

G05G

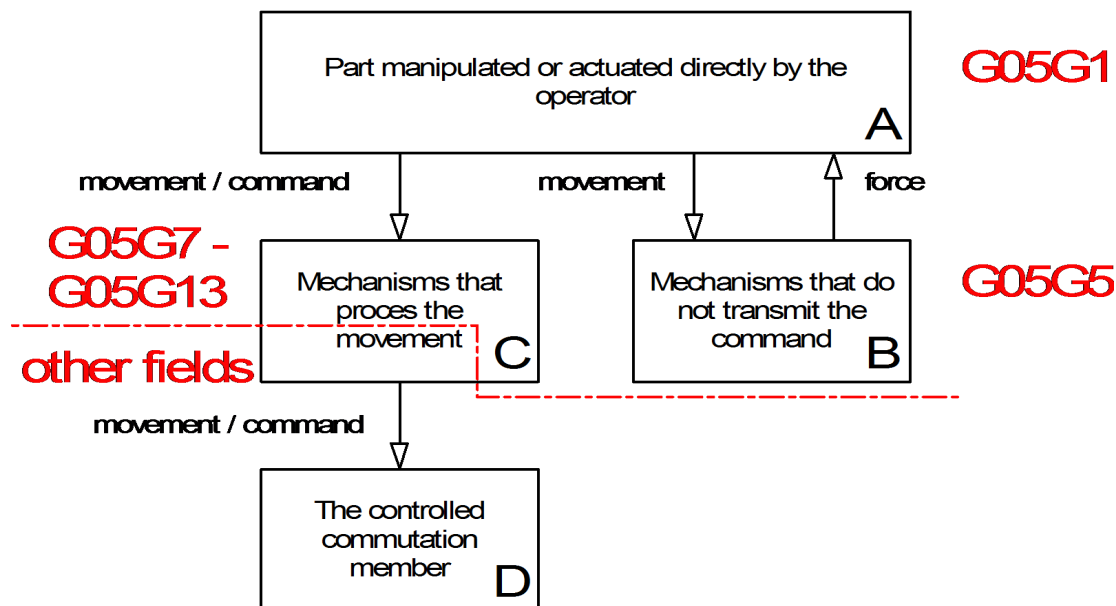
CONTROL DEVICES OR SYSTEMS INSOFAR AS CHARACTERISED BY MECHANICAL FEATURES ONLY ("Bowden" or like mechanisms [F16C 1/10](#); gearings or mechanisms not peculiar to this purpose [F16H](#); speed changing or reversing mechanisms for gearings conveying rotary motion [F16H 59/00](#) - [F16H 63/00](#))

Definition statement

This place covers:

Operator control devices (e.g. knobs, buttons, levers, joysticks or pedals) or systems insofar as characterised by mechanical features only, i.e. the element which the operator is manipulating or actuating, to generate control commands.

The following model describes the operator control device:



A) an operator actuated part (the part coming in contact with the human body to receive a command)

B) mechanisms that do not transmit the command (e.g. ratchet mechanisms, mechanisms with hysteresis, return spring mechanisms)

C) command treating mechanisms (i.e. mechanical systems aimed at transmitting, amplifying, converting or delaying the command received)

D) a commutation part (aimed at performing the final operation, e.g. electric contact being actuated).

If the invention is concerned with A or B, it is classified in respectively [G05G 1/00](#) or [G05G 5/00](#).

If the invention is concerned with C, and the mechanism is a mechanism in which:

1. the ratio of motion or force between the controlling member and the controlled member is altered (e.g. US 2009/0095100 with brake pedal, which includes a mechanism capable of varying a ratio between an output amount of a push rod connected to a master cylinder and an operation amount of the brake pedal),

2. repeated movement of the controlling member produces increments of movement of the controlled member (e.g. US4311060 a parking brake in which, when the brake handle is pulled up, the brake cable is wound around a rotating member. By repeating the above operation of the brake handle, the rotating member is intermittently rotated until necessary length of the brake cable is wound up to effect firm locking of the parking brake), or

3. repeated movement of the controlling member moves the controlled member through a cycle of distinct positions (e.g. US3187602; push button wherein a contact is switched on or off by repeated pushing),

it is classified in groups [G05G 7/00](#) - [G05G 13/00](#)

If the invention is concerned with C, and it is not one of the mechanisms under point 1 - 3 above, it is classified in other fields, e.g. [H01H](#), [B60K 37/00](#), [F16H 59/00](#) - [F16H 63/00](#), [G06F 3/00](#), [B62K](#), [F24C](#), etc.

If the invention is concerned with D, it is classified in other fields, e.g. [H01H](#), [B60K 37/00](#), [F16H 59/00](#) - [F16H 63/00](#), [G06F 3/00](#), [B62K](#), [F24C](#), etc.

References

Limiting references

This place does not cover:

Means for transmitting linear movement in a flexible sheathing, e.g. "Bowden mechanisms"	F16C 1/10
Adjustable cranks or eccentrics	F16C 3/28
Gearings or mechanisms not intended for mechanical control	F16H
Speed changing or reversing mechanisms for gearings conveying rotary motion	F16H 59/00 , F16H 61/00 , F16H 63/00

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Controls for adjusting operating tables	A61G 13/02
Controls for adjusting operating chairs	A61G 15/02
Accessories for games using an electronically generated display	A63F 13/98
Manipulators or controls therefor	B25J
Arrangement or mounting of change speed gearing control devices in vehicles	B60K 20/00
Arrangement or mounting of propulsion-unit control devices in vehicles	B60K 26/00
Vehicle brake-action initiating means	B60T 7/00
Adaptations of control devices for movable vehicle cabs	B62D 33/073
Cycle steering devices	B62K 21/00
Rider operated controls for cycles	B62K 23/00
Brake actuating means for cycles	B62L 3/00
Marine steering initiating means	B63H 25/02
Controls for elevators	B66B 1/00
Control systems or devices for cranes	B66C 13/18

Arrangements of handles or pedals for crane operation	B66C 13/56
Control devices for dredging or soil-shifting machines	E02F 9/20
Automatic clutches	F16D 43/00
Control for valves	F16K 31/00 , F16K 33/00
Safety devices acting in conjunction with the control or operation of a machine	F16P 3/00
Stopping machines on occurrence of dangerous conditions	F16P 7/02
Micromanipulators structurally combined with microscopes	G02B 21/32
Driving mechanisms in clocks or watches	G04B
Digital computers in which all the computation is effected mechanically	G06C
Manual computer input arrangements	G06F 3/02
Converting a pattern of mechanical signals into electric signals	G06K 11/00
Displacement of solid control elements in nuclear reactors	G21C 7/08
Mechanisms for operating switch contacts	H01H
Mechanical control of resonant circuits	H03J 1/00

Special rules of classification

Command treating mechanisms, i.e. mechanical systems aimed at transmitting, amplifying, converting or delaying the command received are considered as part of the related application and will be classified in the application place.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Controlling member	Knob, handle, lever, disc, wheel, joystick, pedal, etc. , and consists of: Part manipulated or actuated directly by the operator (part A in the model of the operator control device), and the mechanism that does not transmit a command (part B in the model of the operator control device), and the mechanism that processes the movement (part C in the model of the operator control device) from the operator actuated part to the controlled member.
Controlled member	The controlled commutation member (part D in the model of the operator control device), e.g. electric switch, sensor, valve or gear shifter yoke.
Control mechanism	Mechanism that is the mechanism that processes the movement (part C in the model of the operator control device) from the operator actuated part to the controlled member, and / or the mechanism that does not transmit a command (part B in the model of the operator control device).

The documentation of [G05G](#) is in a process of reorganisation. Some of the informative references might change after the reorganisation of the documentation of [G05G](#).

G05G 1/00

Controlling members, e.g. knobs or handles; Assemblies or arrangements thereof; Indicating position of controlling members ({means for preventing, limiting or returning the movements of parts of a control mechanism [G05G 5/00](#); providing feel, e.g. means to create a counterforce [G05G 5/03](#); specially adapted for programme control [G05G 21/00](#); vibration damping [G05G 25/02](#);} joysticks [G05G 9/04](#); steering wheels for motor vehicles [B62D](#))

Definition statement

This place covers:

- Parts actuated or manipulated directly by the operator, e.g. knobs, handles or pedals
- Arrangements of the control parts, e.g. arrangements of two or more controlling members with respect to one another
- Indication of the position of a control member actuated by the operator

References

Limiting references

This place does not cover:

Means for preventing, limiting or returning the movements of parts of a control mechanism	G05G 5/00
Providing feel, e.g. means to create a counterforce	G05G 5/03
Vibration damping	G05G 25/02

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Steering wheels for motor vehicles	B62D
Control mechanisms, e.g. control levers for dredgers or soil-shifting machines	E02F 9/2004

Informative references

Attention is drawn to the following places, which may be of interest for search:

Joysticks in general	G05G 9/047
Specially for programme control	G05G 21/00

G05G 1/01

Arrangements of two or more controlling members with respect to one another (double foot control, e.g. for instruction vehicles [G05G 1/34](#); mounting units comprising an assembly with two or more pedals [G05G 1/36](#))

References

Limiting references

This place does not cover:

Double foot control, e.g. for instruction vehicles	G05G 1/34
Mounting units comprising an assembly with two or more pedals	G05G 1/36

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements of handles or pedals in operator's stands or cabins for cranes;	B66C 13/56
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G05G 1/04

Controlling members for hand actuation by pivoting movement, e.g. levers

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements or adaptations of levers for optical signalling or lighting devices for vehicles, e.g. steering column stalk switches	B60Q 1/1469
Brake-action initiating means with a tilting lever	B60T 7/102
Hand actuated levers for rider-operated controls specially adapted for cycles	B62K 23/06
Hand levers for brake-actuating mechanisms specially adapted for cycles	B62L 3/02
Levers or the like for controlling the engine or the transmission specially adapted for propulsion power plant or units on vessels	B63H 21/213

G05G 1/06

Details of their grip parts {([G05G 1/10](#) takes precedence)}

Definition statement

This place covers:

Grip parts of handles, levers or joysticks

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Additional switches or sensors on joysticks	G05G 2009/04774
Handles for tools	B25G 1/00
Constructional features of the selector lever, e.g. grip parts, mounting or manufacturing details thereof	F16H 59/0278

G05G 1/08

Controlling members for hand actuation by rotary movement, e.g. hand wheels

References

Limiting references

This place does not cover:

Steering wheels for motor vehicles	B62D 1/04
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Control members, e.g. levers or knobs, for heating, cooling or ventilating in vehicles	B60H 1/0065
Arrangement of fittings of control means on dashboards, e.g. control knobs	B60K 37/06
Hand wheels for steering vehicles	B62D 1/04
Control panels of stoves or ranges heated by electrical energy	F24C 7/082
Adjustable resistors	H01C 10/00
Mechanisms with turn knobs for operating contacts	H01H 3/08
Using separate operating parts, e.g. a push button surrounded by a rotating knob	H01H 25/065

G05G 1/085

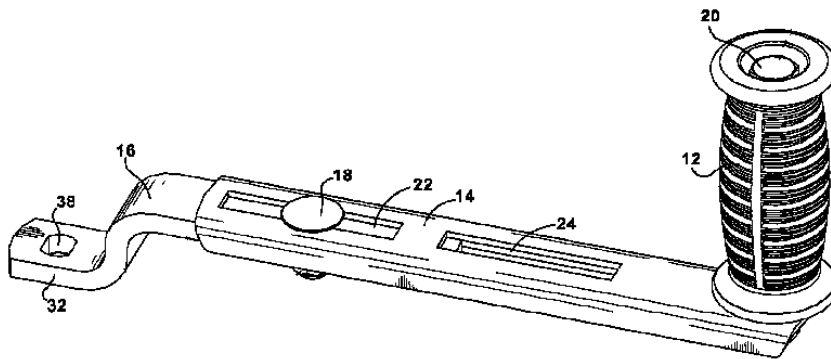
{Crank handles ([G05G 1/082](#) takes precedence)}

Definition statement

This place covers:

Crank levers, foldable cranks with pivots

Example drawing form US2010263476:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Construction of cranks operated by hand or foot	B62M 3/00
Operating screening or protective devices for wall or similar openings in buildings with crank handles	E06B 9/76

G05G 1/087

{retractable; Flush control knobs}

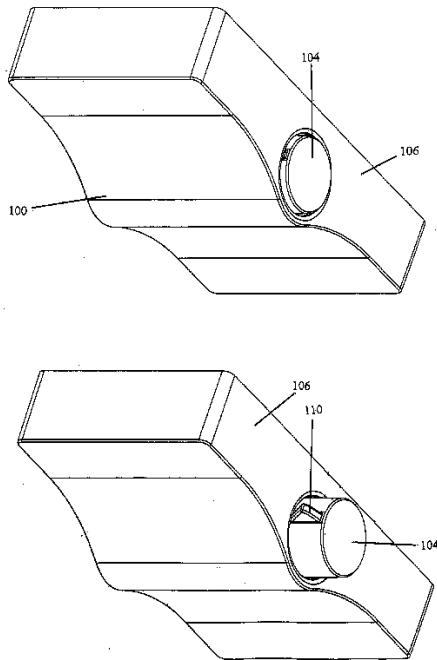
Definition statement

This place covers:

Rotable control knobs which can be flush mounted in an opening of the control panel. The control member can be extended into a working position or being pushed into a non-working position.

Means for locking the control member in the non-working position.

Example drawing form WO2010038033:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Mechanisms for selecting, projecting, retracting or locking writing units operated by push-buttons, e.g. mechanisms for ballpoint pens	B43K 24/086
Retractable turn knobs for operating switches	H01H 2003/085
Switches making use of a heart shaped cam	H01H 13/562
Switches where the operating part is movable both, angularly and rectilinearly, the rectilinear movement being along the axis of angular movement;	H01H 25/06

G05G 1/105

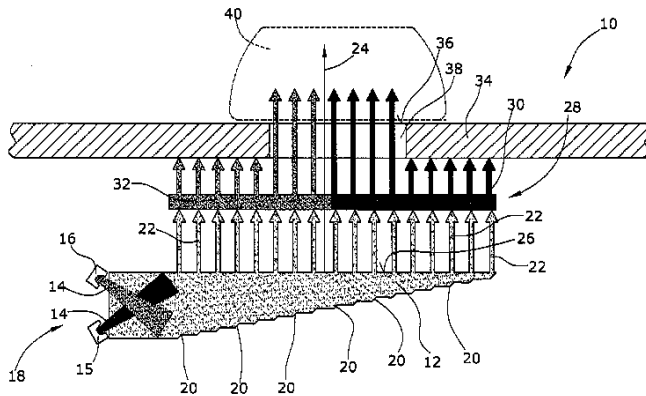
{comprising arrangements for illumination}

Definition statement

This place covers:

Control members using light sources for illumination and often also for indicating position of control member.

Example document DE102008064283 uses two light sources (15, 16) and colour filters for indicating position:



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Illumination of the symbols or distinguishing marks for switches	H01H 9/182
Light-emitting indicators for switches	H01H 19/025

G05G 1/12

Means for securing the members on rotatable spindles or the like

Definition statement

This place covers:

Means for fixing the control member (e.g. knob) on the shaft of the control mechanisms

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Couplings for attaching a member on a shaft end	F16D 1/06
Means for securing turn knobs to a shaft of a mechanism for operating switches	H01H 3/10

G05G 1/30

Controlling members actuated by foot

Definition statement

This place covers:

All control members actuated by foot, e.g. pedals

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements or mounting of propulsion unit control devices in vehicles, e.g. accelerator pedals	B60K 26/02
Brake-action initiating means with locking or release means, e.g. providing parking brake application	B60T 7/045
Disposition of foot actuated brake initiating means	B60T 7/06
Cranks operated by foot power for rider propulsion of wheeled vehicles	B62M 3/08
Arrangements for, or adaptations to engine control initiation means, e.g. electric pedals	F02D 11/02
Control inputs for transmission control depending on the position of the accelerator pedal, e.g. kickdown signal	F16H 59/20

G05G 1/32

with means to prevent injury

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements or fittings on vehicles movable from an operative to an out-of-the way position for preventing injuries	B60R 21/09
Arrangements of brake-action initiating means, e.g. disposition of brake pedal with means to prevent injuries in case of collision	B60T 7/065

G05G 1/34

Double foot controls, e.g. for instruction vehicles

Definition statement

This place covers:

Control means with a second control input (pedal) for controlling the same function. A typical example is an additional brake and accelerator pedal for teaching in an instruction vehicle.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Alternative steering-control elements, e.g. for teaching purposes;	B62D 1/22
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G05G 1/38

comprising means to continuously detect pedal position

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Apparatus for, or methods of, measuring force to foot actuated controls, e.g. brake pedals	G01L 5/225
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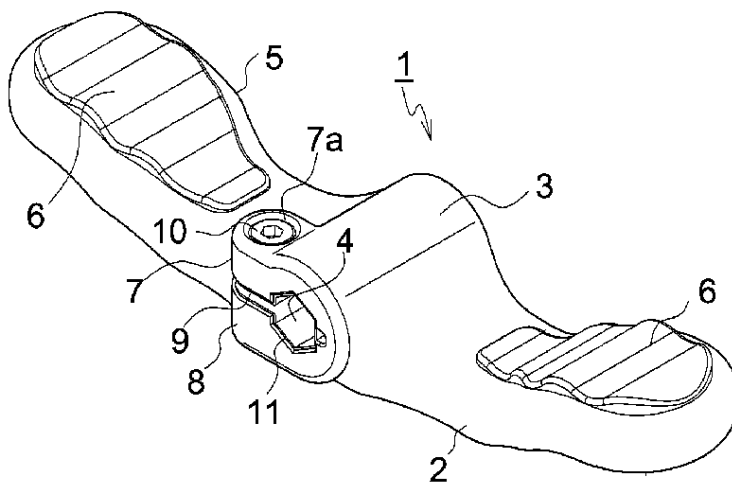
G05G 1/445

about a central fulcrum

Definition statement

This place covers:

Pedal comprising a central pivot axis mostly used for two opposite functions, e.g. accelerating and braking. Example from WO2011007393:

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Conjoint control of propulsion unit and brake system	B60K 2741/20
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G05G 1/46

Means, e.g. links, for connecting the pedal to the controlled unit

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Connection means for transmitting braking action from initiating means to ultimate brake actuator

B60T 11/18

G05G 1/487

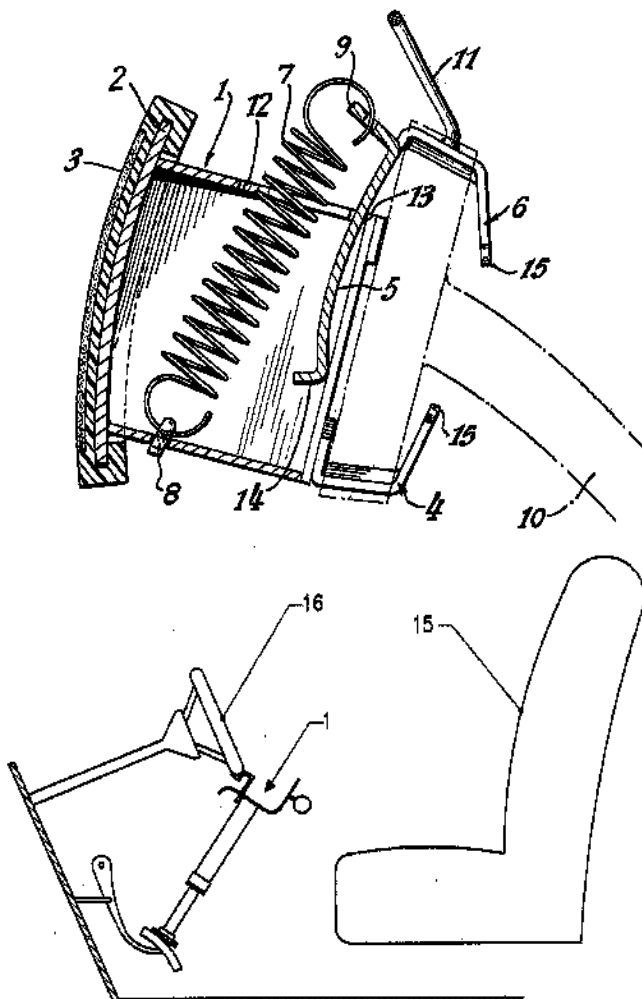
Pedal extensions

Definition statement

This place covers:

- Auxiliary pedal members connected to pedal plate or pedal lever
- Extension rods for pushing the pedal member

Example figures from GB1173337 and FR2862266



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Changing foot controls into hand controls, e.g. for invalid people	B60K 2741/003
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G05G 1/50

Manufacturing of pedals; Pedals characterised by the material used

Definition statement

This place covers:

- Manufacturing details of pedals
- Characteristics of different parts that form the controlling member, e.g. the material used

Special rules of classification

Group [G05G 1/503](#) needs reorganisation because this group does not fit under the scope of group [G05G 1/50](#). Revision request will be launched.

G05G 1/52

Controlling members specially adapted for actuation by other parts of the human body than hand or foot

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Serving devices for one-handed persons	A47G 21/08
Operating or control means for prostheses	A61F 2/68
Methods or devices enabling invalids to operate an apparatus or a device not forming part of the body	A61F 4/00

G05G 1/56

Controlling members specially adapted for actuation by keys, screwdrivers or like tools

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Switches operated by a removable member, e.g. key or plug	H01H 27/00
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Special rules of classification

This group is not used for classification

G05G 1/58

Rests or guides for relevant parts of the operator's body

Definition statement

This place covers:

Only rests or guides if the rest or guide is integrated with the controlling member, e.g. joystick with a thumb rest.

G05G 1/60

Foot rests or foot guides

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Foot-rests for cycles	B62J 25/00
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G05G 1/62

Arm rests

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arm-rests specially adapted for vehicle seats	B60N 2/75
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G05G 3/00

Controlled members; Assemblies or arrangements thereof (interlocking of controlled members [G05G 5/08](#))

Special rules of classification

This group is not used for classification due to unclear and very broad scope

G05G 5/00

Means for preventing, limiting or returning the movements of parts of a control mechanism, e.g. locking controlling member ([G05G 17/00](#) takes precedence)

Definition statement

This place covers:

Mechanisms that do not transmit a command (part B in the model of the operator control device) e.g.:

- Ratchets
- Pedal force feedback with hysteresis
- Mechanisms with actuators for force feedback
- Mechanisms for limiting the movement of the controlling member

- Mechanisms for returning the controlling member to an inoperative or neutral position

G05G 5/03

Means for enhancing the operator's awareness of arrival of the controlling member at a command or datum position; Providing feel, e.g. means for creating a counterforce (arrangements for indicating the position of the controlling member [G05G 1/015](#))

Definition statement

This place covers:

Means for providing feel, e.g. by creating counter force or tactile feed back

Means for signalling that the controlling member is in the neutral or home position

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements for indicating the position of the controlling member	G05G 1/015
Detent means using spring-loaded balls	G05G 5/065
Means for providing feel for accelerator pedal, e.g. by changing pedal force characteristics	B60K 26/021
Mechanisms for controlling electric contacts with haptic or tactile feedback	H01H 2003/008
Mechanisms for controlling electric contacts with detent or indexing means	H01H 3/50

G05G 5/05

Means for returning or tending to return controlling members to an inoperative or neutral position, e.g. by providing return springs or resilient end-stops ([G05G 5/28](#) takes precedence)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Mechanisms for controlling electric contacts moving the operating part into an inoperative position by an electric drive	H01H 2003/0266
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G05G 5/06

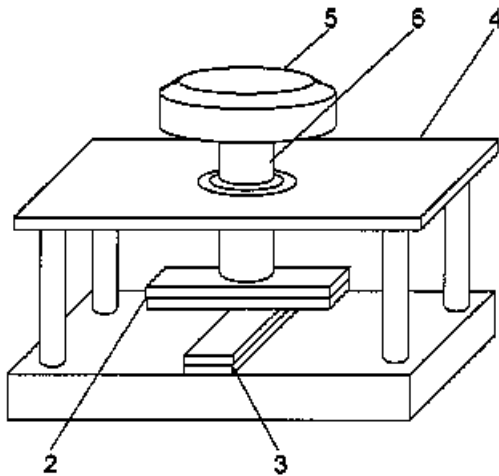
for holding members in one or a limited number of definite positions only ([G05G 5/005](#), [G05G 5/03](#), [G05G 5/05](#), [G05G 5/28](#) take precedence)

Definition statement

This place covers:

Mechanisms for holding controlling member in particular positions, e.g. by springs or magnetic means

See example document WO2008052676 using two magnets (2) and (3)



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Positioning and locking mechanisms for vehicle seats	B60N 2/919
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G05G 5/08

Interlocking of members, e.g. locking member in a particular position before or during the movement of another member

Definition statement

This place covers:

Mechanisms whereby the allowed position of a controlling member depends on the position of another controlling member

G05G 7/00

Manually-actuated control mechanisms provided with one single controlling member co-operating with one single controlled member; Details thereof (controlling members [G05G 1/00](#))

Definition statement

This place covers:

Mechanisms that process the movement (part C in the model of the operator control device) from the operator actuated part to the controlled member.

Special rules of classification

The mechanisms are classified in [G05G 7/04](#), [G05G 7/06](#) and [G05G 7/08](#).

The subgroups [G05G 7/02](#), [G05G 7/10](#), [G05G 7/12](#), [G05G 7/14](#) and [G05G 7/16](#) are not active.

G05G 7/02

characterised by special provisions for conveying or converting motion, or for acting at a distance

Definition statement

This place covers:

This group is not active, see definition statement of maingroup

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Wrist joints (Two-dimensional joints)	B25J 17/0258
Means for transmitting linear movement in a flexible sheathing, e.g. "Bowden mechanisms"	F16C 1/10
Gearings for interconverting rotary motion and reciprocating motion	F16H 19/02

G05G 9/00

Manually-actuated control mechanisms provided with one single controlling member co-operating with two or more controlled members, e.g. selectively, simultaneously

Definition statement

This place covers:

Mechanisms that process the movement (part C in the model of the operator control device) from the operator actuated part to different controlled members, .i.e. the manipulation of a single control input member changes at least two distinct output members.

Controlling members for hand actuation in which movement in two or more ways can occur simultaneously.

Special rules of classification

The subgroups [G05G 9/06](#), [G05G 9/08](#), [G05G 9/085](#) and [G05G 9/10](#) are not active

G05G 9/047

the controlling member being movable by hand about orthogonal axes, e.g. joysticks {(for switches [H01H 25/04](#))}

References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Steering control comprising tillers, i.e. hand levers operating on the steering column	B62D 1/14
Manually actuated initiating means for actuating flying-control surfaces	B64C 13/04

Control mechanisms, e.g. control levers, for dredgers or soil-shifting machines	E02F 9/2004
Selector apparatus for change-speed or reversing- gearings	F16H 59/02

Informative references

Attention is drawn to the following places, which may be of interest for search:

Accessories for surgery or diagnosis using joysticks	A61B 2034/742
Apparatus for, or methods of, measuring force of joystick controls	G01L 5/223
Arrangements or instruments for measuring magnetic variables - using galvano-magnetic or magneto-resistive devices, e.g. Hall effect devices	G01R 33/06
Micromanipulators structurally combined with microscopes	G02B 21/32
For pointing devices integrated in a laptop computer	G06F 1/169
Force or tactile feedback applied to a joystick	G06F 3/016
Input arrangements for computers with lever arrangements for operating keyboard cursor control keys in a joystick-like manner	G06F 3/0205
Arrangements providing an integrated pointing device in a keyboard, e.g. trackball or mini-joystick	G06F 3/0213
Input arrangements for computers using pointing devices displaced or positioned by user, e.g. pens or joysticks	G06F 3/033 ,
Joysticks for switches	H01H 25/04

G05G 11/00

Manually-actuated control mechanisms provided with two or more controlling members co-operating with one single controlled member

Definition statement

This place covers:

Mechanisms that process the movement (part C in the model of the operator control device) from the operator actuated part to the controlled member. The mechanical control mechanism has more than one input member, e.g. at different locations, and actuates one single output member.

G05G 13/00

Manually-actuated control mechanisms provided with two or more controlling members and also two or more controlled members (interlocking [G05G 5/08](#))

Definition statement

This place covers:

Mechanisms that process the movement (part C in the model of the operator control device) from the operator actuated part to the controlled member. The mechanical control mechanism has more than one input member and actuates more than one output member.

G05G 15/00

Mechanical devices for initiating a movement automatically due to a specific cause

Special rules of classification

This group is not active

The subject matter: 'Mechanical controls initiating movement automatically due to a specific cause' should be classified in the respective field of application.

G05G 17/00

Mechanical devices for moving a member after being released; Trip or release mechanisms characterised thereby

Special rules of classification

This group is not active

The subject matter: 'Mechanical release mechanisms for moving a member after a mechanical trigger signal' should be classified in the respective field of application.

G05G 19/00

Servo-mechanisms with follow-up action, e.g. occurring in steps

Special rules of classification

This group is not active

The subject matter 'Mechanical, i.e. neither hydraulic nor electric servo mechanisms with follow-up action should be classified in the respective fields of application.

G05G 21/00

Mechanical apparatus for control of a series of operations, i.e. programme control, e.g. involving a set of cams ([G05G 5/02](#) takes precedence)

References**Limiting references**

This place does not cover:

Programme-control systems using cams, discs, rods, drums or the like	G05B 19/06
Time or time-programme switches executing one or more switching actions	H01H 43/00

Special rules of classification

This group is not active

The subject matter 'Mechanical programme control for controlling series of operation' should be classified in the respective fields of application.

G05G 23/00

Means for ensuring the correct positioning of parts of control mechanisms, e.g. for taking-up play

Definition statement

This place covers:

Means for adjusting parts of mechanical control means, when not application specific, e.g. for taking up play or backlash of the transmission means

G05G 25/00

Other details or appurtenances of control mechanisms, e.g. supporting intermediate members elastically

Definition statement

This place covers:

Residual group for details or accessories of mechanical control mechanisms when not application specific

G05G 25/04

Sealing against entry of dust, weather or the like {(in selector apparatus for gearings, [F16H 59/0213](#))}

References***Application-oriented references***

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Sealing means for "Bowden" mechanisms	F16C 1/107
Sealing means for gear selector apparatus	F16H 59/0213
Sealing boots for switching devices	H01H 2009/048