

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 two or more additional links in series {no material}
 - E05F 11/24 shifting 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 2015/0034	....	{with acoustical sensors }
E05F 2015/0039	.....	{using reflection from the obstruction }
E05F 2015/0043	....	{with optical sensors }
E05F 2015/0047	.....	{by interruption of the beam }
E05F 2015/0052	.....	{the beam being parallel to the wing edge }
E05F 2015/0056	.....	{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 2015/0069	....	{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 2015/0086	...	{for detection during opening }
E05F 2015/0091	...	{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 (E05FB15/00B6H 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 2015/2053	...	{with acoustical sensors }
E05F 2015/2061	...	{with optical sensors (photocells E05F 15/203)}
E05F 2015/2069	...	{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 2017/005 . {for sliding wings }

E05F 2017/007 . . {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