

B66F

HOISTING, LIFTING, HAULING OR PUSHING, NOT OTHERWISE PROVIDED FOR, e.g. DEVICES WHICH APPLY A LIFTING OR PUSHING FORCE DIRECTLY TO THE SURFACE OF A LOAD (invalid lifting devices [A61G 7/10](#); } mounting artificial islands on piles or like supports [E02B 17/00](#); scaffolding combined with lifting devices [E04G 1/22](#); lifting devices for sliding forms [E04G 11/24](#); lifting of buildings [E04G 23/06](#); shores or struts [E04G 25/00](#); lifts or other hoisting devices on ladders [E06C 7/12](#); props for mining [E21D 15/00](#))

Definition statement

This place covers:

Lifting devices for lifting loads, i.e. in principle temporarily supported and not forming part of the device itself and involving a significant lifting action rather than essentially horizontal motion, and which are not classified in subclasses [B66B](#), [B66C](#) or [B66D](#).

The following IPC groups are not used in the internal ECLA

classification scheme. Subject matter covered by these groups is classified in the following ECLA groups:

B66F19/02 covered by [B66F 19/00](#)

Special rules of classification

Documents should be classified in the lowest subgroup possible and only classified in higher groups if none of the subgroups is applicable. If necessary documents should be classified in multiple subgroups. All non-trivial technical features should be classified. Main groups should only be used when no appropriate subgroup exists.

B66F 1/00

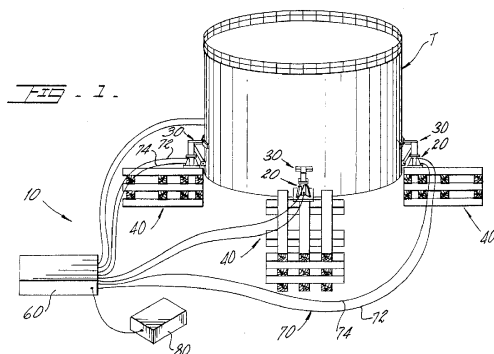
Devices, e.g. jacks, for lifting loads in predetermined steps

Definition statement

This place covers:

devices for lifting in predetermined steps not covered by one of the following subgroups.

see for example US 4 807 851



B66F 1/02

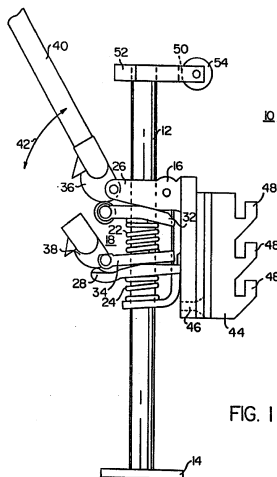
with locking elements, e.g. washers, co-operating with posts

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 5 385 335

**B66F 1/025**

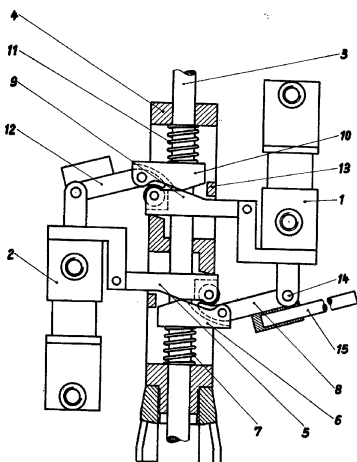
{the devices being operated by fluid pressure ([B66F 1/08](#) takes precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example GB 1 134 553.

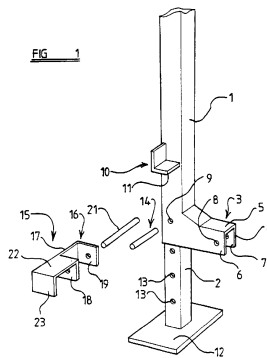


B66F 1/04**the posts being toothed****Definition statement**

This place covers:

devices where either the fixed or moving part has teeth or equivalent holding elements, for example holes, where the actuation is neither clearly hydraulic nor manual,

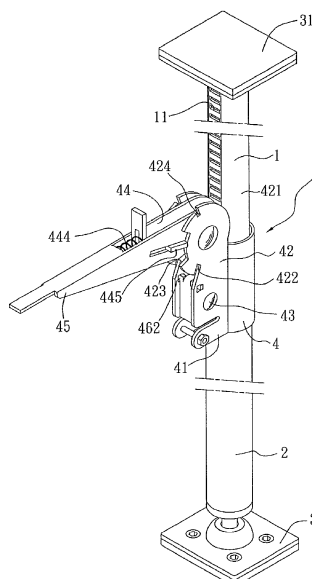
see for example GB 2 300 406.

**B66F 1/06****and the devices being actuated mechanically****Definition statement**

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2006/0186387



B66F 1/08

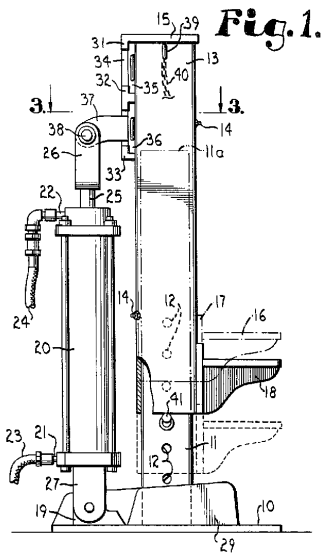
and the devices being operated by fluid pressure

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 4 068 826.

**B66F 3/00**

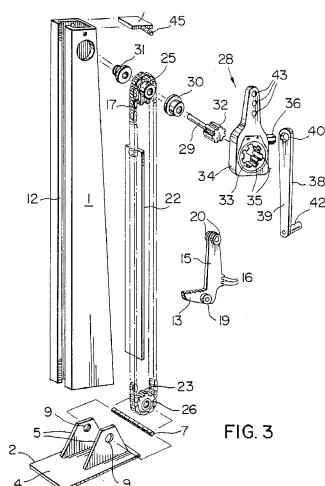
Devices, e.g. jacks, adapted for uninterrupted lifting of loads (mobile jacks of the garage type [B66F 5/00](#))

Definition statement

This place covers:

jacks not covered by one of the following subgroups, for example lifted by cables.

see for example US 4 976 413



B66F 3/005

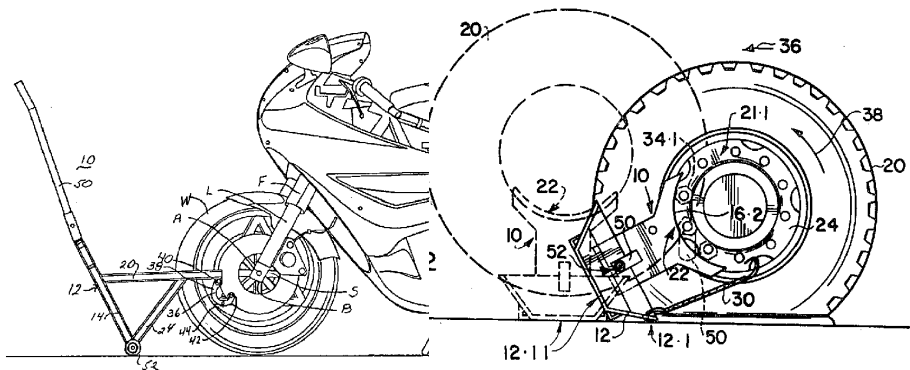
{with rocking arm or sector}

Definition statement

This place covers:

devices where the lifting is by rotation around a pivot point, i.e. a lever pivoting on the ground or attached to a vehicle wheel.

see for example US 2007/0252119 or US 4 277 050



B66F 3/02

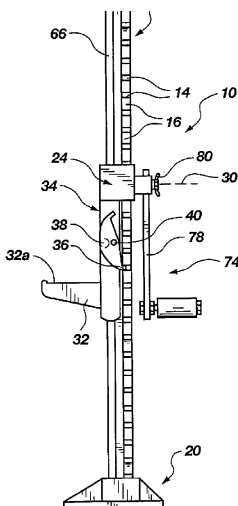
with racks actuated by pinions

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

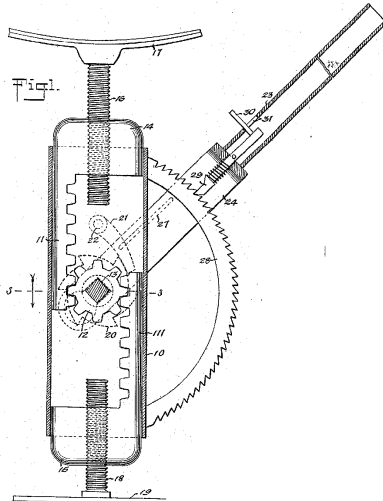
see for example US 5 979 875



B66F 3/04**with several racks****Definition statement***This place covers:*

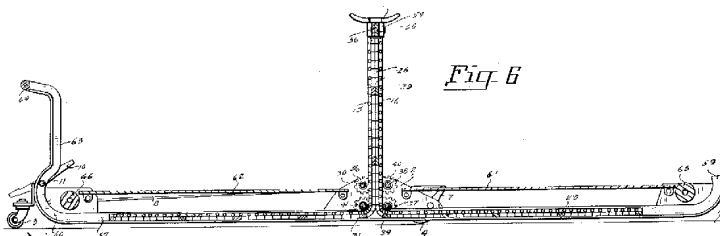
Illustrative example of subject matter classified in this group

see for example US 1 486 797

**B66F 3/06****with racks comprising pivotable toothed sections or segments, e.g. arranged in pairs****Definition statement***This place covers:*

Illustrative example of subject matter classified in this group

see for example US 1 925 194.

**References****Limiting references***This place does not cover:*

Thrust chains working without pinions	B66F 13/005
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B66F 3/08

screw operated ([B66F 3/44](#) takes precedence; gearings [F16H](#))

Definition statement

This place covers:

screw jacks not covered by one of the following subgroups [B66F 3/10](#) - [B66F 3/22](#).

B66F 3/10

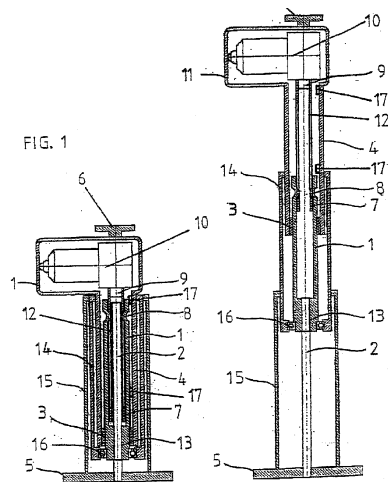
with telescopic sleeves

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2003/0183027.

**B66F 3/12**

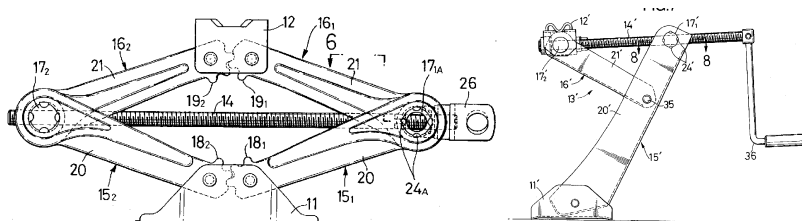
comprising toggle levers (lazy-tongs mechanisms [B66F 3/22](#))

Definition statement

This place covers:

with a single set of levers, e.g. in X or Y configuration.

see for example US 5 529 286.



B66F 3/14

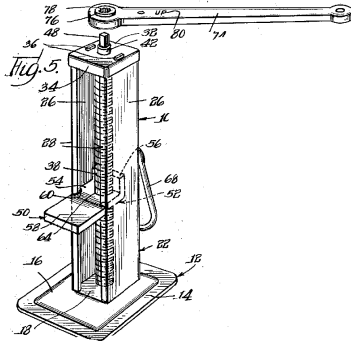
actuated through pawl-and-ratchet mechanisms

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US2910270

**B66F 3/16**

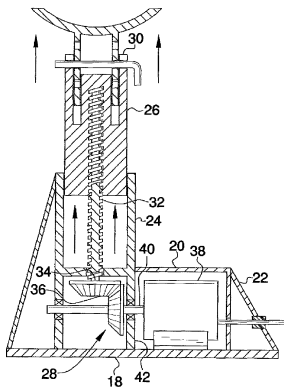
actuated through bevel-wheel gearings

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 7 472 889.

**B66F 3/18**

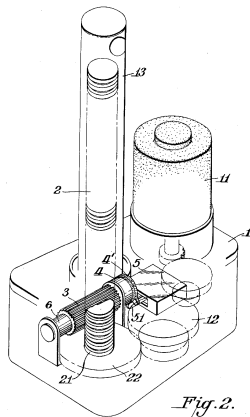
actuated through worm gearings

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 4 789 133.



B66F 3/20

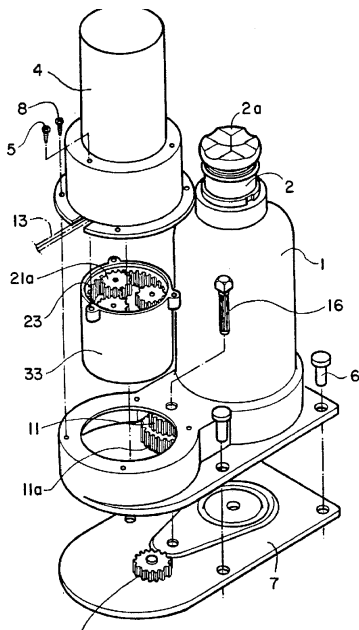
actuated through multiple or change-speed gearings

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 5 118 082.



B66F 3/22

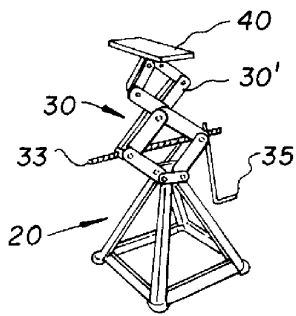
Lazy-tongs mechanisms **{{(B66F 11/042 takes precedence)}**

Definition statement

This place covers:

with multiple sets of levers.

see for example US 6 234 451.



References

Limiting references

This place does not cover:

With a single set of levers	B66F 3/12
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B66F 3/24

fluid-pressure operated (water-pressure machines [F03B](#); hydraulic gearings [F16H](#); cylinders, pistons [F16J](#); fluid-pressure servomotors [F15B](#))

Definition statement

This place covers:

fluid operated jacks not covered by one of the following subgroups.

B66F 3/242

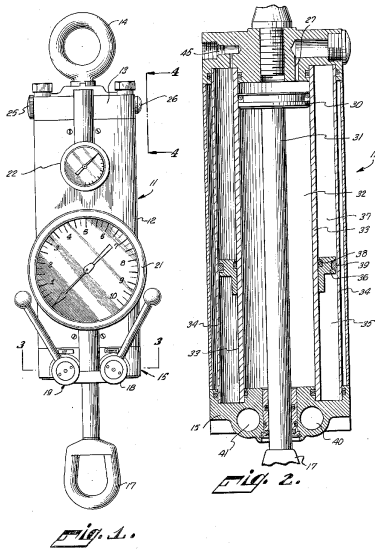
{suspended jacks}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 3 025 702.



Special rules of classification

pneumatic suspended jacks should also be classified in [B66F 3/247](#)

B66F 3/245

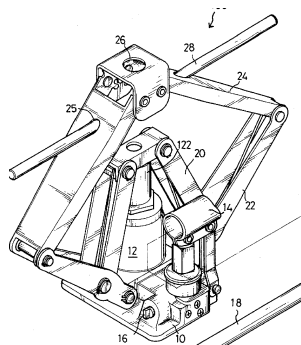
{comprising toggle levers (lazy-tongs mechanisms [B66F 3/22](#))}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 5 603 486.



B66F 3/247

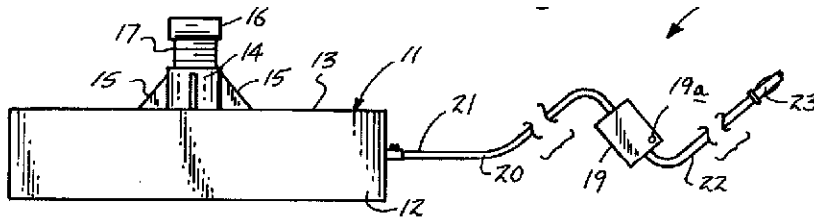
{pneumatically actuated ([B66F 3/35](#) takes precedence)}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 5 441 237.



Special rules of classification

pneumatic suspended jacks should also be classified in [B66F 3/242](#)

B66F 3/25

Constructional features

Definition statement

This place covers:

details of fluid operated jacks not covered by one of the following subgroups [B66F 3/26](#) - [B66F 3/42](#).

B66F 3/26

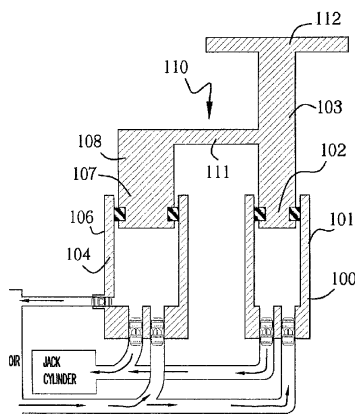
Adaptations or arrangements of pistons

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 6 572 080.



B66F 3/28

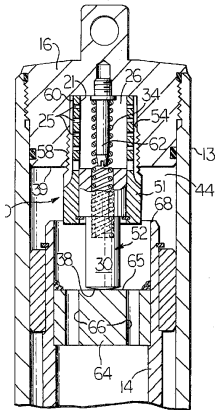
telescopic

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 4 065 112.



B66F 3/35

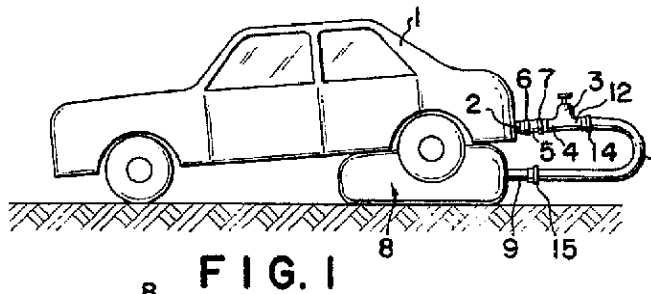
Inflatable flexible elements, e.g. bellows (inflatable load-engaging elements [B66F 3/40](#); connection of valves to inflatable elastic bodies [B60C 29/00](#))

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example GB 1 394 267.



B66F 3/36

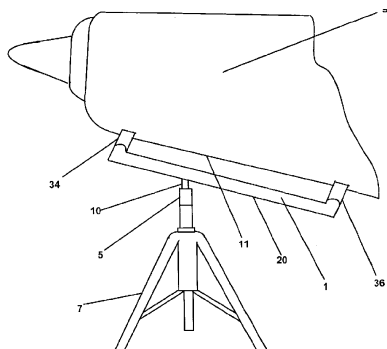
Load-engaging elements

Definition statement

This place covers:

devices with particular features for engaging the load

see for example US 6 608 262.



B66F 3/38

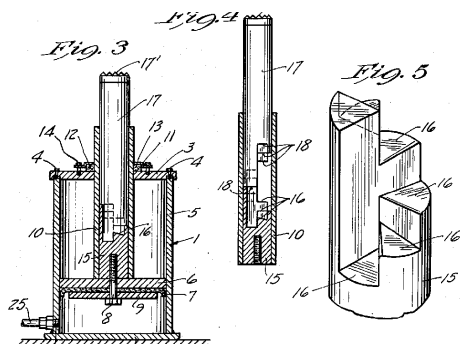
adjustable relative to piston

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2 696 969.



B66F 3/40

inflatable (connection of valves to inflatable elastic bodies [B60C 29/00](#))

Special rules of classification

This group is not used. Documents are classified in [B66F 3/35](#).

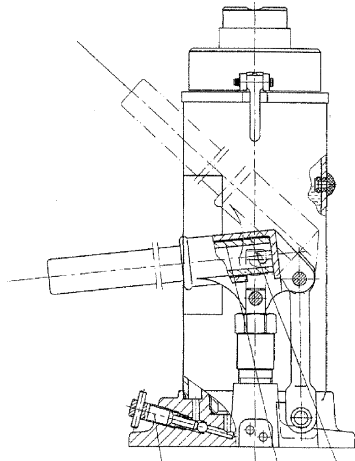
B66F 3/42

with self-contained pumps, e.g. actuated by hand

Definition statement

This place covers:

see for example US 2010/10078612.

**B66F 3/43**

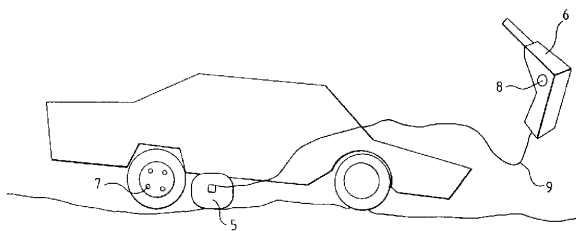
Pyrotechnical jacks

Definition statement

This place covers:

devices using an explosive charge to provide lifting pressure,

see for example EP 0 751 304.

**B66F 3/44**

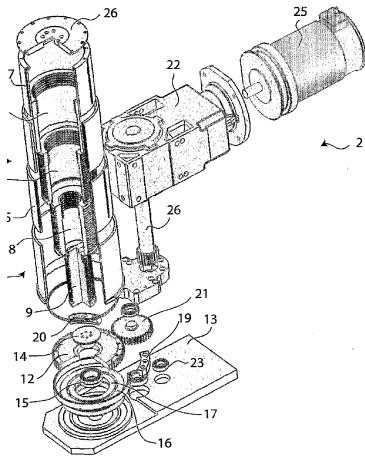
with self-contained electric driving motors

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2010/0219386.



B66F 3/46

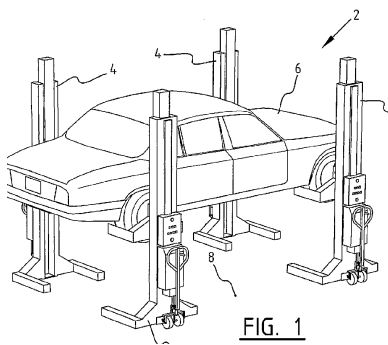
Combinations of several jacks with means for interrelating lifting or lowering movements

Definition statement

This place covers:

groups of jacks operating together.

see for example US 2011/0037041.



References

Limiting references

This place does not cover:

Lifting platforms with several jacks	B66F 7/20
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B66F 5/00

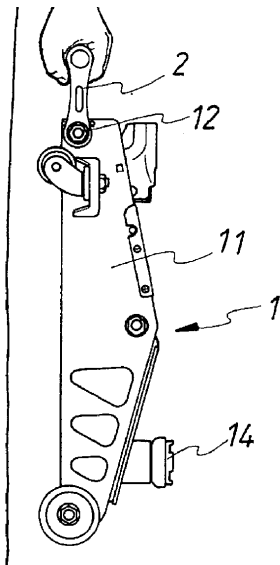
Mobile jacks of the garage type mounted on wheels or rollers

Definition statement

This place covers:

devices not covered by one of the following subgroups or general features of mobile jacks.

see for example US 2005/0040379



B66F 5/02

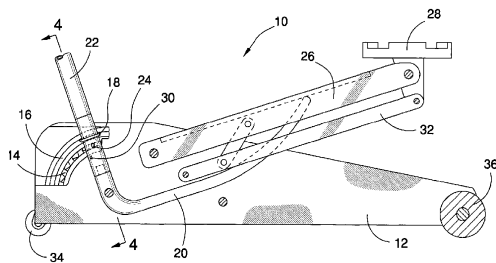
with mechanical lifting gear

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 6 929 248.



B66F 5/025

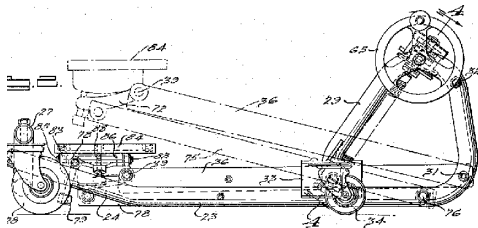
{screw-actuated}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 3 109 626.



B66F 5/04

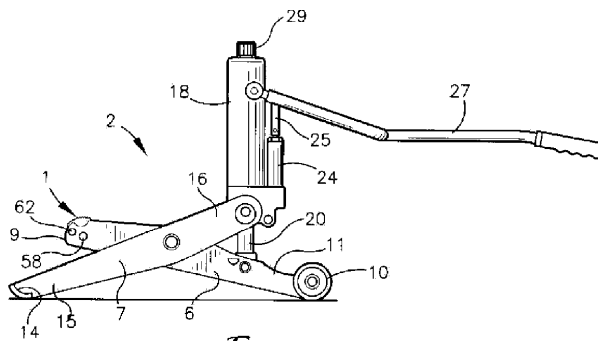
with fluid-pressure-operated lifting gear

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2009/0159861.



B66F 7/00

Lifting frames, e.g. for lifting vehicles; Platform lifts ({[B66F 11/04](#) takes precedence } ; for lift-truck platform [B66F 9/06](#))

Definition statement

This place covers:

static lifting platforms, i.e. with large load carrying area, not covered by one of the following subgroups.

References

Limiting references

This place does not cover:

Lifting platforms for workers	B66F 11/04
Display platforms	A47F 5/02
For parking cars	E04H 6/06

B66F 7/02

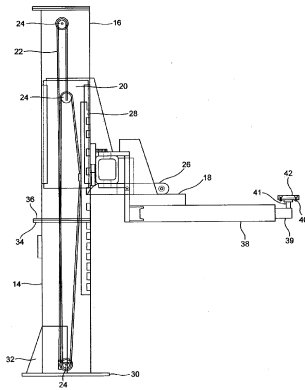
with platforms suspended from ropes, cables, or chains {or screws and movable along pillars}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2006/0070815.

**B66F 7/025**

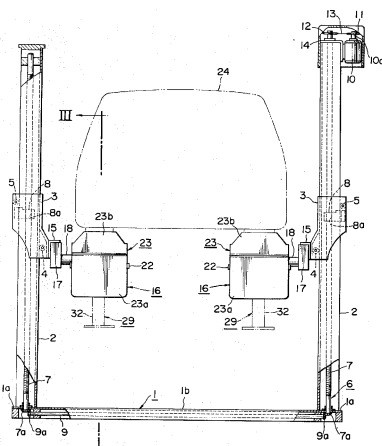
{screw operated}

Definition statement

This place covers:

devices where the platform moves along a fixed screw

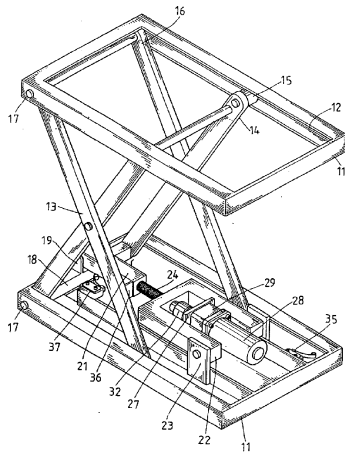
see for example US 4 267 901.

**References****Limiting references**

This place does not cover:

Platforms supported on moving screws	B66F 7/14
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see for example US 2007/0034125.



B66F 7/0616

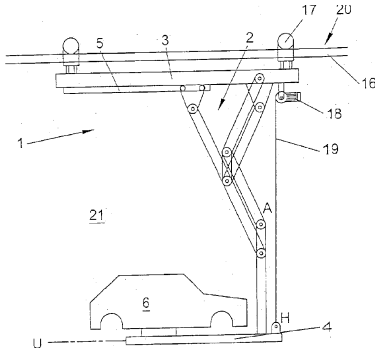
{Suspended platforms, i.e. the load platform hangs from the base}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2004/0037687.



B66F 7/0625

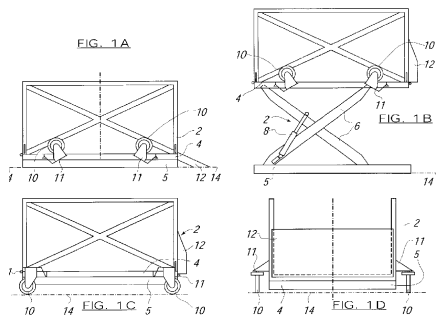
{with wheels for moving around the floor}

Definition statement

This place covers:

devices with platform lifts allowing the platform to be moved around the floor,

see for example US 6 394 419.



References

Limiting references

This place does not cover:

Devices for moving loads, which also lift the load from the floor such as fork lift trucks	B66F 9/06
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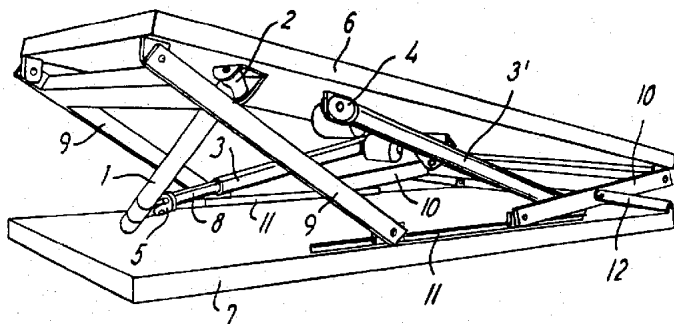
B66F 7/0633

{Mechanical arrangements not covered by the following subgroups}

Definition statement

This place covers:

devices with mechanisms other than those covered by the following subgroups, see for example US 4 627 600.



B66F 7/0641

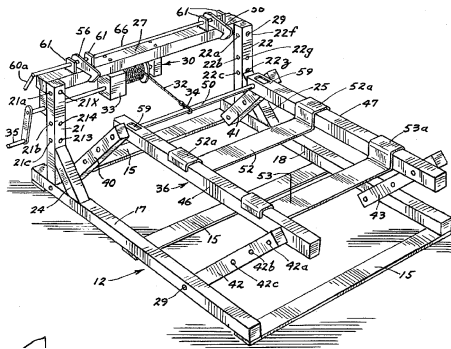
{Single levers, e.g. parallel links}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 4 277 049.



B66F 7/065

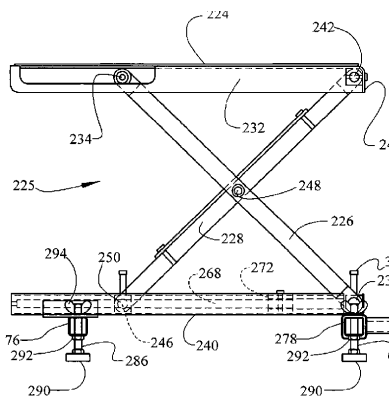
{Scissor linkages, i.e. X-configuration}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 7 188 824.



B66F 7/0658

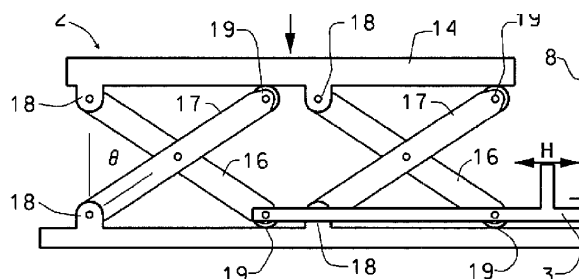
{Multiple scissor linkages horizontally arranged}

Definition statement

This place covers:

devices with more than one scissor under the platform, e.g. next to each other end to end.

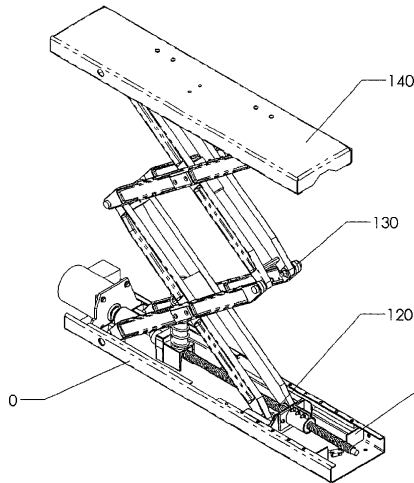
see for example US 2004/0262490.



B66F 7/0666**{Multiple scissor linkages vertically arranged}****Definition statement***This place covers:*

devices with one scissor arranged above another,

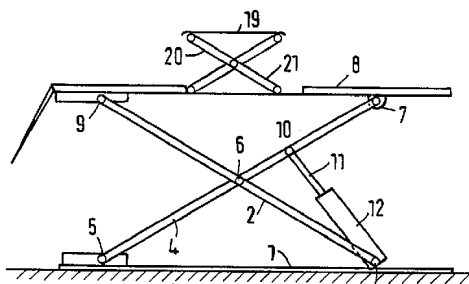
see for example US 2006/0180403.

**References****Limiting references***This place does not cover:*

Auxiliary scissors	B66F 7/0675
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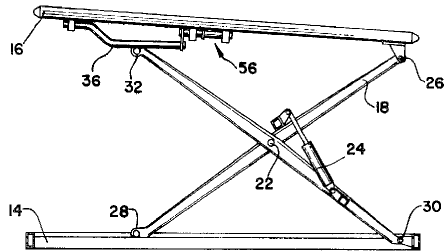
B66F 7/0675**{Auxiliary scissors, e.g. above main scissors}****Definition statement***This place covers:*

devices with an auxiliary scissors for further lifting the load or part of the load above the main platform, see for example US 4 573 663.

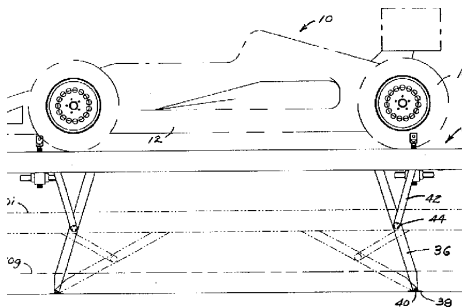


B66F 7/0683**{Scissor linkage plus tilting action}****Definition statement***This place covers:*

devices allowing both lifting and tilting of the load,
see for example US 3 623 617.

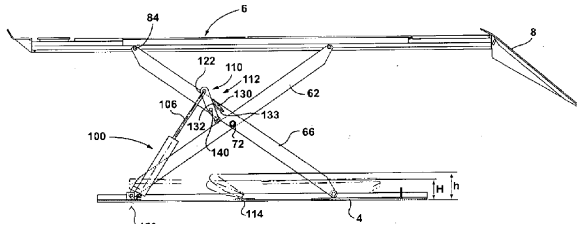
**B66F 7/0691****{Asymmetric linkages, i.e. Y-configuration}****Definition statement***This place covers:*

Illustrative example of subject matter classified in this group
see for example US 6 612 152.

**B66F 7/08****hydraulically or pneumatically operated****Definition statement***This place covers:*

Illustrative example of subject matter classified in this group

see for example US 2007/0235266.



B66F 7/085

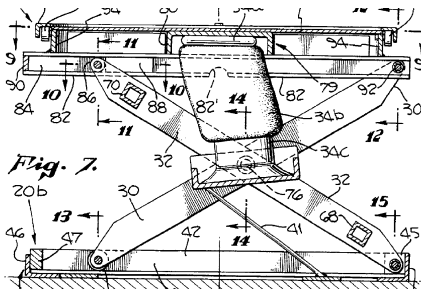
{pneumatically operated}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 5 299 906.



B66F 7/10

with platforms supported directly by jacks

Definition statement

This place covers:

devices not covered by the following subgroups where the load platform is supported by the actuator acting directly on the platform.

B66F 7/12

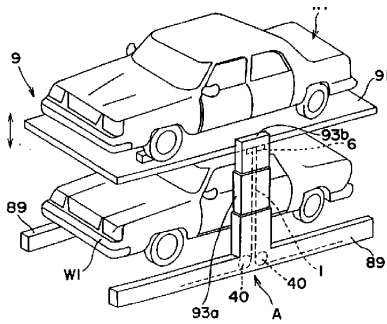
by mechanical jacks

Definition statement

This place covers:

lifting platforms with jacks not using screws,

see for example WO 96/19405.



References

Limiting references

This place does not cover:

Screw operated jacks	B66F 7/14
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B66F 7/14

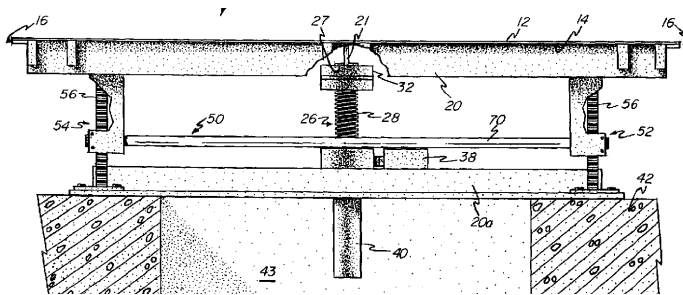
screw operated

Definition statement

This place covers:

platforms supported on moving screws, i.e. with a fixed nut

see for example US 6 502 667.



References

Limiting references

This place does not cover:

Devices where the platform moves along a fixed screw	B66F 7/025
--	----------------------------

B66F 7/16

by one or more hydraulic or pneumatic jacks

Definition statement

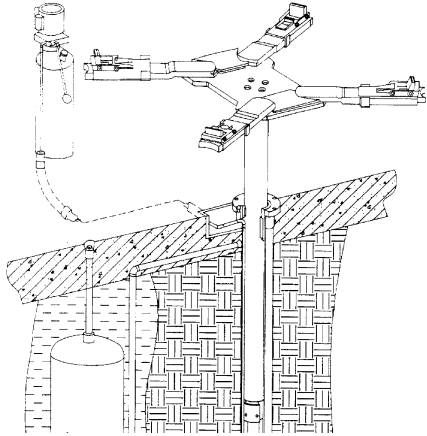
This place covers:

hydraulic lifting platforms not covered by one of the following subgroups.

B66F 7/18**by a single central jack****Definition statement***This place covers:*

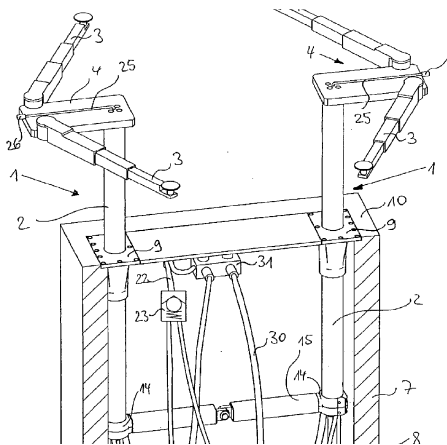
Illustrative example of subject matter classified in this group

see for example US 5 740 886.

**B66F 7/20****by several jacks with means for maintaining the platforms horizontal during movement****Definition statement***This place covers:*

Illustrative example of subject matter classified in this group

see for example US 2006/0042877.



References

Limiting references

This place does not cover:

Groups of jacks operating together	B66F 3/46
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B66F 7/22

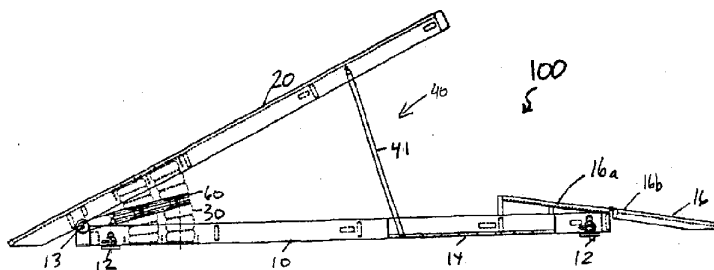
with tiltable platforms (tilting vehicles for unloading [B65G 67/34](#))

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2004/0211947.



Special rules of classification

devices should also be classified in the relevant subgroup for the actuation mechanism.

B66F 7/24

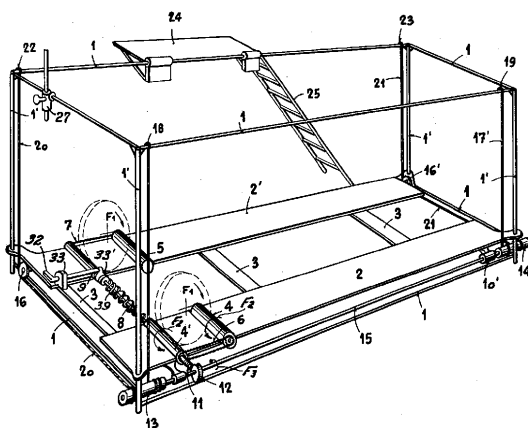
for raising or lowering vehicles by their own power

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2 754 933.



References

Limiting references

This place does not cover:

Levers attached to a vehicle wheel	B66F 3/005
Ramps	B66F 7/243

B66F 7/243

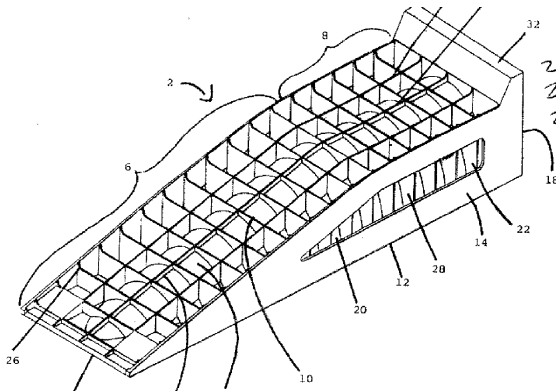
{Ramps}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2009/0100613.



B66F 7/246

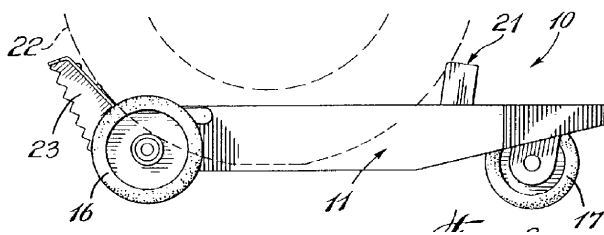
{Wheel supporting trolleys}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2003/0021661.



B66F 7/26

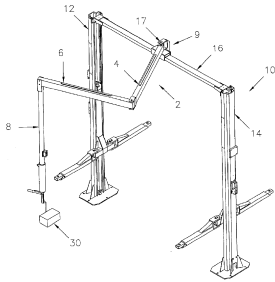
for selective lifting of parts of vehicles (mobile garage jacks [B66F 5/00](#))

Definition statement

This place covers:

devices for lifting only a part of a vehicle, e.g. above the main lift platform.

see for example US 2002/0043137

**References****Limiting references**

This place does not cover:

Auxiliary scissors above main scissors	B66F 7/0675
--	-----------------------------

B66F 7/28

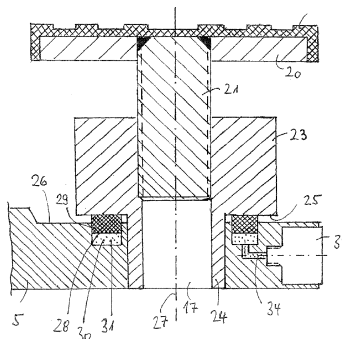
Constructional details, e.g. end stops, pivoting supporting members, sliding runners adjustable to load dimensions

Definition statement

This place covers:

for example load support surfaces, safety features,

see for example US2010/0263942.



B66F 9/00

Devices for lifting or lowering bulky or heavy goods for loading or unloading purposes (mobile or transportable lifts in, or associated with, buildings and specially adapted to be shifted from one part of a building or other structure to another part or to another building or structure [B66B 9/16](#); cranes [B66C](#))

References

Limiting references

This place does not cover:

Loading and unloading of trucks using crane mounted on truck	B60P 1/00
Refuse vehicles	B65F

B66F 9/02

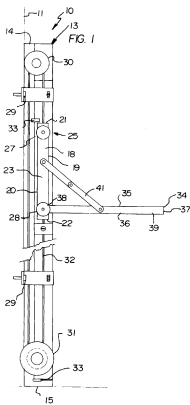
Stationary loaders or unloaders, e.g. for sacks

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 6 012 552



B66F 9/04

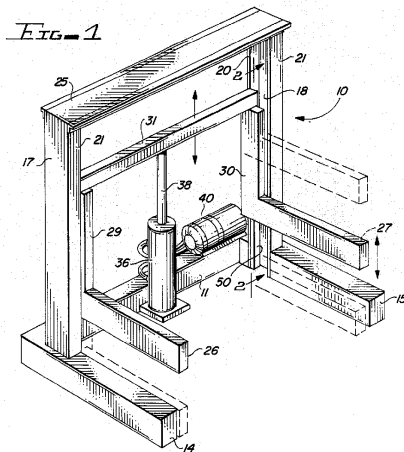
hydraulically actuated or controlled

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 4 652 202.



B66F 9/06

movable, with their loads, on wheels or the like, e.g. fork-lift trucks (vehicle aspects [B60 - B62](#); vehicles predominantly for transporting loads and modified to facilitate loading or unloading [B60P 1/00](#); low-lift hand trucks for transporting goods [B62B 3/06](#))

Definition statement

This place covers:

Devices which move on wheels or similar members in order to lift the load and also to transport it horizontally, which are not covered by one of the subgroups below, i.e. general features relating to the type of vehicle.

References

Limiting references

This place does not cover:

Constructional details	B66F 9/075
------------------------	----------------------------

B66F 9/061

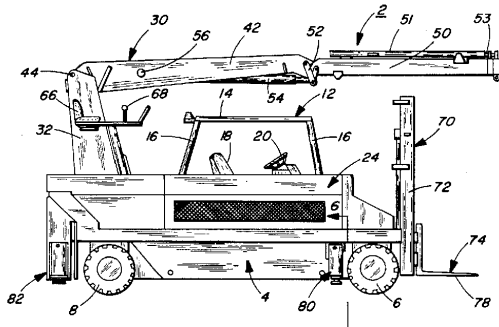
{characterised by having a lifting jib}

Definition statement

This place covers:

trucks having both a mast and a separate jib,

see for example US 4 750 628



References

Limiting references

This place does not cover:

Trucks without a mast	B66F 9/065
Lifting hooks mounted on forks	B66F 9/12

B66F 9/063

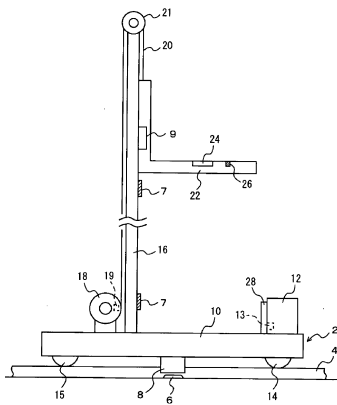
{Automatically guided}

Definition statement

This place covers:

driverless lift trucks with automatic navigation

see for example US2007/0103107.



References

Limiting references

This place does not cover:

General automatically guided vehicles	G05D 1/00
---------------------------------------	---------------------------

B66F 9/065

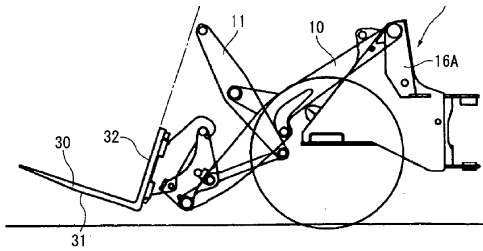
non-masted (mobile jacks of the garage type mounted on wheels or rollers
[B66F 5/00](#))

Definition statement

This place covers:

lift trucks without a mast, for example with a boom or jib

see for example US 2009/0003984



References

Limiting references

This place does not cover:

Masted trucks with an additional lifting jib	B66F 9/061
Trucks with telescopic booms	B66F 9/0655

B66F 9/0655

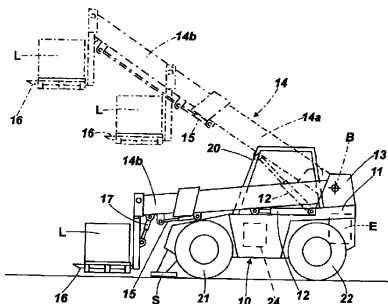
{with a telescopic boom}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2010/0322753.



B66F 9/07

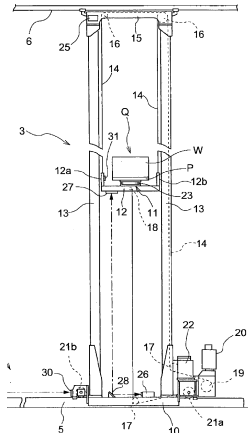
Floor-to-roof stacking devices, e.g. "stacker cranes", "retrievers"

Definition statement

This place covers:

trucks for warehouses, e.g. running on rails between shelves.

see for example US 2007/0059132



B66F 9/072

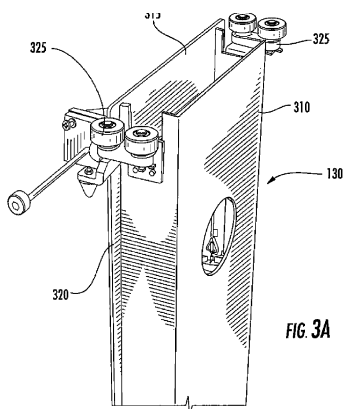
{Travelling gear therefor}

Definition statement

This place covers:

travelling gear for warehouse stacker trucks.

see for example US 2007/0151940



B66F 9/075**Construconal features or details****Definition statement**

This place covers:

details of trucks not covered by one of the following subgroups.

B66F 9/07504

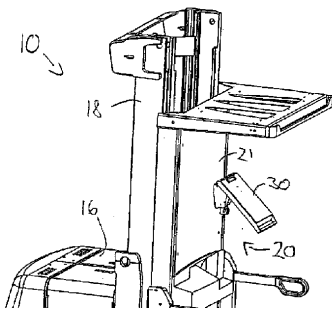
{Accessories, e.g. for towing, charging, locking}

Definition statement

This place covers:

details not associated with the main truck function.

see for example US 2006/0180400

**B66F 9/07509**

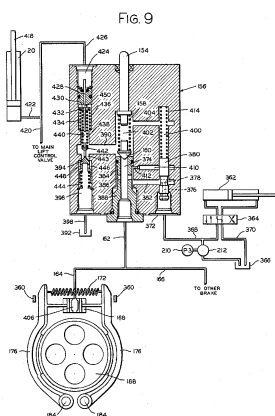
{Braking}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 3 135 357.



Relationships with other classification places

for general vehicle brakes see [B60T](#)

B66F 9/07513

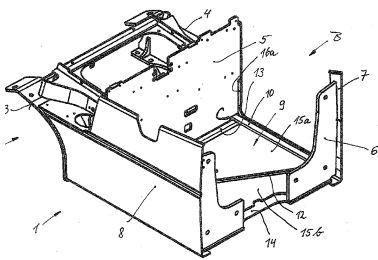
{Details concerning the chassis}

Definition statement

This place covers:

chassis details or assembly,

see for example US 2009/0200837.



B66F 9/07518

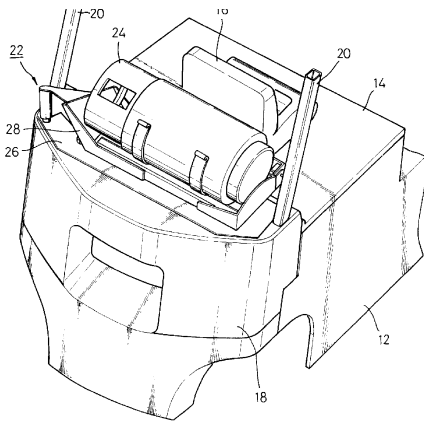
{Fuel or oil tank arrangements}

Definition statement

This place covers:

internal or external mounting arrangements,

for example see US 5 806 892.



B66F 9/07522

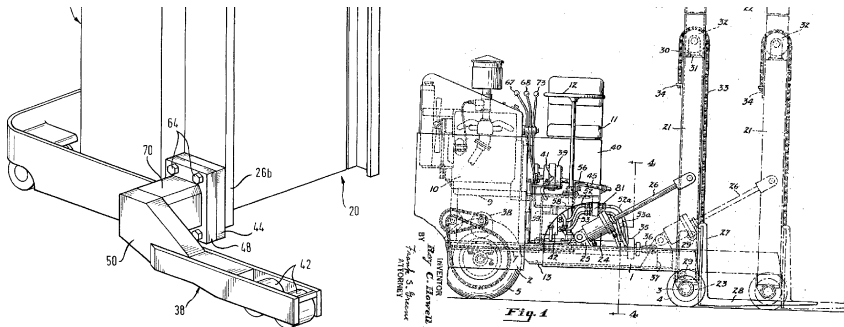
{Variable length or width chassis}

Definition statement

This place covers:

chassis arrangements which allow the dimensions of the truck to be altered or assembled in different sizes,

see for example US 6 138 796 or US 2 320 601



B66F 9/07527

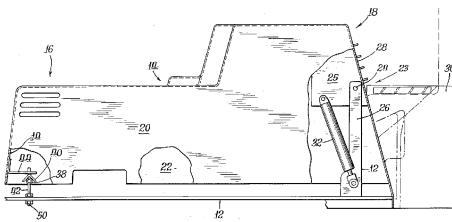
{Covers for, e.g. engines or batteries}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 3 981 375



B66F 9/07531

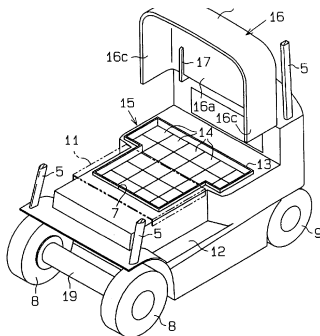
{Battery compartments}

Definition statement

This place covers:

details of the battery arrangement,

see for example US 6 189 636.



B66F 9/07536

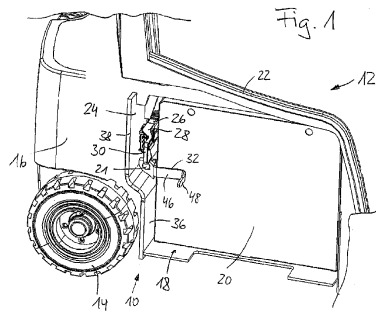
{Battery stoppers, i.e. means to hold battery in position}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2008/0314662.

**B66F 9/0754**

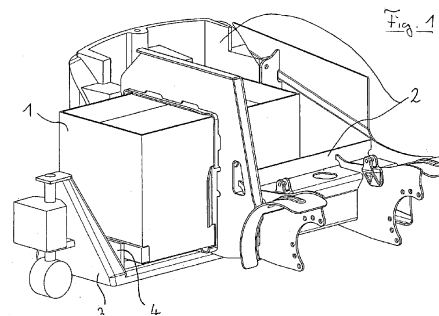
{Battery removal arrangements}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2004/0136815.

**B66F 9/07545**

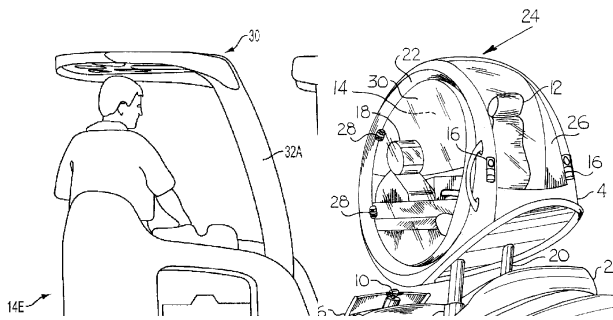
{Overhead guards}

Definition statement

This place covers:

devices to protect the driver, i.e. overhead guards or cabin construction.

see for example US 2008/0202858 or US 6 276 750



References

Limiting references

This place does not cover:

Details of the operating station	B66F 9/0759
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B66F 9/0755

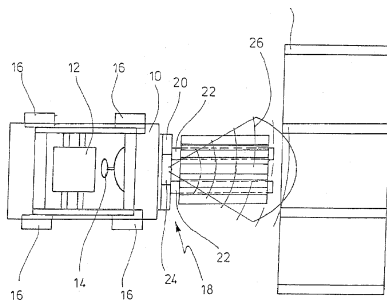
{Position control; Position detectors}

Definition statement

This place covers:

devices for sensing the position of the load or parts of the truck itself, or for indicating, e.g. using a camera.

see for example US 2007/0233314



B66F 9/07554

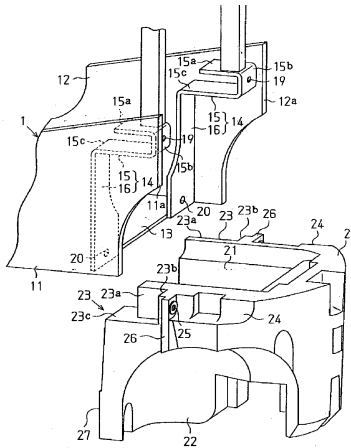
{Counterweights}

Definition statement

This place covers:

devices with particular counterweight arrangements,

for example see US 2004/0216299.



B66F 9/07559

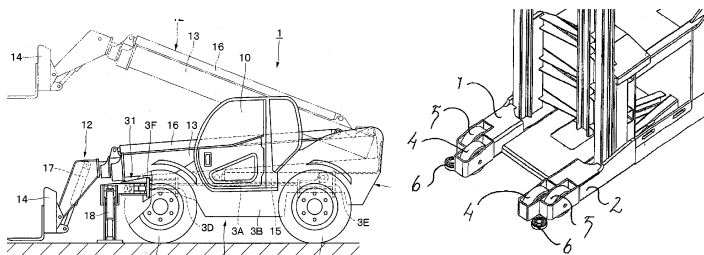
{Stabilizing means}

Definition statement

This place covers:

mechanical stabilisers or guides, e.g. outriggers or additional support or guide wheels,

see for example US 2005/0008468 or US 2003/0227147



References

Limiting references

This place does not cover:

Control arrangements for increasing stability	B66F 17/003
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B66F 9/07563

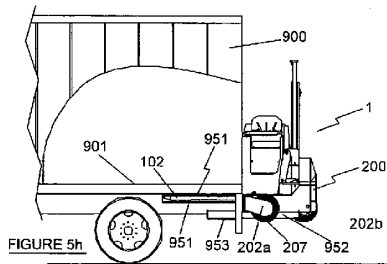
{Fork-lift trucks adapted to be carried by transport vehicles}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2007/0207023.



B66F 9/07568

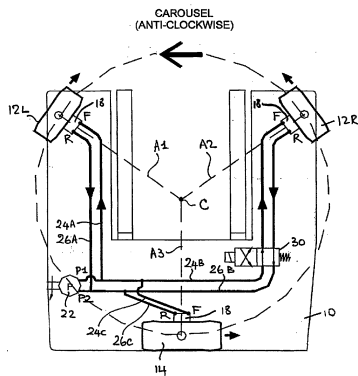
{Steering arrangements}

Definition statement

This place covers:

mechanical steering arrangement or steering controls,

see for example US 2005/0061570.



Relationships with other classification places

general vehicle steering arrangements see [B62D](#)

B66F 9/07572

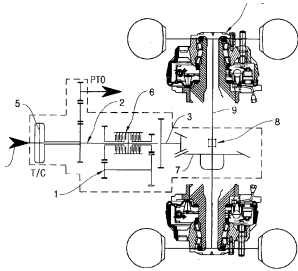
{Propulsion arrangements}

Definition statement

This place covers:

arrangements for propelling the truck, e.g. particular wheels, drive arrangements or types of motor.

see for example US 2004/0116234



Relationships with other classification places

for general vehicle propulsion see [B60K](#), for general vehicle electric propulsion [B60L](#)

B66F 9/07577

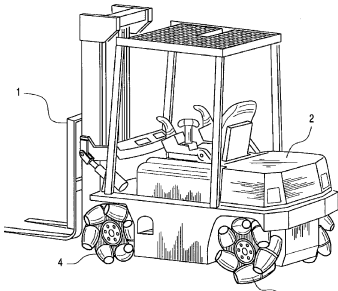
{not supported by wheels, e.g. tracks or air cushions}

Definition statement

This place covers:

devices supported other than by normal wheels,

see for example US 2005/0183896.



B66F 9/07581

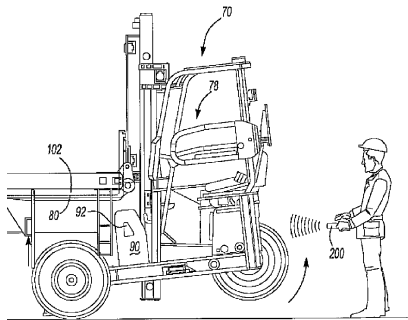
{Remote controls}

Definition statement

This place covers:

devices allowing the operator to operate the truck from outside, e.g. by a control unit operating via radio or connected by cable to the truck,

see for example US 2008/0292448.



B66F 9/07586

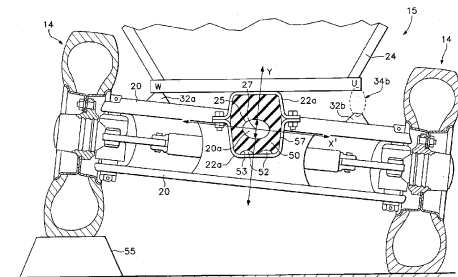
{Suspension or mounting of wheels on chassis}

Definition statement

This place covers:

vehicle suspension or particular wheel or axle arrangements,

see for example US 2004/0113383.



Relationships with other classification places

general vehicle suspension [B60G](#)

References

Limiting references

This place does not cover:

Suspension of cabins or operator platforms	B66F 9/0759
--	-----------------------------

B66F 9/0759

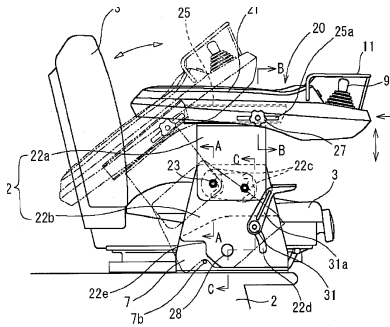
{Details of operating station, e.g. seats, levers, operator platforms, cabin suspension}

Definition statement

This place covers:

arrangements of the operating station, including mechanical aspects of levers

see for example US 2003/0184123.



Relationships with other classification places

for general vehicle seats see [B60N 2/00](#)

References

Limiting references

This place does not cover:

Devices to protect the driver, i.e. overhead guards or cabin construction	B66F 9/07545
Vehicle suspension	B66F 9/07586
Control levers	B66F 9/20

B66F 9/07595

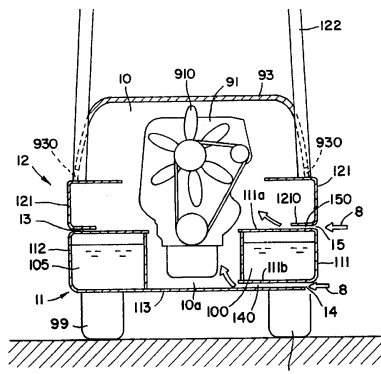
{Cooling arrangements for device or operator}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 5 285 863.



Relationships with other classification places

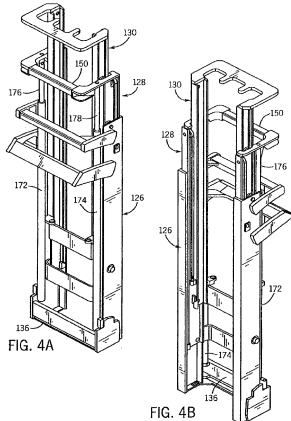
for general cooling of operator see [B60H 1/00](#), for general cooling of propulsion units see [B60K 11/00](#)

B66F 9/08

Masts; Guides; Chains

Definition statement

This place covers:
mast arrangements and means for moving masts and forks vertically,
see for example US 2011/0048860.



References

Limiting references

This place does not cover:

Tilting masts	B66F 9/082
Masts moving relative to chassis	B66F 9/10

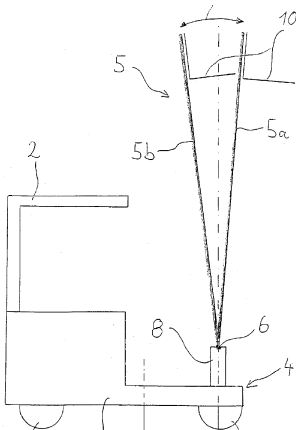
B66F 9/082

{inclinable}

Definition statement

This place covers:
masts inclinable about a horizontal pivot,

see for example US 2003/0206793.



References

Limiting references

This place does not cover:

Masts rotating around a vertical pivot	B66F 9/10
--	---------------------------

B66F 9/085

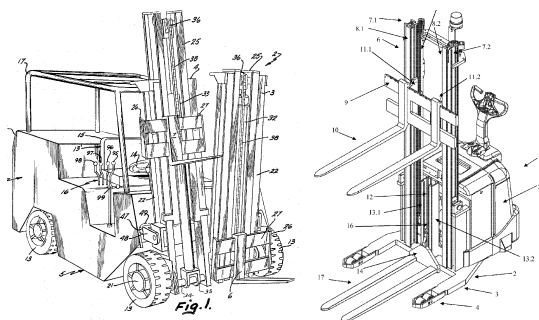
{Multiple forks, i.e. more than one pair mounted on a single mast or with more than one mast}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 4 395 189 or US2011/0139546.



B66F 9/087

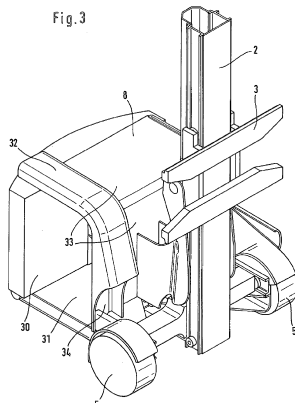
{Monomasts}

Definition statement

This place covers:

with only a single strength section, i.e. not a pair of masts connected together,

see for example US 2006/0070816.



B66F 9/10

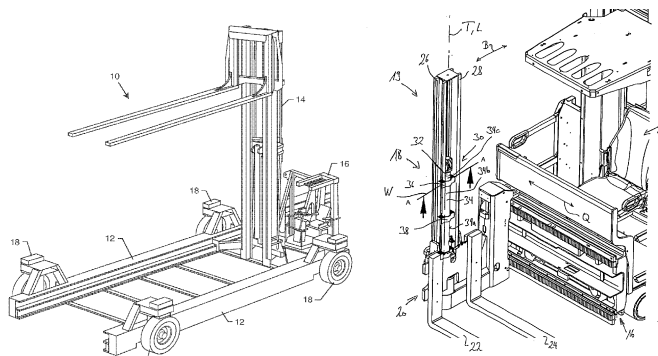
movable in a horizontal direction relative to truck

Definition statement

This place covers:

masts which move horizontally relative to the chassis, either longitudinally, sideways or rotating around a vertical axis,

see for example US 2009/0200097 or US2006/0104783.



References

Limiting references

This place does not cover:

Trucks with articulated frames	B66F 9/105
Trucks where the forks rotate relative to the mast, but the mast does not rotate relative to the chassis	B66F 9/149

B66F 9/105

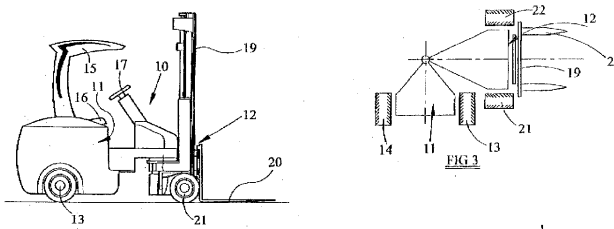
{Articulated, i.e. front chassis with wheels and mast rotatable relative to rear chassis with wheels}

Definition statement

This place covers:

trucks where not only the mast rotates, but also part of the chassis, i.e with wheels which also change position when the mast rotates,

see for example US 2003/0132038.

**B66F 9/12**

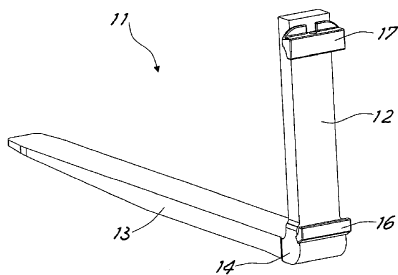
Platforms; Forks; Other load supporting or gripping members

Definition statement

This place covers:

load supporting members unless covered by one of the following subgroups, such as details of forks,

see for example US 2009/0065308.

**B66F 9/122**

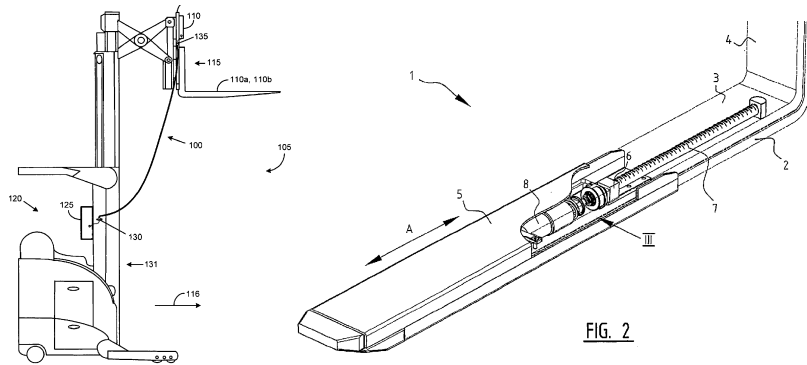
{longitudinally movable}

Definition statement

This place covers:

forks movable forwards relative to the mast, including telescopic forks,

see for example US 2007/0222686 or US 2009/0314582.



References

Limiting references

This place does not cover:

Laterally movable load supports	B66F 9/14
---------------------------------	---------------------------

B66F 9/125

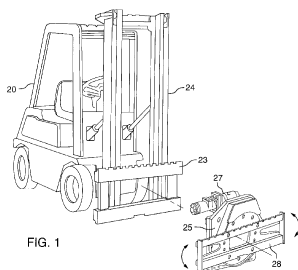
{rotatable about a longitudinal axis}

Definition statement

This place covers:

forks or other load carriers which can be pivoted around the longitudinal axis of the truck,

see for example US 5 820 270.



B66F 9/127

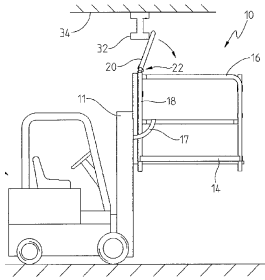
{Working platforms}

Definition statement

This place covers:

working platforms mounted on a fork lift truck with a mast,

see for example US 2007/0261917.



References

Limiting references

This place does not cover:

Working platforms on other types of vehicle	B66F 11/04
---	----------------------------

B66F 9/14

laterally movable, e.g. swingable, for slewing or transverse movements

Definition statement

This place covers:

devices where the load support moves relative to the mast, not covered by one of the following subgroups.

References

Limiting references

This place does not cover:

Devices where the mast moves	B66F 9/10
Devices where the load support moves longitudinally relative to the mast	B66F 9/122

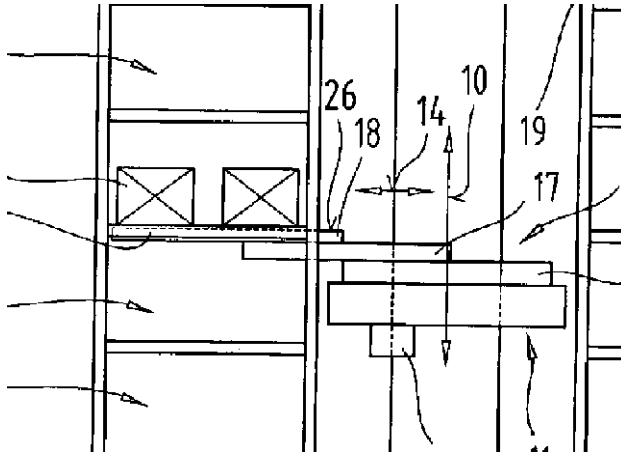
B66F 9/141

{with shuttle-type movement}

Definition statement

This place covers:

telescopic load elements, typically for stacker cranes, see for example US 2007/0144991.



References

Limiting references

This place does not cover:

General features of stacker cranes	B66F 9/07
------------------------------------	---------------------------

B66F 9/142

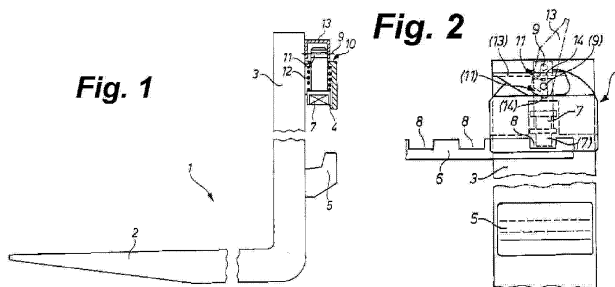
{Movements of forks either individually or relative to each other}

Definition statement

This place covers:

for example allowing manual adjustment,

see for example US 2010/0032243.



References

Limiting references

This place does not cover:

Independently movable forks with actuators	B66F 9/144
For forks moving together	B66F 9/146

B66F 9/143

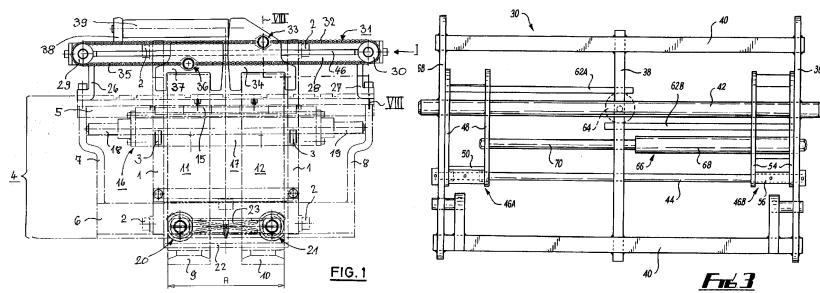
{Movements of forks relative to each other - symmetric}

Definition statement

This place covers:

arrangements which move both forks in opposite directions. Includes documents where it is not clear whether the forks must move together, i.e. both driven by hydraulic cylinders with no indication of whether the cylinders operate together,

see for example EP 0 774 441 or US 2005/0254934.



B66F 9/144

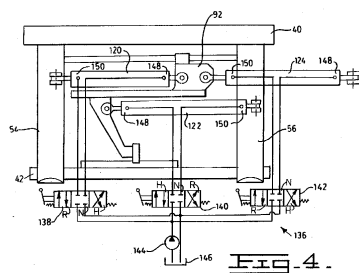
{Movements of forks relative to each other - independent}

Definition statement

This place covers:

independently movable forks with actuators,

see for example US 5 190 436.



References

Limiting references

This place does not cover:

Manually adjustable forks	B66F 9/142
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B66F 9/145

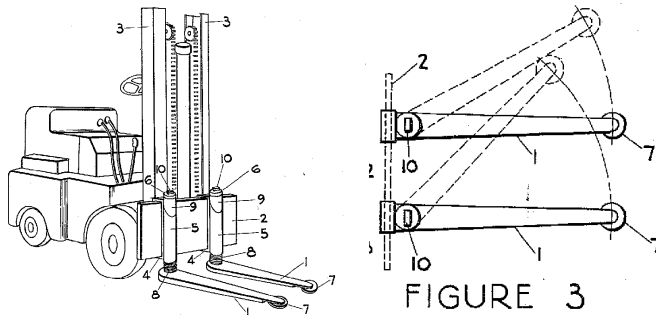
{Rotation of fork around vertical axis}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2 605 918.



References

Limiting references

This place does not cover:

Rotation around horizontal axis	B66F 9/12
---------------------------------	---------------------------

B66F 9/146

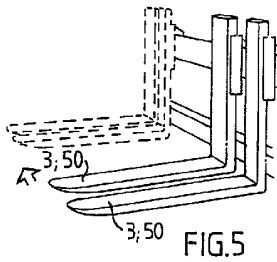
{Side shift, i.e. both forks move together sideways relative to fork support}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 5 338 148.



B66F 9/147

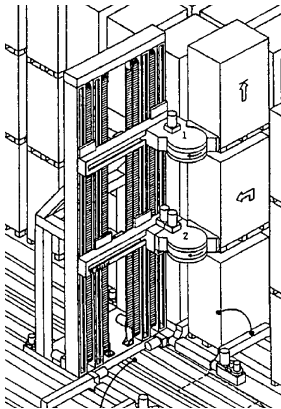
{Whole unit including fork support moves relative to mast}

Definition statement

This place covers:

arrangements using both rotation and translation,

see for example WO 94/02390.



B66F 9/148

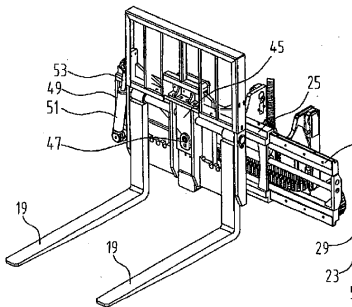
{Whole unit including fork support moves sideways}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2008/0296094.



B66F 9/149

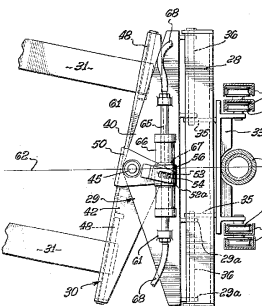
{Whole unit including fork support rotates}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2 621 821.



References

Limiting references

This place does not cover:

Arrangements using both rotation and translation	B66F 9/147
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B66F 9/16

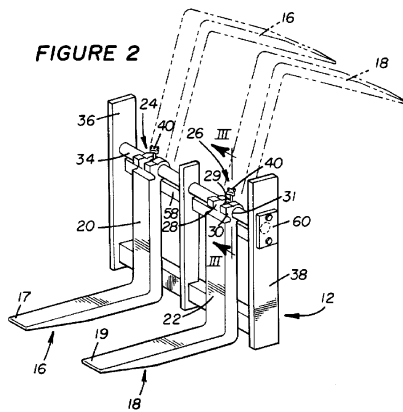
inclinable relative to mast

Definition statement

This place covers:

forks with substantial vertical sections, where the whole fork rotates,

see for example US 4 497 607.



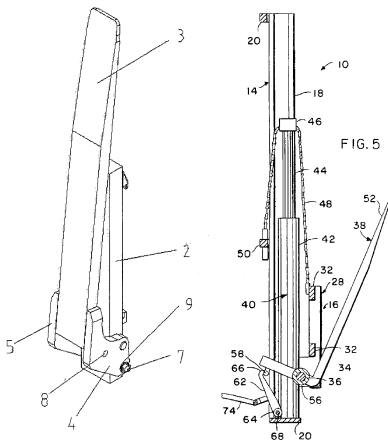
B66F 9/165

{Foldable forks, i.e. where only the horizontal section moves}

Definition statement

This place covers:

forks where the vertical section is fixed or where the moving vertical section is small, see for example EP 1 748 023 or US 6 068 086.



B66F 9/18

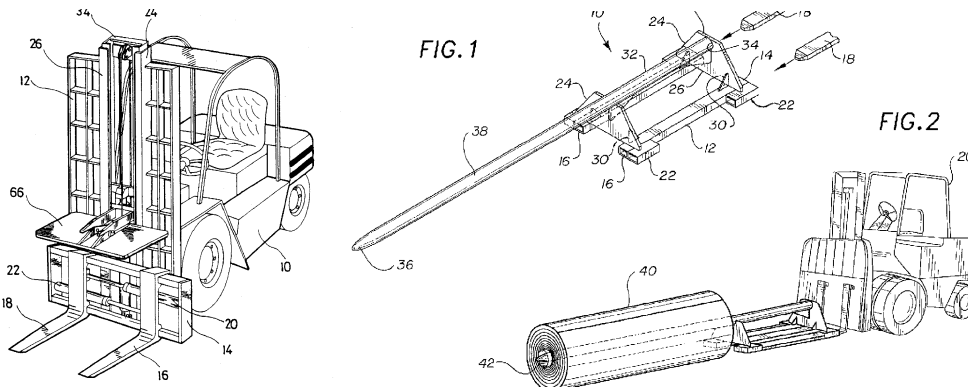
Load gripping or retaining means

Definition statement

This place covers:

load supporting members unless covered by one of the following subgroups,

see for example US 5 509 774 or US 2002/0110446.



References

Limiting references

This place does not cover:

Forks	B66F 9/12
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B66F 9/181

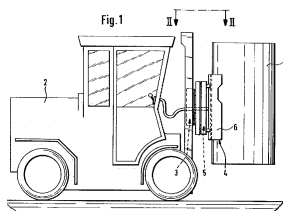
{by suction means}

Definition statement

This place covers:

devices using only vacuum or other mechanism with vacuum assistance,

see for example US 4 961 606.



B66F 9/182

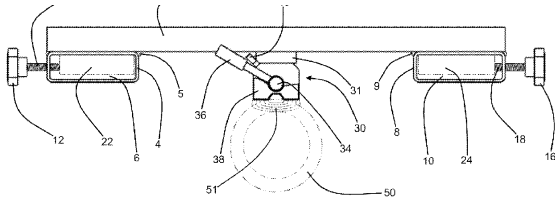
{by magnetic means}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2011/0070058.



B66F 9/183

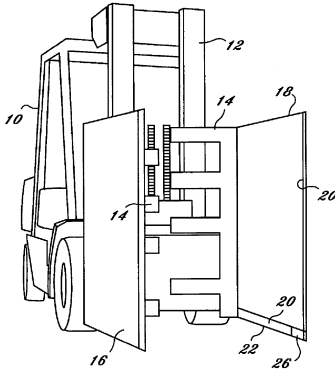
{Coplanar side clamps}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 7 118 148.



References

Limiting references

This place does not cover:

Clamps acting from above	B66F 9/18
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B66F 9/184

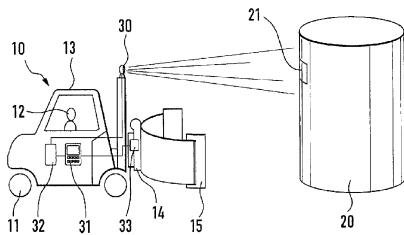
{Roll clamps}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2001/0039464.



B66F 9/185

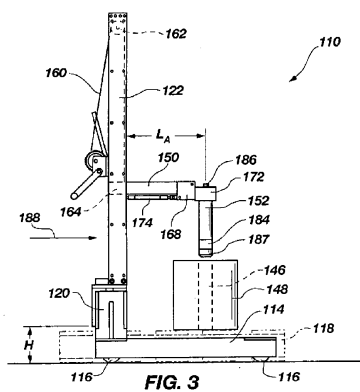
{by internally expanding grippers}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2006/0245889.



References

Limiting references

This place does not cover:

Load supports merely inserted inside the load, e.g. pins	B66F 9/18
--	---------------------------

B66F 9/186

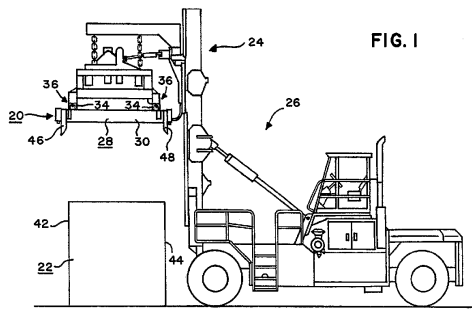
{Container lifting frames}

Definition statement

This place covers:

devices for lifting iso shipping containers,

see for example US 5 370 435.



References

Limiting references

This place does not cover:

Cranes or straddle carriers for lifting containers	B66C 19/00
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B66F 9/187

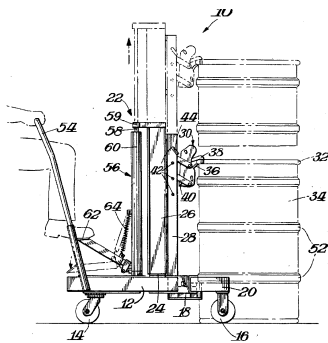
{Drum lifting devices}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 5 618 154.



B66F 9/188

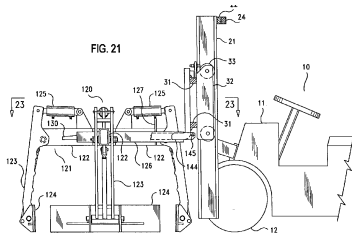
{Stacked-bricks lifting devices}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2007/0181373.



B66F 9/19

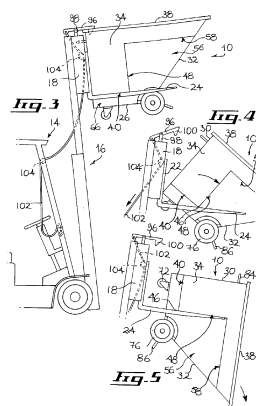
Additional means for facilitating unloading

Definition statement

This place covers:

devices which aid unloading e.g. by tipping,

see for example US 2004/022616.



References

Limiting references

This place does not cover:

Devices which aid unloading by pushing or aid loading by pulling	B66F 19/00
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B66F 9/195

{for pushing the load}

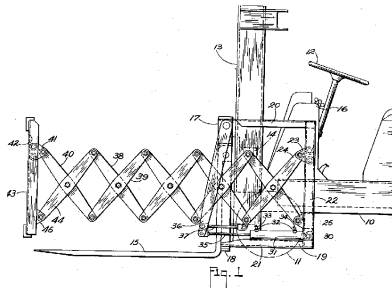
Definition statement

This place covers:

devices which aid unloading by pushing or aid loading by pulling,

Definition statement

see for example US 2 670 867.



B66F 9/20

Means for actuating or controlling masts, platforms, or forks (power take-off from vehicle transmissions, combined with vehicle propulsion systems [B60K](#))

Definition statement

This place covers:

general control arrangements, i.e. not essentially electrical or hydraulic, electrical control levers.

see for example US 2009/0200116

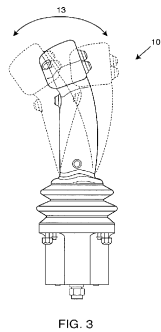


FIG. 3

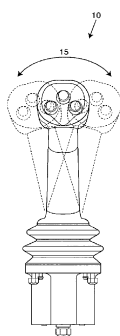


FIG. 4

References

Limiting references

This place does not cover:

Mechanical arrangement of control levers	B66F 9/0759
Hydraulic controls	B66F 9/22
Electrical controls	B66F 9/24
Control levers for cranes	B66C 13/56
Control levers for excavators	E02F 9/20
Control levers in general	G05G 9/00

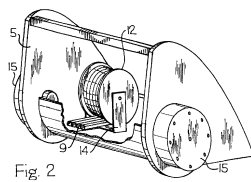
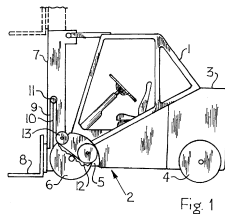
B66F 9/205

{Arrangements for transmitting pneumatic, hydraulic or electric power to movable parts or devices (for cranes [B66C 13/12](#))}

Definition statement

This place covers:

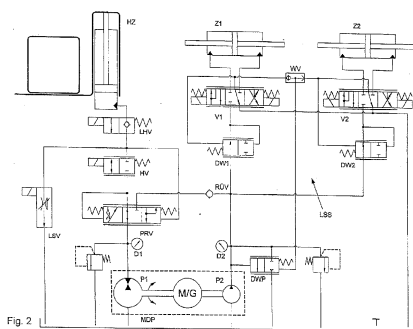
see for example US 6 595 329.

**B66F 9/22****Hydraulic devices or systems****Definition statement**

This place covers:

essentially hydraulic control systems,

see for example US 2008/0152513.

**B66F 9/24****Electrical devices or systems****Definition statement**

This place covers:

essentially electric control systems,

see for example US 7 235 948.

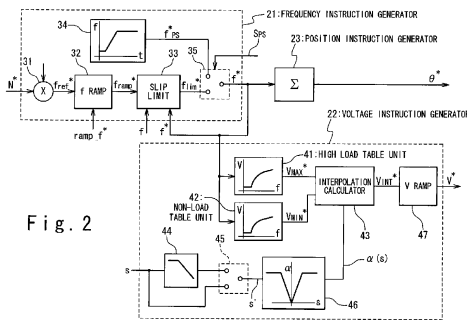


Fig. 2

References

Limiting references

This place does not cover:

Safety systems	B66F 17/003
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B66F 11/00

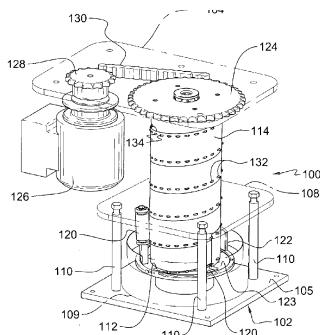
Lifting devices specially adapted for particular uses not otherwise provided for (ground-engaging vehicle fittings for supporting, lifting or manoeuvring the vehicle [B60S 9/00](#))

Definition statement

This place covers:

lifting platforms moving up columns, telescopic masts for lifting loads,

see for example US 2006/0005651.



References

Limiting references

This place does not cover:

Other lifting devices not covered by to B66F 9/00 , B66F 13/00 , B66F 15/00 or B66F 17/00	B66F 19/00
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B66F 11/04

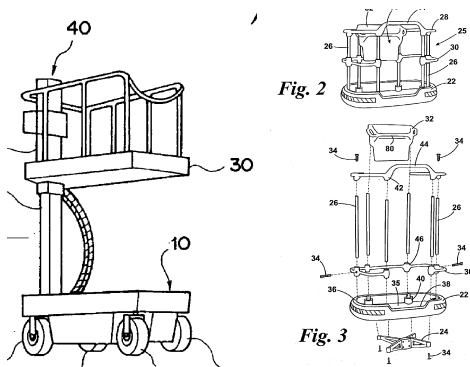
for movable platforms or cabins, e.g. on vehicles, permitting workmen to place themselves in any desired position for carrying out required operations ({Working platforms on fork-lift trucks [B66F 9/127](#); } vehicle aspects of service vehicles [B60P 3/14](#); platforms for cleaning windows [A47L 3/02](#); devices for rescuing persons from buildings [A62B 1/02](#); liftable or lowerable platforms for use on ladders [E06C 7/16](#); maintenance travellers for bridges [E01D 19/10](#); scaffolds on an extensible sub-structure [E04G 1/22](#))

Definition statement

This place covers:

work platforms or cabins on wheels or similar members not covered by one of the following subgroups, or details of general platforms.

see for example US 2008/0097666 or US 2010/0200332.



B66F 11/042

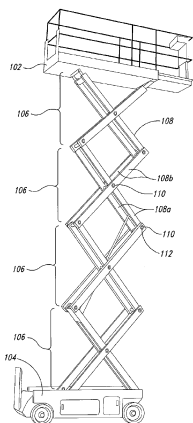
{actuated by lazy-tongs mechanisms or articulated levers}

Definition statement

This place covers:

platforms with scissor type lifting mechanisms

see for example US 2008/0105498.



B66F 11/044

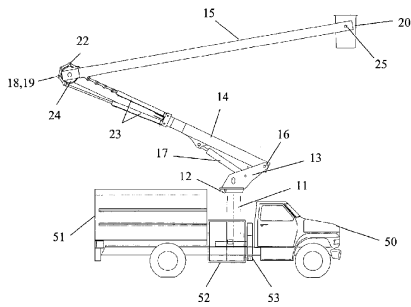
{Working platforms suspended from booms}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2010/0193286.



References

Limiting references

This place does not cover:

Platforms with telescopic booms	B66F 11/046
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B66F 11/046

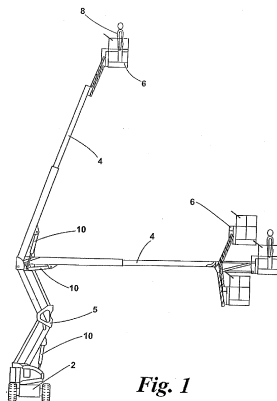
{of the telescoping type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

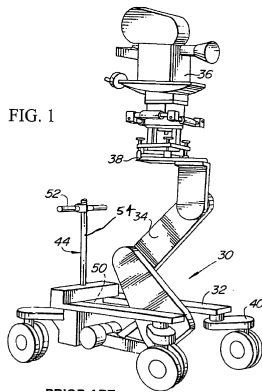
see for example US 2011/0209943.



B66F 11/048**{Mobile camera platform}****Definition statement***This place covers:*

Illustrative example of subject matter classified in this group

see for example US 2011/0079105.

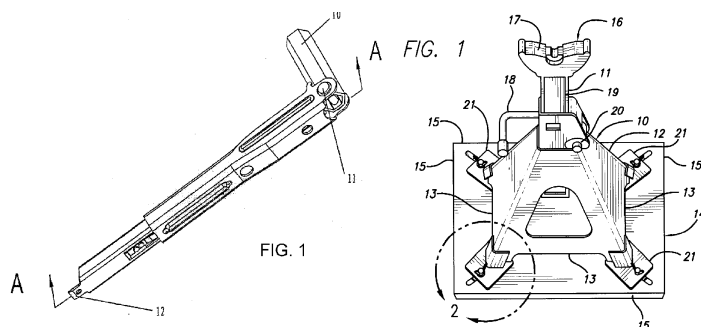
**References****Limiting references***This place does not cover:*

Mobile camera stands	F16M 11/42
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B66F 13/00**Common constructional features or accessories****Definition statement***This place covers:*

details of general lifting devices such as handles, load supports, also supports used in conjunction with jacks, accessories such as lamps,

see for example US 2009/0314124 or US 6 644 615.

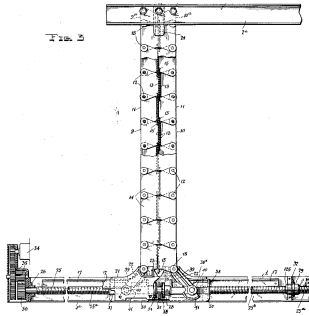


B66F 13/005**{Thrust chain devices}****Definition statement**

This place covers:

thrust chains working without pinions, e.g. in pairs to form a rigid chain

see for example US 1 834 900.

**References****Limiting references**

This place does not cover:

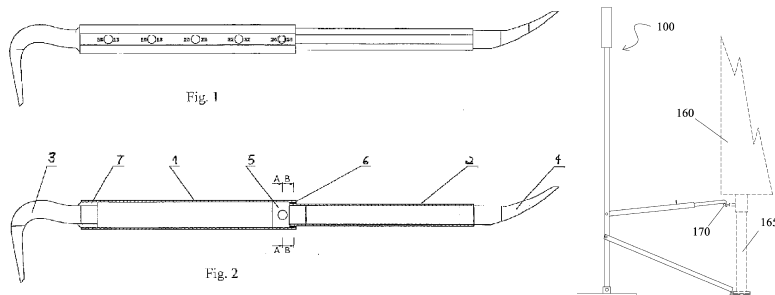
Thrust chains working with pinions	B66F 3/06
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B66F 15/00**Crowbars or levers****Definition statement**

This place covers:

hand operated levers for lifting objects,

see for example US 2010/0283017 or US 2010/0224842.

**References****Limiting references**

This place does not cover:

Levers for lifting manhole covers	B66F 19/005
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Levers for removing nails	B25C 11/00
Levers for lifting doors	E04F 21/0007
Levers for wrecking buildings	E04G 23/08

B66F 17/00

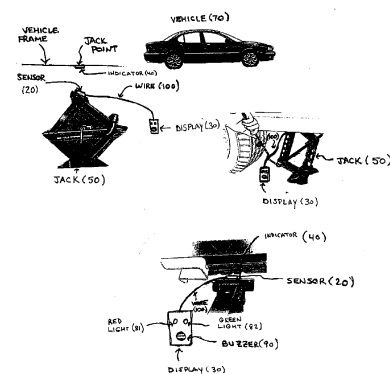
Safety devices, e.g. for limiting or indicating lifting force

Definition statement

This place covers:

safety devices not related to fork-lift trucks or working platforms, for example for weighing the load or protecting workers.

see for example US 2005/0258409.



References

Limiting references

This place does not cover:

Safety of cranes	B66C 15/00
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B66F 17/003

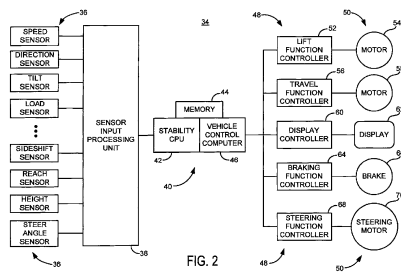
{for fork-lift trucks}

Definition statement

This place covers:

safety features or circuits, e.g. to ensure stability

see for example US 2010/0250073.



B66F 17/006

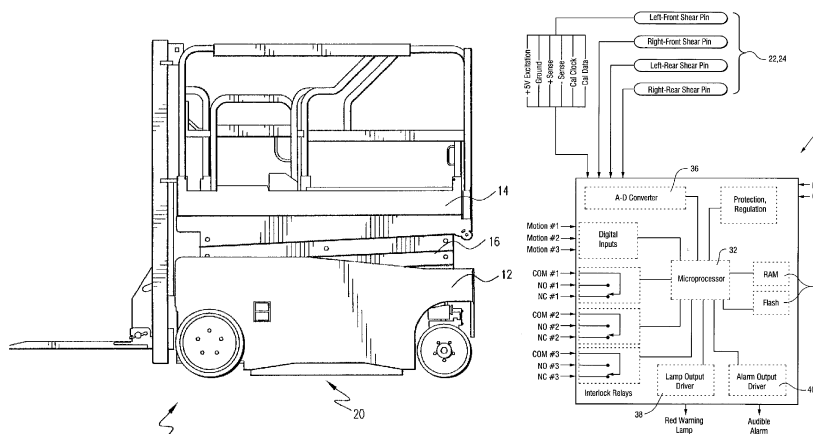
{for working platforms}

Definition statement

This place covers:

for example to ensure stability, e.g. when running over potholes, or monitor weight lifted.

see for example US 2002/0185850 or US 2004/0045768.



B66F 19/00

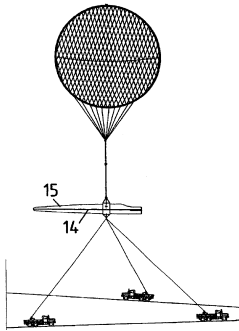
Hoisting, lifting, hauling or pushing, not otherwise provided for

Definition statement

This place covers:

devices not covered by any other **B66F** subgroup for lifting loads, for example using airships, buoyancy, helicopters,

see for example US 2011/0057158.



B66F 19/005

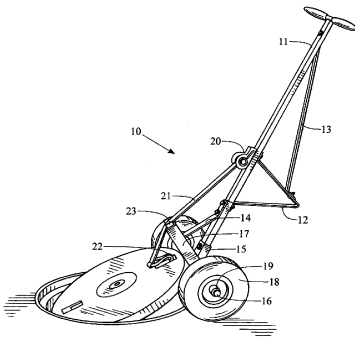
{Lifting devices for manhole covers}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group

see for example US 2011/0133140.



References

Limiting references

This place does not cover:

Lever for lifting general loads	B66F 15/00
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