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(54) **Method and system for controlling adjustable devices**

(57) A method of controlling a plurality of adjustable devices (10, 20, 30) such as electric blinds, shutters, curtains, awnings or windows, is disclosed, wherein at least a first adjustable device (10, 20, 30) of said plurality of adjustable devices is configured to be manually adjusted, and wherein detection means (13, 23, 33) detect a manual setting (POS3) of said at least one manually adjustable device (10, 20, 30), wherein a setting indication (SI) which is based on said detected manual setting is generated and communicated by means of transmission

means (14, 24, 34), and wherein one or more further adjustable devices (10, 20, 30) of said plurality of adjustable devices are moved to a position based on said communicated setting indication (SI) by means of drive means (11, 21, 31) configured for adjusting said one or more further adjustable devices (10, 20, 30). Moreover, a system for controlling adjustable devices and an adjustable device such as a blind, shutter, curtain, awning or window is disclosed.

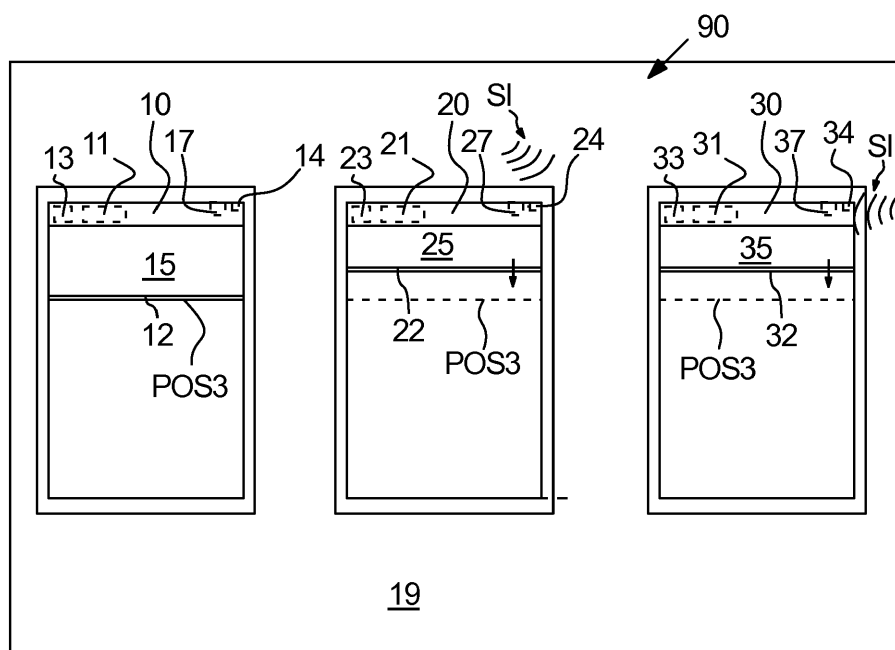


Fig.2_2

Description

Technical field

[0001] The present invention relates to a method of controlling a plurality of adjustable devices, a system for controlling adjustable devices, and an adjustable device.

Background art

[0002] Systems for controlling devices such as blinds, shutters, windows, curtains and the like are well known in the art. Such systems typically comprise a remote control which a user may use to control these devices to regulate air ventilation in the room or to adjust the amount of sunlight entering the room. Thereby, for example a blind may be adjustably arranged so that it can be adjusted by an electric motor in response to control signals from a remote control. Also, in some solutions, a plurality of devices may be controlled by means of the same remote.

[0003] However, in some situations, the remote control may not be available, it may be broken or batteries may be drained to an extent where the remote control cannot provide control of the device(s) and/or the like.

[0004] This results in a problem in relation to controlling devices, and it may be an object of the present invention to provide a solution to this problem.

[0005] It may thus e.g. be an object of the invention to provide an improved control of devices, e.g. when a remote control is absent.

[0006] It may additionally be an object of the invention to provide a more user friendly and/or intuitive solution when controlling e.g. building aperture related devices such as blinds, shutters, windows, curtains and/or the like of a building.

Brief description of the invention

[0007] The present invention relates to a method of controlling a plurality of adjustable devices such as electric blinds, shutters, curtains, awnings or windows, wherein at least a first adjustable device of said plurality of adjustable devices is configured to be manually adjusted, and wherein detection means detect a manual setting of said at least one manually adjustable device, wherein a setting indication (SI) which is based on said detected manual setting is generated and communicated by means of transmission means, and wherein one or more further adjustable devices of said plurality of adjustable devices are moved to a position based on said communicated setting indication by means of drive means configured for adjusting said one or more further adjustable devices.

[0008] This provides several advantages. Since first device is manually adjustable, no remote is needed but a person may still adjust the device and moreover other devices based on one adjustment alone.

[0009] For example, in a class room, a room of a private building, a room of an office or the like, a person may adjust the first adjustable device such as a blind, shutter or curtain manually to a desired position, and thus, the rest of the blind, shutters or curtains in the classroom may be adjusted by the setting indication. This is efficient and advantageous in that remote controls may often get lost in e.g. class rooms, offices or other places where several persons stay in that one person may not know where another person put the remote control. Also the remote may be substituted with smartphone control and the smartphone may not always be present.

[0010] The manual adjustment moreover provides an intuitive control in that the user may adjust the adjustable device directly without need of intermediate communication means such as a remote control. Hence, the device may rapidly be put in the exact desired position. For example, when employing a remote, a blind may be set to for example 55% or another position, which may not be intuitive and the resulting position of the blind or the like may not be tangible.

[0011] The present invention may thus advantageously be used in relation to e.g. home automation systems.

[0012] Moreover, the present invention may provide an advantageous way of obtaining substantially aligned adjustable devices, this may be understood as that the devices are arranged in substantially the same position. It may for example be appreciated that a plurality of covering materials of adjustable devices arranged to cover different windows arranged in e.g. the same wall and/or room are arranged in the same position in that the same position may be relevant for all these windows to provide the desired covering effect and/or to provide a more uniform impression from the inside and/or outside of the building.

[0013] It is to be understood that by the term adjustable device is to be understood e.g. electric blinds, shutters, curtains, awnings, windows, ventilation dampers or the like. These may be manually adjusted in different ways, and comprises a part such as a covering material, a window frame with a window pane, a damper or the like to be adjusted manually and/or by drive means. Hence, when adjusting the adjustable device, it is understood that it is this part that is adjusted.

[0014] The manual adjustment of a covering material of a blind, shutter or curtain may comprise that a user grabs the covering material directly or handling means such as a tool, a wire or the like. An awning may be manually operated by a tool which is operated (e.g. rotated) by hand, a window may comprise handling means in the form of a handle that is put into an unlocking position, and the window is then pulled or pushed to a desired position and/or the like.

[0015] The adjustable devices may in aspects of the invention be part of a home automation system.

[0016] In preferred aspects of the invention, the drive means comprises electrically operated drive means such as an electric motor. These drive means may be supplied

with electric power, e.g. from a battery and/or solar cell, from mains and/or the like. The drive means are hence configured for providing an adjustment to the covering material, window frame/pane, shutter and/or the like.

[0017] Preferably, the manually adjustable device moreover comprises drive means for adjusting the setting of the device based on control signals from e.g. a remote control, a central controller and/or another controller. Hence, the device may comprise receiving means for receiving such signals, as well as processing means for processing these control signals to provide an adjustment of the device according to the information in the control signal. This e.g. provides that the adjustable device, beyond being manually adjusted, also may be adjusted both by remote control and/or by setting indication from e.g. other manually adjustable devices.

[0018] In preferred aspects of the invention, said setting indication(s) may be transmitted wirelessly to said further adjustable devices.

[0019] In aspects of the present invention, one or more of the further adjustable device(s) and possibly also the first adjustable device may be controllable by a remote control for adjusting the adjustable device(s). E.g. in the event that the first adjustable device is controllable by a remote control, it also comprises drive means for adjusting the device based on adjustment instructions received from a remote control. This e.g. provides alternative adjustment options.

[0020] In preferred aspects of the invention, said detection means detect a setting of said manually adjustable device between a first outer position and a second outer position, said first and second outer positions defining an adjustment range of said manually adjustable device within which said manual adjustment is permitted.

[0021] In advantageous aspects of the invention, the first adjustable device may also comprise drive means (e.g. electric motor, an actuator and/or the like) for automatically adjusting the first adjustable device based on e.g. input from a remote control, based on a setting indication from another device and/or the like. Alternatively, the first adjustable device may not comprise such drive means, and may thus alone be configured for being adjusted manually.

[0022] The plurality of adjustable devices may in aspects of the invention comprise at least two, such as at least three, for example at least five, e.g. at least ten such as for example at least twenty adjustable devices or even more.

[0023] In advantageous aspects of the invention, said setting of said one or more further adjustable devices by means of said drive means result in a setting substantially corresponding to said manual setting of said first adjustable device.

[0024] Hence, e.g. alignment of covering materials and/or windows may be obtained.

This e.g. provides an advantageous intuitive control.

[0025] In advantageous aspects of the present invention, a plurality of detection means associated with dif-

ferent adjustable devices may detect manual settings of said different adjustable devices, and setting indications which are based on a detected manual setting of a first adjustable device are communicated by transmission means so that one or more other of said adjustable devices are adjusted accordingly based on a processing of said communicated setting indication.

[0026] Hence, a user may manually adjust e.g. any adjustable device nearby the user, or the device that is the one that is easiest to access by the user, and hence provide a desired setting to a plurality of adjustable devices. E.g. in such a scenario, it may be relevant that all of the devices which are able to transmit/generate setting indication also comprises drive means.

[0027] In aspects of the invention, only one, two, three or the like of the adjustable devices may be manually adjustable, and other devices such as e.g. skylights or windows at high locations out of reach of the user may provide adjustment based on a received setting indication from a manually adjustable device despite the fact that they are not manually adjustable and instead react e.g. only based on setting indications from manually adjustable devices and/or remote controls. Hence, adjustable devices of a system comprising both manually adjustable devices and devices which are not manually adjustable may benefit from the manual adjustment of one device.

[0028] In advantageous aspects of the present invention, a subsequent manual setting of one of said one or more further adjustable devices overrules a previous manual setting of said first adjustable device by transmitting a setting indication so that said first adjustable device is set by drive means based on said manual setting of said further adjustable device.

[0029] Hence, an advantageous and intuitive solution may be provided. The user may hence provide manual adjustment to the first device, thereby e.g. moving all adjustable devices of a room to e.g. a substantially full covering position (if for example the manually adjustable devices comprises e.g. a blind such as for example a roller blind). Later on, the user may be located at another location in the room and wish that the blinds are moved to e.g. substantially 40% covering. The user may thus provide manual adjustment to another device which was previously set based on a setting indication due to the first manual adjustment. A new setting indication may then be transmitted to the other device(s), including the first device that was previously manually adjusted, and these/these are thus set correspondingly to substantially 40% covering based on the new setting indication.

[0030] In preferred aspects of the present invention, said detection means may comprise position detection means comprising an electric sensor arrangement, said sensor arrangement preferably comprising a position sensor such as a tachometer, an optical sensor, a hall effect sensor, a potentiometer or a pulse generator.

[0031] Such sensor arrangements may provide an advantageous position detection dependent of e.g. the giv-

en configuration of the manually adjustable device.

[0032] In aspects of the present invention, two or more of said adjustable devices may each comprise transmission means for transmitting setting indications, and receiving means and processing means for receiving and processing setting indications.

[0033] This may e.g. provide an advantageous setup that provides a system that is easy to expand and/or modify over time. In the event that the adjustable devices are configured for receiving and processing setting indication, they may also preferably comprise drive means for adjusting the adjustable device based on the received setting indication.

[0034] In advantageous aspects of the invention, a movement direction may be defined at said one or more further adjustable devices based on said setting indication. This may e.g. provide that the receiving device does e.g. not need to move to an outer position before applying the setting of a received setting indication. The receiving device may instead determine the present position of covering material, window or the like, and the desired position provided by the setting indication, and based thereon determine a movement direction of the covering material, window or the like to comply with the setting indication.

[0035] In advantageous aspects of the invention, said setting indication(s) may comprise metadata such as device type information comprising information of the type of adjustable device from which the setting indication is transmitted and/or group information, and wherein said metadata is processed at an adjustable device receiving said setting indication so as to determine whether to disregard said setting indication or not.

[0036] This may provide a more user friendly and dynamic system in that operation of devices may be determined based on their type and/or group membership. For example, a system may comprise a plurality of adjustable roller blinds windows and shutters, each being able to react based on a setting indication. However, it may be desired that a manual adjustment of e.g. a blind does not impose an adjustment of shutters. Thus, if the setting indication comprises predefined type information indicating that the setting is related to blinds, the windows and shutters may not react on the setting indication even though they receive the setting indication in that the type of the setting indication does not correspond to their own predefined type. Hence, the setting indication may be disregarded by these whereas other blinds may be set according to the setting indications.

[0037] The same situation may occur in a system comprising different predefined groupings of adjustable devices in that it may not be desired that devices of one group react on a setting indication transmitted from a device that is not member of this group.

[0038] In aspects of the invention, said adjustable devices represent a group of adjustable devices, said group comprising a subset of a larger number of adjustable devices, and wherein said group of adjustable devices are

configured to receive and process said setting indication and provide an adjustment accordingly, preferably dependent on group information of said setting indication.

[0039] Said group information may e.g. be provided to a setting indication upon transmittance of a setting indication, thereby providing that other devices which is/are member of the same group as the transmitting device may implement the same setting while other devices may disregard the setting indication.

[0040] In advantageous aspects of the present invention, said manually adjustable device may moreover be controllable by drive means, wherein adjustment determination means determines whether a setting is provided manually, and wherein whether to transmit a setting indication is determined based on said adjustment determination means.

[0041] This may e.g. provide that a manual setting may cause that other devices are adjusted if a manual adjustment is applied, while e.g. an adjustment by a remote control may be set to adjust just the specific manually adjustable device or also other adjustable devices.

[0042] Also, if an adjustable device e.g. receives a setting indication and performs an adjustment based thereon, this should probably not trigger transmittance of a further setting indication. An adjustment which is based on a signal from a remote control or a setting indication may also be referred to as an automatic adjustment. An automatic adjustment may also in aspects e.g. be detected by detecting whether drive means provides an adjustment or not possibly correlated by information regarding that an adjustment is/is has been performed, e.g. based on input from e.g. the detection means or other means for detecting a movement of e.g. a covering material. Hence enhanced control possibilities may e.g. be provided.

[0043] In aspects of the invention, said adjustable devices may comprise covering material configured for screening different building apertures such as window openings and/or door openings, and wherein said adjustment comprises adjusting said covering material.

[0044] The covering material may e.g. comprise a sheet of a fabric of a roller blind or an awning which is wound/unwound on a drum, it may comprise slats of a venetian blind, it may comprise one or more sheets of a curtain, it may comprise a shutter comprising e.g. a frame of vertical stiles and horizontal rails and/or the like. Such may be used to e.g. adjust the amount of light entering through a window pane.

[0045] Alternatively, the adjustable devices may comprise a window frame with a pane which are hinged to provide opening and closing of the window, or it may comprise e.g. a dampers of a ventilation opening.

[0046] In advantageous aspects of the invention, said detection means enter a sleep mode when no adjustment is detected, thereby saving electrical power.

[0047] This is especially advantageous in aspects where the adjustable devices are powered by battery and/or solar power in that power consumption here may be a significant issue e.g. in relation to providing a reliable

system that is easy to modify.

[0048] The invention moreover relates to a system for controlling adjustable devices, wherein said system comprises a plurality of adjustable devices, wherein at least one of said adjustable devices, and preferably a plurality of said adjustable devices, is/are configured for being adjusted manually, and wherein detection means are configured for detecting a manual setting of said at least one manually adjustable device, wherein a setting indication which is based on said detected manual setting is configured to be communicated by means of transmission means, and wherein one or more further of said adjustable devices are configured to be set based on said communicated setting indication by means of drive means configured for adjusting said one or more further adjustable devices.

[0049] This e.g. provides a system with one or more of the advantages as described above.

[0050] In preferred aspects, said system for controlling adjustable devices is configured for operating according to the method of any of claims 1-12

[0051] Additionally, the invention relates to an adjustable device such as a blind, shutter, curtain, awning or window, wherein said adjustable device comprises:

detection means configured for detecting a manual setting of said at least one manually adjustable device, processing means for establishing a setting indication which is based on said detected setting, and transmission means configured for communicating said setting indication, and/or wherein said adjustable device comprises:

detection means configured for detecting the position of said at least one adjustable device, receiving means and processing means configured for receiving and processing setting indications indicating a manual setting of another adjustable device, drive means for adjusting said adjustable device, wherein said adjustable device is configured to be adjusted based on said received setting indication and said detection means configured for detecting the position of said at least one adjustable device by means of said drive means.

[0052] This may e.g. provides an adjustable device with the advantages as described above.

[0053] An adjustable device such as a blind, shutter, curtain, awning or window may thus according to a first aspect comprise:

detection means configured for detecting a manual setting of said at least one manually adjustable device, processing means for establishing a setting indication (SI) which is based on said detected setting,

and transmission means configured for communicating said setting indication.

[0054] An adjustable device such as a blind, shutter, curtain, awning or window may thus according to a second aspect comprise:

detection means configured for detecting the position of said at least one manually adjustable device, receiving means and processing means configured for receiving and processing setting indications indicating a manual setting of another adjustable device, and drive means for adjusting said adjustable device, wherein said adjustable device is configured to be adjusted based on said received setting indication and said detection means by means of said drive means.

[0055] Hence, a control of a plurality of devices may be provided e.g. as previously disclosed by means of a system comprising at least one device of the first aspect and at least one device of the second aspect.

[0056] A control of a plurality of devices may also in aspects of the invention be provided e.g. as e.g. previously disclosed by means of a system comprising two or more manually adjustable devices such as a blind, shutter, curtain, awning or window, wherein each of said two or more adjustable devices according to a third aspect comprises:

- detection means configured for detecting a manual setting of said at least one manually adjustable device,
- processing means for establishing a setting indication which is based on said detected setting,
- transmission means configured for communicating said setting indication,
- detection means configured for detecting the position of said at least one adjustable device,
- receiving means and processing means configured for receiving and processing setting indications indicating a manual setting of another adjustable device, and
- drive means for adjusting said adjustable device,

wherein said adjustable device is configured to be adjusted based on said received setting indication and said detection means configured for detecting the position of said at least one adjustable device by means of said drive means.

[0057] It is generally understood that the adjustable devices mentioned above in relation to e.g. the first, second and third aspects may be adapted to operate according to the method of any of claims 1-12 and/or system of claims 13 and 14.

Figures

[0058] Aspects of the present disclosure will be described in the following with reference to the figures in which:

- fig. 1 illustrates an aspect of an adjustable device according to embodiments of the invention,
- figs. 2_1-2_4 illustrates aspects of operating adjustable devices by transmitted setting indications according to embodiments of the invention,
- fig.3 illustrates a device system according to embodiments of the invention,
- fig. 4 illustrates an embodiment of the invention relating to operating one or more adjustable devices,
- fig. 5 illustrates a further embodiment of the invention relating to operating one or more adjustable devices,
- figs. 6 and 6_1 schematically illustrates examples of a transmitted setting indication SI according to embodiments of the invention,
- fig. 7 and 8 relates to embodiments of detecting the position of and/or setting an adjustable device according to embodiments of the invention, and
- fig. 9 illustrates a flow chart in relation to operating detection means according to embodiments of the invention.

Detailed description of the invention

[0059] Figure 1 illustrates a window 1 comprising a window pane 2 and a window frame 3 for supporting the pane 2. An adjustable device 10, in this example a blind comprising a covering material 15, may be wound or unwound on a drum or shaft (not illustrated) so that the window can be screened by the material 15 dependent on the setting of the blind.

[0060] The material 15 may thus be set to a first outer substantially uncovering position POS1 where as much of the pane as possible is exposed by winding the material onto the shaft/drum, thereby allowing light to enter through the pane 2.

[0061] In a second outer position POS2, the covering material 15 covers substantially the entire area of the pane 2 by unwinding the material 15, e.g. until the lowest part 12 reaches e.g. the lower part 3_1 of the frame 3,

thereby preventing as much light as possible to enter through the pane 2.

[0062] The blind 10 may additionally be manually adjusted to a third position POS3 between the outer positions POS1, POS2.

[0063] This may be achieved by e.g. pulling and/or pushing/guiding the material 15 towards the desired position POS2 directly by hand, by using other handling means such as a hand-controlled tool, an endless string (loop/belt) connected to a kind of toothed wheel or the like which rotates the shaft (hence moving the covering material), or the like.

[0064] In the example of fig. 1, a user may for example grab handling means in the form of a lower part 12 of the material 15, and pull it downwards from the first position to the third position POS3. When the user has moved the material to the desired position, it stays at that position or a position nearby (dependent on e.g. the configuration of the means for retaining the covering material in the desired position).

[0065] It is understood that one or more third positions POS3 may be predefined by the device 10, and/or they may be substantially any position between the first position POS1 and second position POS2 chosen by the user.

[0066] It is understood that in other embodiments of the invention, the device 10 may be e.g. a shutter, a curtain, an awning, roller blind, venetian blind, pleated blind, the window itself or the like.

[0067] The arrangement of Fig. 1 moreover comprises detection means (13, 23, 33) configured for detecting the manual setting POS3. The detection means 13 may be an analog detector, a digital detector, a mechanical counting device or the like which is able to detect the setting of the device 10, so as to determine how much the blind is wound or unwound. Examples of such detection means 13 are explained in more details later on.

[0068] A setting indication (SI) is generated based on the detected manual setting. Hence, the detection means 13 are able to determine that the covering material 15 is unwound a certain amount at POS 3 to for example 25% of the total covering possibility at position POS2,.

[0069] A processing unit (not illustrated in fig. 1) may generate a setting indication SI based on this information, and a signal is then transmitted, preferably wirelessly by transmission means 14 comprising e.g. an antenna 18 or the like for transmitting the setting indication SI.

[0070] It is generally understood that any suitable type of wireless transmission may be utilized for transmitting and receiving setting indications, e.g. WIFI (based on 802.11 standard), Bluetooth, Zigbee, an infrared communication and/or the like.

[0071] One or more further adjustable devices may then be set upon receipt of the transmitted setting indication SI by means of drive means configured for adjusting the one or more further adjustable devices as described in more details later on, e.g. to obtain substantially aligned lower parts 12 of the covering material.

[0072] In embodiments of the invention, the device 10

which is configured to be manually set, may moreover comprise drive means 11 for adjusting the covering material 15. The drive means 11 is in this embodiment an electric motor arranged to rotate the shaft/drum to wind/unwind the material 15, but it may also in other embodiments e.g. comprise a linear actuator if it for example is a window that is opened or closed or any other suitable type of operator able to provide an adjustment of a window, covering material or the like when receiving an input.

[0073] The electric motor is preferably a motor that is not self-locking in the sense that it's rotor can be rotated manually without applying the motor with electric power. The motor is thus preferably of the type that allow manual rotation of the rotor of the motor, so that if a user grabs the material 15 itself or handling means which is connected directly or indirectly to the motor through a shaft/drum or the like, the user is able to rotate the rotor, e.g. by providing a force that is larger than a friction force provided by motor, drum, and/or the like.

[0074] It may however be preferred that the device 10 comprises a retaining function so as to assure that when a user or the motor arrange the material 12 in a desired position, the material stays in that position. This may be obtained by mechanical or electrical locking means, and/or a friction solution where a friction force provided in the device 10 when the material 15 or drum/shaft is not applied a force by drive means 11 or by hand, is larger than the gravitational force acting on the material 15, thereby keeping the material 15 in the desired position.

[0075] The device 10 may moreover in embodiments of the invention be configured to adjust the material 15 by drive means 11 based on control signals 31 from a wireless remote control 30. The remote control 30 may be manually operated by a user so that the user may activate one or more physical buttons or a marking on a touch screen thereby adjusting the covering material 15. For this purpose, receiving means 17 receives these signals 31, and a processing unit (not illustrated in fig. 1 then processes the content of the signal to perform the desired instruction provided by the signal 31. It is understood that in embodiments of the invention, the receiving means may share the antenna arrangement 18 with the transmission means means 14, or it may comprise it's own dedicated antenna or the like (not illustrated).

[0076] The device 10 may comprise its own drive means 11 and detection means 13, but it may, in embodiments of the invention share e.g. electric power source such as a battery (not illustrated), transmission means 14, receiving means 17, antenna 18 (or the like), processing units (not illustrated) and the like with other devices related to the same window 1. For example if the window is provided with both a blind and a shutter, these may be adjusted individually by different drive means 11, and their position may be individually detected by different detection means, but they may transmit e.g. setting indications SI and/or receive signals 31 by shared transmitting and receiving means and/or be supplied with power from the same power source such as a battery (not illus-

trated). However, in other embodiments, the different devices assigned/related to the same window 1 may be provided with each their transmitting means 14, receiving means 17, processing means, power source and/or the like.

[0077] It is generally understood that even though a blind is utilized in relation to describing embodiments of the invention above and below, this is just for explanatory purpose, and it is understood that the blind(s) according to embodiments of the invention may be substituted with other adjustable devices such as shutters, awnings, curtains, windows, ventilation dampers and/or the like.

[0078] Fig. 2_1 to 2_2 schematically illustrates a preferred function of a system 90, such as (at least a part of) a home automation system, for controlling devices related to different windows according to embodiments of the invention.

[0079] In this example, three windows are arranged in a wall 19 of a building. The windows are in the example of substantially the same height H, and/or may be substantially aligned, preferably so that at least the top of the window frames 81, 82, 83 are substantially aligned.

[0080] The first window comprises a first adjustable device 10, the second window comprises a second adjustable device 20, and the third window comprises a third adjustable device 30. These devices 10, 20, 30 comprises each their detection means 13, 23, 33, drive means 11, 21, 31, transmission means 14, 24, 34 and receiving means 17, 27, 37.

[0081] Initially the covering material 25, 35 of the devices 20, 30 are not illustrated in fig. 2_1 in that they are substantially completely wound in the respective devices 20, 30 are arranged in the first position POS1 to allow maximum light to enter through the window panes of the windows.

[0082] However, a user may then wish to adjust the devices 10, 20, 30, to cover a part of the windows to reduce the amount of light entering the windows. The user then grabs the part/handling means 12 of the first device 10, pulls it to a desired position POS3, and let go of the part 12, and the covering material stays at the position desired by the user as illustrated in fig. 2_1.

[0083] The detection means 13 detects this manual adjustment and the position POS3, and a setting indication SI based on the detected position is generated. The setting indication SI is then transmitted wirelessly by transmission means 14.

[0084] In fig 2_2, the receiving means 27, 37 related to the other devices 20, 30 receives the setting indication SI and extract the setting information. A processing unit starts to operate the drive means 21, 31, to adjust the covering materials 25, 35 to a position POS3 (indicated by dashed lines) corresponding to the manually set position of the covering material 25, 35.

[0085] In an embodiment of the invention, as illustrated in figs 2_3 and 2_4, a user may then later on e.g. grab the handling means 32 of e.g. a third device 30 of the system 90, and pull the material 35 to e.g. a substantially

closed position as indicated by POS2 in fig 1 (or another position), This position is indicated by ref. POS3 in Fig. 2_3.

[0086] A new setting indication SI may then be transmitted by the transmission means 34 to the other devices 10, 20, thereby overruling the previous manual setting of the first device 10 and the covering materials 15, 25 are thus adjusted accordingly to a covering position POS3 corresponding to the covering position of the covering material 35 of the manually adjusted device. Thus, different devices 10, 20, 30 may be manually operated over time, and other devices may follow the manual setting to provide a substantially similar setting of e.g. a covering material, window, shutter, blind, awning and/or the like.

[0087] In embodiments of the invention, one or more devices 10, 20, 30 may be manually adjustable as explained above, and other devices may thus be able to follow a setting indication SI provided based on the manual adjustment, even though these devices may not manually adjustable, but instead are solely operated by drive means such as an electrically operated device, e.g. an electric motor, an electric film or coating (which may e.g. be able to adjust the amount of light entering a window dependent on an input), a linear actuator (e.g. mechanical actuator, a hydraulic actuator, pneumatic actuator), a combination of toothed wheel and a rod with corresponding teeth and/or the like. For example, such devices may comprise adjustable devices such as shutters, blinds or the like arranged out of range of persons e.g. to cover skylights to provide adjustment possibilities of light entering a room via the skylight.

[0088] It is understood that the devices 10, 20, 30 disclosed in the above figs. 2_1 - 2_n may be considered as members of the same group, and that the system 90 may comprise 2, 3 (as disclosed), 5, 10, 20, 50 or even more adjustable devices. It is also understood that a group of devices may be controlled based on e.g. a group and/or type information of e.g. a setting indication SI, e.g. as explained in more details later on. Also, the system 90 may comprise adjustable devices of different predefined types such as blinds, shutters, awnings, windows and/or the like.

[0089] Fig. 3 illustrates a device system 100 according to embodiments of the invention. An adjustable device hence comprises a part to be adjusted, e.g. comprising a covering material 15, and drive means 11 for rotating a movable part such as a drum/shaft 51 on which the material 15 is configured to be wound. This configuration may vary dependent on the type of adjustable device.

[0090] The device system 100 moreover comprises receiving means 17 for receiving setting indications SI transmitted from other systems as e.g. explained above. These receiving means may also in embodiments be configured to receive signals 31 from remote controls 30. For this purpose, the receiving means 17 may be connected to an antenna 18, an optical receiver such as an infrared receiver for receiving signals. The receiving means 17 may also alternatively or additionally in em-

bodiments comprise e.g. an optical receiver such as an infrared receiver, or any other suitable receiver for receiving signals containing data to be received and processed by the system 100.

[0091] The device system 100 additionally comprises detection means 13 for determining the position of the covering material 15. The detection means 13 comprises a sensor arrangement, preferably comprising a position sensor such as a tachometer, an optical sensor, a hall effect sensor, a potentiometer, an inductive (or capacitive) sensor, a gravity or acceleration sensor to measure the tube revolutions, an optical image sensor to measure the movement relative to a surface, an induction circuit detecting the motor revolutions and/or any other sensor suitable for detecting the position of the covering material. Thus, it is to be understood that the detection means 13 may comprise any suitable detection means for detecting the position of the covering material upon at least manual adjustment of the covering material 15. The detection means 13 may thus for example be arranged to determine the position of the covering material 15, for example by detecting and monitoring the movement of the shaft 51 and/or the like.

[0092] The detection means 13 provides position data to a processing unit 50 of the system 100 by means of a data communication connection 52. Hence, based on the data from the detection means 13, the processing unit is able to determine how much the covering material 15 is extended over the window pane/aperture.

[0093] The device system 100 moreover comprises transmission means 14 connected to the processing unit 50 for transmitting setting indications SI established by the processing unit 50. The transmission means may comprise an antenna 18, or any other suitable transmission means for transmitting setting indication to other device systems (not illustrated), e.g. an optical transmitter such as an infrared transmitter.

[0094] The processing unit 50 is configured for executing a software code which, when executed in the processing unit 50, is configured for handling data from the detection means 13, and establish setting indications SI accordingly. The system 100 may also comprises a software code which, when executed by the processing unit 15, is configured for handling data from the receiving means 17 in the form of setting indications for instructing the system 100 to adjust the covering material according to the received setting indication SI.

[0095] This software code may e.g. be stored in a suitable data storage DS such as a Random Access Memory (RAM), a nonvolatile memory or any other suitable data storage for storing data such as instructions, rules, first and/or second position (POS1, POS2) indications and/or the like. The stored first and/or second position indication may e.g. be used in relation to stopping the covering material according to input from the detection means at the correct time.

[0096] Additionally, the first and/or second position indication may in embodiments of the invention help to de-

fine the size/height of the window and may hence in embodiments of the invention be used during establishment of setting indications to provide normalized setting indications that may be used at devices covering other window sizes.

[0097] In embodiments of the invention, the stored first and/or second position indications may be used in relation to processing received setting indications so as to interpret the setting indication and hence provide a suitable, corresponding adjustment of the material 15 according to the received setting indication(s).

[0098] The processing unit 50 may hence process position information from the detection means 13 (received by connection 52) so as to determine the position of the material 15 (e.g. based on stored information in the data storage DS), establish a setting indication SI, and have the setting information transmitted by the transmission means 14 by means of connection 53.

[0099] The processing unit 50 of the device system 100 may also in embodiments of the invention be configured to process a setting received indication SI (received by connection 52) received by receiving means 17 (and communicated to processing unit by means of e.g. a connection 54) so as to determine a position that the covering material 15 should be adjusted to (e.g. based on stored information in the data storage DS), and transmit adjustment signals to the drive means 11 (by connection 54), to adjust the covering material 15 until the setting of the covering material (detected by detection means 13) substantially corresponds to the information of the received setting indication SI.

[0100] Fig. 4 illustrates an embodiment of the invention relating to operating an adjustable device such as e.g. a device disclosed above in relation to any of figs. 1-3.

[0101] The adjustable device detects at test T41 whether a setting indication SI is received from another adjustable device.

[0102] If a setting indication SI is received by receiving means 17, the relevant content is extracted (step S41) to determine the desired position provided in the setting indication SI.

[0103] The device then determine which way the covering material should be moved, e.g. if the covering material should be moved to another position so that more light can enter through the window, or to a position so that less light enters through the window. This e.g. may be determined by consulting the detection means 13 or a data storage comprising information of the present position of the covering material.

[0104] Based on this information, the movement direction is defined (Step S42). The movement direction of the covering material, window or the like may e.g. be defined by correlating the present setting of the device with the information of the setting indication SI. If for example the setting indication defines a number that is lower than a number provided by e.g. the detection means at the receiving unit, this may indicate that the drive means should be rotated/moved in a first direction, and

if the setting indication defines a number that is larger than a number provided by e.g. the detection means at the receiving unit, this may indicate that the drive means should be rotated/moved in a second direction.

[0105] When the proper movement direction is determined, the drive means 11 are then operated (Step S43) until the desired position is reached (Test T42) e.g. defined based on information from the detection means 13. When the position of the covering material, window or the like corresponds to the desired position indicated in the setting indication SI, the drive means 11 are stopped (Step S44).

[0106] Fig. 5 illustrates an embodiment of the invention relating to establishing a setting indication SI upon manual operation of an adjustable device.

[0107] In test T51, it is detected whether it is a manual operation that causes the covering material 15 to be moved.

[0108] This may e.g. be provided by detection means detecting a movement of the covering material, and determining if an output is supplied to drive means to move the covering material. If no output is detected, but the covering material is moved according to output from the detection means, a manual setting of the covering material occurs. This functionality may also be referred to as adjustment determination means.

[0109] It is understood that any other suitable way of detecting whether an adjustment is provided by manual operation or not may be utilized. For example, based on detection of signals from a remote control, it may be determined that an adjustment is not provided manually. So if a control signal is received from a remote control, instructing to provide an adjustment, this may be considered as an automatic adjustment and thus, no setting indication SI may be transmitted.

[0110] As another example, if a setting indication is received, this may indicate that the resulting adjustment by drive means based on the setting indication should not generate a setting indication.

[0111] The manual setting is then detected (Step S51) e.g. by detecting when the manual operation has stopped and hereafter determining the new position of the covering material. A setting indication is then established in step S52, and comprises information of the new manual setting of the covering material. This setting indication is then transmitted in step S53 by transmission means to other adjustable units, which may receive the setting indication and process it, e.g. as described above in relation to fig. 4 and/or the previous figures 1-3.

[0112] Fig. 6 illustrates an example of a transmitted setting indication SI according to embodiments of the invention.

[0113] The Setting indication SI is a data package comprising data DAT including information relating to how a covering material of other adjustable devices should be set. The Data DAT may e.g. be a simple setting defining a predefined setting such as "PO SX", or the like. In this case, the receiving adjustable device may comprise in-

formation stored in a data storage to interpret this predefined setting, and the predefined possible setting(s) of the transmitting adjustable device should hence correspond to possible predefined settings of the receiving adjustable device.

[0114] In another embodiment, the data DAT may comprise information of a setting which is not predefined. This should be understood that the user may experience that he/she is able to select substantially any wanted position of the covering material between two outer positions (see POS1 and POS2 of e.g. fig. 1), and the detection means are able to detect this setting.

[0115] For example, the two outer positions POS1, POS2 defines an operation range, and the covering material may be manually set in a plurality of positions between these positions, e.g. by means of a functionality that provides that a covering material may be manually set into a desired position. The detection means may be able to detect this setting.

[0116] The transmitted data may hence comprise a hexadecimal or binary number provided by the sensor means, and this number indicates the position of the covering material.

[0117] The setting indication SI may moreover in embodiments of the invention comprise a header HD, comprising e.g. information relating to the protocol according to which the setting indication is sent, and/or other information facilitating a proper wireless communication.

[0118] As illustrated in fig. 6_1, which illustrates a further example of a transmitted setting indication SI according to embodiments of the invention, The data DAT of the setting indication SI may also in embodiments of the invention comprise information of the type of device TYP from which the setting indication SI is sent, it may comprise group information GR in case the receiving and/or transmitting adjustable device are members of one or more groups that should be set to the same setting and/or the like (thereby e.g. distinguishing the adjustable devices from other devices in the building). This information may also be referred to as metadata, and it is understood that the metadata in the form of e.g. originator type TYP, group identification GR and/or the like may be provided in the setting indication SI in any suitable way. Also, the data DAT of the setting indication SI may in embodiments of the invention (not illustrated) comprise an identifier of the transmitting device so as to be able to identify the specific originator of the transmitting device. The data relating to the setting of the transmitting device is in fig 6_1 the ref. VAL.

[0119] The receiving device may thus in embodiments of the invention be able to process this metadata and e.g. determine whether the type identification of the setting indication correspond to the type of the receiving unit, whether the receiving device is part of the same group as the transmitting device and/or the like. If for example, the receiving device is not of the same type and/or is not member of the same group as the transmitting device, it may decide not to implement the setting that is provided

by the data DAT of the setting indication.

[0120] Hence, the receiving device(s) may receive the setting indication SI and from this extract that it is e.g. a roller blind that has transmitted the setting indication SI (determined by TYP of the data DAT e.g. comprising a predefined type code identifying the type), that the transmitting roller blind is member of e.g. group 2 (determined by GR of the data DAT), and that the receiving device should be set to e.g. 45% (determined by VAL of the data DAT). Hence, if the receiving device is a roller blind and is member of group 2, it should implement the setting VAL. This may preferably be done automatically so no further user setup is required.

[0121] It is generally understood that the setting indication SI may be established in several different ways dependent on the type of adjustable device, the sensor type, the window/aperture size and/or the like.

[0122] For example as illustrated in fig. 7, an adjustable device 10 such as a blind for regulating the inflow of sunlight through a window pane may be configured to be adjusted into predetermined positions POS3_1-POS3_n (such as 1, 2, 5, 10 or even more predetermined positions) between the outer positions POS1, POS2. For example by providing fixation means such as one or more recesses or elevations 60 (provided by e.g. one or more rails 61 for guiding the blind, the window frame and/or the like). These may be configured to receive a support a part 62 of the blind so that the blind is retained in/at the fixation means. This/these recess(es)/elevations 60 may e.g. comprise a sensor part 13_1 - 3_n such as a mechanical contact, an inductive or capacitive sensor, an optic sensor or the like that detects the support part and provides an output accordingly. Hence, when detecting the support part 62, the respective sensor part 13_1 - 3_n sensor will indicate the position of the blind by communication means 63, and this information may be provided (as e.g. explained preciously in relation to a setting indication) to other adjustable devices having substantially similar predefined positions that correspond to the position/setting POS1, POS2 and POS3_1 - POS3_n. It is understood that in embodiments of the invention, the outer positions POS1-POS2 may also be detected by detection means (not illustrated) e.g. as described previously and/or below.

[0123] In the present example, the detection means 13 comprises a detection processor 13_DP and the sensor parts 13_1 - 3_n and the detection means 13 provides information to e.g. a processing unit as e.g. described above. In other embodiments, the sensor parts may be considered as the detection means alone and provide the necessary output substantially directly to e.g. the processing unit at an input terminal of the processor.

[0124] In the present example, instruction indicating e.g. position POS3_1 as response to an input from the respective sensor 13_1, is provided by communication means 63 such as a cable to a part of the detection processor 13_DP.

[0125] This information may then be used in a setting

indication SI. For example, "001" may indicate POS1, "010" may indicate POS2, "011" may indicate POS3_1, "100", POS3_2 and so on. Another, substantially similar blind arrangement receiving the setting indication SI will hence receive e.g. "001" and thus, by drive means, move the blind to the corresponding position, e.g. so that the blinds are aligned (maybe dependent on the position and size of the further blind). Hence, the receiving arrangement may move the respective blind (or the like) by drive means until a sensor corresponding to the predefined position of the setting indication, is triggered.

[0126] Another way of detecting the position and/or setting of an adjustable device such as e.g. a blind may as illustrated in fig. 8 e.g. be provided by detection means 13 for detecting a rotation of e.g. a shaft, and e.g. by means of a counting facility or the like determine the position.

[0127] Fig. 8 discloses such an embodiment, wherein the detection means 13 comprises one or more sensor parts 70 such as a ferromagnetic part, a magnet, a reflex, a predefined colour or the like that are arranged to be moved when the shaft 80 is moved, and a detector/sensor 71 which is able to distinguish whether a sensor part 70 is near/opposite to the detector or not. The detector/sensor 71 may be capacitive, inductive, optic or any other type of sensor, and the sensor part(s) correspond to the selected sensor type so that the sensor detector/sensor 71 may detect this/these. For example, if an inductive sensor is selected, the sensor parts may comprise a suitable metal to be detected by the detector/sensor.

[0128] Hence, when the shaft 80 rotates (thus winding or unwinding a covering material 15 for covering the window pane 2), the sensor parts 70 rotate correspondingly, and thus, the detector/sensor 71 is arranged to detect the rotation of the shaft 80 of the blind. The detector/sensor 71 may be connected to a counting device so that each time a sensor part is detected, a number is decreased or increased by e.g. a detector/sensor controller 72 (e.g. a processing unit as described above) comprising e.g. a data processor and a data storage (not illustrated), preferably dependent on the rotation direction of the shaft 80. For example, a number = 0 may indicate that the blind 10 is in the first outer position POS1, and a number such as 256 may indicate that the blind is in the second outer position POS2. Hence, between the first position POS1 and the second position, the number is increased each time the detector/sensor 71 detects a sensor part 70. When a manual movement of the blind 10 has been detected, the number managed by the controller 72 may be read, and sent unformatted or in a formatted/adapted form as part of a setting indication SI by transmission means 14. Another further substantially similar blind arrangement receiving the setting indication SI may hence receive and process the setting (based on the number) of the blind 10, and thus, by drive means, the covering material 15 of this further blind arrangement is moved to the corresponding position. It is understood that selections of detection means 13 may be performed

to provide sensor means that provides detection of the rotation direction.

[0129] Generally, in embodiments of the invention, a user may initially provide a kind of calibration of the devices so that the detection means 13, 23, 23 are able to determine when e.g. outer positions have been reached. For example, a user may manually move the covering material, window or the like to the outer position(s) and press a button and/or in other suitable ways provide an input, hereby storing the positions in a data storage. Alternatively the motor may be driven until an end stop is detected if an end stop is present (not illustrated in any figures). This information, such as e.g. the outmost operation point (POS2, see fig. 1) may in embodiments of the invention be used in relation to establishing a setting indication so as to e.g. provide a uniform indication of the setting that fits other devices irrespectively of the operation range of these.

[0130] In an embodiment of the invention which is illustrated in fig. 9, the manually adjustable device may comprise wake up means/arrangement related to the detection means. The detection means may thus be put in "hibernation mode", also referred to as sleep mode in this document, when the covering material, window or the like is not moved, thereby saving electrical power.

[0131] The hibernation mode may e.g. comprise that the detection means 13, 23, 33 are temporarily disabled, and the presently detected setting may (dependent on the configuration) be stored in e.g. a data storage until the detection means leaves the hibernation/sleep mode. The hibernation/sleep mode may also alternatively comprise that the detection means are polled more rarely than when a movement is detected to save electrical power and/or the like. Generally, different suitable methods of saving power by reducing power consumption when detection means are not in use may be utilized, and these methods may be referred to as the sleep/hibernation mode.

[0132] This is especially relevant when the adjustable device is powered by battery and/or is solar powered. When for example a command signal from a remote control is detected T91 and drive means are started to be operated based thereon, the sensor may then be put into detection mode S91 and thus leave the hibernation mode.

[0133] Alternatively or additionally, if a manual adjustment is detected (T92), the detection means may be put into detection mode (S91) and thus leave the hibernation mode. This test may e.g. be provided by implementing that a button or a contact should be pressed/activated by a user before enabling manual adjustment, it may be provided by implementing that handling means should be put into a "manual adjustment position" before manual adjustment is mechanically possible and/or the like. This may hence transmit a signal which causes the detection means to leave hibernation mode.

[0134] Alternatively or additionally a wake up signal may be generated by employing a current generating

sensor, such as a piezo or induction sensor or by generating current from rotating the electric drive motor. Thus a wake up signal may put the position detection means into detection mode (S91).

[0135] When the desired position has been reached T93 - ADJ DONE, (and possibly that the manual adjustment detection means described above such as buttons, contacts, "manual adjustment position" or the like has been deactivated), the detection means enter hibernation/sleep mode again, Step S92.

[0136] The test T93 may e.g. be provided by detecting whether an output to drive means are present, by the detection means by detecting whether an adjustment is present, by determining if manual adjustment detection means have been activated and/or the like.

[0137] It is understood that the above mentioned manual adjustment detection means described above also in embodiments of the invention may be used for determining whether a setting indication should be transmitted as described previously in relation to e.g. test T51 of fig. 5.

[0138] Generally, in all embodiments the position of the screening/window may be detected or be calculated based on a motor revolution feedback or tacho feedback. The device may thus be calibrated by manually or electrically moving the device until an absolute end is encountered. Then the relative position may be calculated based thereon.

[0139] It is generally understood that the invention is not limited to the above examples but may be combined in a multitude of varieties as specified e.g. in the claims. Additionally, it is understood that different embodiments of the figures and/or the description above may be combined to obtain further embodiments not directly described in the above description.

Claims

1. A method of controlling a plurality of adjustable devices (10, 20, 30) such as electric blinds, shutters, curtains, awnings or windows, wherein at least a first adjustable device (10, 20, 30) of said plurality of adjustable devices is configured to be manually adjusted, and wherein detection means (13, 23, 33) detect a manual setting (POS3) of said at least one manually adjustable device (10, 20, 30), wherein a setting indication (SI) which is based on said detected manual setting is generated and communicated by means of transmission means (14, 24, 34), and wherein one or more further adjustable devices (10, 20, 30) of said plurality of adjustable devices are moved to a position based on said communicated setting indication (SI) by means of drive means (11,21,31) configured for adjusting said one or more further adjustable devices (10, 20, 30).
2. A method according to claim 1, wherein said setting of said one or more further adjustable devices (10, 20, 30) by means of said drive means (11, 21, 31) result in a setting substantially corresponding to said manual setting of said first adjustable device (10, 20, 30).
3. A method according to any of the preceding claims, wherein a plurality of detection means (13, 23, 33) associated with different adjustable devices (10, 20, 30) detect manual settings of said different adjustable devices (10, 20, 30), and wherein setting indications (SI) which are based on a detected manual setting of a first adjustable device (10, 20, 30) are communicated by transmission means (14, 24, 34) so that one or more other of said adjustable devices (10, 20, 30) are adjusted accordingly based on a processing of said communicated setting indication (SI).
4. A method according to any of the preceding claims, wherein a subsequent manual setting of one of said one or more further adjustable devices (10, 20, 30) overrules a previous manual setting of said first adjustable device (10, 20, 30) by transmitting a setting indication (SI) so that said first adjustable device (10, 20, 30) is set by drive means (11,21,31) based on said manual setting of said further adjustable device (10, 20, 30).
5. A method according to any of the preceding claims, wherein said detection means comprises position detection means (13, 23, 33) comprising an electric sensor arrangement, said sensor arrangement preferably comprising a position sensor such as a tachometer, an optical sensor, a hall effect sensor, a potentiometer or a pulse generator.
6. A method according to any of the preceding claims, wherein two or more of said adjustable devices (10, 20, 30) each comprises transmission means (14) for transmitting setting indications (SI), and receiving means (17) and processing means (50) for receiving and processing setting indications (SI).
7. A method according to any of the preceding claims, wherein a movement direction is defined at said one or more further adjustable devices based on said setting indication.
8. A method according to any of the preceding claims, wherein said setting indication (SI) comprises metadata (DAT) such as device type information comprising information of the type of adjustable device from which the setting indication (SI) is transmitted and/or group information, and wherein said metadata (DAT) is processed at an adjustable device receiving said setting indication (SI)

so as to determine whether to disregard said setting indication (SI) or not.

9. A method according to any of the preceding claims, wherein said adjustable devices (10, 20, 30) represent a group of adjustable devices, said group comprising a subset of a larger number of adjustable devices, and wherein said group of adjustable devices are configured to receive and process said setting indication (SI) and provide an adjustment accordingly, preferably dependent on group information of said setting indication. 5
10. A method according to any of the preceding claims, wherein said manually adjustable device (10, 20, 30) is moreover adjustable by drive means (11), wherein adjustment determination means determines whether a setting is provided manually, and wherein whether to transmit a setting indication (SI) is determined based on said adjustment determination means. 10
11. A method according to any of the preceding claims, wherein said adjustable devices (10, 20, 30) comprises covering material (15, 25, 35) configured for screening different building apertures such as window openings and/or door openings, and wherein said adjustment comprises adjusting said covering material (15, 25, 35). 15
12. A method according to any of the preceding claims, wherein said detection means (13, 23, 33) enter a sleep mode when no adjustment is detected, thereby saving electrical power. 20
13. A system (90) for controlling adjustable devices (10, 20, 30), wherein said system (90) comprises a plurality of adjustable devices (10, 20, 30), wherein at least one of said adjustable devices (10, 20, 30), and preferably a plurality of said adjustable devices (10, 20, 30), is/are configured for being adjusted manually, and wherein detection means (13, 23, 33) are configured for detecting a manual settings (POS3) of said at least one manually adjustable device (10, 20, 30), wherein a setting indication (SI) which is based on said detected manual setting is configured to be communicated by means of transmission means (14, 24, 34), and wherein one or more further of said adjustable devices (10, 20, 30) are configured to be set based on said communicated setting indication (SI) by means of drive means (11, 21, 31) configured for adjusting said one or more further adjustable devices (10, 20, 30). 25
14. A system (90) according to claim 13, wherein said system (90) is configured for operating according to the method of any of claims 1-12. 30

15. An adjustable device (10, 20, 30) such as a blind, shutter, curtain, awning or window, wherein said adjustable device (10, 20, 30) comprises: 35

detection means (13, 23, 33) configured for detecting a manual setting (POS3) of said at least one manually adjustable device (10, 20, 30), processing means (50) for establishing a setting indication (SI) which is based on said detected setting, and transmission means (14, 24, 34) configured for communicating said setting indication (SI), 40

and/or wherein said adjustable device (10, 20, 30) comprises: 45

detection means (13, 23, 33) configured for detecting the position of said at least one manually adjustable device (10, 20, 30), receiving means (17, 27, 37) and processing means (50) configured for receiving and processing setting indications (SI) indicating a manual setting of another adjustable device (10, 20, 30), and drive means (11, 21, 31) for adjusting said adjustable device (10, 20, 30) wherein said adjustable device (10, 20, 30) is configured to be adjusted based on said received setting indication (SI) and said detection means (13, 23, 33) by means of said drive means (11, 21, 31). 50

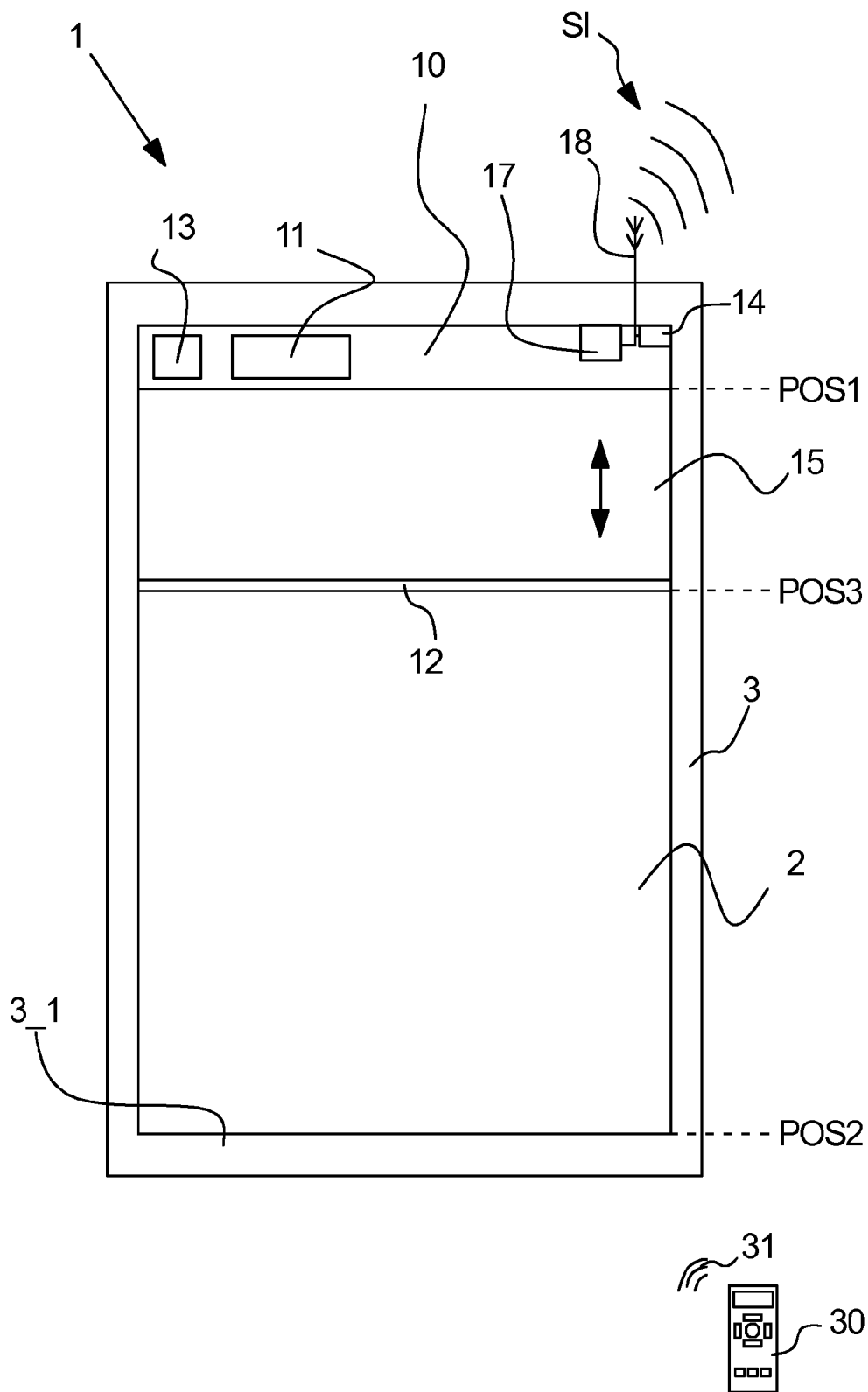
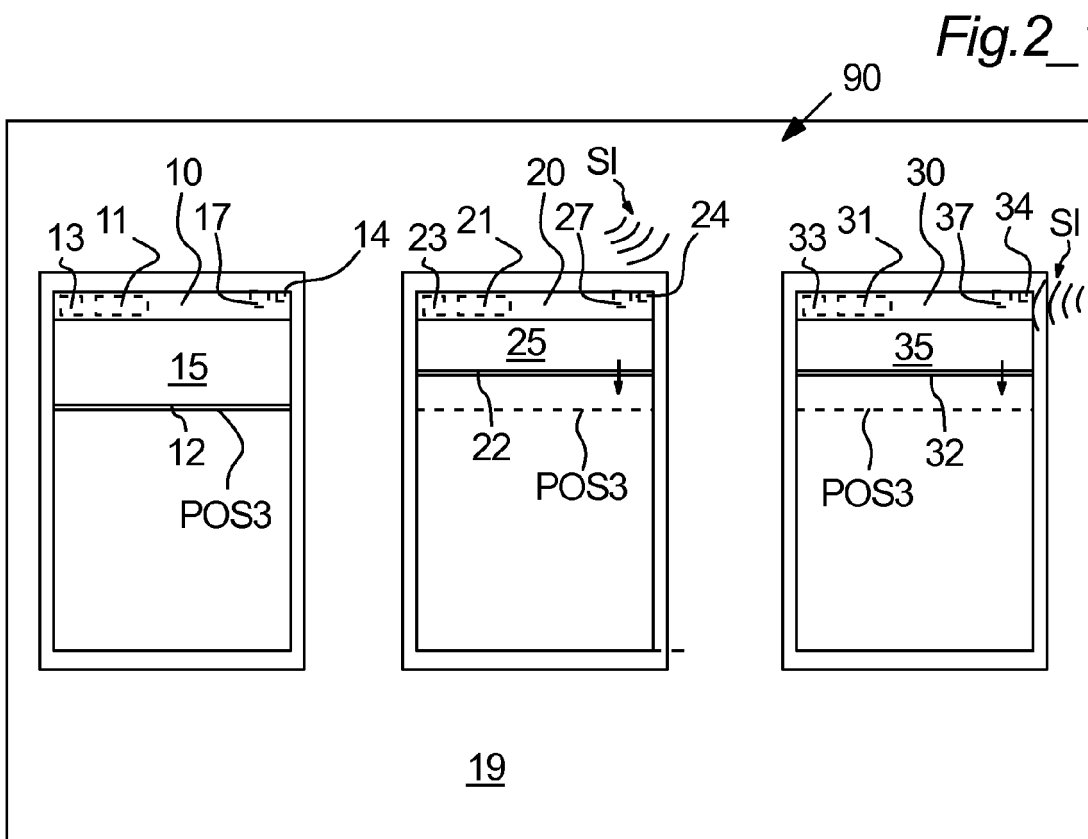
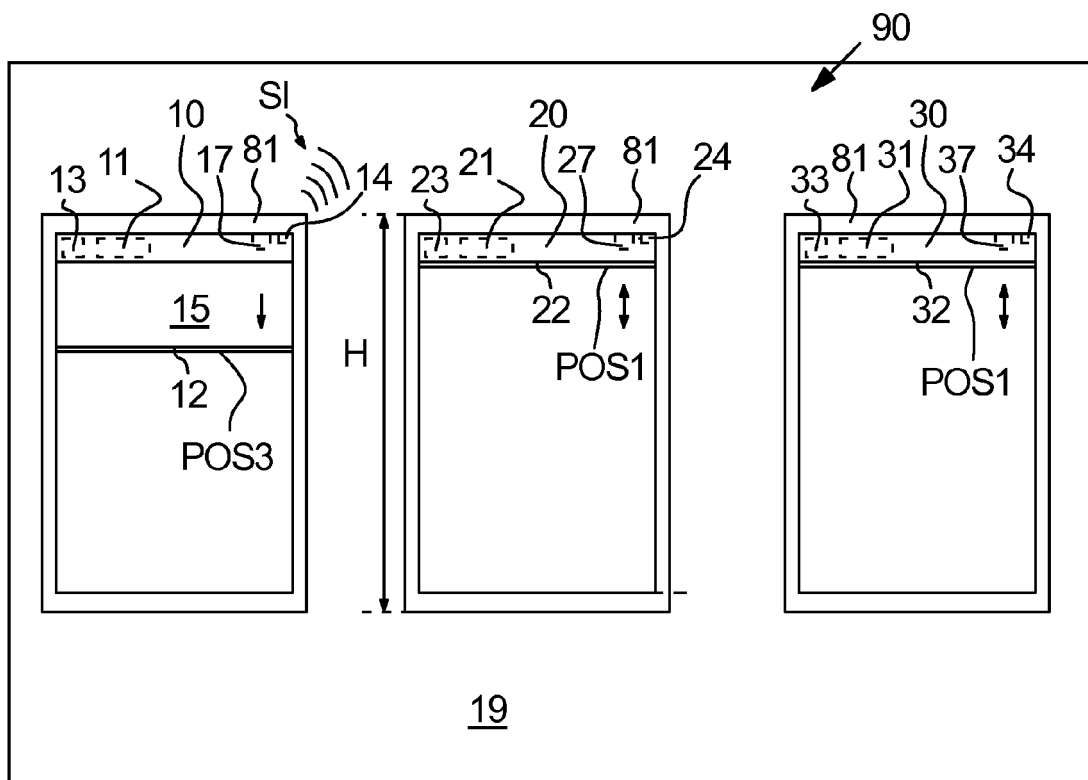


Fig. 1



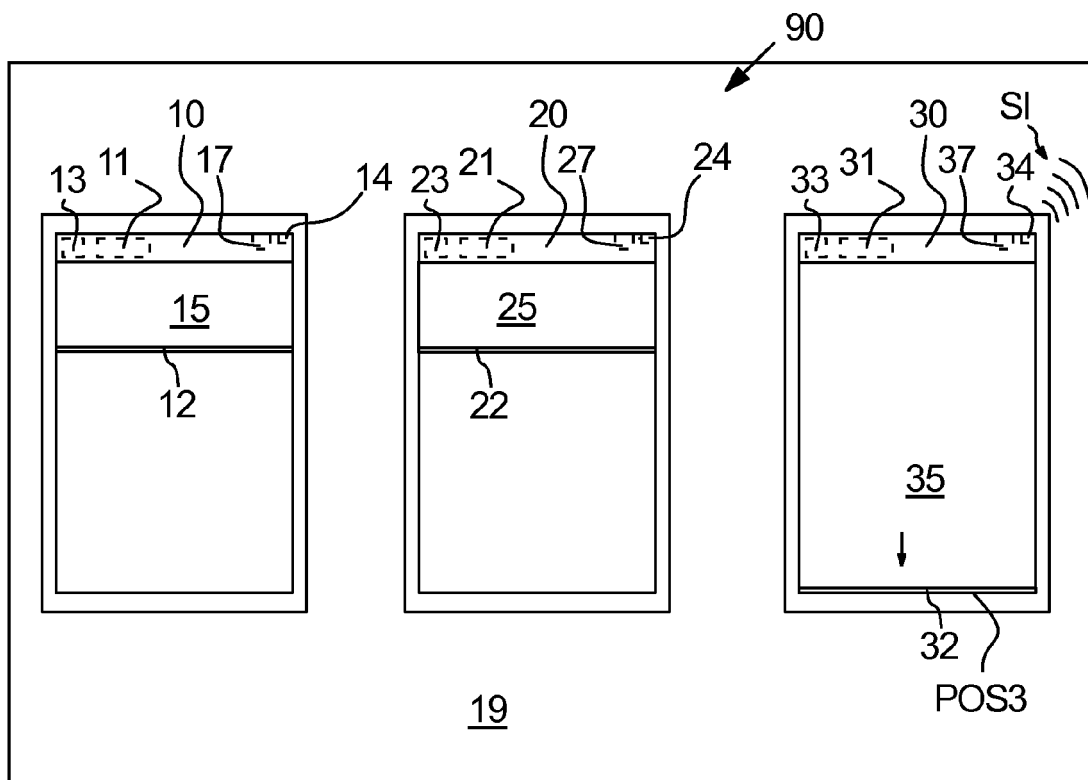


Fig. 2_3

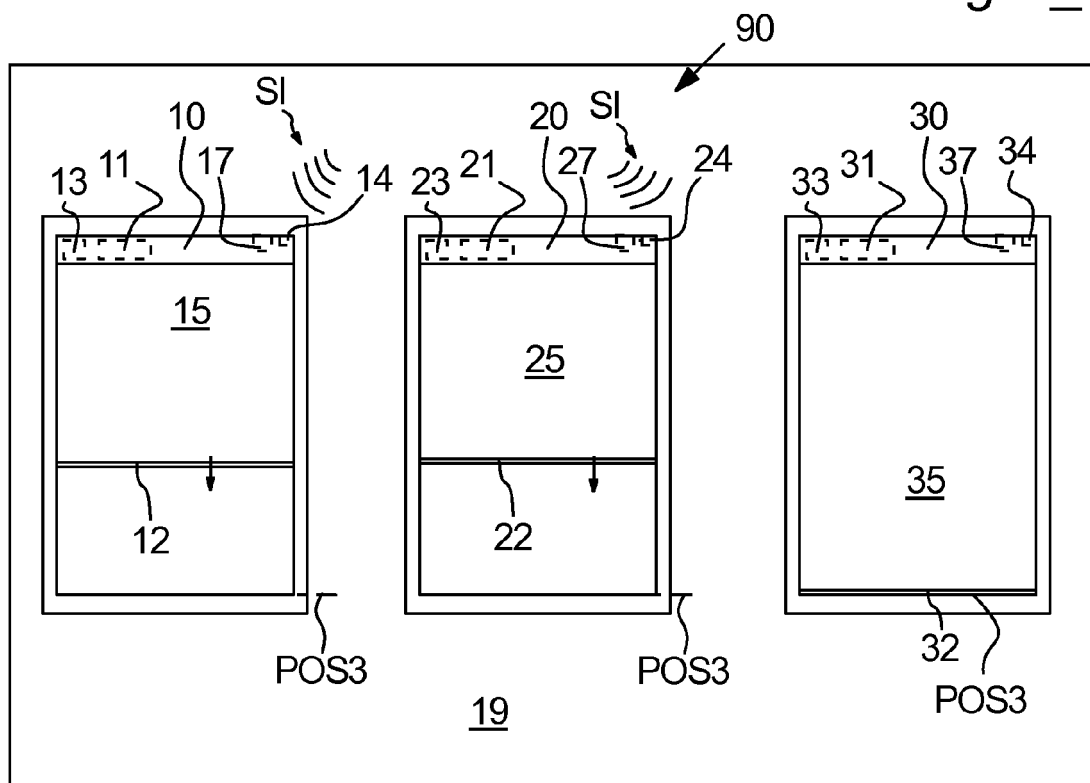


Fig. 2_4

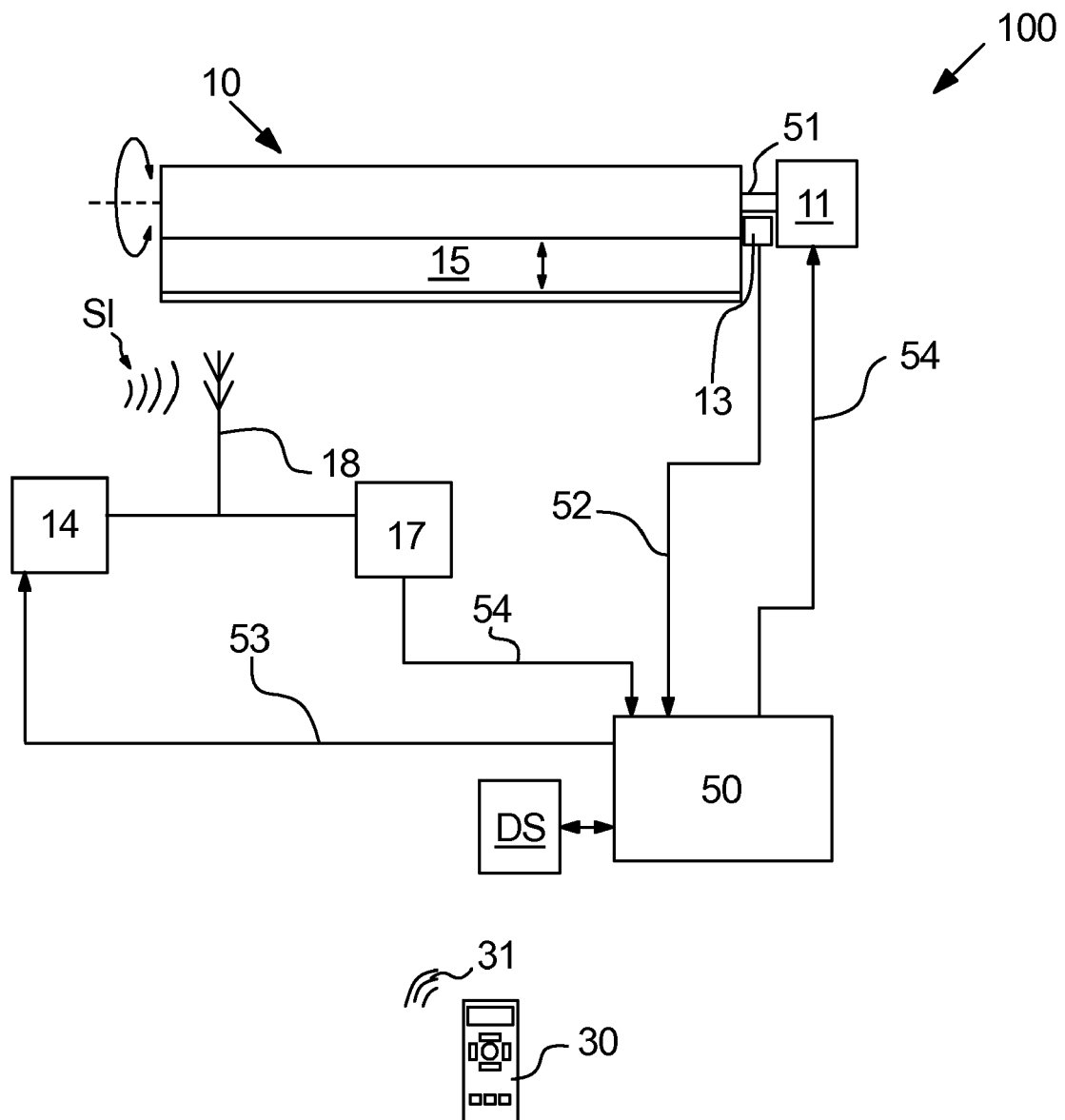
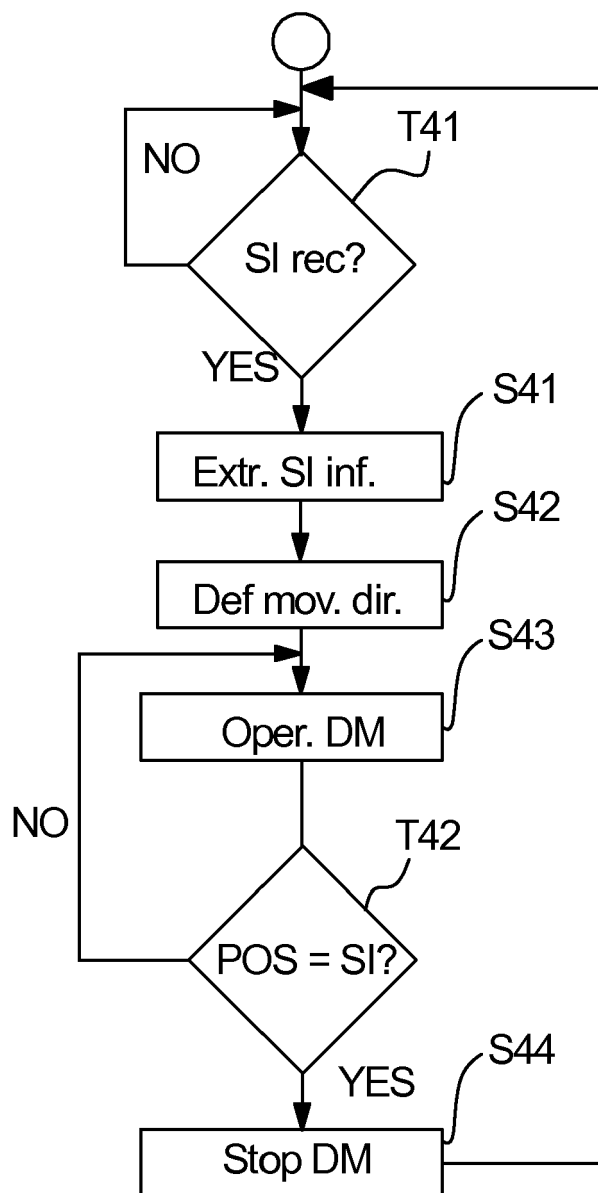


Fig. 3

*Fig. 4*

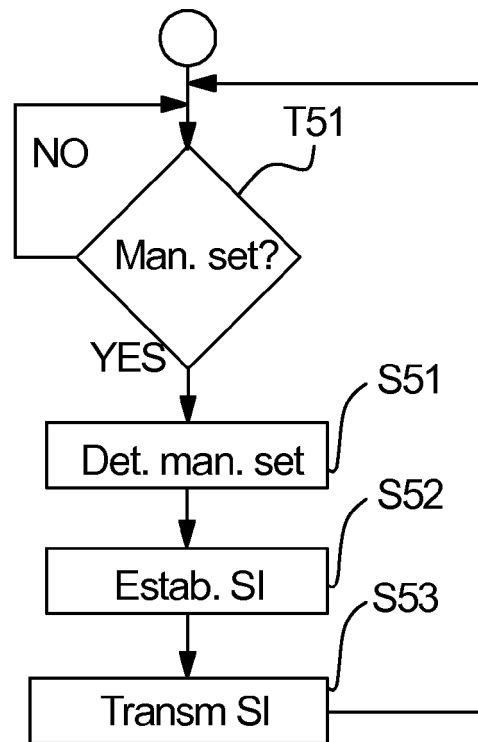


Fig. 5

SI



Fig. 6

SI

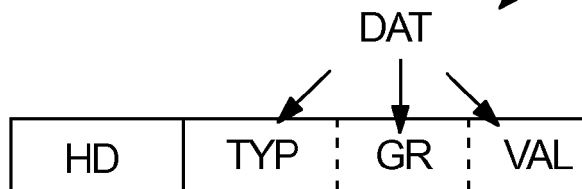


Fig. 6_1

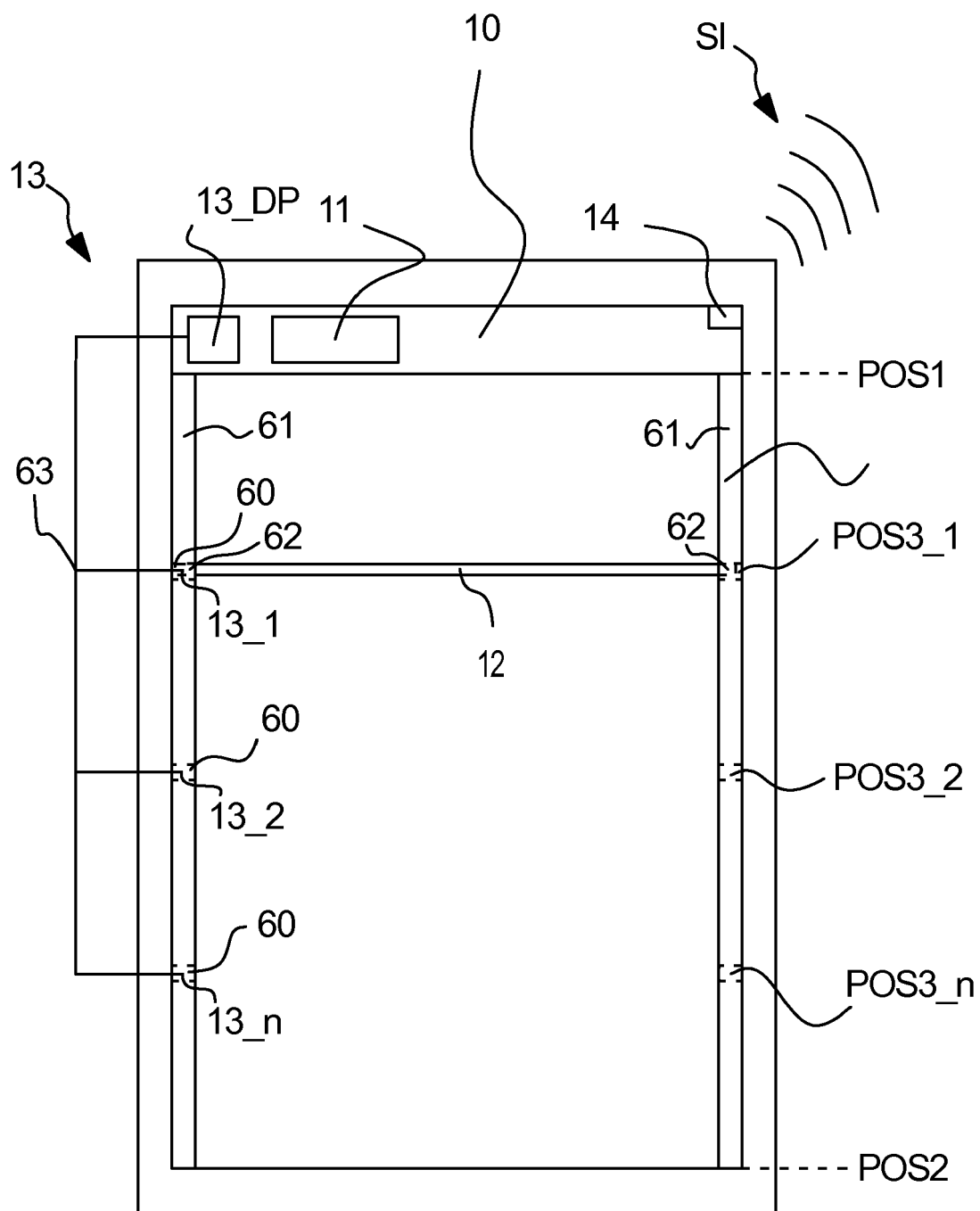


Fig.7

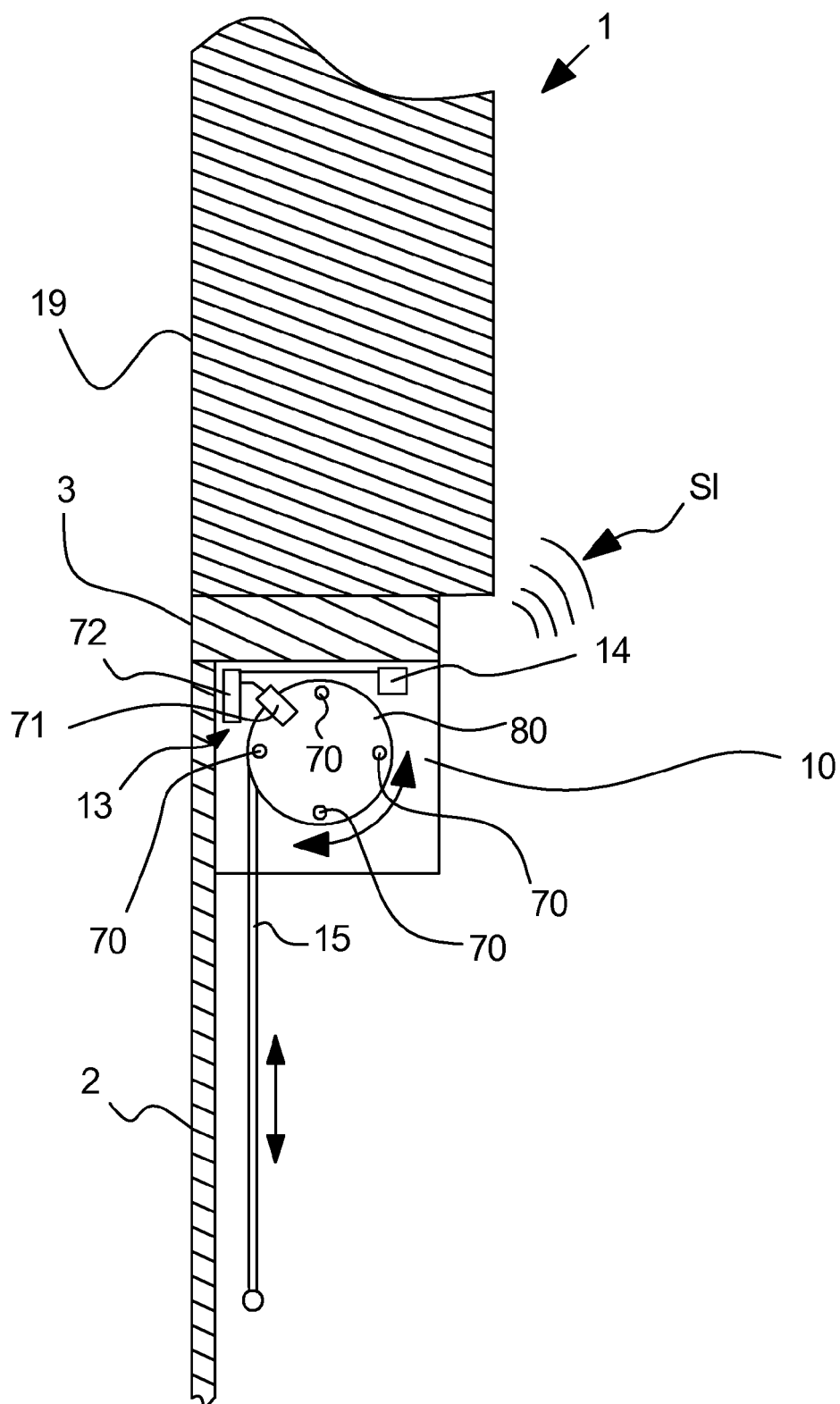
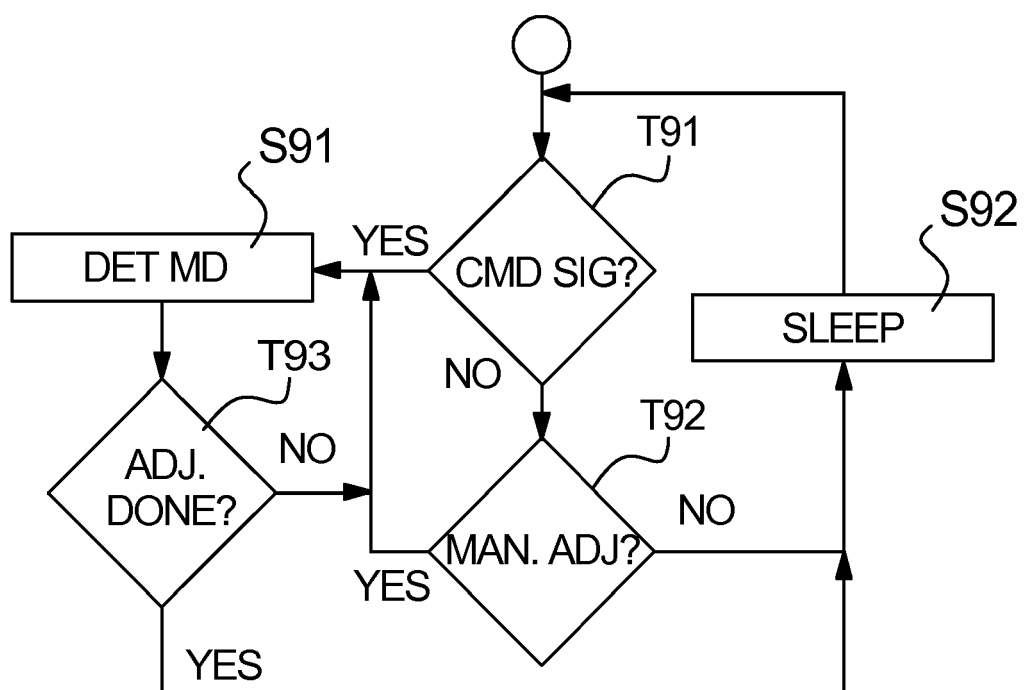


Fig.8

*Fig. 9*



EUROPEAN SEARCH REPORT

Application Number
EP 14 16 2812

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 091 079 A2 (SOMFY FEINMECHANIK [DE] SOMFY FEINMECH & ELEKTROTECH [DE]) 11 April 2001 (2001-04-11) * paragraph [0006] - paragraph [0013]; claims 1-5,8-17 *	1-15	INV. E06B9/32 E06B9/68
A	US 2006/185799 A1 (KATES LAWRENCE [US]) 24 August 2006 (2006-08-24) * figures 1-17 *	1-15	
A	EP 1 276 250 A2 (ROJAL GMBH [DE]) 15 January 2003 (2003-01-15) * figures 1-10 *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 May 2014	Examiner Merz, Wolfgang
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 14 16 2812

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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