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(54) **VEHICLE SCREEN FOR SIDE WINDOW ASSEMBLY**

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B60J 3/02 (2006.01)
E06B 9/68 (2006.01)
B60J 1/20 (2006.01)

(52) **U.S. Cl.**
CPC ***B60J 3/0234*** (2013.01); ***E06B 9/68*** (2013.01); *B60J 1/2002* (2013.01)

(58) **Field of Classification Search**
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USPC 160/370.22; 296/146.15; 49/61–63; 74/89.23, 89.17, 89.18, 422, 424.6
See application file for complete search history.

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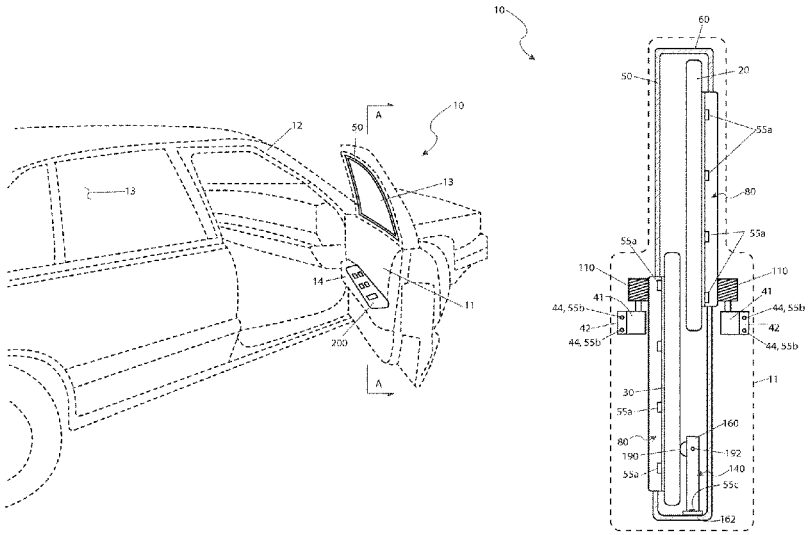
(57) **ABSTRACT**

A vehicle door screen for a side window assembly includes a track system incorporating a glass window track and a screen track. The system is provided with electrical motorized actuators to enable a user to operate the track system from inside the vehicle. The window track is provided with a glass windowpane to complement the profile of the side door window opening. The screen track is provided with a frame to complement the profile of the side door window opening. The screen material is made of a ventilating mesh material. The window and screen tracks may be operated concurrently or independently by a user, as desired.

18 Claims, 9 Drawing Sheets



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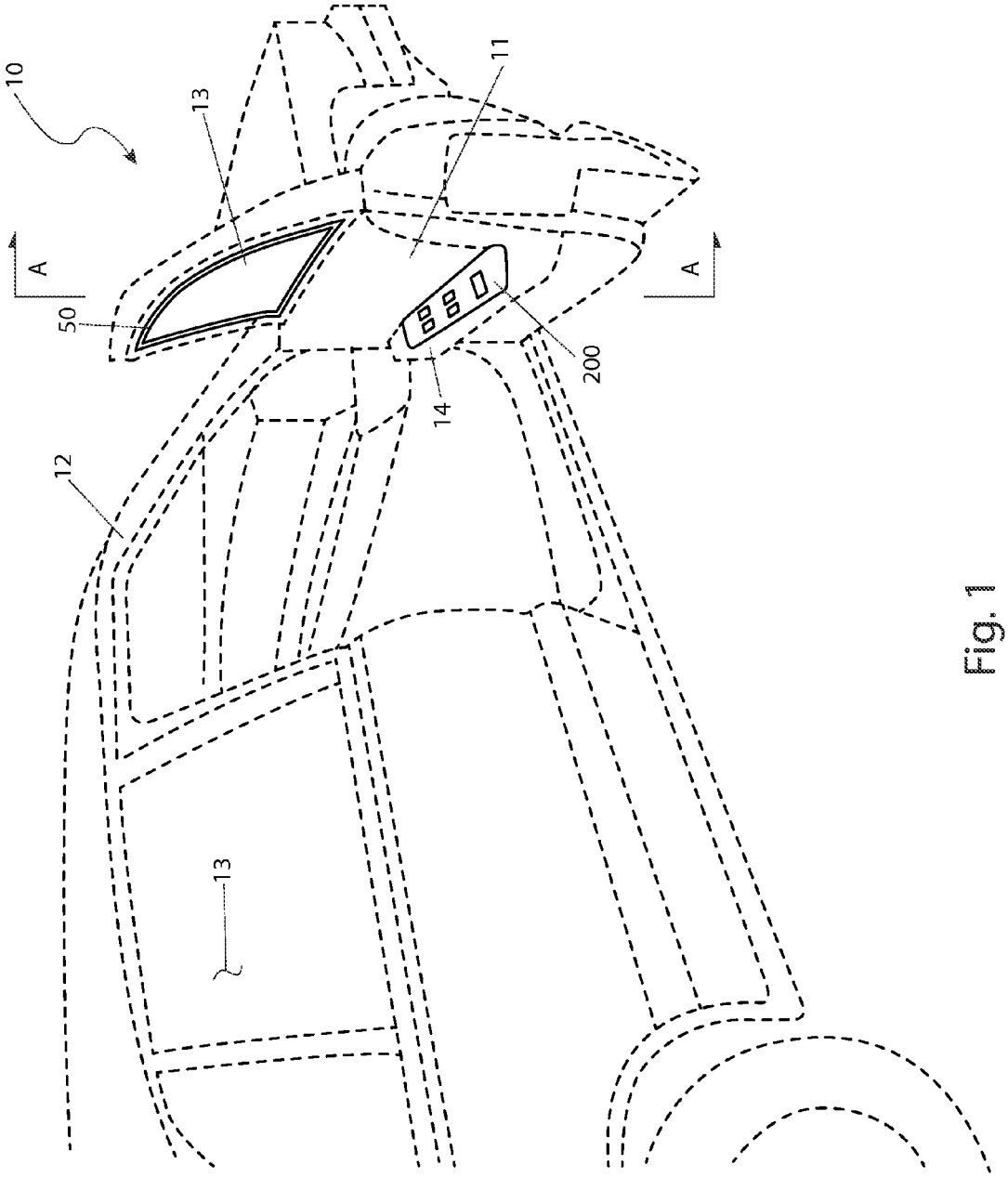

Fig. 1

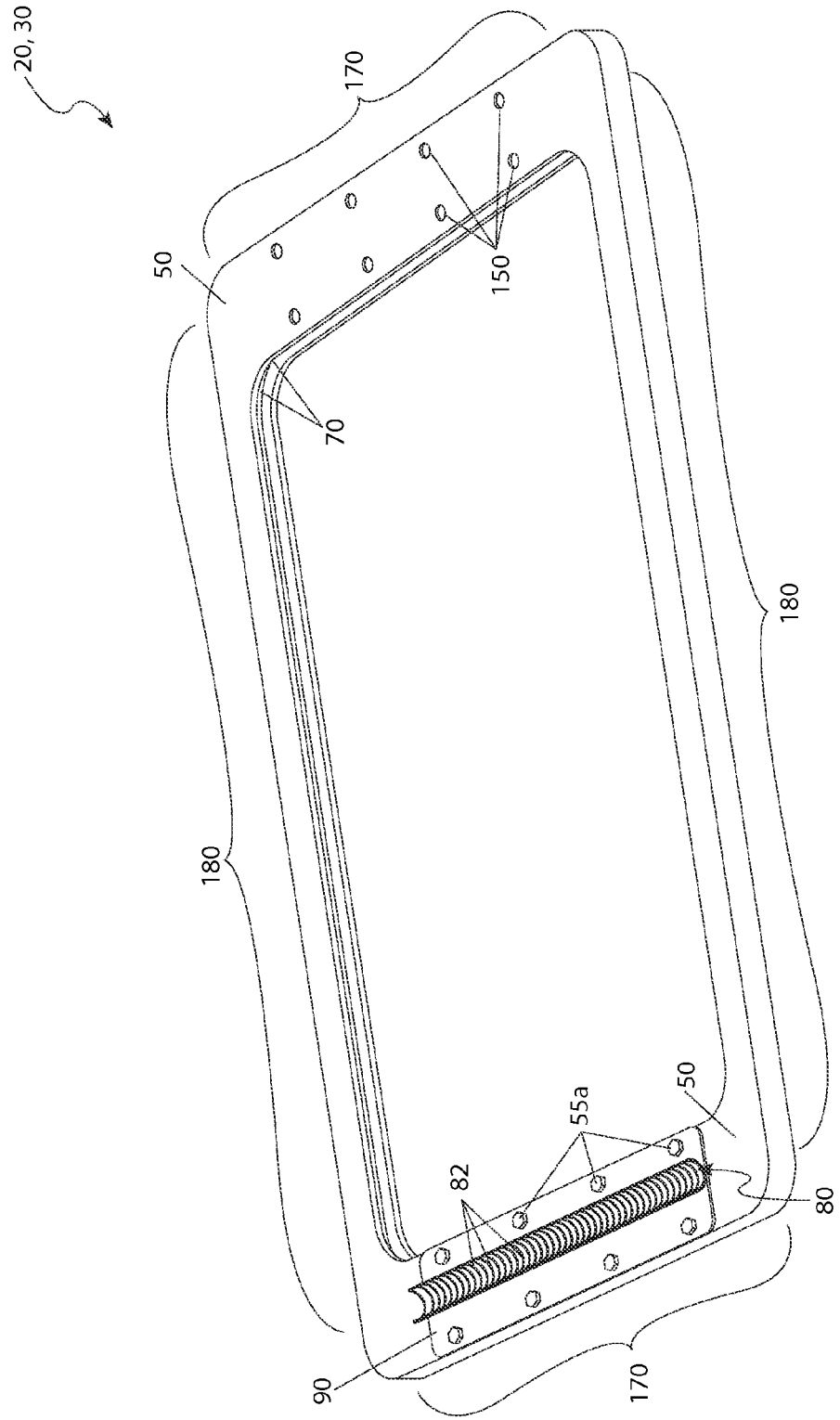

Fig. 2

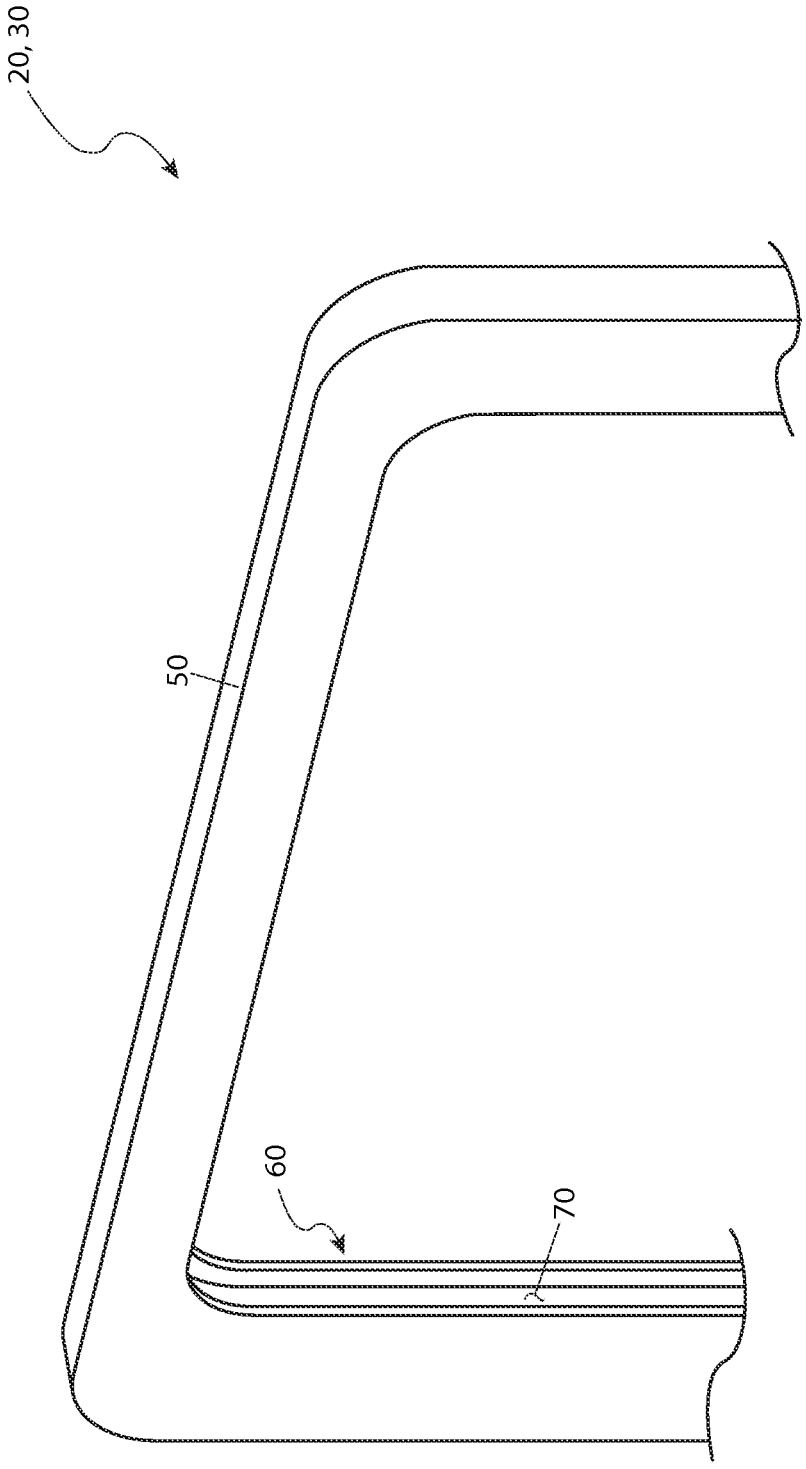

Fig. 3

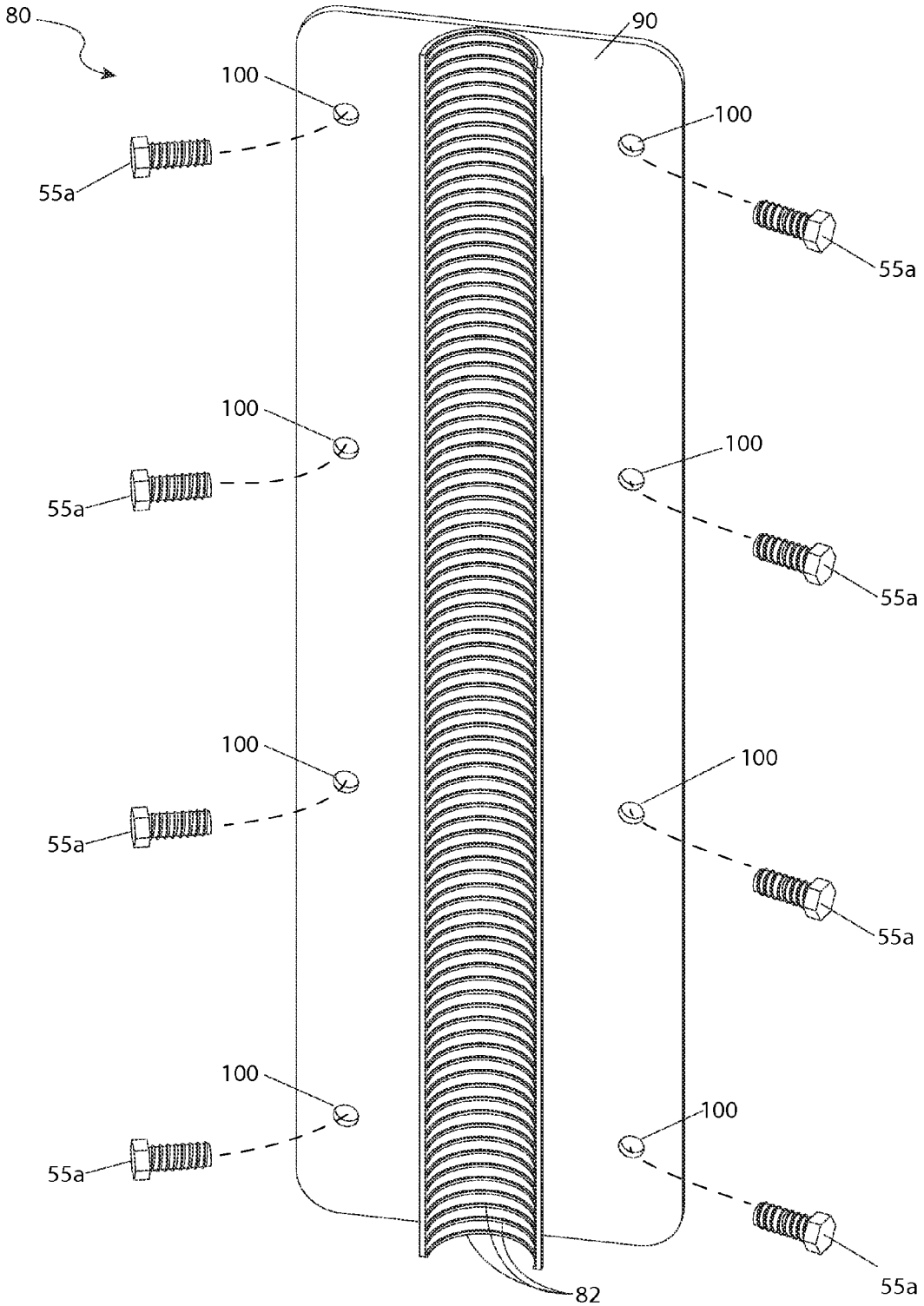

Fig. 4

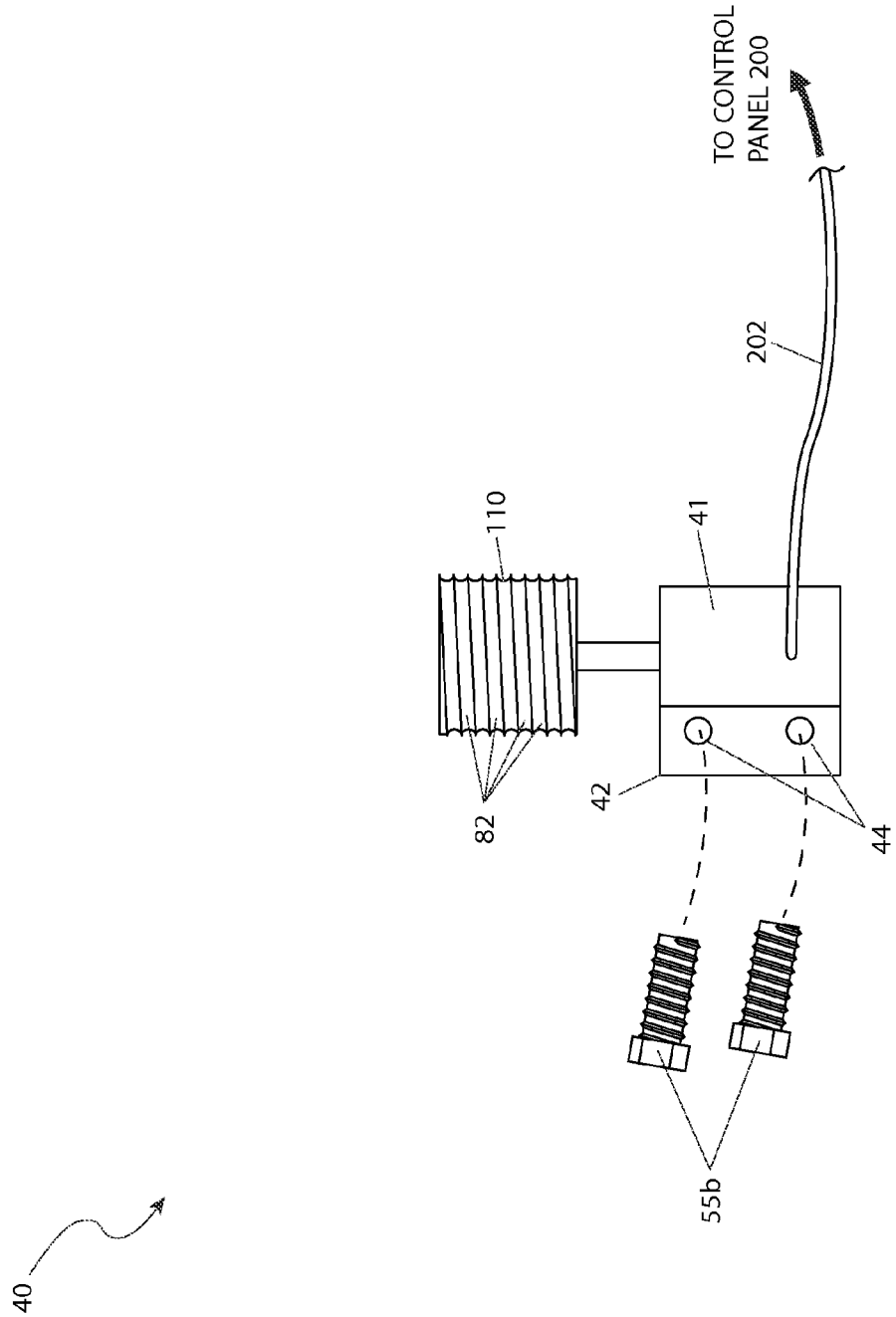

Fig. 5

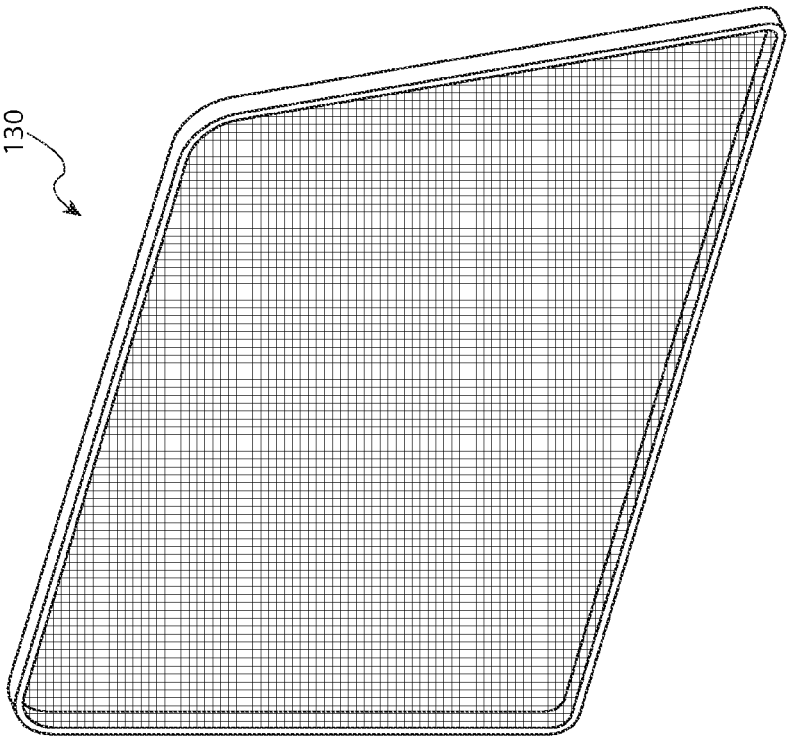

Fig. 6b

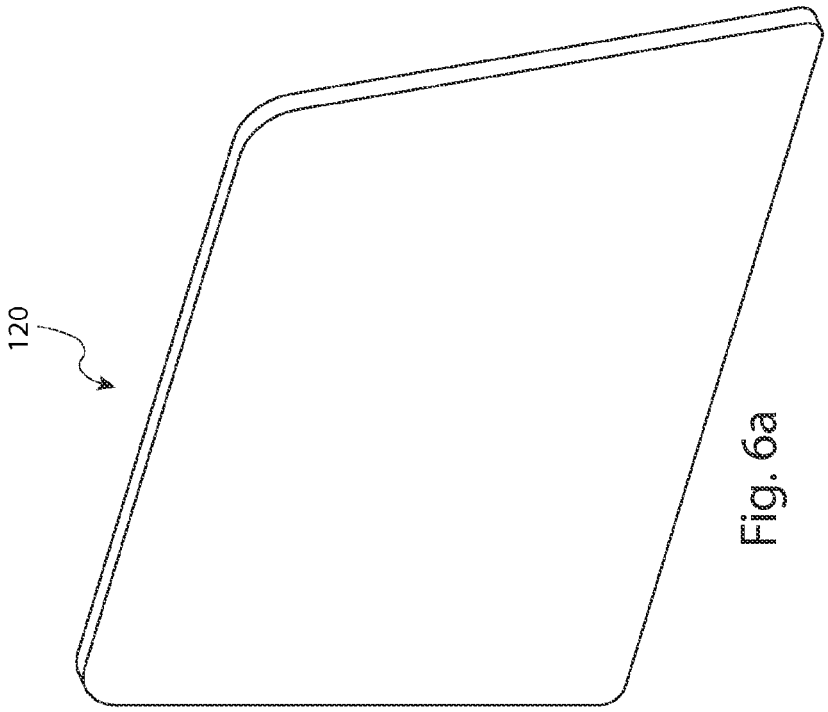

Fig. 6a

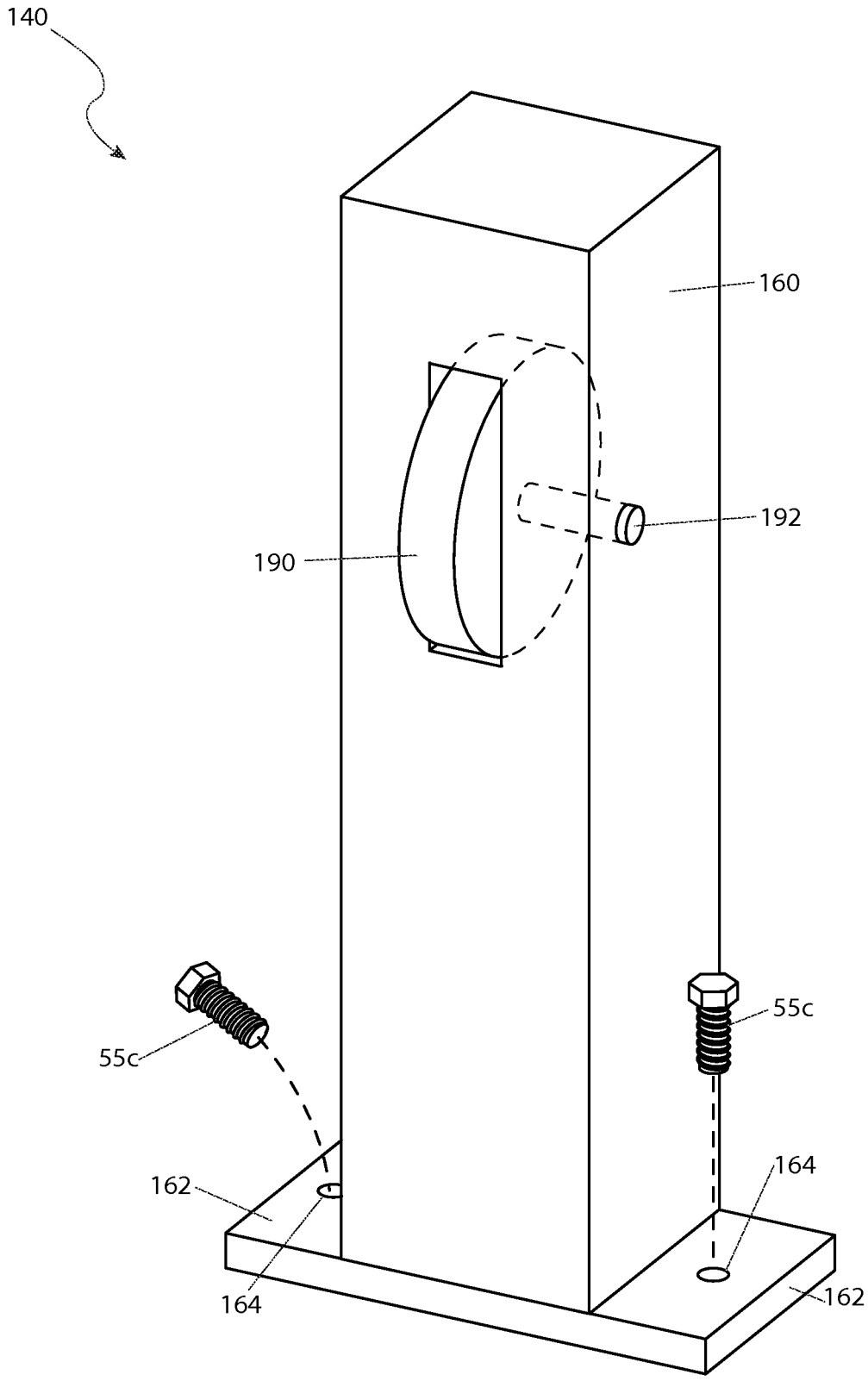

Fig. 7

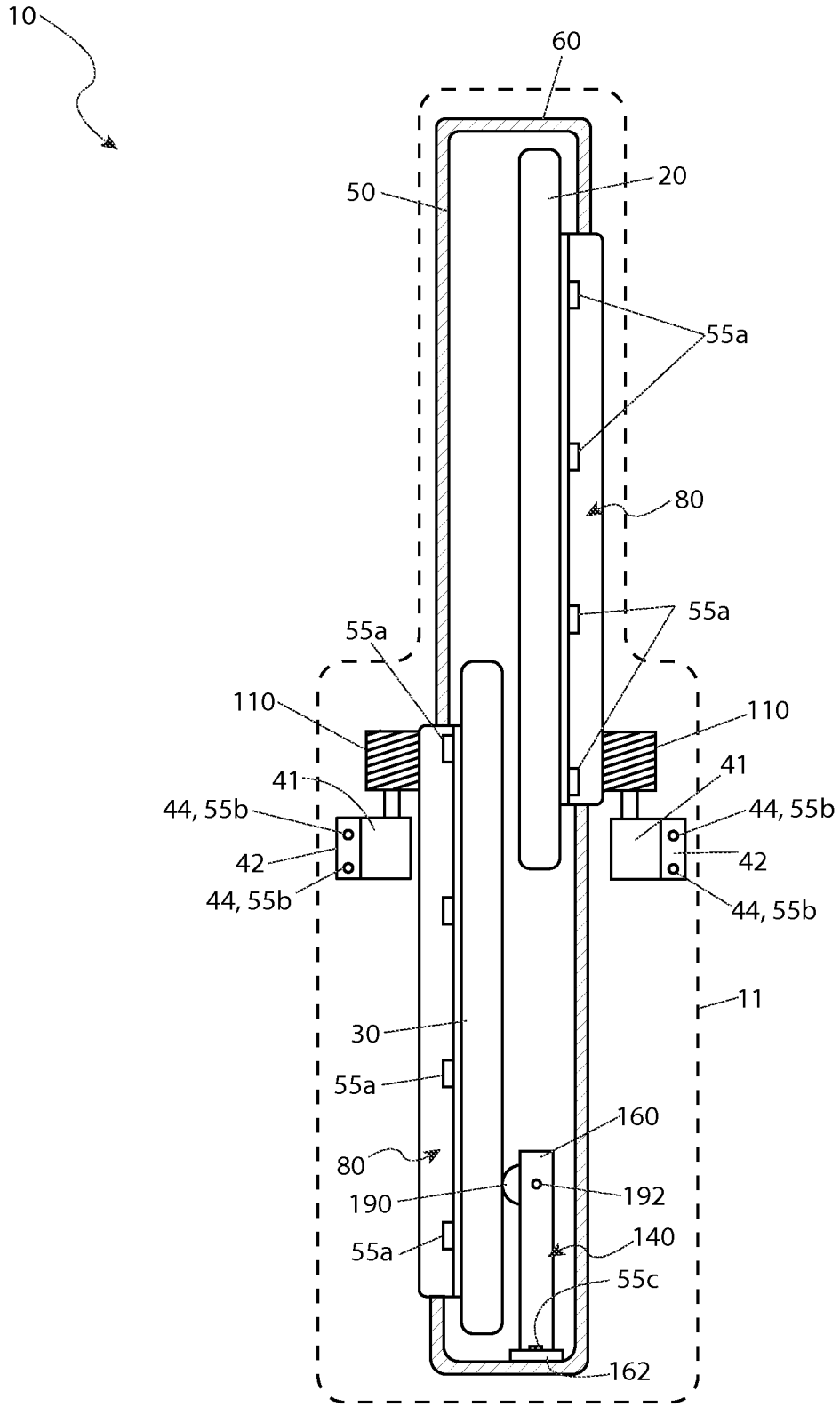
10
60
50
20
55a
80
55a
55a
110
110
41
41
44, 55b
44, 55b
42
42
44, 55b
44, 55b
11
30
55a
160
80
190
192
55a
140
55c
162

Fig. 8

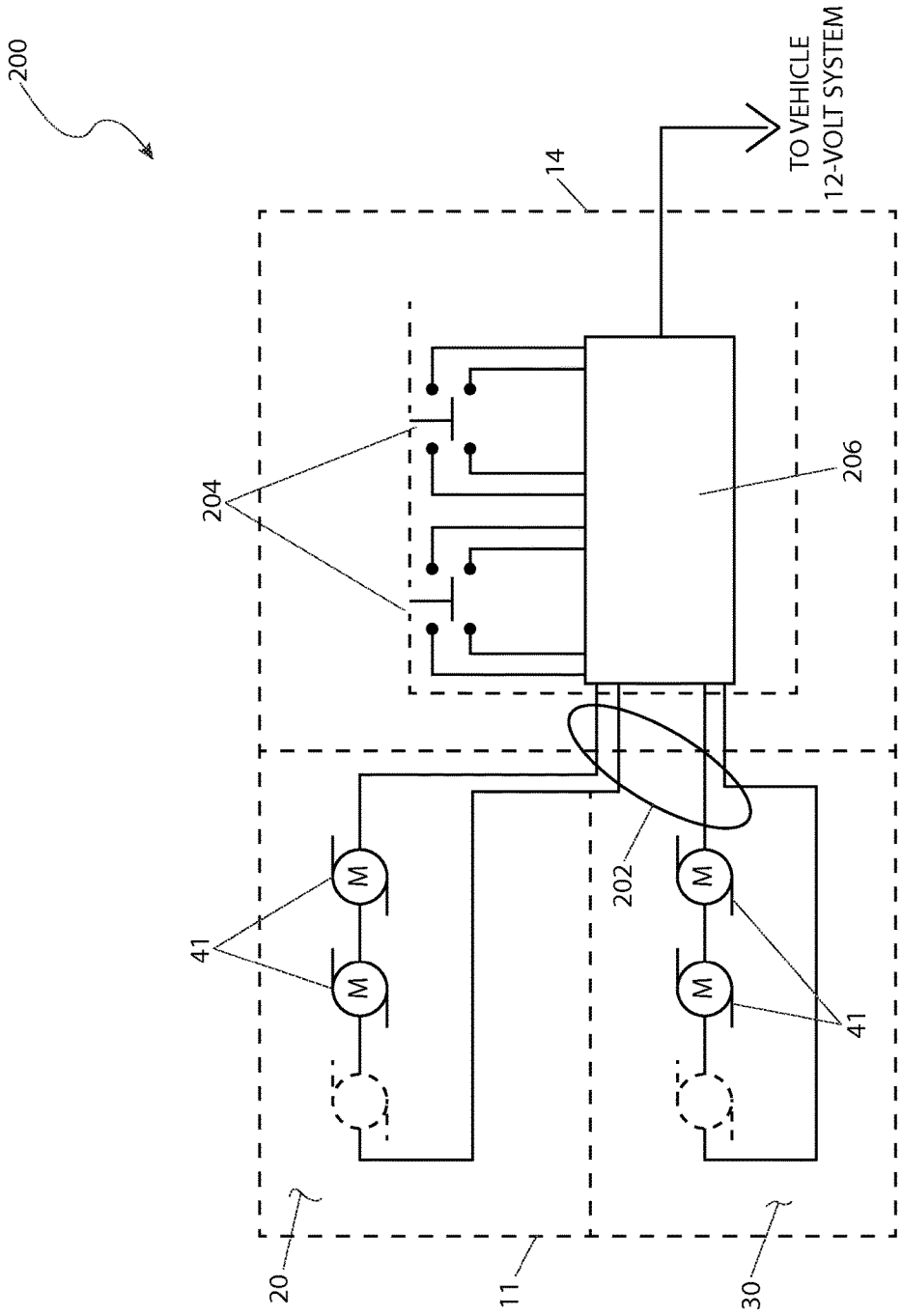

Fig. 9

VEHICLE SCREEN FOR SIDE WINDOW ASSEMBLY

RELATED APPLICATIONS

The present invention was first described in and claims the benefit of U.S. Provisional Application No. 61/868,819, filed on Aug. 22, 2013, the entire disclosures of which are incorporated herein by reference.

FIELD OF THE INVENTION

The presently disclosed subject matter is directed to vehicle windows. More particularly it is directed to a dual tracked vehicle side door window and screen assembly.

BACKGROUND OF THE INVENTION

Anyone who has ever entered a sealed car parked outside on a hot sunny day can attest that the passenger compartment interior can get very hot.

Usual methods of cooling hot passenger compartment interiors include opening all windows to assist heat removal, placing blinds on the windshield, and running the air conditioning. Those methods all suffer from some form of drawback. Opening all windows and then cooling the passenger compartment interior takes time. Windshield blinds only affects sunlight directly entering through the windshield and they can be difficult to use. Air conditioning requires time to successfully cool the passenger compartment interior, involves time, additional wear and tear on the engine to power an air compressor, and the energy to operate the air conditioner costs money.

Accordingly, there is a need for a system by which the passenger compartment of a vehicle can be prevented from accumulating heat on a hot day.

SUMMARY OF THE INVENTION

The principles of the present invention provide for a system by which the passenger compartment of a motor vehicle can be prevented from accumulating heat on a hot day.

A system in accord with the present invention takes the form of a side window assembly comprising a first track having a first framework with a first "U"-shaped retention channel retaining a windowpane and which is configured to fit into a door panel. The side window assembly further includes a first grooved channel having a first body with first grooves and a first flange that is attached to the first framework; a first electro-mechanical actuator having a first bracket and a first electric motor with an attached first worm gear engaged with the first grooves; a second track having a second framework with a second "U"-shaped retention channel retaining a screen and which is configured to fit into the door panel; a second grooved channel having a second body with second grooves and a second flange that is attached to the second framework; and a second electro-mechanical actuator having a second bracket and a second electric motor with an attached second worm gear that is engaged with the second grooves. The first bracket is for attaching the first electro-mechanical actuator to the interior of a door panel, the second bracket is for attaching the second electro-mechanical actuator to the interior of a door panel. When the first electric motor rotates the first worm gear applies a force on the first grooves which moves the first track and when the second electric motor rotates the second worm gear applies a force on the second grooves which moves the second track.

In practice, the first grooves complement the first worm gear and the first framework is configured to complement a door panel profile so as to fit into a window opening. Beneficially the first framework has a first aperture, the first grooved channel has a matching second aperture, and the first framework is attached to the first grooved channel by a first threaded fastener. Preferably the side window assembly will also include a wheeled-rail assembly having a rail with at least one (1) spring loaded wheel that is biased into contacting the first framework. That rail should include a rail bracket that is configured to be affixed to the interior of the door panel such that the first framework is guided by the at least one spring loaded wheel. The wheeled-rail assembly may also include at second rail having a second rail bracket that is configured to be affixed to the interior of the door panel and a second spring loaded wheel for guiding the second framework.

The side window assembly may also include a control panel that is in electrical communication with the first electric motor and with the second electric motor and which is further for being in electrical communication with electrical power of a vehicle. The control panel would then include a first switching assembly to activate the first electric motor in a first direction and in a second direction. That switching assembly may include at least one (1) three-position switch. When the first electric motor is activated in the first direction the first worm gear raises the first track and when the first electric motor is activated in the second direction the first worm gear lowers the first track.

The control panel beneficially includes a microprocessor for controlling the application of electric power to the first electric motor. The control panel may also include a second switching assembly that activates the second electric motor in the first direction and in the second direction. In practice the control panel can activate the first electric motor and the second electric motor in different directions.

Another system in accord with the present invention takes the form of a vehicle having a vehicle battery and a door panel with an interior, a window opening, and an arm rest. The vehicle further includes a first track having a first framework with a first "U"-shaped retention channel retaining a windowpane; a first grooved channel having a first body with first grooves and a first flange attached to the first framework; a first electro-mechanical actuator having a first bracket and a first electric motor with an attached first worm gear engaged with the first grooves, the first electro-mechanical actuator being attached to the interior by the first bracket; a second track having a second framework with a second "U"-shaped retention channel retaining a screen; a second grooved channel having a second body with second grooves and a second flange attached to the second framework; and a second electro-mechanical actuator having a second bracket and a second electric motor with an attached second worm gear engaged with the second grooves, the second electro-mechanical actuator being attached to the interior by the second bracket. When the first electric motor rotates the first worm gear applies a force on the first grooves which moves the first track within the window opening; and when the second electric motor rotates the second worm gear applies a force on the second grooves which moves the second track within the window opening.

The vehicle windowpane is preferably configured to complement the door panel and to fit into a window opening. Beneficially the first framework has a first aperture, the first grooved channel has a matching second aperture, and the

first framework is attached to the first grooved channel by a first threaded fastener. The vehicle may also include a wheeled-rail assembly having a rail with at least one (1) spring loaded wheel. That rail being attached to the door panel such that the at least one (1) spring loaded wheel is biased into contacting with the first framework. The vehicle beneficially further includes a control panel in the arm rest with the control panel being in electrical communication with the first electric motor, with the second electric motor, and the vehicle battery. That control panel includes a first switching assembly to activate the first electric motor in a first direction and in a second direction and a second switching assembly to activate the second electric motor in the first direction and in the second direction. Preferably the control panel can activate the first electric motor and the second electric motor in different directions.

BRIEF DESCRIPTION OF THE DRAWINGS

The advantages and features of the present invention will become better understood with reference to the following more detailed description and claims taken in conjunction with the accompanying drawings, in which like elements are identified with like symbols, and in which:

FIG. **1** is a perspective view of a vehicle screen window system **10** depicting installation within a vehicle **12**, according to a preferred embodiment of the present invention;

FIG. **2** is a front view of track portions **20**, **30**, according to a preferred embodiment of the present invention;

FIG. **3** is a perspective view of track portions **20**, **30**, according to a preferred embodiment of the present invention;

FIG. **4** is a perspective view of a grooved channel **80**, according to a preferred embodiment of the present invention;

FIG. **5** is a front view of an electro-mechanical actuator **40**, according to a preferred embodiment of the present invention;

FIG. **6***a* is a perspective view of a windowpane **120**, according to a preferred embodiment of the present invention;

FIG. **6***b* is a perspective view of a screen panel **130**, according to a preferred embodiment of the present invention;

FIG. **7** is a perspective view of a wheeled-rail assembly **140**, according to a preferred embodiment of the present invention;

FIG. **8** is a sectional view of the perspective view of the vehicle screen window system **10** taken along section line A-A (see FIG. **1**), according to a preferred embodiment of the present invention; and,

FIG. **9** is an electrical block diagram of the vehicle screen window system **10**, according to a preferred embodiment of the present invention.

DESCRIPTIVE KEY

10 vehicle screen window system
11 door panel
12 vehicle
13 side door window opening
14 arm rest
20 first track
30 second track
40 electro-mechanical actuator
41 motor
42 first bracket
44 first bracket aperture
50 framework
55*a* first fastener
55*b* second fastener
55*c* third fastener
60 retention channel
70 channel opening
80 grooved channel
82 groove
90 flange
100 flange aperture
110 worm gear
120 windowpane
130 screen panel
140 wheeled-rail assembly
150 frame aperture
160 rail
162 second bracket
164 second bracket aperture
170 latitudinal side
180 longitudinal side
190 wheel
192 axle
200 control panel
202 wiring
204 switch
206 control module

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The best mode for carrying out the invention is presented in terms of its preferred embodiment, herein depicted within FIGS. **1** through **9**. However, the invention is not limited to the described embodiment, and a person skilled in the art will appreciate that many other embodiments of the invention are possible without deviating from the basic concept of the invention and that any such work around will also fall under scope of this invention. It is envisioned that other styles and configurations of the present invention can be easily incorporated into the teachings of the present invention, and only one particular configuration shall be shown and described for purposes of clarity and disclosure and not by way of limitation of scope.

The terms "a" and "an" herein do not denote a limitation of quantity, but rather denote the presence of at least one of the referenced items.

FIG. **1** presents a perspective view of vehicle screen window system **10** that is in accord with the present invention integrated into a door panel **11** of a vehicle **12**. FIG. **2** presents a front view of a track **20** or a track **30** (they are identical) of the vehicle screen window system **10**. Referring primarily to those figures, as well as to FIGS. **5** and **6** as required, the vehicle screen window system **10** includes the first track **20** which incorporates a windowpane **120** and the second track **30** which incorporates a screen **130**. The tracks **20**, **30** are independently operable.

It should be understood that while the vehicle screen window system **10** is shown integrated into a door panel **11** that it can be retrofit into an existing door panel **11**. It should also be understood that although a single vehicle screen window system **10** is illustrated and described herein, it is envisioned that additional units of the vehicle screen window system **10** may be installed in other door panels **11** of the vehicle **12**.

The system **10** comprises a first track **20** and a second track **30** (see FIG. **2**) which are manipulated via a plurality

of electro-mechanical actuators **40** (see FIG. **5**), and operated via a control panel **200** envisioned to be integrated into an armrest portion **14** of the vehicle **12**. The system **10** is a unit that is integrated into an interior of a door panel **11** of a vehicle **12** (see FIG. **8**).

Referring now to FIGS. **2**, **3**, and **4**, a front view of the track portions **20**, **30**, a perspective view of the track portions **20**, **30**, and a perspective view of a grooved channel **80**, according to a preferred embodiment of the present invention, are disclosed. Each track **20**, **30** comprises a respective framework **50** complimenting a profile of a side door window opening **13** of a vehicle **12** (see FIG. **1**), and is fabricated from a rigid material such as a steel alloy, aluminum, or plastic. Each framework **50** comprises a U-shaped retention channel **60** that forms a continuous structure, where the channel opening **70** faces an inner direction throughout the framework **50** construction. Each track **20**, **30** includes an integral pair of latitudinal sides **170** and an integral pair of longitudinal sides **180**. Attached to each framework **50** is a plurality of grooved channels **80** that extend perpendicularly from outwardly-facing surfaces of the latitudinal side portions **170** along opposing side edges of each framework **50**. One (1) of the latitudinal side portions **170** is shown here with the grooved channel **80** removed for illustration sake. Each grooved channel **80** is provided with mounting flanges **90**, having a plurality of flange apertures **100**. Each framework **50** is provided with a plurality of mating frame apertures **150**. The frame apertures **150** are envisioned to be threaded and aligned with the flange apertures **100** of each grooved channel **80**. The apertures **100**, **150** enable a user to attach each grooved channel **80** so as to position each grooved channel **80** relative to the framework **50**, thereby granting a means to adjust the relative position to adapt to compromising spatial constraints when the system **10** is employed in a door panel **11** (see FIG. **1**). It is envisioned for each grooved channel **80** to be attached to the framework **50** using first fasteners **55***a*, such as threaded bolts, being inserted through the flange apertures **100** and threaded into the frame apertures **150**.

Each grooved channel **80** engages a worm gear portion **110** of an electro-mechanical actuator **40** including a motor **41**, so that when each of the motors **41** rotate, the corresponding worm gear **110** forces the respective grooved channel **80** with which it is engaged to be motioned upwardly or downwardly coincidentally with the attached framework **50** (see FIG. **8**). The framework **50** of each track portion **20**, **30** is placed within an interior of a door panel **11** of a vehicle **12** (see FIG. **1**) so that when a particular set of electro-mechanical actuators **40** and engaged grooved channels **80** is actuated, that framework **50** traverses the side door window opening **13** in either a rising motion or a lowering motion (see FIG. **1**).

Referring now to FIGS. **6***a* and **6***b*, perspective views of windowpane **120** and screen panel **130** portions of the system **10**, according to a preferred embodiment of the present invention, are disclosed. The first track **20** is described as being most proximate to the interior of the vehicle **12**, whereas the second track **30** is most proximate to an exterior of the vehicle **12** (see FIGS. **1** and **2**); however, it is understood that the designation of the relative juxtaposition is for convenience of illustration. Both tracks **20**, **30** are identical in construction and the system **10** may be also configured with the position of the tracks **20**, **30** reversed (also see FIG. **2**).

The first track **20** envelops a perimeter edge of a windowpane **120**. The windowpane **120** is preferably fabricated from a glass; however, other materials exhibiting rigidity and translucence may be used. In a similar manner, the second track **30** envelops a perimeter edge of a screen panel **130**. The screen panel **130** preferably comprises a woven synthetic fiber such as KEVLAR®, fiberglass, or other ventilating material exhibiting a toughness and strength to resist cutting, tearing, puncturing, and abrasion. The screen panel **130** has a solid rigid member for its perimeter edge and an open mesh for its center. The perimeter edge of the windowpane **120** slidably inserts into the retention channel portion **60** of the first track **20** (see FIG. **3**). The perimeter edge of the screen panel **130** slidably inserts into the retention channel **60** of the framework **50** of the second track **30** (see FIG. **3**). The channel opening **70** of each track **20**, **30** is preferably lined with a rubber or silicon member to act as a weather stripping and a seal for the space between a surface of the channel opening **70** and the windowpane **120** or screen panel **130**.

Referring now to FIGS. **4**, **5**, and **7**, a perspective view of a grooved channel **80**, a front view of an electro-mechanical actuator **40**, and a perspective view of a wheeled-rail assembly **140**, according to a preferred embodiment of the present invention, are disclosed. The first track **20** and second track **30** are provided with a pair of grooved channels **80** affixed to the latitudinal side portions **170** (see FIG. **2**). The grooved channels **80** of the first track **20** and second track **30** portions engage separate worm gears **110** and electro-mechanical actuators **40** so that each track **20**, **30** can be operated concurrently or independently of the other. Each electro-mechanical actuator **40** is mounted to an interior portion of the door panel **11** via integral first bracket portions **42** of a motor portion **41** using corresponding second fasteners **55***b* each routed through a first bracket aperture **44**. Each grooved channel **80** is configured to complement the configuration of each worm gear **110** with which it is engaged so that when the worm gear **110** rotates, the groove portions **82** of the grooved channel **80** impose a force upon engaged groove portions **82** of the worm gear **110**.

Each track **20**, **30** is guided in a parallel manner with respect to an interior portion of the door panel **11** by respective wheeled-rail assemblies **140**, each of which include a support rail **160** having a compliant wheel **190** being rotatingly affixed thereto via an axle portion **192**. Each rail **160** is affixed to the interior of the door panel **11** via integral second bracket portions **162** having second bracket apertures **164** and using corresponding third fasteners **55***c*. Each wheel **190** is to provide a compliant contact against the first latitudinal sides **170**, being made of a soft rubber or other compliant mounting means to the rail **160**, being positioned along side surfaces of the latitudinal sides **170** of each track **20**, **30**. The first latitudinal sides **170** of the tracks **20**, **30** are positioned at opposing sides of the tracks **20**, **30**. The first latitudinal sides **170** are guided by the wheels **190**, whereas an edge of the second track **30** is positioned between additional wheel portions **190**. It is envisioned that additional wheeled-rail assemblies **140** may be positioned at intermediate locations along each rail **20**, **30** to place tension upon each of the tracks **20**, **30** as they are motioned vertically. The configuration of each wheel **190** is biased in a forward direction. As each track **20**, **30** traverses the side door window opening **13**, the portion of the track **20**, **30** that is within the door panel **11** is guided by the wheeled-rail assemblies **140**, thereby maintaining each track **20**, **30** in a secure position. As each track **20**, **30** extends from the door panel **11**, it slidably inserts into ancillary guide portions of the vehicle's door panel **11** (see also FIG. **8**).

Referring now to FIGS. **1** and **5**, a perspective view of the system **10** installed into a vehicle **12**, and a front view of an

electro-mechanical actuator **40**, are disclosed. Each electro-mechanical actuator **40** comprises an electric motor **41** having a protruding worm gear **110** which acts to communicate a torque to the complimenting grooved channel **80**. Each electro-mechanical actuator **40** is affixed to interior portions of the door panel **11** via first bracket **42** and second fasteners **55***b*.

Each electro-mechanical actuator **40** is further placed into electrical communication with a control panel **200** located upon the vehicle's 12 door panel **11**, and with the 12-volt system of the vehicle **12** via interconnecting wiring **202**. The control panel **200** includes switches **204** preferably of a toggle-style-type electrical switch that sends an electrical signal to engage each electro-mechanical actuator **40** in a first direction, a second direction, or a neutral direction. When the electro-mechanical actuators **40** of a selected track **20**, **30** are activated in a first direction, the respective electro-mechanical actuators **40** rotate respective worm gear portions **110** to force the track **20**, **30** to traverse the side door window opening **13** in a rising motion. When activated in a second direction, the electro-mechanical actuators **40** rotate the worm gears **110** in an opposite direction to force a track **20**, **30** to traverse the side door window opening **13** in a lowering motion. When activated in a neutral direction, the electro-mechanical actuators **40** do not rotate the worm gears **110**, and the track **20**, **30** maintains its current position. It is further envisioned that each electro-mechanical actuator **40** and/or control panel **200** include mechanical or electronic means to prevent over-extension of each track **20**, **30** in either direction.

Referring now to FIG. **8**, a sectional view of the system **10** taken along section line A-A (see FIG. **1**), according to a preferred embodiment of the present invention, is disclosed. The system **10** is a unit that is integrated into an interior of a door panel **11** of a vehicle **12** so that the design of the door panel **11** incorporates the system **10**; however, it is understood that a skilled artisan may reconfigure an existing door panel **11** to facilitate a retrofitting of the system **10** into an existing vehicle **12** as well. The tracks **20**, **30** and included window pane **120** and screen panel **130** portions, may be raised or lowered within the framework **50** either concurrently or independently based upon a user's preference. The tracks **20**, **30** are shown here with the first track **20** in a lowered state within the door panel **11**, and the second track **30** illustrated in a raised position.

Referring now to FIG. **9**, an electrical block diagram of the system **10**, according to a preferred embodiment of the present invention, is disclosed. The system **10** is operated by a user via interface with a control panel **200** located upon an arm rest portion **14** of the vehicle **12**. The control panel **200** is envisioned to be integrated into the arm rest portion **14** of the vehicle **12** in combination with other conventional switches and control portions utilized by other sub-systems of the vehicle **12**. The control panel **200** includes interconnecting wiring **202**, a plurality of three-position switches **204**, and a microprocessor-based control module **206**.

The control module **206** preferably provides microprocessor-based operation of the system **10** being capable of processing input signals from the switches **204** and providing output power to the motors **41** in accordance with embedded software instructions; however, it is understood that a conventional hard-wired configuration of the control panel **200** may be used with equal benefit, and as such should not be interpreted as a limiting factor of the system **10**. The control module **206** provides a circuit board construction including components such as, but not limited to: microprocessors, relays, embedded software, and memory chips. The control module **206** receives electrical power from the vehicle's 12-volt system via common wiring **202** which is used to power a pair of spring-centered single-pole, double throw toggle switches **204** which energize the motors **41** to in turn motion of the tracks **20**, **30** in an independent manner in up and down directions. The switches **204** are envisioned to perform a similar function as a conventional automotive power window control switch. The switches **204** provide signals to the control module **206** which in turn powers the motor portions **41** of the electro-mechanical actuators **40** via respective relay-type components. Connection of the control module **206** to the vehicle's power source, switches **204**, and motors **41** is accomplished via common copper conductor wiring **202**. It is envisioned that the system **10** may be installed in at least one (1) door panel portion **11** of the vehicle **12**, and that additional units of the system **10** and respective control panels **200** may be installed in other door panel portions **11** of the vehicle **12** in like manner.

The preferred embodiment of the present invention can be utilized by the common user in a simple and effortless manner with little or no training. The system **10** is preferably integrated as a unit into an interior of a door panel **11** of a vehicle **12** so that the design of the door panel **11** incorporates the system **10** as indicated in FIG. **1**; however, it is understood that a skilled artisan may reconfigure a door panel portion **11** of an existing vehicle **12** to facilitate a retrofitting of the system **10** as well.

The method of utilizing the system **10** may be achieved by performing the following steps: acquiring a vehicle **12** equipped with at least one (1) unit of the system **10**; pressing the switch portions **204** of the control panel **200** in a similar manner as a conventional automotive power window control switch to motion each track **20**, **30**; allowing the tracks **20**, **30** to traverse a side door window opening **13** of the vehicle **12** concurrently or independently; and, benefiting from additional ventilating capabilities, afforded a user of the present invention **10**.

The method of retrofitting the system **10** within an existing vehicle **12** may be achieved by performing the following steps: installing a windowpane **120** in a first track **20** and a screen panel **130** in a second track **30**; installing a set of grooved channels **80** onto each framework **50** of each track **20**, **30** using the first **55***a* and second **55***b* fasteners; mounting electro-mechanical actuators **40** to an interior of a door panel **11** using the first brackets **42** and second fasteners **55***b*; installing the tracks **20**, **30** into the door panel **11**; adjusting a position of the electro-mechanical actuators **40** to ensure that the worm gear portion **110** of each mechanical actuator **40** engages the respective grooved channel **80**; affixing a plurality of wheeled-rail assemblies **140** to an interior of a door panel **11** using the second brackets **162** and corresponding third fasteners **55***c*; positioning the tracks **20**, **30** within the wheeled-rail assemblies **140**; adjusting a position of the wheeled-rail assemblies **140** to ensure proper contact of the wheeled-rail assemblies **140** with the latitudinal sides **170** of the tracks **20**, **30**; installing the control panel **200** into an armrest portion **14** of the vehicle **12**; connecting the control module portion **206** of the control panel **200** to the vehicle's 12-volt system using wiring **202**; connecting the control module portion **206** to the electro-mechanical actuators **40**; manipulating each track **20**, **30** concurrently or independently by pressing the switches **204** to activate the electro-mechanical actuators **40**; and, utilizing the system **10** to motion each track **20**, **30** to traverse a side door window opening **13**, as desired.

The foregoing descriptions of specific embodiments of the present invention have been presented for purposes of

illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed, and obviously many modifications and variations are possible in light of the above teaching. The embodiments were chosen and described in order to best explain the principles of the invention and its practical application, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.

What is claimed is:

1. A side window assembly, comprising:

a first track having a first framework comprised of two latitudinal and two longitudinal sides that form first outside side edges, a first outwardly facing surface, a second outwardly facing surface and an inner first U-shaped retention channel retaining a windowpane, said first framework configured to fit into a door panel;

an open-faced first grooved channel having semi-circular first grooves and a first flange attached to said first outwardly facing surface of said first framework;

a first electro-mechanical actuator having a first bracket and a first electric motor with an attached first worm gear engaged with said first grooves;

a first wheeled-rail assembly having a first rail with at least one spring loaded first wheel biased into contact with said second outwardly facing surface of said first framework to maintain engagement of said first grooves with said first worm gear;

a second track having a second framework comprised of two latitudinal and two longitudinal sides that form second outside side edges, a third outwardly facing surface, a fourth outwardly facing surface and an inner second U-shaped retention channel retaining a screen, said second framework configured to fit into the door panel;

an open-faced second grooved channel having semi-circular second grooves and a second flange attached to said third outwardly facing surface of said second track;

a second electro-mechanical actuator having a second bracket and a second electric motor with an attached second worm gear engaged with said second grooves; and,

a second wheeled-rail assembly having a second rail with at least one spring loaded second wheel biased into contact with said fourth outwardly facing surface of said second framework to maintain engagement of said second grooves with said second worm gear;

wherein said first bracket is for attaching said first electro-mechanical actuator to the interior of a door panel;

wherein said second bracket is for attaching said second electro-mechanical actuator to the interior of the door panel;

wherein, when said first electric motor rotates, said first worm gear applies a force on said first grooves which moves said first track and,

wherein, when said second electric motor rotates, said second worm gear applies a force on said second grooves which moves said second track.

2. The side window assembly according to claim **1**, wherein said first grooves complement said first worm gear.

3. The side window assembly according to claim **1**, wherein said first framework is configured to complement a door panel profile and to fit into a window opening.

4. The side window assembly according to claim **1**, wherein said first framework has a first aperture that passes from said first outwardly facing surface to said second outwardly facing surface, wherein said first grooved channel has a matching second aperture, and wherein said first framework is attached to said first grooved channel by a first threaded fastener.

5. The side window assembly according to claim **1**, wherein said first rail includes a first rail bracket configured to be affixed to the interior of the door panel such that said first framework is guided by said at least one spring loaded first wheel.

6. The side window assembly according to claim **5**, wherein said second rail includes a second rail bracket configured to be affixed to the interior of the door panel such that said second framework is guided by said at least one spring loaded second wheel.

7. The side window assembly according to claim **1**, further including a control panel in electrical communication with said first electric motor and with said second electric motor, said control panel further for being in electrical communication with electrical power of a vehicle, wherein said control panel comprises a first switching assembly to activate said first electric motor in a first direction and in a second direction.

8. The side window assembly according to claim **7**, wherein said switching assembly includes at least one three-position switch.

9. The side window assembly according to claim **8**, wherein when said first electric motor is activated in said first direction said first worm gear raises said first track.

10. The side window assembly according to claim **9**, wherein when said first electric motor is activated in said second direction said first worm gear lowers said first track.

11. The side window assembly according to claim **10**, wherein said control panel includes a microprocessor for controlling the application of electric power to said first electric motor.

12. The side window assembly according to claim **11**, wherein said control panel comprises a second switching assembly for activating said second electric motor in the first direction and in the second direction.

13. The side window assembly according to claim **12**, wherein said control panel can activate said first electric motor and said second electric motor in different directions.

14. A vehicle, comprising:

a door panel having an interior, a window opening, and an arm rest;

a vehicle battery;

a first track having a first framework comprised of two latitudinal and two longitudinal sides that form first outside side edges, a first outwardly facing surface, a second outwardly facing surface and an inner first U-shaped retention channel retaining a windowpane;

an open-faced first grooved channel having semi-circular first grooves and a first flange attached to said first outwardly facing surface of said first framework;

a first electro-mechanical actuator having a first bracket and a first electric motor with an attached first worm gear engaged with said first grooves, said first electro-mechanical actuator attached to said interior by said first bracket;

a first wheeled-rail assembly having a first rail with at least one spring loaded first wheel biased into contact with said second outwardly facing surface of said first framework to maintain engagement of said first grooves with said first worm gear;

a second track having a second framework comprised of two latitudinal and two longitudinal sides that form second outside side edges, a third outwardly facing

surface, a fourth outwardly facing surface and an inner second U-shaped retention channel retaining a screen;

an open-faced second grooved channel having semi-circular second grooves and a second flange attached to said third outwardly facing surface of said second track; and,

a second electro-mechanical actuator having a second bracket and a second electric motor with an attached second worm gear engaged with said second grooves, said second electro-mechanical actuator attached to said interior by said second bracket;

a second wheeled-rail assembly having a second rail with at least one spring loaded second wheel biased into contact with said fourth outwardly facing surface of said second framework to maintain engagement of said second grooves with said second worm gear;

wherein, when said first electric motor rotates, said first worm gear applies a force on said first grooves which moves said first track within said window opening; and,

wherein, when said second electric motor rotates, said second worm gear applies a force on said second grooves which moves said second track within said window opening.

15. The vehicle according to claim **14**, wherein said windowpane is configured to complement the door panel and to fit into a window opening.

16. The side window assembly according to claim **15**, wherein said first framework has a first aperture that passes from said first outwardly facing surface to said second outwardly facing surface, wherein said first grooved channel has a matching second aperture, and wherein said first framework is attached to said first grooved channel by a first threaded fastener.

17. The vehicle according to claim **14**, further including a control panel in said arm rest, said control panel in electrical communication with said first electric motor, with said second electric motor, and with said vehicle battery, wherein said control panel comprises a first switching assembly to activate said first electric motor in a first direction and in a second direction and a second switching assembly to activate said second electric motor in the first direction and in the second direction.

18. The side window assembly according to claim **17**, wherein said control panel can activate said first electric motor and said second electric motor in different directions.

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