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(54) Title: INNOVATION IN FOLDING WINDOWS

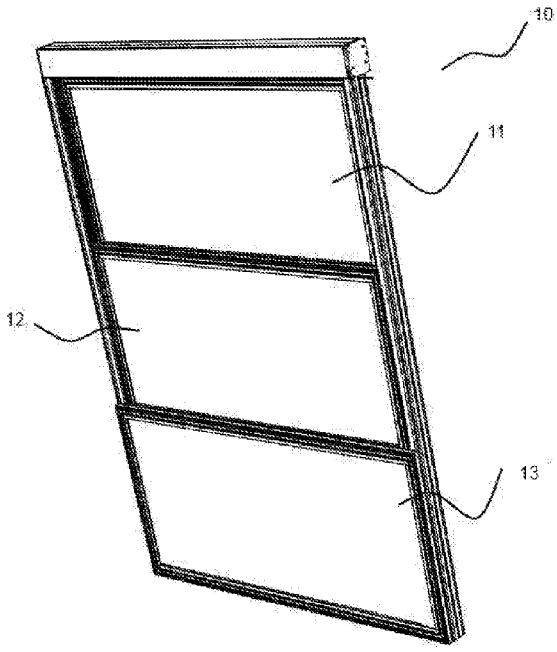

Figure-1

(57) Abstract: The invention relates to a vertical opening and closing automatic glass panel system (10) of heavier and larger joinery systems for small and / or large size areas for use in spaces with remote control command which includes at least one top panel (11) suitable for positioning glass (50) and / or similar components, at least one bottom panel (13) fixed to the floor and / or outer profile 2 (19), optional intermediate panel (12) positioned as one or multiple to said bottom panel (13) and top panel (11), a double-sided electric motor (15) which generates power needed for movement, and a drive shaft (16) which transmits received force from motor (15) to the gearbox (14).

[Continued on next page]

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INNOVATION IN FOLDING WINDOWS

Technical Field

The invention relates to a vertical opening and closing glass panel system which can be used as windows aiming at side faces in living areas such as houses, work places, cafes, restaurants, terraces, winter gardens, balconies etc.

The invention more specifically relates to an innovation in the working system of glass systems which can be opened and closed in the vertical direction and which is called also as guillotine window.

Background of the Invention

Nowadays, guillotine glass systems, which are moved vertically rather than horizontally, are used in areas where houses, cafes, etc. are heavily used by people, which can be opened and closed depending the weather and climatic conditions, as well as good looking. Thanks to their vertical opening and closing ability, it is possible to contact with the external environment easily depending on the weather conditions and it is possible to protect the place by being closed in bad weather conditions. Vertical opening and closing systems are used in cafés, restaurants, front gardens and gardens as windbreaker, and it is tried to provide wind and outdoor weather protection by opening and closing to a certain distance before the space is completely closed.

Brief Description of the Invention

The present invention is concerned with innovation in drive systems in vertical opening and closing automatic glass panel systems that meets the above-mentioned requirements, eliminates all the disadvantages and adds some additional advantages.

The aim of the present invention is to provide a more secure and trouble-free operation of automatic glass panel systems which have heavier and larger joinery systems of small and / or large size areas for use in the room and which are opened and closed vertically by remote control command.

The purpose of the invention is to ensure that the vertical opening and closing automatic glass system is of a longer life.

In order to fulfill the above-mentioned objects, the invention is a large vertical opening and closing automatic glass panel drive system to be used in places, which most basically comprising a panel suitable for glass and the like product installation arranged vertically side by side, a transmission and a tilting gear, a double driving motor, a nut, a shaft and shaft gear.

In order to realize all the advantages mentioned above and which will be understood from the following detailed description, the invention brings with it a number of conveniences and security as mentioned.

The structural and characteristic features of the invention and all advantages thereof will be more clearly understood by means of the following figures and detailed description which are given by referring to these figures.

Brief Description of the Drawings

Figure 1 is an overview representation of the subject of invention glass panel system,

Figures 2, 3 and 4 illustrate the internal mechanism of the subject of invention glass panel system according to the,

Fig. 5,6 is the top view of the internal mechanism of side panel profile of the subject of invention glass panel system.

Figure 7 shows the internal mechanism and shaft movement detail of the subject of glass panel system gearbox according to the invention,

Figure 8 is a cross-sectional view of the positions of the internal mechanisms of the profiles

Reference Numbers

10. Glass panel system
11. Top panel
12. Intermediate panel
13. Bottom panel
14. Gearbox

14.1. Transmission gear
15. Motor
16. Drive shaft
17. Drive housing
18. Outer profile 1
19. Outer profile 2
20. Nut
20.1. Housing
30. Carrier
40. Shaft
41. Shaft gear
50. Glass
60. Brush
70. Connection profile

Detailed Explanation of the Invention

In contrast to the methods used in all known applications of the prior art, the glass panel system (10) operates differently in the vertical direction than the systems with belt or chain systems.

The invention relates to a vertical opening and closing automatic glass panel system (10) of heavier and larger joinery systems for small and / or large size areas for use in spaces with remote control command, comprising at least one top panel (11) suitable for positioning glass (50) and / or similar components, comprises at least one bottom panel (13) fixed to the floor and / or outer profile 2 (19), optional intermediate panel (12) positioned as one or multiple to said bottom panel (13) and top panel (11), a transmission gear (14.1) positioned in the gearbox (14) and shaft gear (41) connected to the transmission gear (14.1), shaft (40) connected with said shaft gear (41) and associated with the top panel (11) via a nut (20), a nut (20) having a grooved housing (20.1) which is connected to said shaft (40), carrier (30) located on intermediate panels (12) and prevents vibrations and shifts, double-sided electric motor (15) which generates power needed for movement and a drive shaft (16) which transmits received force from motor (15) to the gearbox (14).

The system comprises at least one bottom panel (13) and at least one top panel (11). The intermediate panel (12) may not be used or may be used as one or more. The system can be formed with a bottom panel (13) which is fixed to the floor and a vertically movable top panel (11).

The height can be increased by adding the intermediate panel (12) to be positioned between the bottom panel (13) and the top panel (11) depending on the location and the features of the place.

The basic feature of the system is fixed to the floor of the bottom panel (13). The top panel (11) is movable and moves vertically in the desired amount with the movement of the gearbox (14) located on both sides.

In another embodiment of the system, when an intermediate panel (12) is added, the intermediate panel (12) is connected to the top panel (11) by way of the connection profile (70) and the motor (15) is moved by the movement of the top panel (11) pulls the intermediate panel (12) during the vertical upwards motion which is provided via the motor (15).

The intermediate panel (12) is also connected to the bottom panel (13) and also to the connection profile (70), which also allows to be hold since the bottom panel (13) is connected to the floor. The motor (15) is set at full power on and power off points.

Figure 1 shows a general representation of a single intermediate panel (12) formed between the top panel (11) and the bottom panel (13) in a glass panel system (10) having a closed view.

The drive system of the invention which generates movement is located within the profile on the top panel (11).

The top panel (11) is guided in the outer profile-1 (18) as shown in the sectional view in Figure 8 and guided in the outer profile-2 (19) if an intermediate panel (12) is applied.

Since the bottom panel (13) is fixed, it is not positioned in any profile.

When the system is turned on, the panels are guided in the profiles and aligned next to the bottom panel (13).

The bottom panel (13) is positioned at the outermost side of the top panel (11) by guiding the outer profile 1 (18).

After the opening, the intermediate panel (12) is positioned side by side between the bottom panel (13) and the top panel (11).

Outer profile-1 (18) and outer profile-2 (19) demonstrate the guiding of the moving panels and the closed loop operation of the system. If the number of the intermediate panels (12) is increased, the number of the outer profile-2 must be increased at the same amount of numbers of the added intermediate panel (12).

As seen in Figure 2, the motor (15) and the gearbox (14) are positioned at both ends, and the motor (15) is suitably positioned between the two gearboxes (14) to provide drive both sides.

The force obtained by means of the motor (15) is transmitted to the gearbox (14) located on both sides by means of the drive shaft (16).

In the glass panel system (10) according to the invention, both sides are formed in the form of symmetry of each other and with the same parts and systems, in which movement from both sides is equally shown without any difficulty regardless of weight and size.

The transmission gear (14.1) and the shaft gear (41) are formed in the gearbox (14) which is openly seen in Figure 7. The transmission gear (14.1) is connected to the drive shaft (16) by means of a drive housing (17) formed in the middle of it.

The rotational movement transmitted to the drive shaft (16) from the motor (15) is transmitted to the transmission gear (14.1) via the drive housing (17) and transmission gear (14.1) transmits this movement to the shaft gear (41).

The shaft gear (41) is connected to the shaft (40). Said shaft (40) has a threaded body and is extended along the top panel (11). The shaft (40) is connected to the top panel (11) by means of the nut (20).

The nut (20) is fixed from the connection points to the top panel (11) and the housing (20.1) is formed in the middle part. The inner surface of the housing (20.1) is grooved and matches the groove of the shaft (40).

The shaft (40) is passed through the housing (20.1) formed on the nut (20), which the shaft (40) rotating by the rotation of the shaft gear (41) transmits the nut (20) to move up and down depending on the direction of rotation by means of the grooves.

Movement of the nut (20) and the shaft (40) is carried out by means of their suitable grooved structure. At least one nut (20) is formed on the top panel (11) separately on opposite sides and can be positioned in two or more depending on the panel size.

The nut (20) is only in the top panel (11) which is actuated. Motion is transmitted from the intermediate panel (12), which is connected to the top panel (11) by means of the connection profile (70).

The carrier (30) is positioned with the purpose of not experiencing vibrations and slips during movement on the intermediate panel (12).

Said carrier 30 is guided in outer profile 2 (19). The wheels formed on the carrier (30) make the movement easier.

The carrier (30) can be applied to the intermediate panel (12) in a large number of at least one depending on the panel weight and dimensions.

Interconnection profile (70) is positioned between each panel.

Thus, when it is desired to close the glass panel system (10) via a remote control command, the top panel (11) is pulled vertically upwards with the motion transmitted through the housing (20.1) in the nut (20) which is located on the top panel via the shaft (40), the intermediate panel (12) which is joined through the connection profiled (70) is pulled upwards too and when the desired position is reached, the system is stopped and the closing is completed. Thanks to the carrier (30) located on the intermediate panel (12) and the same force are transmitted on both sides, it is possible to maintain the system running smoothly on the long run without the jolt and slippage from occurring since the transmission is provided by the stabilized and grooved shaft (40). The system is simplified by force transmission to the top profile (11) only, and movement is provided in a desired fashion with the carrier (30) and the factors alike.

In the present system, a more robust and easily steerable shaft (40) is used in place of the transmission means used in the form of belt pulley and chain.

CLAIMS

1. The invention relates to a vertical opening and closing automatic glass panel system (10) of heavier and larger joinery systems for small and / or large size areas for use in spaces with remote control command which includes at least one top panel (11) suitable for positioning glass (50) and / or similar components, at least one bottom panel (13) fixed to the floor and / or outer profile 2 (19), optional intermediate panel (12) positioned as one or multiple to said bottom panel (13) and top panel (11), a double-sided electric motor (15) which generates power needed for movement, and a drive shaft (16) which transmits received force from motor (15) to the gearbox (14), comprising;

- a transmission gear (14.1) having a drive housing (17) positioned in the gearbox (14),

- and shaft gear (41) connected to the transmission gear (14.1),

- shaft (40) connected with said shaft gear (41) and associated with the top panel (11) via at least one nut (20) from both of the two sides separately,

- a nut (20) having a housing (20.1) which is connected to said shaft (40).

2. Glass panel system (10) according to claim 1, characterized in that: characterized in that it comprises at least one carrier (30) on each side separately of said intermediate panel (12) which prevents vibrations and shifts which may occur during movement.

3. Glass panel system (10) according to claim 1, characterized in that: inner surface of the housing (20.1) formed on said nut (20) and said shaft (40) having matching threads.

4. Glass panel system (10) according to claim 1, characterized in that: force is transmitted through the gearbox (14) formed at both sides of the top panel (11) by means of the drive rod (16).

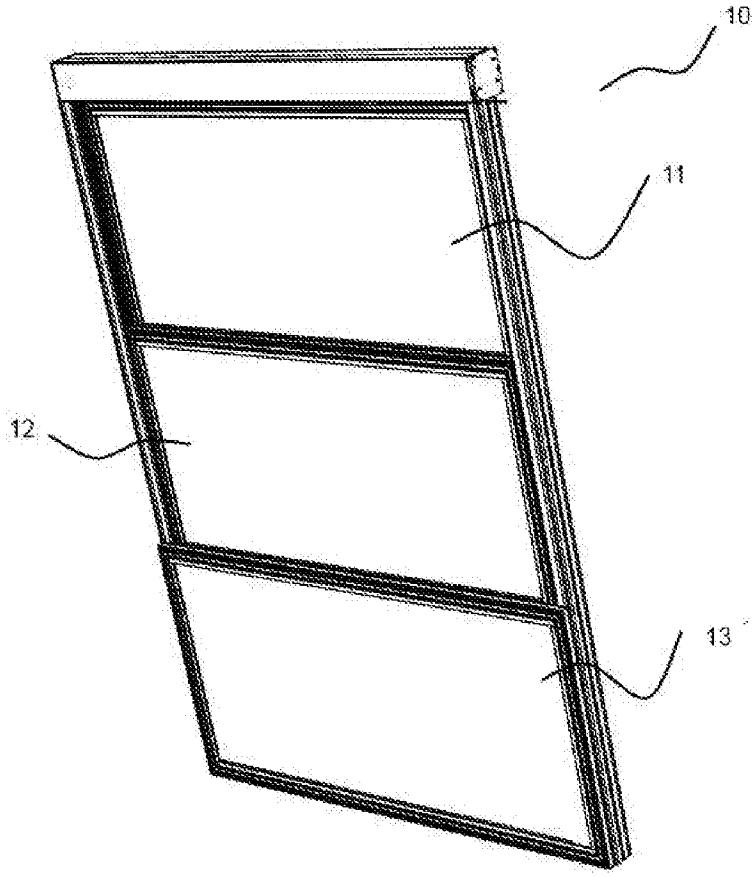

Figure-1

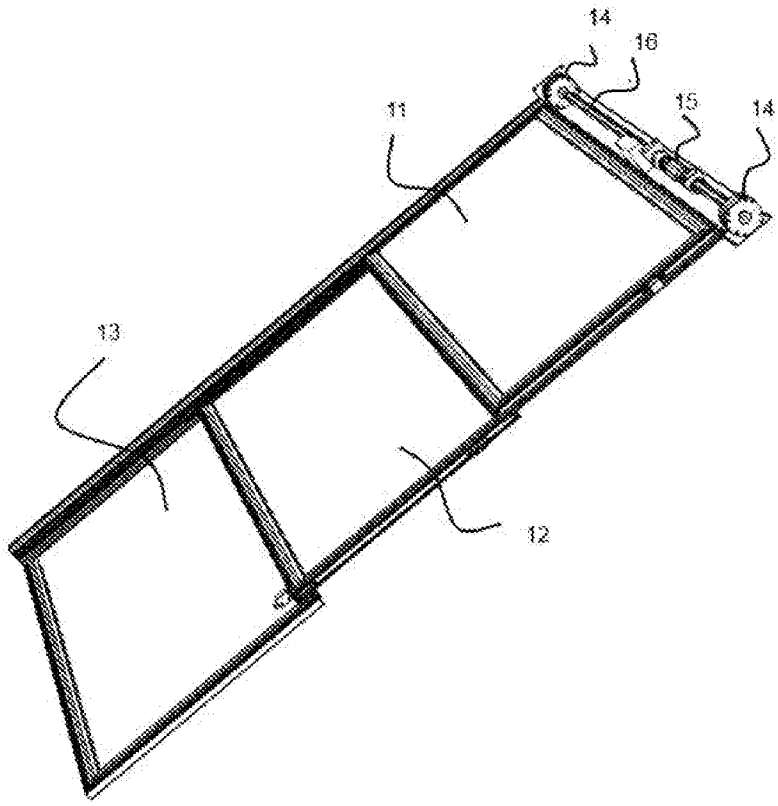

Figure-2

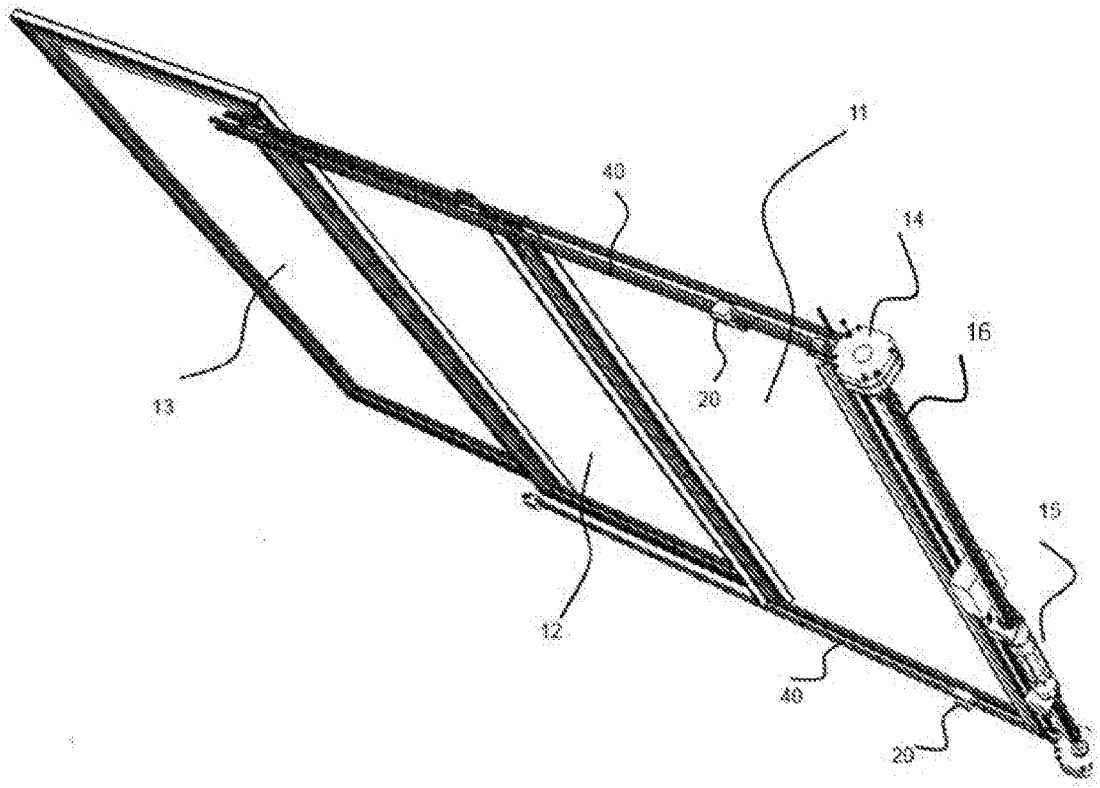

Figure-3

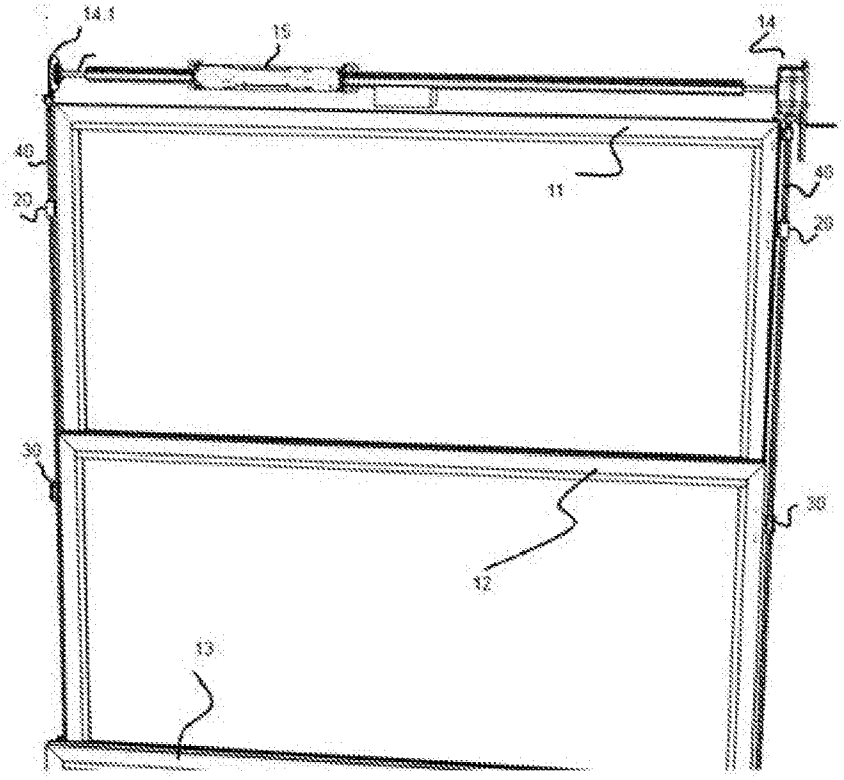

Figure-4

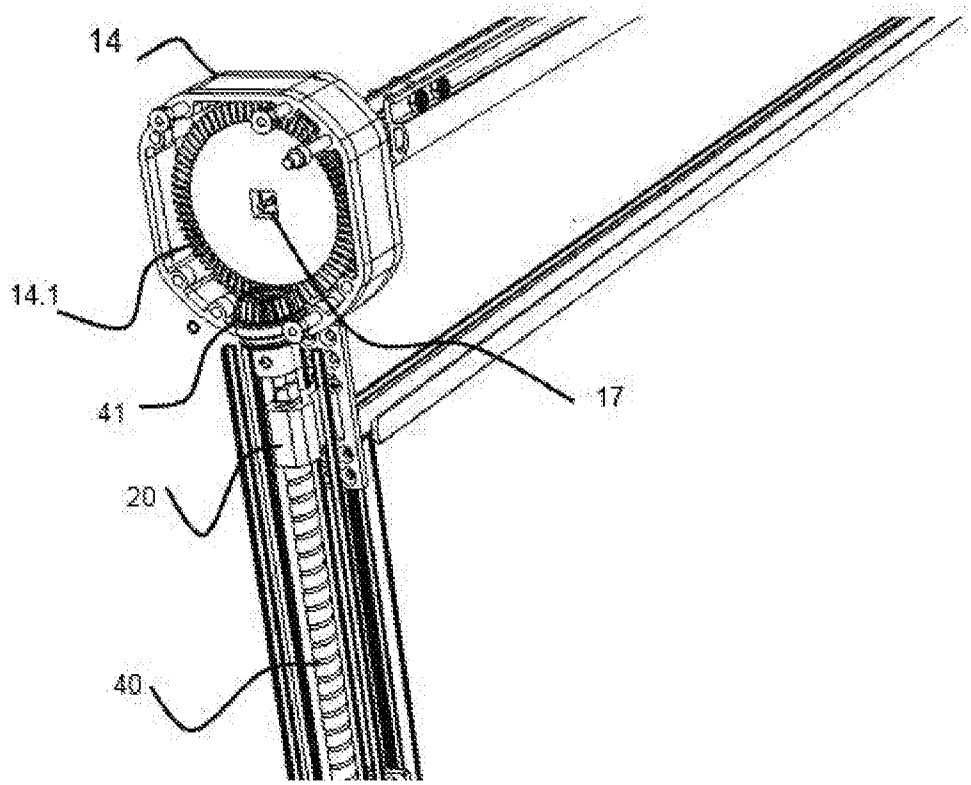

Figure-5

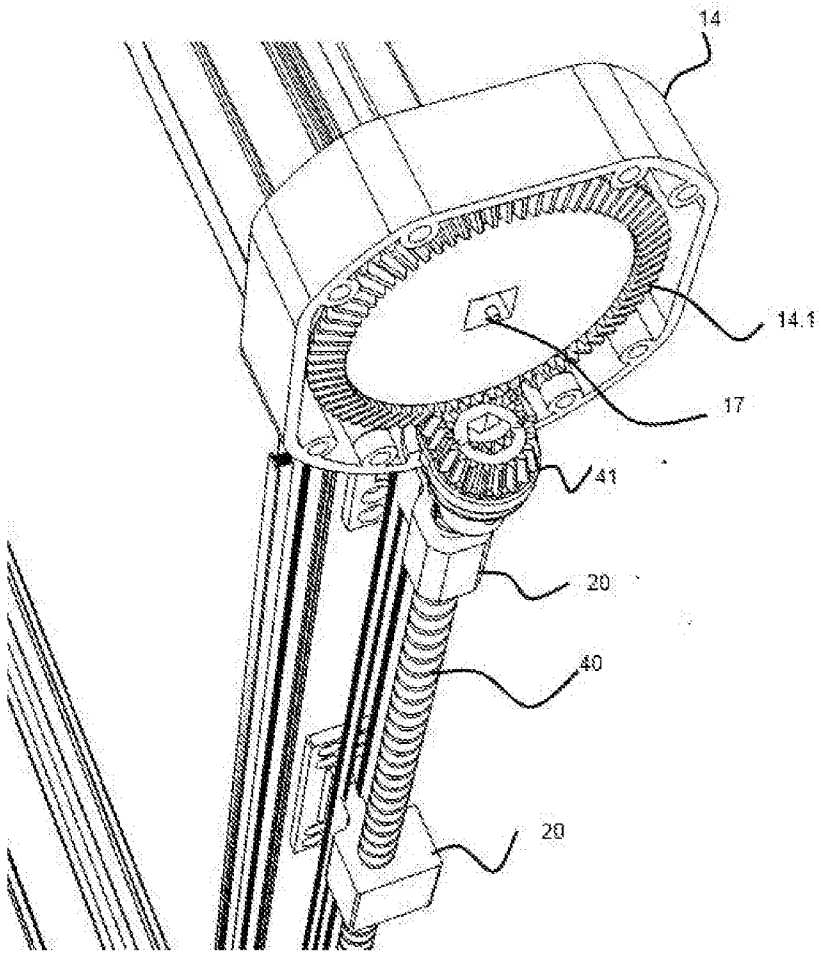

Figure-6

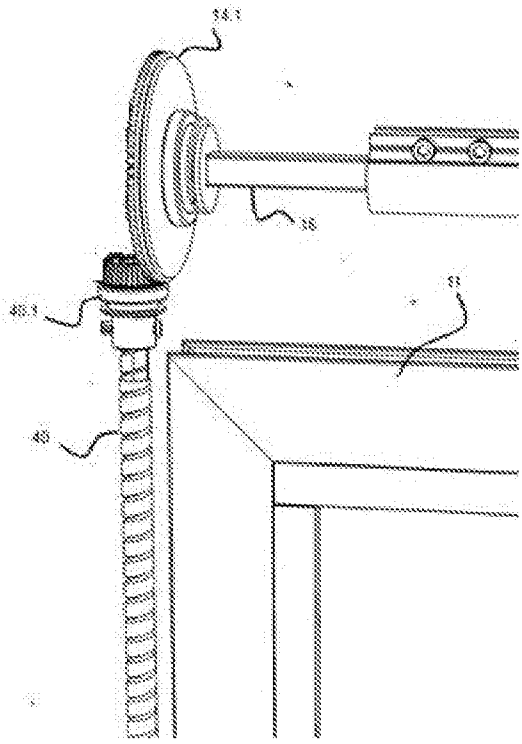

Figure-7

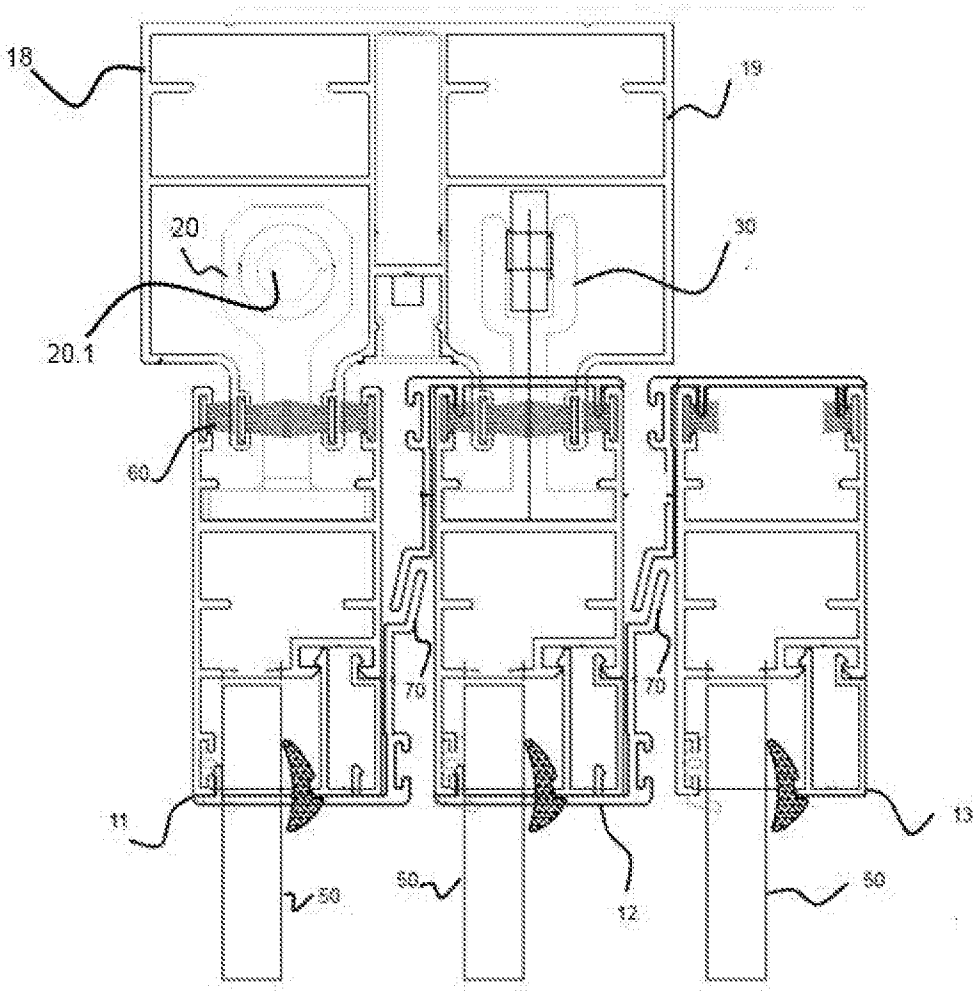

Figure-8