f1.1 A motor drive system for operating a mechanism for raising and lowering a window covering to which a continuous cord loop (220) is coupled, the motor drive system comprising:*

f1.2 a motor configured to operate under electrical power to rotate an output shaft of the motor, wherein the motor (100) is external to the mechanism for raising and lowering a window covering;

f1.3 a drive assembly configured for engaging and advancing the continuous cord loop, wherein advancing the continuous cord loop in a first direction raises the window covering, and advancing the continuous cord loop in a second direction lowers the window covering;

f1.4 a controller (308) for providing positional commands to the motor and the drive assembly to control the advancing the continuous cord loop in the first direction and the advancing the continuous cord loop in the second direction; and

f1.5 an input-output device for the controller, including an input interface (350) that receives user inputs along an input axis to cause the controller to provide the positional commands to the motor and the drive assembly, and further including a visual display aligned with the input axis of the input interface,

f1.6 wherein the drive assembly comprises a driven wheel (184) configured for engaging and advancing the continuous cord loop coupled to the mechanism for raising and lowering the window covering, and a coupling mechanism coupling the driven wheel to the output shaft of the motor and configured for rotating the driven wheel in first and second senses, wherein rotation of the driven wheel in a first sense advances the continuous cord loop in the first direction, and rotation of the driven wheel in a second sense advances the continuous cord loop in the second direction, and wherein the controller provides the positional commands to the motor and the coupling mechanism to control the rotation of the driven wheel in the first and second senses.

Claim construction

20. Before I can consider whether the patent could be infringed, I need to construe the claims of the patent – that is to say, I must interpret them in the light of the description and drawings as instructed by Section 125(1):

> *125(1) For the purposes of this Act an invention for a patent for which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.*

21. In doing so I must interpret the claims in context through the eyes of the person skilled in the art. Ultimately the question is what the person skilled in the art would have understood the patentee to be using the language of the claims to mean. This

approach has been confirmed in the recent decisions of the *High Court in Mylan v Yeda*[1] and the *Court of Appeal in Actavis v ICOS*[2].

22. In order to interpret the claims through the eyes of the skilled person, they must first be identified. I consider the person skilled in the art to be a designer and manufacturer in the field of systems for spreading and retracting coverings for architectural openings. The person skilled in the art would have knowledge of apparatus, methods and drive systems for spreading and retracting window coverings that use continuous cord loops.

23. The main area of contention between the requester and the observer lies in how the feature f1.5 regarding the input-output device of claim 1 should be interpreted. The input-output device includes an input interface and a visual display. In particular, what constitutes the input axis and whether the external motor drive system integrates the window control functions directly on the device or can the control functions be located remotely from the device on a mobile phone app or the like needs to be considered.

24. The requester argues that although claim 1 does not explicitly specify if the input interface is on-device or remote, the patent's background unmistakeably clarifies this. The requester highlights paragraphs [0005]-[0007] as explaining that the external motor drive system integrates window control functions directly on the device (referred to as "on-device control") which distinguishes it from remote controls such as mobile apps. The requester further explains that the patent specifies that these on-device inputs operate along an input axis, typically through a slider or touch strip.

25. The observer contends that the requester is attempting to read in an unjustified limitation by asserting that the patent unmistakeably clarifies that the input interface is on-device and not remote. By seeking to introduce a limitation into feature f1.5, the requester is unfairly construing claim 1. The observer has referred to *Terrell on the Law of Patents*[3] in support of their argument.

26. The observer has also explained that the input axis is the place in which information enters the system. The observer has argued that two buttons spaced apart define an input axis.

27. The requester disagrees with the observer that they have introduced an unwarranted limitation into feature f1.5. Instead, it is argued, they have proposed an interpretation of the claim language that is consistent with the general purpose of the claimed invention and the patent as a whole. The requester argues that the patent consistently describes "on-device" controls for user input and outputs, such as sliders or touch strips, that are parts of the external motor drive system itself and highlights paragraphs [0005]-[0006], [0020], [0026]-[0029], [0034] and figures 1-3 and 14 as examples.

28. The requester interprets paragraph [0005] as describing remote control systems,

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[1] Generics UK Ltd (t/a Mylan) v Yeda Research and Development Co. Ltd & Anor [2017] EWHC 2629 (Pat)

[2] Actavis Group & Ors v ICOS Corp & Eli Lilly & Co. [2017] EWCA Civ 1671

[3] See 9-56 of Terrell on the Law of Patents, Twentieth Edition

including apps, as being clearly and unmistakably not part of the claimed invention.

29. Paragraphs [0005] and [0006] read as follows:

> *[0005] In both internal motor systems and external motor systems (herein sometimes called collectively, motorized systems), automated drive systems incorporate controlling electronics to control operation. Commonly, motorized systems have been controlled through user control mechanisms that incorporate an RF (radio frequency) controller or other remote controller for wireless communication with a drive system associated with the motor. Such remote user control systems have taken various forms such as a handheld remote control device, a wall-mounted controller/switch, a smart-home hub, a building automation system, and a smart phone, among others. The use of such remote control devices is particularly germane to internal motor systems in which it is difficult or impossible to integrate user control devices within the internally mounted drive system.*
>
> *[0006] In the external motor drive system of the present disclosure, since the external actuator is separated from the headrail or other window coverings mechanism, this opens up new possibilities for integrating user controls in the external actuator itself. These integrated control features are herein sometimes called "on-device control". On-device control of external motor systems offers various advantages, such as simplicity of operation, and convenience in accessing the control device and in executing control functions. Such on-device control of external motor systems can be integrated with automated control systems through appropriate sensors, distributed intelligence, and network communications.*

30. As explained above in paragraphs 12-13, internal motor systems have the motor and controlling electronics mounted within the headrail whereas external motor systems have the motor and controlling electronics mounted external to the headrail.

31. Claim 1 is clearly directed to an external motor system with feature f1.2 defining “the motor (100) is external to the mechanism for raising and lowering a window covering”. Paragraph [0006] sets out the purpose and aims of the invention of the patent. Further to paragraph [0006], paragraph [0007] explains “There is a need to effectively integrate various automated window control functions in on-device control for external actuators.” The person skilled in the art would understand the purpose and aims of the patent to be to integrate user controls into the external actuator itself for simplicity of operation, and convenience in accessing the control device and in executing control functions.

32. In my view, the person skilled in the art upon reading claim 1, would understand the claim to be defining an external motor system as discussed throughout the description. Paragraphs [0006]-[0007] teach the skilled person that the patent seeks to integrate user controls into the external actuator itself. In my opinion, the patent does not teach the skilled person that the input-output device of an external motor system can be located remotely from the external actuator. The external actuator 100 does include a R/F button for pairing or syncing the external motor to a mobile phone. However, the patent does not teach the skilled person how any control via a mobile phone would be implemented. Therefore, I agree with the requester that the

skilled person would construe claim 1 to relate to an “on-device” input-output device of an external motor system. From reading the patent as a whole, there is nothing to suggest to the person skilled in the art that interpreting claim 1 in this way would be to unduly limit the scope of the claim.

33. The requester also disagrees with the observer that the input axis can be defined as “the place” in which information enters the system. The requester considers this interpretation to introduce ambiguity rather than clarifying the term. The requester argues that a “place” is spatially indeterminate and does not align with the directional nature implied by the term “axis”.

34. The observer has also argued that two discreet spaced apart buttons provide an input axis falling within the scope of the input interface receiving user inputs along an input axis as required by claim 1.

35. I agree with the requester that claim 1 does not clearly define the term “input axis” and how the user inputs are received along the input axis. The skilled person would turn to the description and drawings to purposively construe the feature of the input axis. The embodiments of the invention as described and illustrated in the patent provide the input interface receiving user inputs along an input axis through sliders or touch-sensitive strips. Nowhere in the patent is the skilled person taught that the input axis can be anything other than a directional line on and along the length of the input-output device. The specification teaches the skilled person that this can be provided in the form of a capacitive touch strip or slider.

36. In my opinion the skilled person would not consider two discreet spaced apart buttons as forming an input axis along which an input interface receives user inputs as required by claim 1. Whilst a line can be drawn between two discreet spaced apart buttons, this does not fall within the scope of an input axis as taught to the skilled person by the patent which requires the input interface to receive user inputs along the input axis.

37. Furthermore, as highlighted by the requester in their observations in reply, should I consider the observer’s interpretation of the features f1.5 to include two discreet spaced apart buttons providing an input axis and/or the control functions being located remotely from the device on a mobile phone app, then at least some of the prior art listed in the patent would appear to fall with the scope of claim 1 e.g. WO 2014/165367 A1 and US 48968713 A.

38. Whilst I do not agree with the observer’s interpretation of the scope of claim 1, this raises the question of whether I should have been persuaded to reject the observer’s construction because of the legal consequences which that construction has for the validity of the patent. In *Beloit v Valmet (No 2)*[4], Jacob J, explained that it was not normally legitimate to construe claims using the prior art, because there was normally no reason to suppose that the patentee, when he set the limits of his claims, knew of any individual item of prior art. However, he continued:

> *"Of course the position is different if the prior art is specifically acknowledged in the patent. The purposive construction would lead to a construction of a*

[4] Beloit v Valmet (No 2) [1995] RPC 255 at 270

claim which did not cover that acknowledged prior art: it can hardly have been the inventor's purpose to cover that which he expressly recognises was old."

39. To my mind this supports my interpretation of the features f1.5 of claim 1 to not encompass the acknowledged prior art in the patent within the scope of claim 1.

40. In my view, this interpretation of claim 1 is consistent with the stated aims of the patent as outlined in paragraphs [0006]-[0007] of the patent. It is the integration of the user controls into the external actuator itself that provides simplicity of operation, and convenience in accessing the control device and in executing control functions.

41. I have no issue with the remaining features of claim 1 and consider them to be clear when read in light of the description and drawings. I am unable to identify anything in the patent that would justify deviating from a normal interpretation of the language used in the claim. In my opinion, the skilled person would have no issue with understanding the meaning of the claim.

Infringement - the law

42. Section 60 Patents Act 1977 governs what constitutes infringement of a patent:

> *(1) Subject to the provision of this section, a person infringes a patent for an invention if, but only if, while the patent is in force, he does any of the following things in the United Kingdom in relation to the invention without the consent of the proprietor of the patent, that is to say –*
>
> > *(a) where the invention is a product, he makes, disposes of, offers to dispose of, uses or imports the product or keeps it whether for disposal or otherwise;*
> >
> > *(b) where the invention is a process, he uses the process or he offers it for use in the United Kingdom when he knows, or it is obvious to a reasonable person in the circumstances, that its use there without the consent of the proprietor would be an infringement of the patent;*
> >
> > *(c) where the invention is a process, he disposes of, offers to dispose of, uses or imports any product obtained directly by means of that process or keeps any such product whether for disposal or otherwise.*
>
> *(2) Subject to the following provisions of this section, a person (other than the proprietor of the patent) also infringes a patent for an invention if while the patent is in force and without the consent of the proprietor, he supplies or offers to supply in the United Kingdom a person other than a licensee or other person entitled to work the invention with any of the means, relating to an essential element of the invention, for putting the invention into effect when he knows, or it is obvious to a reasonable person in the circumstances, that those means are suitable for putting, and are intended to put, the invention into effect in the United Kingdom.*

43. In *Actavis v Eli Lilly*[5], Lord Neuberger states that the problem of infringement is best approached by addressing two issues, each of which is to be considered through the eyes of the notional addressee of the patent in suit, i.e. the person skilled in the relevant art. Those issues are:

> *(i) does the variant infringe any of the claims as a matter of normal interpretation; and, if not,*
>
> *(ii) does the variant nonetheless infringe because it varies from the invention in a way or ways which is or are immaterial?*

44. If the answer is “yes” to either question, there is infringement; otherwise there is not.

45. The second issue to be addressed is whether the variant provided by the product varies in a way that is immaterial. The court in *Actavis* provided a reformulation of the three questions in *Improver* [6] to provide guidelines or helpful assistance in connection with this second issue. These reformulated questions are:

> *(i) Notwithstanding that it is not within the literal meaning of the relevant claim(s) of the patent, does the variant achieve substantially the same result in substantially the same way as the invention, i.e. the inventive concept revealed by the patent?*
>
> *(ii) Would it be obvious to the person skilled in the art, reading the patent at the priority date, but knowing that the variant achieves substantially the same result as the invention, that it does so in substantially the same way as the invention?*
>
> *(iii) Would such a reader of the patent have concluded that the patentee nonetheless intended that strict compliance with the literal meaning of the relevant claims(s) of the patent was an essential requirement of the invention?*

46. To establish infringement in a case where there is not literal infringement, a patentee would have to establish that the answer to the first two questions was "yes" and that the answer to the third question was "no".

47. The first step in determining if there is any infringement under section 60(1) is to consider whether the product falls within the scope of the claims of the patent.

The product

48. Figure 1 below shows an example of the product in use.

[5] Actavis UK Limited and Others v Eli Lilly and Company [2017] UKSC 48
[6] Improver [1990] FSR 181

FIG. 1 Example of the Product in use

49. Figure 2 shows the components of the product in a disassembled state. The product includes a motor, a gear assembly driven by the motor, and a battery pack to provide power to the motor. The motor when powered by the battery operates to rotate its output shaft, and the rotation force is then transmitted to and adjusted by the gear assembly.

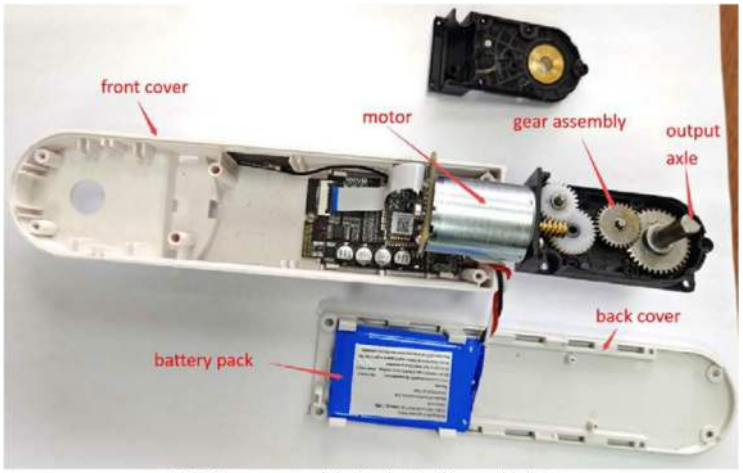


FIG. 2 Components of the Product in disassembled state

50. An output axle is located at the output of the gear assembly and passed through a hole at the front cover. The product further includes a driven wheel that can be mounted on the output axle. A number of different types of driven wheel may be provided for receiving bead chains having beads of different diameters as shown in figures 3A and 3B below.

FIG. 3A Driven wheel in use

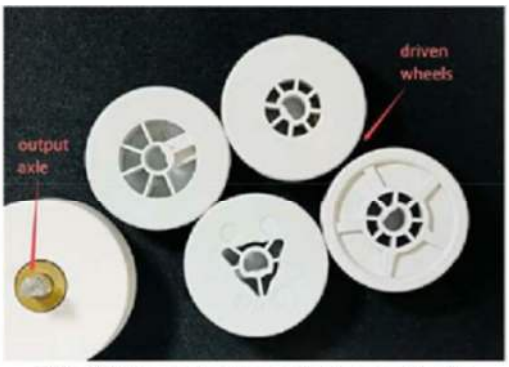
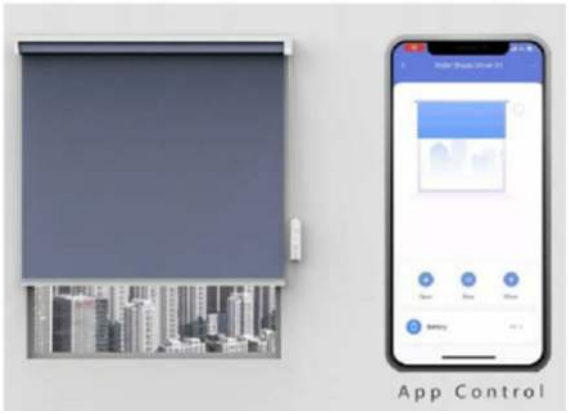


FIG. 3B Output axle and driven wheels

51. When a driven wheel is mounted on the output axle, it stays in an engaged state with the gear assembly and the motor, such that when the bead cord is wound about the driven wheel and the product is installed, the bead cord is prevented from being pulled manually, thereby preventing manual operation of the shade.



52. The product has two control buttons (“up” and “down”) for user input. The shade can be controlled to move using these buttons. The product can also be remotely controlled via a designated App.

Does the product infringe the patent?

53. I will now consider whether the product falls within the scope of independent claim 1. As discussed above the main feature of contention is whether the product includes feature f1.5 within the scope of the independent claim. The requester argues that the product does not have “an input interface that receives user inputs along an input axis” as well as the “visual display aligned with the input axis” as required by feature f1.5 of claim 1.

54. The observer’s arguments for infringement are based on their interpretation of the feature f1.5 as discussed above under claim construction and that two discreet spaced apart buttons providing an input axis and/or the control functions being located remotely from the device on a mobile phone app falls within the scope of claim 1. As set out above, I disagree with the observer’s arguments and

interpretation of the scope of claim 1.

55. The product as described in the request has two discreet spaced apart control buttons for user input. The product does not provide an input interface that receives user inputs along an input axis. In my opinion, the two buttons do not provide an input axis along which user inputs are received. Further, since the product does not provide an input axis the feature of the visual display being aligned therewith is also absent.

56. In my view, the remote control of the product via a mobile phone app also does not fall within the scope of claim 1. I have interpreted claim 1 to relate to an external motor system having an on-device input-output device to be consistent with the aims of the patent for integration of the user controls into the external actuator itself to provide simplicity of operation, and convenience in accessing the control device and in executing control functions.

57. Therefore, it is my opinion that the product does not fall within the scope of claim 1 of the patent as a matter of normal interpretation. As the answer to the first Actavis question is 'no', it is necessary for me to consider the second Actavis question in relation to claim 1.

58. Does the product nonetheless infringe because it varies from the invention in a way or ways which is or are immaterial? Turning to the Improver questions for assistance it is necessary to consider the inventive concept revealed by the patent. The aim of the invention is set out in paragraph 56 above. This is achieved in the patent by the external motor system having an on-device input-output device and the input-output device having an input interface that receives user inputs along an input axis and a visual display aligned with the input axis.

59. In my opinion, the inventive concept lies in the external motor system having an on-device input-output device having an input interface that receives user inputs along an input axis and a visual display aligned with the input axis. However, the product does not achieve the same result in the same way as it does not have input-output device having an input interface that receives user inputs along an input axis to control operation of the motor and a visual display aligned with the input axis. Therefore, it is my opinion that the product cannot be said to vary in a way that is immaterial.

Contributory infringement

60. The requester has not raised the question of whether the supply of the product constitutes contributory infringement under section 60(2). Nevertheless, I will briefly comment.

61. Under section 60(2) a person may infringe if, without consent, they supply or offer to supply in the UK a person not entitled to work the invention with means relating to an essential element of an invention for putting the invention into effect in the UK.

62. As in my opinion the product does not provide an input-output device falling within the scope of the independent claim, the product cannot be considered an essential

element of the invention for putting the invention into effect.

Opinion

63. It is my opinion that the product does not fall within the scope of claim 1 of the patent as a matter of normal interpretation. Further, it is my opinion that the product does not vary from the features of the claim in an immaterial way. Accordingly, it is my opinion that the product does not infringe EP 3356635 B1 under Section 60(1) of the Act.

64. It is also my opinion that the supply of the product does not infringe EP 3356635 B1 under Section 60(2) of the Act.

Application for review

65. Under section 74B and rule 98, the proprietor may, within three months of the date of issue of this opinion, apply to the comptroller for a review of the opinion.

Marc Collins
Examiner

NOTE

This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.