Patents Act 1977 **Opinion Number** **25/24**

OPINION UNDER SECTION 74A

Patent	EP 3215702 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	31 January 2025

The request

1. The Comptroller has been requested by Maucher Jenkins ("the requester") to issue an opinion as to whether the claim 1 of EP 3215702 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 3215702 B1

   Exhibit B – Register entry for EP 3215702 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 two specific features of claim 1 (identified as f1.9 and f1.11) that they believe are absent

from the product. Their argument for non-infringement of the patent is based upon the absence of these two features from the product.

6. The observer has invited the UK IPO to conclude that the requester has effectively limited its request to features f1.9 and f1.11 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 two features of claim 1 which they consider absent from the product. The identification of these two features in no way limits my analysis of claim 1 to these two features 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 3215702 B1, is titled "DRIVE SYSTEM FOR WINDOW COVERING SYSTEM WITH CONTINUOUS CORD LOOP". It was filed on 4th November 2015 with a priority date of 6th November 2014, published on 13th September 2017 and granted on 21st December 2022. The patent remains in force.

10. The patent relates to a 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 motor-operated devices have been designed to replace the normal mechanisms that come installed with window covering systems. For homeowners who already have window blinds, installation of such motor-operated device requires the installer to remove the current blinds, retrofit it with the motors, then reinstall the blind. Such motor-operated devices are extremely burdensome or simply impractical for a typical homeowner to install, instead requiring installation by a trained service professional.

13. Another consideration in the operation of motor-operated devices for window

covering systems is that it is desirable to permit manual operation of the window covering system, for example in the event that the motor-operated device loses power.

14. The aim of the patent is to provide a motor-operated device designed for operation with existing window covering systems over a variety of architectural opening settings which can be installed without requiring a trained service professional. Further, the device will permit manual operation of the window covering system, for example in the event that the motor-operated device loses power.

15. Figure 1 illustrates a drive system 100 including a housing 102 with a lower housing 104 and an upper housing 106. A power switch 107 is located at the upper housing 106. The top side 116 of housing 102 has channel apertures including a first channel aperture 110 and a second channel aperture 112. Each of these channel apertures is an opening in the housing 102 through which a continuous cord loop, not seen in this view, may extend. Housing 102 further includes a bracket 108 mounted on side 114 of the lower housing 104.

16. Figure 2 shows another drive system configuration 121. Drive system 121 includes a first channel 120 (terminating at channel aperture 110) and a second channel 122 (terminating at channel aperture 112). Drive system configuration 121 also includes a channel system 130 attached to the lower housing. The channel system 130 includes a first channel aperture 132 and a second channel aperture 134. The channel system includes one or more channels that guide the continuous cord loop within the drive system.

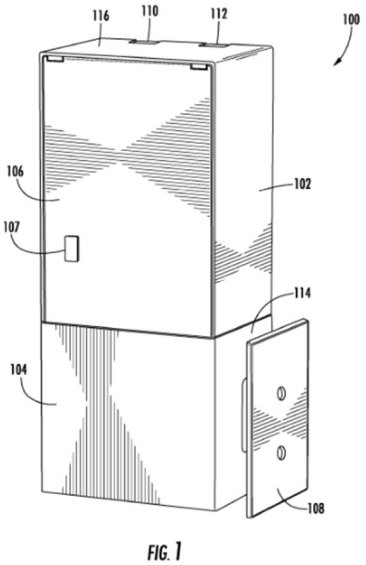


FIG. 1

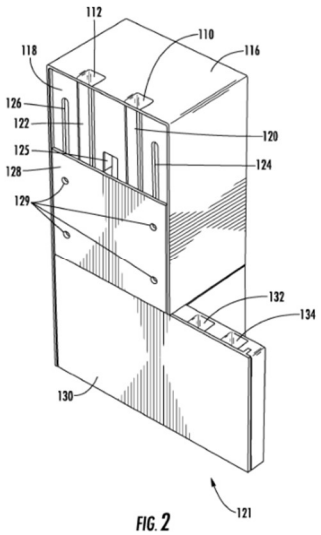


FIG. 2

17. Figure 3 shows another drive system 121 with a continuous cord loop (beaded chain 148) secured within the channel system 130. A lid of channel system 130 has been removed to reveal driven wheel 146, and an interior structure of channel system 130. Ribs 144 of channel system 130 define interior channels 136, 138 for routing continuous cord loop 148.

18. The interior channels of channel system 130 redirect the continuous cord loop 148

engaged by driven wheel 146. Thus, while driven wheel 146 is centrally located within the main body of housing 102 (FIG. 1), the channel system 130 redirects the continuous cord loop 148 so that, as seen in this view, it extends upwardly to the right of housing 102. Figure 3 may be compared with other drive system configurations such as the drive system configuration 151 shown in figure 7, in which the continuous cord loop 148 once mounted, would be routed upwardly through channels 120, 122 to extend directly above the main housing 102.

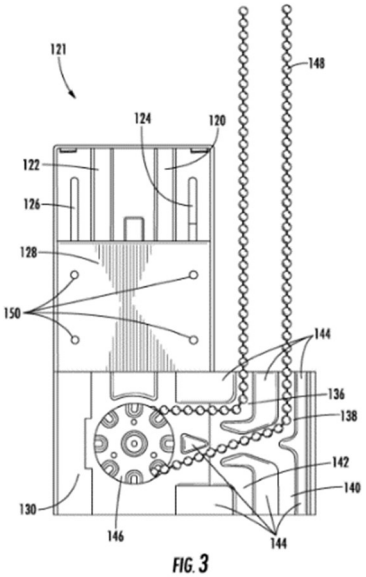


FIG. 3

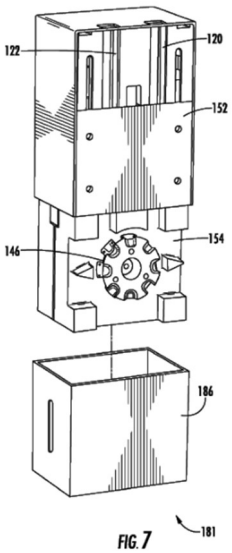


FIG. 7

19. Figure 6 illustrates an exploded view of a drive system 171. Components of the drive system 171 include a DC motor 178, planetary gear 180, hypoid pinion 176, face gear 172, clutch 174 and driven wheel 146. Face gear 172 is coupled to driven wheel 146 by clutch 174. Clutch 174 is a coupling mechanism for engaging and disengaging the motor and the driven wheel. The clutch includes an engaged configuration in which rotation of the output shaft of the motor 178 causes rotation of the driven wheel 146; and a disengaged configuration in which the driven wheel 146 is not rotated by the output shaft of the motor, thus allowing for a user to manually operate the window covering system.

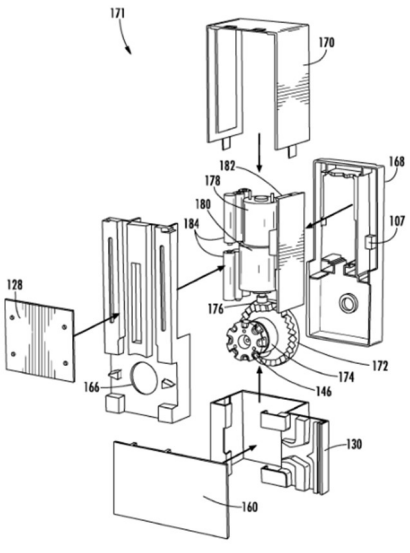


FIG. 6

20. Figure 19 is a diagram of a motor drive control system 400 for continuous cord loop driven window covering systems. Control system 400 includes DC motor 402, gear assembly 404, and clutch 406. DC motor 402 and clutch 406 are both electrically powered by motor controller 408. Power sources include battery pack 412. Users may recharge battery pack 412 via power circuit 414 using a charging port 416, or a solar cell array 418. The central control element of control system 400 is microcontroller 410, which monitors and controls power circuit 414 and motor controller 408. Inputs to microcontroller 410 include motor encoder 422, and sensors 424.

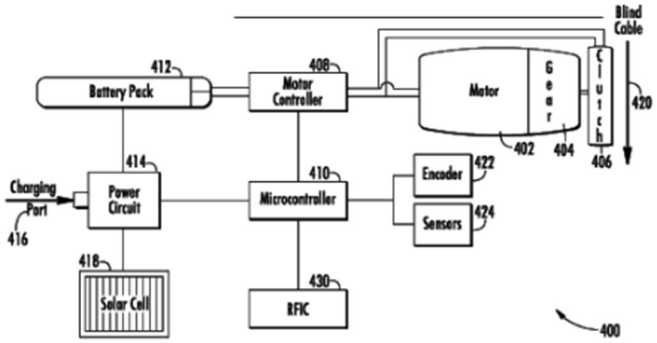


FIG. 19

21. Control system 400 monitors various modes of system operation and engages or disengages the clutch 406 depending on the operational state of system 400. In one embodiment, when DC motor 402 is rotating its output shaft under user (operator) control, or under automatic control by microcontroller 410, clutch 406 is engaged thereby advancing continuous cord loop 420. When microcontroller 410 is not processing an operator command or automated function to advance the continuous cord loop, clutch 406 is disengaged, and a user may advance the continuous cord loop manually to operate the window covering system. In the event of power failure, clutch 406 will be disengaged, allowing manual operation of the window covering system.

22. The patent has 13 claims including a single independent claim 1. Independent claim 1, adopting the references used by the requester, reads:

> 1. *f1.1 A drive system (171), for use with a window covering system (200) including*
>
> *f1.2 a roller blind mechanism for raising and lowering a window covering fabric (208),*
>
> *f1.3 the window covering system also including a continuous cord loop (148) extending below the roller blind mechanism,*
>
> *f1.4 the drive system comprising: a motor (178) configured to operate under electrical power to rotate an output shaft of the motor;*
>
> *f1.5 a driven wheel (146);*

f1.6 an electrically powered coupling mechanism (174) including a gear assembly (172, 176, 180) driven by the output shaft of the motor configured to rotate the driven wheel, wherein the driven wheel is able to engage the continuous cord loop to advance the continuous cord loop during rotation of the driven wheel;

f1.7 characterized in that the drive system (171) further comprises a controller (410) for the motor and the electrically powered coupling mechanism,

f1.8 wherein at given times during operation of the drive system, the controller is in one of a machine-control state, a user-control state, and a manual-operation state;

f1.9 wherein the electrically powered coupling mechanism includes an engaged configuration in which rotation of the output shaft of the motor causes rotation of the driven wheel, and a disengaged configuration in which the driven wheel is not rotated by the output shaft of the motor:

f1.10 wherein the electrically powered coupling mechanism is in the engaged configuration when the controller is in the machine-control state or when the controller is in the user-control state; and

f1.11 wherein the electrically powered coupling mechanism is in the disengaged configuration when the controller is in the manual-operation state;

f1.12 wherein the controller for the motor and the electrically powered coupling mechanism monitors a distance of a current position of the window covering fabric from a top position, and

f.13 wherein in the machine-control state the controller for the motor and the electrically powered coupling mechanism controls an intended displacement from the current position at a given time based upon the monitored distance.

Claim construction

23. 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.

24. 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].

25. 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.

26. The main area of contention between the requester and the observer lies in how the feature f1.9 regarding the coupling mechanism's configurations of claim 1 should be interpreted. The requester has construed f1.9 as meaning the coupling mechanism's configurations are clearly linked to specific states i.e. the coupling mechanism is in the engaged configuration when the controller is in either the machine-controlled state of the user-control state, while the coupling mechanism is in the disengaged configuration when the controller is in the manual state. The requester explains that this implicitly introduces a limitation that the claimed drive system must at least support the manual-operation state, where the coupling mechanism is in the disengaged configuration, and at least one of the machine-controlled state or the user-control state, where the coupling mechanism is in the engaged configuration.

27. The observer contends that the requester is attempting to read in an unjustified limitation by asserting that the coupling mechanism's configurations are clearly linked to specific states. It is argued that this linkage point does not appear in the patent and should not be incorporated as a consequence of a normal reading or interpretation of the claim. By seeking to introduce a limitation into feature f1.9, the requester is unfairly construing claim 1. The observer has referred to *Terrell on the Law of Patents*[3] in support of their argument.

28. The requester disagrees with the observer and explains that feature f1.9 cannot be read independently of other features of the claim. The requester considers that a reading of the claim language would naturally lead to an understanding where the states of the controller are explicitly linked to specific configurations of the coupling mechanism.

29. In my view, the person skilled in the art upon reading claim 1, would understand there to be a link between the states of the controller and the specific configurations of the coupling mechanism. As argued by the requestor f1.9 cannot be read in isolation and f1.8-f1.11 define the relationship between the coupling mechanism's configurations and the specific states of the controller. From reading the patent as a

[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

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.

30. The observer has also argued that the use of the word “may” in paragraph [0014] of the patent means that it is not essential in claim 1 for the controller to be capable of operating in any one of the following states at given times during operation: a machine-controlled state, a user-control state and a manual-operation state.

31. To my mind, the person skilled in the art would not read paragraph [0014] and construe claim 1 as suggested by the observer. The wording of claim 1 defines the essential features of the invention. Feature f1.8 defines “wherein at given times during operation of the drive system, the controller is in one of a machine-control state, a user-control state, and a manual-operation state”. The patent does not teach any other state for the controller, during operation of the drive system, other than these three states.

32. In my opinion, the person skilled in the art would interpret claim 1 to require the controller to operate in one of the three specified states at a given time during operation of the drive system.

33. Independent claim 1 defines a drive system which includes a motor, a driven wheel, an electrically powered coupling mechanism and a controller. The controller controls operation of the motor and the electrically powered coupling mechanism. At a given time during operation of the drive system, the controller is in one of a machine-controlled state, a user-control state or a manual-operation state. As discussed above this is interpreted to mean that the controller is capable of operating in one these three states.

34. The electrically powered coupling mechanism includes an engaged configuration and a disengaged configuration. In my opinion, the person skilled in the art from reading the patent as a whole, would understand the controller to control the electrically powered coupling mechanism and to put the electrically powered coupling mechanism in the engaged configuration or the disengaged configuration based upon the operating state of the controller. When the controller is in either a machine-controlled state or a user-control state, the controller puts the electrically powered coupling mechanism in the engaged configuration. When the controller is in a manual-operation state, the controller puts the electrically powered coupling mechanism in the disengaged configuration.

35. The observer has argued that the patent does not specify that manual or disengaged operation must only happen when a product is mounted. The observer also argues that as the product may have different driven wheels (see figure 3B below), the driven wheels may be disengaged and reengaged by a user. The observer considers the situation where the product is not installed, thus allowing manual operation of a cord to move a window covering system, and the product is dismantled by a user to remove the driven wheel to fall within the scope of independent claim 1.

36. I do not agree. In my opinion, the person skilled in the art is not taught that such a situation falls within the scope of claim 1. I consider the patent to teach the person skilled in the art that it is the controller that controls the electrically powered coupling mechanism to be in either engaged configuration or a disengaged configuration.

37. Furthermore, to my mind, the controller cannot be considered to be in a manual-operation state merely by the fact it is not installed and thus allowing manual operation of a window covering system. This interpretation is not suggested by the patent. The drive system provides the manual-operation state which it cannot do if it is uninstalled and separate from the window covering system.

38. In my view, this interpretation of claim 1 is consistent with the stated aims of the patent as outlined above in paragraph 14. It is the feature of the controller being able to put the electrically powered coupling mechanism into the disengaged configuration that allows the device, when installed, to permit manual operation of the window covering system.

39. 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

40. 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.*

41. In *Actavis v Eli Lilly*[4], 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?*

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

43. 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* [5] 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?*

44. 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".

45. 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

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

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

FIG. 1 Example of the Product in use

47. 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.

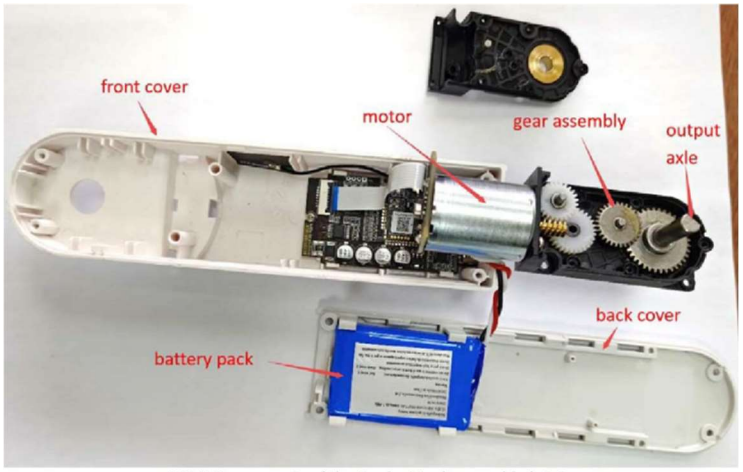


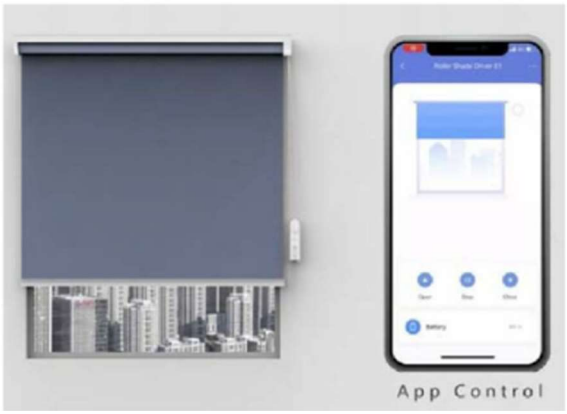
FIG. 2 Components of the Product in disassembled state

48. 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

49. 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.



50. 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?

51. I will now consider whether the product falls within the scope of independent claim 1. As discussed above the main features of contention are whether the product includes features f1.9 and f1.11 within the scope of the independent claim. The requester argues that the product does not have the “disengaged configuration” as well as the “manual-operation state” as required by features f1.9 and f1.11 of claim 1.

52. The observer’s arguments for infringement are based on their interpretation of the features f1.9 and f1.11 as discussed above under claim construction and that an uninstalled product with the driven wheel dismounted from the output axle 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.

53. The product as described in the request does not have a controller that can operate in a manual-operation state where the electrically powered coupling mechanism is in a disengaged configuration in which a driven wheel is not rotated by the output shaft of a motor. In my opinion, this is an essential requirement of claim 1 of the patent.

54. 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.

55. 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 14 above. This is achieved in the patent by the drive system having a controller that can operate in a manual-operation state where the electrically powered coupling mechanism is in a disengaged configuration in which a driven wheel is not rotated by the output shaft of a motor. This permits one of the stated aims of the patent to allow manual operation of the window covering system.

56. In my opinion, the inventive concept lies in the drive system having a controller that controls the electrically powered coupling mechanism between an engaged and disengaged configuration to allow manual operation of a window covering system. However, the product does not achieve the same result in the same way as it does not have a disengaged configuration of a coupling mechanism and driven wheel to allow manual operation. Therefore, it is my opinion that the product cannot be said to vary in a way that is immaterial.

Contributory infringement

57. 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.

58. 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.

59. As in my opinion the product does not provide a controller and electrically powered coupling mechanism 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

60. 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 in does not infringe EP 3215702 B1 under Section 60(1) of

the Act.

61. It is also my opinion that the supply of the product does not infringe EP 3215702 B1 under Section 60(2) of the Act.

Application for review

62. 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.