

CPC**COOPERATIVE PATENT CLASSIFICATION****E05F****DEVICES FOR MOVING WINGS INTO OPEN OR CLOSED POSITION; CHECKS FOR WINGS; WING FITTINGS NOT OTHERWISE PROVIDED FOR, CONCERNED WITH THE FUNCTIONING OF THE WING****NOTE**

In this subclass, the following terms are used with the meanings indicated:

- "closer" or "opener" includes devices for assisting wing-movement or for wing-counterbalancing.

E05F 1/00**Closers or openers for wings, not otherwise provided for in this subclass**

- E05F 1/002 . {controlled by automatically acting means (for powered-operated mechanisms [E05F 15/20](#))}
- E05F 1/004 .. {by thermostats, rain, wind or noise ([E05F 1/006](#) takes precedence)}
- E05F 1/006 .. {by emergency conditions, e.g. fire (operating or controlling mechanisms for physical fire-barriers [A62C 2/24](#))}
- E05F 1/008 .. {by time control}

- E05F 1/02 . gravity-actuated, {e.g. by use of counterweights}
- E05F 1/025 .. {with rectilinearly-moving counterweights}
- E05F 1/04 .. for wings which lift during movement, {operated by their own weight}
- E05F 1/043 ... {with cams, helical tracks ([E05F 1/061](#) takes precedence)}
- E05F 1/046 ... {with rectilinearly-inclined tracks for sliding wings}
- E05F 1/06 ... Mechanisms in the shape of hinges or pivots, operated by the weight of the wing
- E05F 1/061 {with cams or helical tracks}
- E05F 1/063 {with complementary, substantially identical and slidingly cooperating cam surfaces ([E05F 1/066](#) takes precedence)}
- E05F 1/065 {Cam-and-wheel arrangements}
- E05F 1/066 {Helical grooves, slots, threads or the like}
- E05F 1/068 {with inclined pivot-axes}

- E05F 1/08 . spring-actuated, {e.g. for horizontally sliding wings (counterbalancing sliding or lifting wings [E05D](#); springs per se [F16F](#), e.g. gas-springs [F16F 9/00](#))}
- E05F 1/10 .. for swinging wings, {e.g. counterbalance (spring-assisted actuation of lids or covers of refuse receptacles [B65F 1/1623](#))}
- E05F 1/1008 ... {with a coil spring parallel with the pivot axis ([E05F 1/1207](#) takes precedence)}
- E05F 1/1016 {with a canted-coil torsion spring}
- E05F 1/1025 {with a compression or traction spring}
- E05F 1/1033 ... {with a torsion bar ([E05F 1/123](#) takes precedence)}

E05F 1/1041	...	{with a coil spring perpendicular to the pivot axis (E05F 1/1246 takes precedence)}
E05F 1/105	....	{with a compression spring}
E05F 1/1058	.....	{for counterbalancing}
E05F 1/1066	....	{with a traction spring}
E05F 1/1075	.....	{for counterbalancing}
E05F 1/1083	...	{with a leaf or similar spring (E05F 1/1284 takes precedence)}
E05F 1/1091	...	{with a gas spring (E05F 1/1292 takes precedence)}
E05F 1/12	...	Mechanisms in the shape of hinges or pivots, operated by springs { for hinges with two or more pins E05D 3/06 }
E05F 1/1207	....	{with a coil spring parallel with the pivot axis}
E05F 1/1215	.....	{with a canted-coil torsion spring}
E05F 1/1223	.....	{with a compression or traction spring}
E05F 1/123	....	{with a torsion bar}
E05F 1/1238	.....	{specially adapted for vehicles}
E05F 1/1246	....	{with a coil spring perpendicular to the pivot axis}
E05F 1/1253	.....	{with a compression spring}
E05F 1/1261	.....	{for counterbalancing}
E05F 1/1269	.....	{with a traction spring}
E05F 1/1276	.....	{for counterbalancing}
E05F 1/1284	....	{with a leaf or similar spring}
E05F 1/1292	....	{with a gas spring}
E05F 1/14	...	with double-acting springs, e.g. for closing and opening or checking and closing {no material}
E05F 1/16	..	for sliding wings
E05F 3/00		Closers or openers with braking devices, e.g. checks; Construction of pneumatic or liquid braking devices (construction of non-pneumatic or non-liquid braking devices E05F 5/00 ; friction devices in hinges E05D 11/08)
E05F 3/02	.	with pneumatic piston brakes (rotary type E05F 3/14)
E05F 3/04	.	with liquid piston brakes (rotary type E05F 3/14)
E05F 3/06	..	in which a torsion spring rotates a member around an axis perpendicular to the axis of the piston
E05F 3/08	..	in which a torsion spring rotates a member around an axis arranged in the direction of the axis of the piston
E05F 3/10	..	with a spring, other than a torsion spring, and a piston, the axes of which are the same or lie in the same direction
E05F 3/102	...	{with rack-and-pinion transmission between driving shaft and piston within the closer housing}
E05F 3/104	...	{with cam-and-slide transmission between driving shaft and piston within the closer housing}

- E05F 3/106 . . . {with crank-arm transmission between driving shaft and piston within the closer housing}
- E05F 3/108 . . . {with piston rod protruding from the closer housing; Telescoping closers}
- E05F 3/12 . . . Special devices controlling the circulation of the liquid, e.g. valve arrangement ({E05F 3/223 takes precedence}; valves per se F16K)
- E05F 3/14 . with fluid brakes of the rotary type
- E05F 3/16 . with friction brakes
- E05F 3/18 . with counteracting springs (double-acting springs E05F 1/14)
- E05F 3/20 . in hinges
- E05F 3/22 . Additional arrangements for closers, e.g. for holding the wing in opened or other position
- E05F 3/221 . . {Mechanical power-locks, e.g. for holding the wing open or for free-moving zones}
- E05F 3/222 . . . { electrically operated (E05F 3/223 takes precedence)}
- E05F 3/223 . . { Hydraulic power-locks, e.g. with electrically operated hydraulic valves}
- E05F 3/224 . . {for assisting in opening the wing}
- E05F 3/225 . . { mounted at the bottom of wings, e.g. details related to seals, covers, connections to the wings, embedding in the floor}
- E05F 3/226 . . . { with means to adjust the closed position of the wing}
- E05F 3/227 . . { mounted at the top of wings, e.g. details related to closer housings, covers, end caps or rails therefor}
- E05F 2003/228 . . {Arrangements where the end of the closer arm is sliding in a track }

- E05F 5/00** **Braking devices, e.g. checks; Stops; Buffers; {Dovetails with buffering action};**
(construction of pneumatic or liquid braking devices E05F 3/00; combined with devices for holding wings open E05C 17/00; devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing E05C 17/04)
- E05F 5/003 . {for sliding wings (E05D 13/04 takes precedence)}
- E05F 5/006 . { for hinges having a cup-shaped fixing part, e.g. for attachment to cabinets or furniture}
- E05F 5/02 . specially for preventing the slamming of {swinging} wings {during final closing movement, e.g. jamb stops}
- E05F 5/022 . . {specially adapted for vehicles, e.g. for hoods or trunks}
- E05F 5/025 . . . {specially adapted for vehicle doors}
- E05F 5/027 . . {with closing action}
- E05F 5/04 . . hand-operated, {e.g. removable}; operated by centrifugal action {or by high closing speed}
- E05F 2005/043 . . . {operated by centrifugal action at high closing speed }
- E05F 2005/046 . . . {hand operated }

- E05F 5/06 . Buffers {or stops limiting opening of swinging wings, e.g. floor or wall stops}(E05F 5/02 takes precedence)
- E05F 5/08 . . with springs
- E05F 5/10 . . with piston brakes
- E05F 5/12 . specially for preventing the closing of a wing before another wing has been closed
- E05F 7/00** **Miscellaneous accessories for wings** (specially adapted for furniture [A47B 95/00](#); door-lifters [B66F](#), [E04F 21/00](#); knobs or handles [E05B](#))
- E05F 7/005 . {Aligning devices for wings}
- E05F 7/02 . for raising wings before being turned {before sliding [E05D 15/565](#)}
- E05F 7/04 . Arrangements affording protection against rattling (with buffering action [E05F 5/00](#))
- E05F 7/06 . Devices for taking the weight of the wing, arranged away from the hinge axis
- E05F 7/08 . Special means for transmitting movements between vertical and horizontal sliding bars, rods, or cables {(E05D 15/5208 takes precedence)}
- Guidance heading:** **Operating mechanisms for wings** (for safeguarding bank teller windows [E05G 5/00](#); for interconnected louvres [E06B 7/086](#); for blinds or roll-type closures [E06B 9/00](#))
- E05F 9/00** **Means for operating wings by hand rods not guided in or on the frame, including those which also operate the fastening** (bolts or fastening devices for wings [E05C](#))
- E05F 11/00** **Man-operated mechanisms for operating wings, including those which also operate the fastening** (connecting mechanisms for a plurality of wings [E05F 17/00](#))
- E05F 11/02 . for wings in general, e.g. fanlights ([E05F 11/36](#) takes precedence; for windows to be lowered vertically [E05F 11/38](#); for doors [E05F 11/54](#))
- E05F 11/04 . . with cords, chains or cables
- E05F 11/06 . . . in guide-channels
- E05F 11/08 . . with longitudinally-moving bars guided, e.g. by pivoted links, in or on the frame
- E05F 11/10 . . . Mechanisms by which a handle moves the bar
- E05F 11/12 . . . Mechanisms by which the bar shifts the wing
- E05F 11/14 directly, i.e. without links, shifting the wing, e.g. by rack and gear or pin and slot
- E05F 11/145 {by pin and slot}
- E05F 11/16 shifting the wing by pivotally-connected members {(moving) in a plane perpendicular to the pivot axis of the wing}
- E05F 11/18 consisting of a lever, e.g. an angle lever, only {no material}

E05F 11/20	.....	consisting of a lever, e.g. an angle lever, and only one additional link {no material}
E05F 11/22	.....	consisting of a lever, e.g. an angle lever, and tow or more additional links in series {no material}
E05F 11/24	....	shifing the wing by pivotally-connected members {(moving) in a plane parallel to the pivot axis of the wing}
E05F 11/26	.....	consisting of a lever, e.g. an angle lever, only {no material}
E05F 11/28	.....	consisting of a lever, e.g. an angle lever, and one or more additional links {no material}
E05F 11/30	.....	consisting of links in rhomb-form {no material}
E05F 11/32	..	with rotary bars guided in the frame (E05F 11/34 takes precedence)
E05F 11/34	..	with screw mechanisms
E05F 11/36	.	specially designed for passing through a wall
E05F 11/38	.	for sliding windows, e.g. vehicle windows, to be opened or closed by vertical movement
E05F 11/382	..	{for vehicle windows (E05F 11/40 to E05F 11/52 take precedence)}
E05F 11/385	...	{Fixing of window glass to the carrier of the operating mechanism}
E05F 2011/387	....	{using arrangements in the window glass, e.g. holes }
E05F 11/40	..	operated by screw mechanism
E05F 11/405	...	{for vehicle windows}
E05F 11/42	..	operated by rack bars and toothed wheels {or other push-pull mechanisms}
E05F 11/423	...	{for vehicle windows}
E05F 11/426	....	{Flexible rack-and-pinion arrangements}
E05F 11/44	..	operated by one or more lifting arms
E05F 11/445	...	{for vehicle windows}
E05F 11/46	..	operated by lazy-tong mechanism
E05F 11/465	...	{for vehicle windows}
E05F 11/48	..	operated by cords or chains {or other flexible elongated pulling elements, e.g. tapes}
E05F 11/481	...	{for vehicle windows}
E05F 11/483	....	{by cables}
E05F 11/485	.....	{with cable tensioners}
E05F 11/486	.....	{with one cable connection to the window glass}
E05F 11/488	.....	{with two cable connections to the window glass}
E05F 11/50	..	Crank gear with clutches or retaining brakes, for operating window mechanisms
E05F 11/505	...	{for vehicle windows}
E05F 11/52	..	combined with means for producing an additional movement, e.g. a horizontal or a rotary movement
E05F 11/525	...	{for vehicle windows}

- E05F 11/53 . for sliding windows, e.g. vehicle windows, to be opened or closed by horizontal movement
- E05F 11/535 .. {for vehicle windows}
- E05F 11/54 . for doors
- E05F 13/00** **Mechanisms operated by the movement or weight of a person or vehicle** (through power-operated wing-operating mechanisms [E05F 15/00](#))
- E05F 13/02 . by devices, e.g. lever arms, affected by the movement of the user
- E05F 13/04 . by platforms lowered by the weight of the user
- E05F 15/00** **Power-operated mechanisms for wings** {{for hatch covers [B63B 19/14](#); for elevator doors [B66B 13/00](#); motor-operated devices for completing closing or initiating opening of a wing [E05B 17/0029](#); limit switches [H01H 3/16](#)}}
- E05F 15/0004 . {Safety devices, e.g. safety couplings, detection of obstructions or end position ([E05F 15/20](#) takes precedence); anti-dropping devices [E05D 13/003](#); by current overload [H02H 7/0851](#)}
- E05F 15/0008 .. {specially adapted for vehicle windows or roofs ([E05F 15/0013](#) to [E05F 15/0095](#) take precedence)}
- E05F 15/0013 .. {specially adapted for mass transit vehicles ([E05F 15/0017](#) to [E05F 15/0095](#) take precedence)}
- E05F 15/0017 .. { Detection by means of monitoring transmitted force or torque ([E05F 15/0082](#), [E05F 15/0095](#) take precedence); Safety, e.g. slip, couplings}
- E05F 15/0021 .. {Detection using safety edges}
- E05F 15/0026 ... {by disruption of energy beams, e.g. light, sound}
- E05F 15/003 {specially adapted for vehicle windows or roofs}
- E05F 15/0034 {with acoustical sensors }
- E05F 15/0039 {using reflection from the obstruction }
- E05F 15/0043 {with optical sensors }
- E05F 15/0047 {by interruption of the beam }
- E05F 15/0052 {the beam being parallel to the wing edge }
- E05F 15/0056 {the beam being perpendicular to the wing edge }
- E05F 15/006 ... {by change in electrical conductivity}
- E05F 15/0065 {specially adapted for vehicle windows or roofs}
- E05F 15/0069 {using switches in serial arrangement }
- E05F 15/0073 ... {by change in electrical capacity}
- E05F 15/0078 ... {by change in fluid pressure}
- E05F 15/0082 ... {by transmission of mechanical forces, e.g. rigid, movable members}
- E05F 15/0086 ... {for detection during opening }
- E05F 15/0091 ... {Fault detection of safety edges }

- E05F 15/0095 .. {specially adapted for pressure medium-operated mechanisms for wings, e.g. detection by means of monitoring transmitted fluid pressure ([E05F B15/00B6H](#) takes precedence)}
- E05F 15/02 . with pressure medium
- E05F 15/025 .. {for folding wings}
- E05F 15/04 .. for swinging wings
- E05F 15/042 ... {specially adapted for use in vehicles}
- E05F 15/045 {for railway-cars or mass transit vehicles}
- E05F 15/047 ... {operated by linear motors acting on a helical track coaxial with the suringing axis}
- E05F 15/06 .. for horizontally-sliding wings
- E05F 15/065 ... {for railway-cars}
- E05F 15/08 .. for vertically-sliding wings
- E05F 15/083 ... {for overhead wings}
- E05F 15/086 ... {for vehicle windows}
- E05F 15/10 . with rotary electromotors {(detection of end position by striking, safety couplings [E05F 15/0017](#))}
- E05F 15/103 .. {for folding wings}
- E05F 15/106 .. {for revolving wings}
- E05F 15/12 .. for swinging wings
- E05F 15/121 ... {operated by meshing gear wheels, one of which being mounted at the wing pivot axis; the motor acting directly on the wing pivot axis}
- E05F 15/122 ... {operated by push-pull mechanisms}
- E05F 15/123 {by flexible or rigid rack-and-pinion arrangements}
- E05F 15/124 {by screw-nut mechanisms}
- E05F 15/125 {by friction wheels}
- E05F 15/126 ... {operated by flexible elongated pulling elements, e.g. belts, chains}
- E05F 15/127 ... {operated by swinging arms}
- E05F 2015/128 {the end of the arm sliding in a track; Slider arms therefor }
- E05F 15/14 .. for horizontally-sliding wings
- E05F 15/141 ... {for railway-cars}
- E05F 15/142 ... {operated by push-pull mechanisms, e.g. friction wheels, flexible or rigid rack-and-pinion arrangements ([E05F 15/141](#), [E05F 15/147](#), [E05F 15/148](#) take precedence)}
- E05F 15/143 {allowing or involving an additional movement of the wing}
- E05F 15/145 ... {operated by flexible elongated pulling elements, e.g. belts, chains ([E05F 15/141](#) takes precedence)}
- E05F 15/146 {allowing or involving an additional movement}
- E05F 15/147 ... {operated by swinging arms ([E05F 15/141](#) takes precedence)}
- E05F 15/148 ... {operated by screw mechanisms ([E05F 15/141](#) takes precedence)}
- E05F 15/16 .. for vertically-sliding wings

E05F 15/1607	...	{for overhead wings}
E05F 15/1615	....	{operated by flexible or rigid rack-and-pinion arrangements}
E05F 15/1623	....	{operated by screw mechanisms}
E05F 15/163	....	{operated by friction wheels}
E05F 15/1638	....	{operated by swinging lever arms}
E05F 15/1646	....	{operated by flexible elongated pulling elements, e.g. belts (E05F 15/1615 takes precedence)}
E05F 15/1653	.....	{by chains}
E05F 15/1661	.....	{by cables or ropes}
E05F 15/1669	...	{for vehicle windows}
E05F 15/1676	....	{enabling manual drive, e.g. in case of power failure}
E05F 15/1684	....	{Control circuits therefor}
E05F 15/1692	....	{Specially adapted motor units, e.g. geared motors}
E05F 15/18	.	with other electrical means, e.g. solenoids {or linear motors}
E05F 15/20	.	controlled by automatically-acting means, e.g. by photocells, by electric waves, by thermostats, by rain, by fire, {by remote or time control}
E05F 15/2007	..	{by thermostats, rain, wind or noise (E05F 15/2015 takes precedence)}
E05F 15/2015	..	{by emergency conditions, e.g. fire (operating or controlling mechanisms for physical fire-barriers A62C 2/24 ; locks actuating in response to heat E05B 65/104)}
E05F 15/2023	..	{by detection of movement or presence of persons or objects}
E05F 15/203	...	{with photocells}
E05F 15/2038	...	{by the weight or other physical contact of a person or object}
E05F 15/2046	...	{reacting to a device carried by a person or object, e.g. a magnet or reflector (E05F 15/2076 takes precedence)}
E05F 15/2053	...	{with acoustical sensors }
E05F 15/2061	...	{with optical sensors (photocells E05F 15/203)}
E05F 15/2069	...	{using camera's }
E05F 15/2076	..	{by remote wireless control}
E05F 15/2084	...	{with light beams}
E05F 15/2092	..	{by time control}
E05F 17/00		Special devices for shifting a plurality of wings operated simultaneously (for simultaneously moving a plurality of interconnected ventilating lamellae E06B 7/086)
E05F 17/001	.	{of prison cell doors}
E05F 17/002	.	{for wings which lie one behind the other when closed}
E05F 17/004	.	{for wings which abut when closed}
E05F 17/005	.	{for sliding wings }
E05F 17/007	..	{with means for interlocking the wings }

E05F 2017/008 . {for swinging wings }

E05F 2700/00 Operating mechanisms for sliding windows

E05F 2700/02 . Devices for moving and locking sliding windows

E05F 2700/04 . Devices for blocking sliding windows in general