

## **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 ([N: invalid lifting devices A61G7/10;]mounting artificial islands on piles or like supports E02B17/00; scaffolding combined with lifting devices E04G1/22; lifting devices for sliding forms E04G11/24; lifting of buildings E04G23/06; shores or struts E04G25/00; lifts or other hoisting devices on ladders E06C7/12; props for mining E21D15/00)**

### **Definition statement**

*This subclass/group 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:

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

### **Special rules of classification within this group**

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**

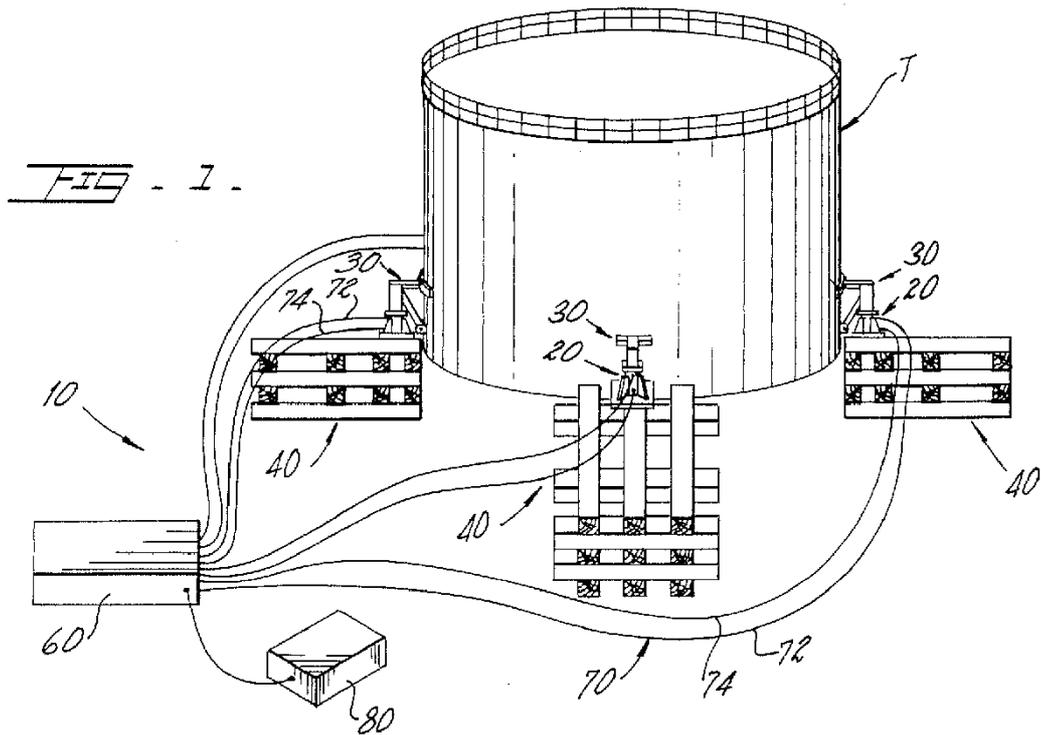
**Devices, e.g. jacks, for lifting loads in predetermined steps**

### **Definition statement**

*This subclass/group 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

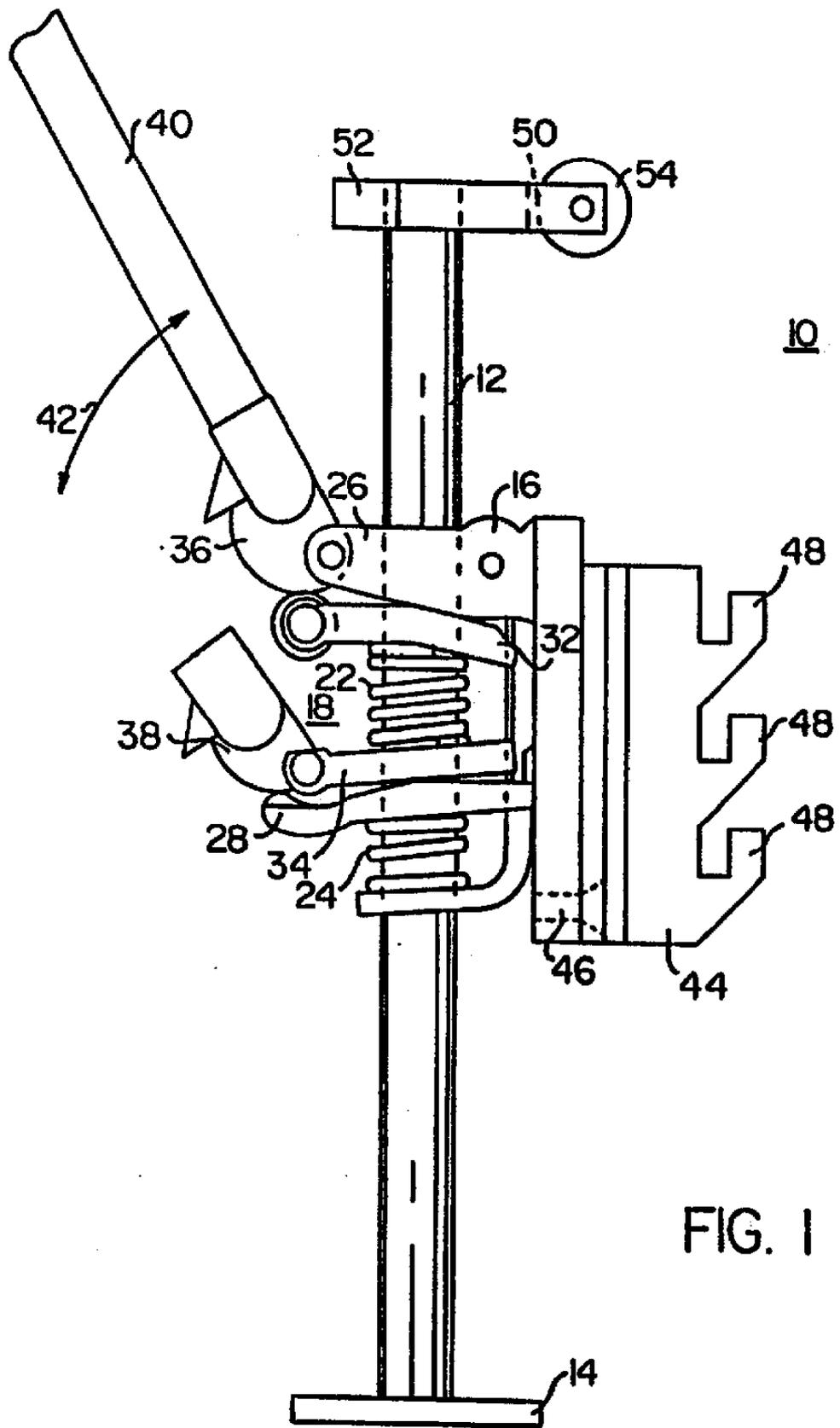
with locking elements, e.g. washers, co-operating with posts

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 385 335



## B66F 1/025

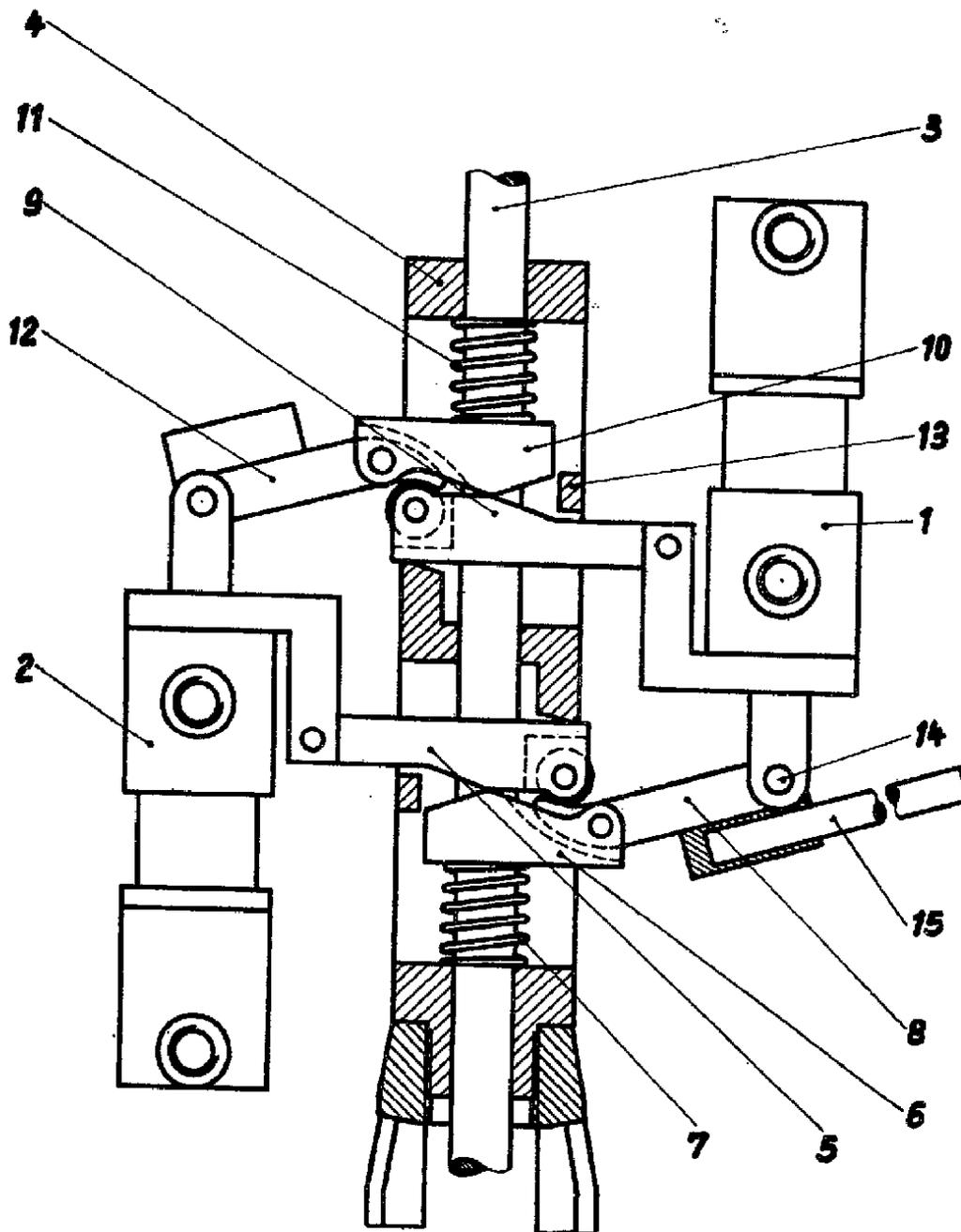
[N: the devices being operated by fluid pressure (B66F1/08 takes precedence)]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example GB 1 134 553.



## **B66F 1/04**

**the posts being toothed**

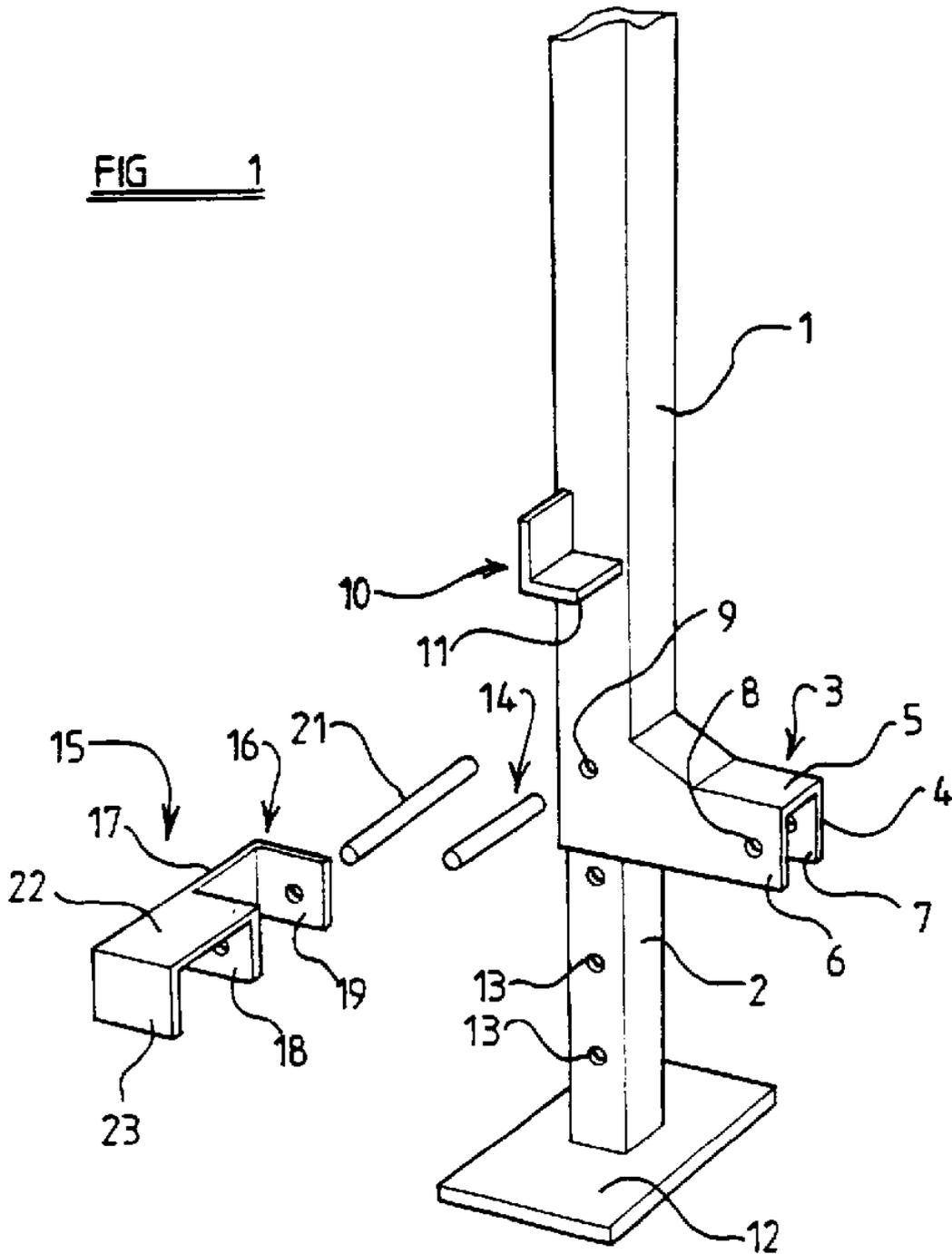
### **Definition statement**

*This subclass/group 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.

FIG 1



**B66F 1/06**

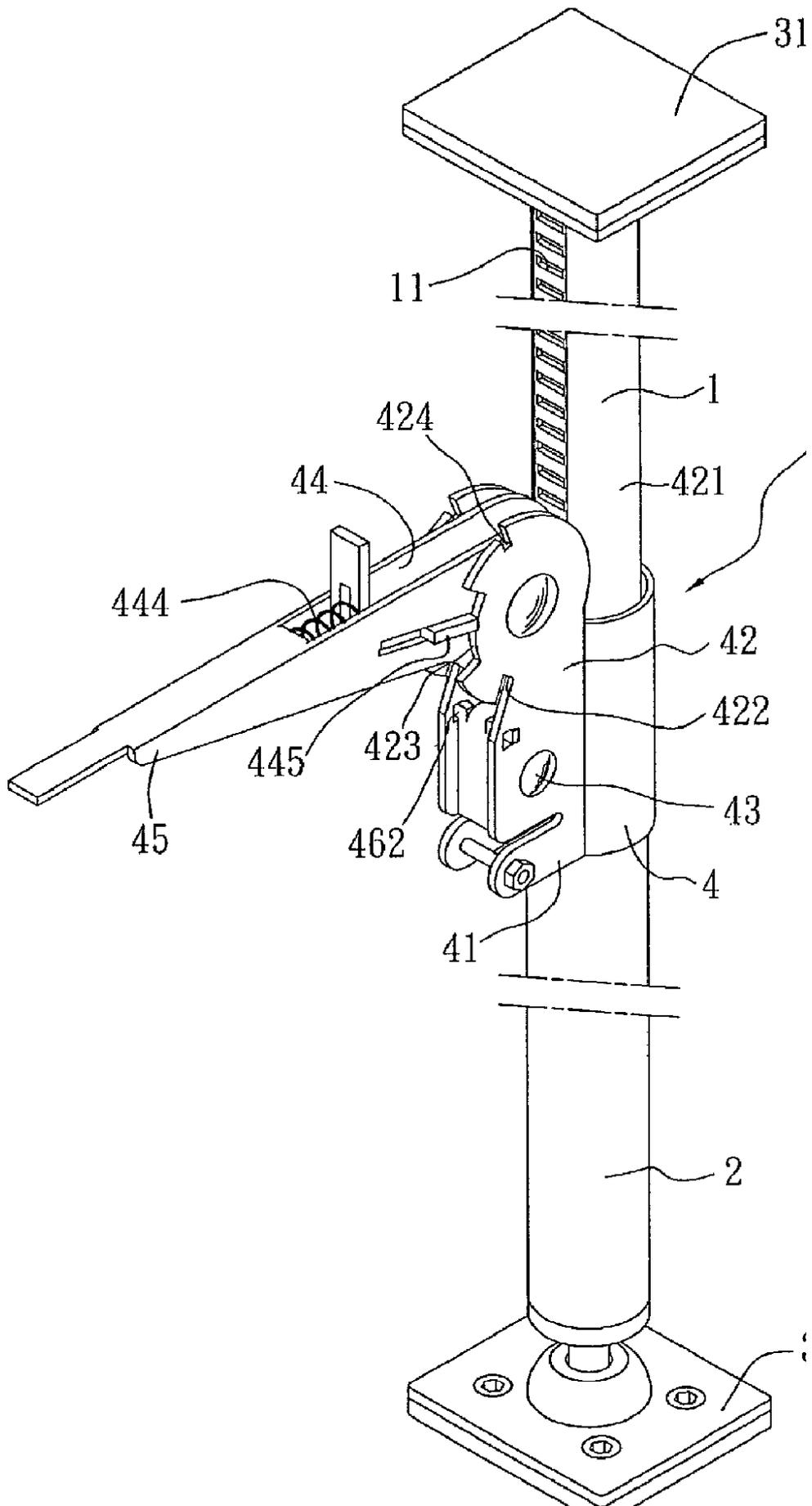
and the devices being actuated mechanically

**Definition statement**

*This subclass/group 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**

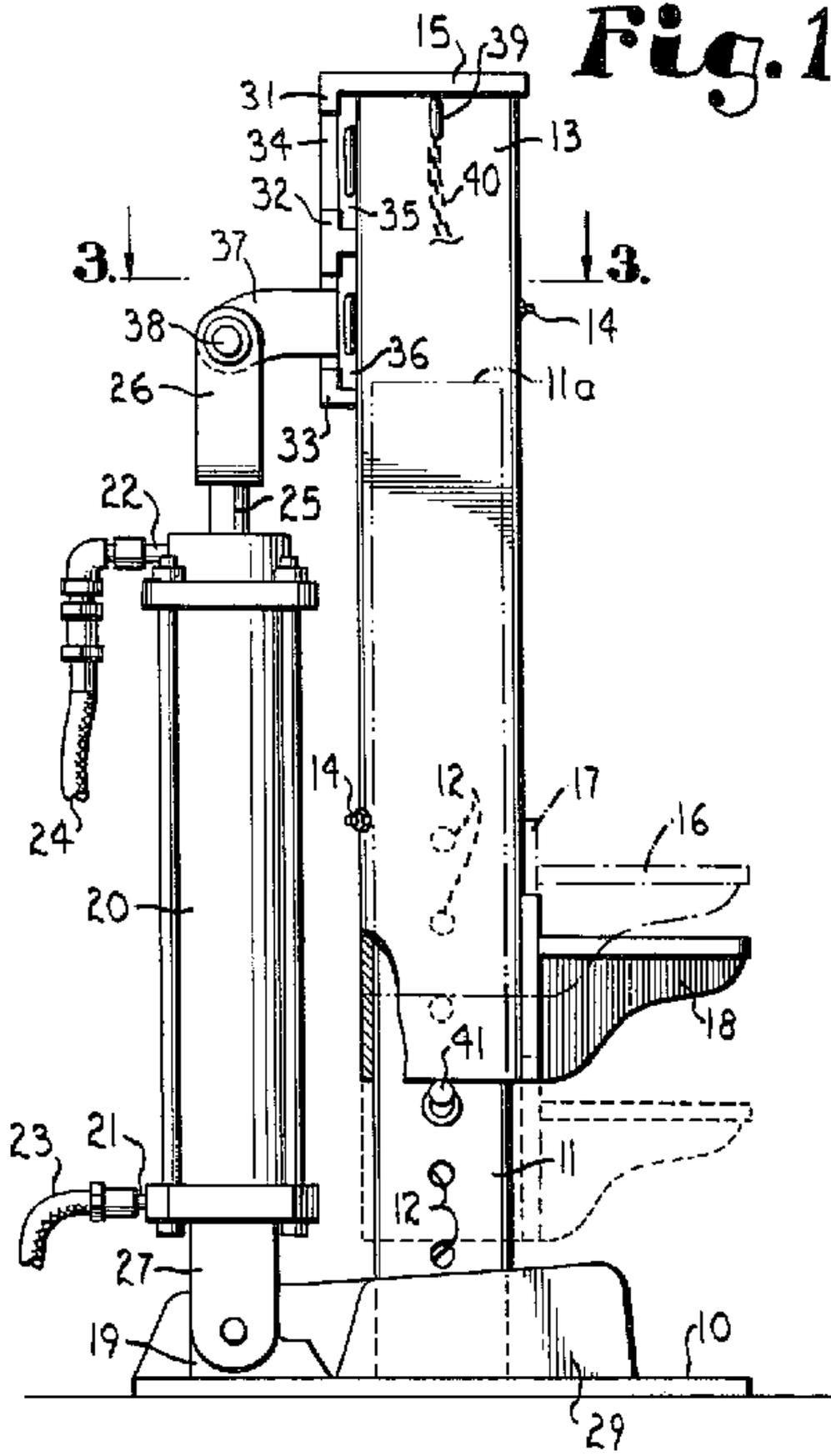
### **Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 4 068 826.

**Fig. 1.**



## **B66F 3/00**

**Devices, e.g. jacks, adapted for uninterrupted lifting of loads  
(mobile jacks of the garage type B66F5/00)**

### **Definition statement**

*This subclass/group covers:*

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

see for example US 4 976 413

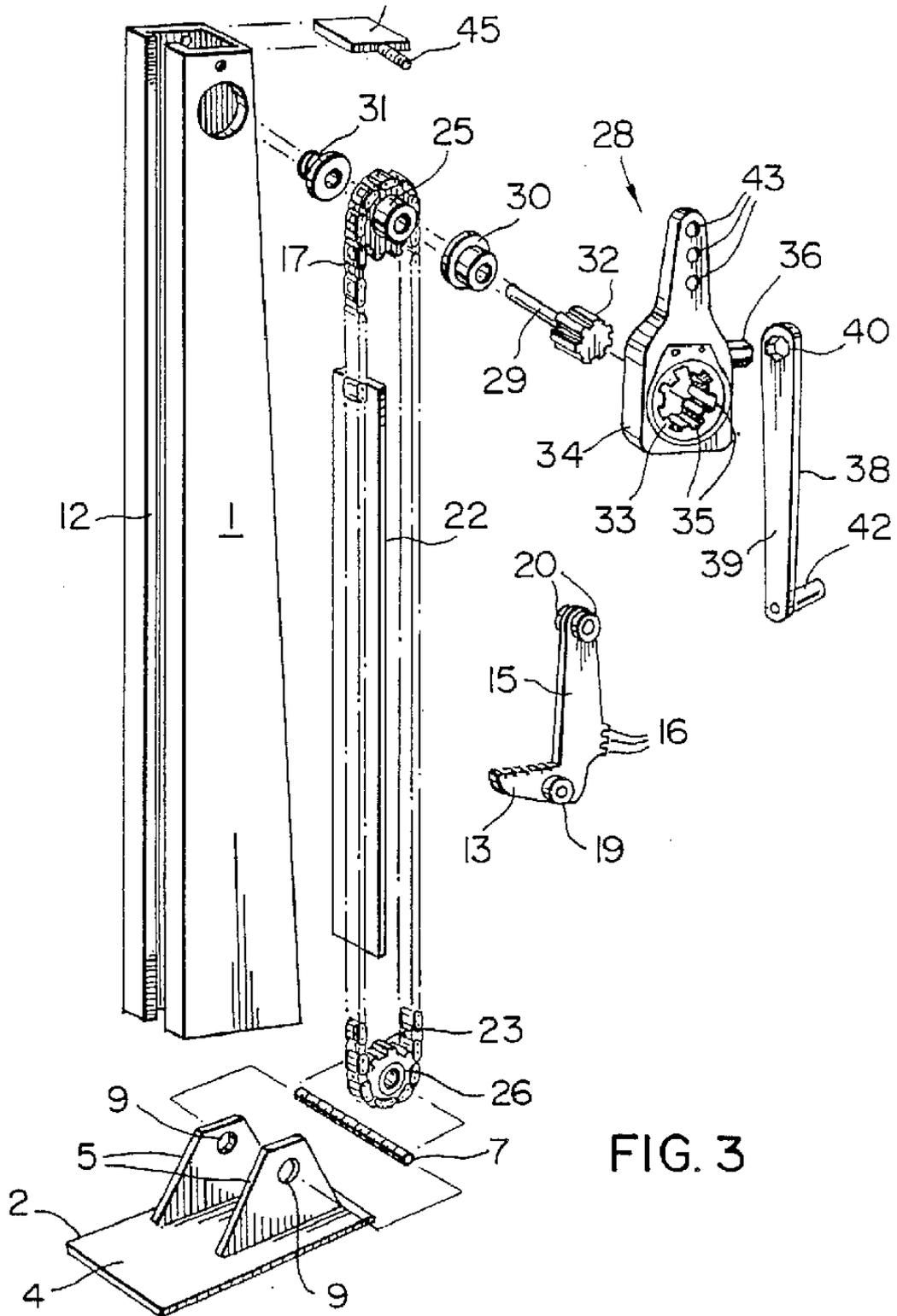


FIG. 3

**B66F 3/005**

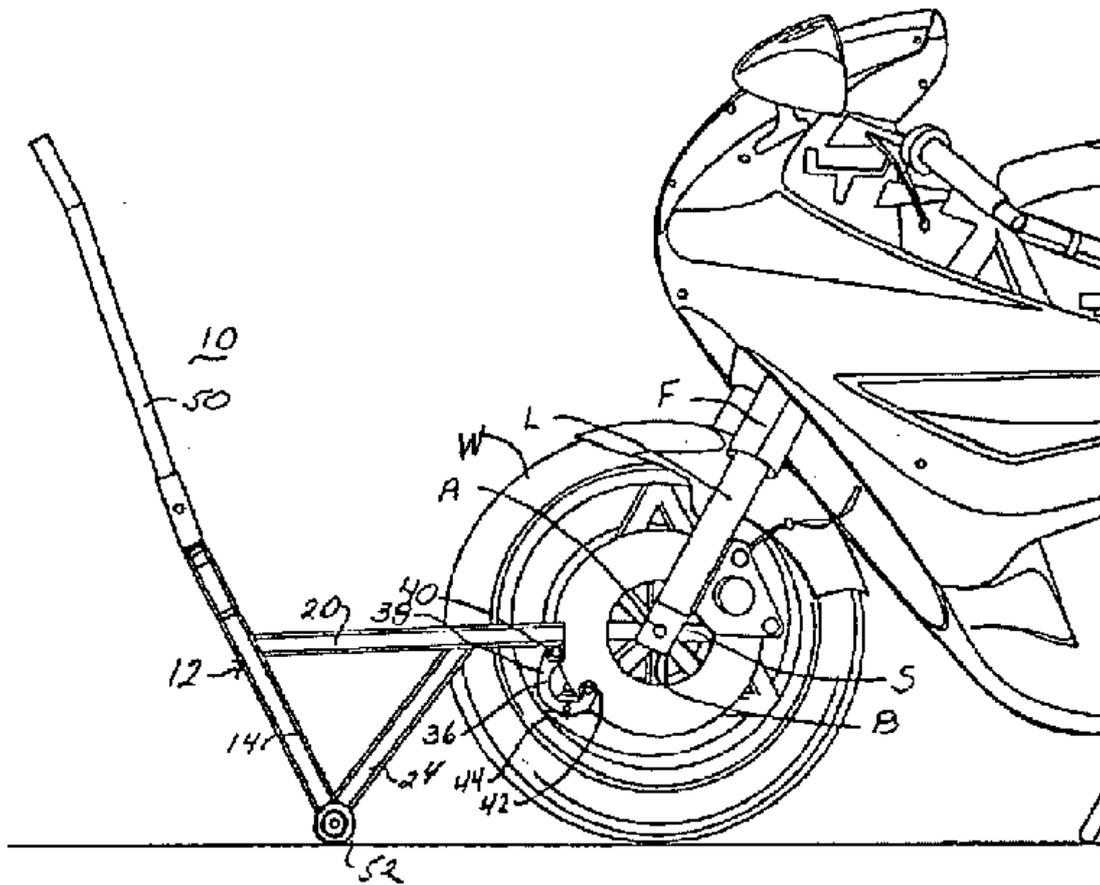
[N: with rocking arm or sector]

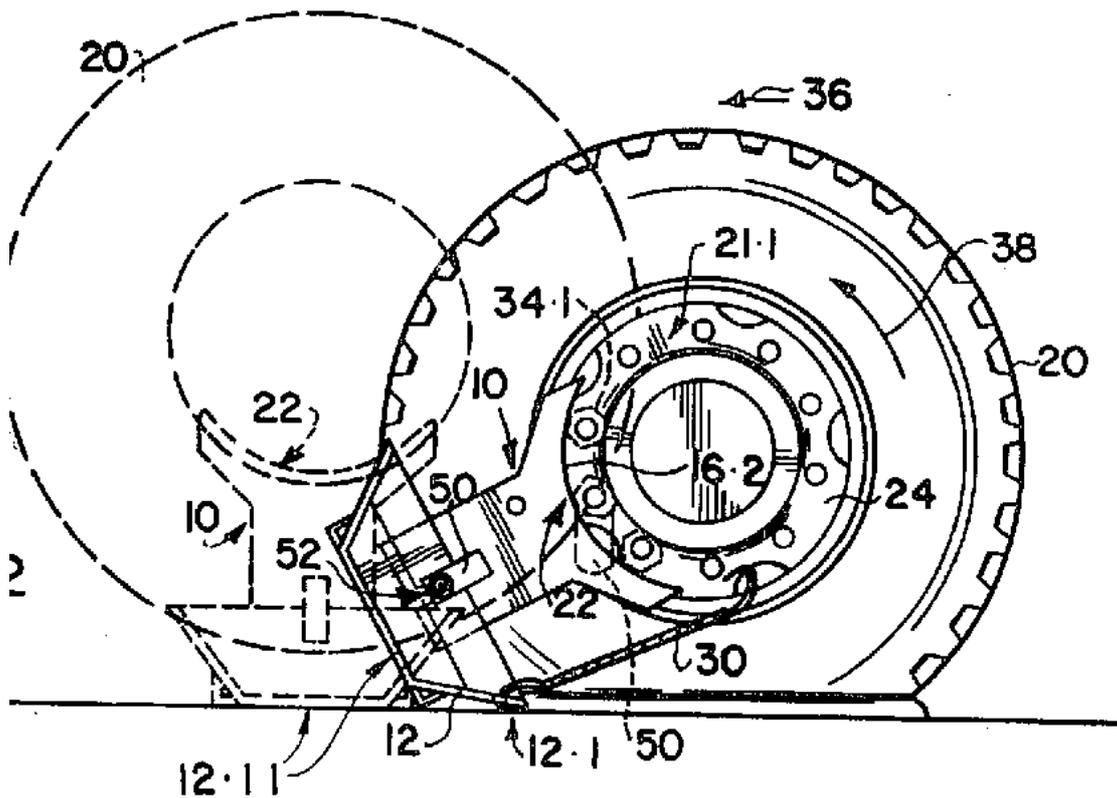
**Definition statement**

*This subclass/group 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

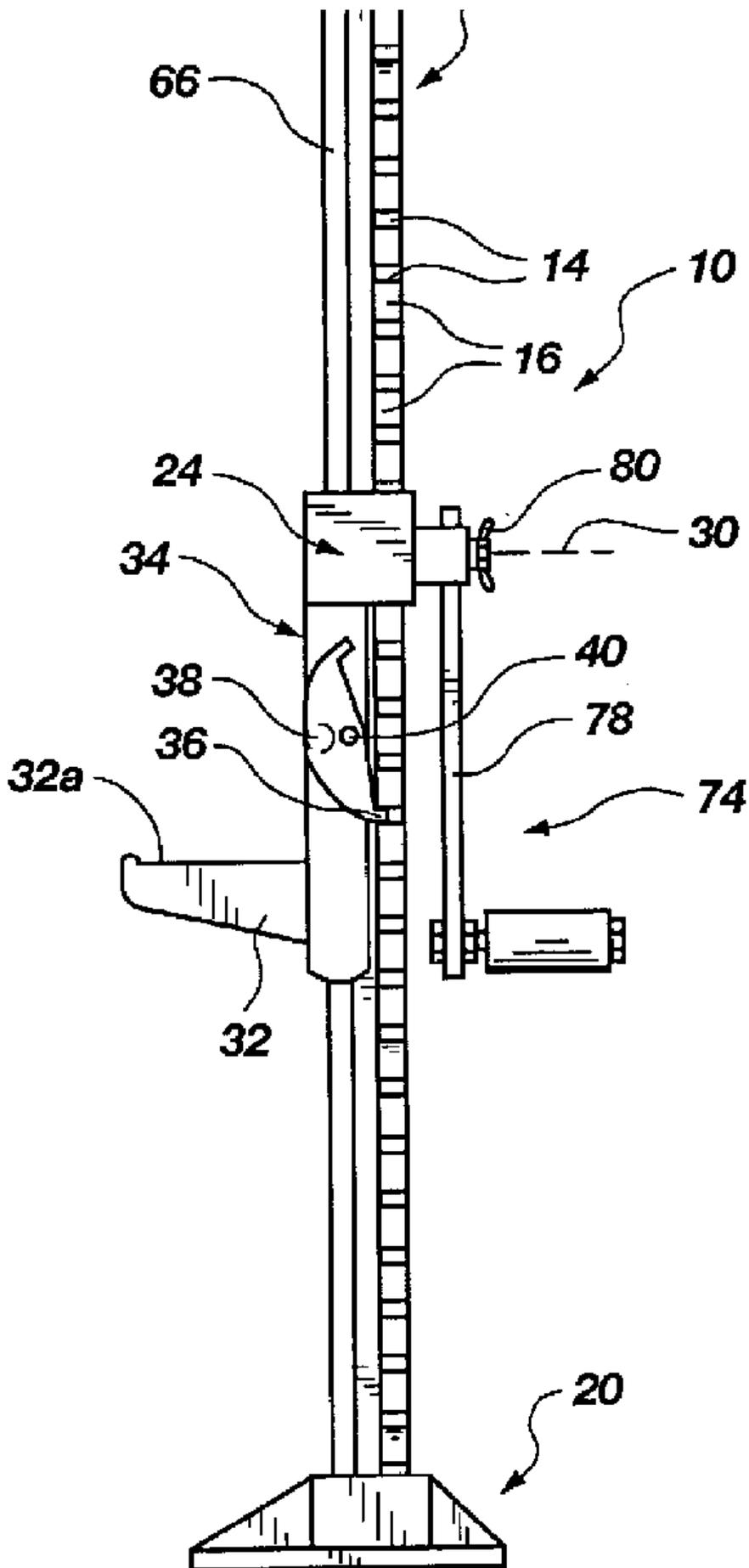
with racks actuated by pinions

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 979 875



## B66F 3/04

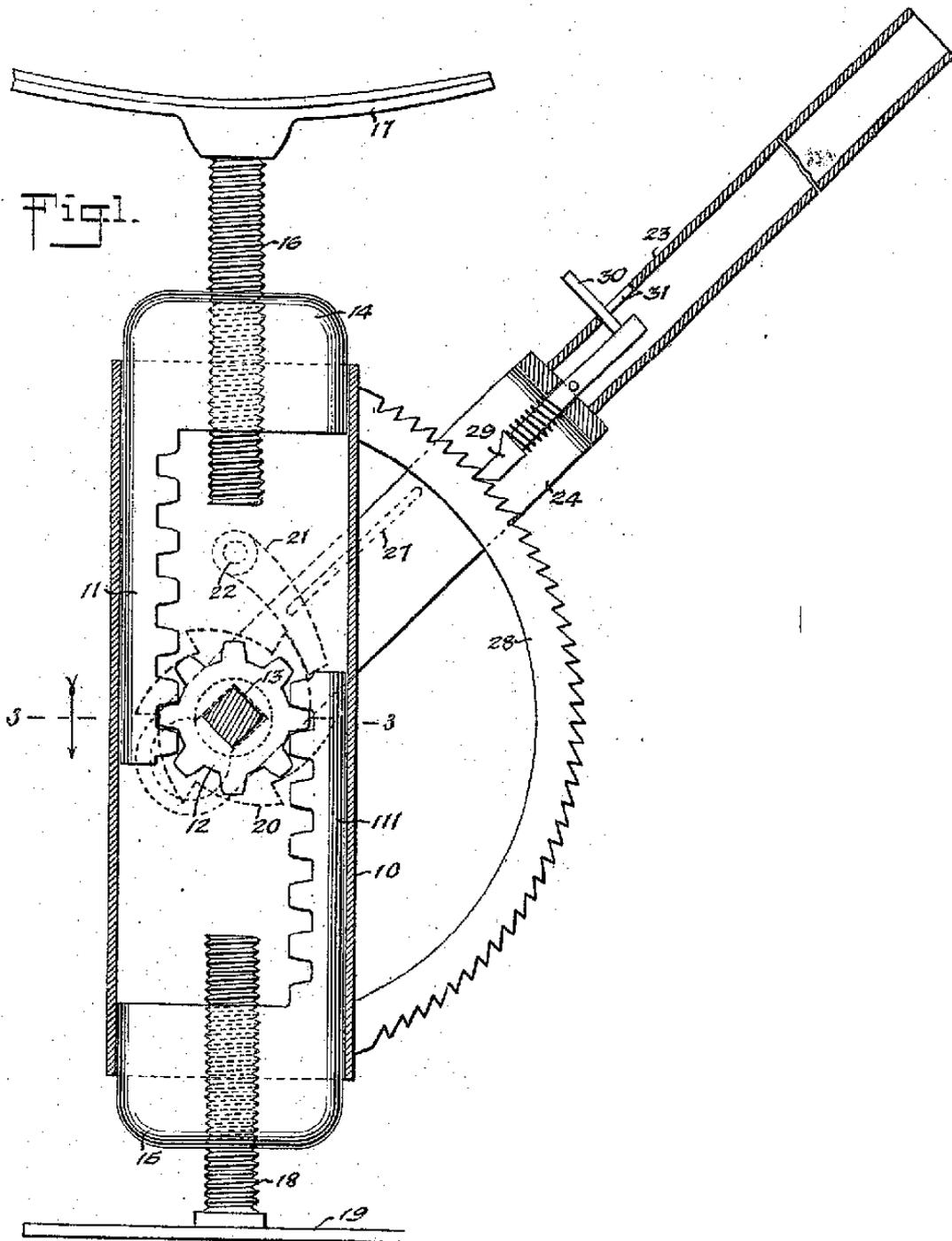
with several racks

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 1 486 797



## B66F 3/06

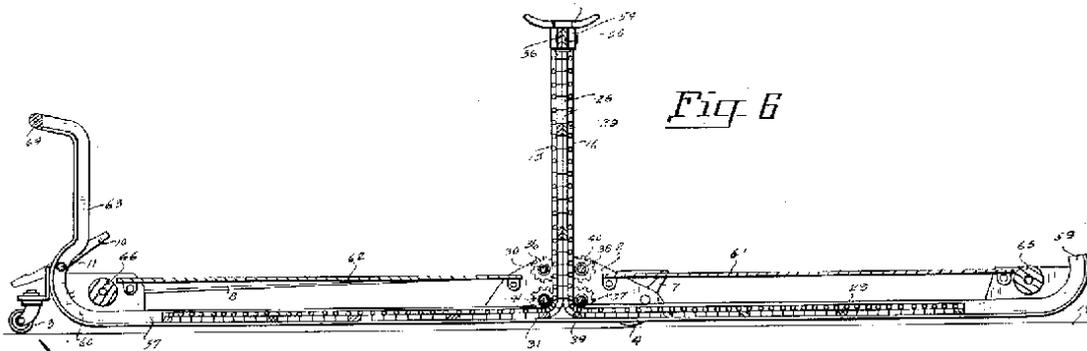
with racks comprising pivotable toothed sections or segments, e.g. arranged in pairs

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 1 925 194.



### References relevant to classification in this group

*This subclass/group does not cover:*

Thrust chains working without pinions	<a href="#">B66F 13/005</a>
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## B66F 3/08

screw operated (B66F3/44 takes precedence; gearings F16H)

### Definition statement

*This subclass/group covers:*

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

## B66F 3/10

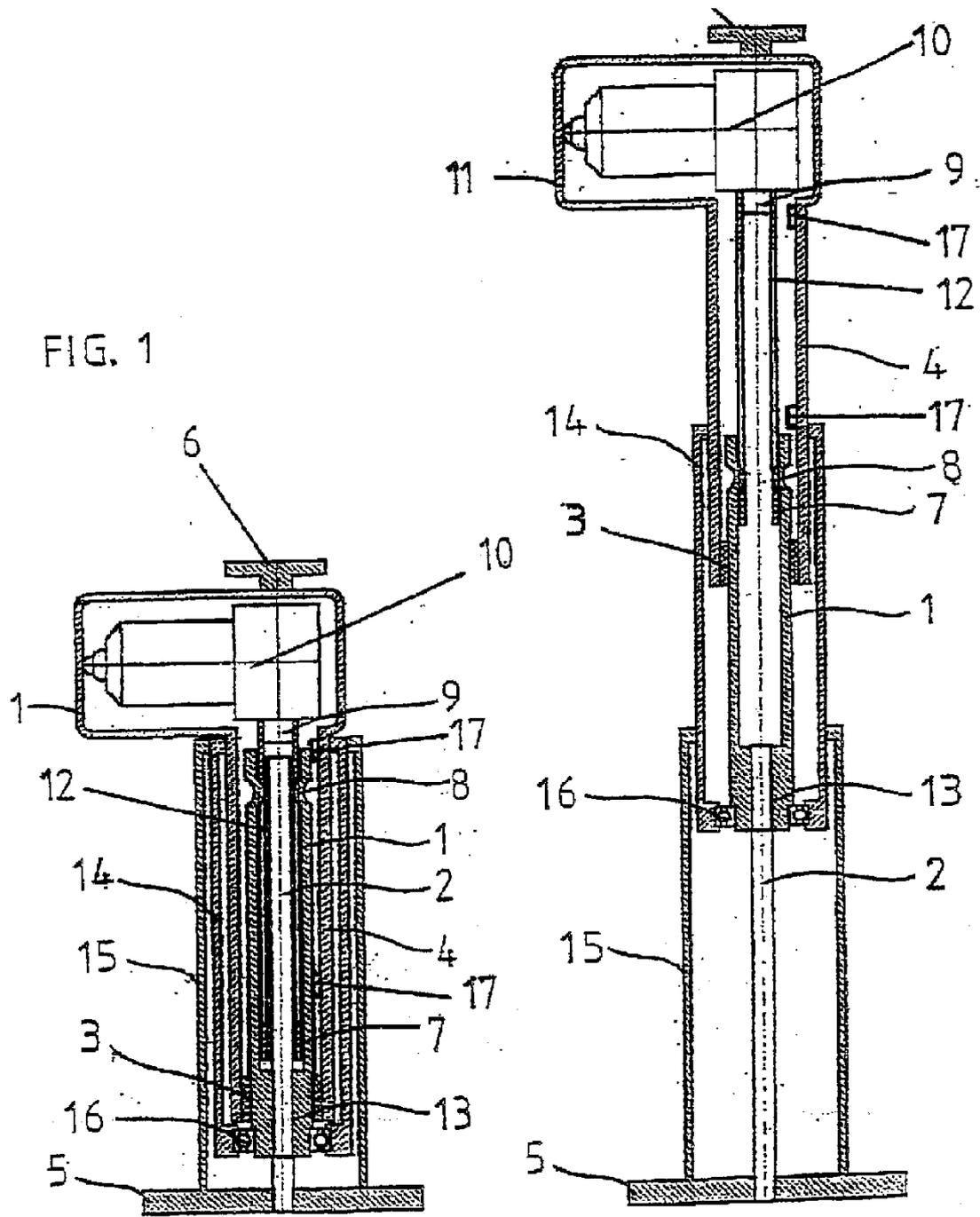
with telescopic sleeves

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2003/0183027.



## B66F 3/12

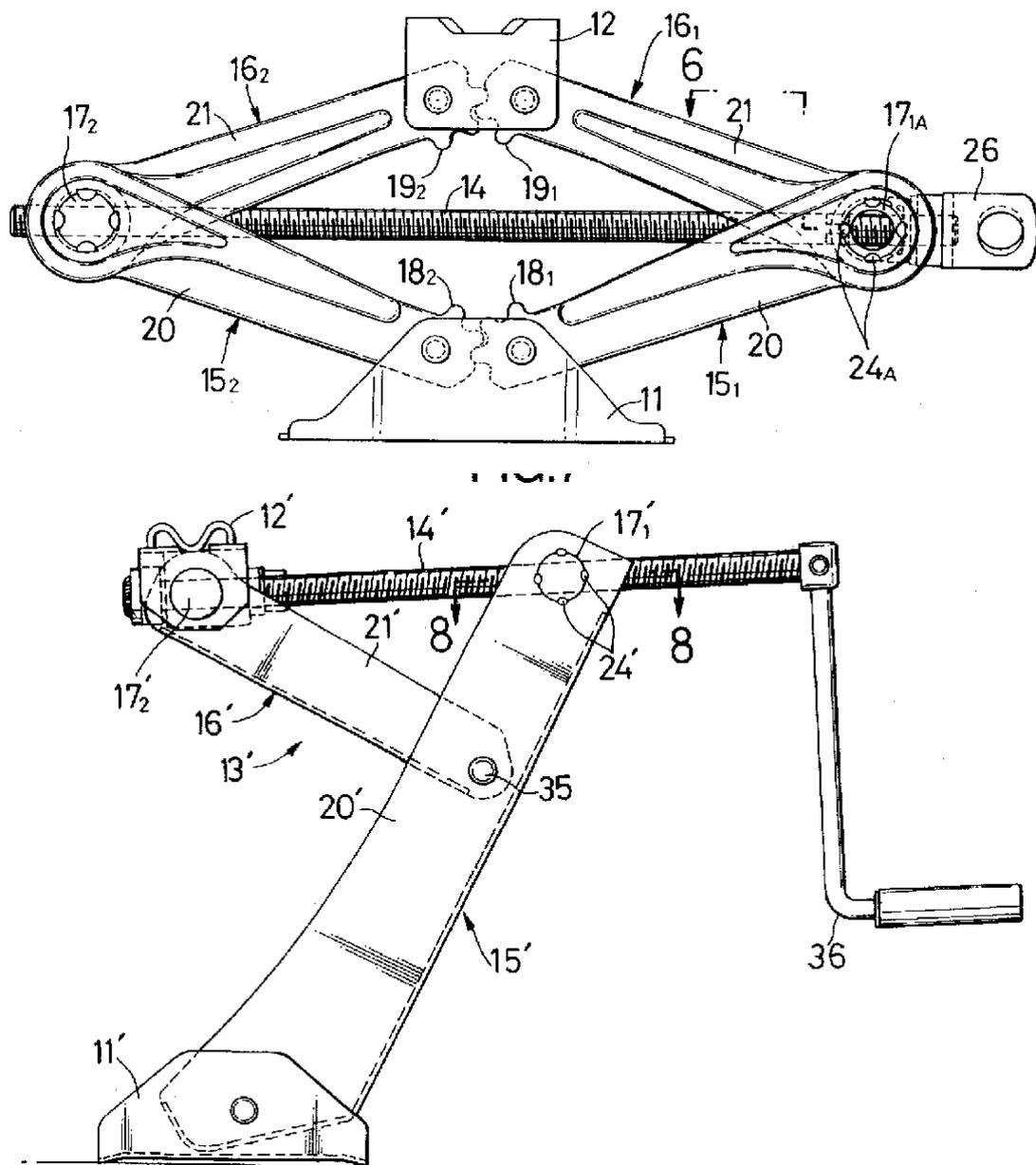
comprising toggle levers (lazy-tongs mechanisms B66F3/22)

### Definition statement

*This subclass/group covers:*

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

see for example US 5 529 286.



## B66F 3/14

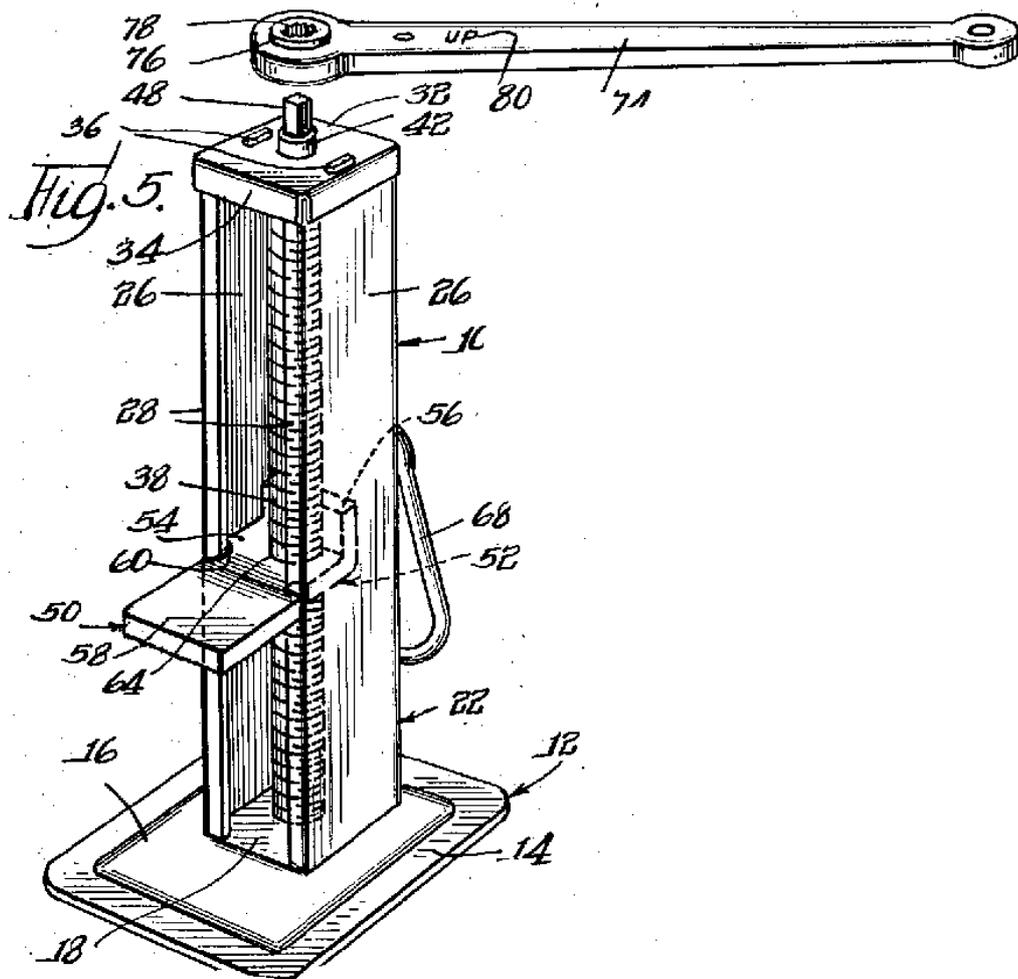
actuated through pawl-and-ratchet mechanisms

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US2910270



## B66F 3/16

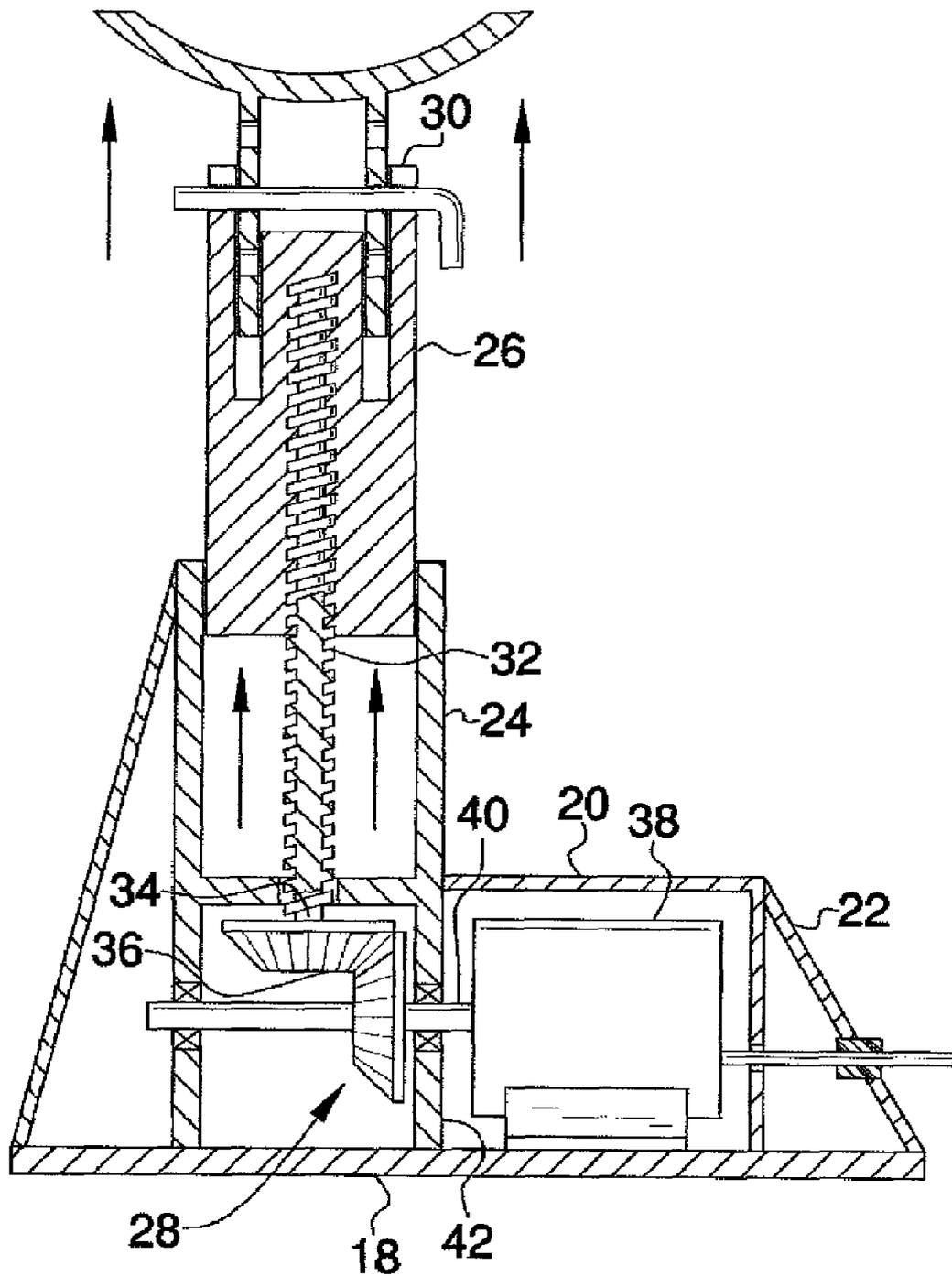
actuated through bevel-wheel gearings

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 7 472 889.



## B66F 3/18

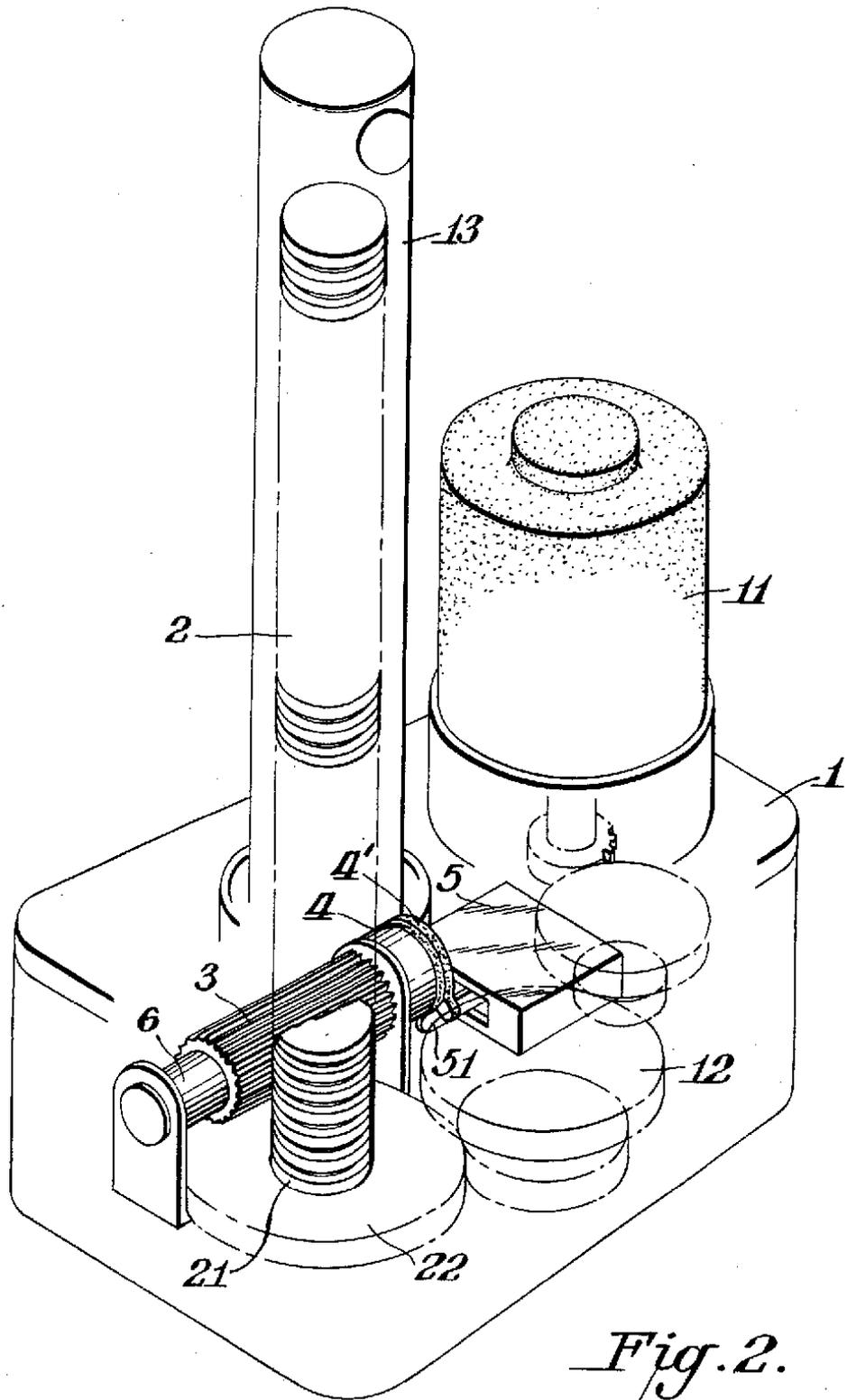
actuated through worm gearings

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 4 789 133.



*Fig. 2.*

**B66F 3/20**

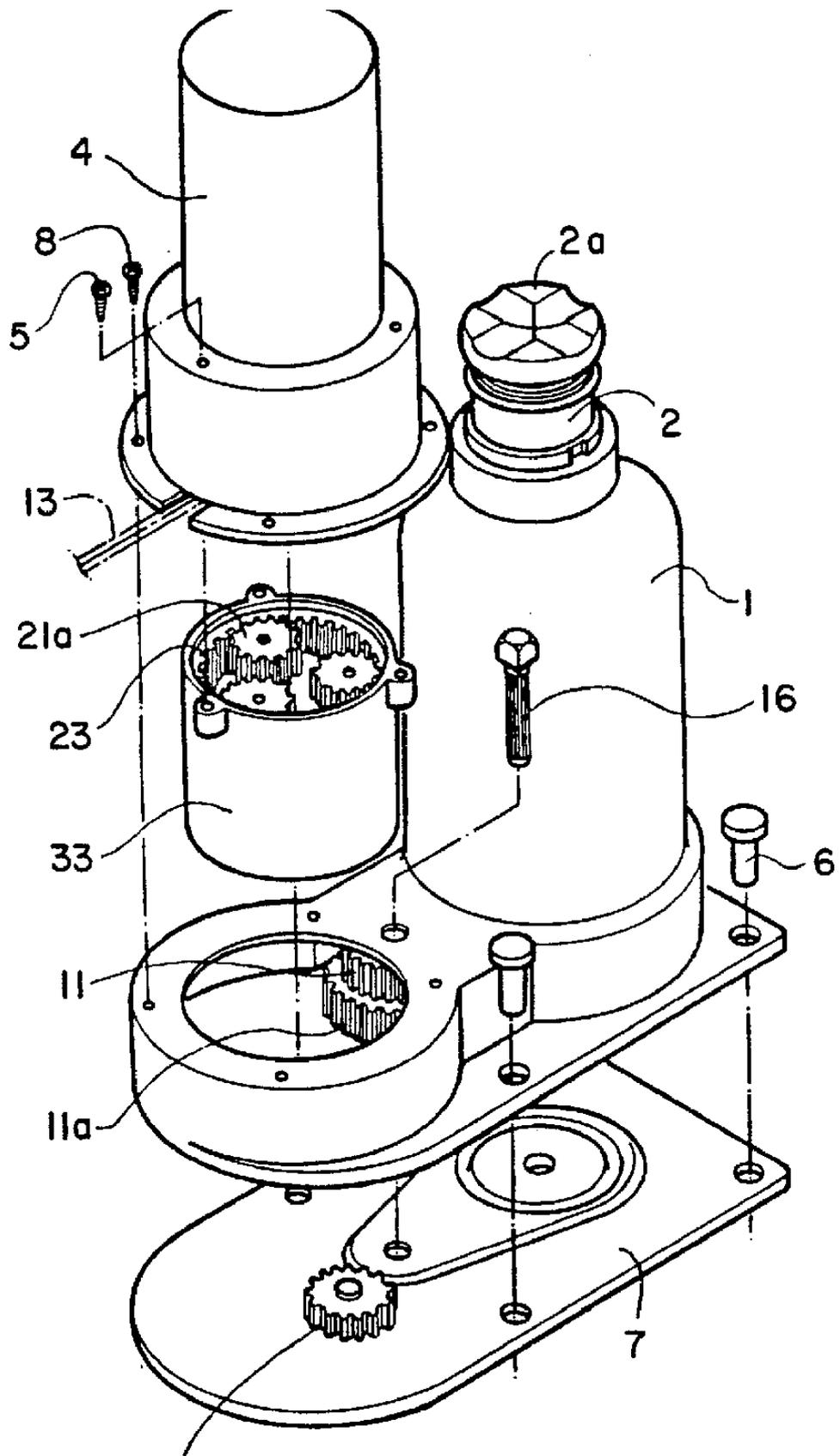
actuated through multiple or change-speed gearings

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 118 082.



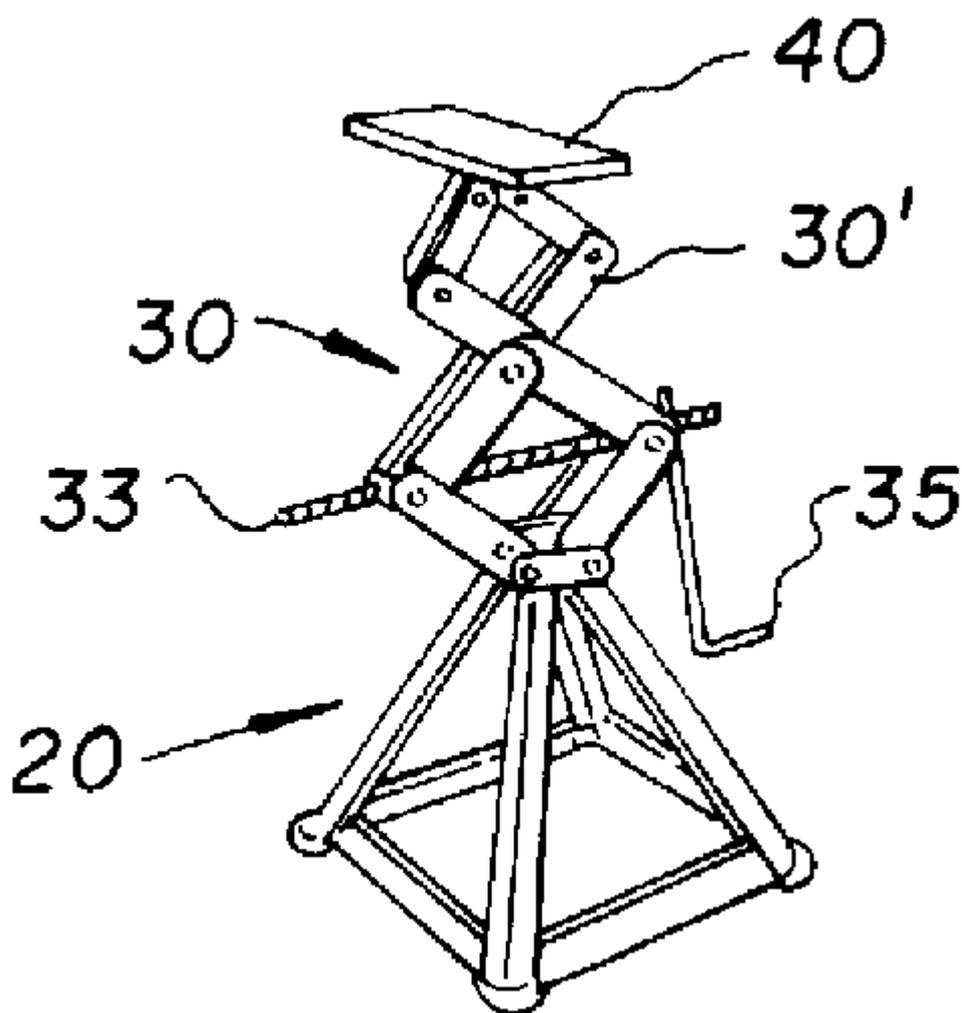
B66F 3/22

## Lazy-tongs mechanisms [N: (B66F11/042 takes precedence)]

### Definition statement

*This subclass/group covers:*  
with multiple sets of levers.

see for example US 6 234 451.



### References relevant to classification in this group

*This subclass/group does not cover:*

With a single set of levers	<a href="#">B66F 3/12</a>
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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 subclass/group covers:*

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

**B66F 3/242**

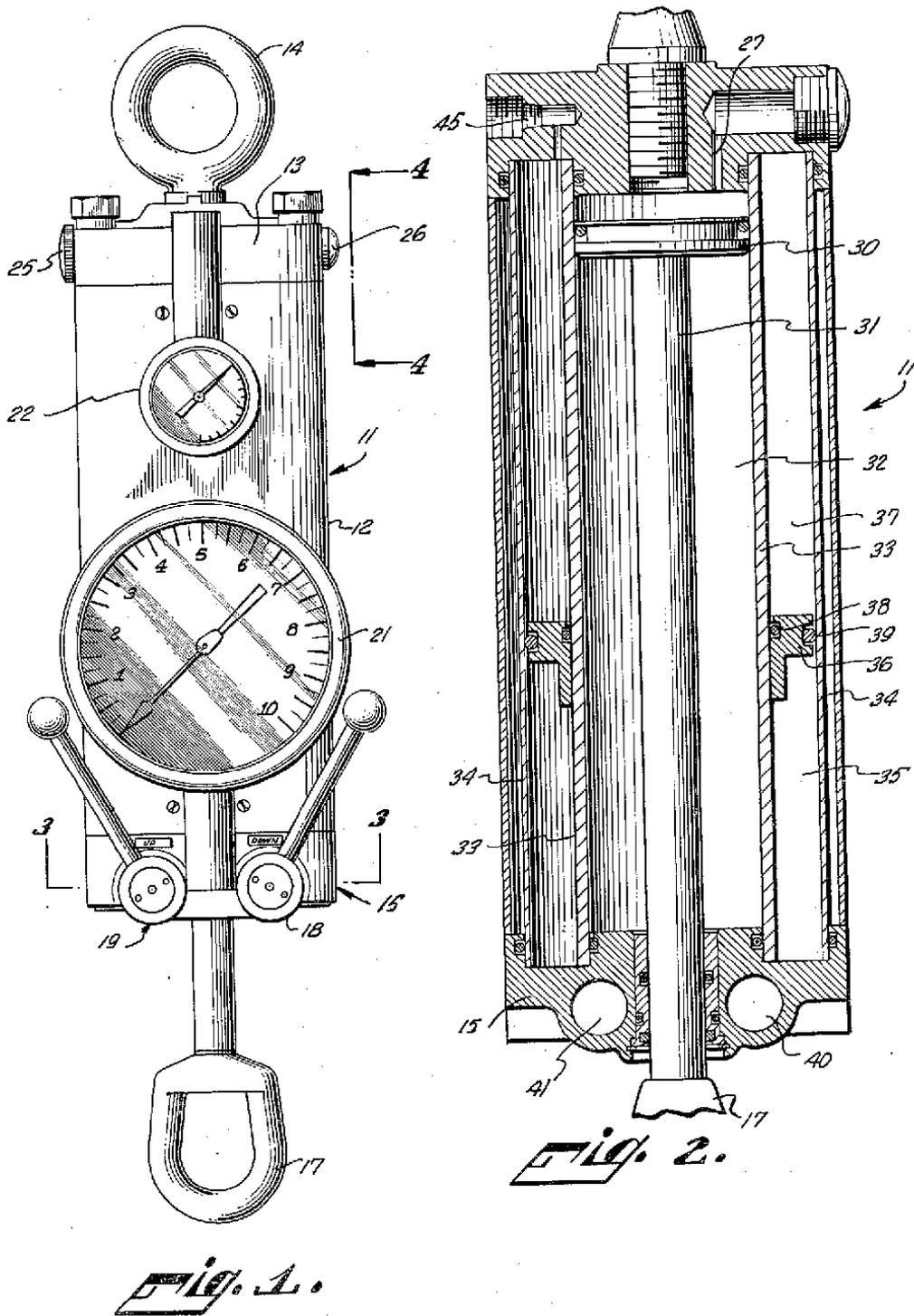
**[N: suspended jacks]**

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 3 025 702.



**Special rules of classification within this group**

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

**B66F 3/245**

[N: comprising toggle levers (lazy-tongs mechanisms

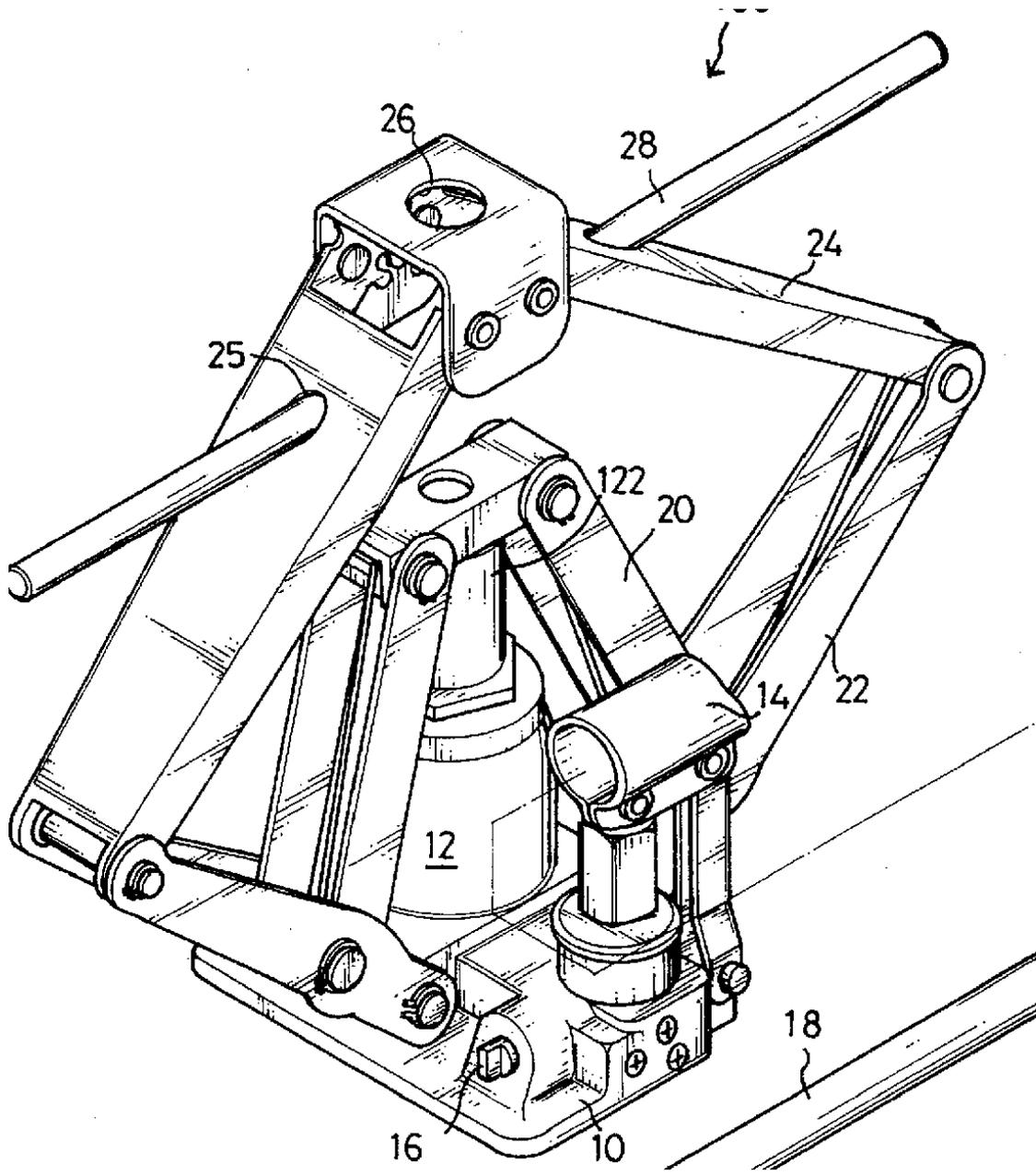
**B66F3/22]**

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 603 486.



**B66F 3/247**

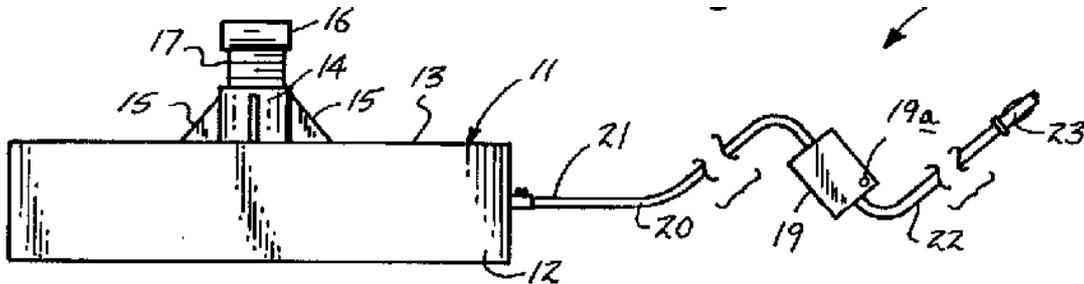
[N: pneumatically actuated (B66F3/35 takes precedence)]

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 441 237.



### **Special rules of classification within this group**

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

## **B66F 3/25**

### **Constructional features**

#### **Definition statement**

*This subclass/group covers:*

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

## **B66F 3/26**

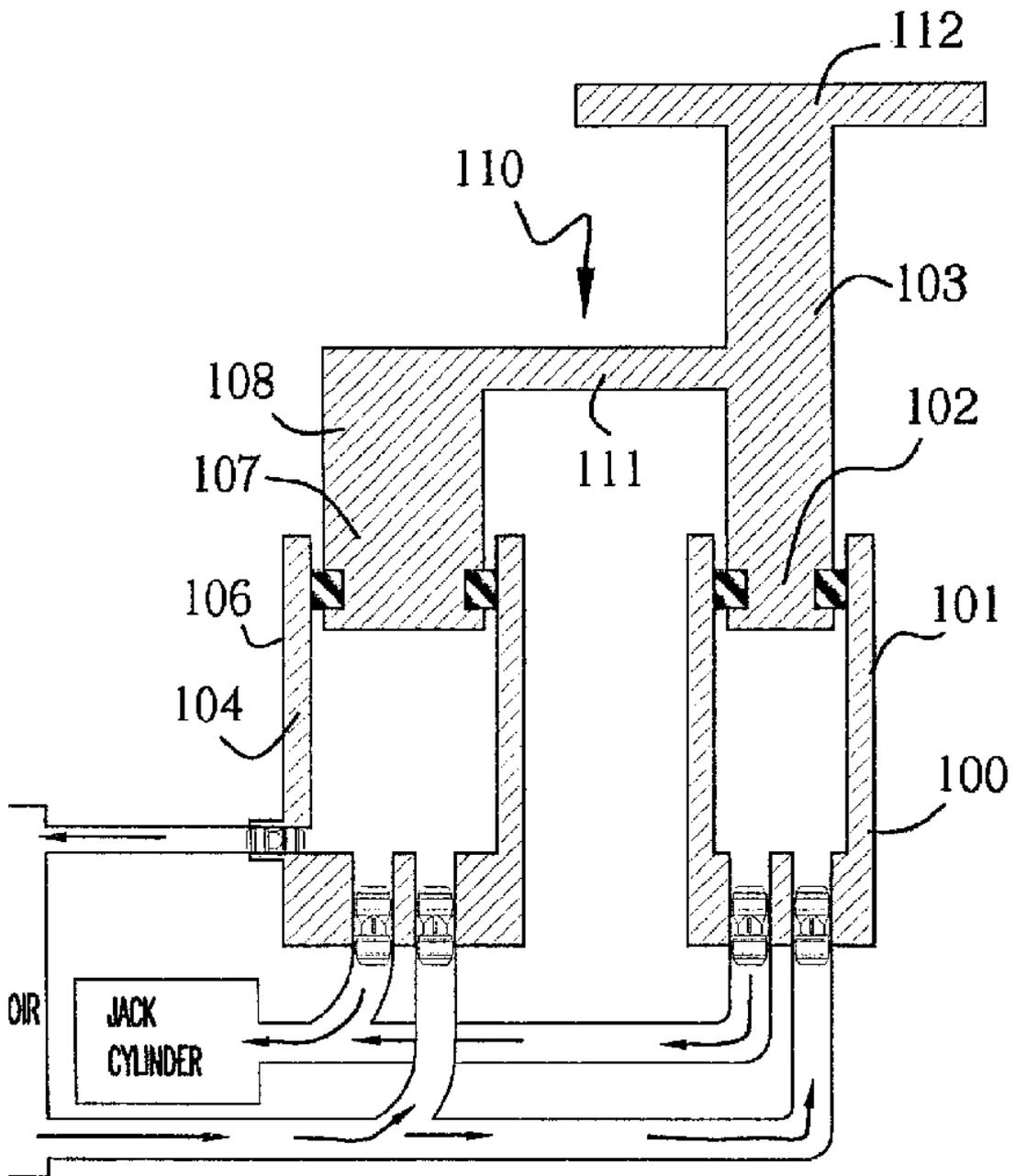
### **Adaptations or arrangements of pistons**

#### **Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 6 572 080.



## B66F 3/28

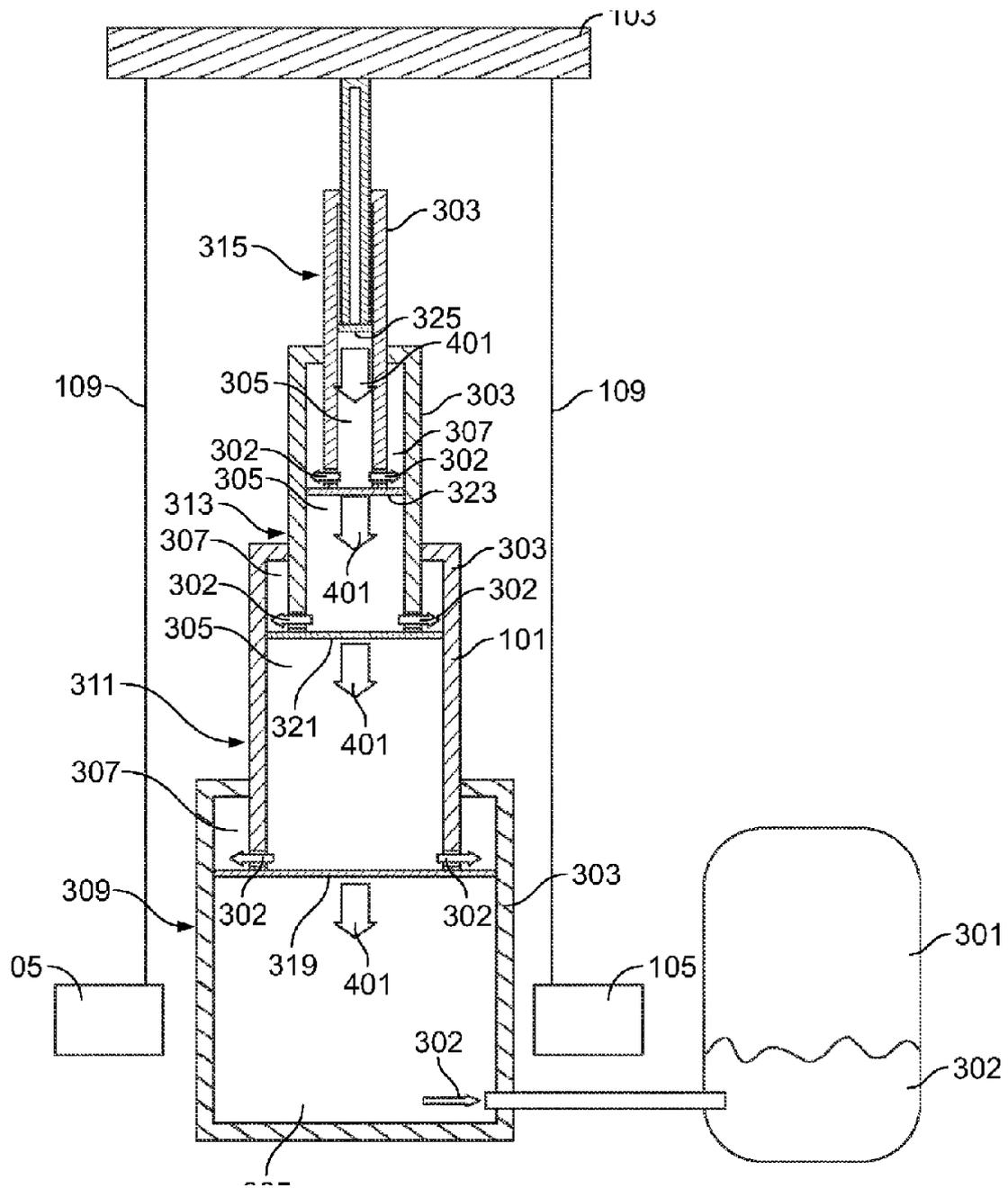
telescopic

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2009/0057636.



## B66F 3/30

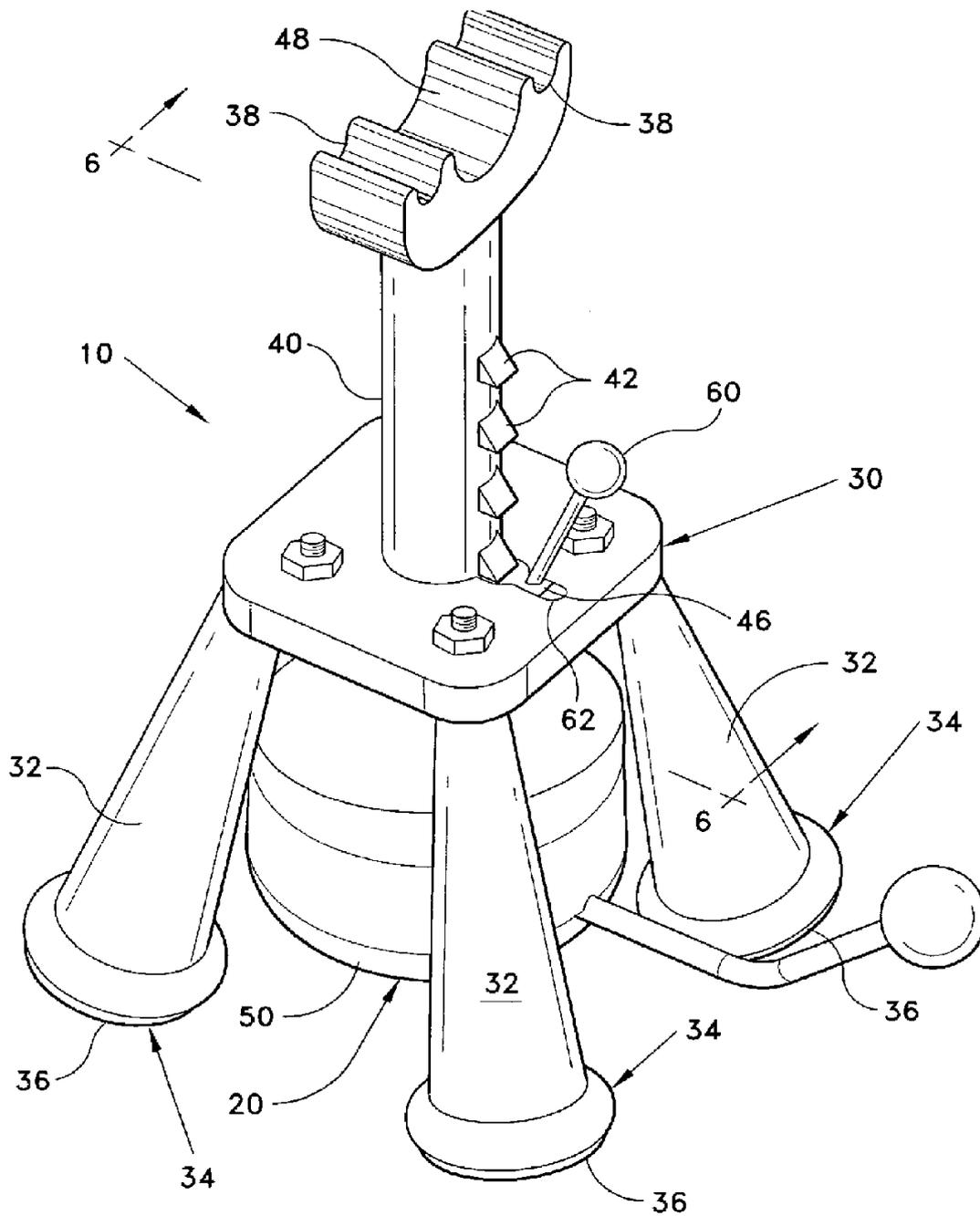
with positive brakes or lock

### Definition statement

*This subclass/group covers:*

fluid operated jacks with device to lock jack in operating position.

see for example US 2006/0237699.



## B66F 3/32

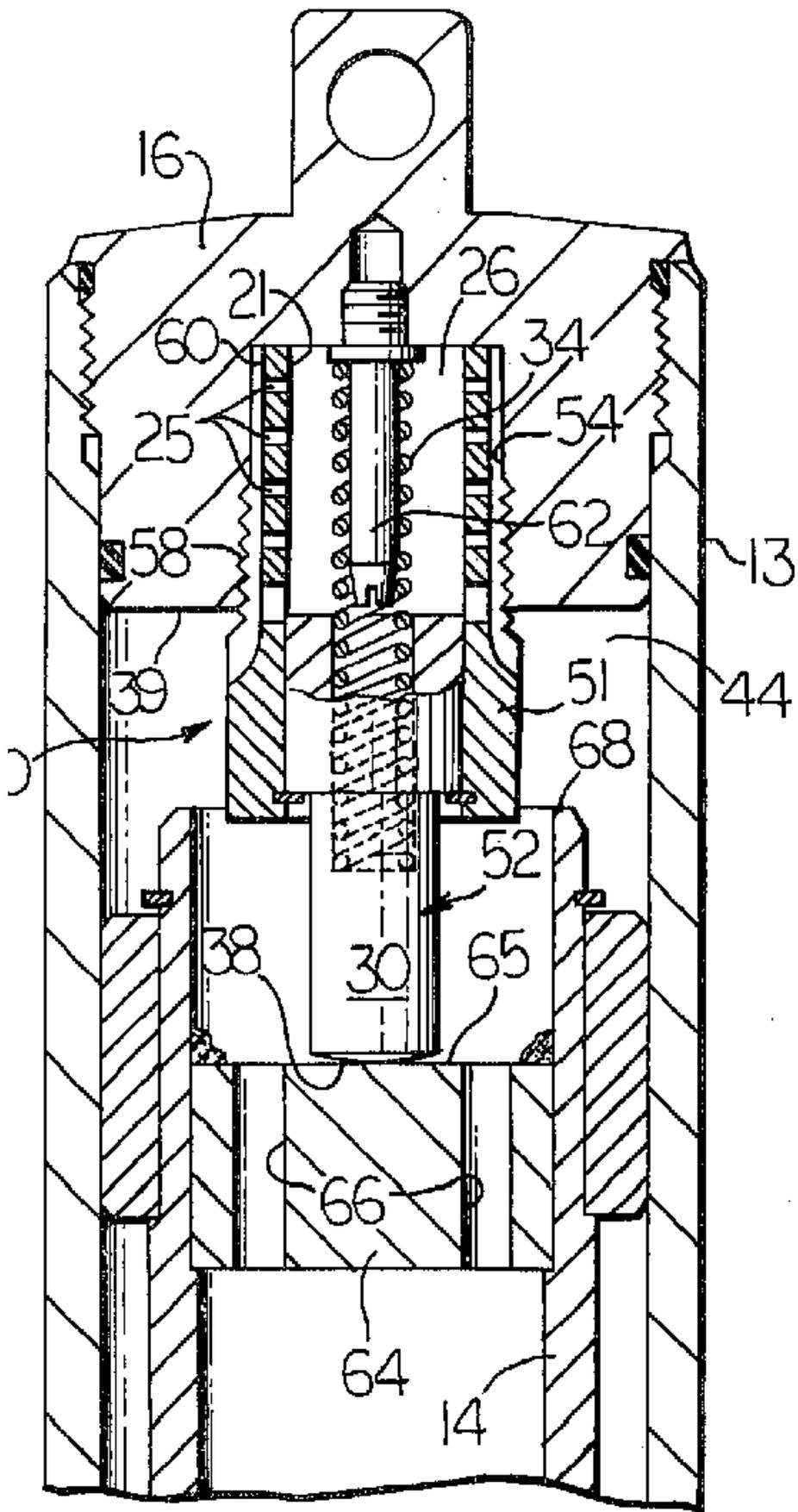
with means for avoiding excessive shocks on completion of movements

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 4 065 112.



## B66F 3/35

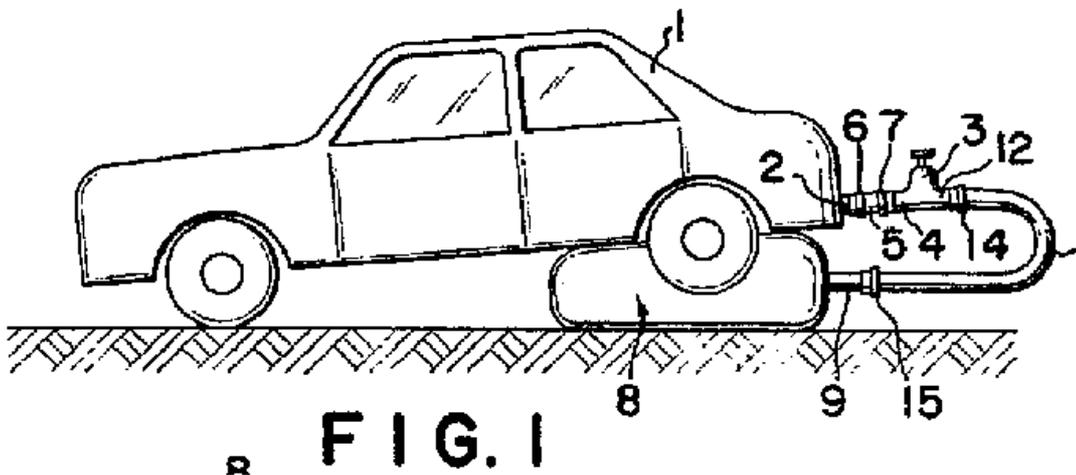
Inflatable flexible elements, e.g. bellows (inflatable load-engaging elements B66F3/40; connection of valves to inflatable elastic bodies B60C29/00)

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example GB 1 394 267.



## B66F 3/36

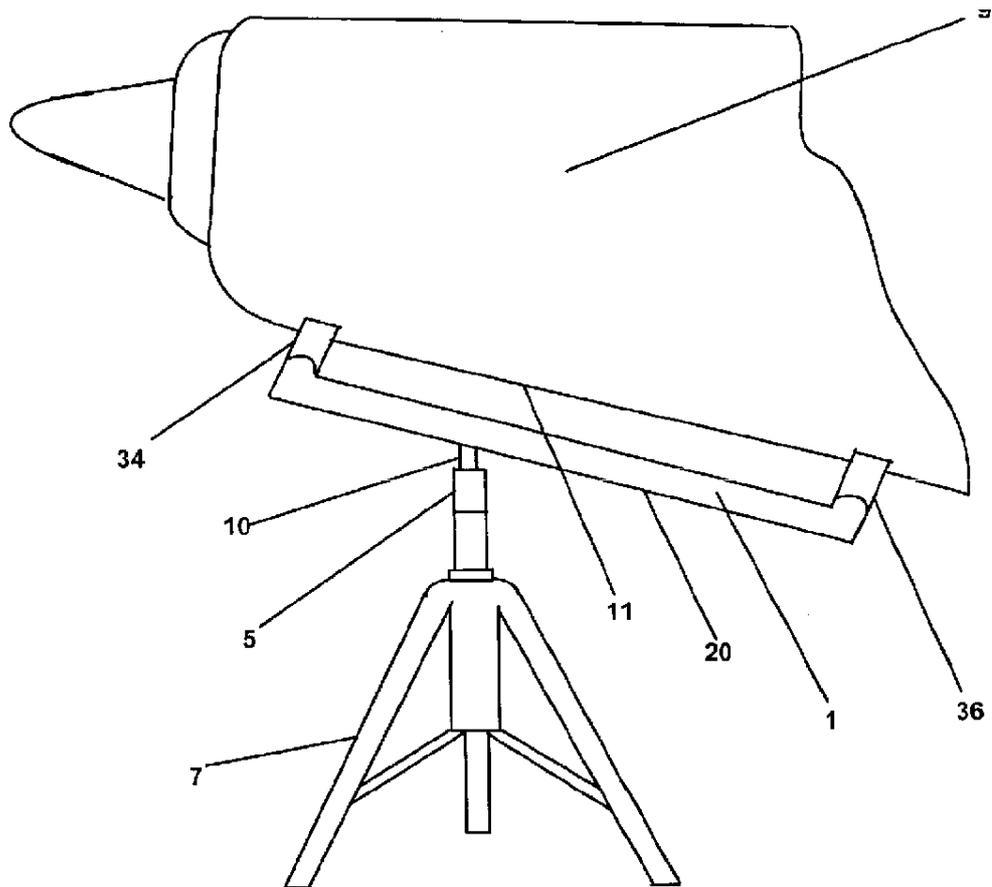
Load-engaging elements

### Definition statement

*This subclass/group covers:*

devices with particular features for engaging the load

see for example US 6 608 262.



## **B66F 3/38**

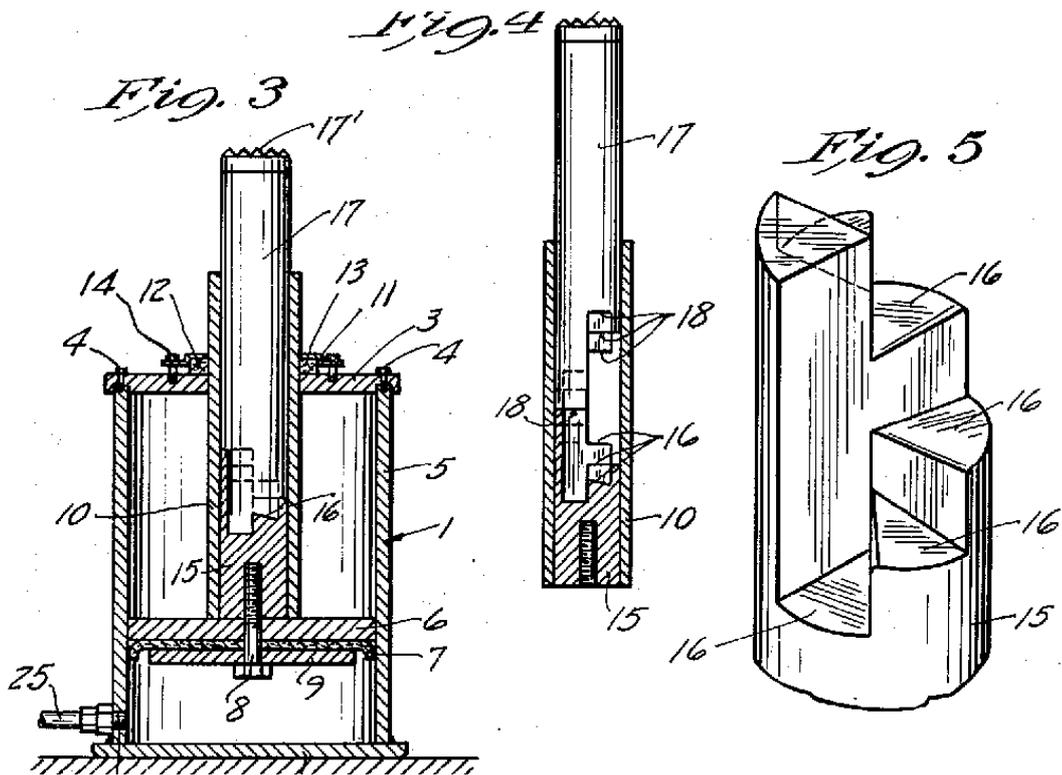
**adjustable relative to piston**

### **Definition statement**

*This subclass/group 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 B60C29/00)

### Special rules of classification within this group

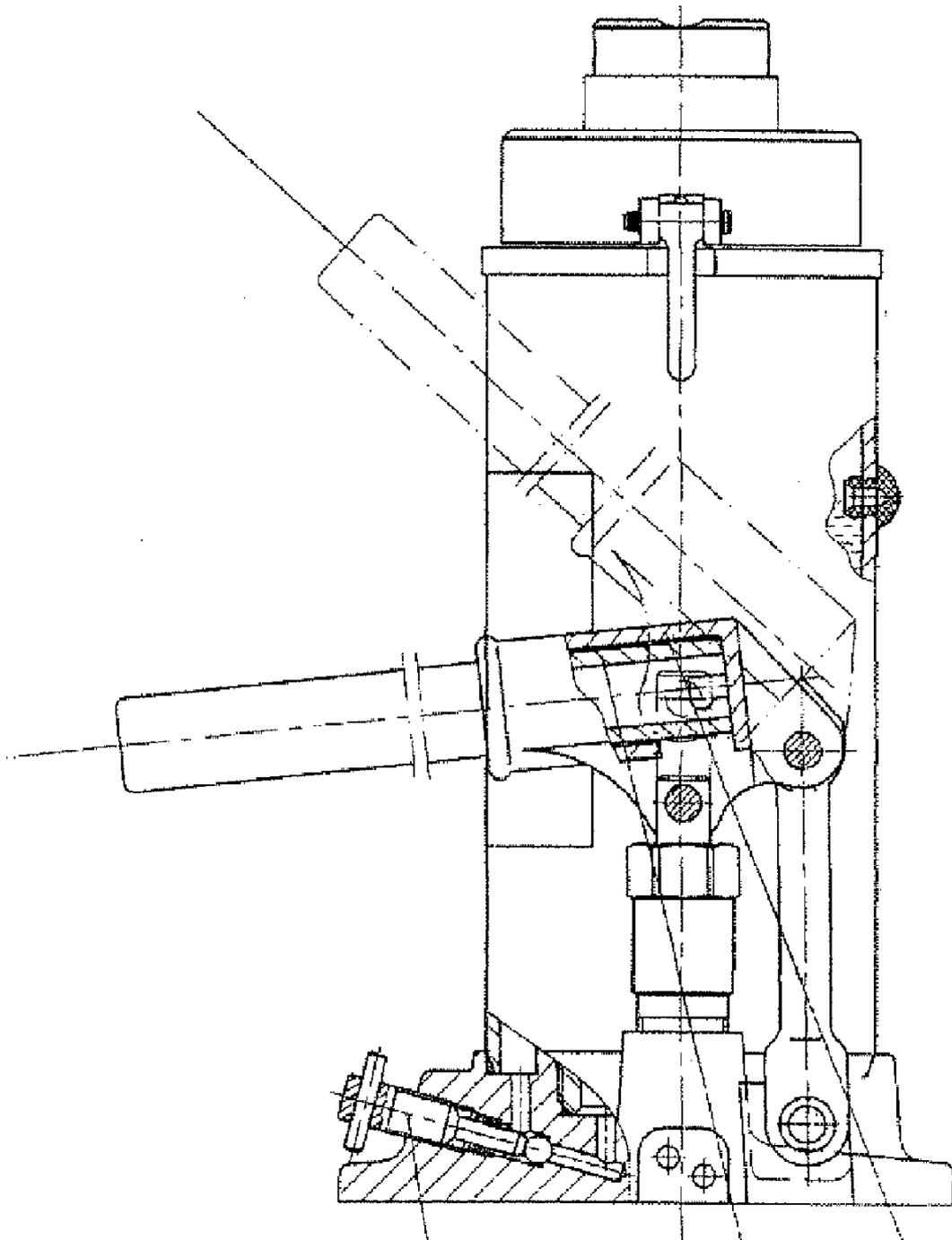
This group is not used. Documents are classified in [B66F 3/35](#).

## B66F 3/42

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

### Definition statement

*This subclass/group covers:*  
see for example US 2010/10078612.



## **B66F 3/43**

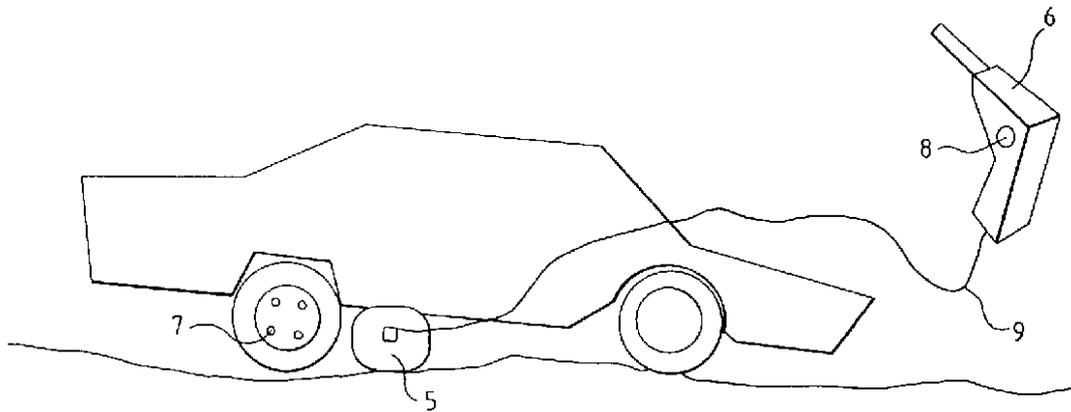
### **Pyrotechnical jacks**

#### **Definition statement**

*This subclass/group covers:*

devices using an explosive charge to provide lifting pressure,

see for example EP 0 751 304.



## **B66F 3/44**

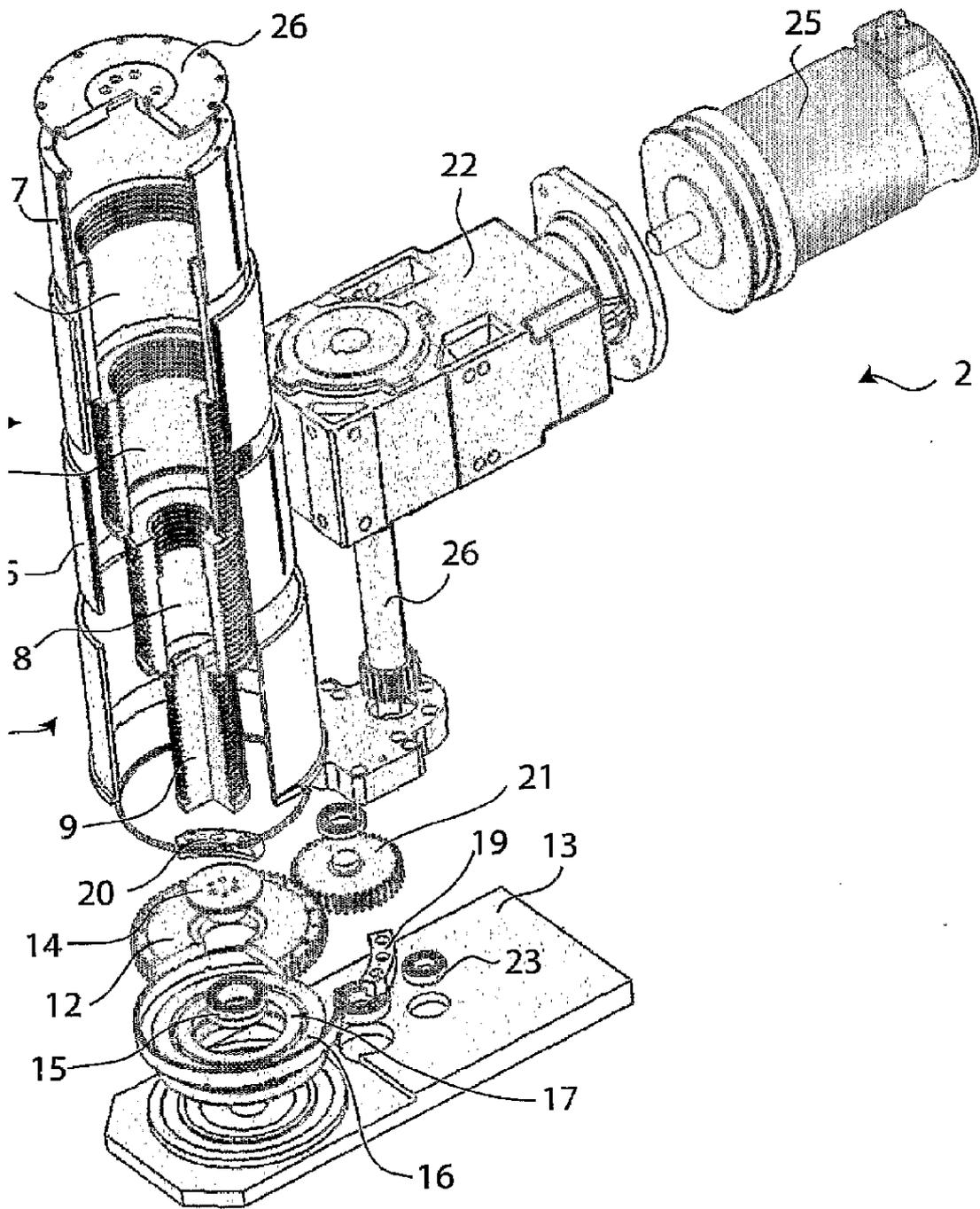
**with self-contained electric driving motors**

### **Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2010/0219386.



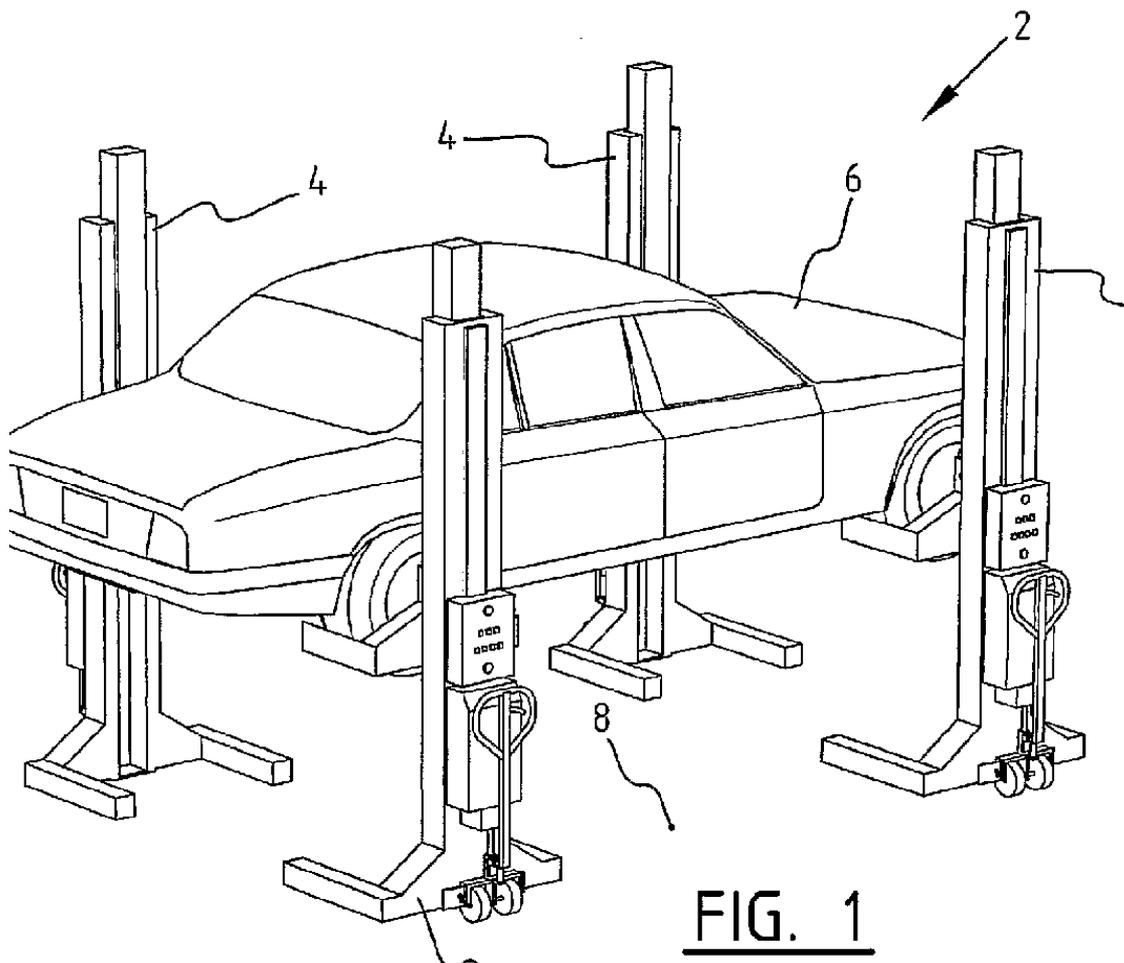
## B66F 3/46

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

### Definition statement

*This subclass/group covers:*  
groups of jacks operating together.

see for example US 2011/0037041.



### References relevant to classification in this group

*This subclass/group does not cover:*

Lifting platforms with several jacks	<a href="#">B66F 7/20</a>
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### B66F 5/00

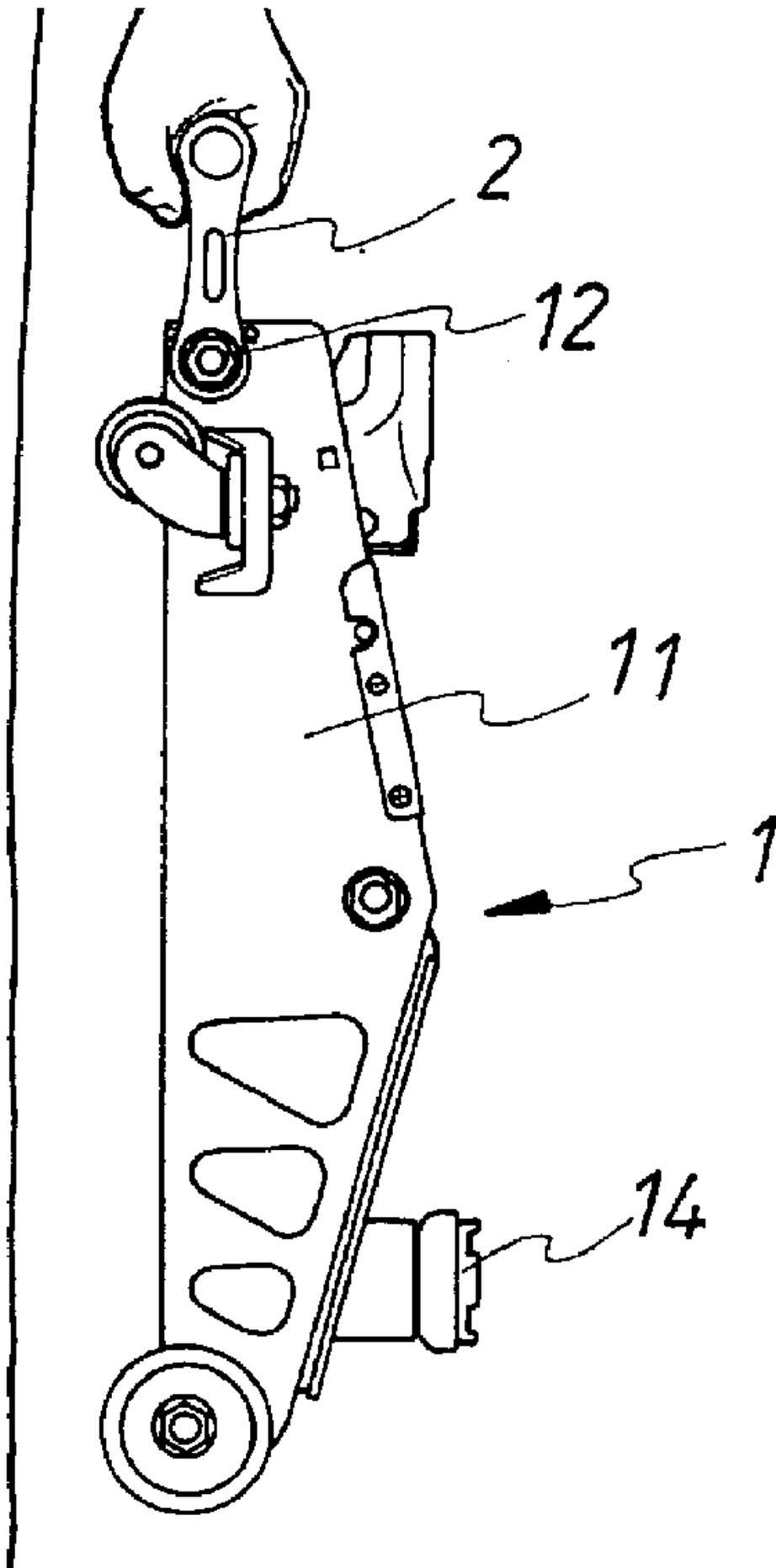
**Mobile jacks of the garage type mounted on wheels or rollers**

### Definition statement

*This subclass/group 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

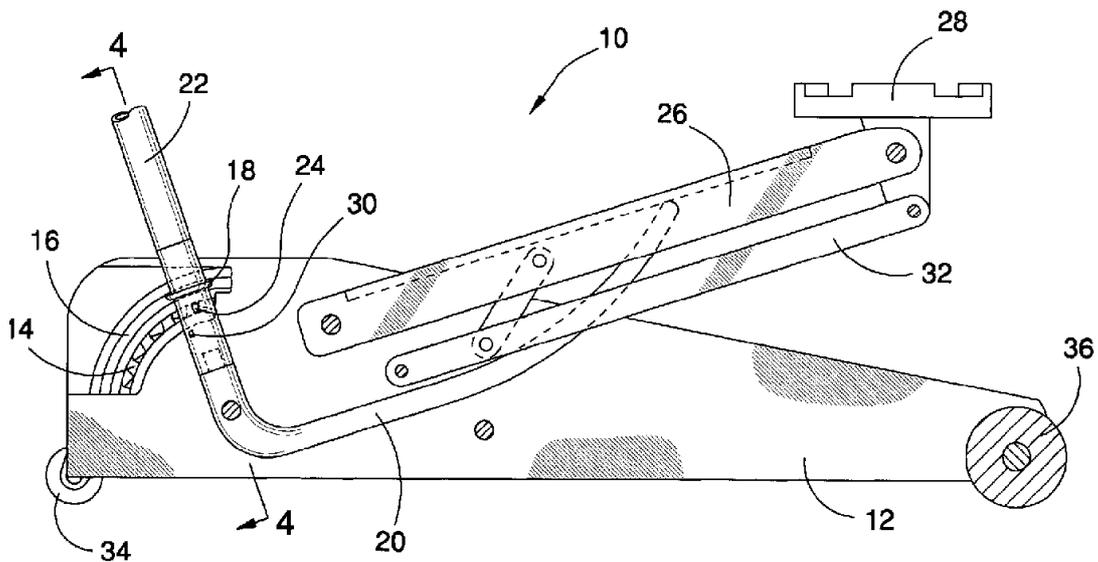
with mechanical lifting gear

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 6 929 248.



## B66F 5/025

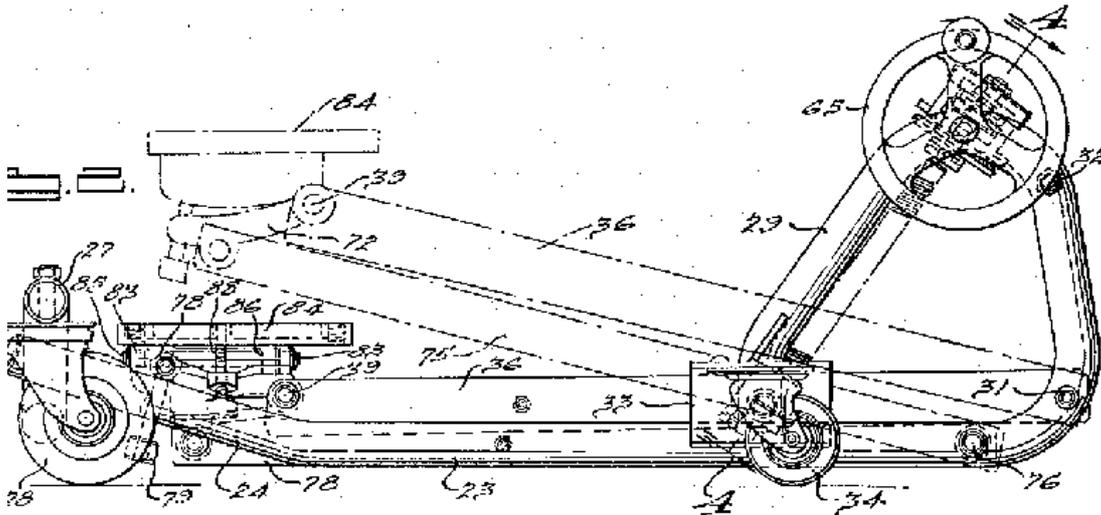
[N: screw-actuated]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 3 109 626.



## B66F 5/04

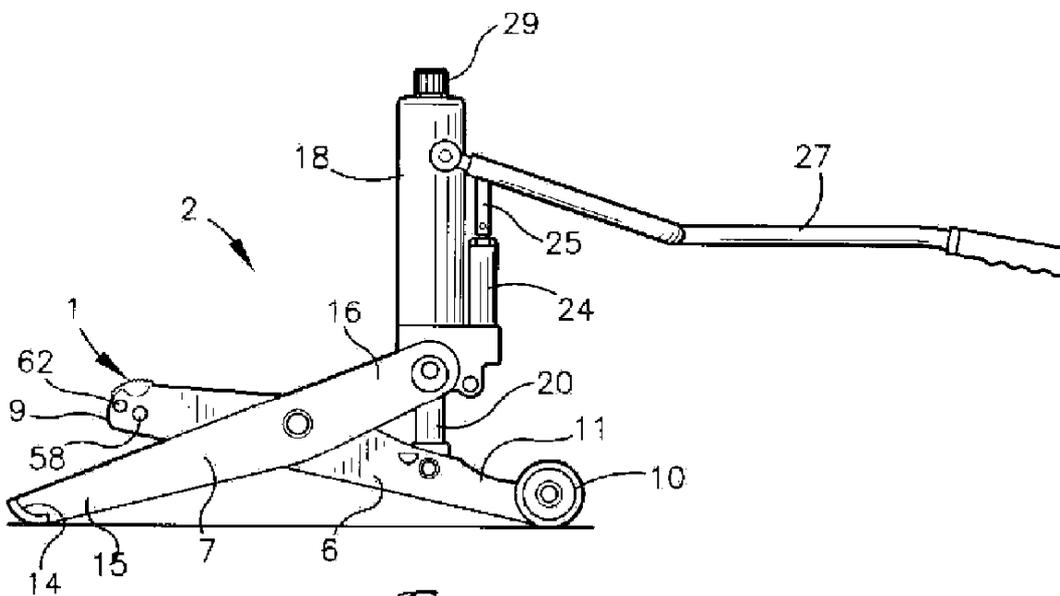
with fluid-pressure-operated lifting gear

### Definition statement

*This subclass/group 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 ([N: B66F11/04 takes precedence]; for lift-truck platform B66F9/06)

## Definition statement

*This subclass/group covers:*

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

## References relevant to classification in this group

*This subclass/group does not cover:*

Display platforms	<a href="#">A47F 5/02</a>
Lifting platforms for workers	<a href="#">B66F 11/04</a>
For parking cars	<a href="#">E04H 6/06</a>

## B66F 7/02

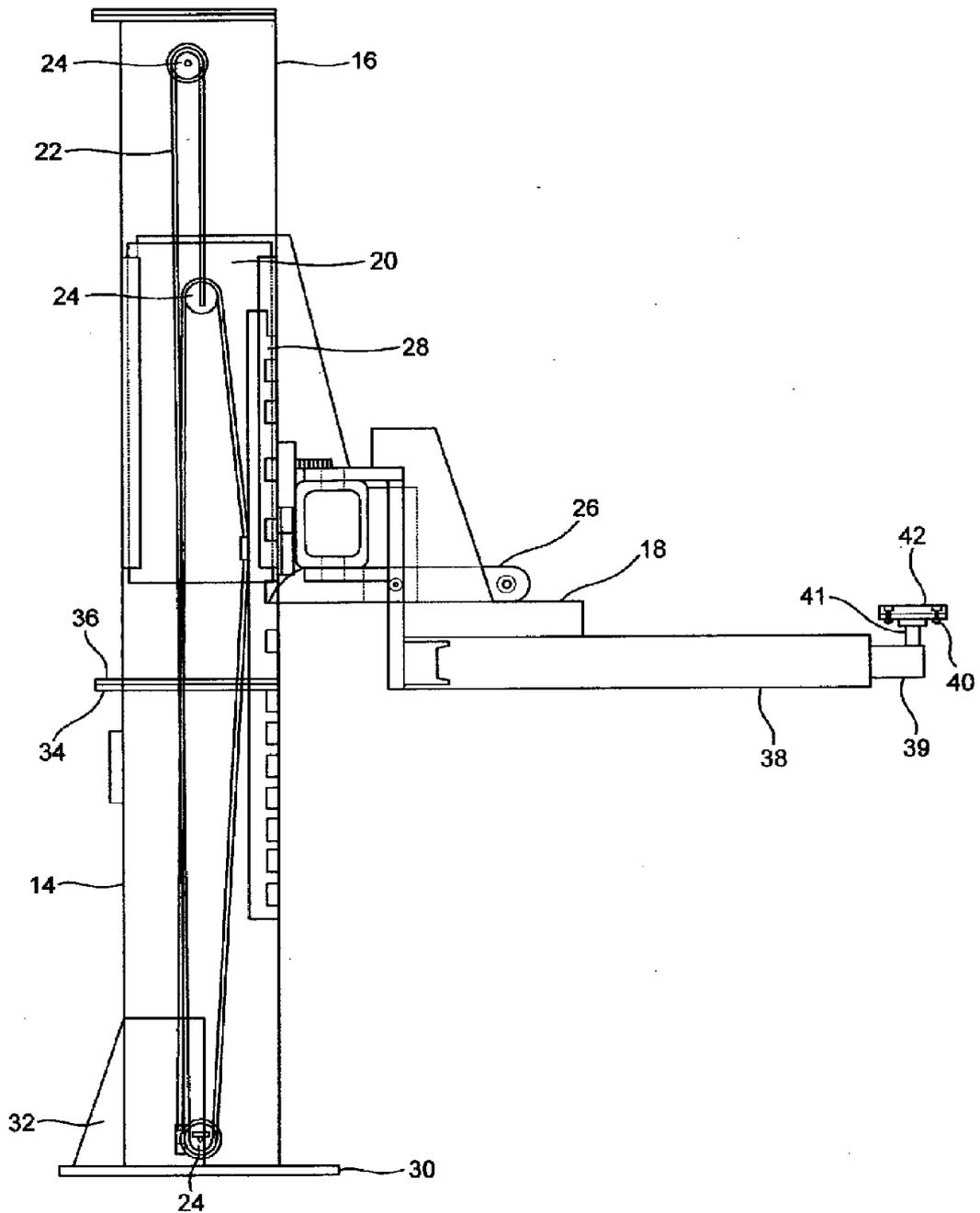
**with platforms suspended from ropes, cables, or chains [N: or screws and movable along pillars]**

## Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2006/0070815.

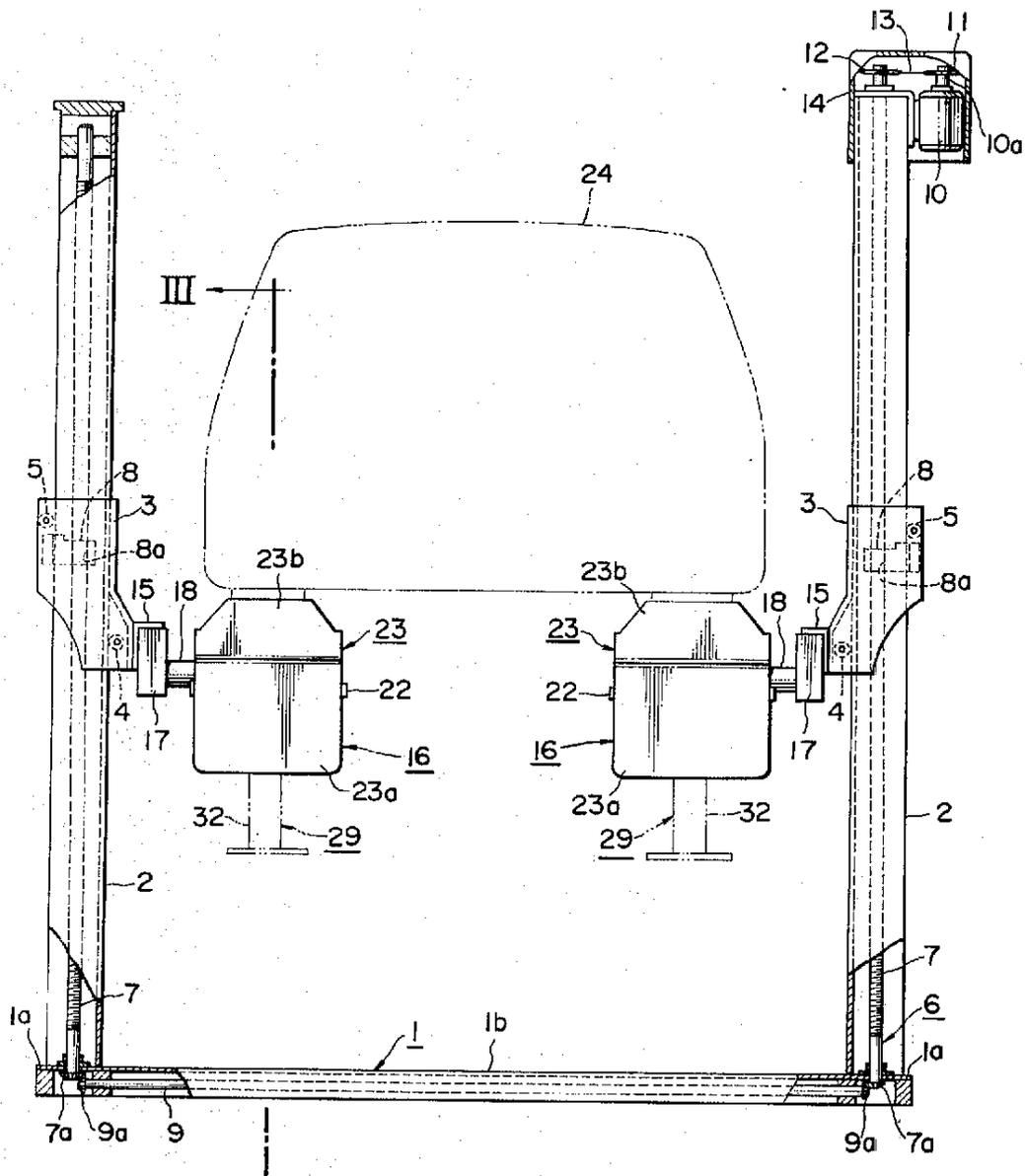


## B66F 7/025

[N: screw operated]

### Definition statement

*This subclass/group covers:*  
 devices where the platform moves along a fixed screw  
 see for example US 4 267 901.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Platforms supported on moving screws	<a href="#">B66F 7/14</a>
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**B66F 7/04**

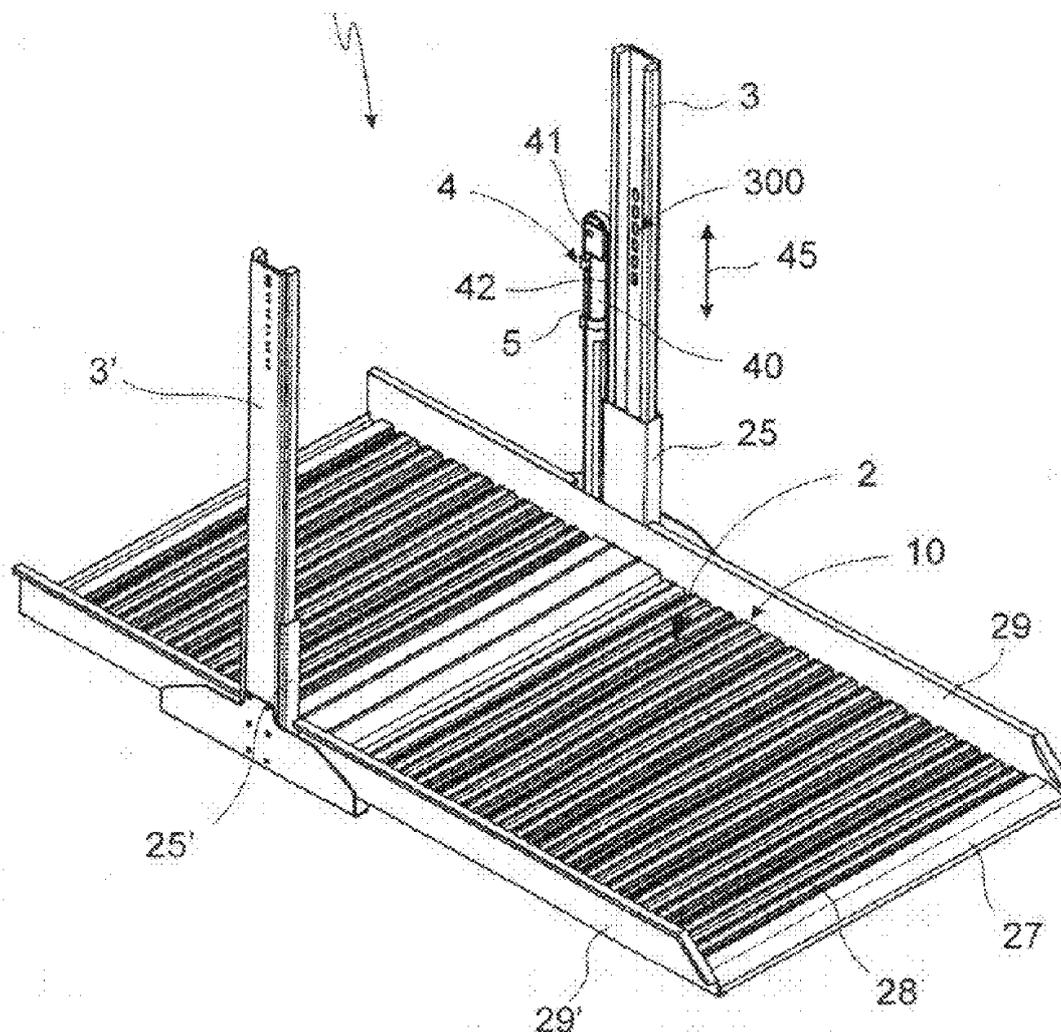
hydraulically or pneumatically operated

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2010/0089845.



## **B66F 7/06**

**with platforms supported by levers for vertical movement**

### **Definition statement**

*This subclass/group covers:*

devices not covered by the following subgroups where the load platform is supported by levers, the actuator acting either on the lever or directly on the platform.

## **B66F 7/0608**

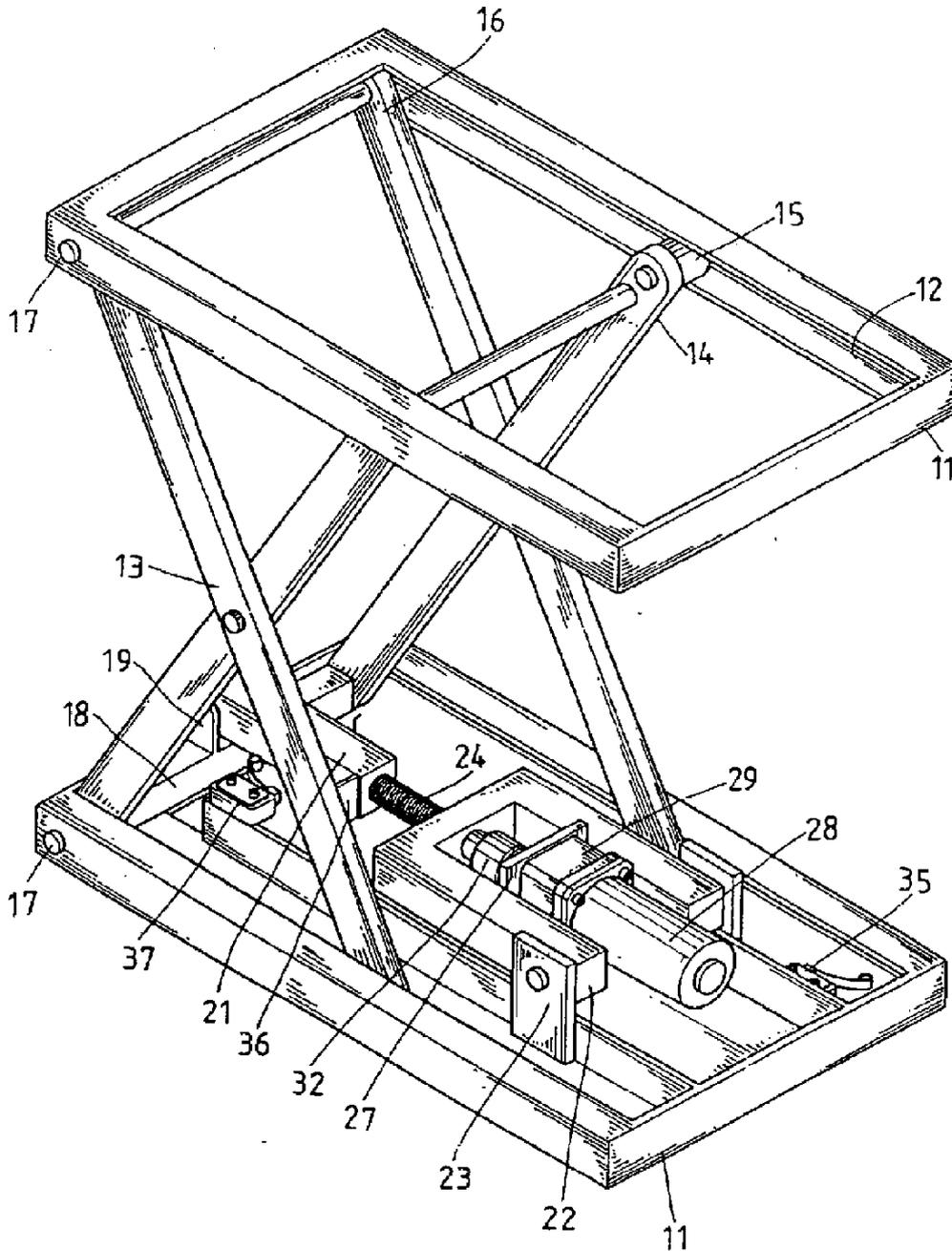
**[N: driven by screw or spindle]**

### **Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2007/0034125.



## **B66F 7/0616**

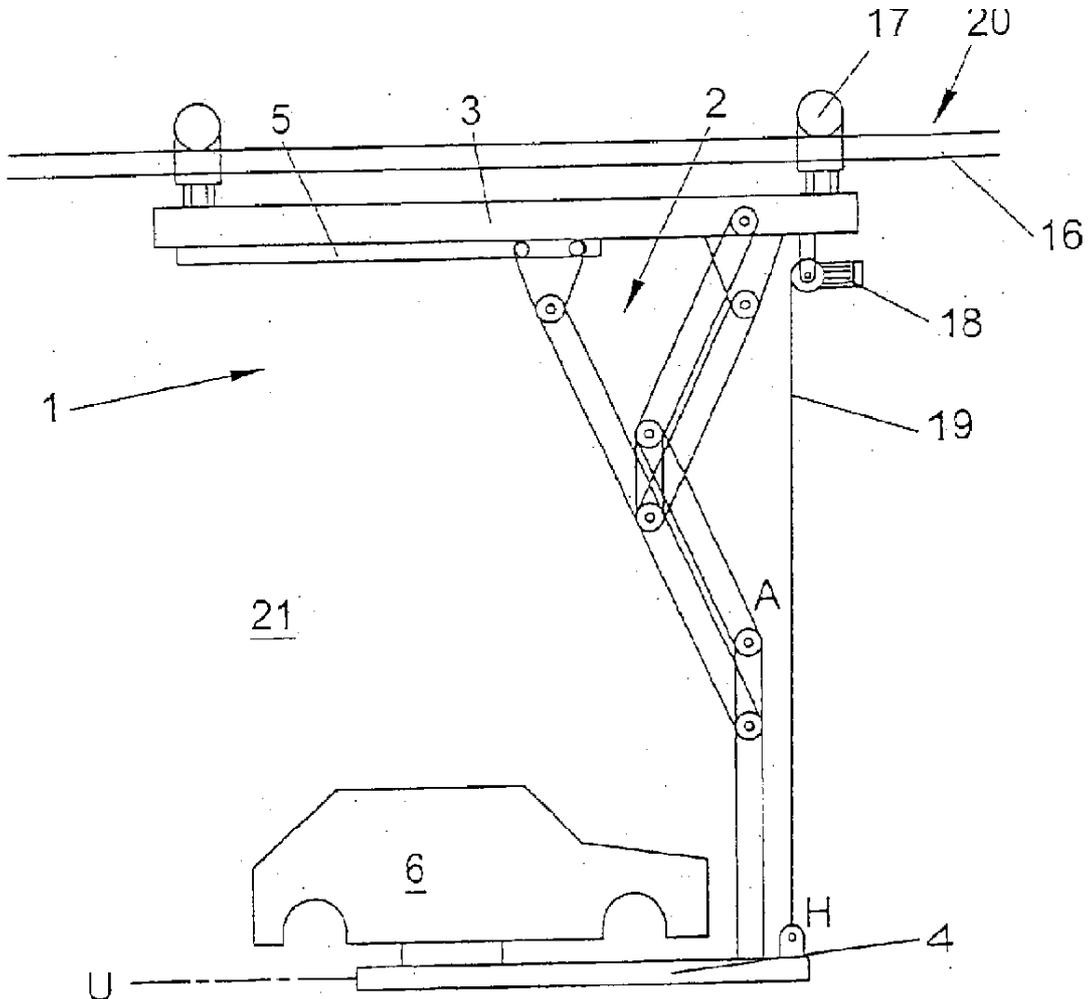
[N: suspended platforms, i.e. the load platform hangs from the base]

### **Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2004/0037687.



## **B66F 7/0625**

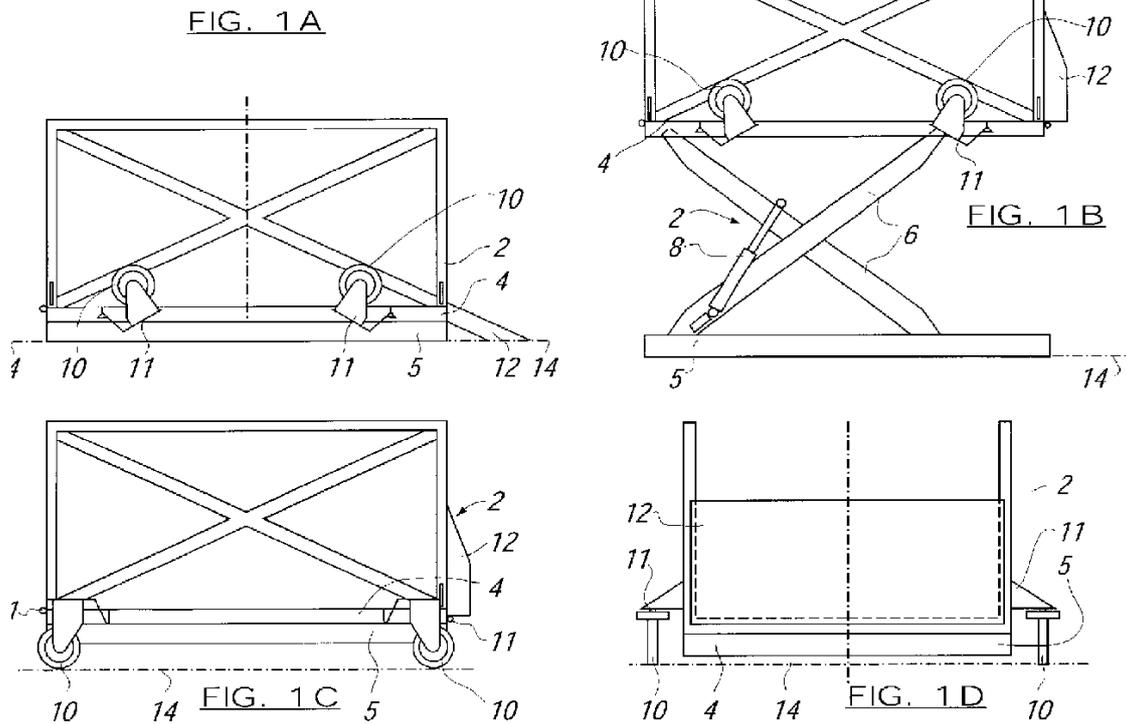
**[N: with wheels for moving around the floor]**

### **Definition statement**

*This subclass/group covers:*

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

see for example US 6 394 419.



## References relevant to classification in this group

*This subclass/group does not cover:*

Devices for moving loads, which also lift the load from the floor such as fork lift trucks	<a href="#">B66F 9/06</a>
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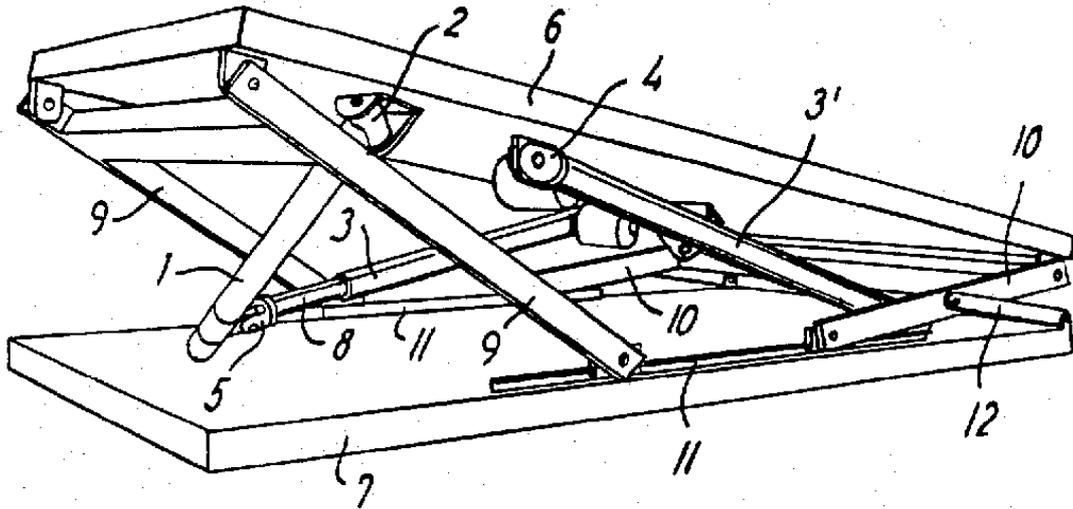
## B66F 7/0633

[N: other mechanical arrangements not covered by the following subgroups]

### Definition statement

*This subclass/group covers:*

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



**B66F 7/0641**

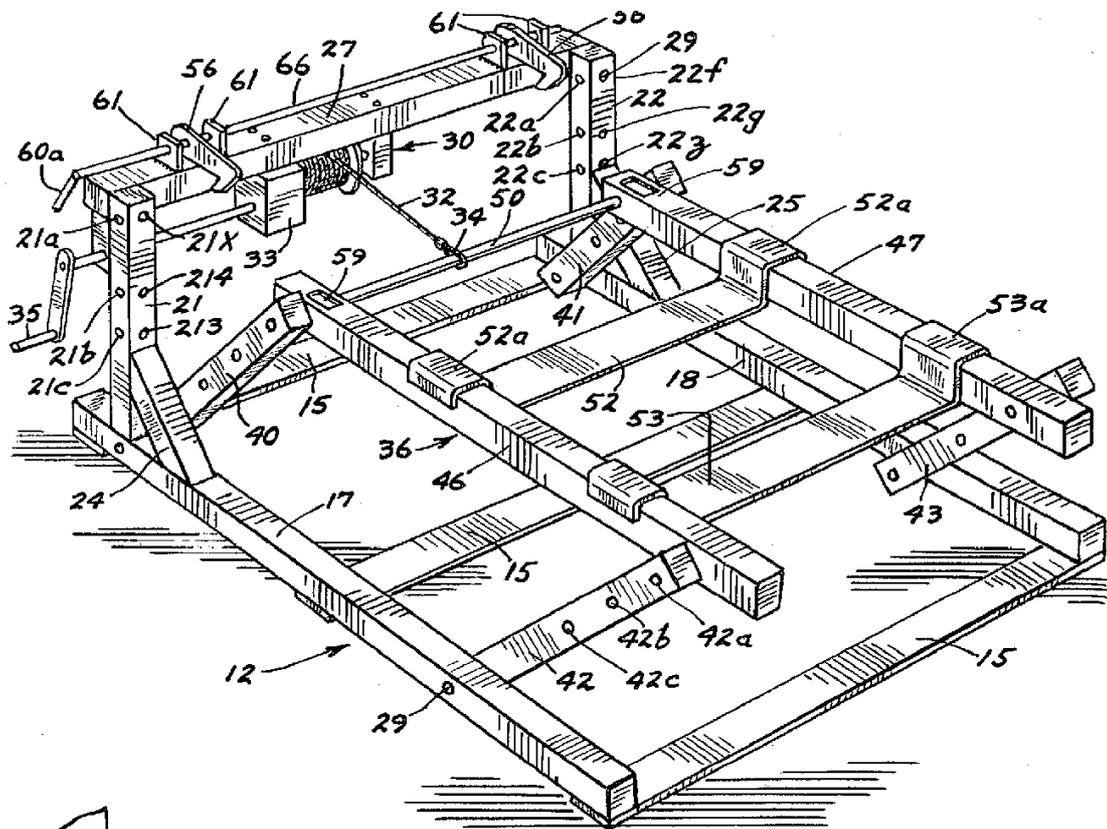
[N: single levers, e.g. parallel links]

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 4 277 049.



## B66F 7/065

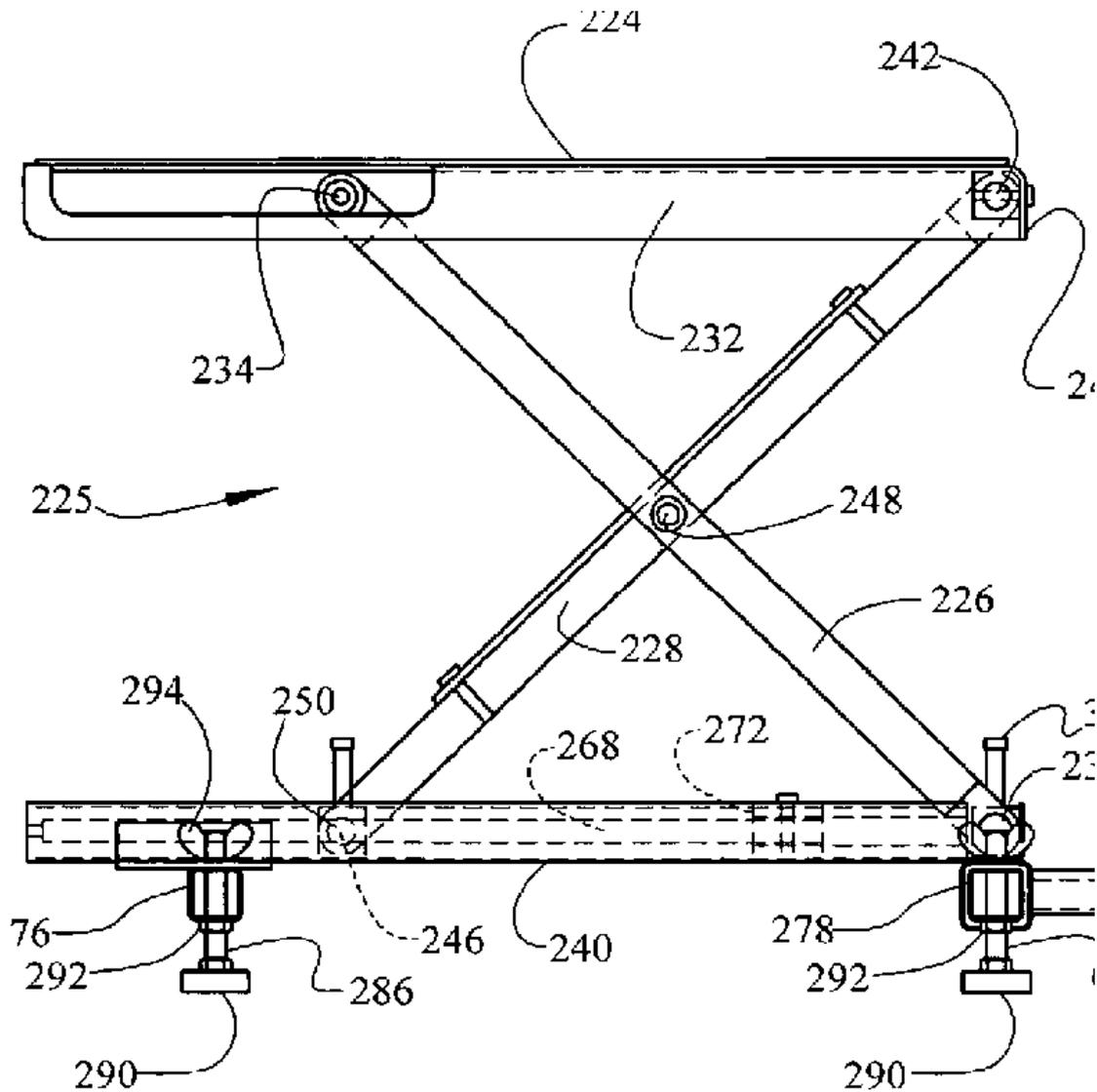
[N: scissor linkages (X-configuration)]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 7 188 824.



## B66F 7/0658

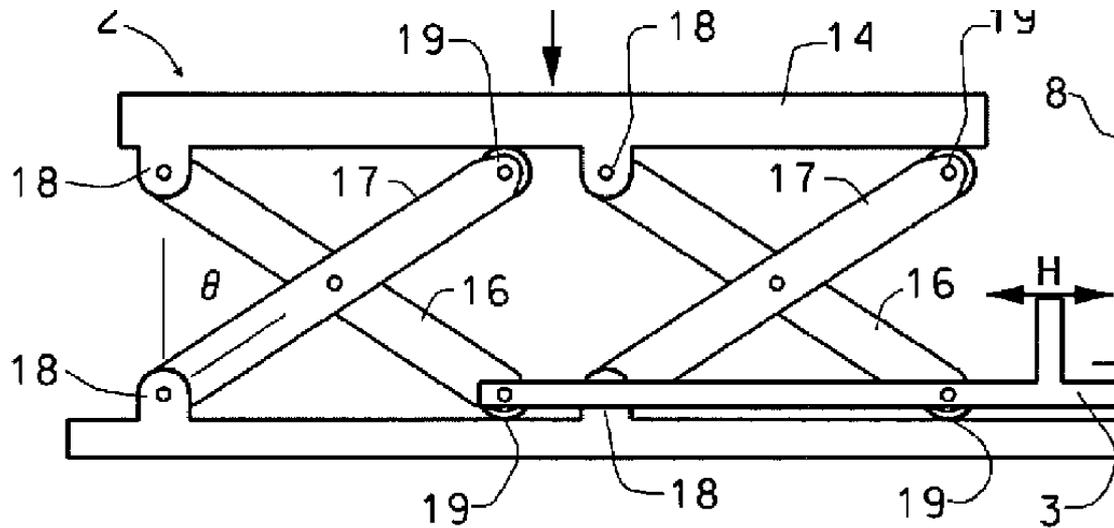
[N: multiple scissor linkages horizontally arranged]

### Definition statement

*This subclass/group 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

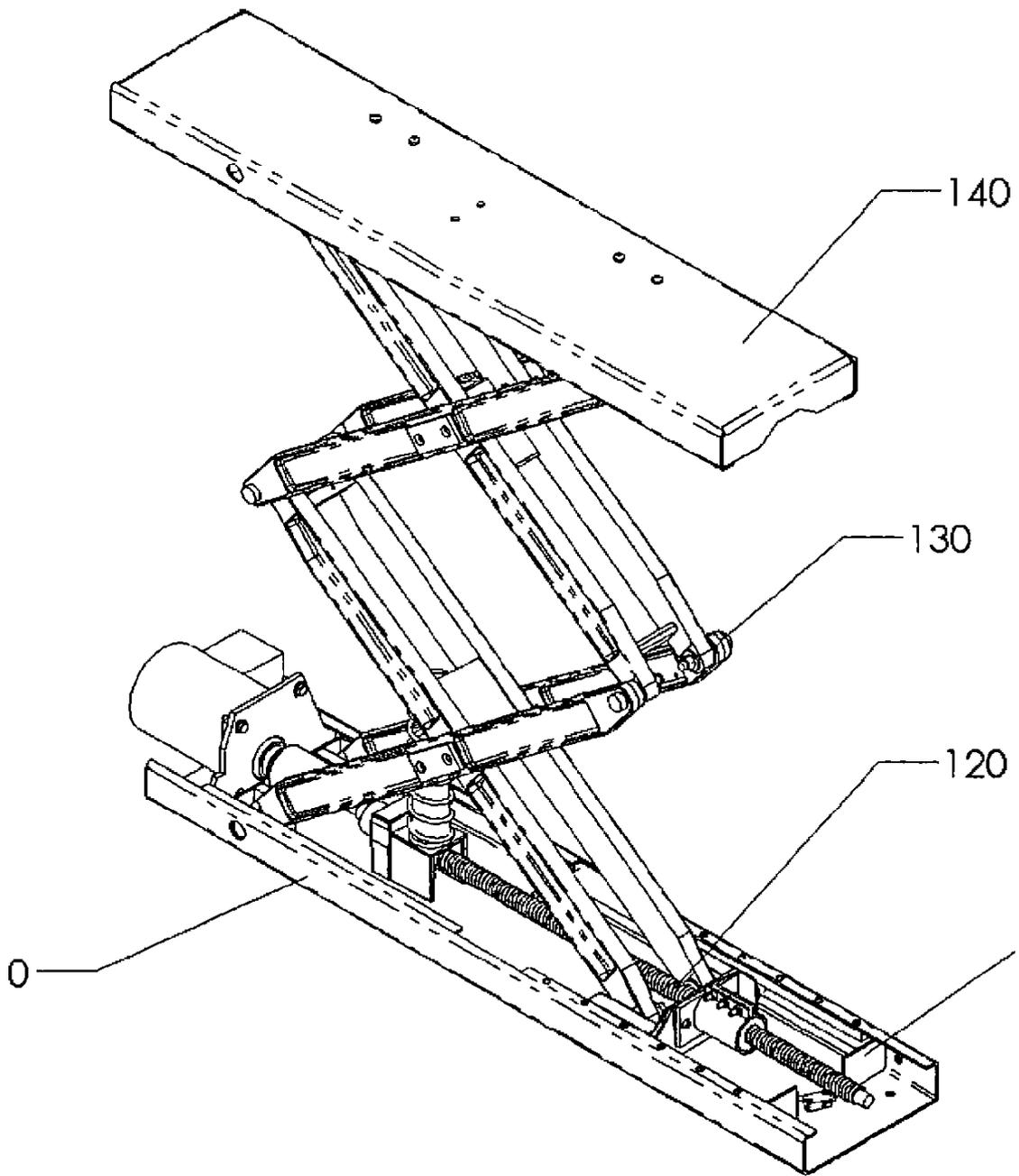
[N: multiple scissor linkages vertically arranged]

### Definition statement

*This subclass/group covers:*

devices with one scissor arranged above another,

see for example US 2006/0180403.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Auxiliary scissors	<a href="#">B66F 7/0675</a>
--------------------	-----------------------------

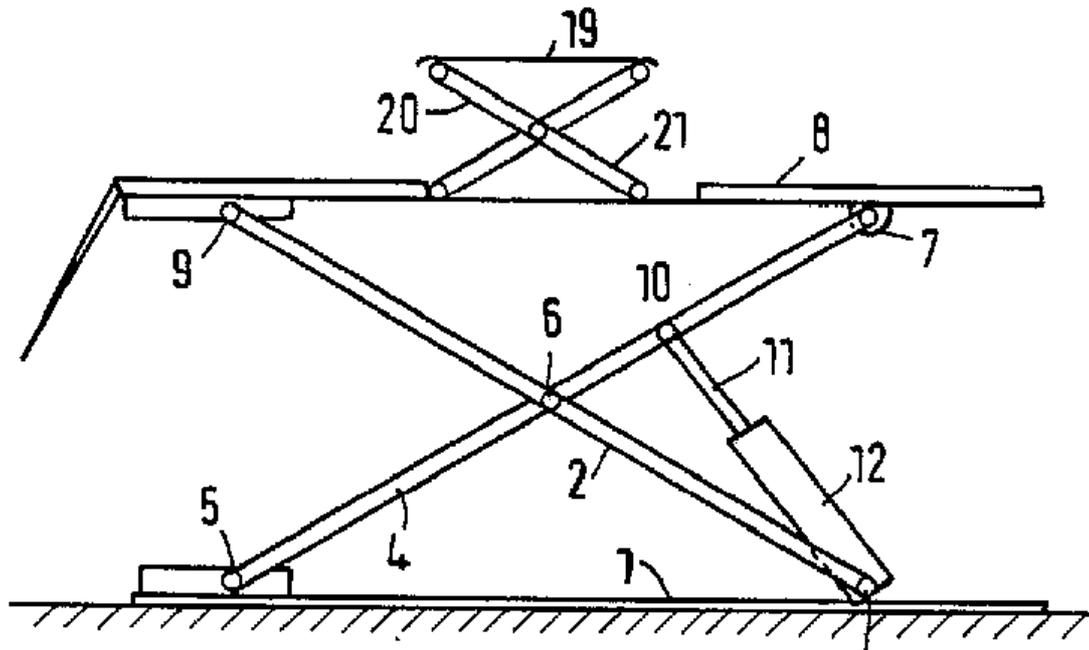
**B66F 7/0675**

[N: auxiliary scissors, e.g. above main scissors]

### Definition statement

*This subclass/group 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

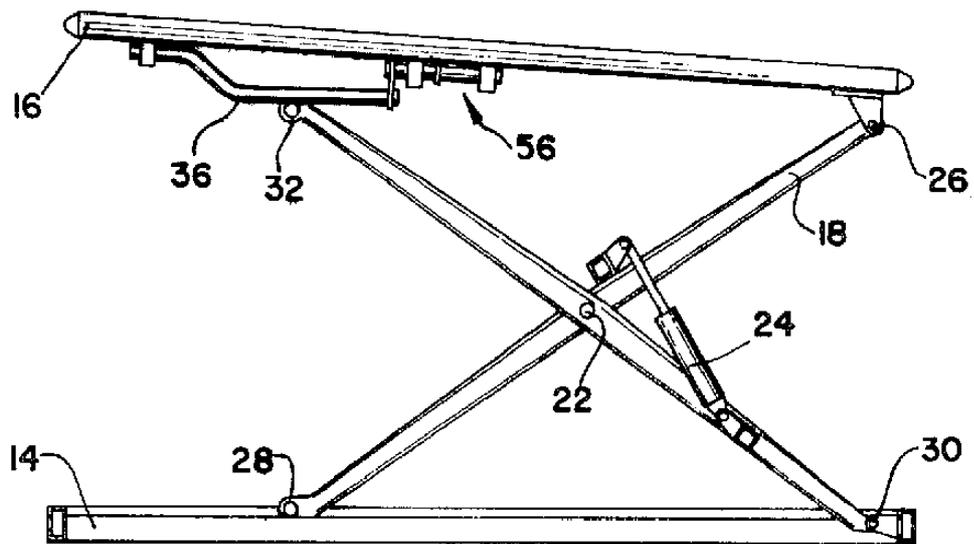
[N: scissor linkage plus tilting action]

### Definition statement

*This subclass/group covers:*

devices allowing both lifting and tilting of the load,

see for example US 3 623 617.



## B66F 7/0691

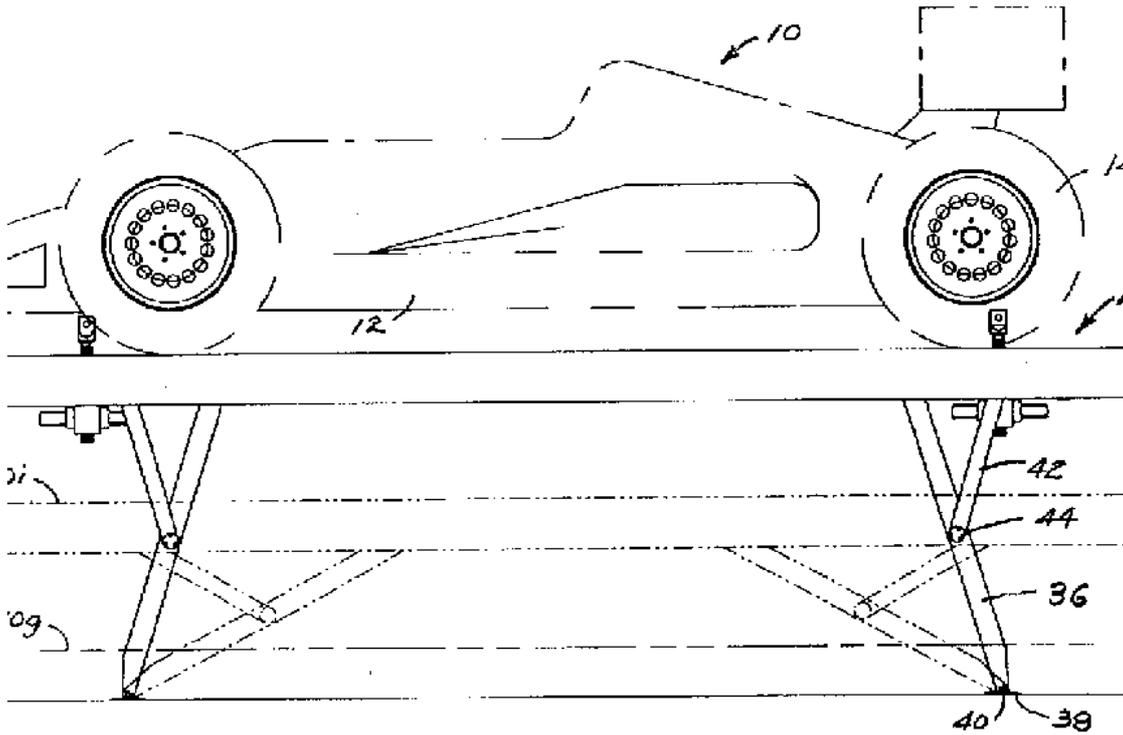
[N: asymmetric linkages (Y-configuration)]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 6 612 152.



## B66F 7/08

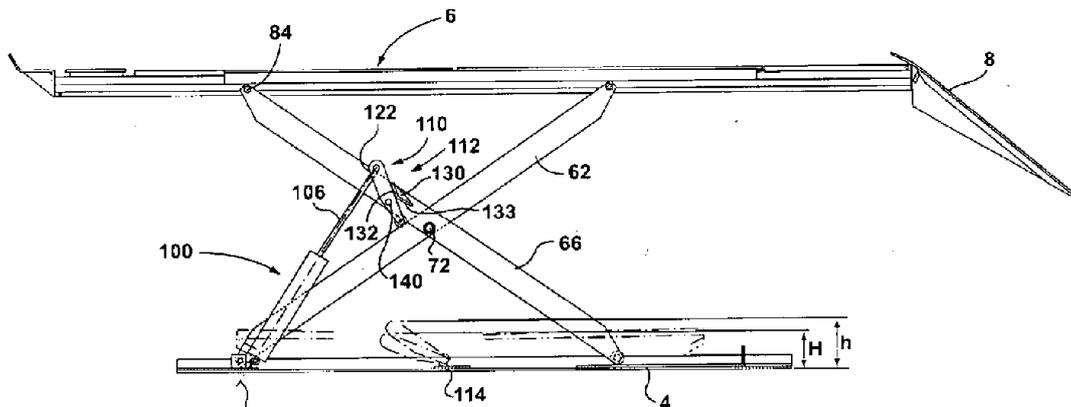
hydraulically or pneumatically operated

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2007/0235266.



## B66F 7/085

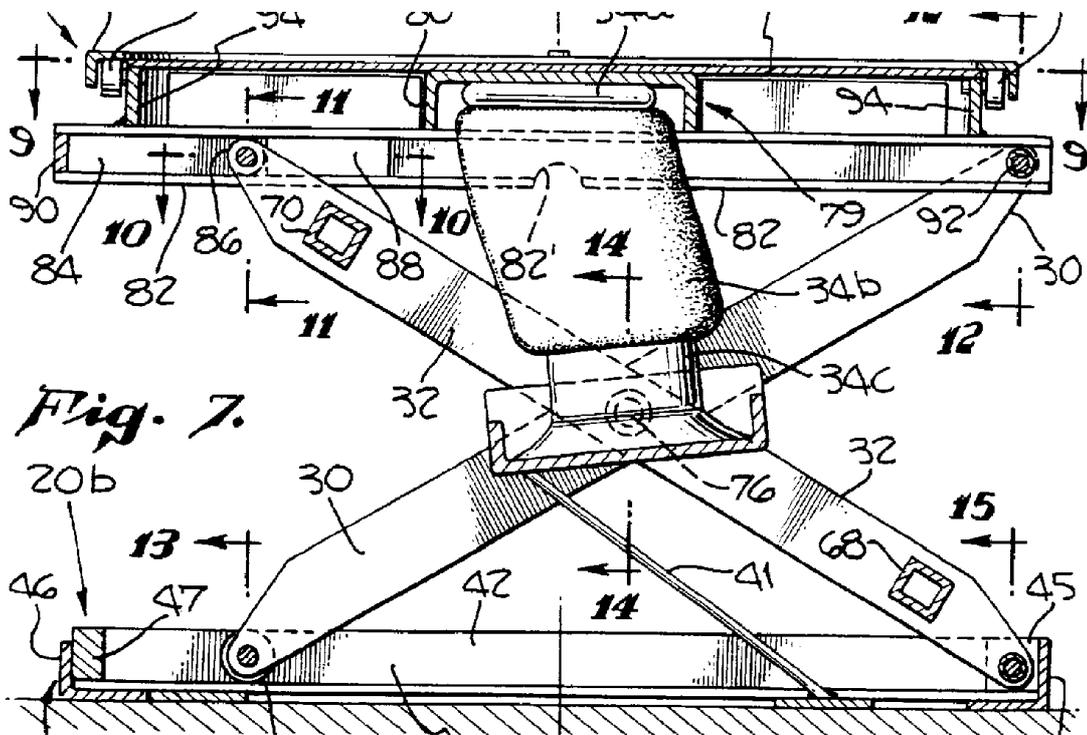
[N: pneumatically operated]

## Definition statement

*This subclass/group 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 subclass/group 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

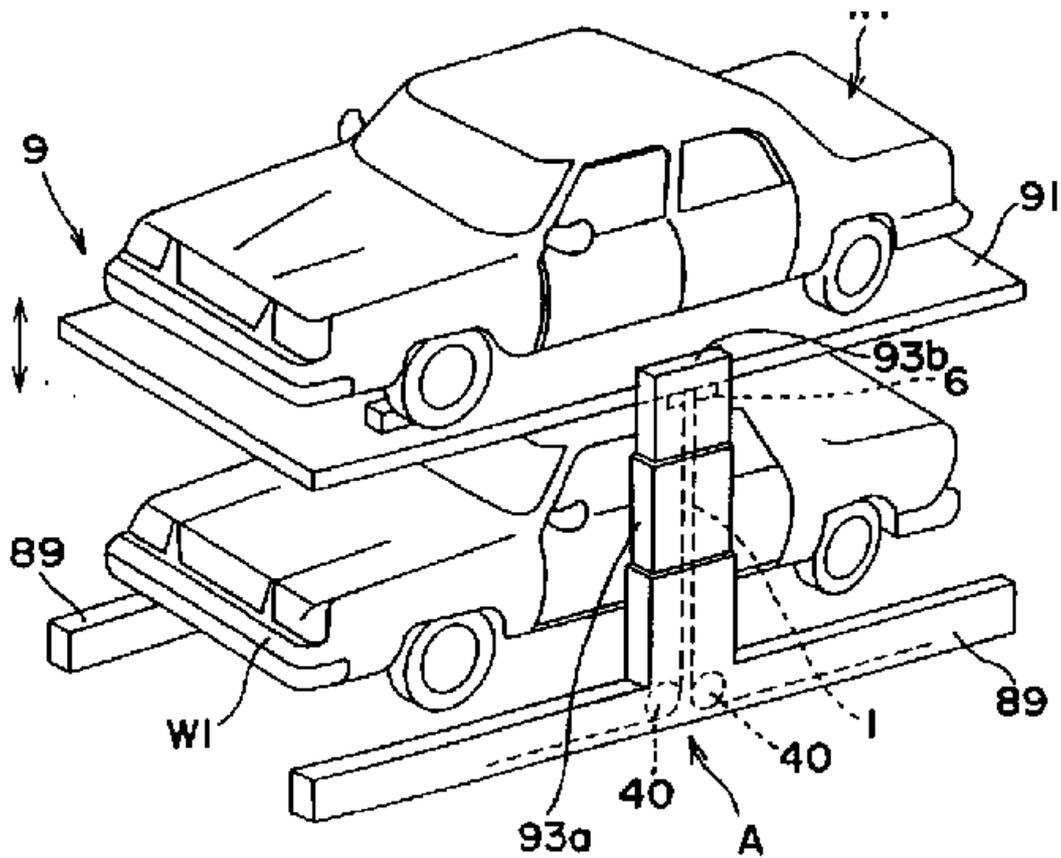
by mechanical jacks

## Definition statement

*This subclass/group covers:*

lifting platforms with jacks not using screws,

see for example WO 96/19405.



### References relevant to classification in this group

*This subclass/group does not cover:*

Screw operated jacks	<a href="#">B66F 7/14</a>
----------------------	---------------------------

### **B66F 7/14**

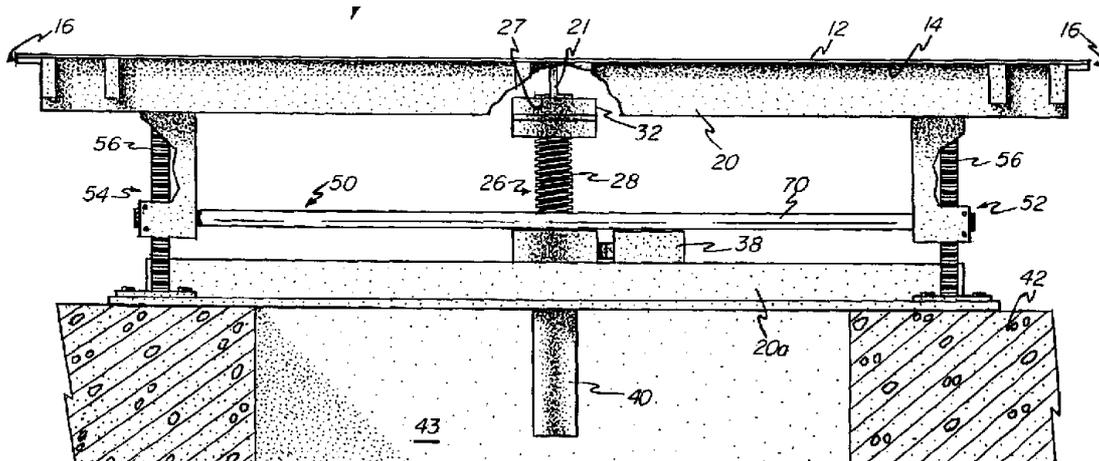
**screw operated**

### Definition statement

*This subclass/group covers:*

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

see for example US 6 502 667.



### References relevant to classification in this group

*This subclass/group does not cover:*

Devices where the platform moves along a fixed screw	<a href="#">B66F 7/025</a>
--	----------------------------

### B66F 7/16

by one or more hydraulic or pneumatic jacks

#### Definition statement

*This subclass/group covers:*

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

### B66F 7/18

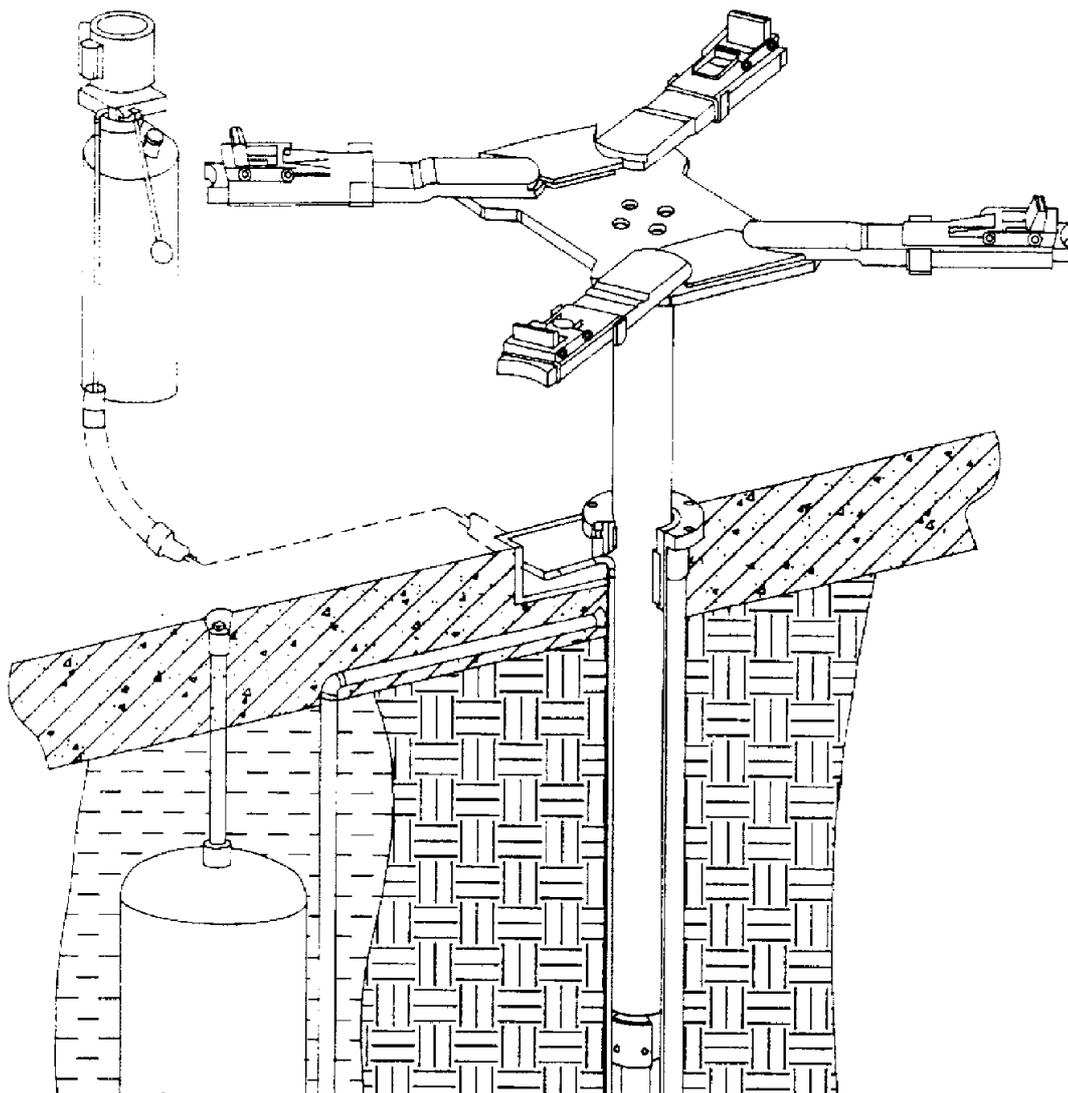
by a single central jack

#### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 740 886.



## **B66F 7/20**

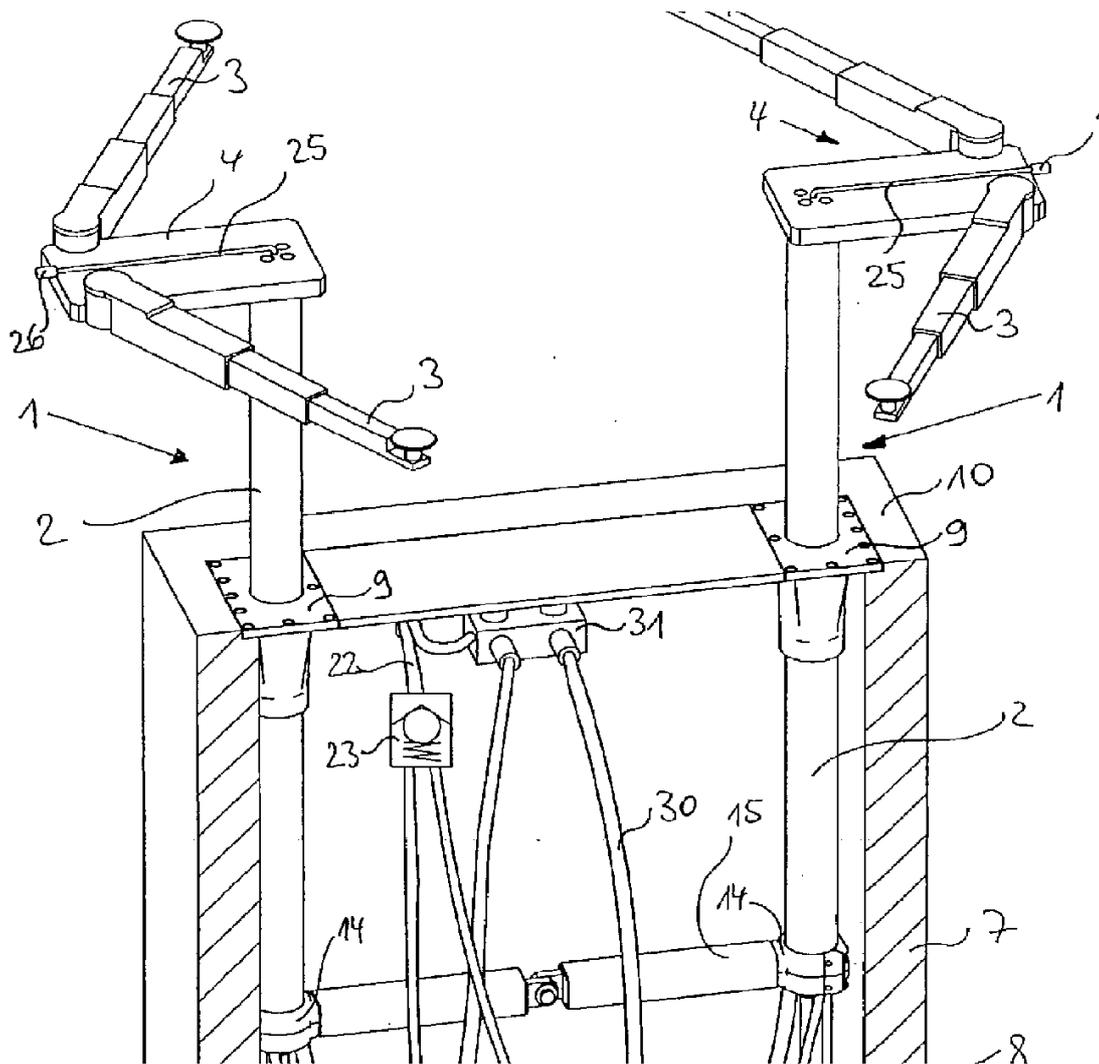
**by several jacks with means for maintaining the platforms horizontal during movement**

### **Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2006/0042877.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Groups of jacks operating together	<a href="#">B66F 3/46</a>
------------------------------------	---------------------------

**B66F 7/22**

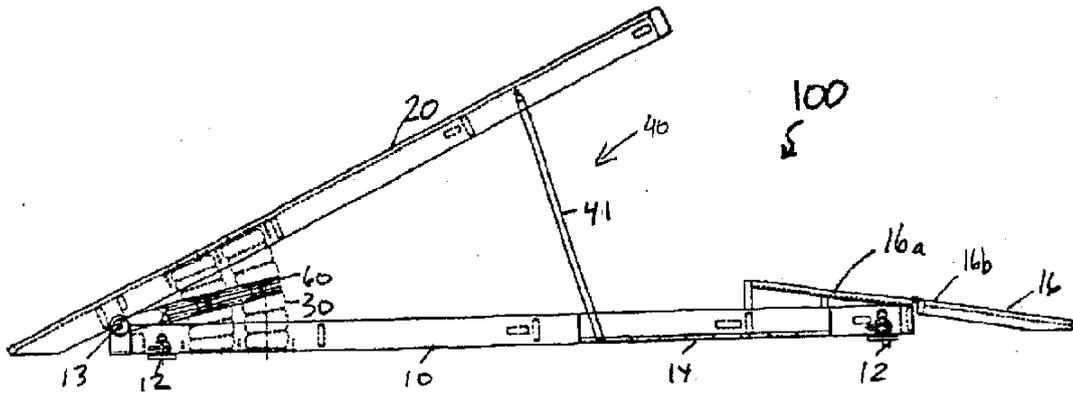
**with tiltable platforms (tilting vehicles for unloading B65G67/34)**

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2004/0211947.



### Special rules of classification within this group

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

### B66F 7/24

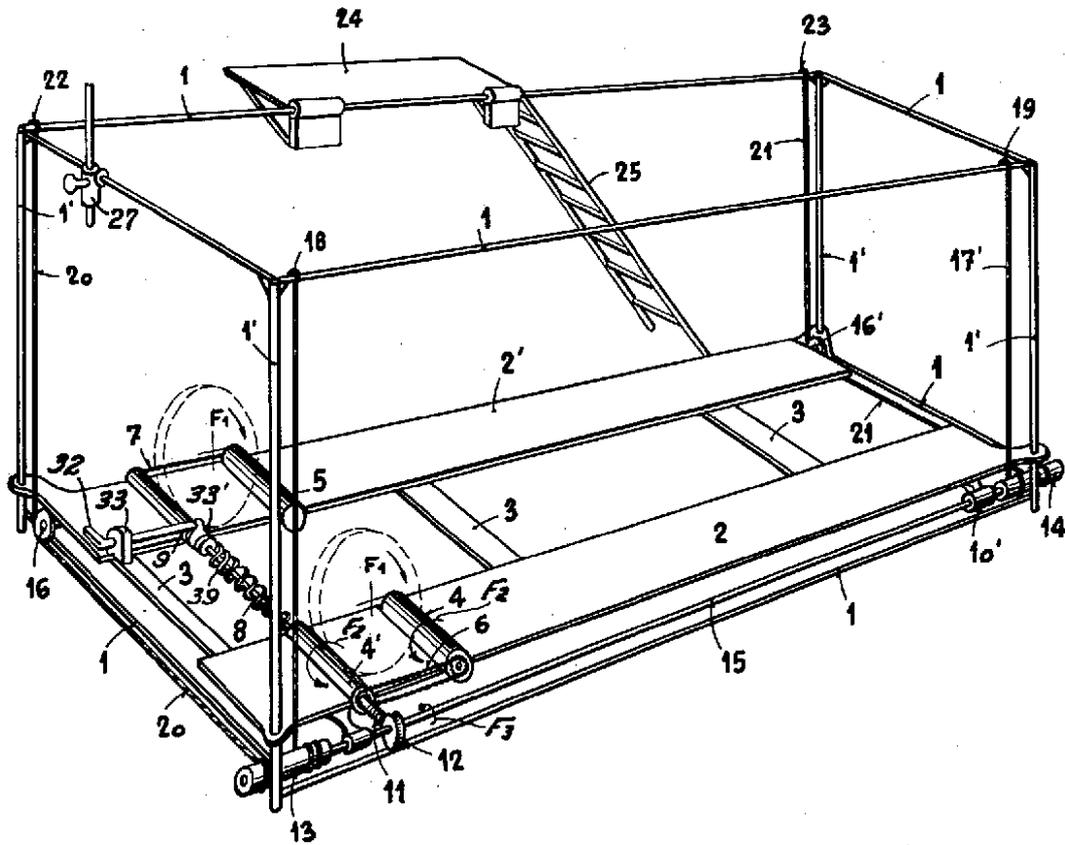
for raising or lowering vehicles by their own power

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2 754 933.



## References relevant to classification in this group

*This subclass/group does not cover:*

Levers attached to a vehicle wheel	<a href="#">B66F 3/005</a>
Ramps	<a href="#">B66F 7/243</a>

## B66F 7/243

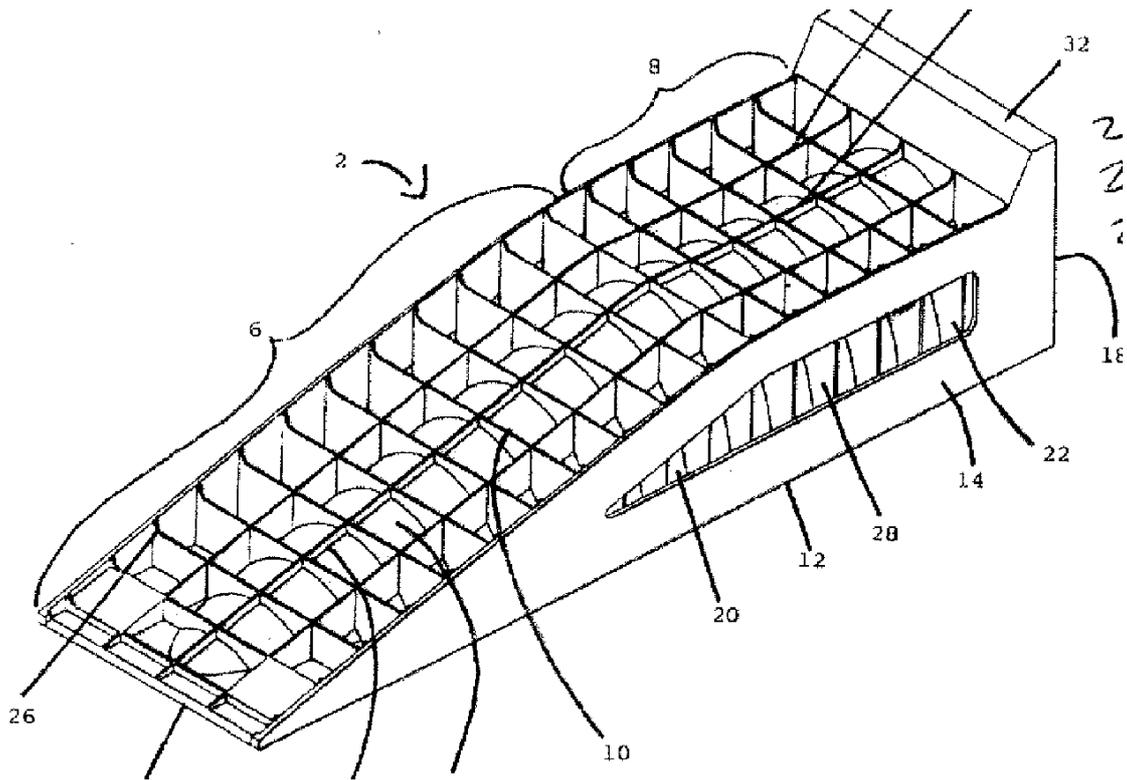
[N: Ramps]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2009/0100613.



## B66F 7/246

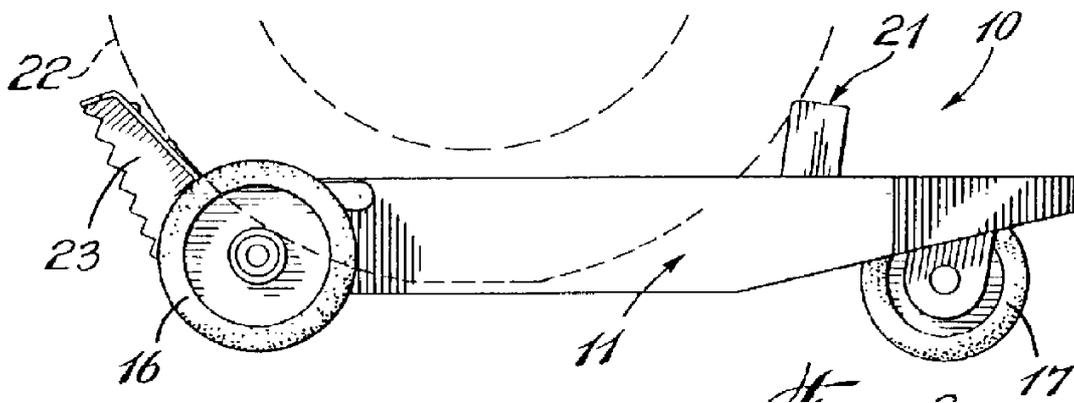
[N: Wheel supporting trolleys]

### Definition statement

*This subclass/group 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

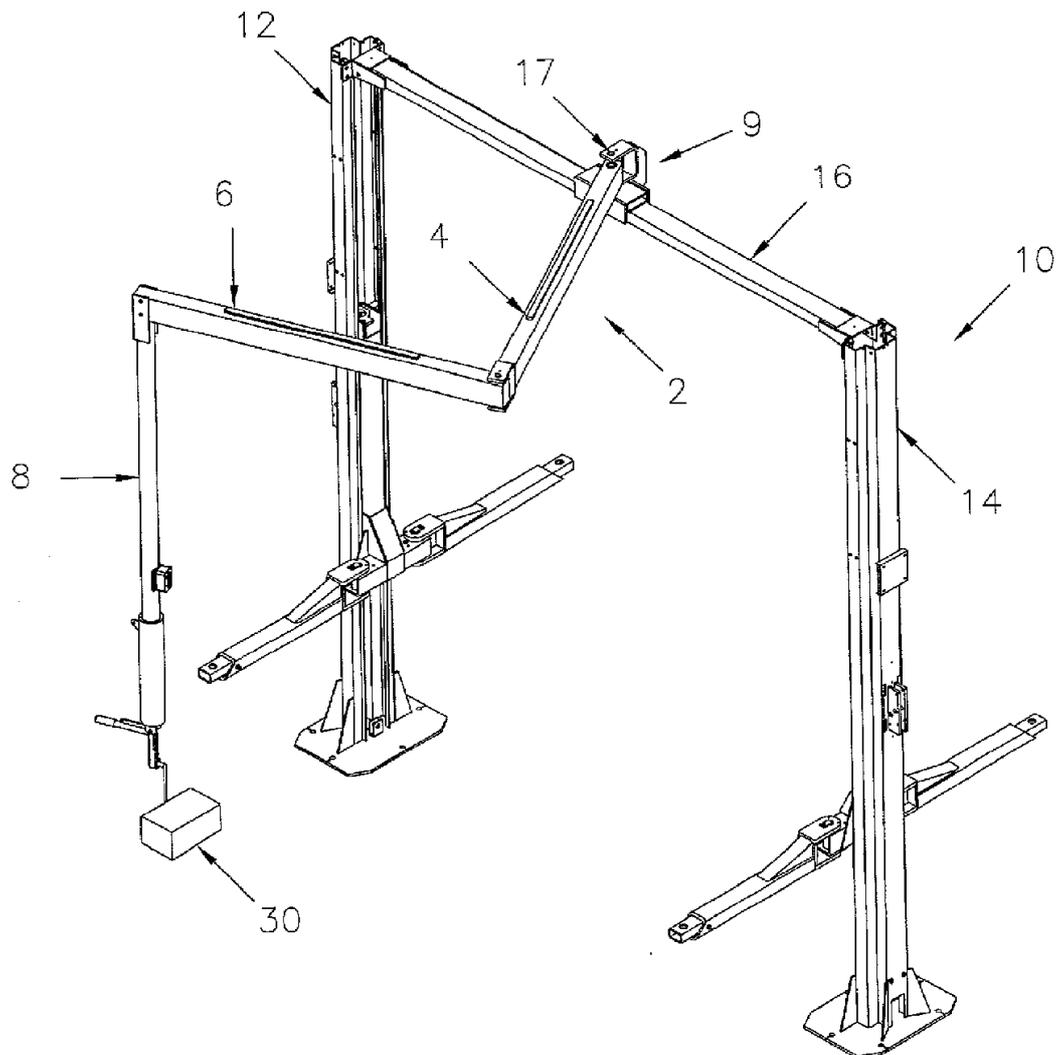
## B66F5/00)

### Definition statement

*This subclass/group covers:*

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

see for example US 2002/0043137



### References relevant to classification in this group

*This subclass/group does not cover:*

Auxiliary scissors above main scissors	<a href="#">B66F 3/06X2A</a>
--	------------------------------

## B66F 7/28

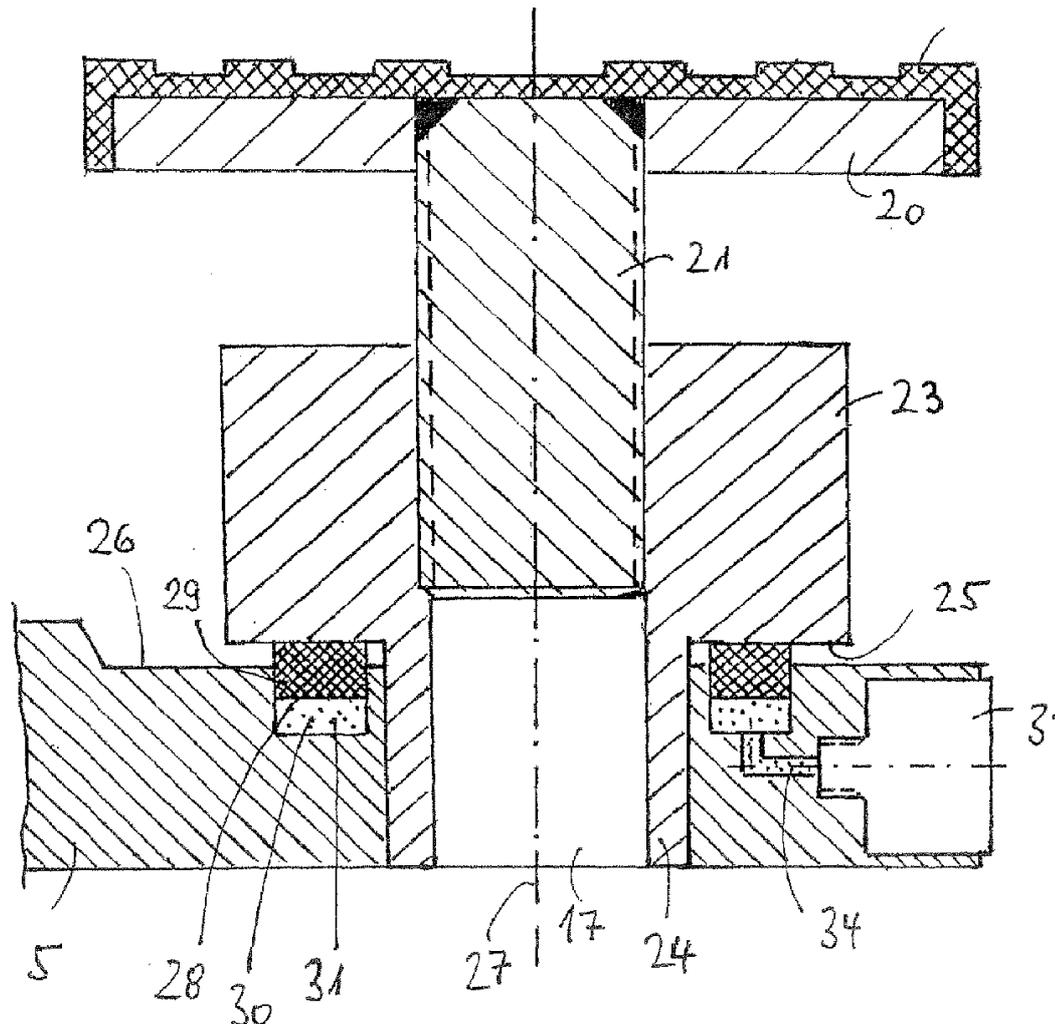
## Constructional details, e.g. end stops, pivoting supporting members, sliding runners adjustable to load dimensions

### Definition statement

*This subclass/group 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 B66B9/16; cranes B66C)

## References relevant to classification in this group

*This subclass/group does not cover:*

Loading and unloading of trucks using crane mounted on truck	<a href="#">B60P 1/00</a>
Refuse vehicles	<a href="#">B65F</a>

## B66F 9/02

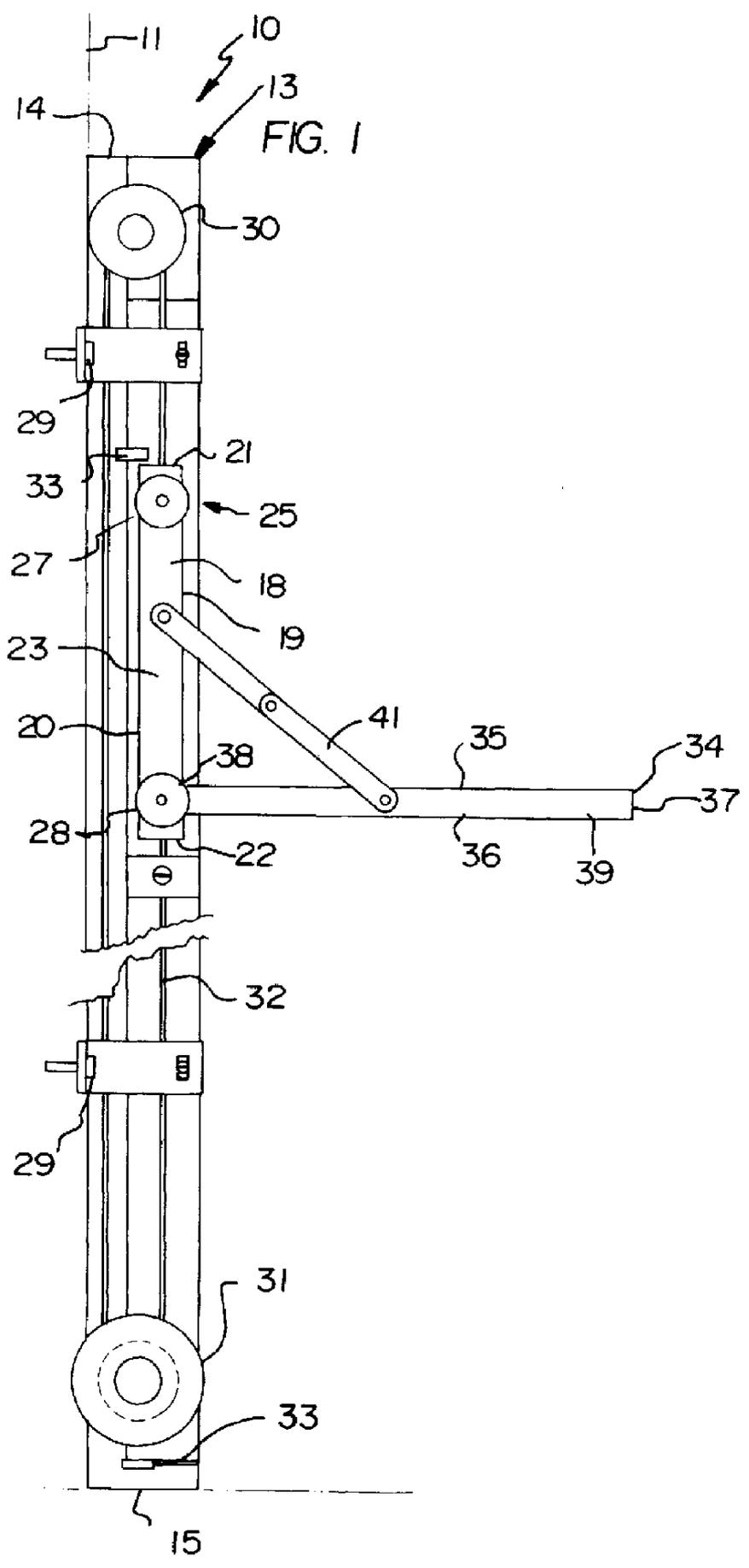
**Stationary loaders or unloaders, e.g. for sacks**

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 6 012 552



**B66F 9/04**

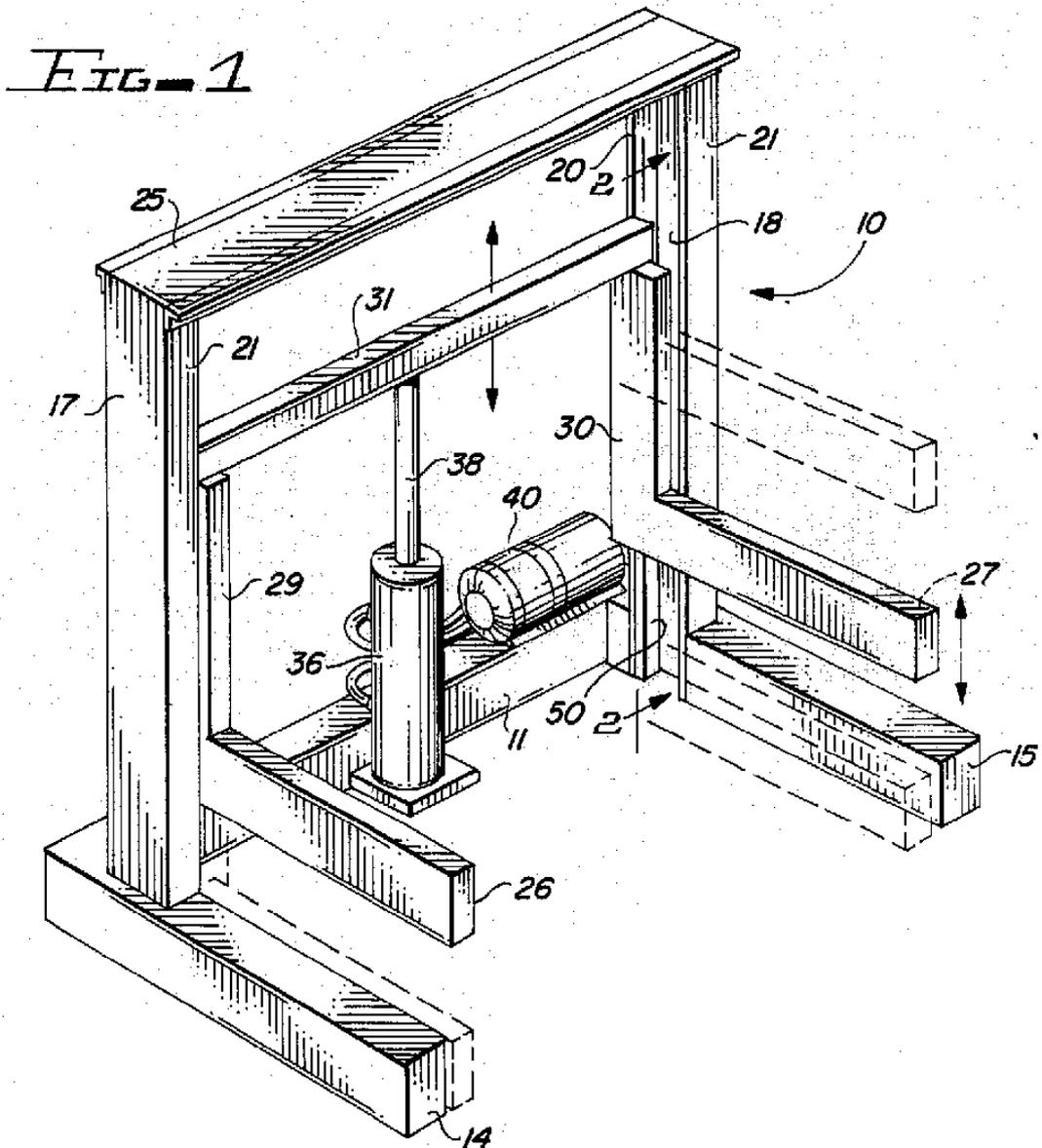
**hydraulically actuated or controlled**

**Definition statement**

*This subclass/group 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 to B62; vehicles predominantly**

for transporting loads and modified to facilitate loading or unloading B60P1/00; low-lift hand trucks for transporting goods B62B3/06)

### Definition statement

*This subclass/group covers:*

Devices which move on wheels or similar 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 relevant to classification in this group

*This subclass/group does not cover:*

Constructional details	<a href="#">B66F 9/075</a>
------------------------	----------------------------

## B66F 9/061

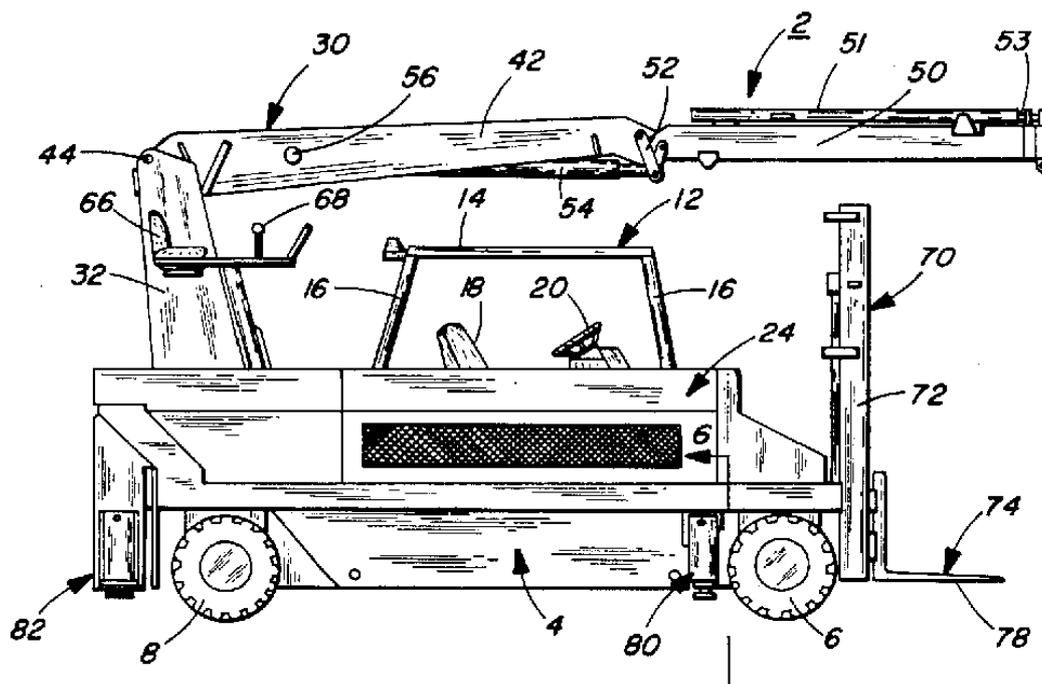
[N: characterised by having a lifting jib]

### Definition statement

*This subclass/group covers:*

trucks having both a mast and a separate jib,

see for example US 4 750 628



## References relevant to classification in this group

*This subclass/group does not cover:*

Trucks without a mast	<a href="#">B66F 9/065</a>
Lifting hooks mounted on forks	<a href="#">B66F 9/12</a>

## **B66F 9/063**

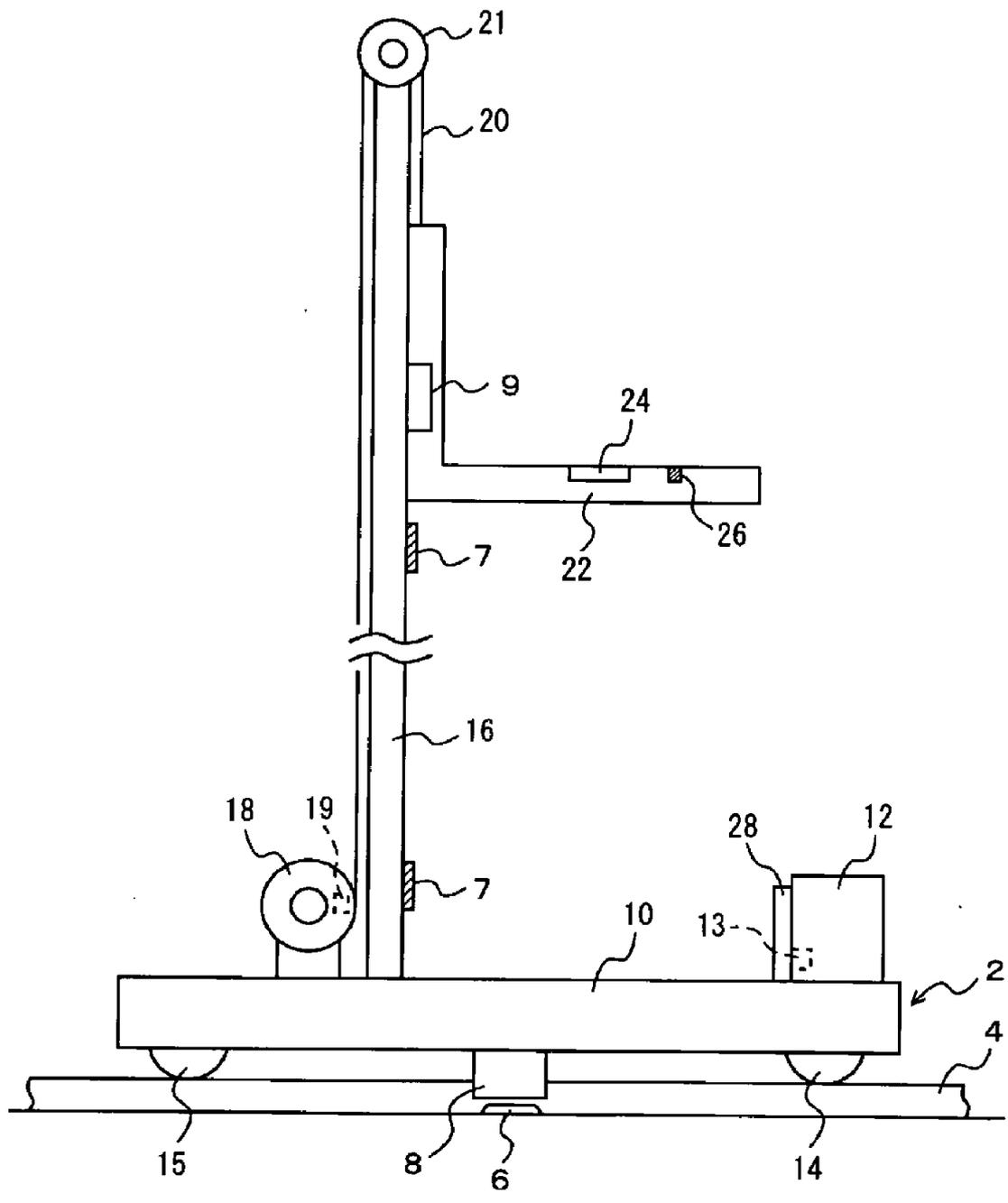
**[N: Automatically guided]**

### **Definition statement**

*This subclass/group covers:*

driverless lift trucks with automatic navigation

see for example US2007/0103107.



**References relevant to classification in this group**

*This subclass/group does not cover:*

General automatically guided vehicles	<a href="#">G05D 1/00</a>
---------------------------------------	---------------------------

**B66F 9/065**

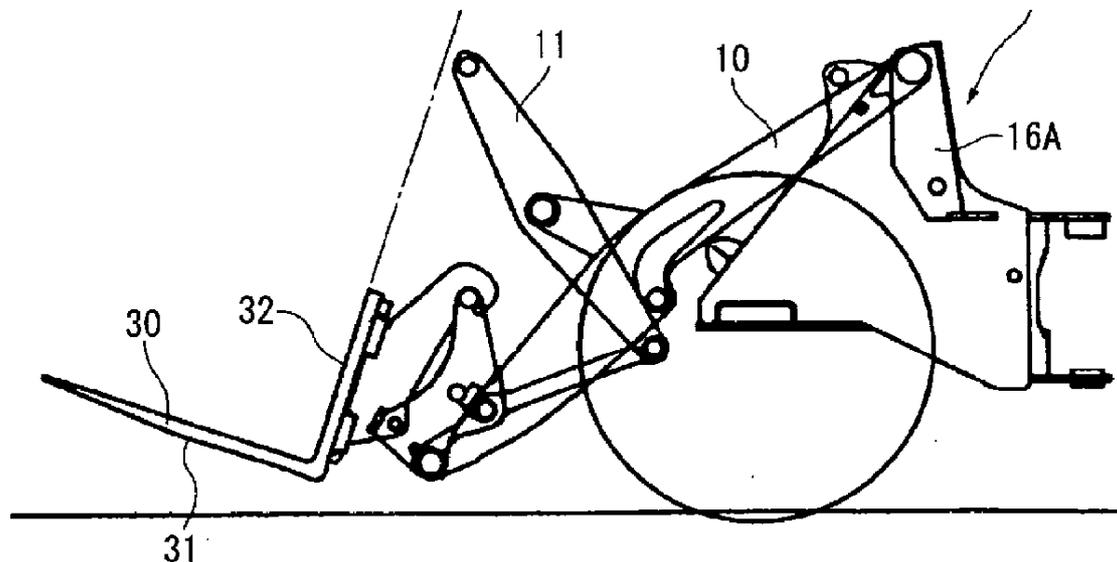
**non-masted (mobile jacks of the garage type mounted on wheels or rollers B66F5/00)**

## Definition statement

*This subclass/group covers:*

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

see for example US 2009/0003984



## References relevant to classification in this group

*This subclass/group does not cover:*

Masted trucks with an additional lifting jib	<a href="#">B66F 9/061</a>
Trucks with telescopic booms	<a href="#">B66F 9/0655</a>

## B66F 9/0655

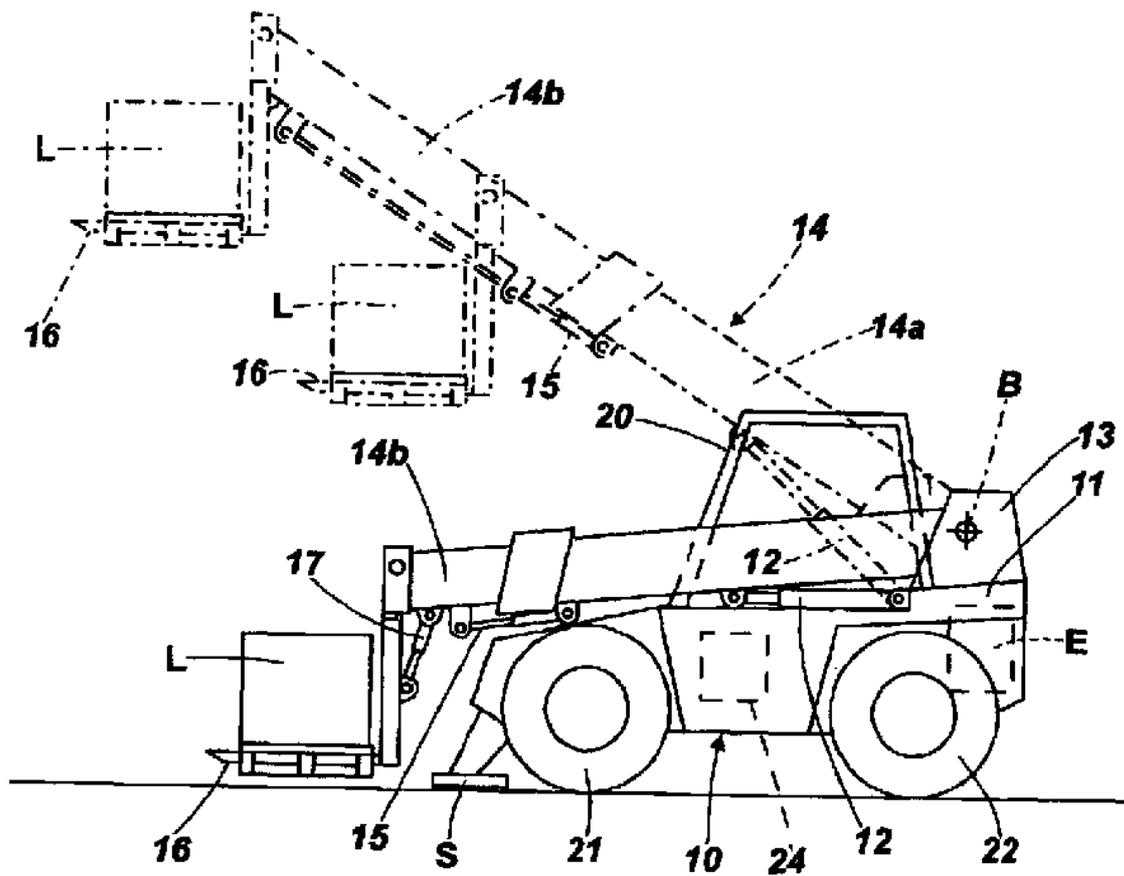
[N: with a telescopic boom]

## Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2010/0322753.



## B66F 9/07

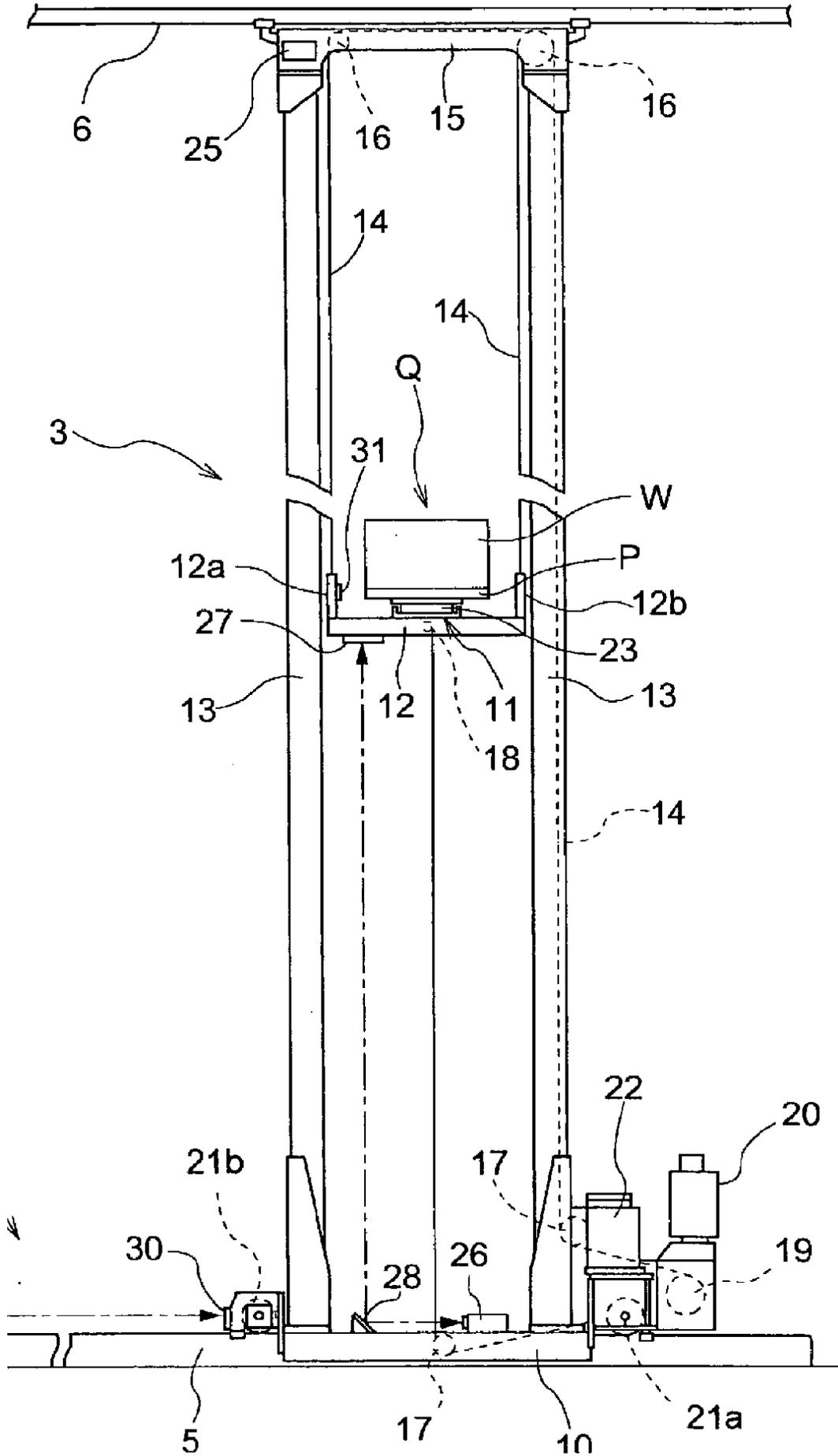
Floor-to-roof stacking devices, e.g. "stacker cranes",  
"retrievers"

### Definition statement

*This subclass/group covers:*

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

see for example US 2007/0059132



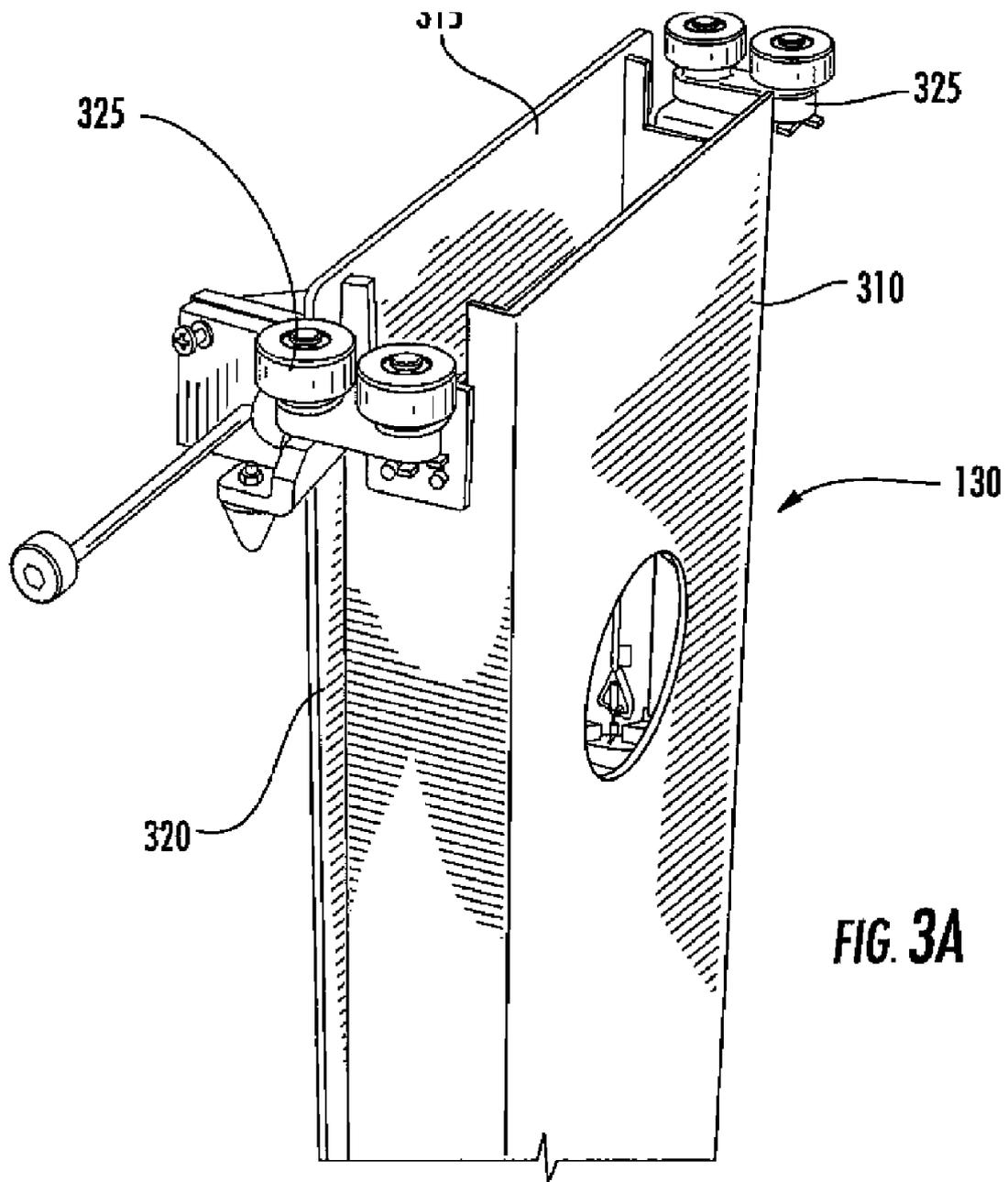
**B66F 9/072**

**[N: Travelling gear therefor]**

**Definition statement**

*This subclass/group covers:  
travelling gear for warehouse stacker trucks.*

see for example US 2007/0151940



**FIG. 3A**

**B66F 9/075**

## Constructional features or details

### Definition statement

*This subclass/group covers:*

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

### B66F 9/07504

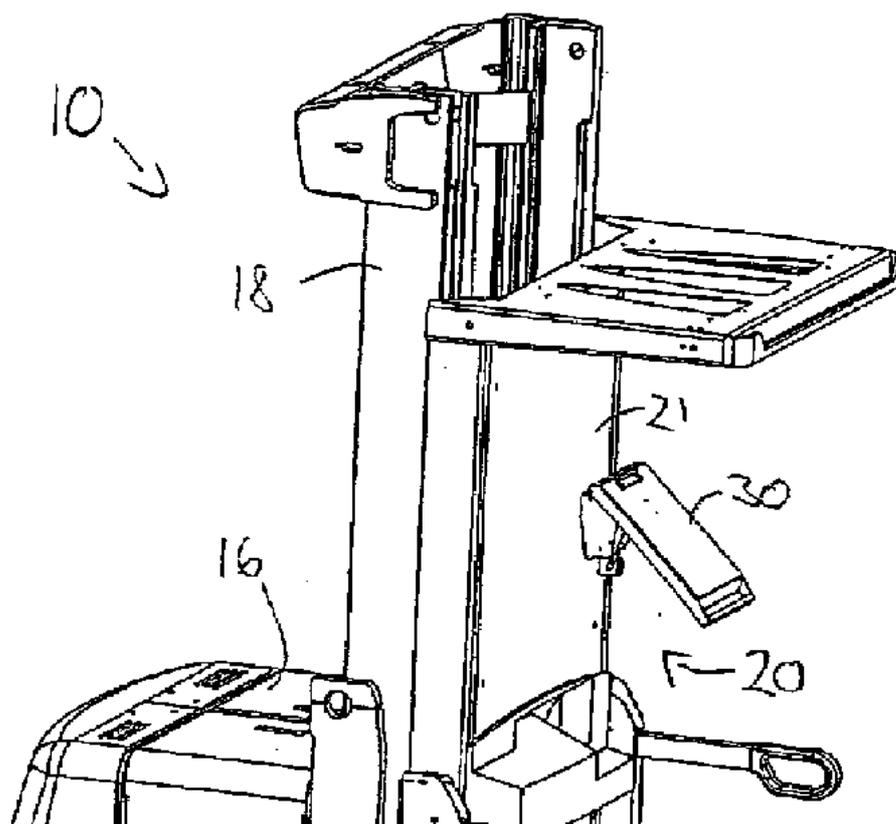
[N: Accessories, e.g. for towing, charging, locking]

### Definition statement

*This subclass/group covers:*

details not associated with the main truck function.

see for example US 2006/0180400



### B66F 9/07509

[N: Braking]

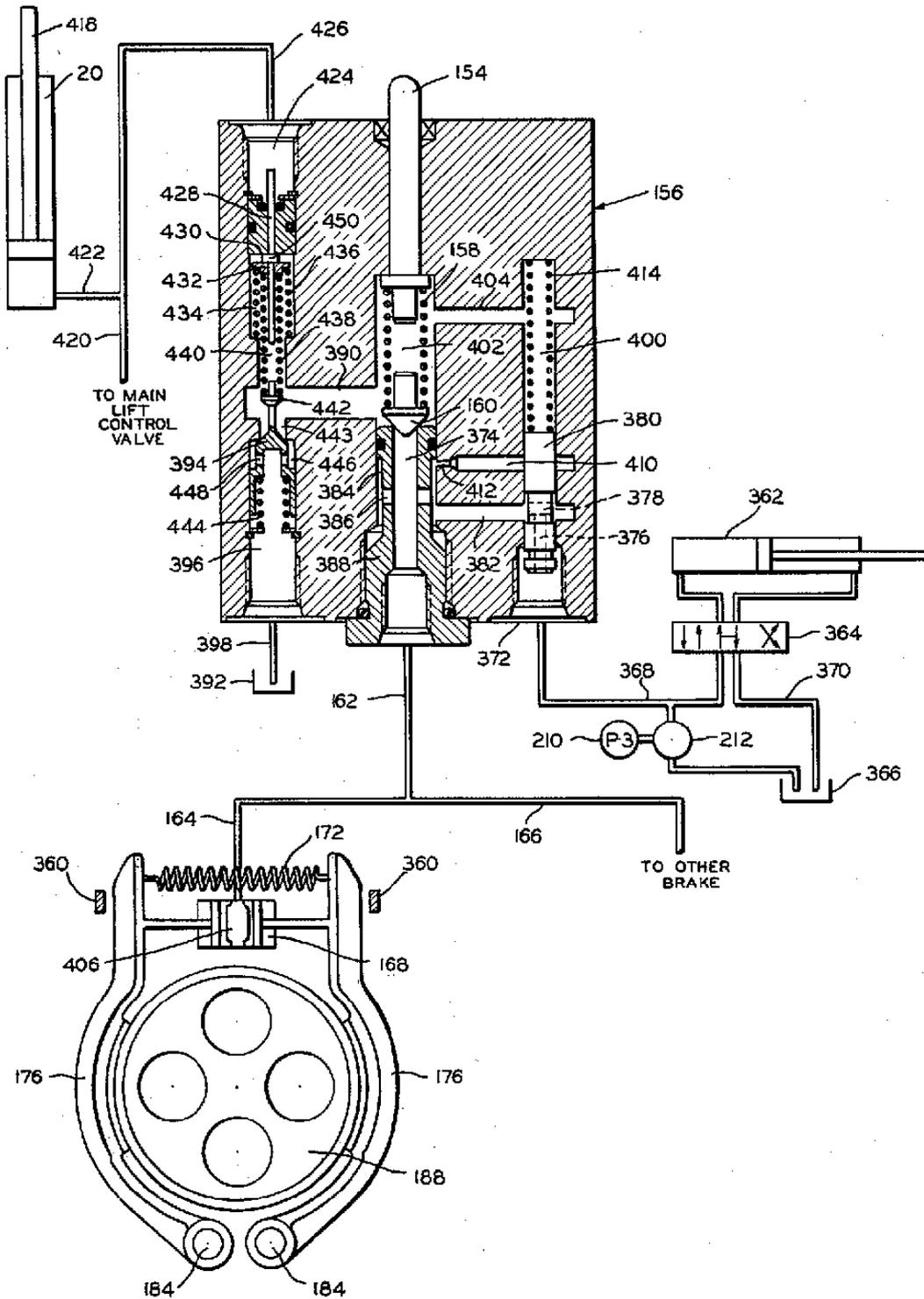
### Definition statement

This subclass/group covers:

Illustrative example of subject matter classified in this group

see for example US 3 135 357.

FIG. 9



## Relationship between large subject matter areas

for general vehicle brakes see [B60T](#)

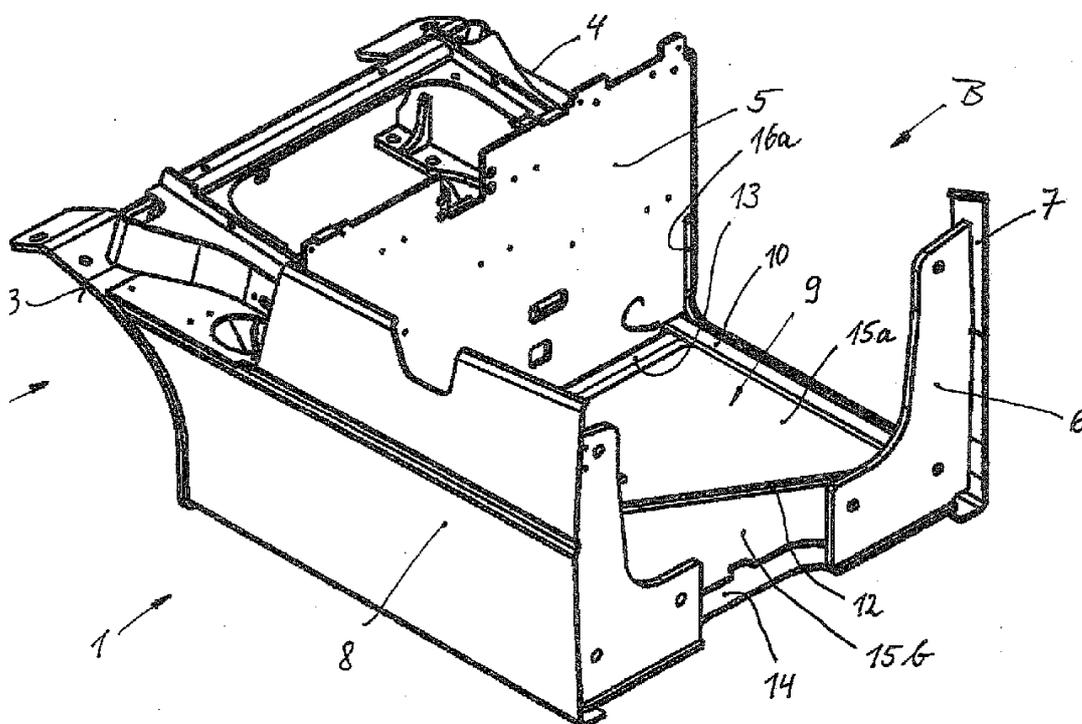
### B66F 9/07513

[N: Details concerning the chassis]

#### Definition statement

*This subclass/group covers:*  
chassis details or assembly,

see for example US 2009/0200837.



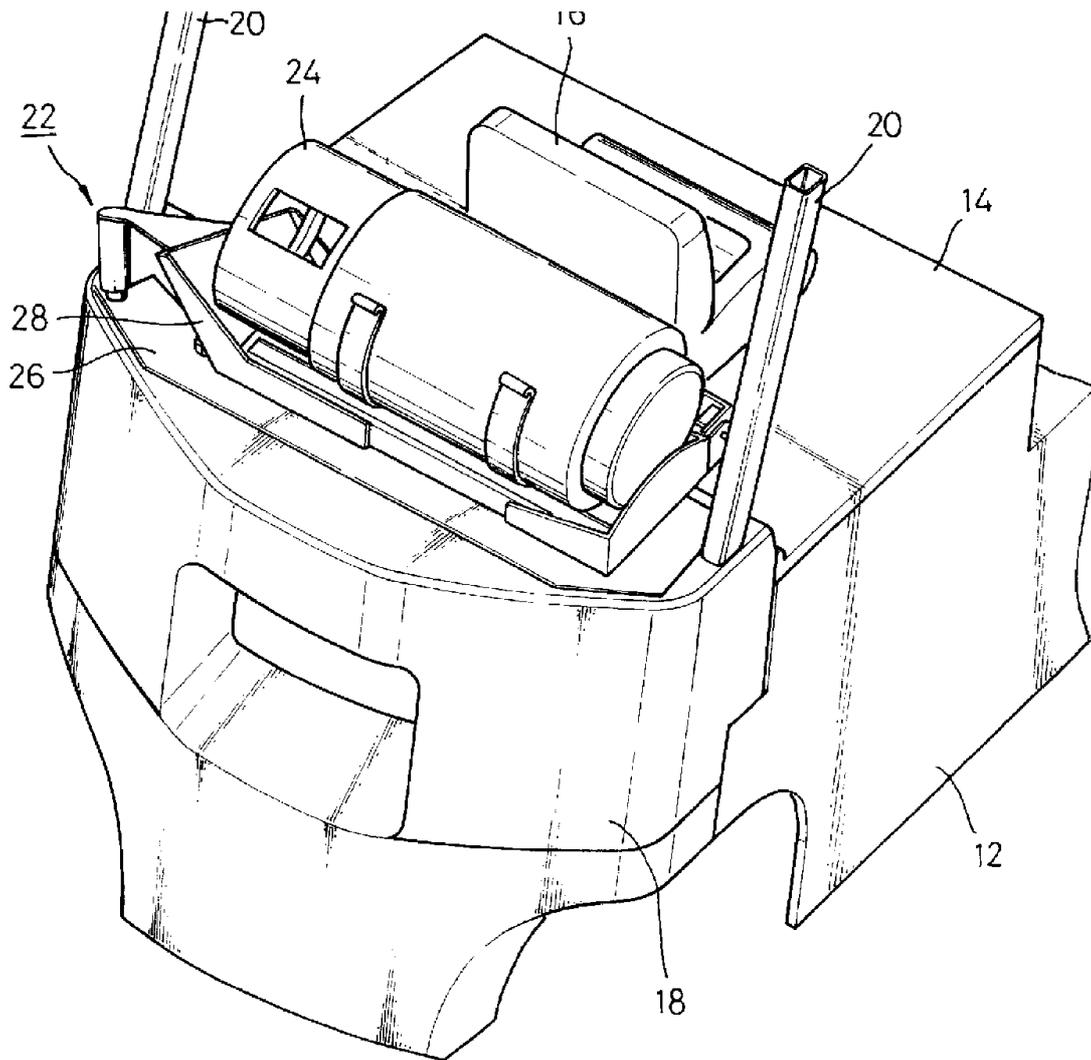
### B66F 9/07518

[N: Fuel or oil tank arrangements]

#### Definition statement

*This subclass/group covers:*  
internal or external mounting arrangements,

for example see US 5 806 892.



## **B66F 9/07522**

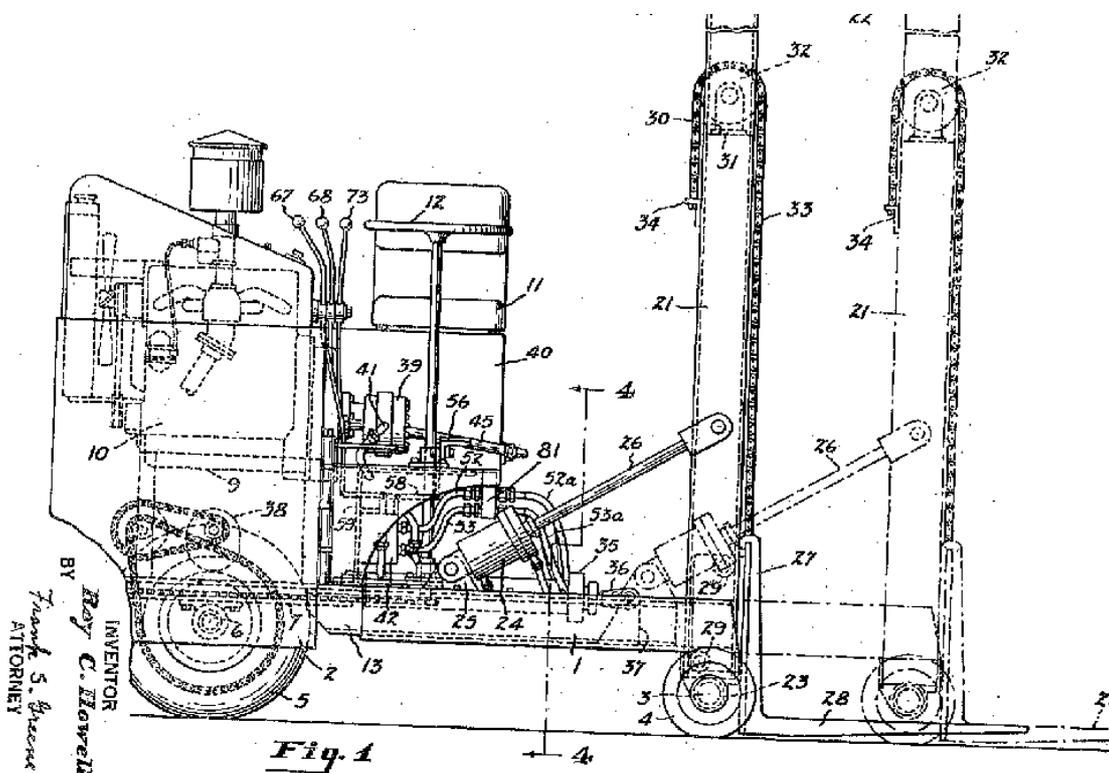
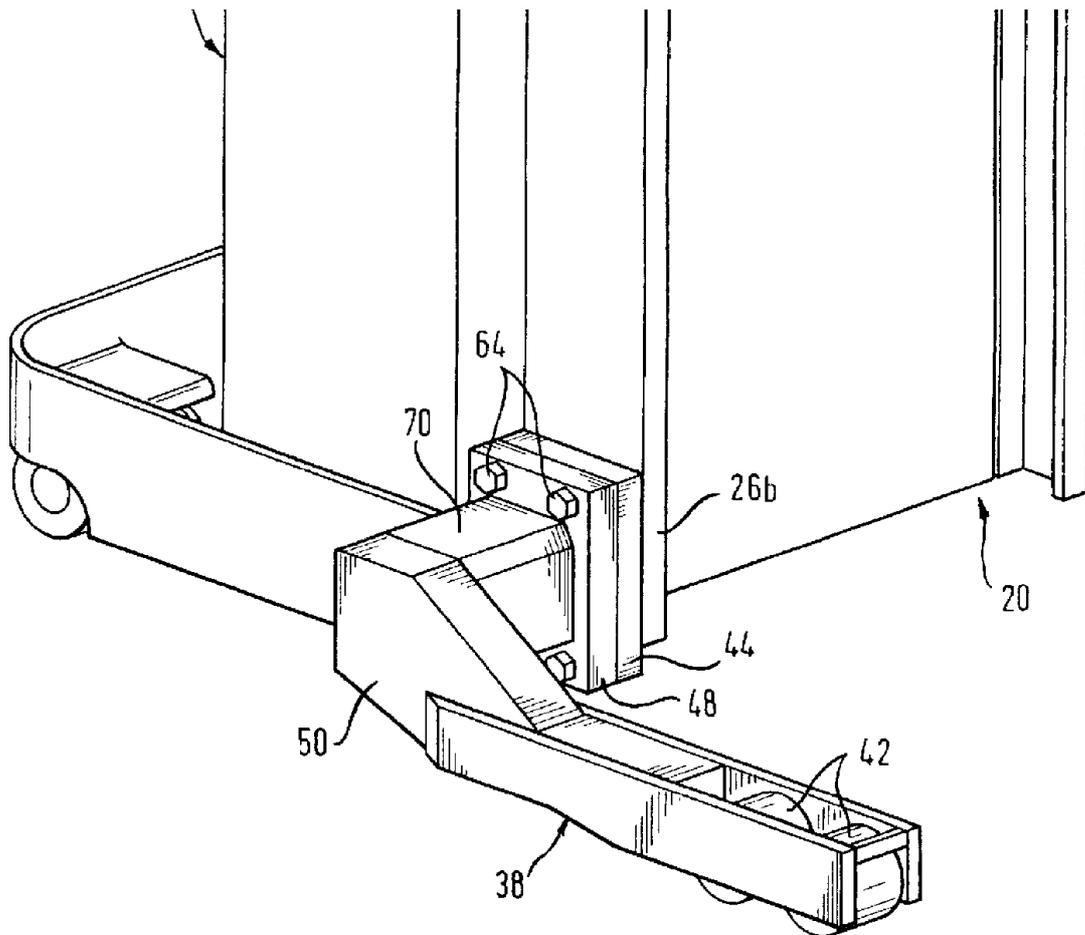
**[N: Variable length or width chassis]**

### **Definition statement**

*This subclass/group 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



INVENTOR  
 Roy C. Howell  
 BY  
 Frank S. Stevens  
 ATTORNEY

**Fig. 1**

## B66F 9/07527

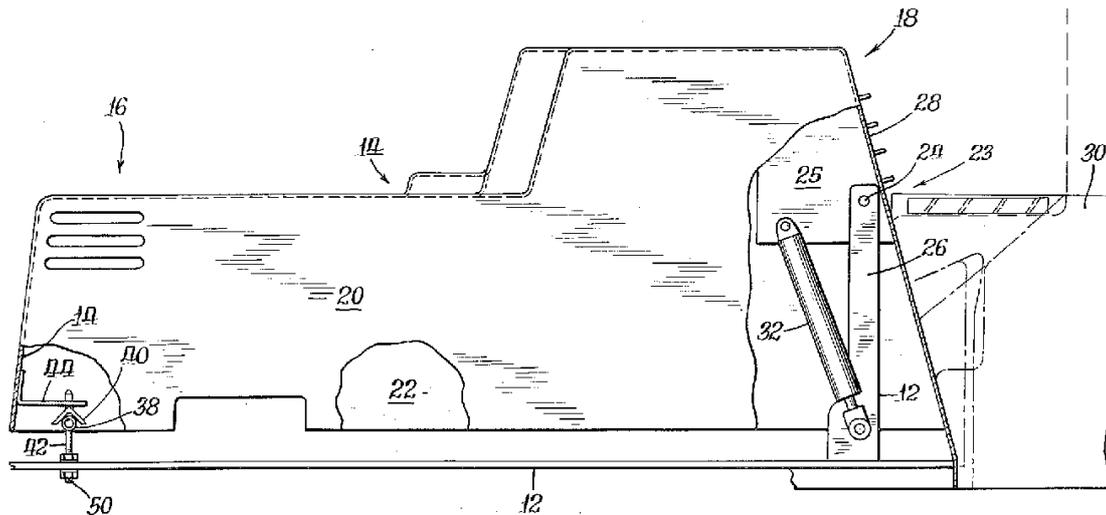
[N: Covers for e.g. engines or batteries]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 3 981 375



## B66F 9/07531

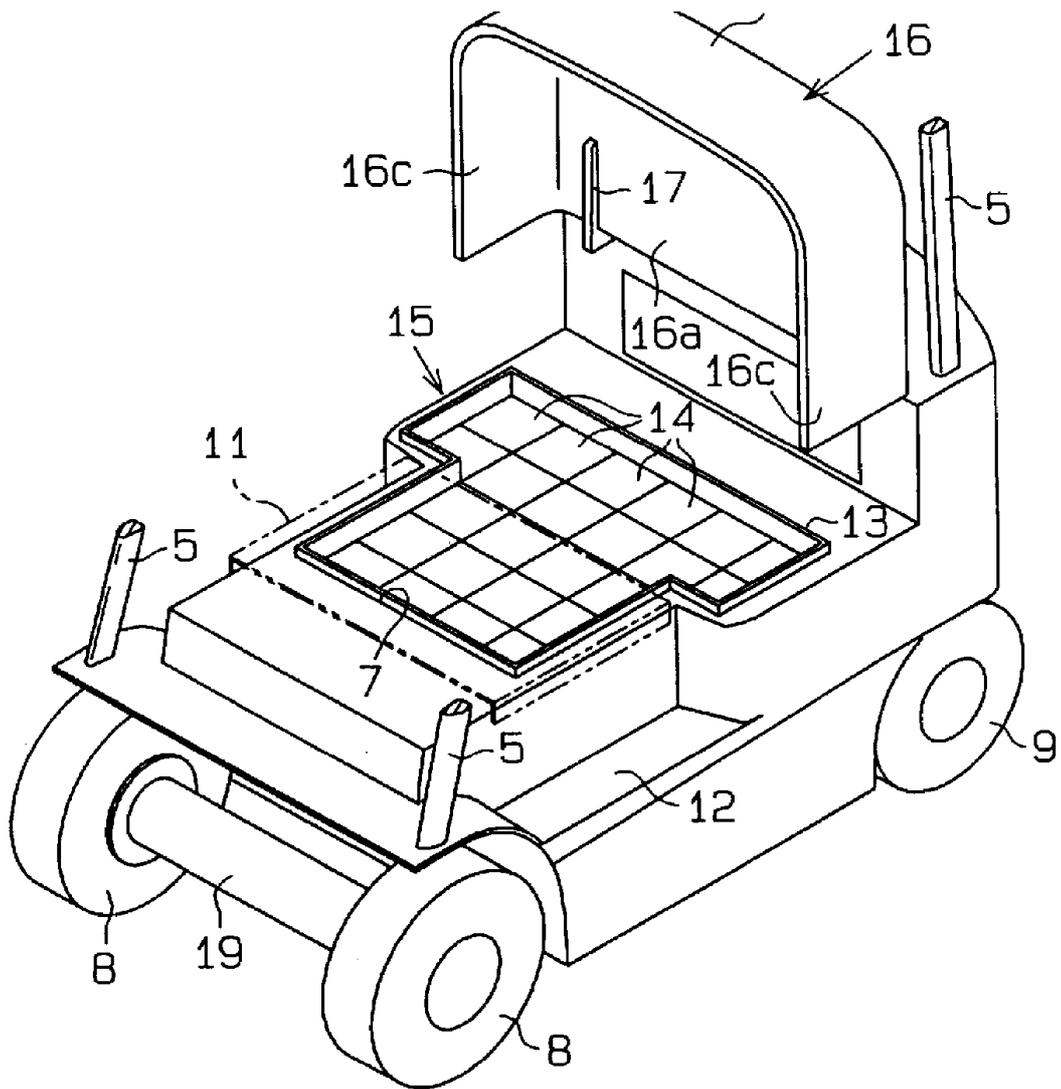
[N: Battery compartments]

### Definition statement

*This subclass/group covers:*

details of the battery arrangement,

see for example US 6 189 636.



## **B66F 9/07536**

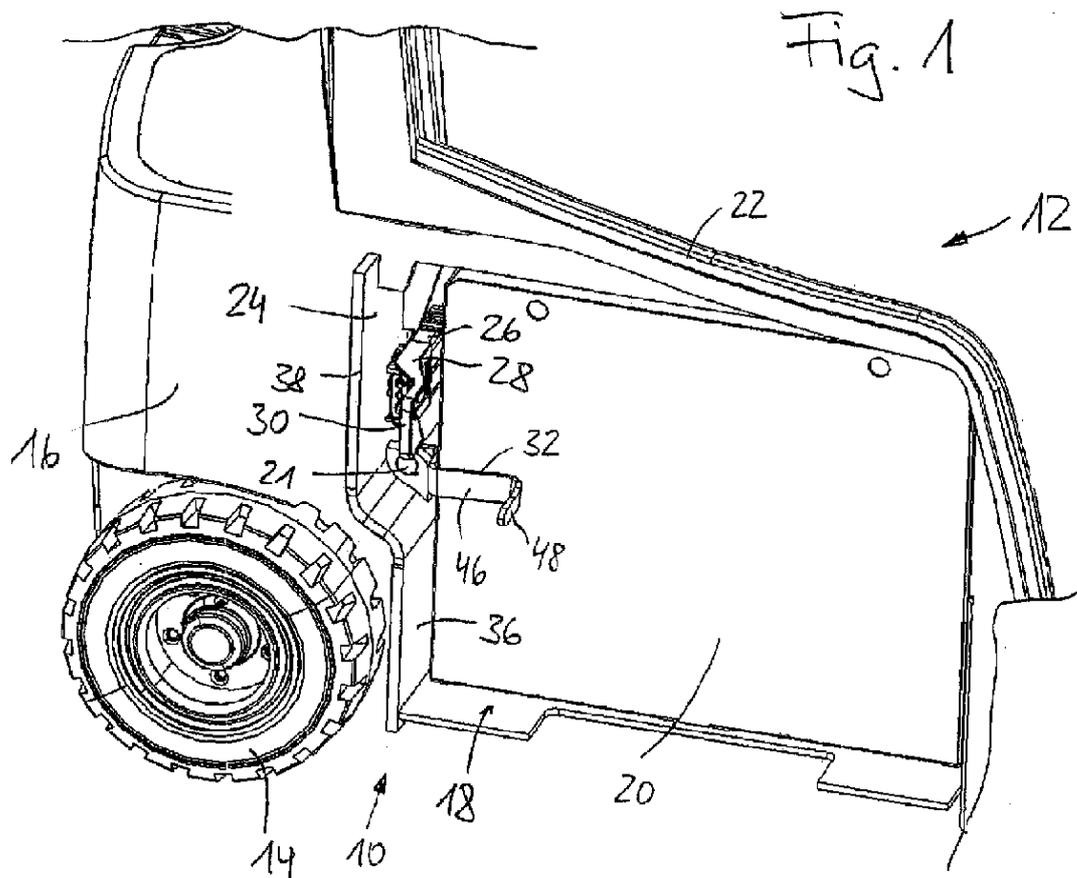
**[N: Battery stoppers, i.e. means to hold battery in position]**

### **Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2008/0314662.



## B66F 9/0754

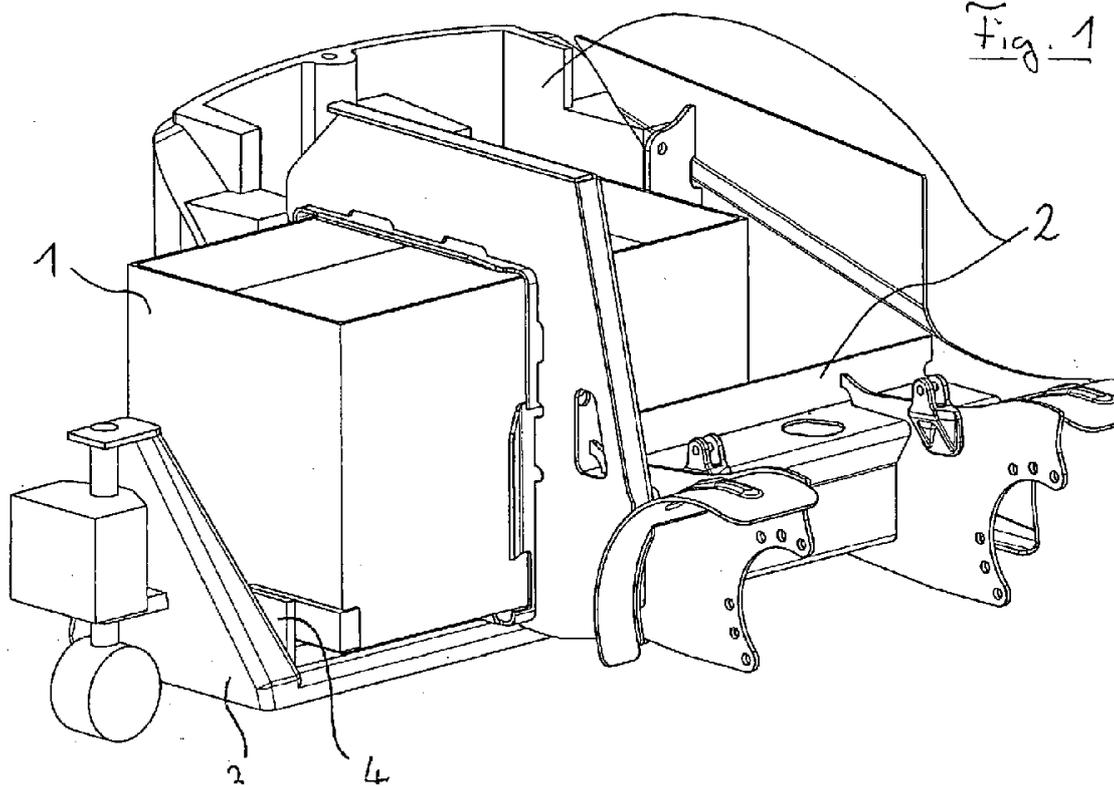
[N: Battery removal arrangements]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2004/0136815.



## **B66F 9/07545**

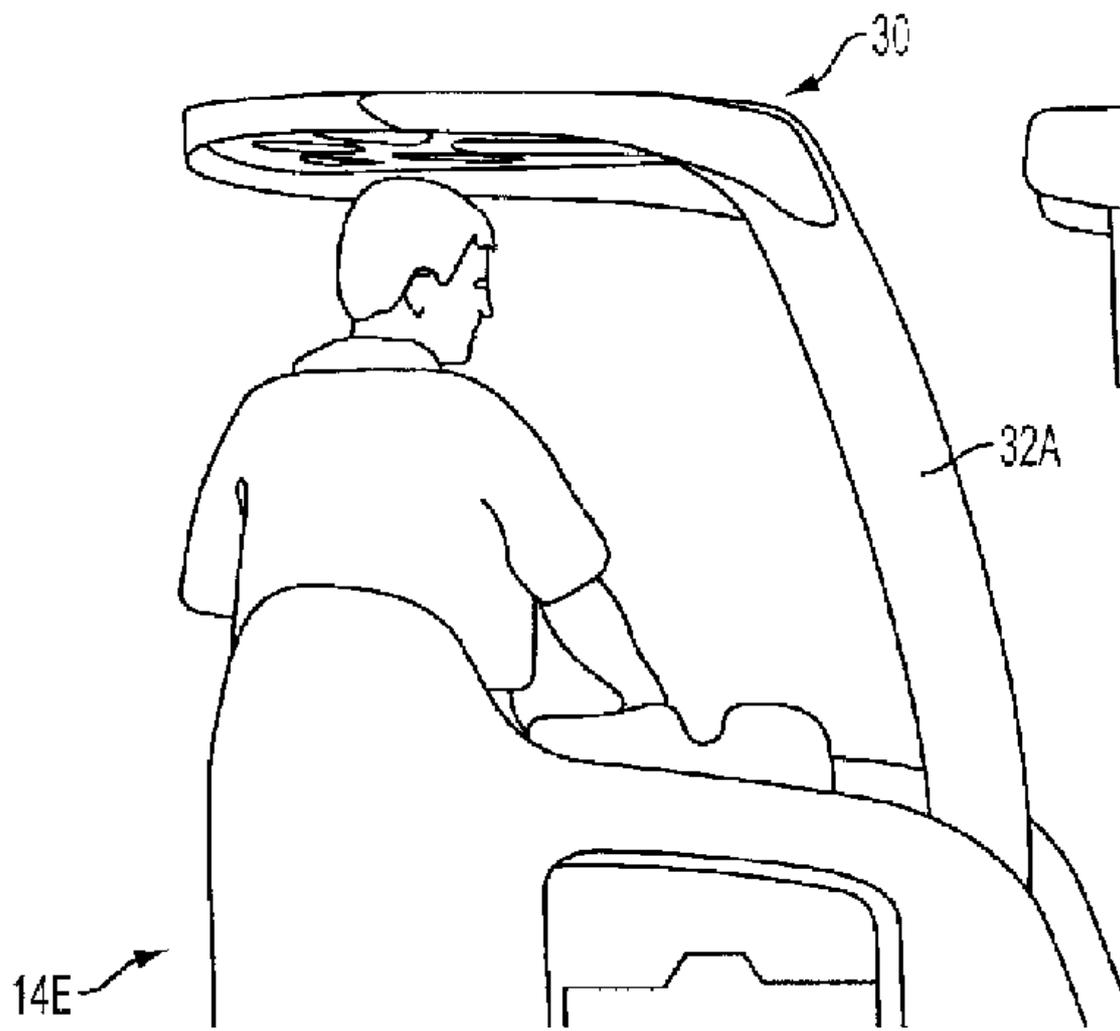
**[N: Overhead guards]**

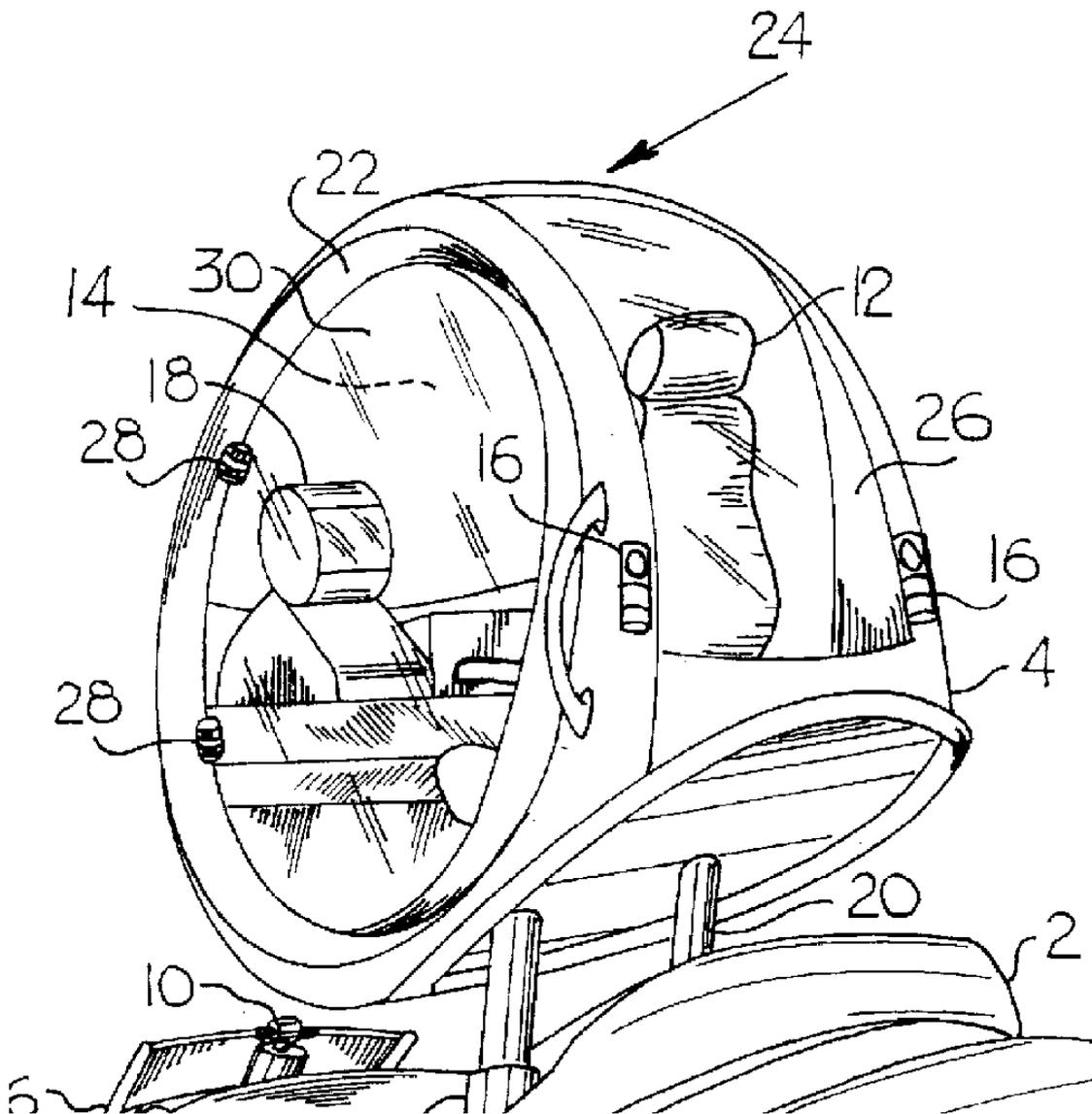
### **Definition statement**

*This subclass/group 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 relevant to classification in this group

*This subclass/group does not cover:*

Details of the operating station	<a href="#">B66F 9/0759</a>
----------------------------------	-----------------------------

### **B66F 9/0755**

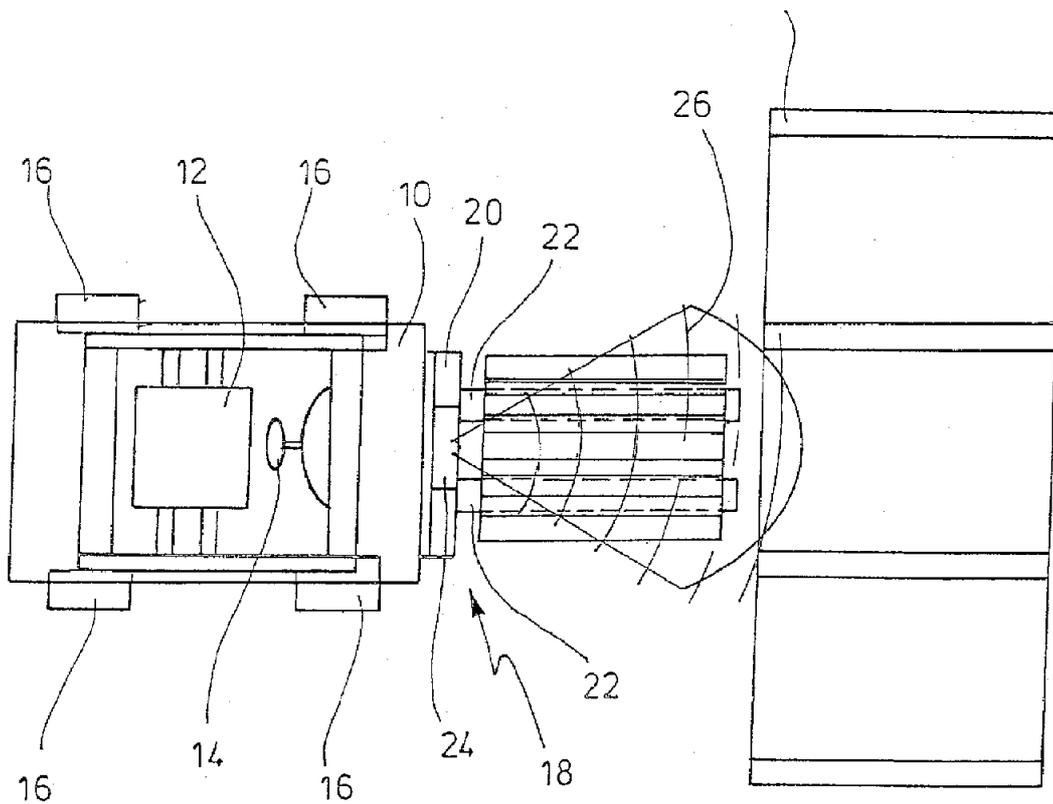
**[N: Position control; Position detectors]**

### **Definition statement**

*This subclass/group 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

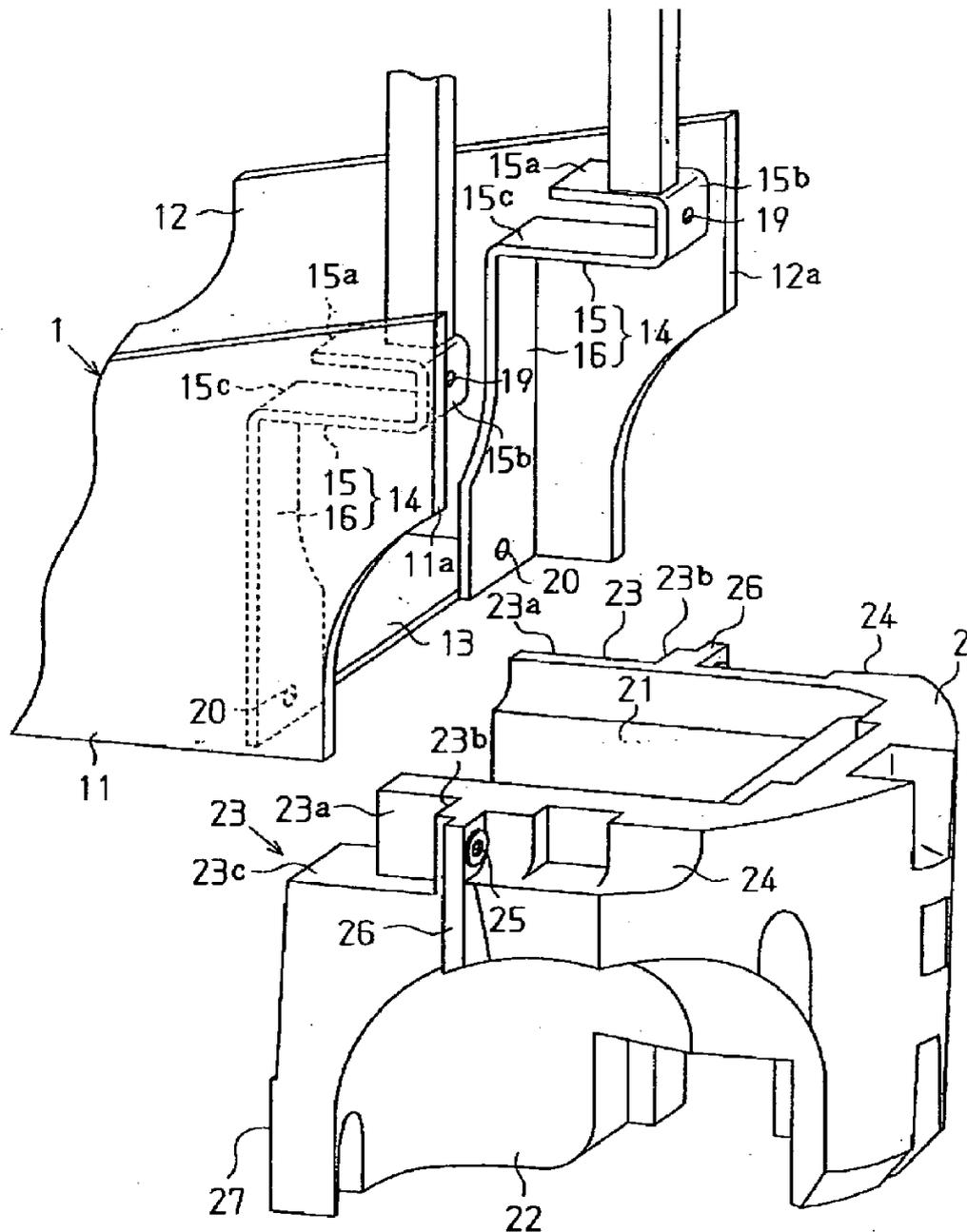


## **B66F 9/07554**

**[N: Counterweights]**

### **Definition statement**

*This subclass/group covers:*  
devices with particular counterweight arrangements,  
for example see US 2004/0216299.



## B66F 9/07559

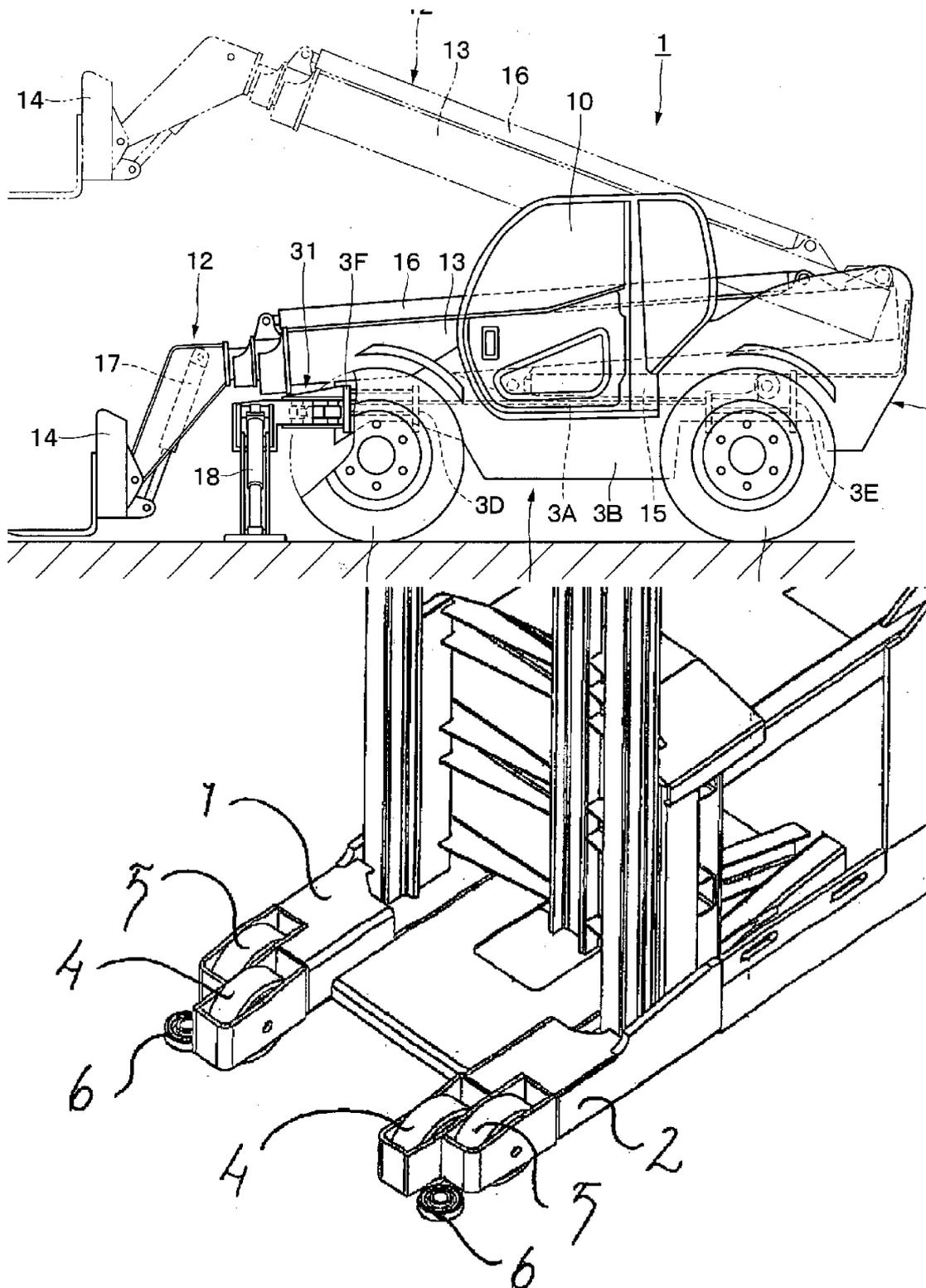
[N: Stabilizing means]

### Definition statement

*This subclass/group 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 relevant to classification in this group**

*This subclass/group does not cover:*

Control arrangements for increasing stability	<a href="#">B66F 17/003</a>
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## B66F 9/07563

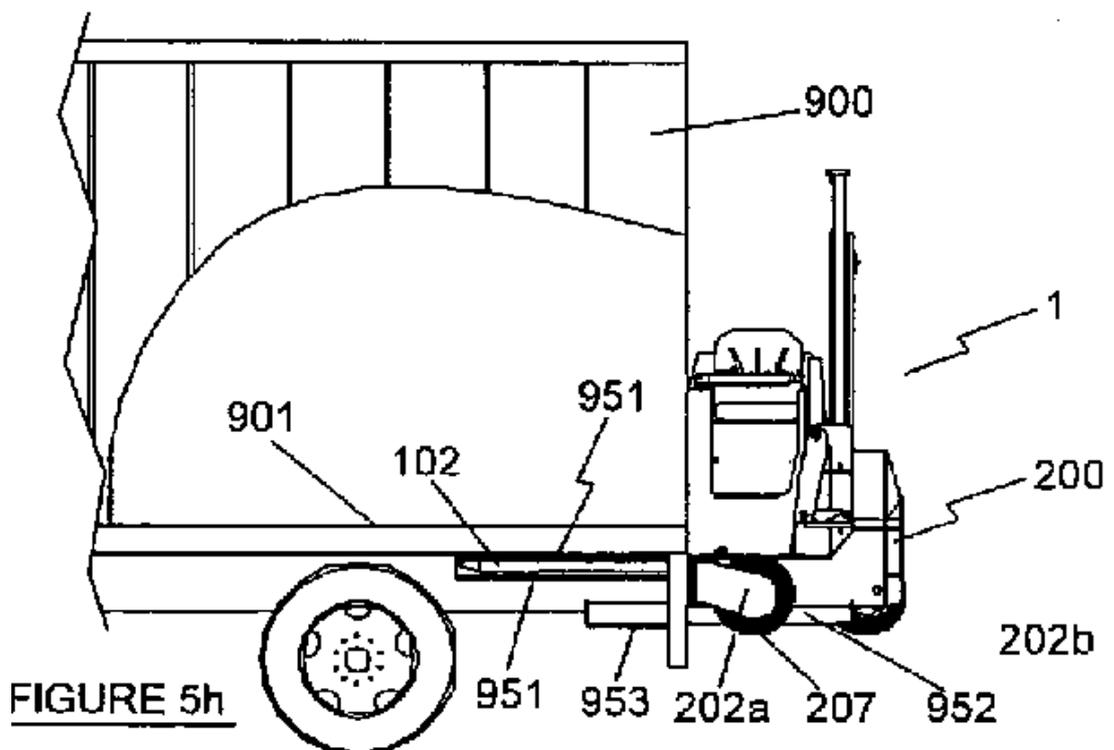
[N: Fork-lift trucks adapted to be carried by transport vehicles]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2007/0207023.



## B66F 9/07568

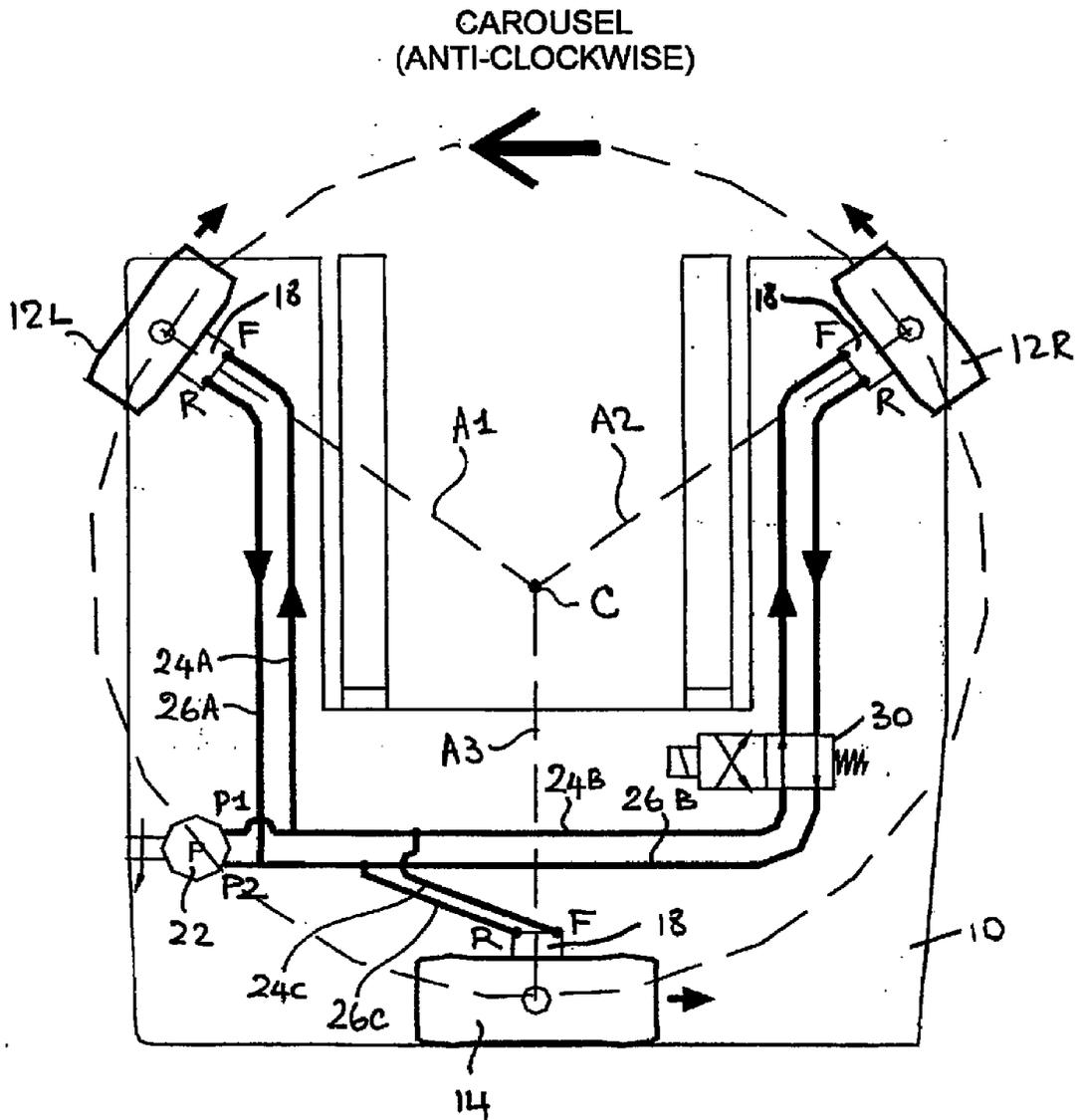
[N: Steering arrangements]

### Definition statement

*This subclass/group covers:*

mechanical steering arrangement or steering controls,

see for example US 2005/0061570.



## Relationship between large subject matter areas

general vehicle steering arrangements see [B62D](#)

## B66F 9/07572

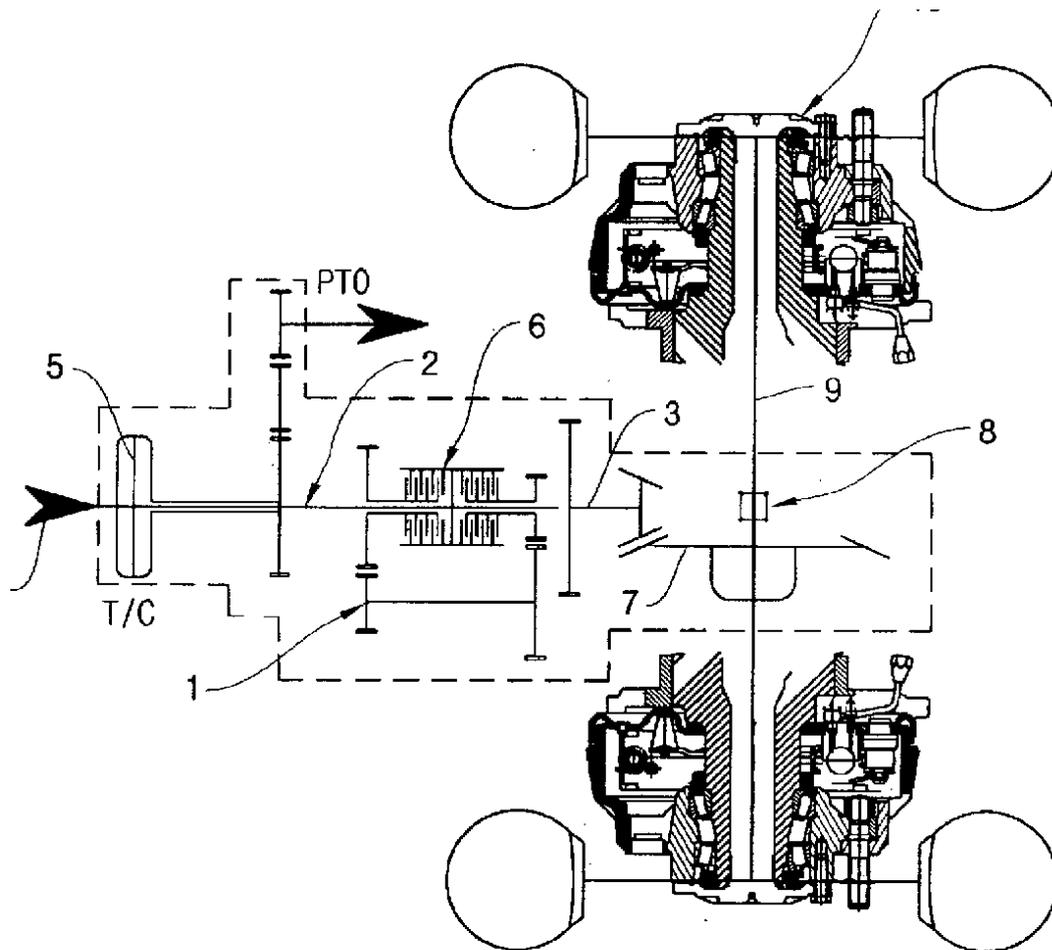
[N: Propulsion arrangements]

### Definition statement

*This subclass/group covers:*

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

see for example US 2004/0116234



### Relationship between large subject matter areas

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

### B66F 9/07577

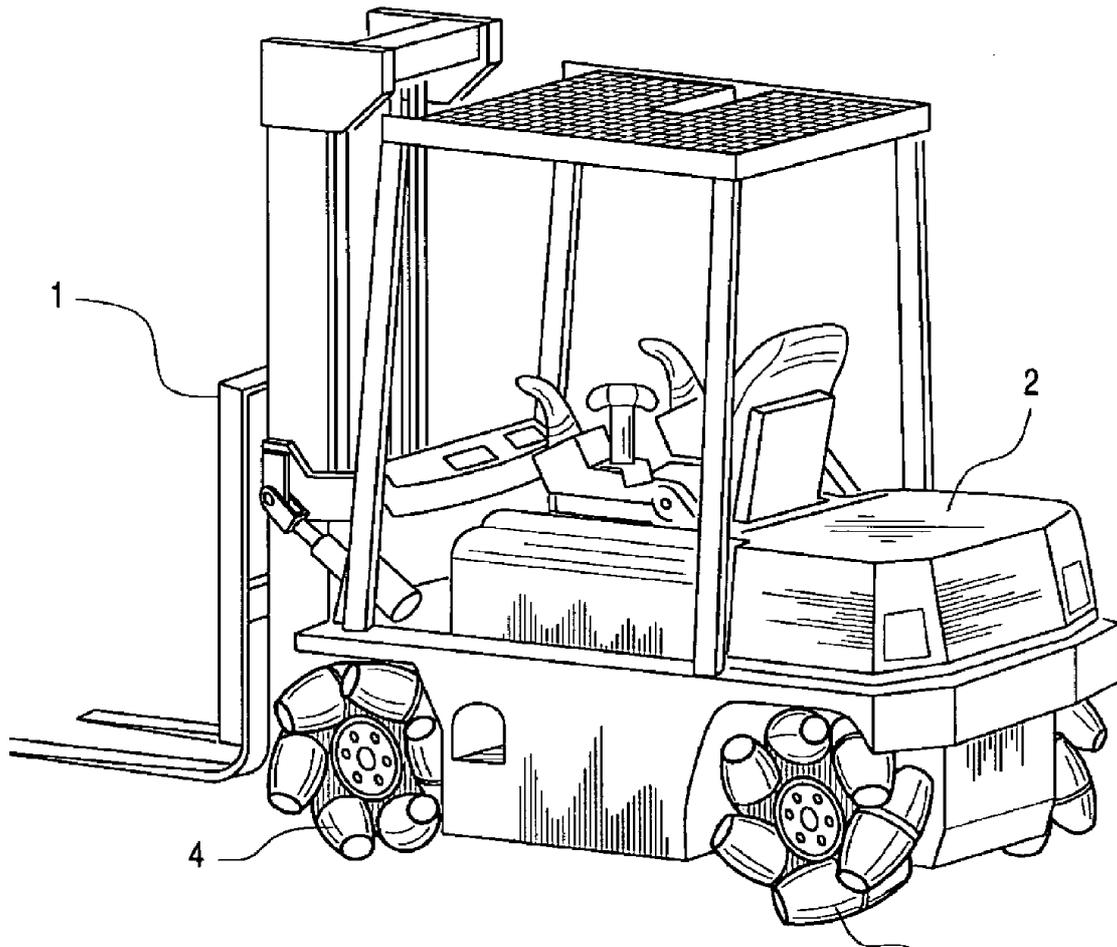
[N: not supported by wheels, e.g. tracks or air cushions]

### Definition statement

*This subclass/group covers:*

devices supported other than by normal wheels,

see for example US 2005/0183896.



## **B66F 9/07581**

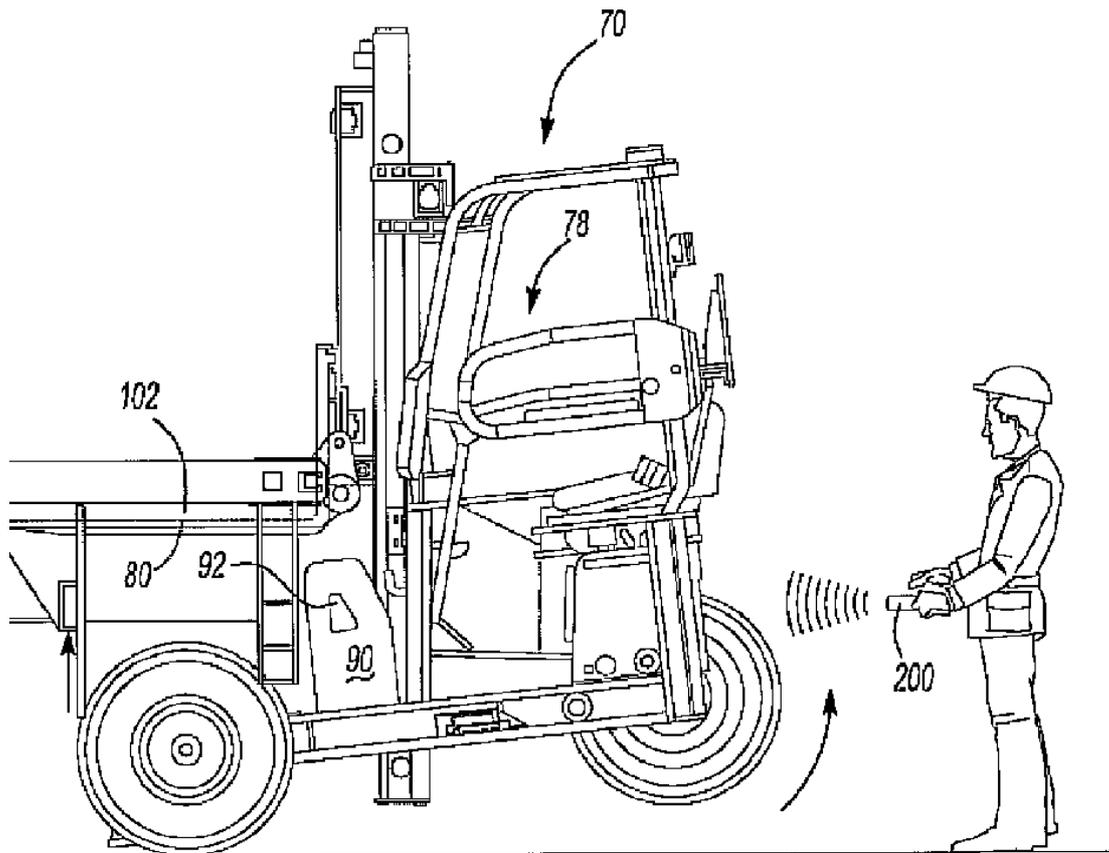
**[N: Remote controls]**

### **Definition statement**

*This subclass/group 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**

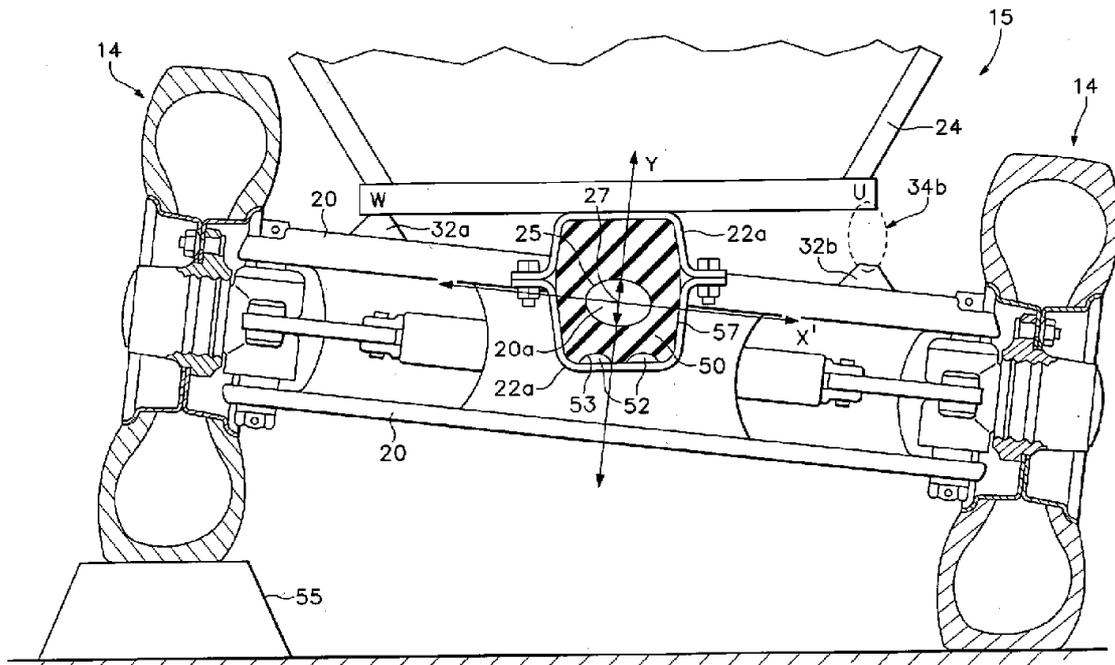
**[N: Suspension or mounting of wheels on chassis]**

### **Definition statement**

*This subclass/group covers:*

vehicle suspension or particular wheel or axle arrangements,

see for example US 2004/0113383.



## Relationship between large subject matter areas

general vehicle suspension [B60G](#)

## References relevant to classification in this group

*This subclass/group does not cover:*

Suspension of cabins or operator platforms	<a href="#">B66F 9/0759</a>
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## **B66F 9/0759**

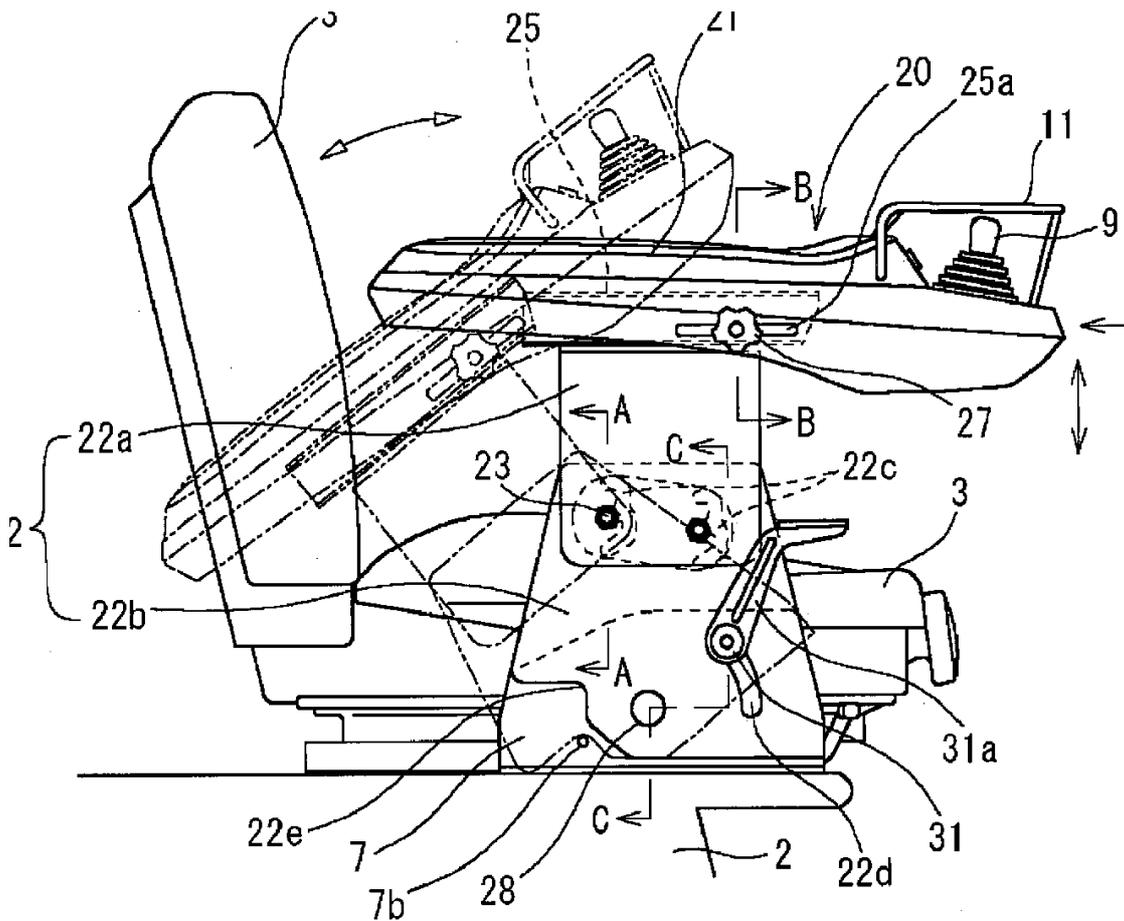
**[N: Details of operating station, e.g. seats, levers, operator platforms, cabin suspension]**

### Definition statement

*This subclass/group covers:*

arrangements of the operating station, including mechanical aspects of levers

see for example US 2003/0184123.



### Relationship between large subject matter areas

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

### References relevant to classification in this group

*This subclass/group does not cover:*

Devices to protect the driver, i.e. overhead guards or cabin construction	<a href="#">B66F 9/07545</a>
Vehicle suspension	<a href="#">B66F 9/07586</a>
Control levers	<a href="#">B66F 9/20</a>

### **B66F 9/07595**

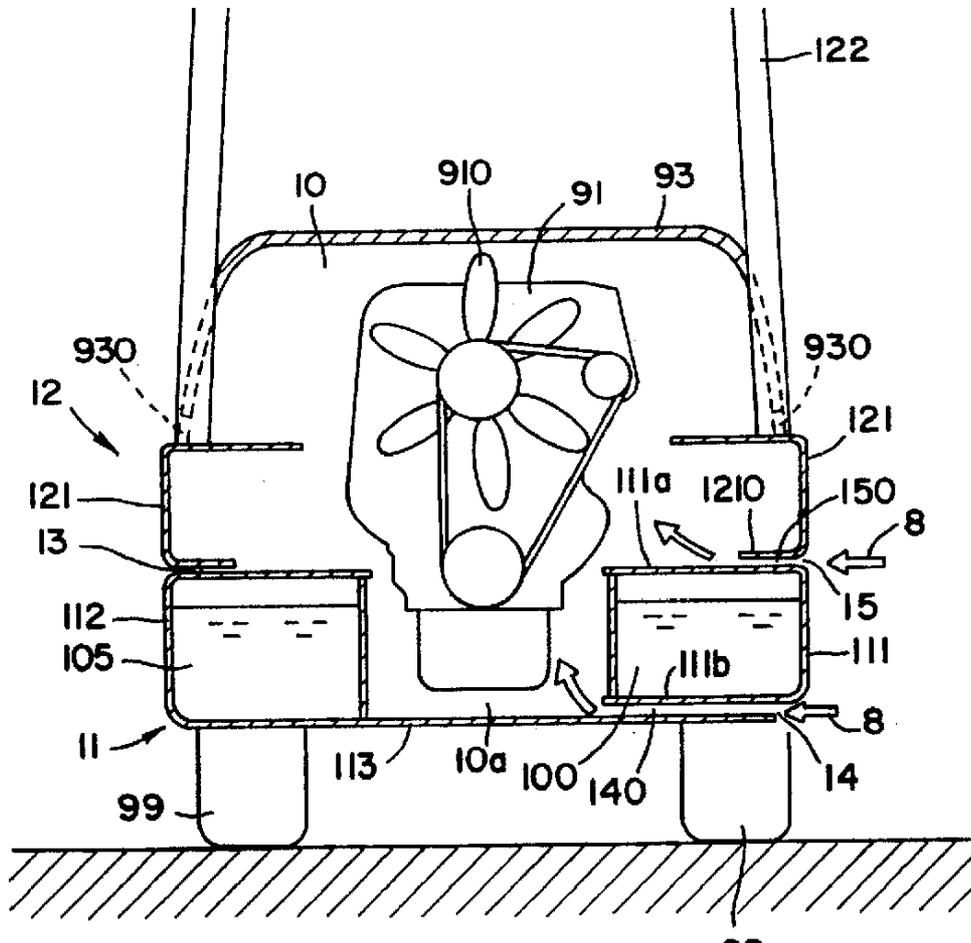
**[N: Cooling arrangements for device or operator]**

## Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 285 863.



## Relationship between large subject matter areas

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 subclass/group covers:*

mast arrangements and means for moving masts and forks vertically,

see for example US 2011/0048860.

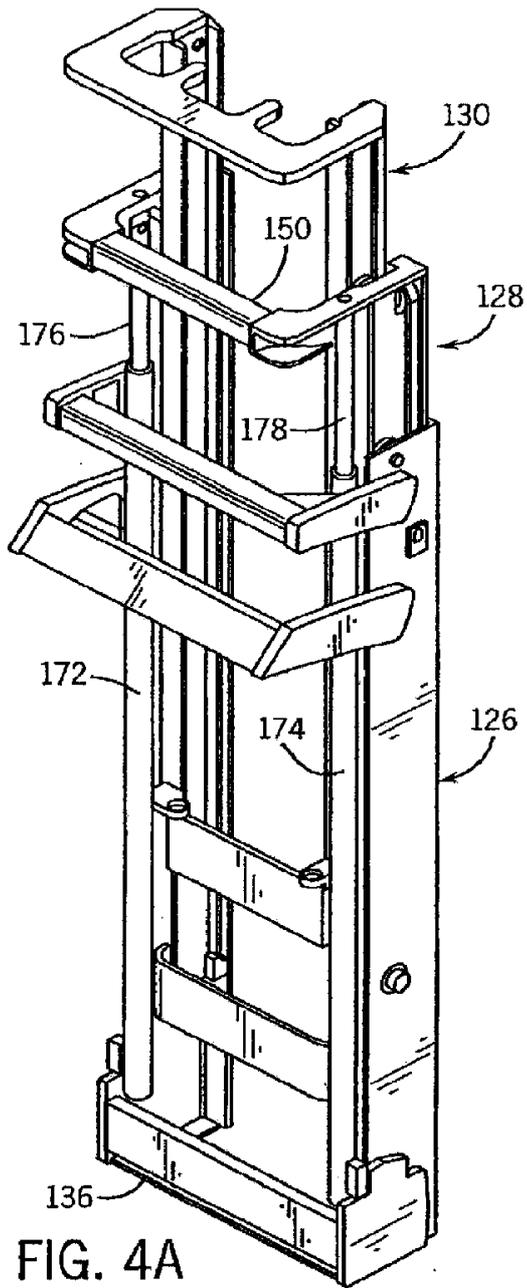


FIG. 4A

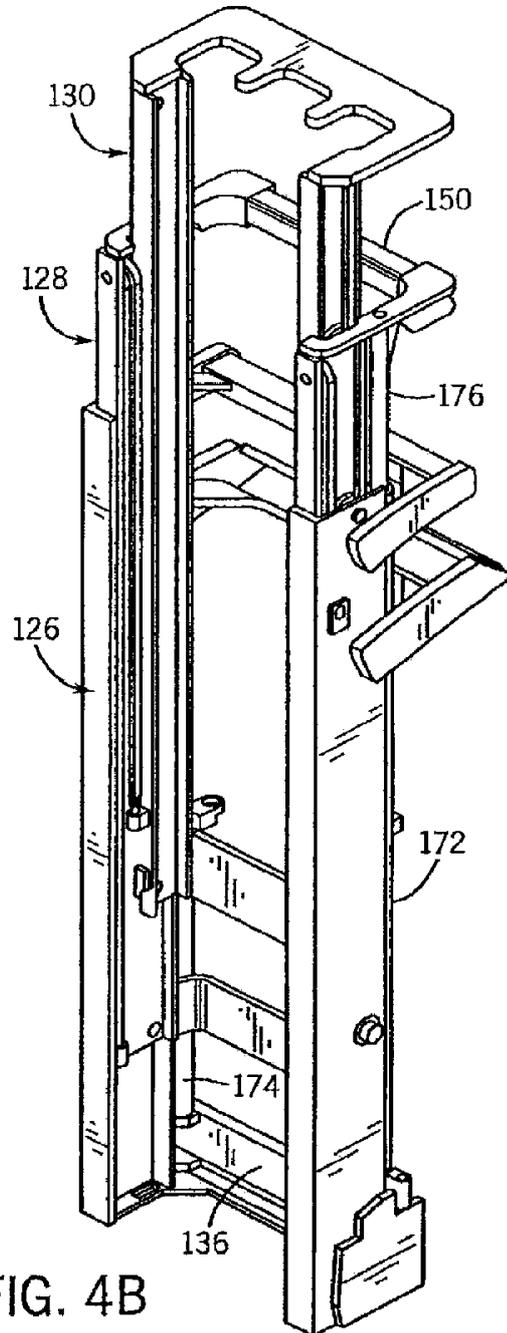


FIG. 4B

**References relevant to classification in this group**

*This subclass/group does not cover:*

Tilting masts	<a href="#">B66F 9/082</a>
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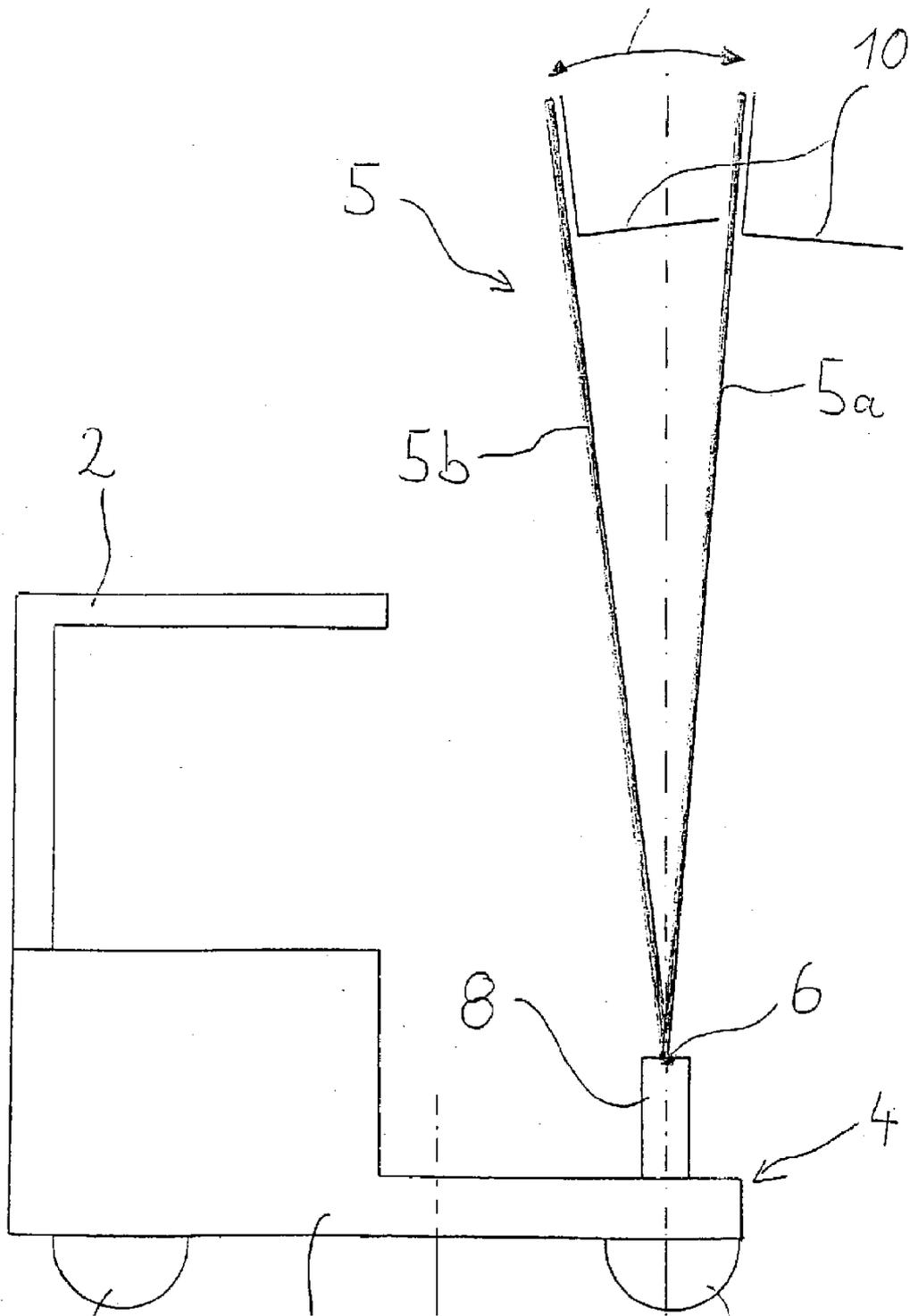
Masts moving relative to chassis	<a href="#">B66F 9/10</a>
----------------------------------	---------------------------

## **B66F 9/082**

**[N: inclinable]**

### **Definition statement**

*This subclass/group covers:*  
masts inclinable about a horizontal pivot,  
see for example US 2003/0206793.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Masts rotating around a vertical pivot	<a href="#">B66F 9/10</a>
--	---------------------------

## B66F 9/085

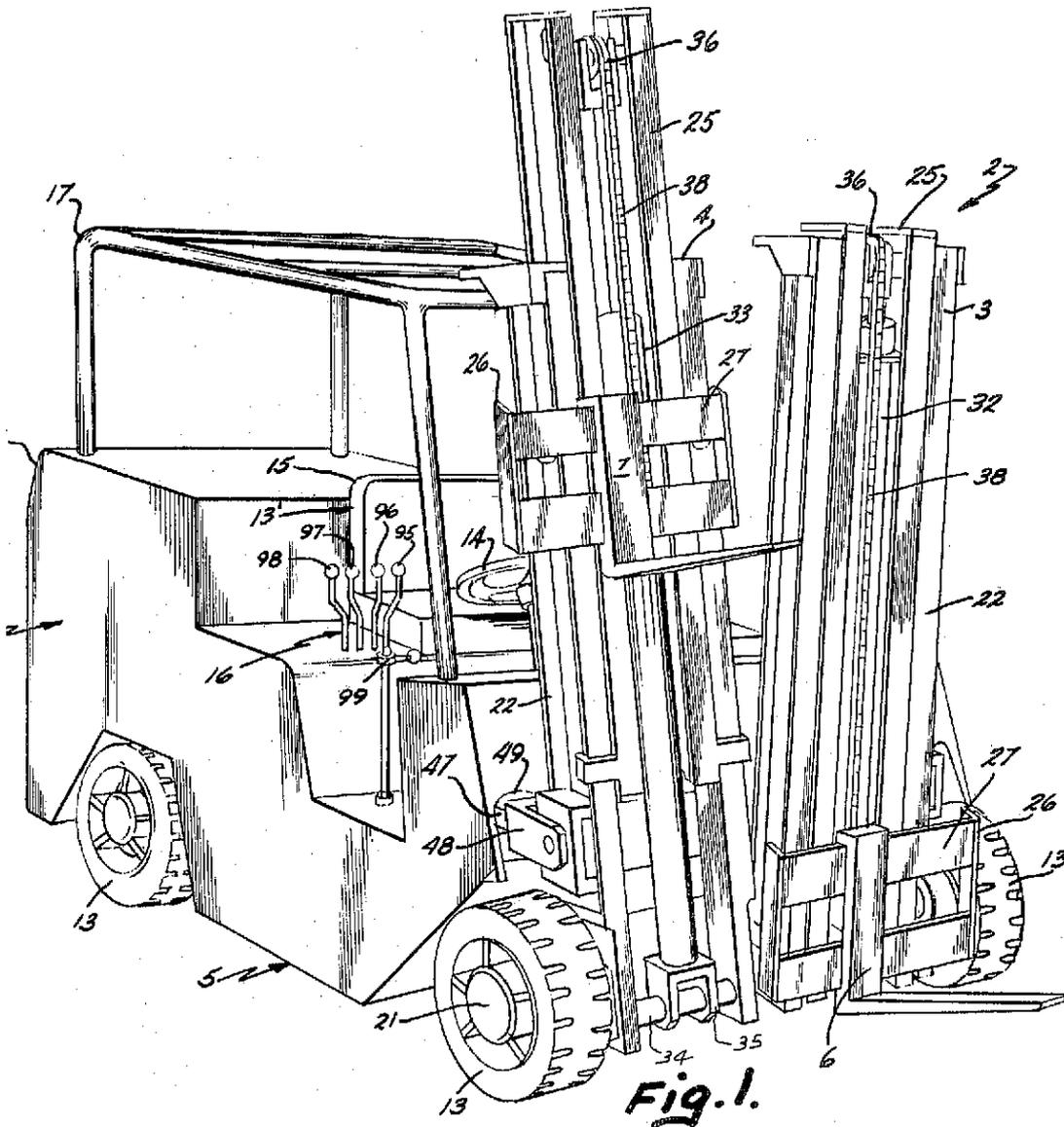
[N: Multiple forks, i.e. more than one pair mounted on a single mast or with more than one mast]

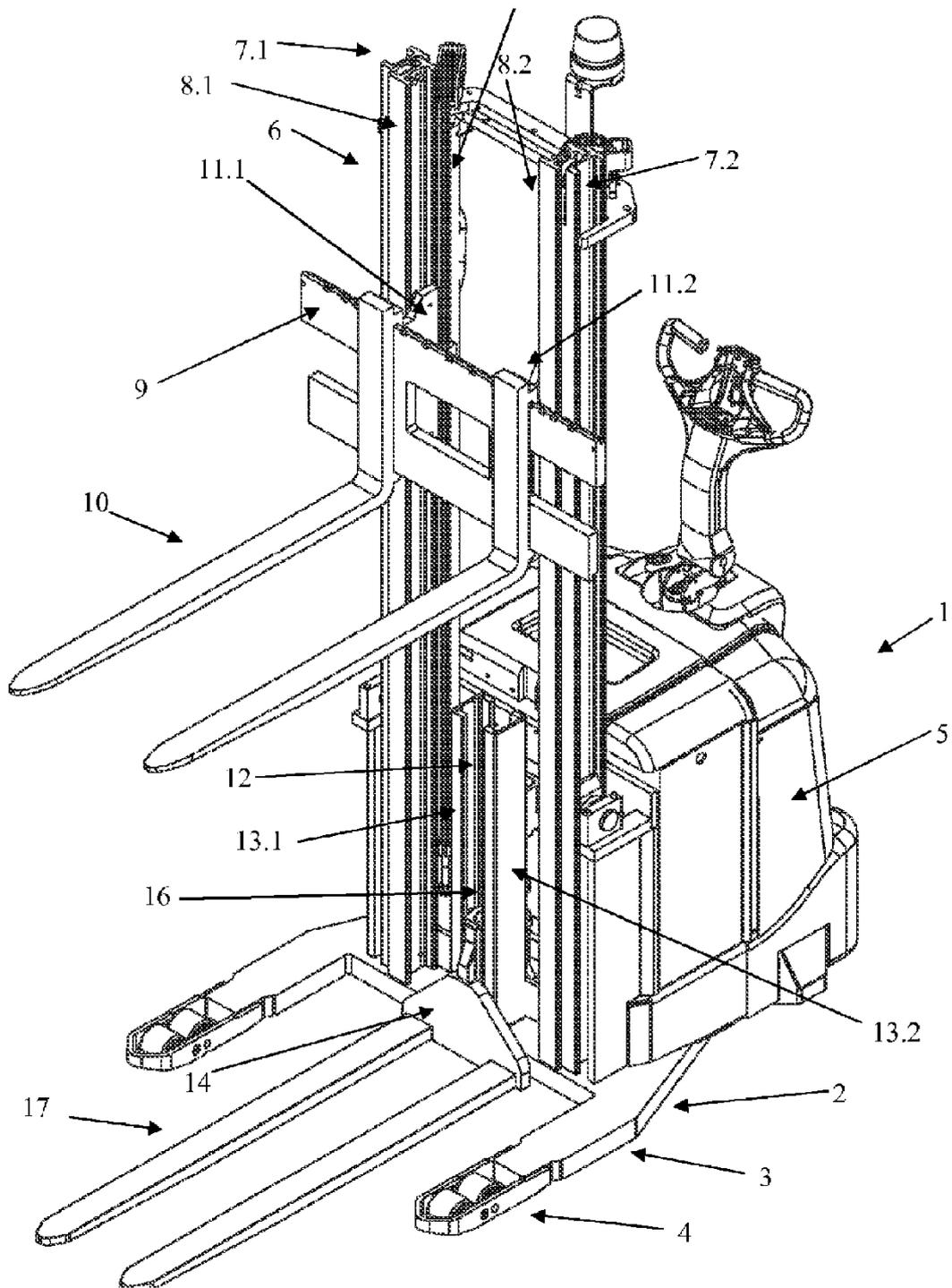
### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

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





## B66F 9/087

[N: Monomasts]

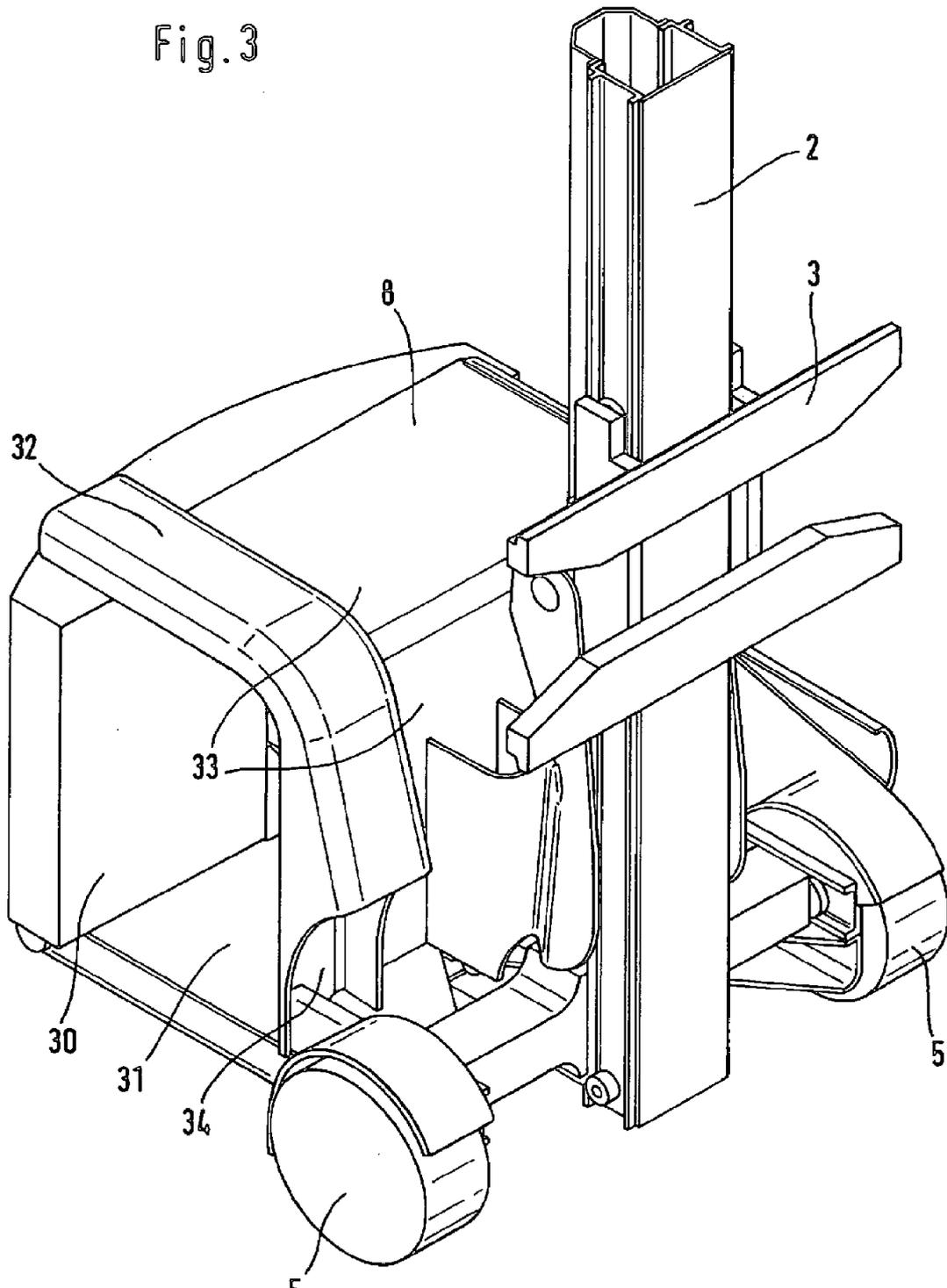
### Definition statement

*This subclass/group covers:*

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

see for example US 2006/0070816.

Fig. 3



### **B66F 9/10**

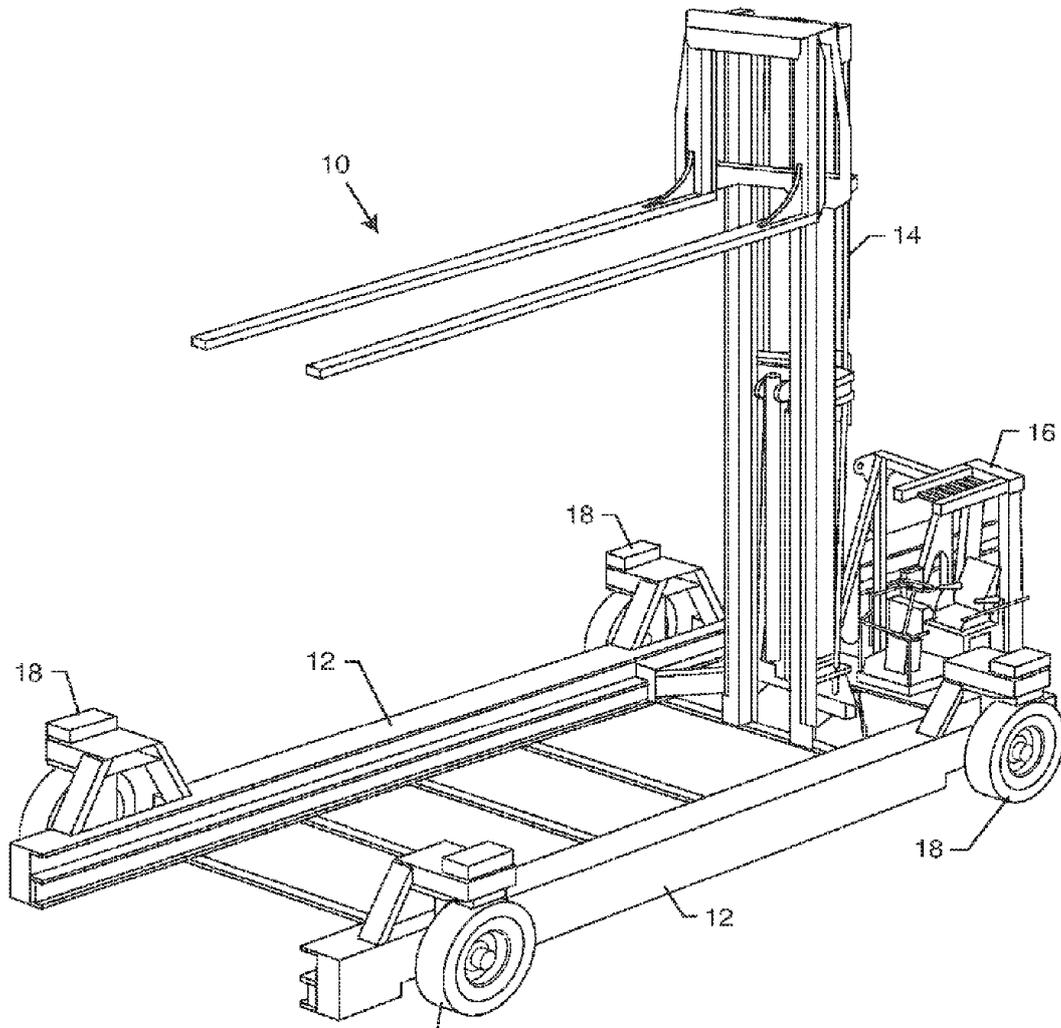
movable in a horizontal direction relative to truck

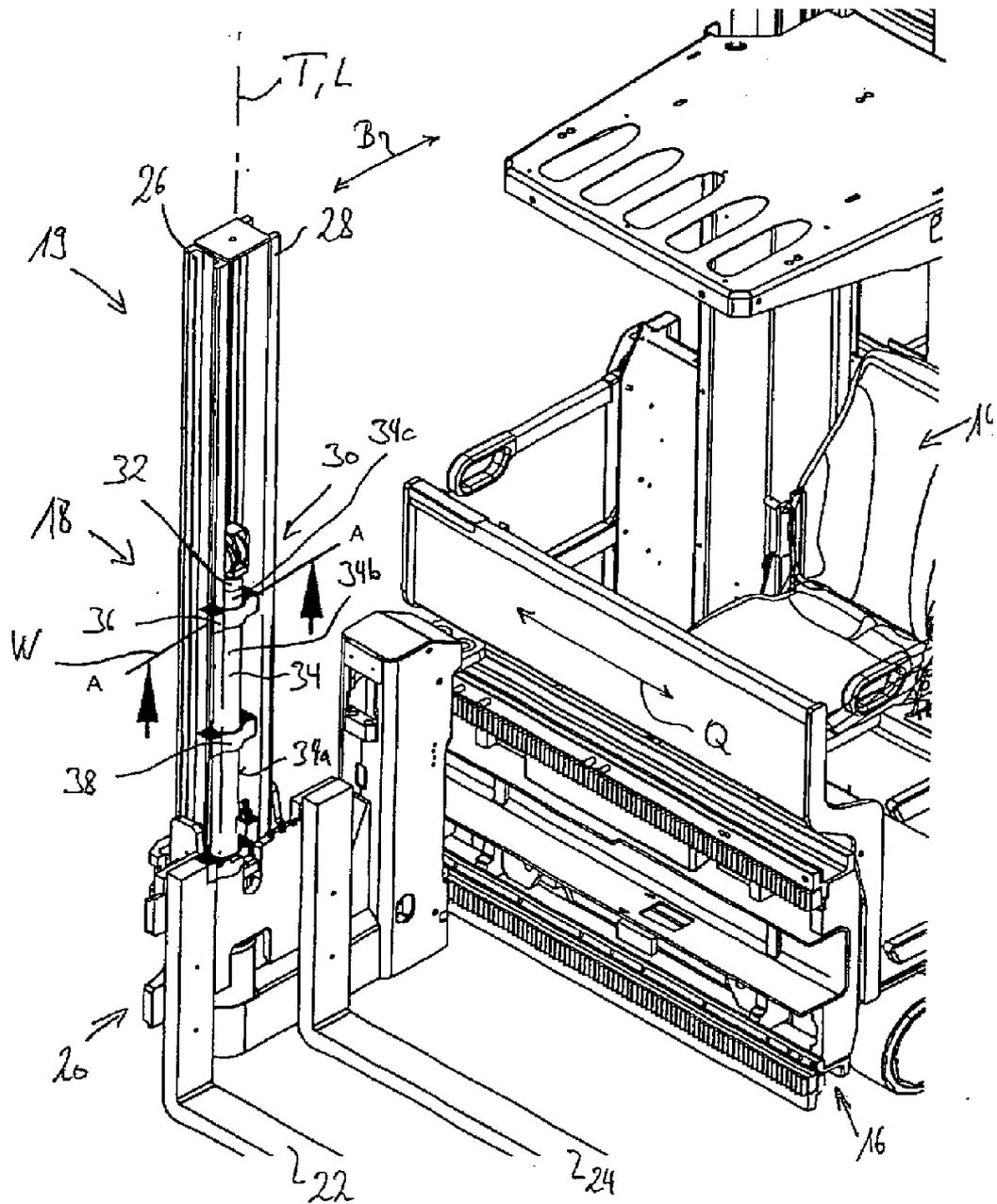
### **Definition statement**

*This subclass/group 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 relevant to classification in this group**

*This subclass/group does not cover:*

Trucks with articulated frames	<a href="#">B66F 9/105</a>
Trucks where the forks rotate relative to the mast, but the mast does not rotate relative to the chassis	<a href="#">B66F 9/149</a>

**B66F 9/105**

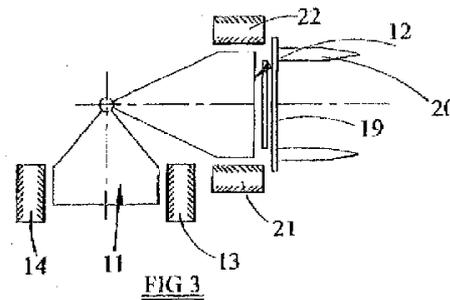
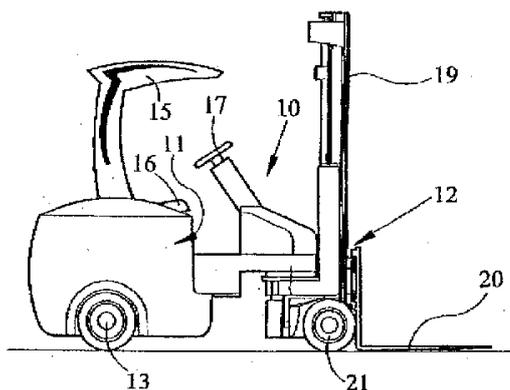
**[N: Articulated, i.e. front chassis with wheels and mast rotatable relative to rear chassis with wheels]**

**Definition statement**

*This subclass/group 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**

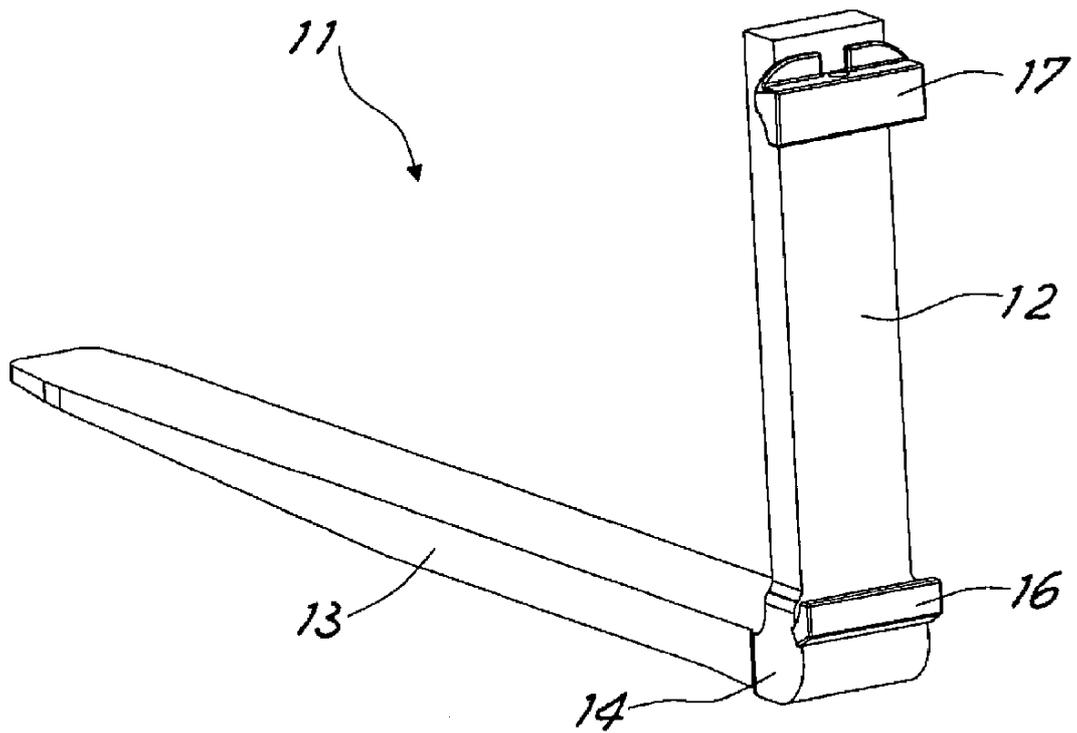
**Platforms; Forks; Other load supporting or gripping members**

**Definition statement**

*This subclass/group 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**

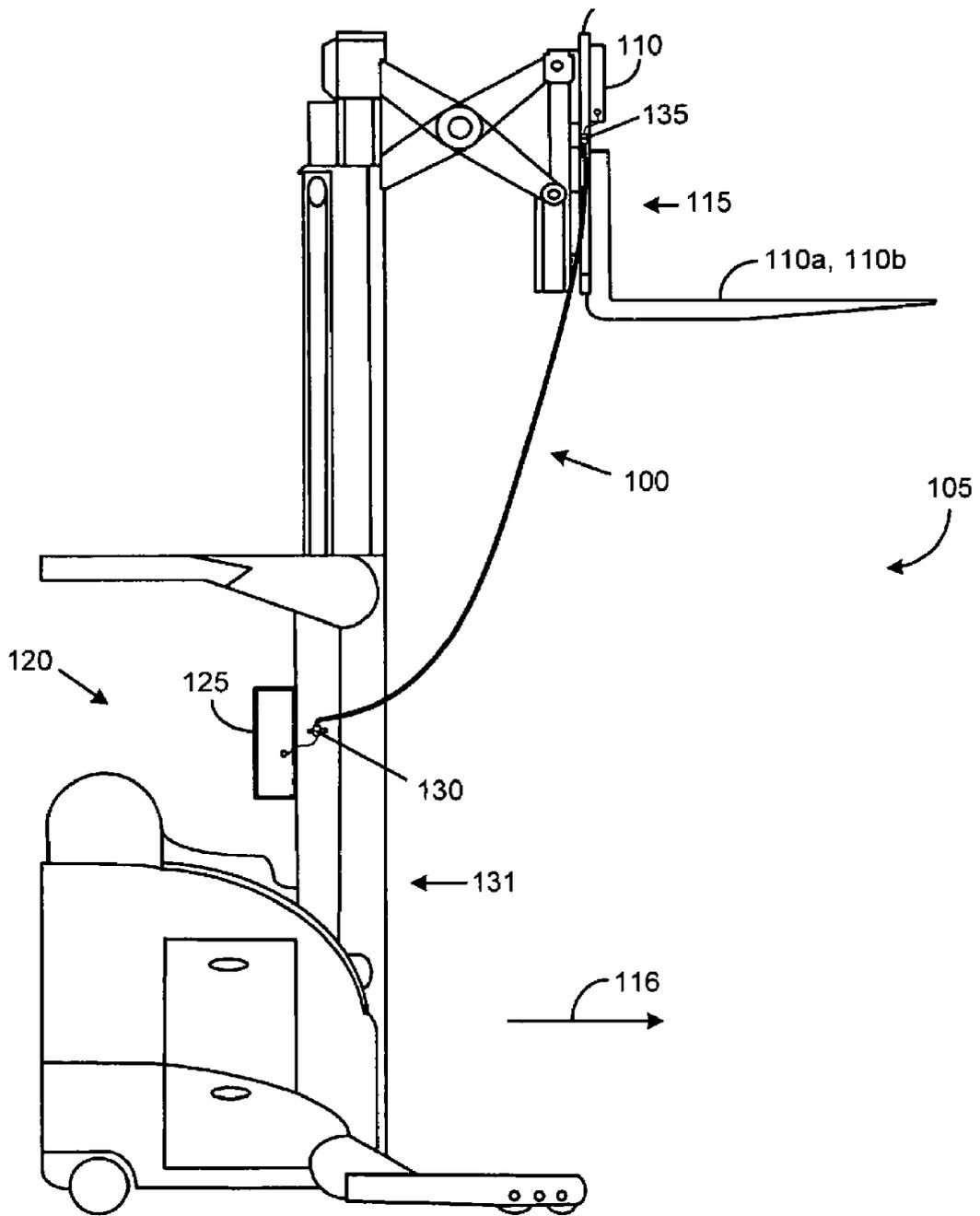
**[N: longitudinally movable]**

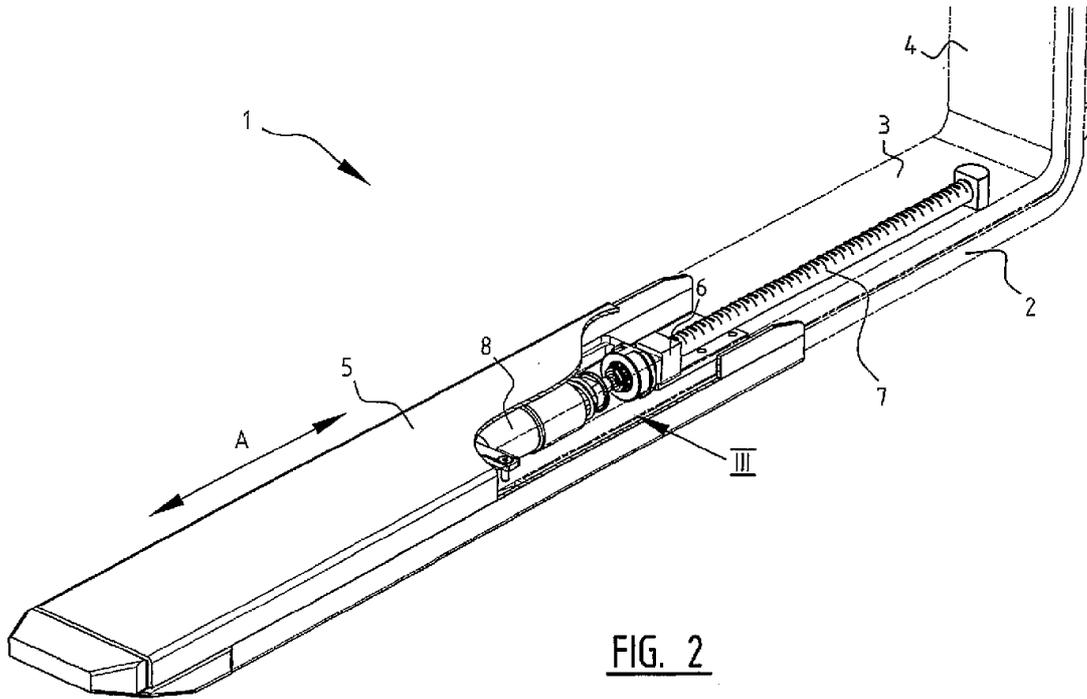
### **Definition statement**

*This subclass/group covers:*

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

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





### References relevant to classification in this group

*This subclass/group does not cover:*

Laterally movable load supports	<a href="#">B66F 9/14</a>
---------------------------------	---------------------------

### B66F 9/125

[N: rotatable about a longitudinal axis]

### Definition statement

*This subclass/group covers:*

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

see for example US 5 820 270.

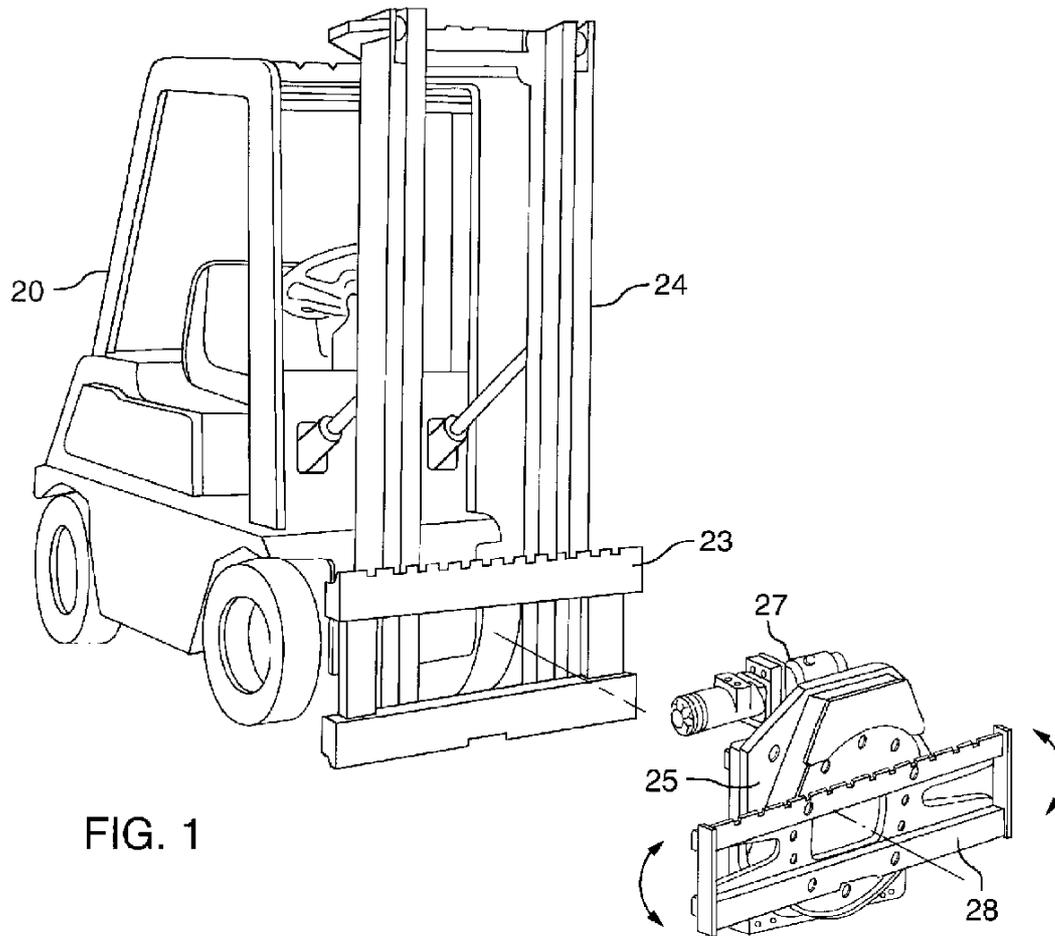


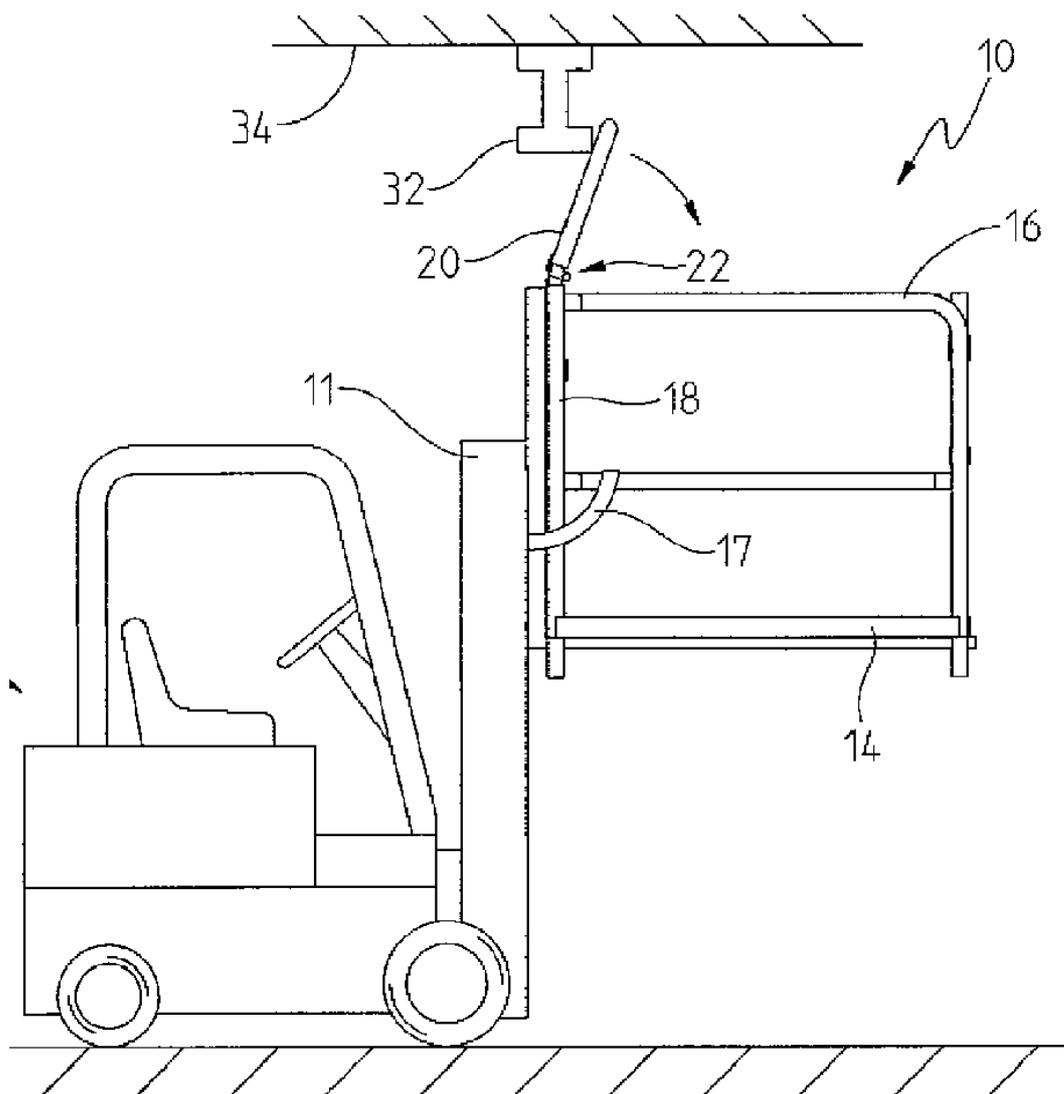
FIG. 1

## **B66F 9/127**

**[N: Working platforms]**

### **Definition statement**

*This subclass/group covers:*  
working platforms mounted on a fork lift truck with a mast,  
see for example US 2007/0261917.



### References relevant to classification in this group

*This subclass/group does not cover:*

Working platforms on other types of vehicle	<a href="#">B66F 11/04</a>
---	----------------------------

### **B66F 9/14**

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

### Definition statement

*This subclass/group covers:*

devices where the load support moves relative to the mast, not covered by

one of the following subgroups.

### References relevant to classification in this group

*This subclass/group does not cover:*

Devices where the mast moves	<a href="#">B66F 9/10</a>
Devices where the load support moves longitudinally relative to the mast	<a href="#">B66F 9/122</a>

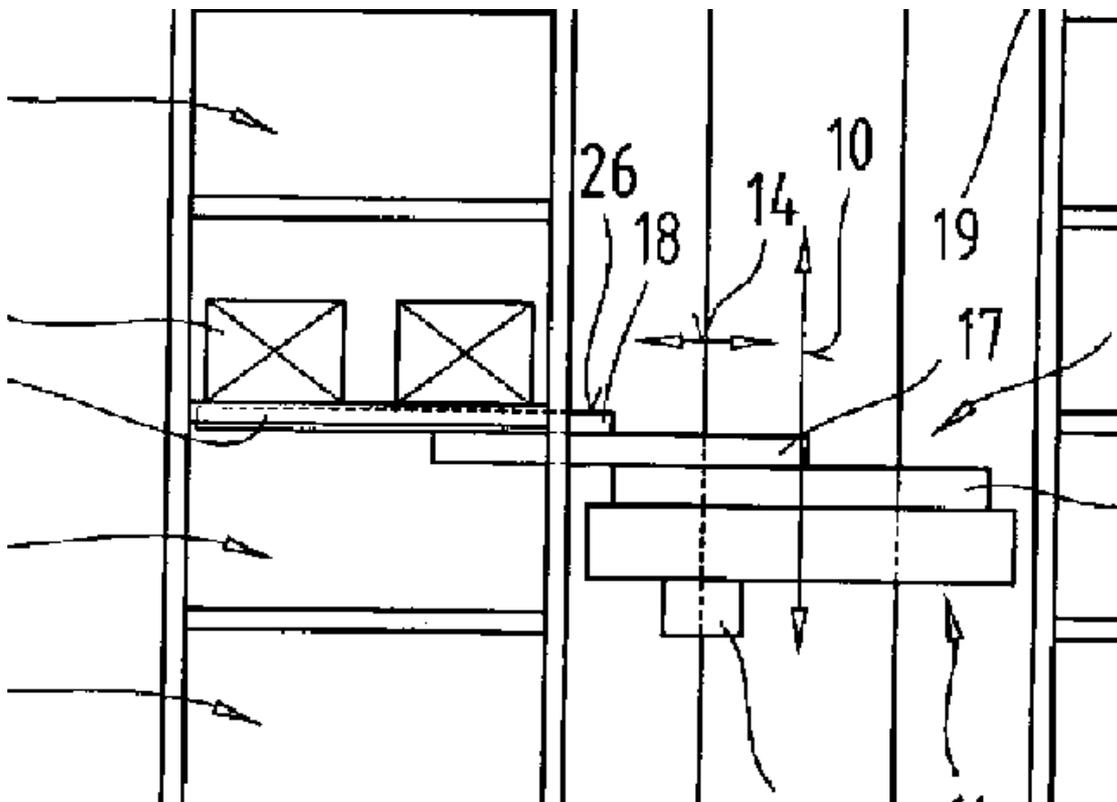
### B66F 9/141

[N: with shuttle-type movement]

#### Definition statement

*This subclass/group covers:*

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



### References relevant to classification in this group

*This subclass/group does not cover:*

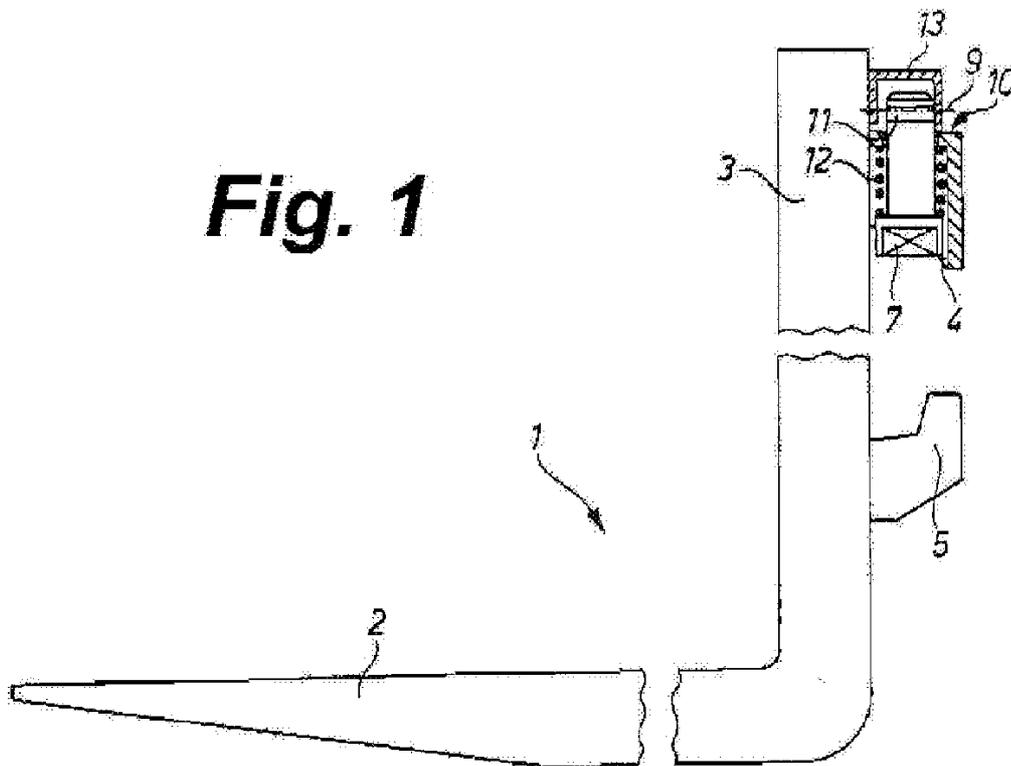
General features of stacker cranes	<a href="#">B66F 9/07</a>
------------------------------------	---------------------------

## **B66F 9/142**

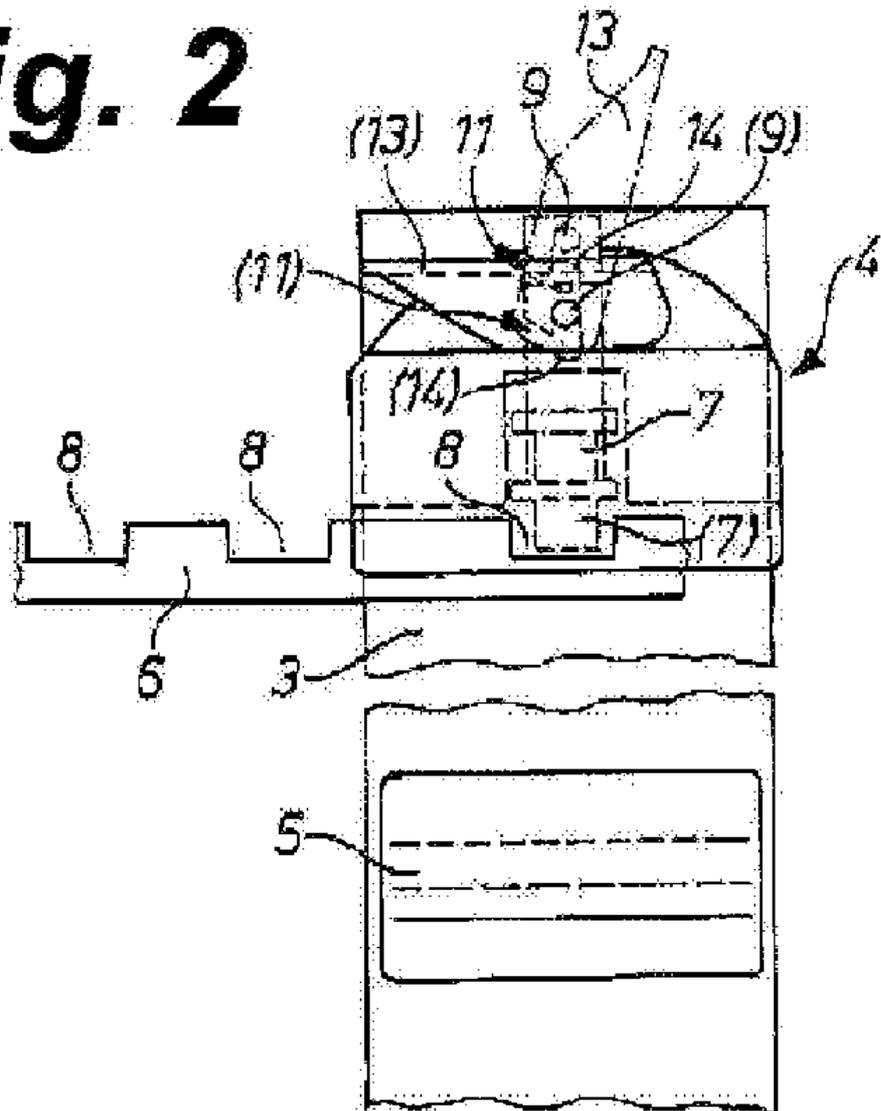
**[N: movements of forks either individually or relative to each other]**

### **Definition statement**

*This subclass/group covers:*  
for example allowing manual adjustment,  
see for example US 2010/0032243.



# Fig. 2



## References relevant to classification in this group

*This subclass/group does not cover:*

For forks moving together	<a href="#">B66F 9/146</a>
Independently movable forks with actuators	<a href="#">B66F 9/144</a>

## B66F 9/143

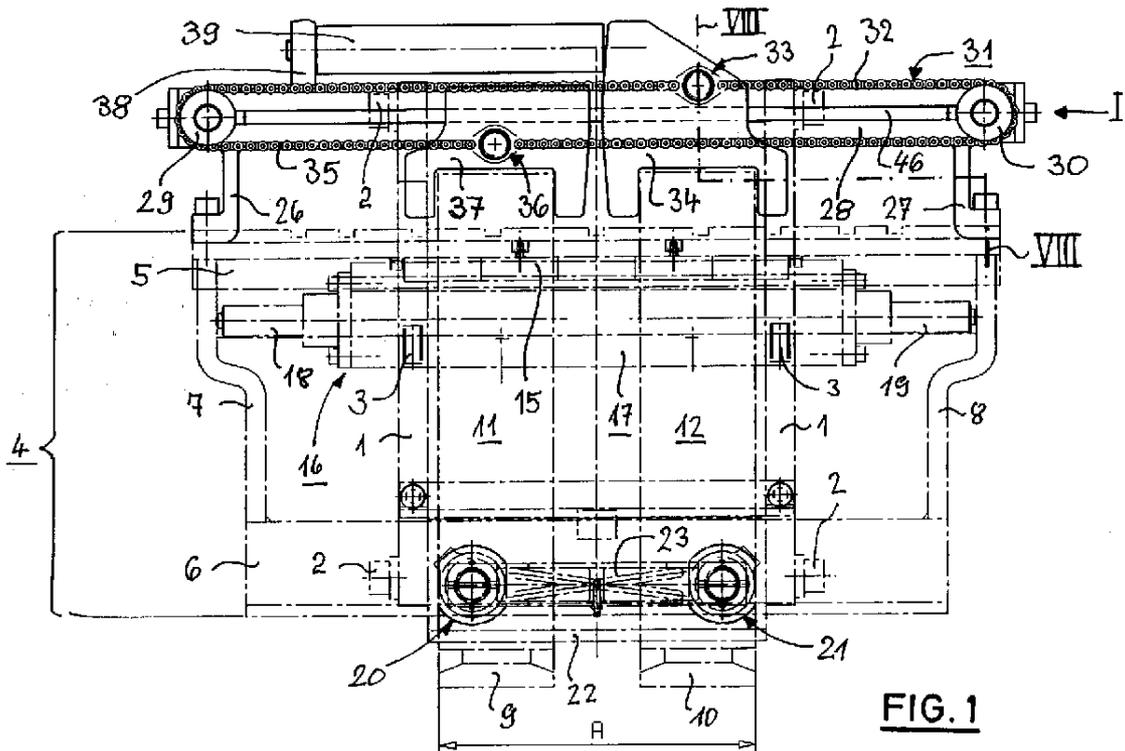
[N: movements of forks relative to each other - symmetric]

## Definition statement

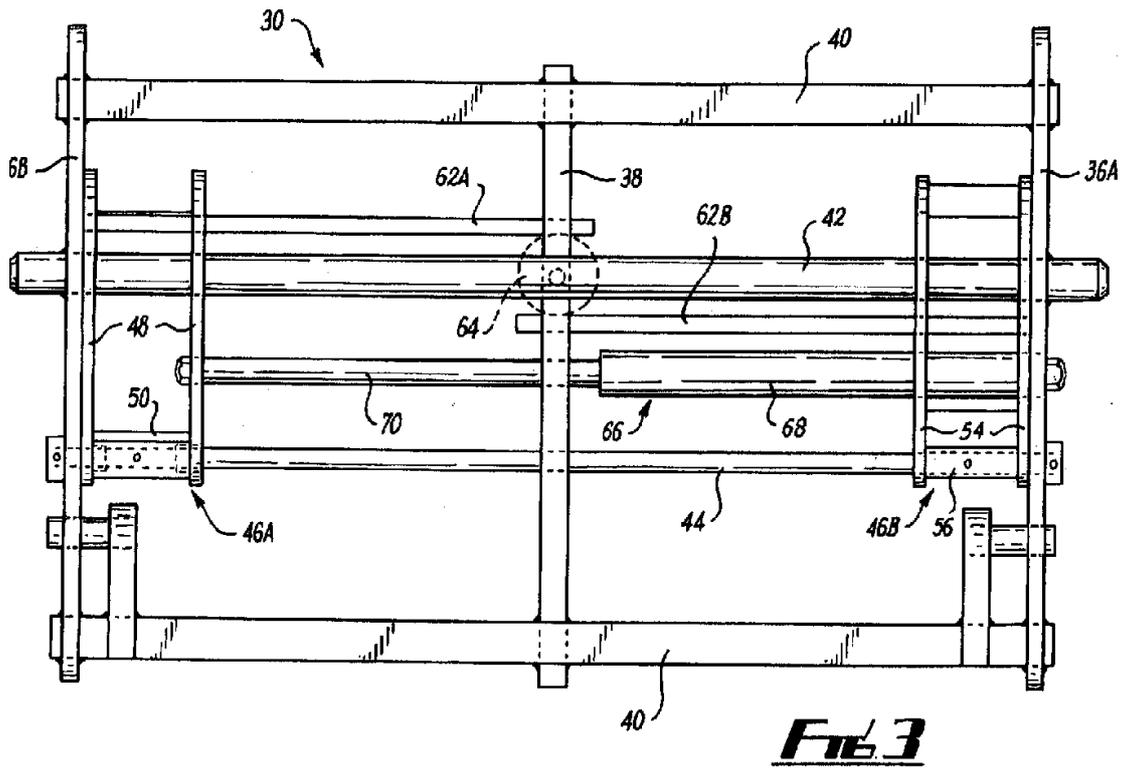
*This subclass/group covers:*

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.



**FIG. 1**

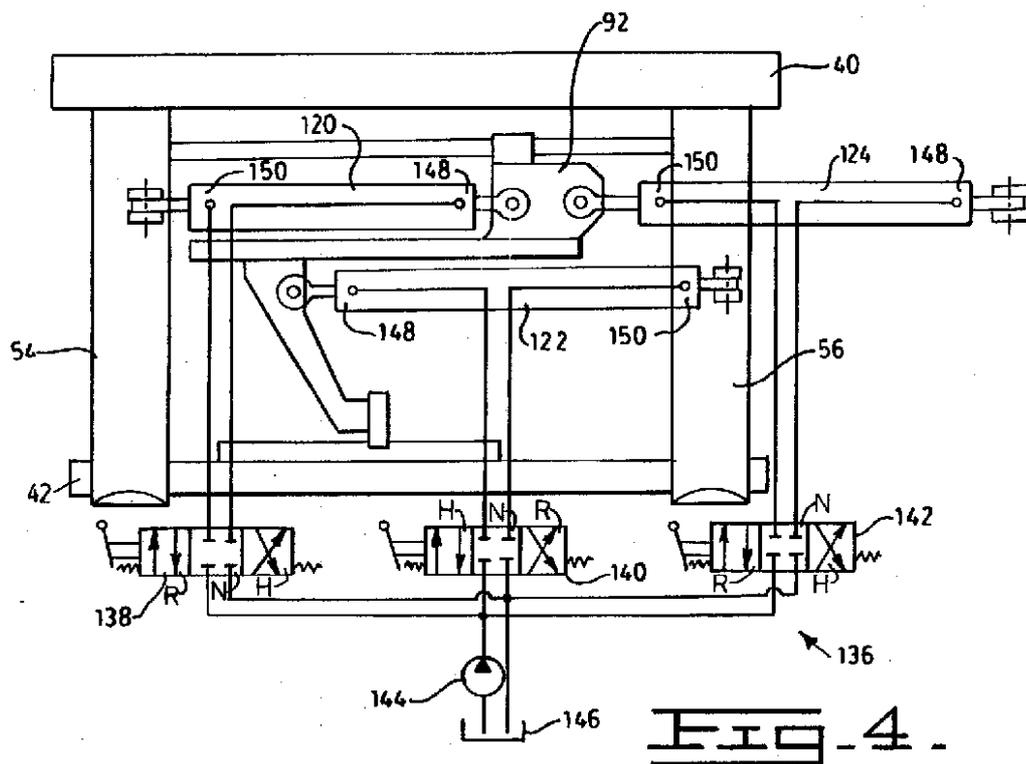


## B66F 9/144

[N: movements of forks relative to each other - independent]

### Definition statement

*This subclass/group covers:*  
 independently movable forks with actuators,  
 see for example US 5 190 436.



## References relevant to classification in this group

*This subclass/group does not cover:*

Manually adjustable forks	<a href="#">B66F 9/142</a>
---------------------------	----------------------------

## B66F 9/145

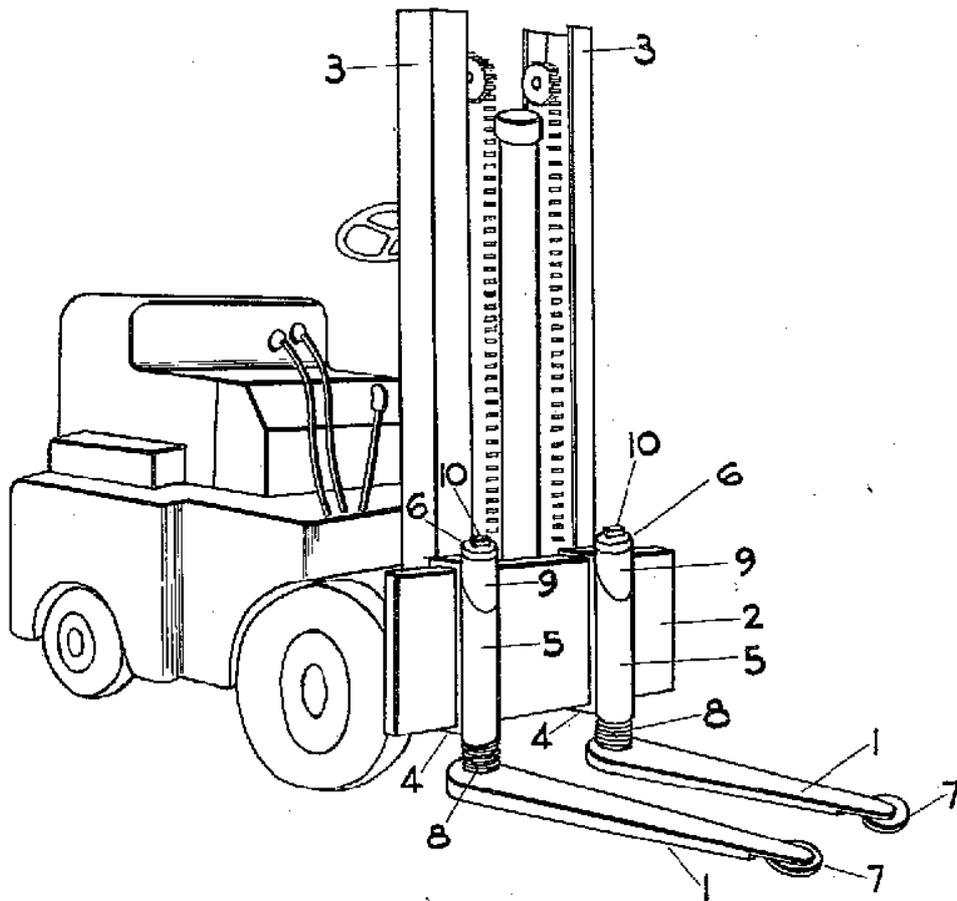
[N: rotation of fork around vertical axis]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2 605 918.



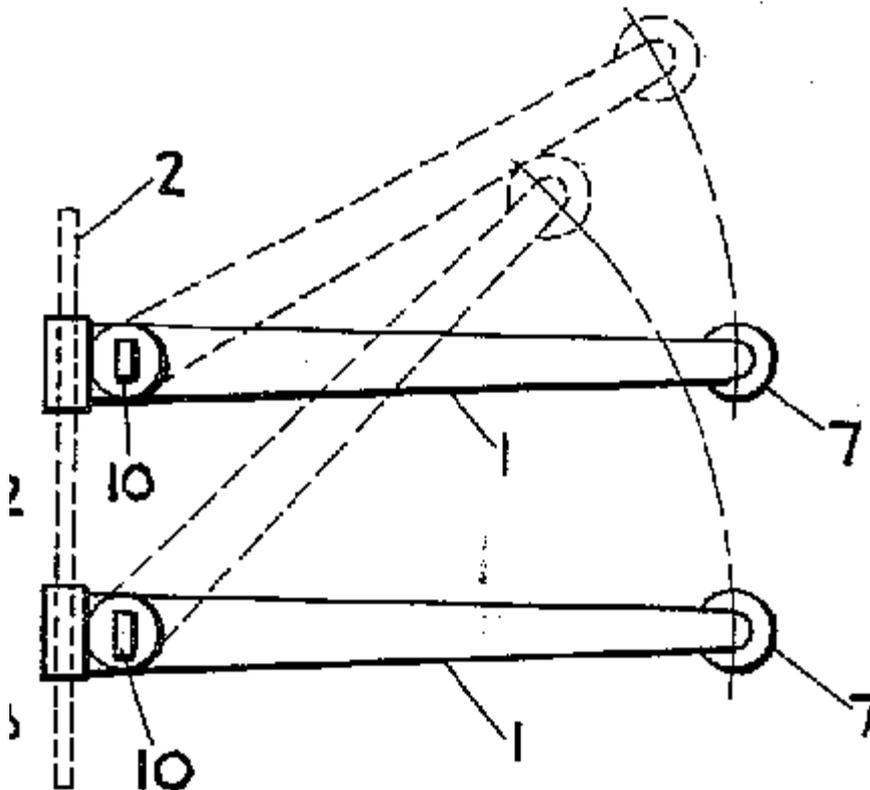


FIGURE 3

**References relevant to classification in this group**

*This subclass/group does not cover:*

Rotation around horizontal axis	<a href="#">B66F 9/12</a>
---------------------------------	---------------------------

**B66F 9/146**

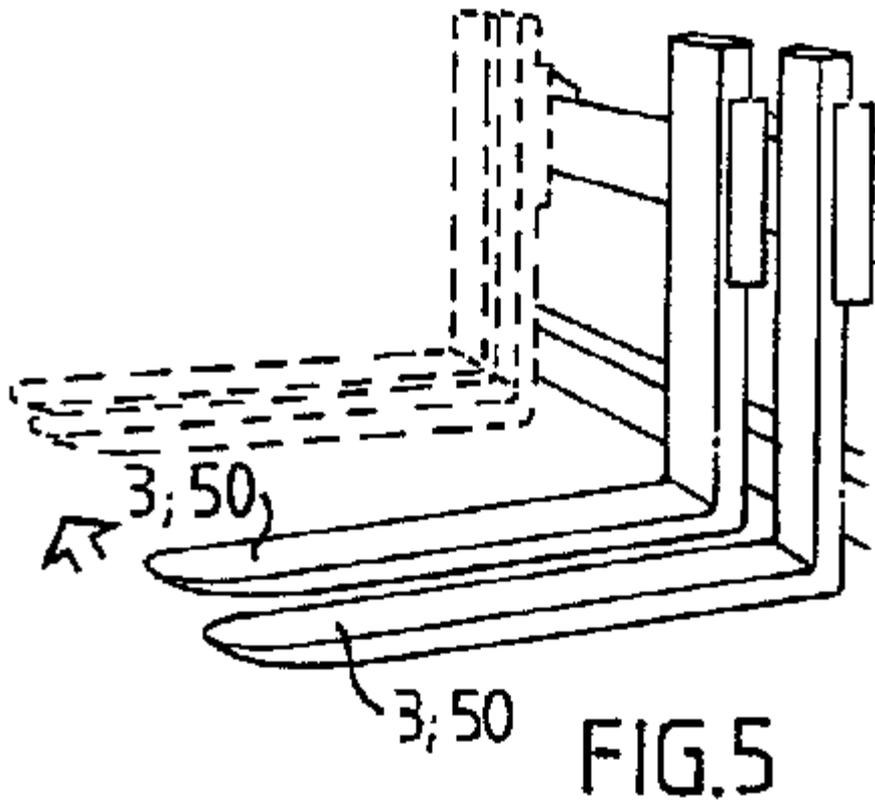
[N: side shift - both forks move together sideways relative to fork support]

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 338 148.

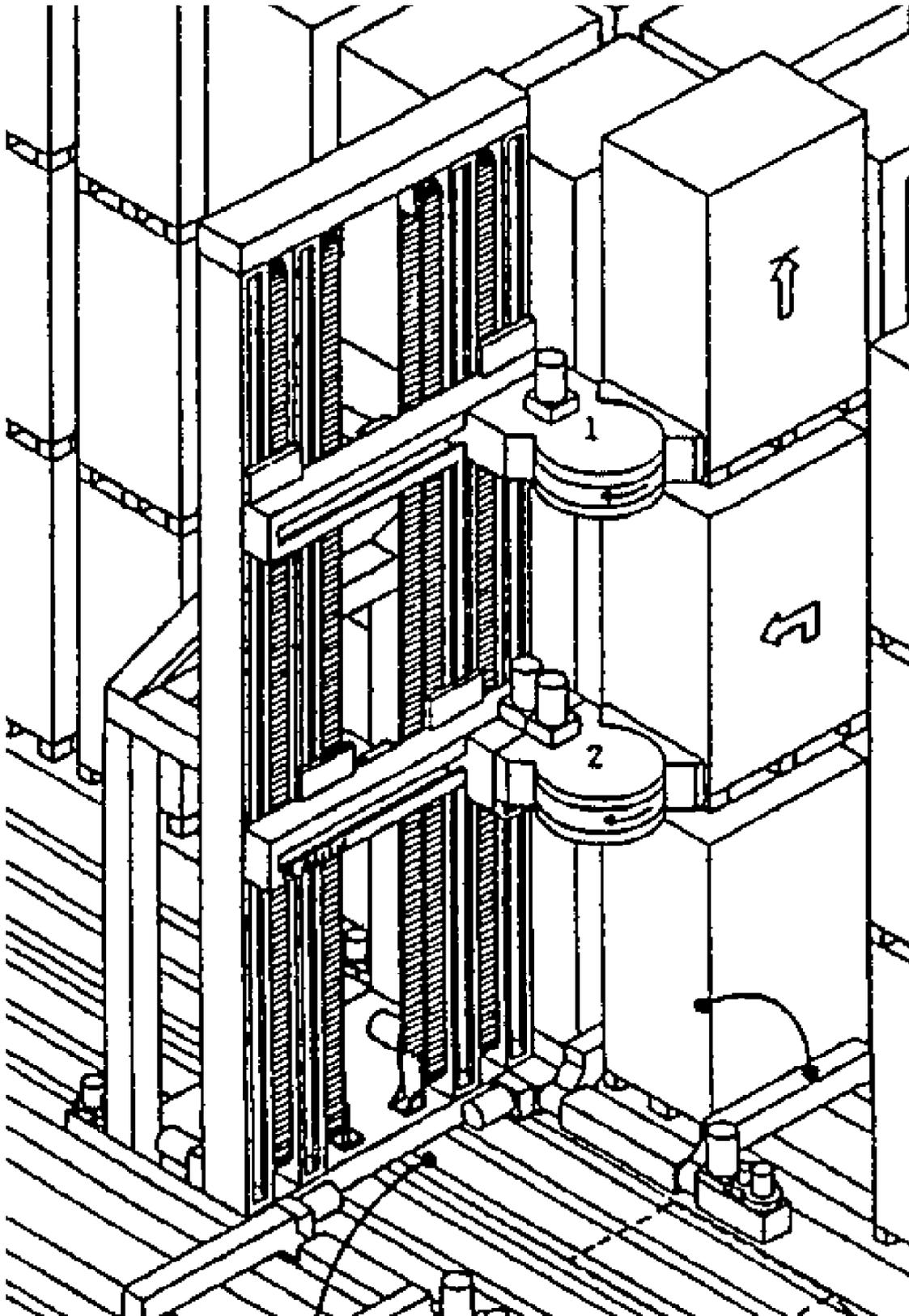


## **B66F 9/147**

[N: whole unit including fork support moves relative to mast]

### **Definition statement**

*This subclass/group covers:*  
arrangements using both rotation and translation,  
see for example WO 94/02390.



**B66F 9/148**

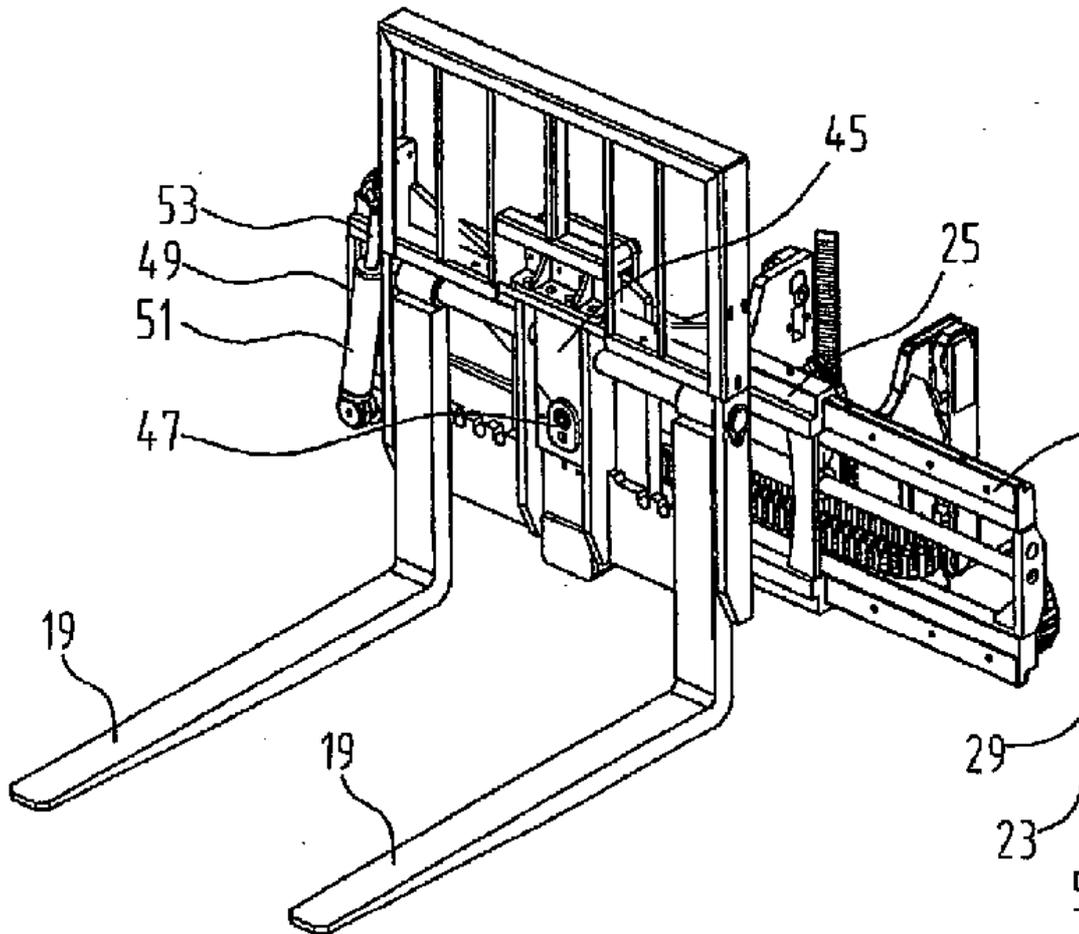
[N: whole unit including fork support moves sideways]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2008/0296094.



### B66F 9/149

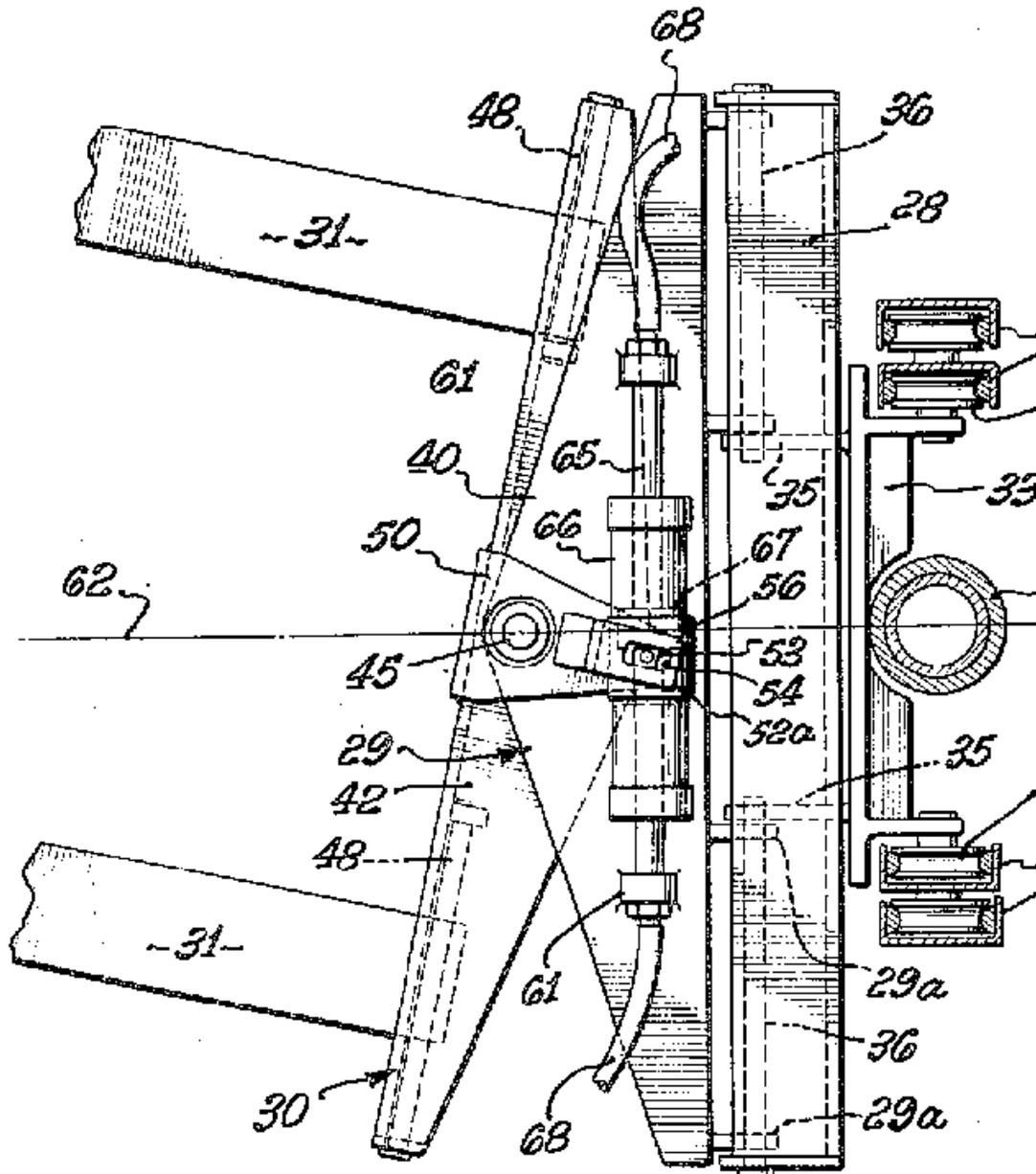
[N: whole unit including fork support rotates]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2 621 821.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Arrangements using both rotation and translation	<a href="#">B66F 9/147</a>
--	----------------------------

**B66F 9/16**

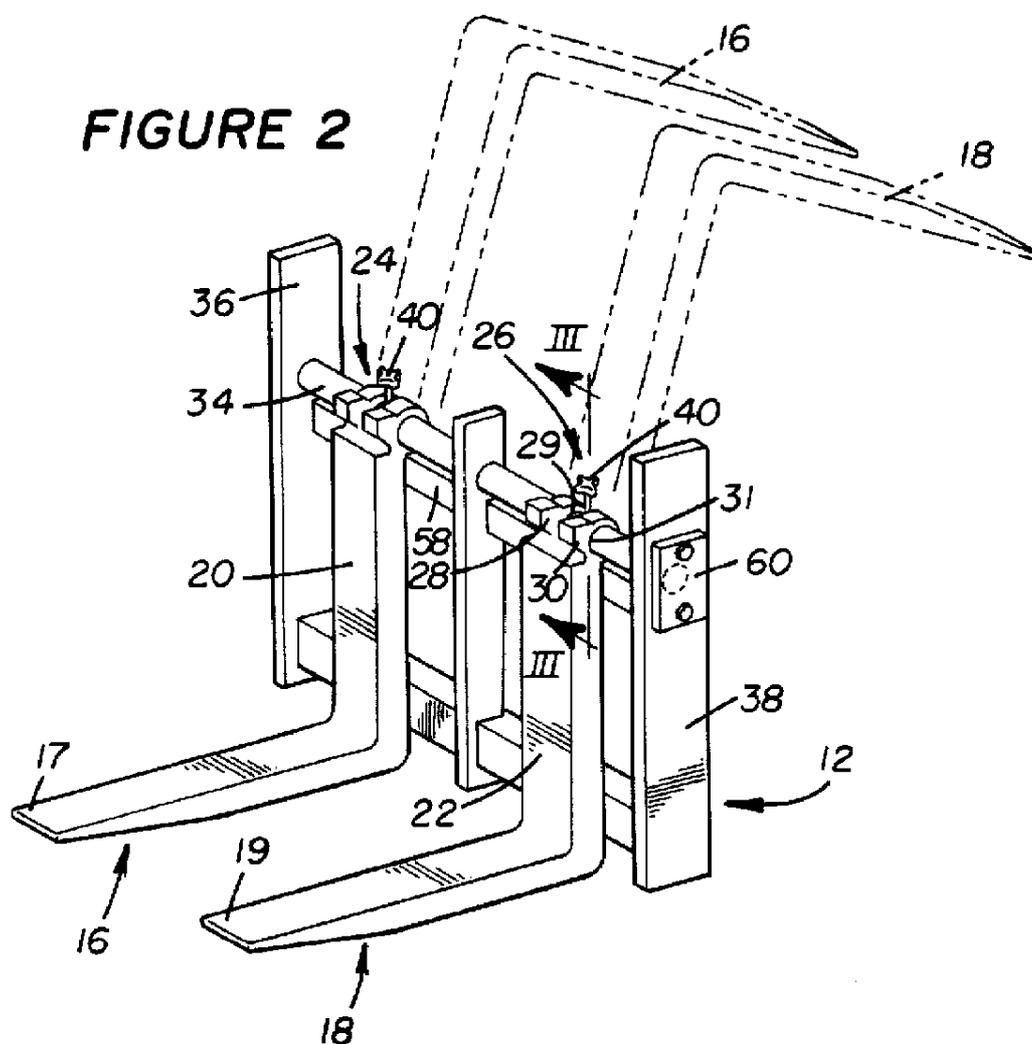
**inclinable relative to mast**

### Definition statement

*This subclass/group covers:*

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

see for example US 4 497 607.



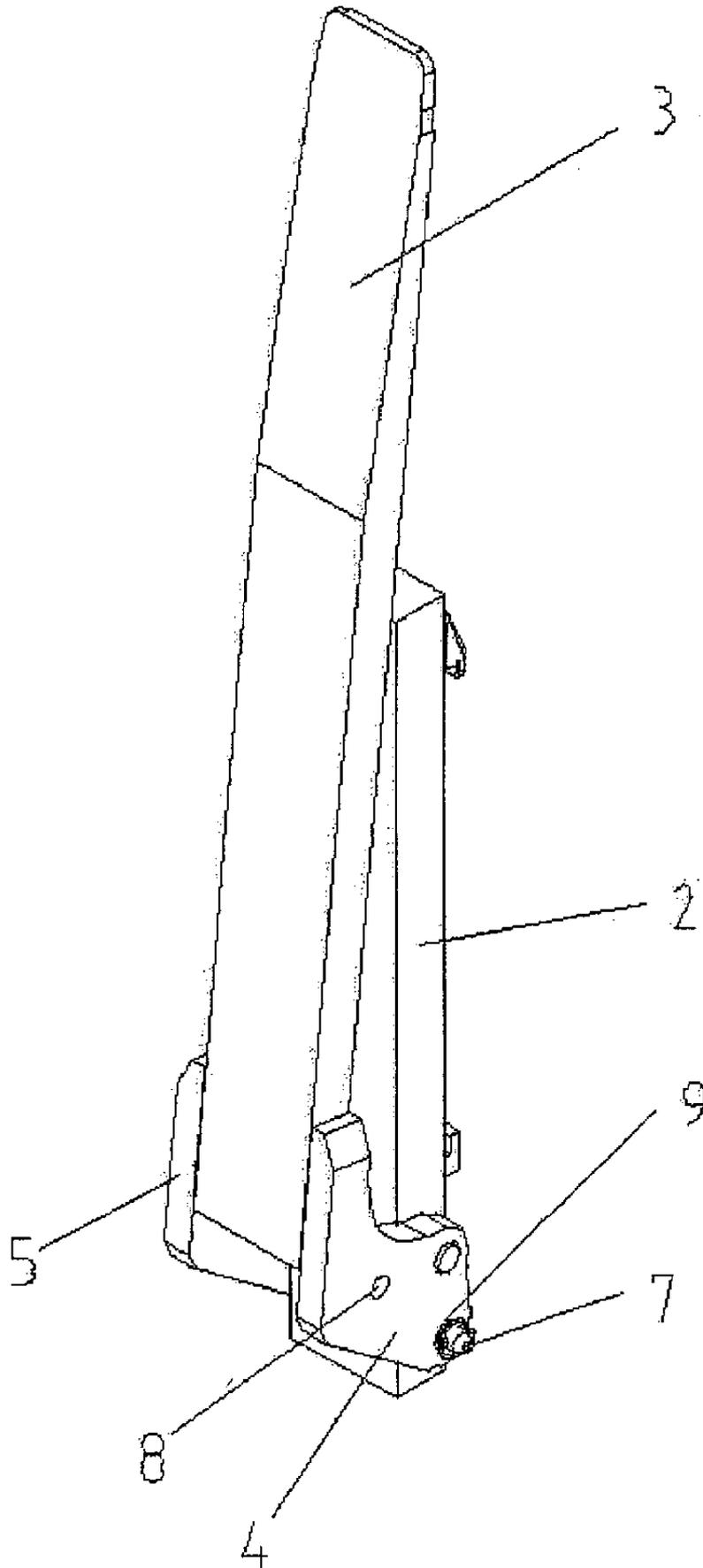
### B66F 9/165

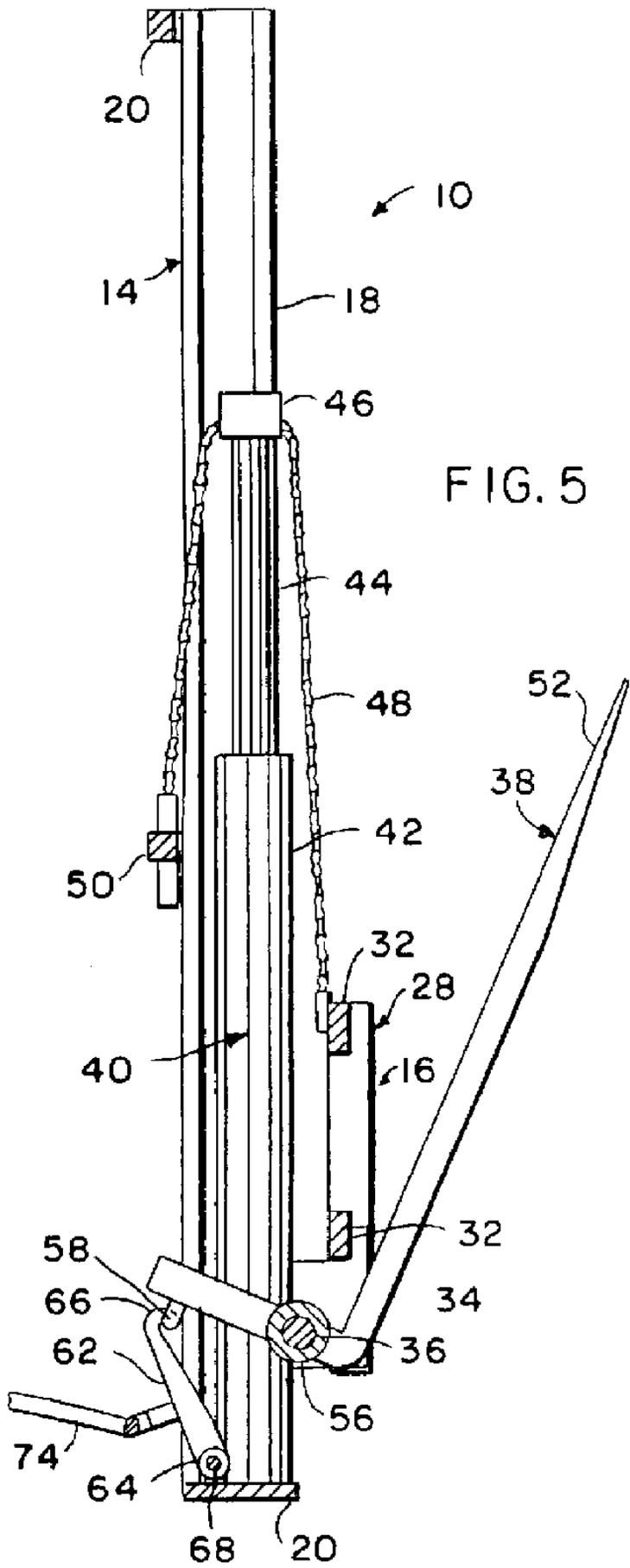
[N: foldable forks, i.e. where only the horizontal section moves]

### Definition statement

*This subclass/group 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

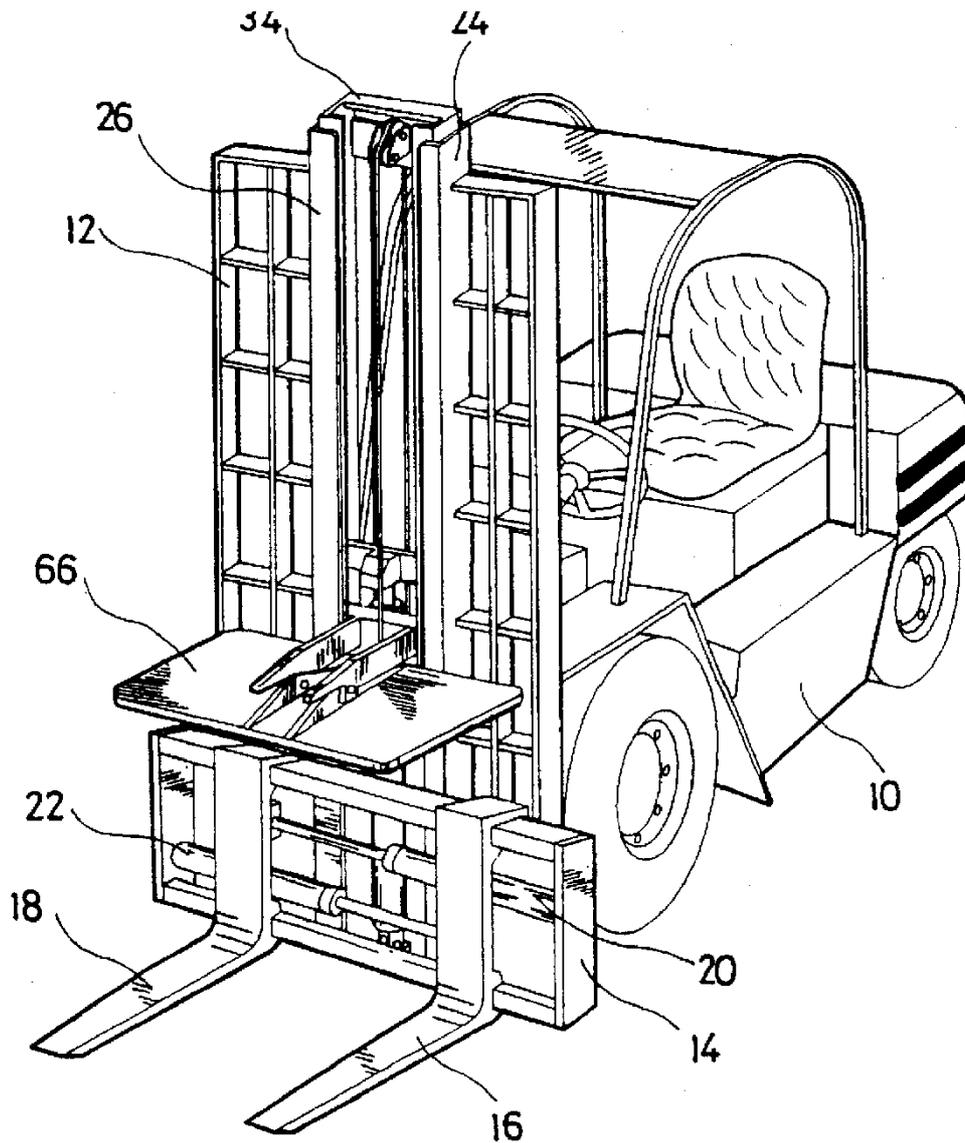
### Load gripping or retaining means

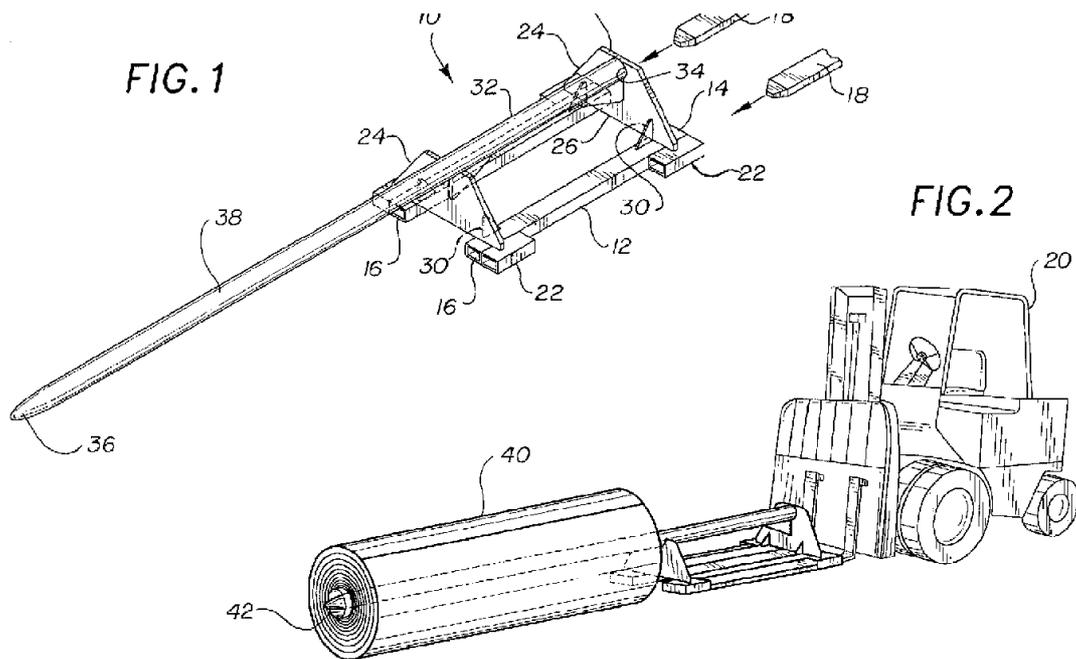
#### Definition statement

*This subclass/group covers:*

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

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





### References relevant to classification in this group

*This subclass/group does not cover:*

Forks	<a href="#">B66F 9/12</a>
-------	---------------------------

### **B66F 9/181**

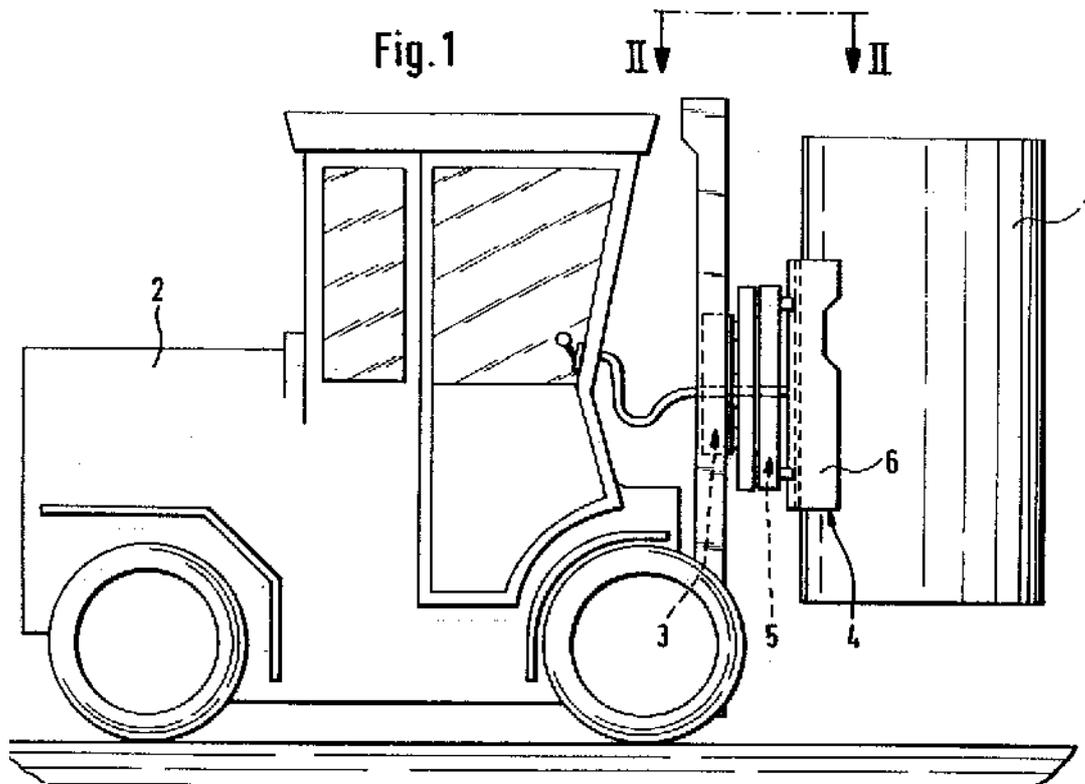
**[N: by suction means]**

### **Definition statement**

*This subclass/group covers:*

devices using only vacuum or other mechanism with vacuum assistance,

see for example US 4 961 606.



**B66F 9/182**

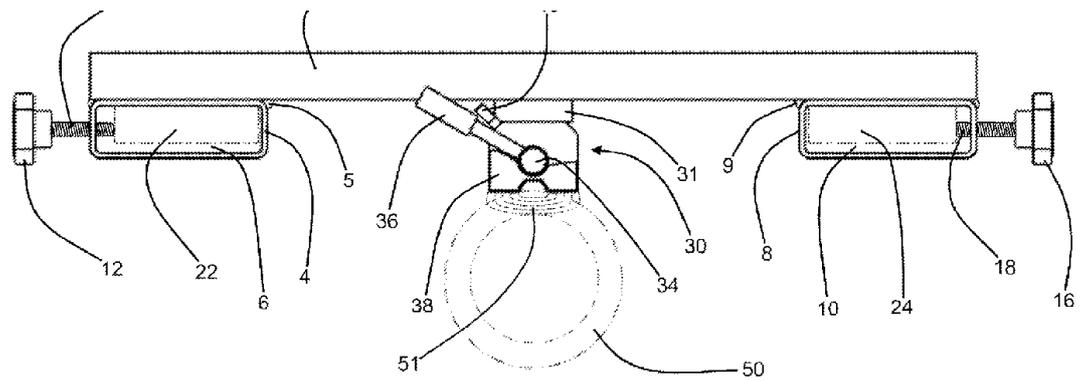
[N: by magnetic means]

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2011/0070058.



## B66F 9/183

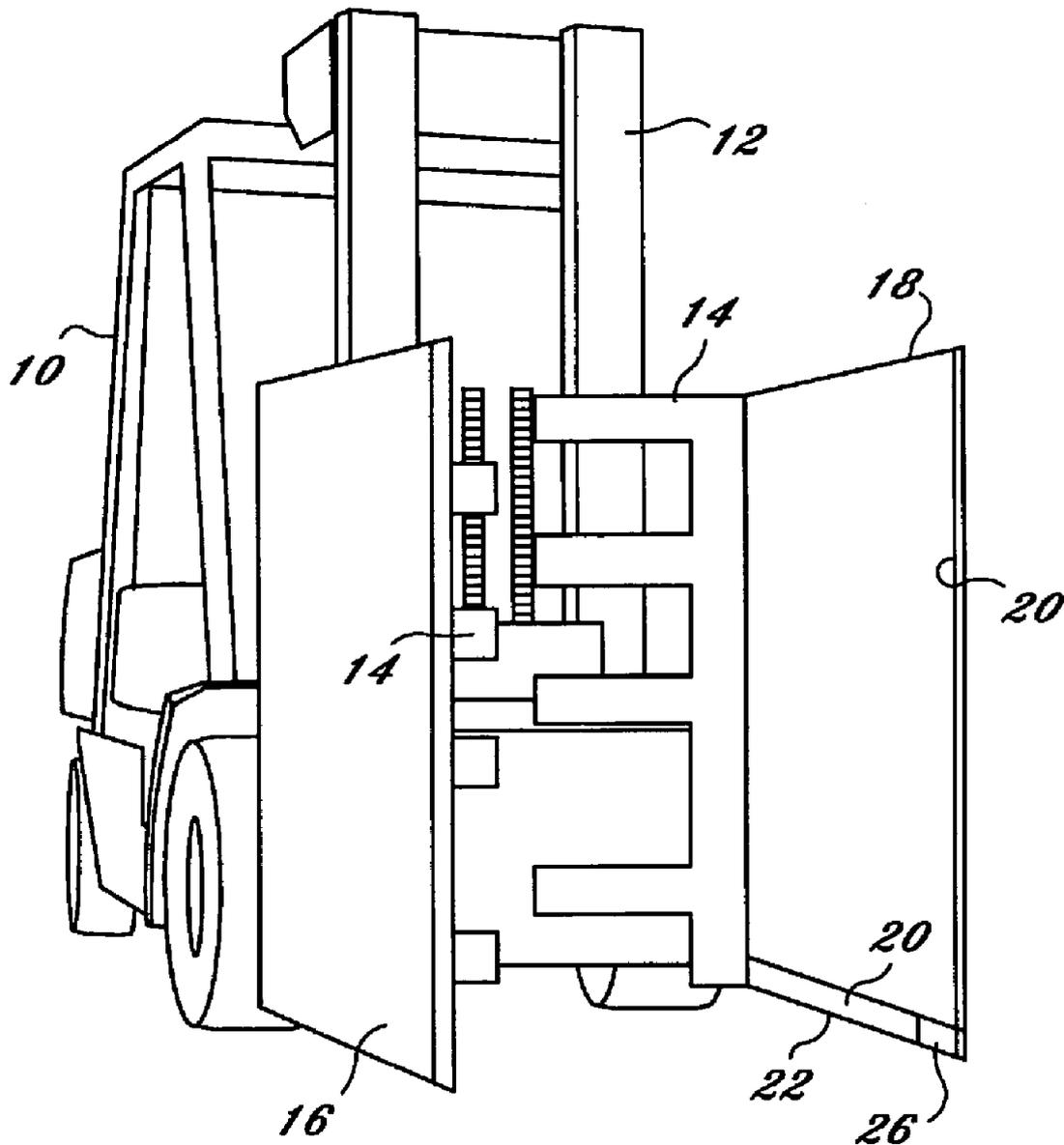
[N: Coplanar side clamps]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 7 118 148.



### References relevant to classification in this group

*This subclass/group does not cover:*

Clamps acting from above	<a href="#">B66F 9/18</a>	131
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## B66F 9/184

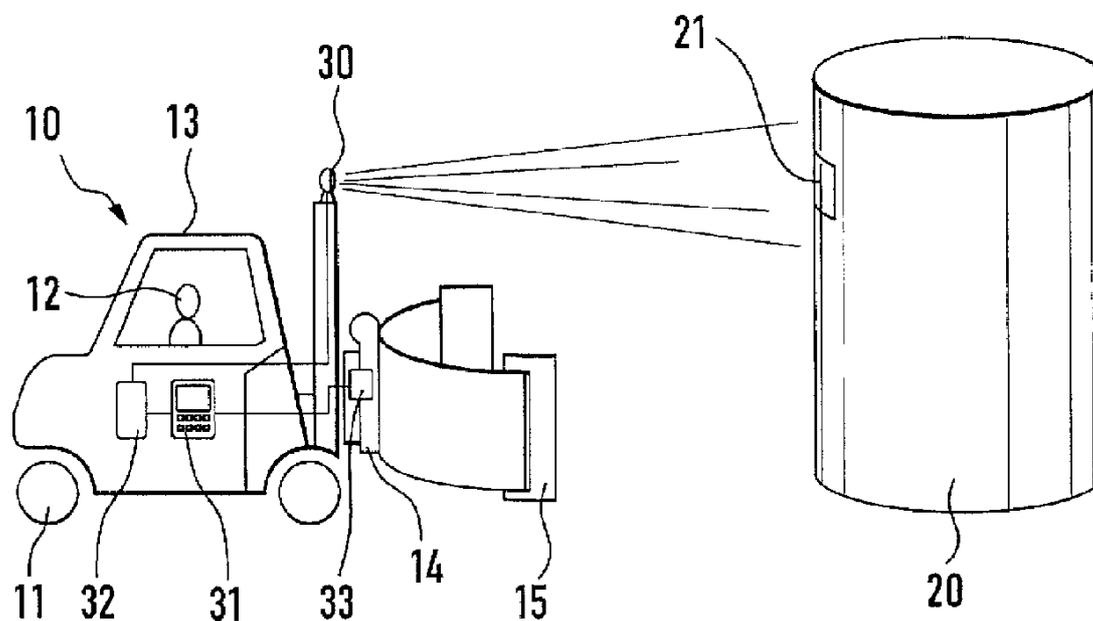
[N: Roll clamps]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2001/0039464.



## B66F 9/185

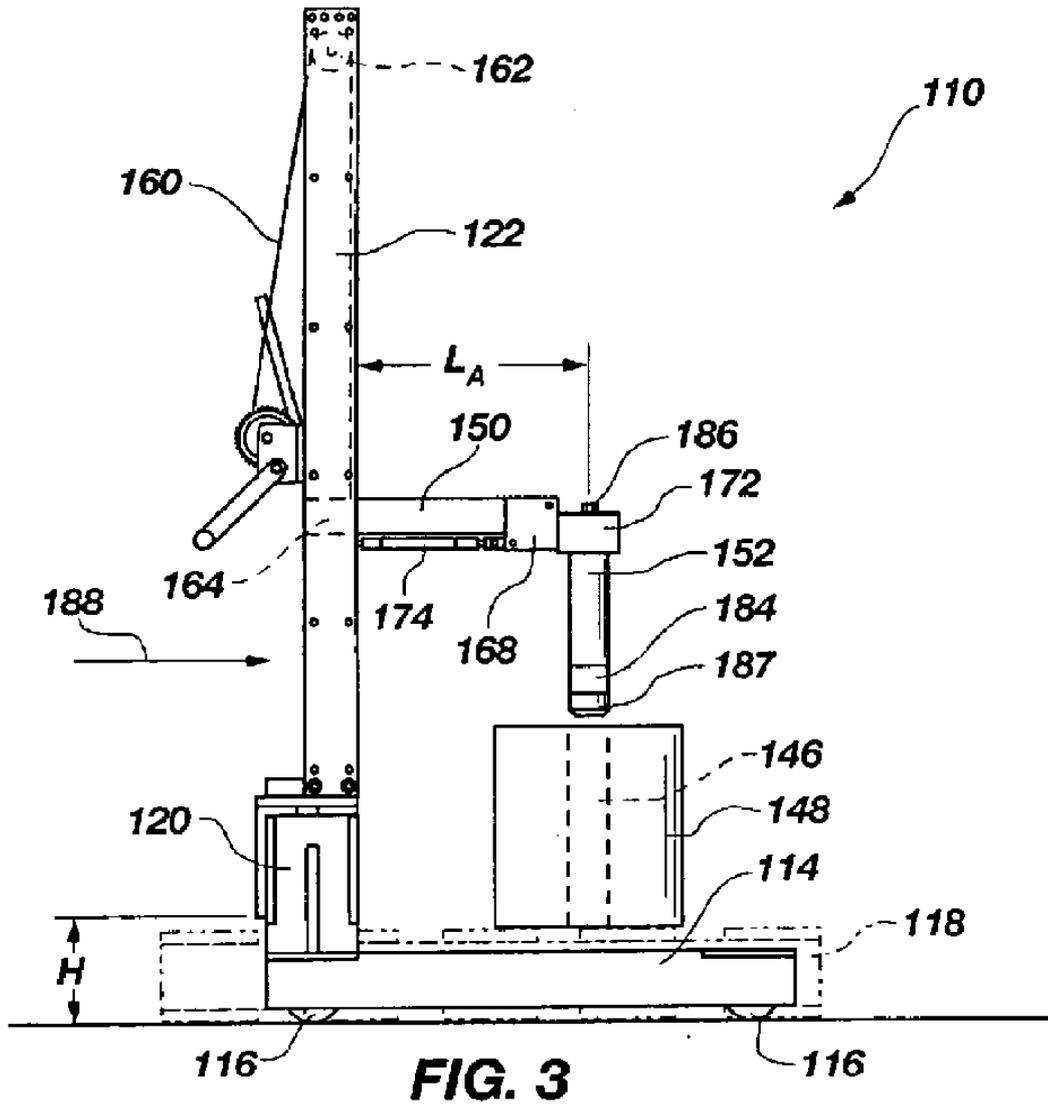
[N: by internally expanding grippers]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2006/0245889.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Load supports merely inserted inside the load, e.g. pins	<a href="#">B66F 9/18</a>
--	---------------------------

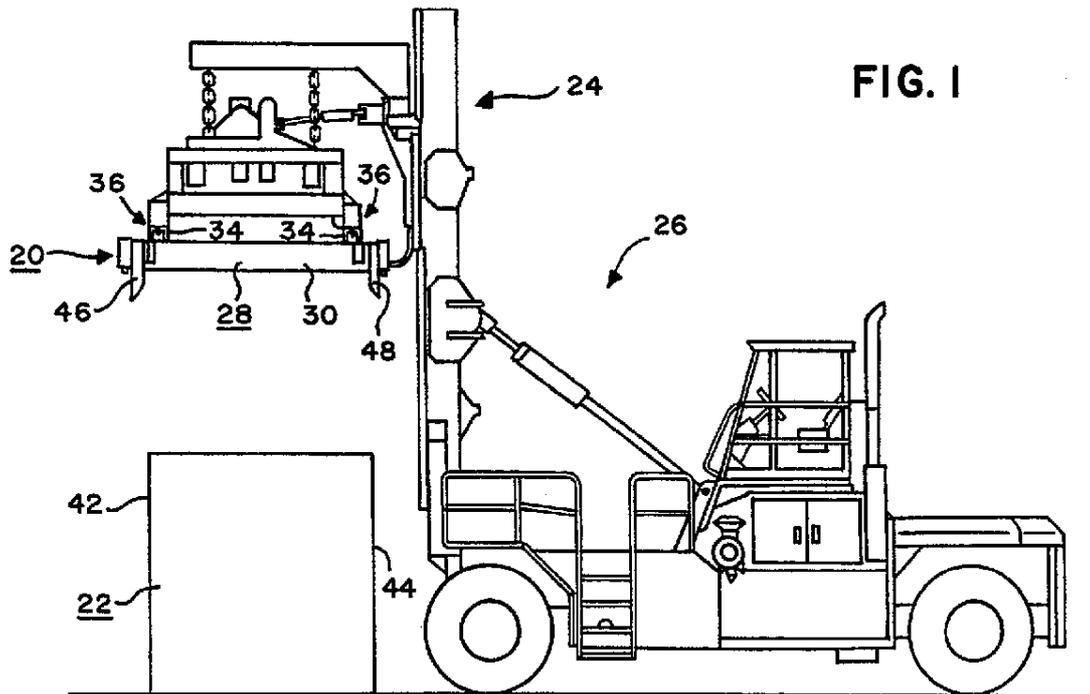
**B66F 9/186**

[N: Container lifting frames]

**Definition statement**

*This subclass/group covers:*  
 devices for lifting iso shipping containers,

see for example US 5 370 435.



### References relevant to classification in this group

*This subclass/group does not cover:*

Cranes or straddle carriers for lifting containers	<a href="#">B66C 19/00</a>
--	----------------------------

### **B66F 9/187**

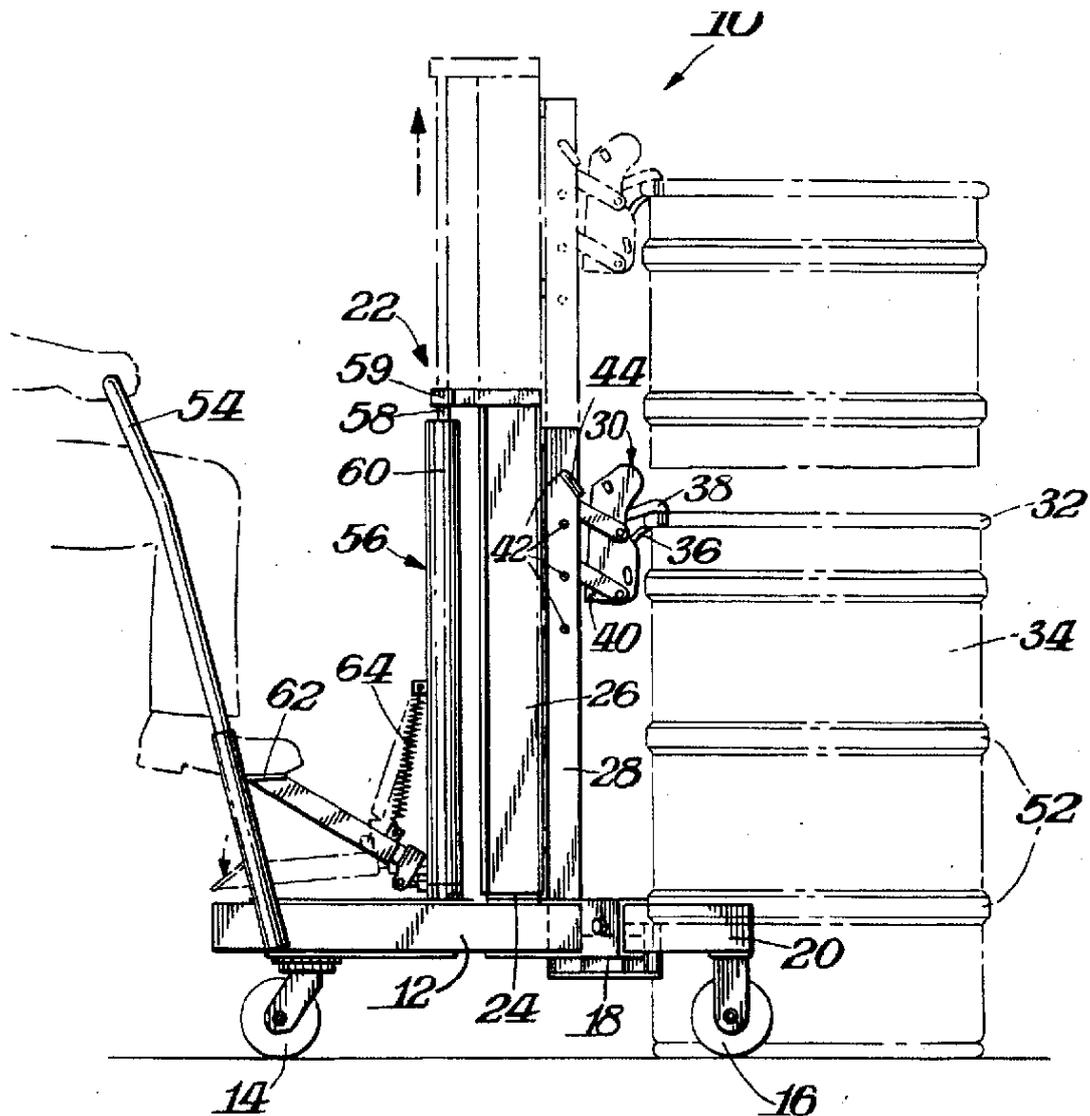
**[N: Drum lifting devices]**

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 5 618 154.



## B66F 9/188

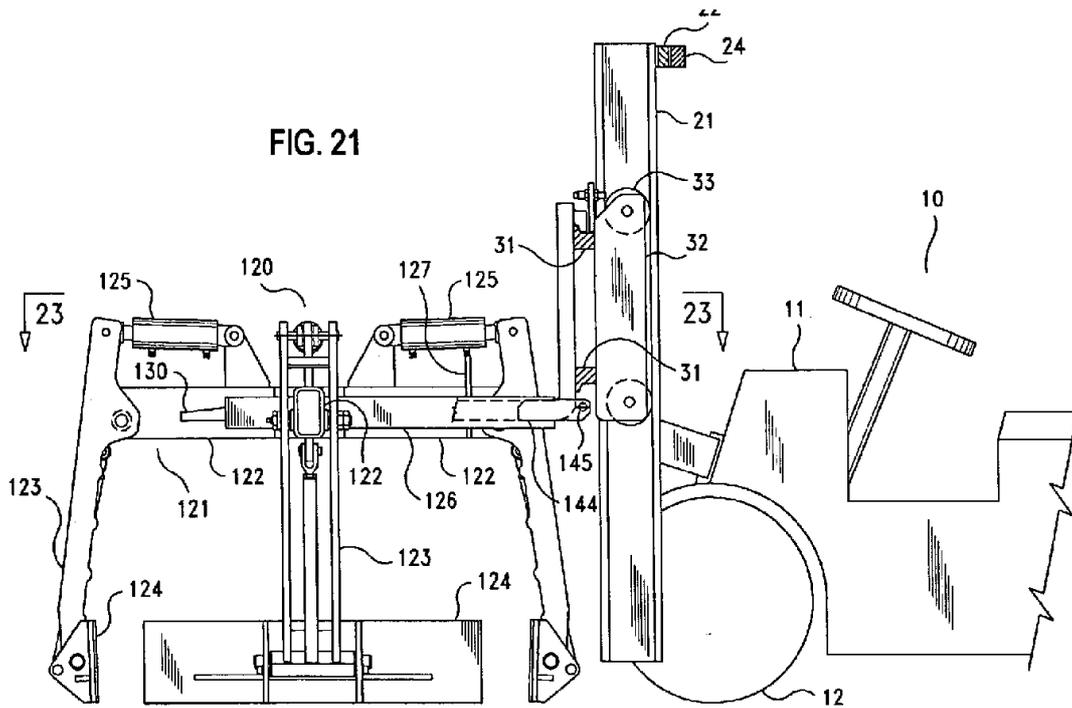
[N: Stacked-bricks lifting devices]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2007/0181373.

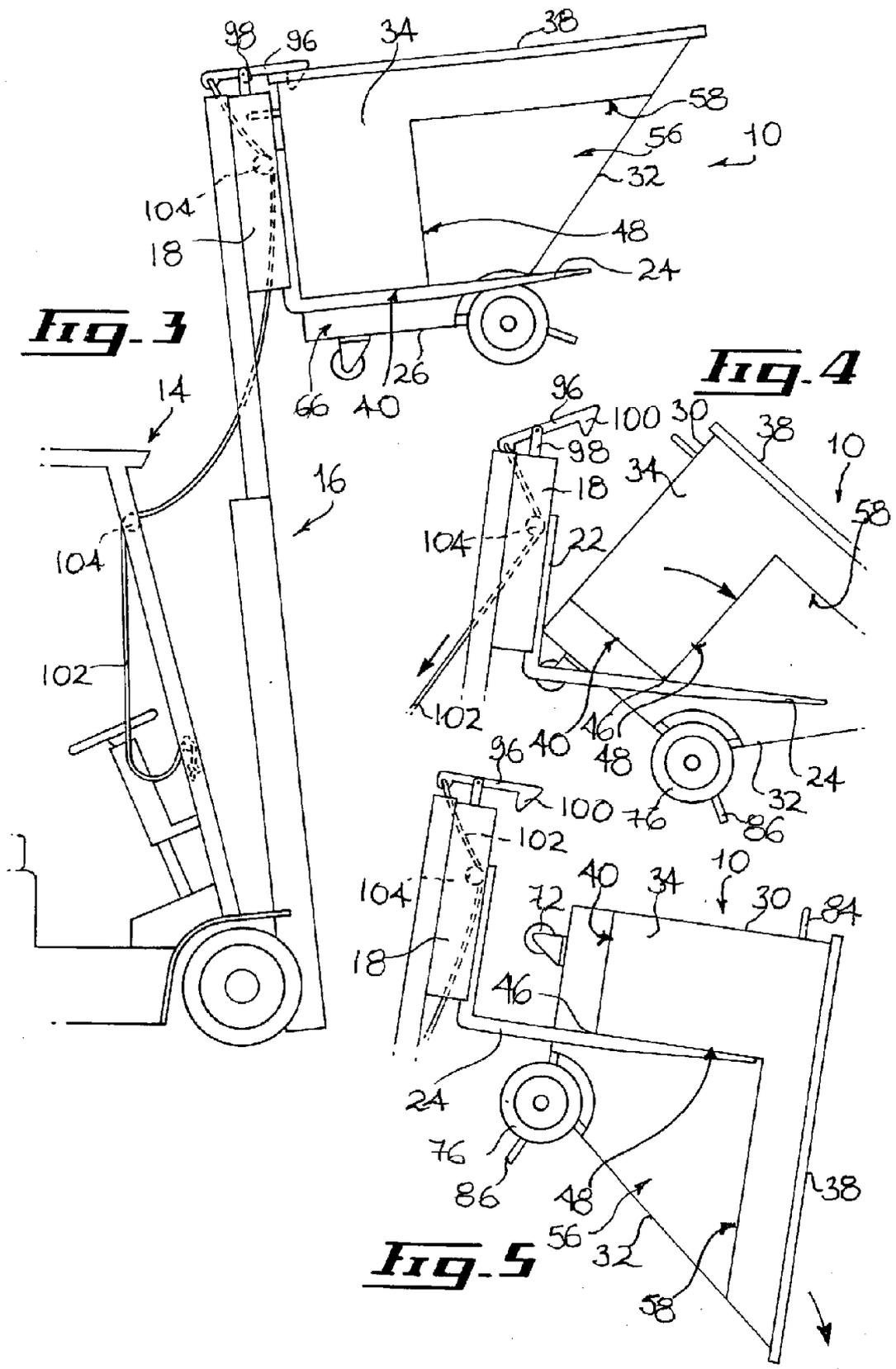


## **B66F 9/19**

### **Additional means for facilitating unloading**

#### **Definition statement**

*This subclass/group covers:*  
 devices which aid unloading e.g. by tipping,  
 see for example US 2004/022616.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Devices which aid unloading by pushing or aid loading by pulling	<a href="#">B66F 19/19B</a>
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## B66F 9/195

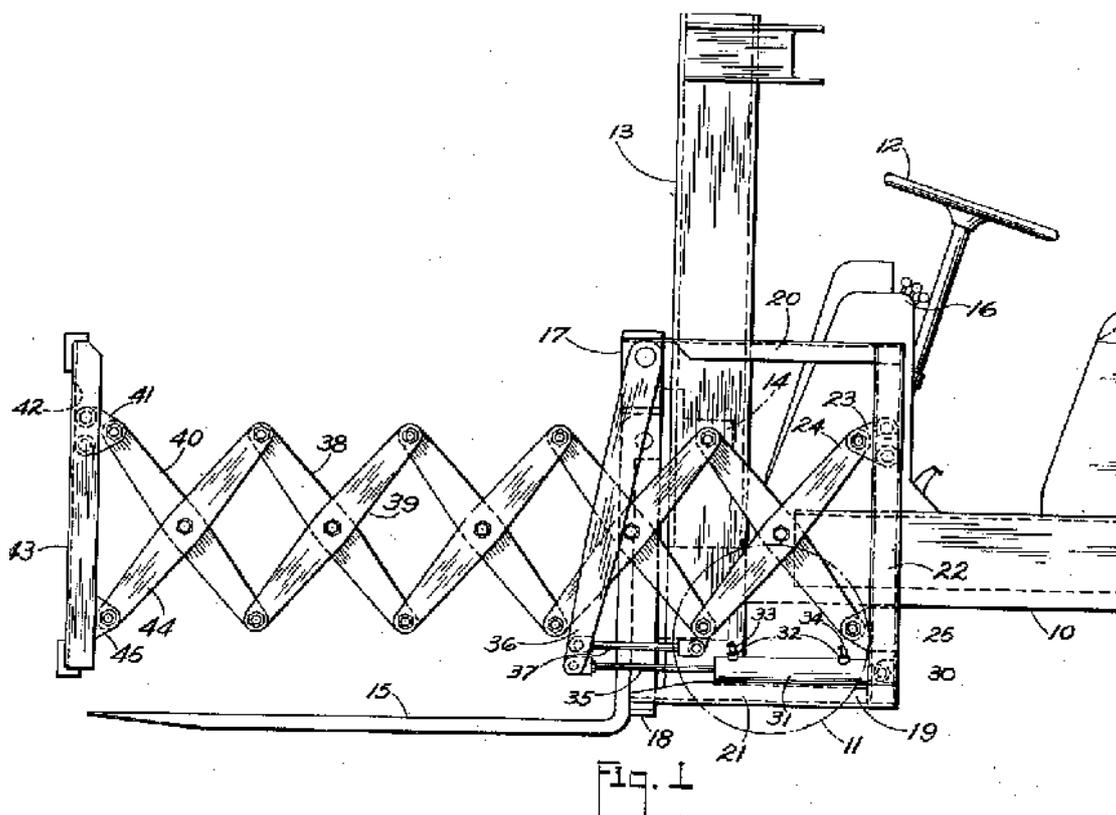
[N: for pushing the load]

### Definition statement

*This subclass/group covers:*

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

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 subclass/group covers:*  
general control arrangements, i.e. not essentially electrical nor hydraulic,  
electrical control levers.

see for example US 2009/0200116

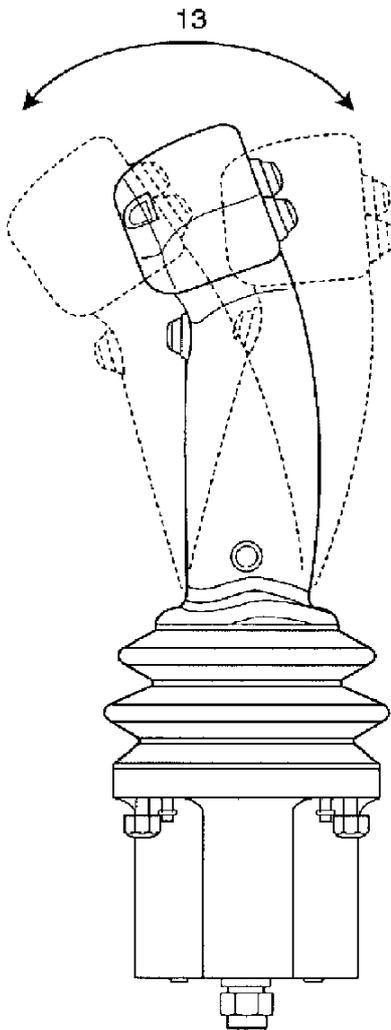


FIG. 3

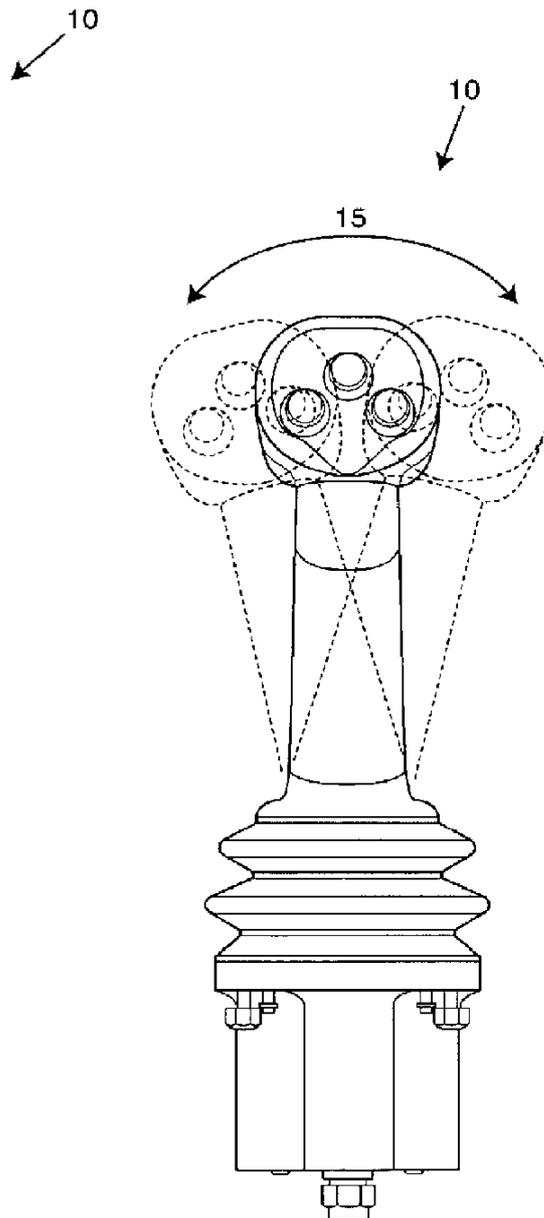


FIG. 4

**References relevant to classification in this group**

*This subclass/group does not cover:*

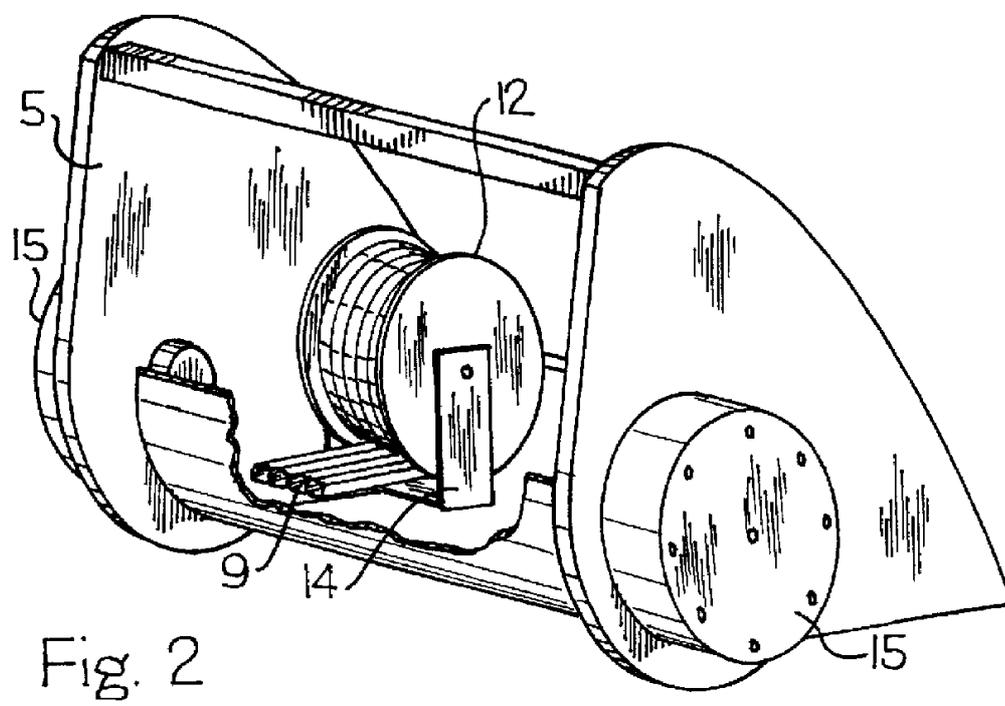
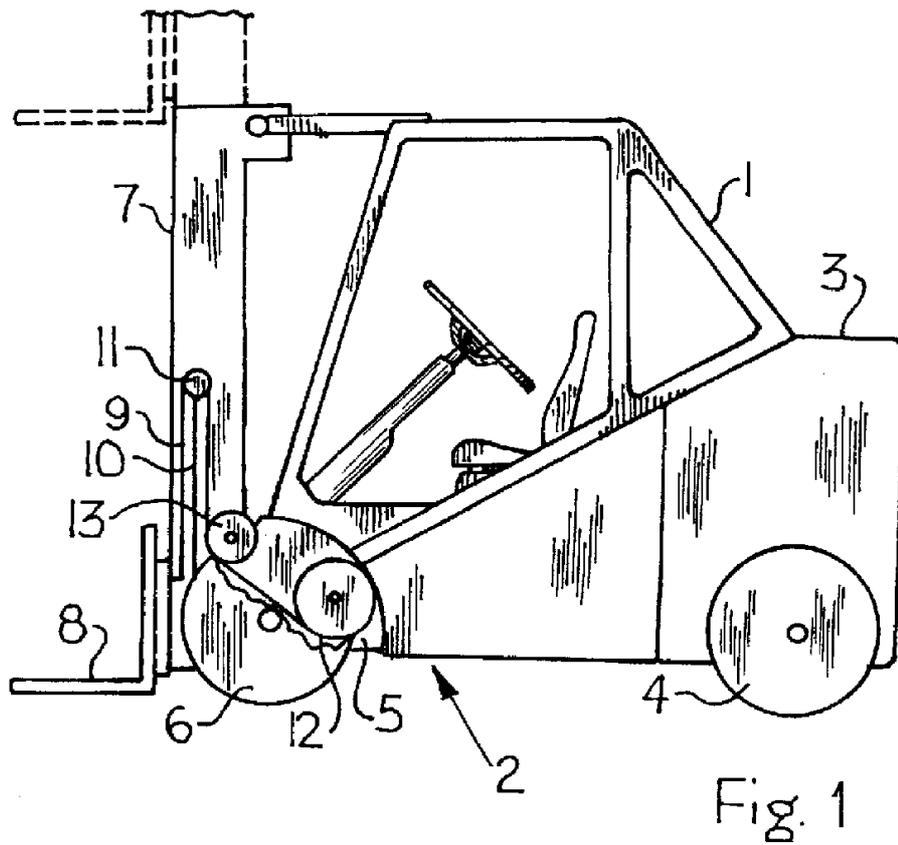
Hydraulic controls	<a href="#">B66F 9/22</a>
Electrical controls	<a href="#">B66F 9/24</a>
Mechanical arrangement of control levers	<a href="#">B66F 9/0759</a>
Control levers for cranes	<a href="#">B66C 13/56</a>
Control levers in general	<a href="#">G05G 9/00</a>
Control levers for excavators	<a href="#">E02F 9/20</a>

## **B66F 9/205**

**[N: Arrangements for transmitting pneumatic, hydraulic or electric power to movable parts or devices (for cranes B66C13/12)]**

### **Definition statement**

*This subclass/group covers:*  
see for example US 6 595 329.

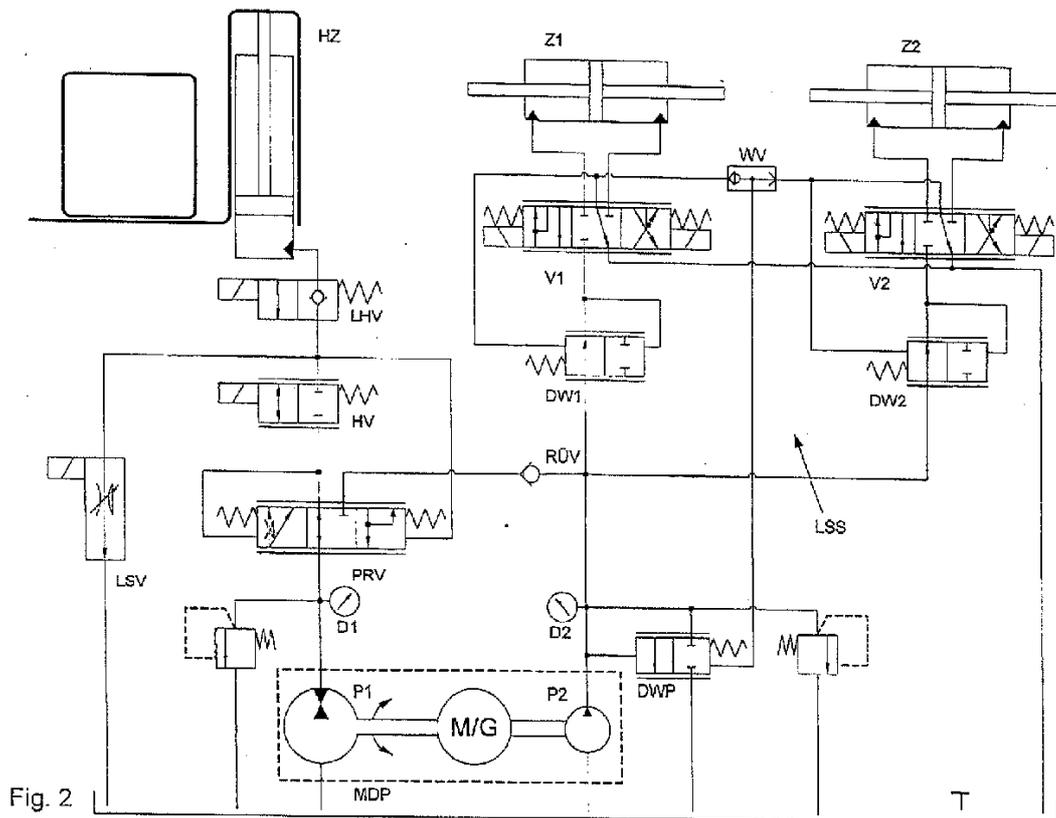


B66F 9/22

## Hydraulic devices or systems

### Definition statement

*This subclass/group covers:*  
essentially hydraulic control systems,  
see for example US 2008/0152513.



## B66F 9/24

## Electrical devices or systems

### Definition statement

*This subclass/group covers:*  
essentially electric control systems,  
see for example US 7 235 948.

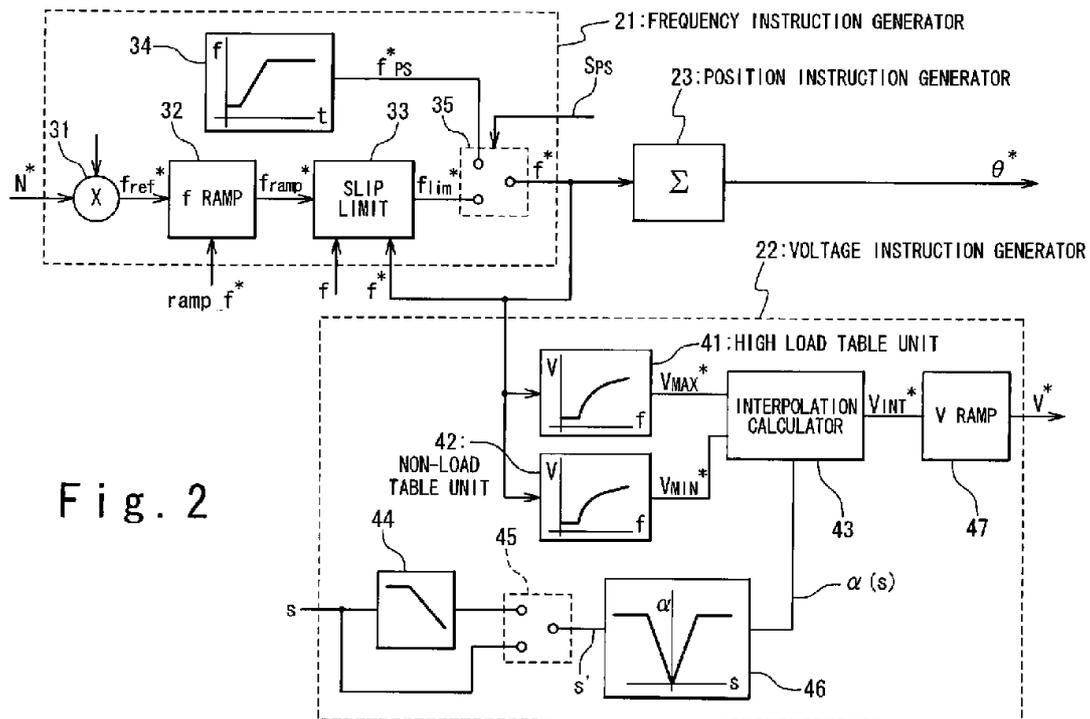


Fig. 2

### References relevant to classification in this group

This subclass/group does not cover:

Safety systems	<a href="#">B66F 17/003</a>
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### B66F 11/00

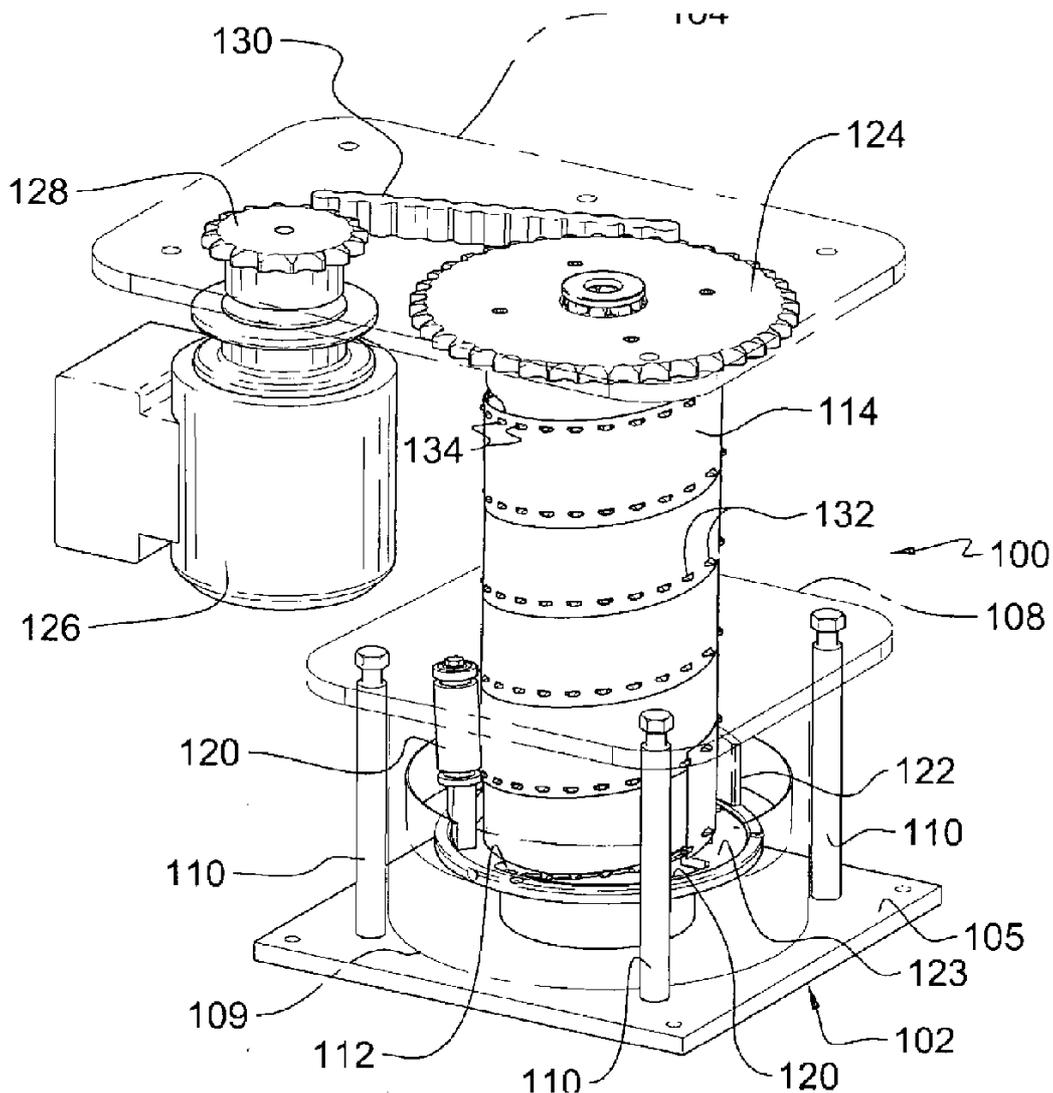
Lifting devices specially adapted for particular uses not otherwise provided for (ground-engaging vehicle fittings for supporting, lifting or manoeuvring the vehicle B60S9/00)

### Definition statement

This subclass/group covers:

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

see for example US 2006/0005651.



## References relevant to classification in this group

*This subclass/group does not cover:*

Other lifting devices not covered by <a href="#">B66F 1/00</a> to <a href="#">B66F 9/00</a> , <a href="#">B66F 13/00</a> , <a href="#">B66F 15/00</a> or <a href="#">B66F 17/00</a>	<a href="#">B66F 19/00</a>
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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 ([N: Working platforms on fork-lift trucks B66F9/127;] vehicle aspects of service vehicles B60P3/14; platforms for cleaning windows A47L3/02; devices for rescuing persons from buildings A62B1/02; liftable or

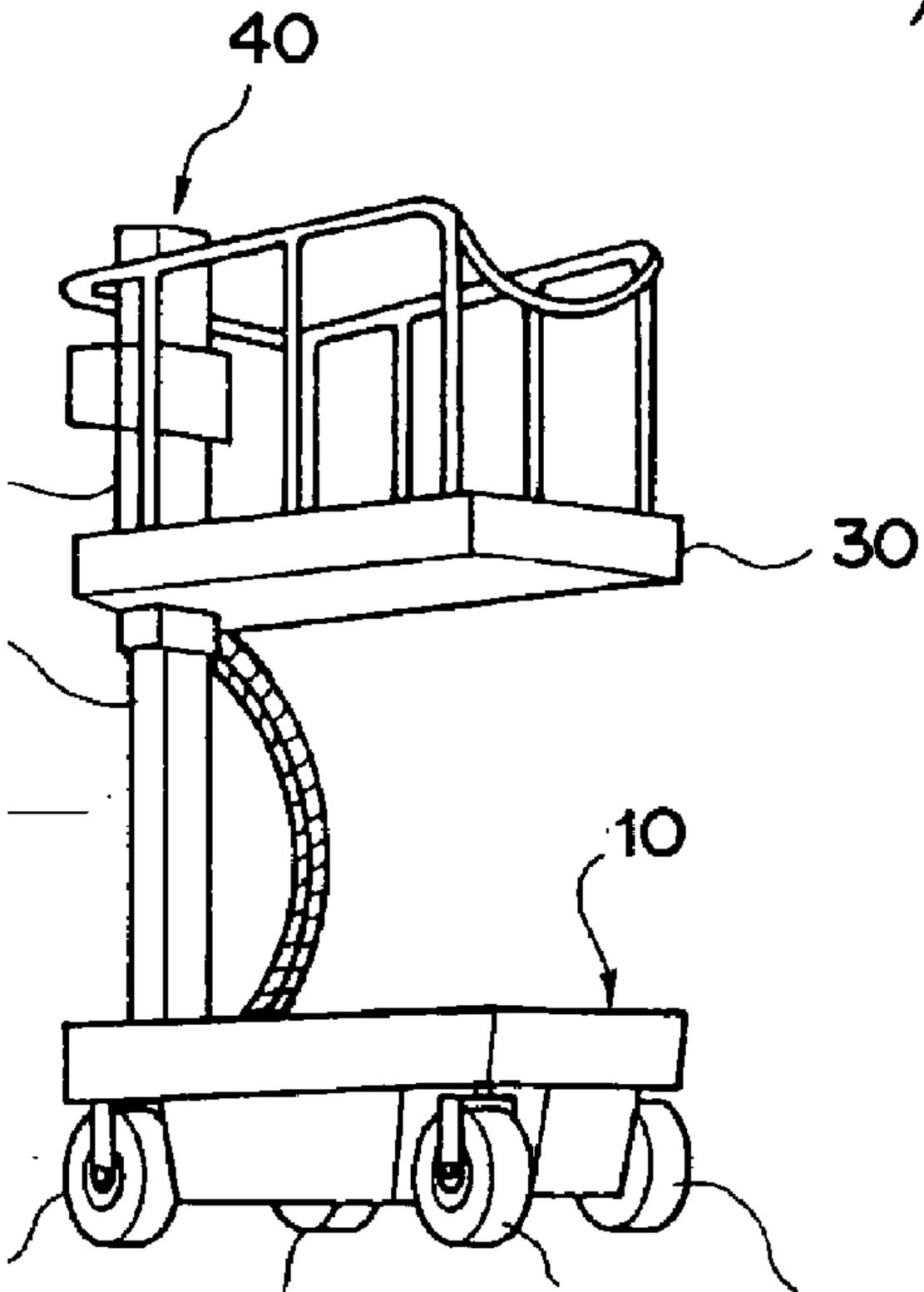
**lowerable platforms for use on ladders E06C7/16;  
maintenance travellers for bridges E01D19/10; scaffolds on an  
extensible sub-structure E04G1/22)**

**Definition statement**

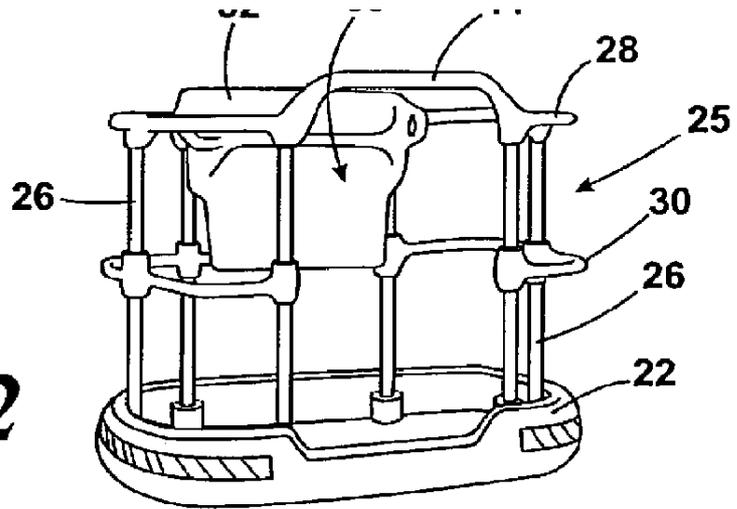
*This subclass/group covers:*

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

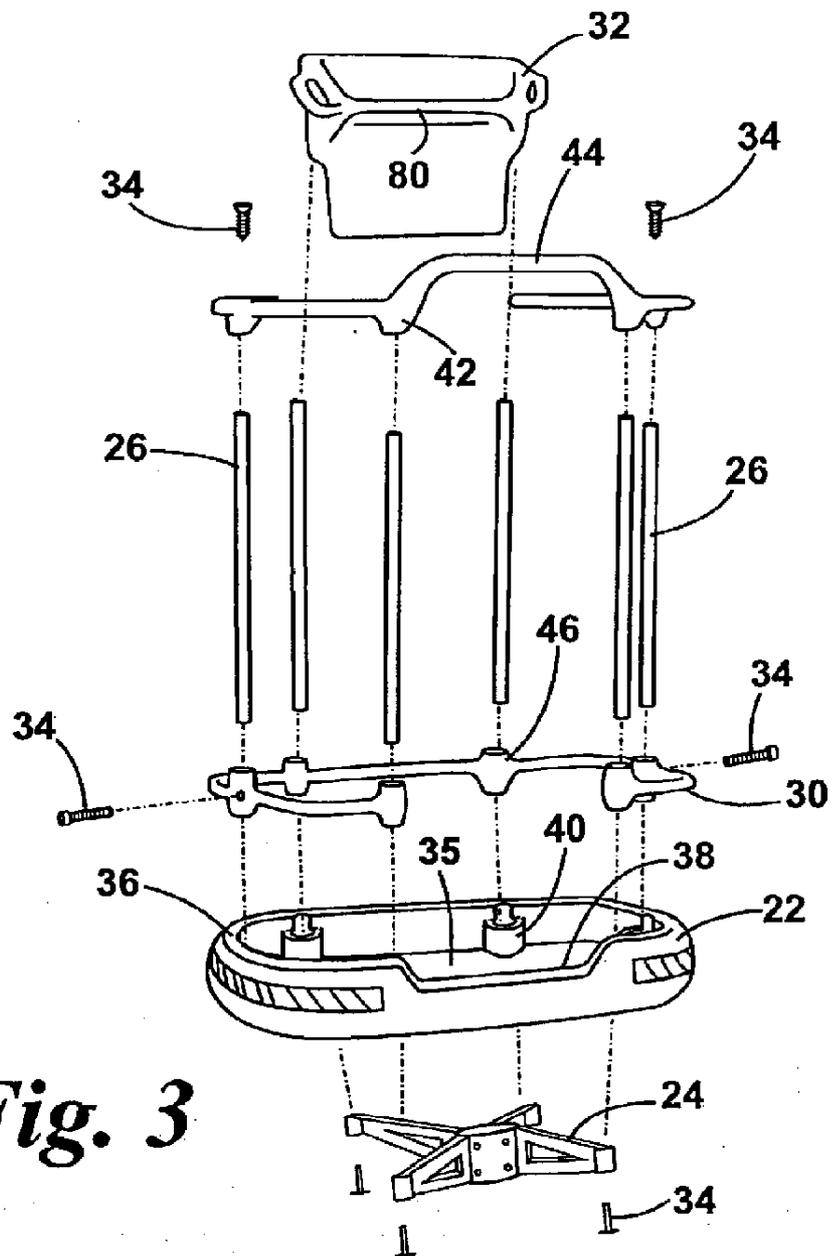
see for example US 2008/0097666 or US 2010/0200332.



*Fig. 2*



*Fig. 3*



## **B66F 11/042**

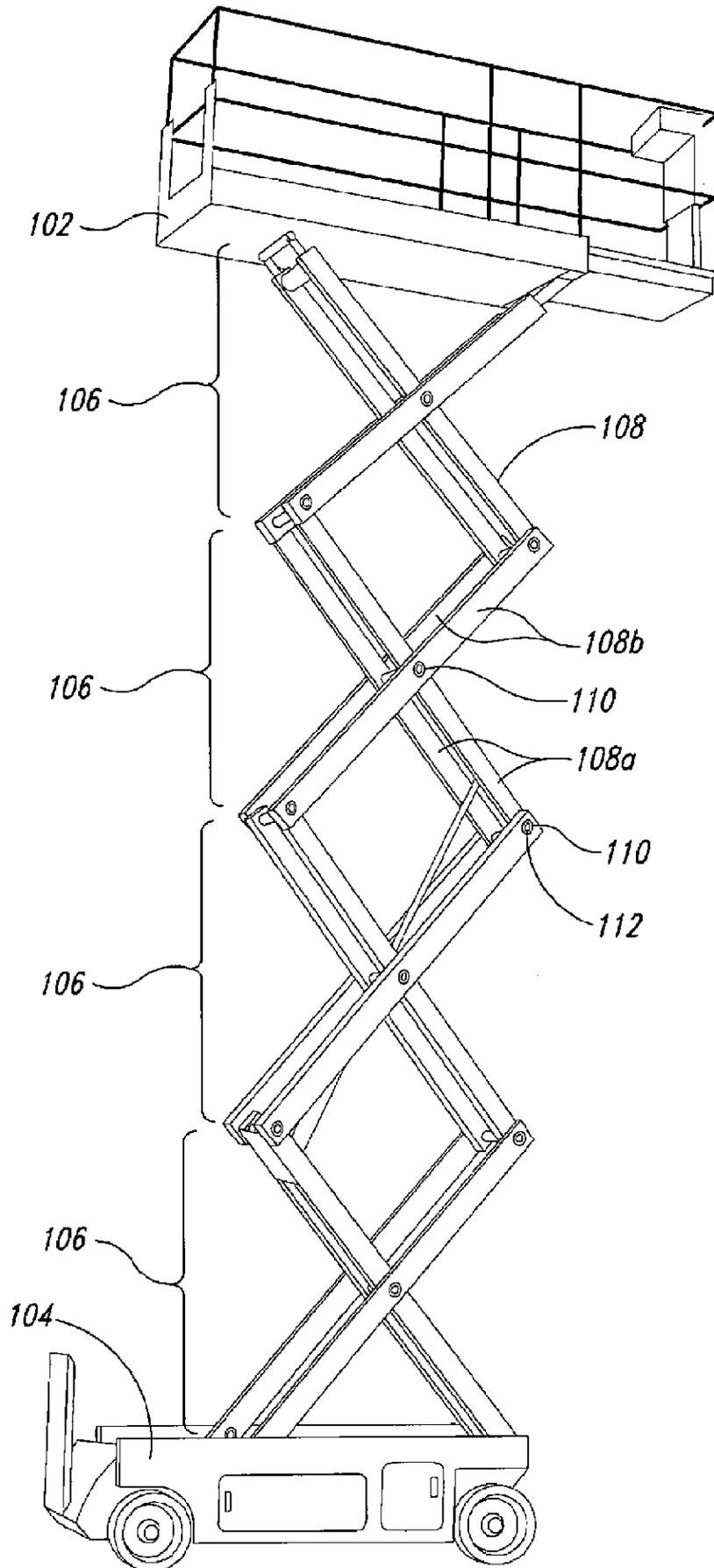
**[N: actuated by lazy-tongs mechanisms or articulated levers]**

### **Definition statement**

*This subclass/group covers:*

platforms with scissor type lifting mechanisms

see for example US 2008/0105498.



## B66F 11/044

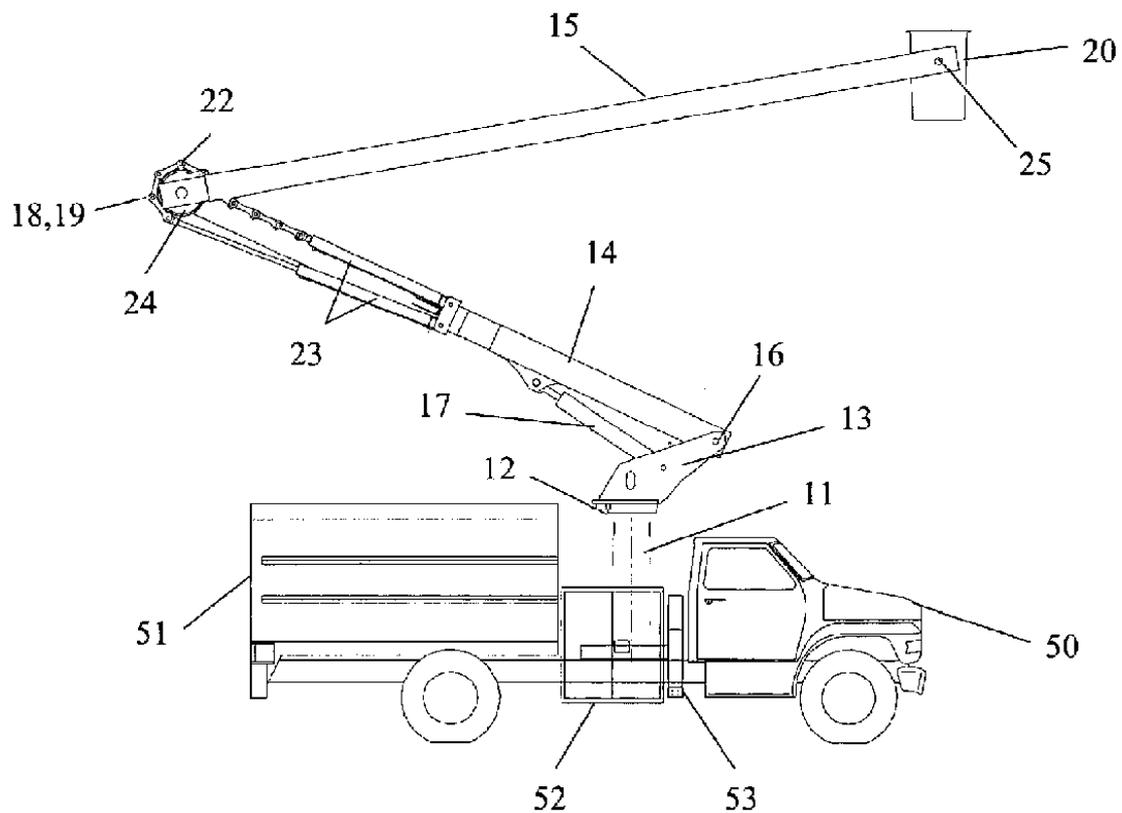
[N: Working platforms suspended from booms]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2010/0193286.



### References relevant to classification in this group

*This subclass/group does not cover:*

Platforms with telescopic booms	<a href="#">B66F 11/046</a>
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## B66F 11/046

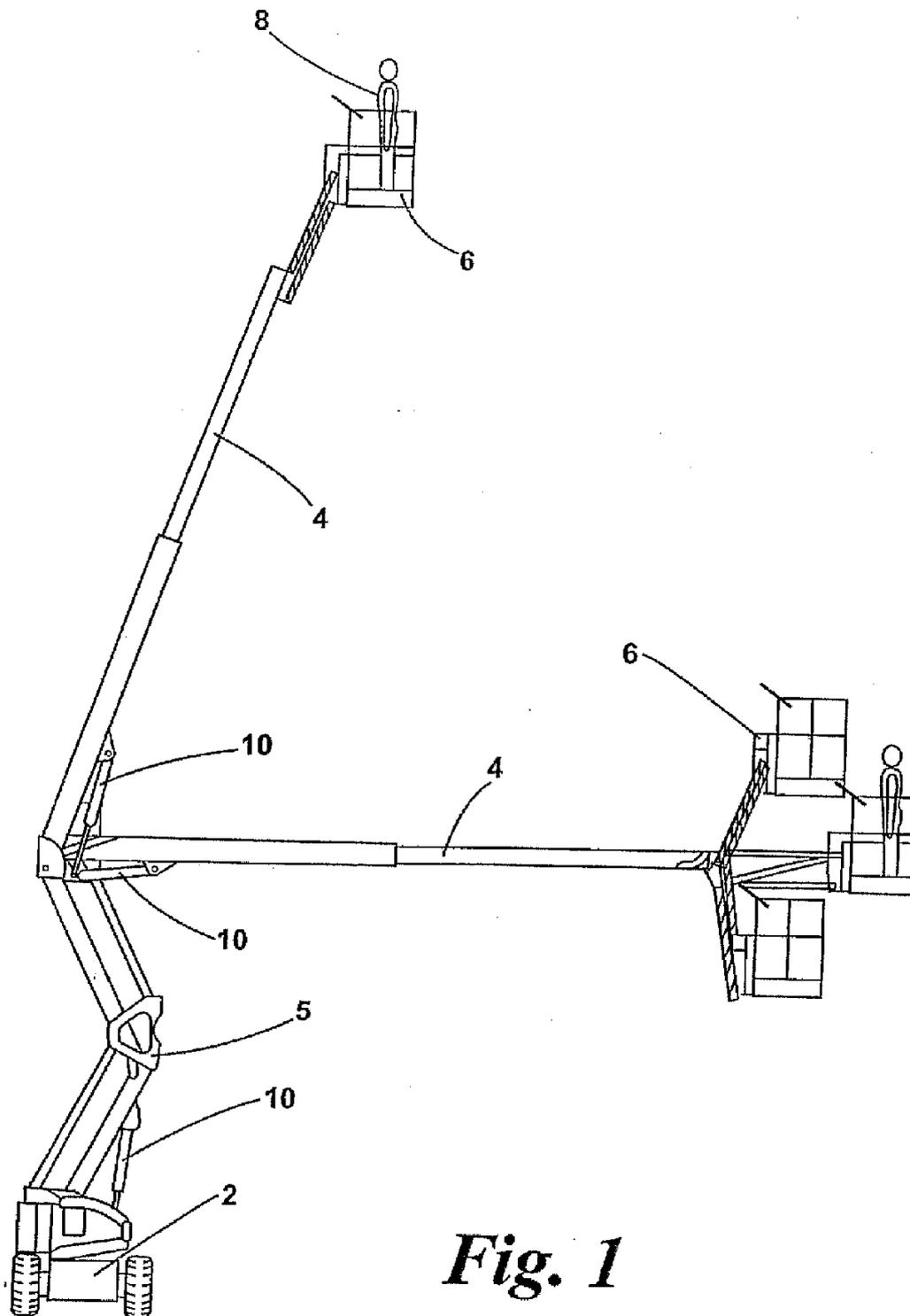
[N: of the telescoping type]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2011/0209943.



**Fig. 1**

**B66F 11/048**

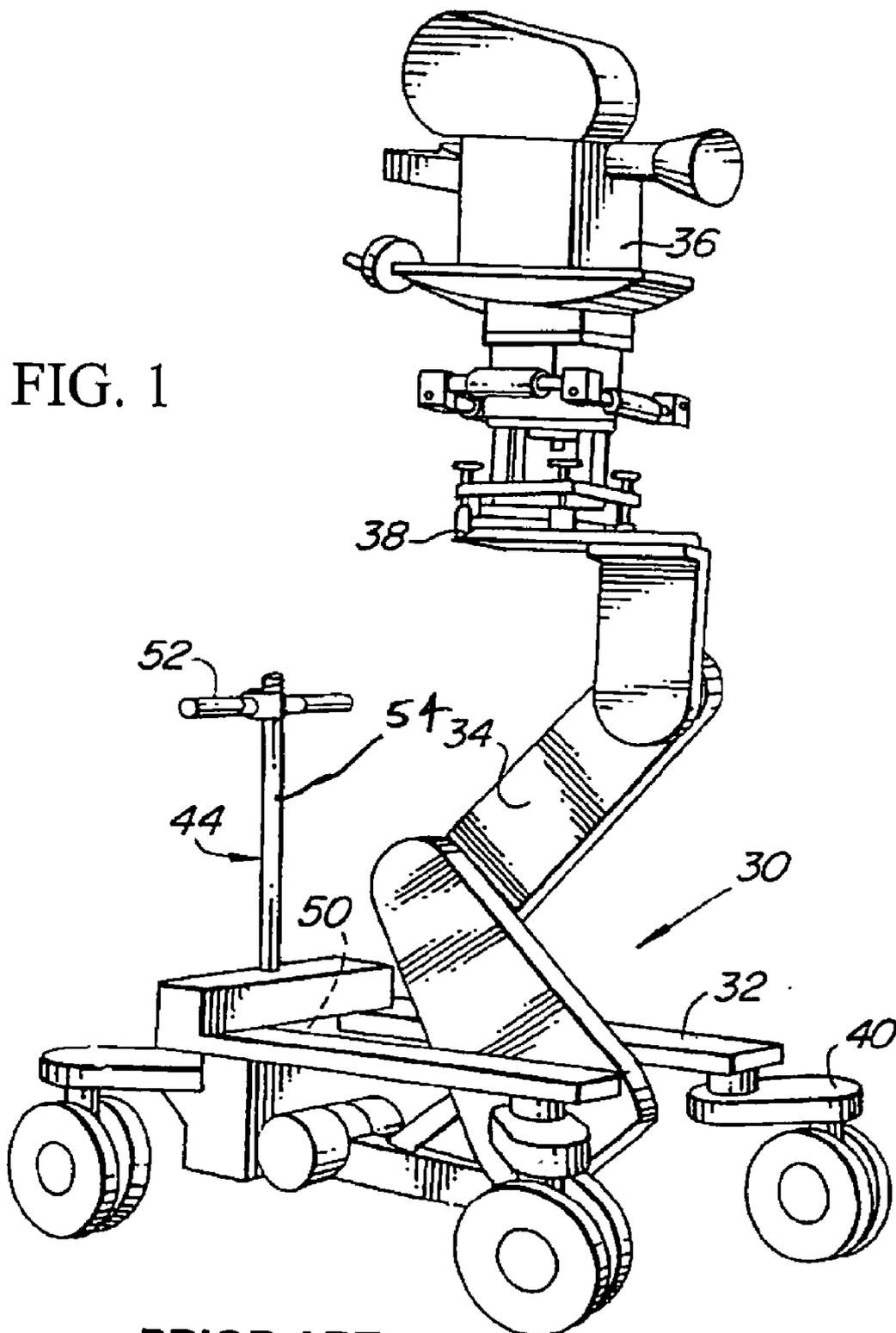
**[N: Mobile camera platform]**

**Definition statement**

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2011/0079105.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Mobile camera stands	<a href="#">F16M 11/42</a>
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## B66F 13/00

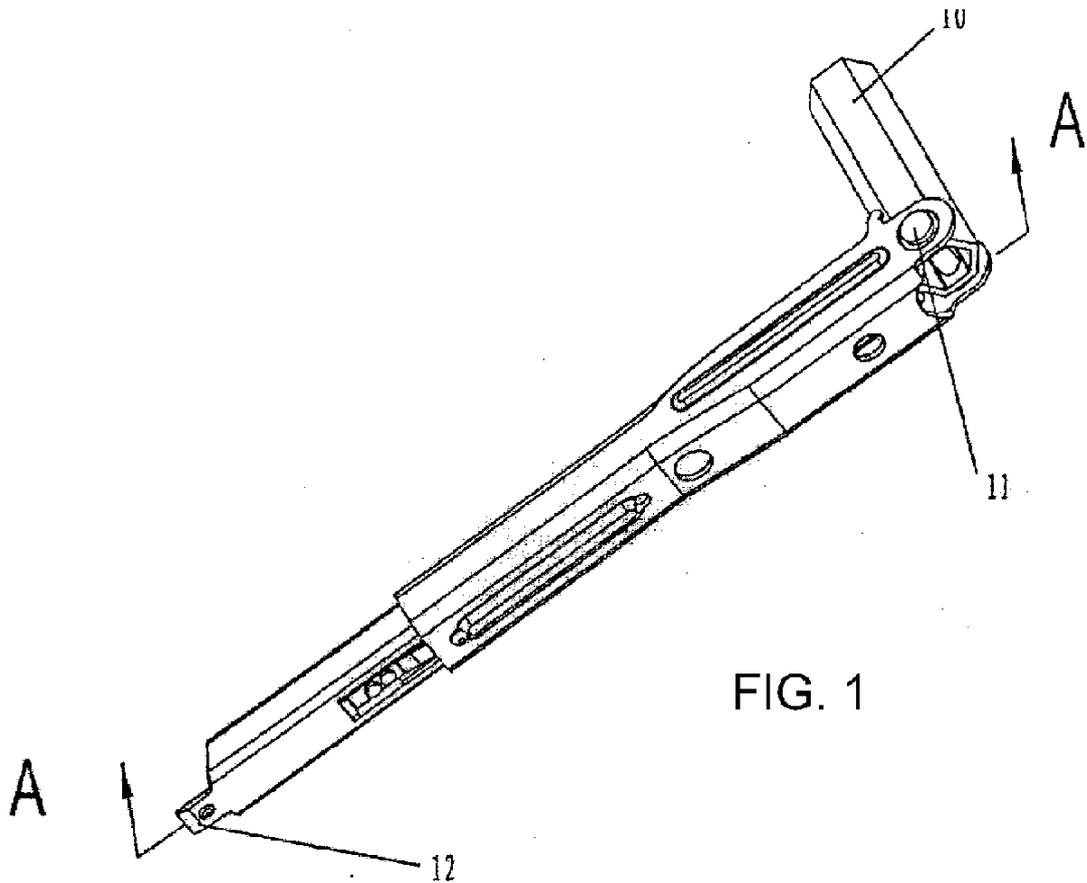
### Common constructional features or accessories

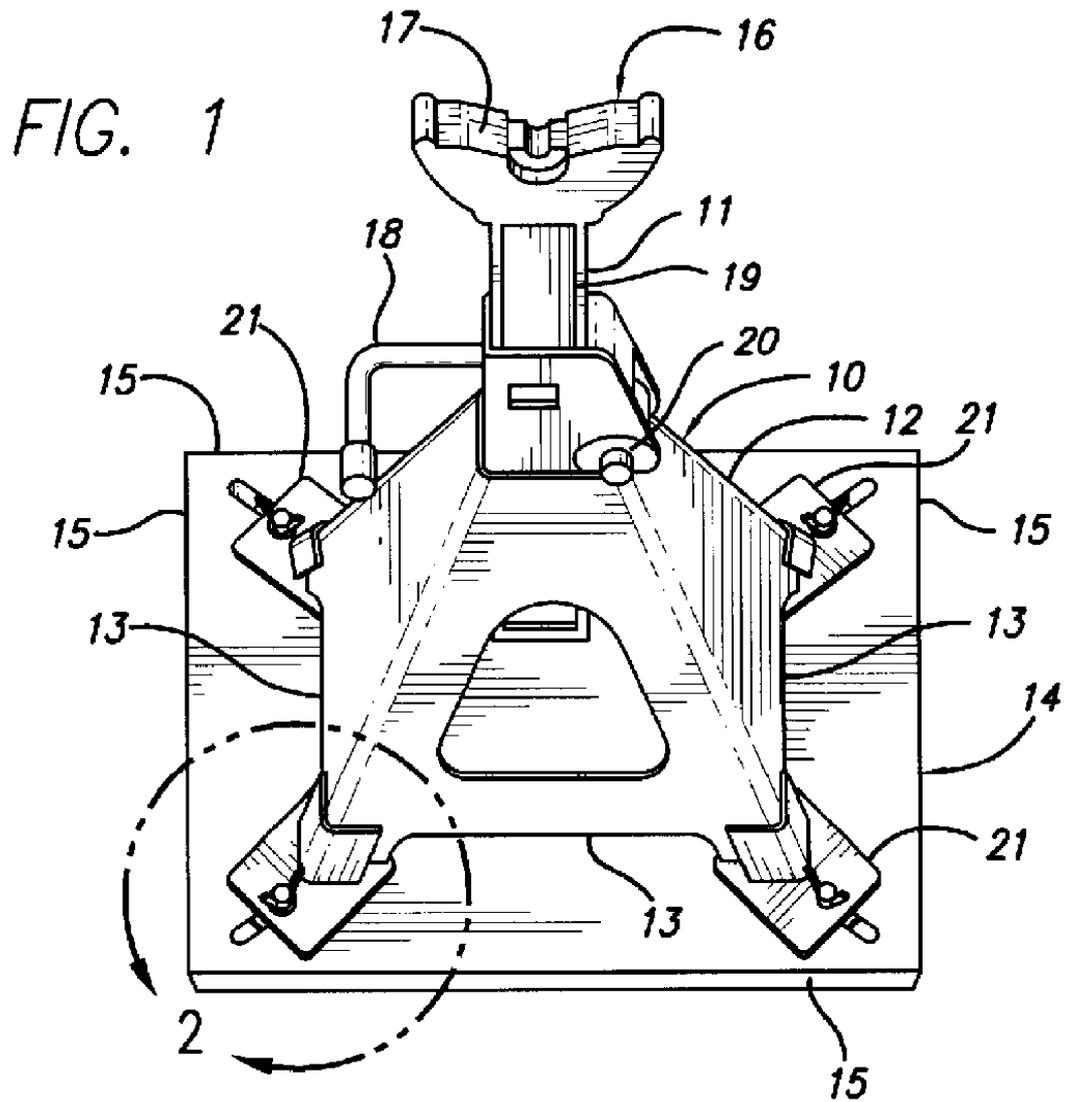
#### Definition statement

*This subclass/group 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

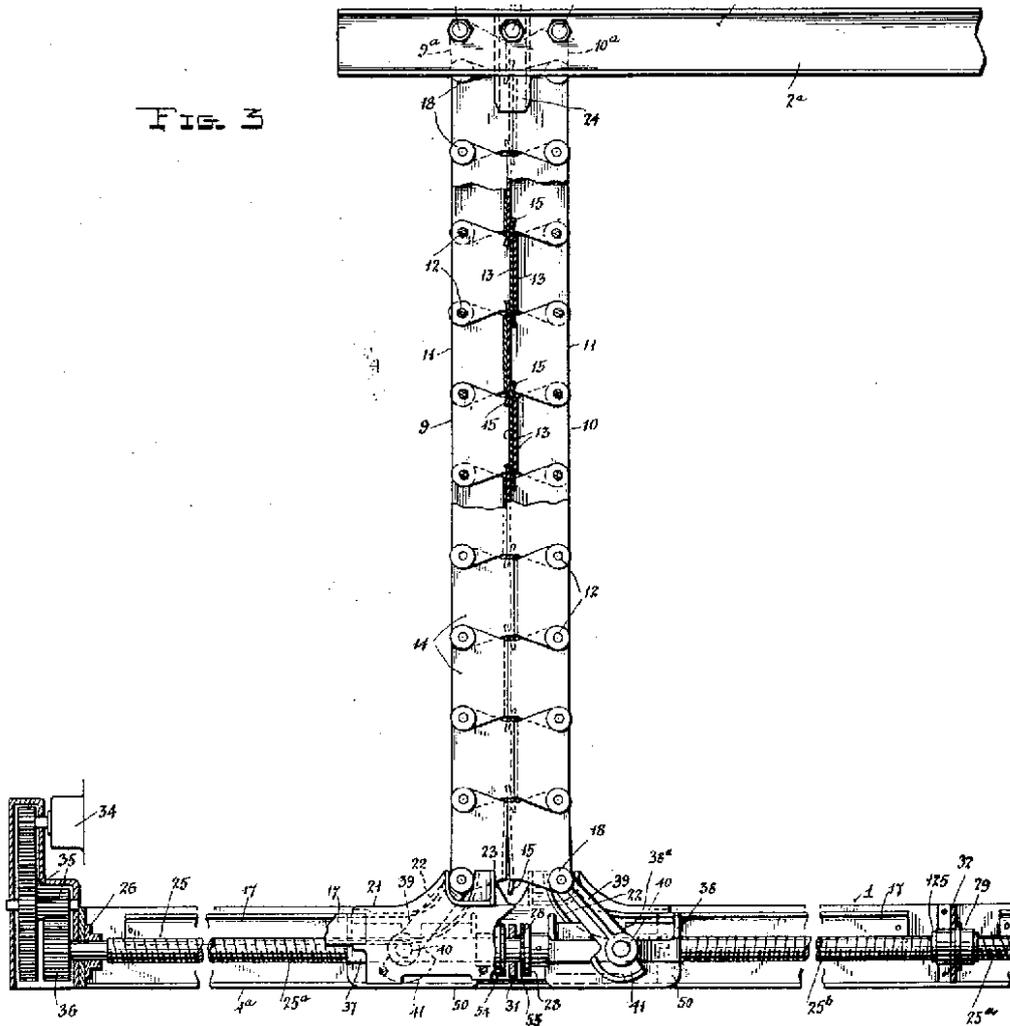
[N: Thrust chain devices]

### Definition statement

*This subclass/group covers:*

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

see for example US 1 834 900.



**References relevant to classification in this group**

*This subclass/group does not cover:*

Thrust chains working with pinions	<a href="#">B66F 3/06</a>
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**B66F 15/00**

**Crowbars or levers**

**Definition statement**

*This subclass/group covers:*

hand operated levers for lifting objects,

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

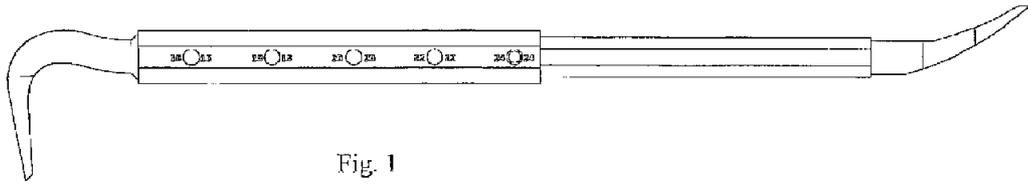


Fig. 1

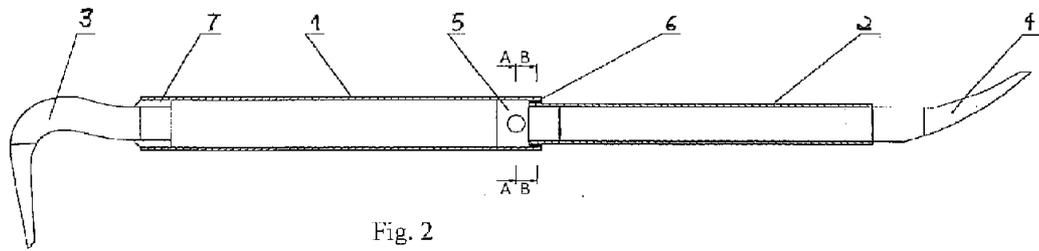
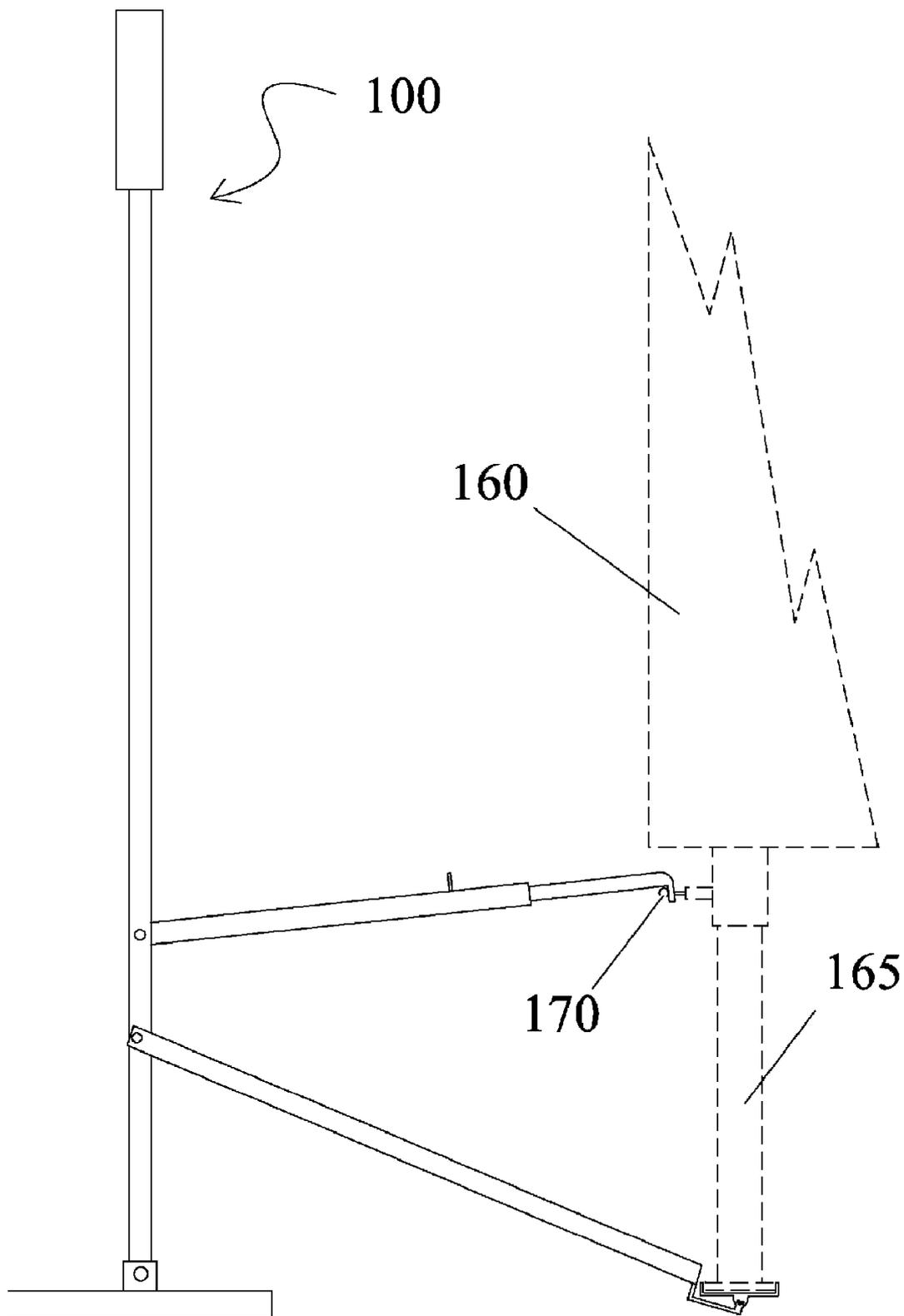


Fig. 2



**References relevant to classification in this group**

*This subclass/group does not cover:*

Levers for removing nails	<a href="#">B25C 11/00</a>
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Levers for lifting manhole covers	<a href="#">B66F 19/005</a>
Levers for lifting doors	<a href="#">E04F 21/0007</a>
Levers for wrecking buildings	<a href="#">E04G 23/08</a>

## B66F 17/00

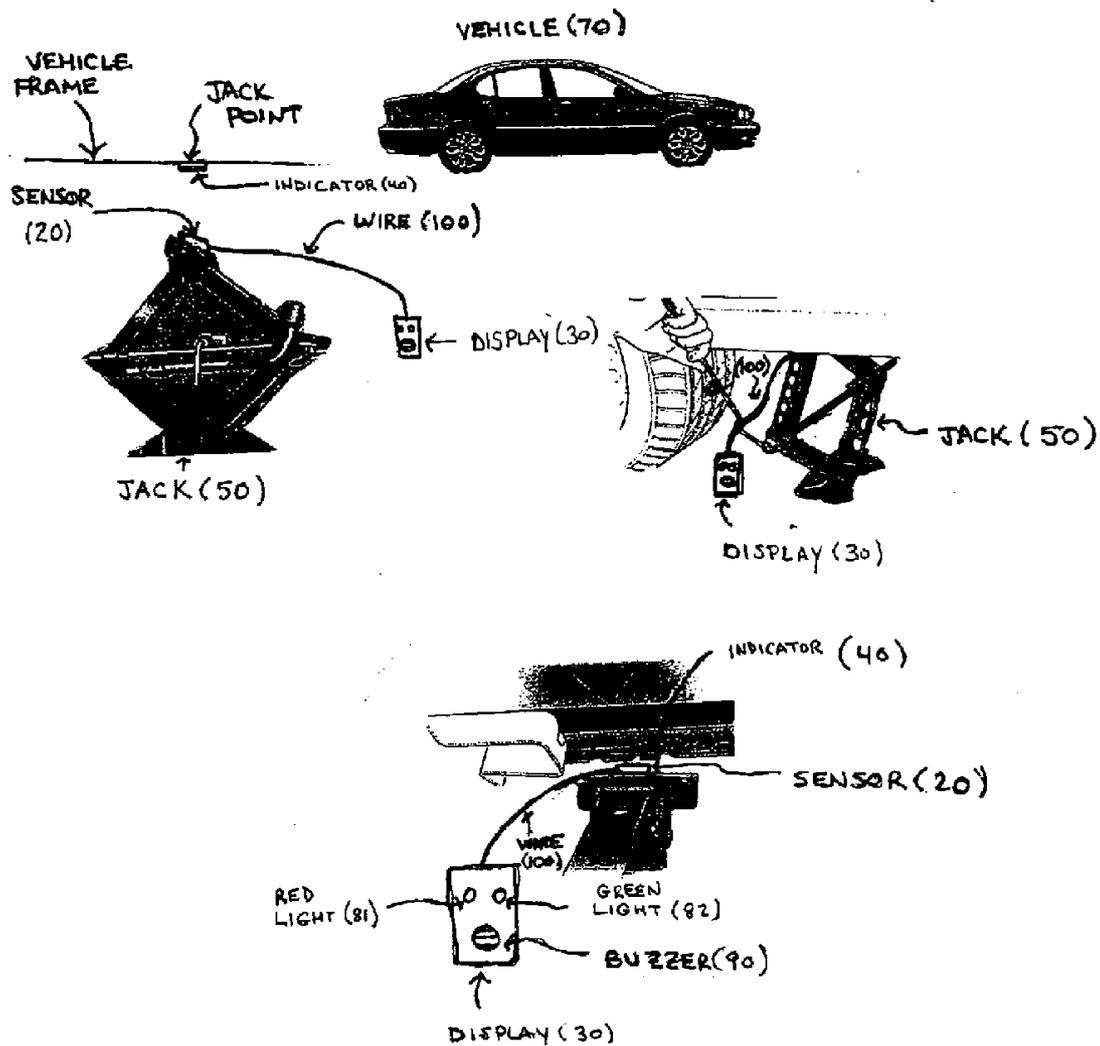
Safety devices, e.g. for limiting or indicating lifting force

### Definition statement

*This subclass/group 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 relevant to classification in this group

This subclass/group does not cover:

Safety of cranes	<a href="#">B66C 15/00</a>
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## B66F 17/003

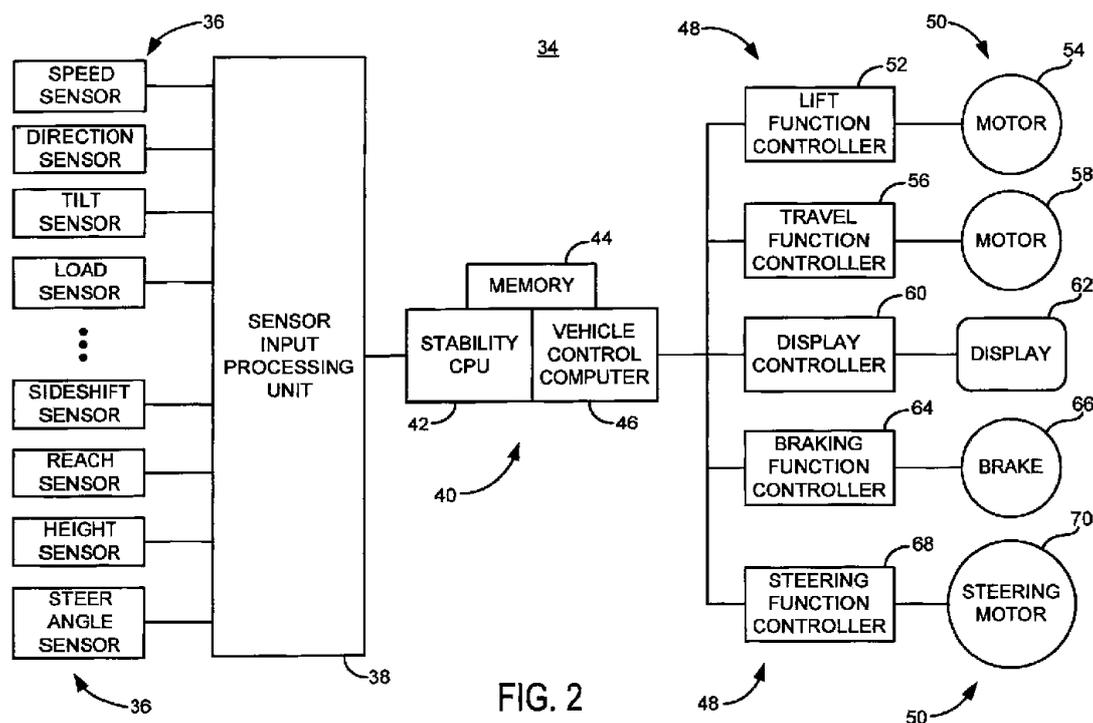
[N: for fork-lift trucks]

### Definition statement

This subclass/group covers:

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

see for example US 2010/0250073.



## B66F 17/006

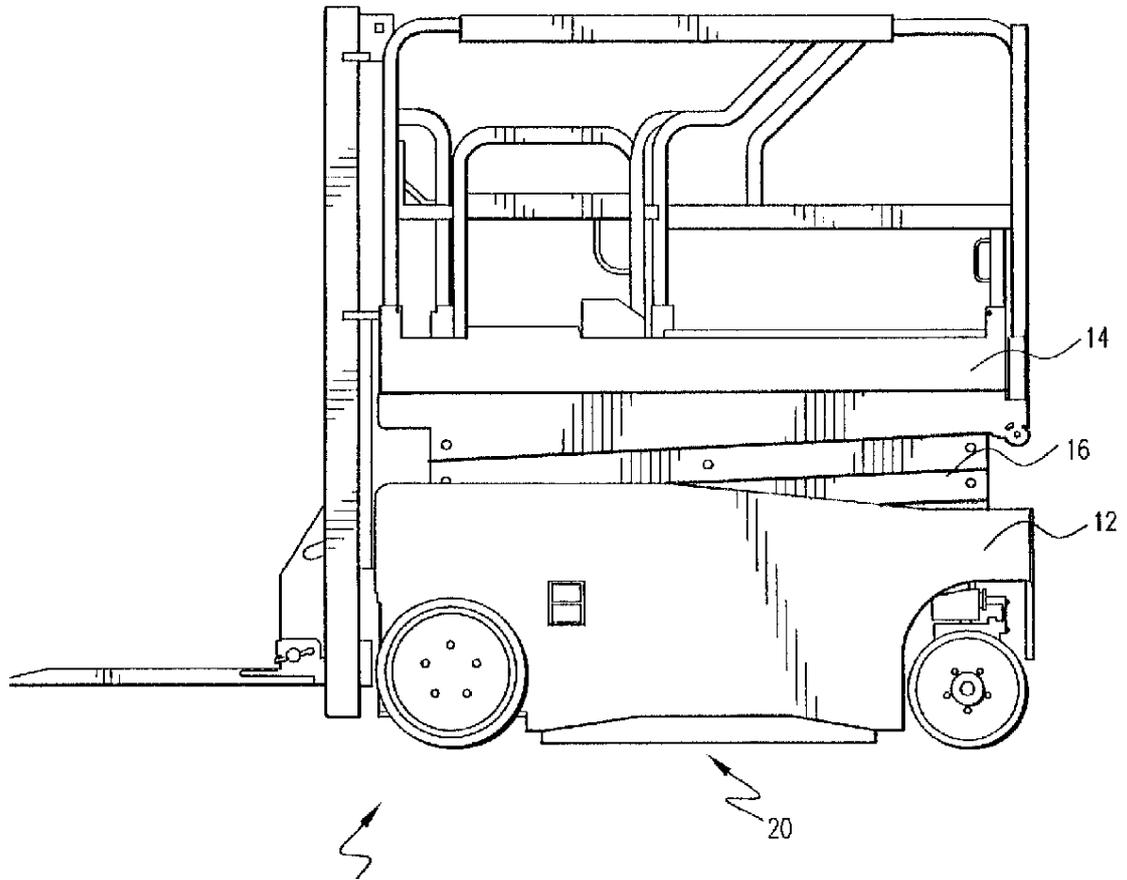
[N: for working platforms]

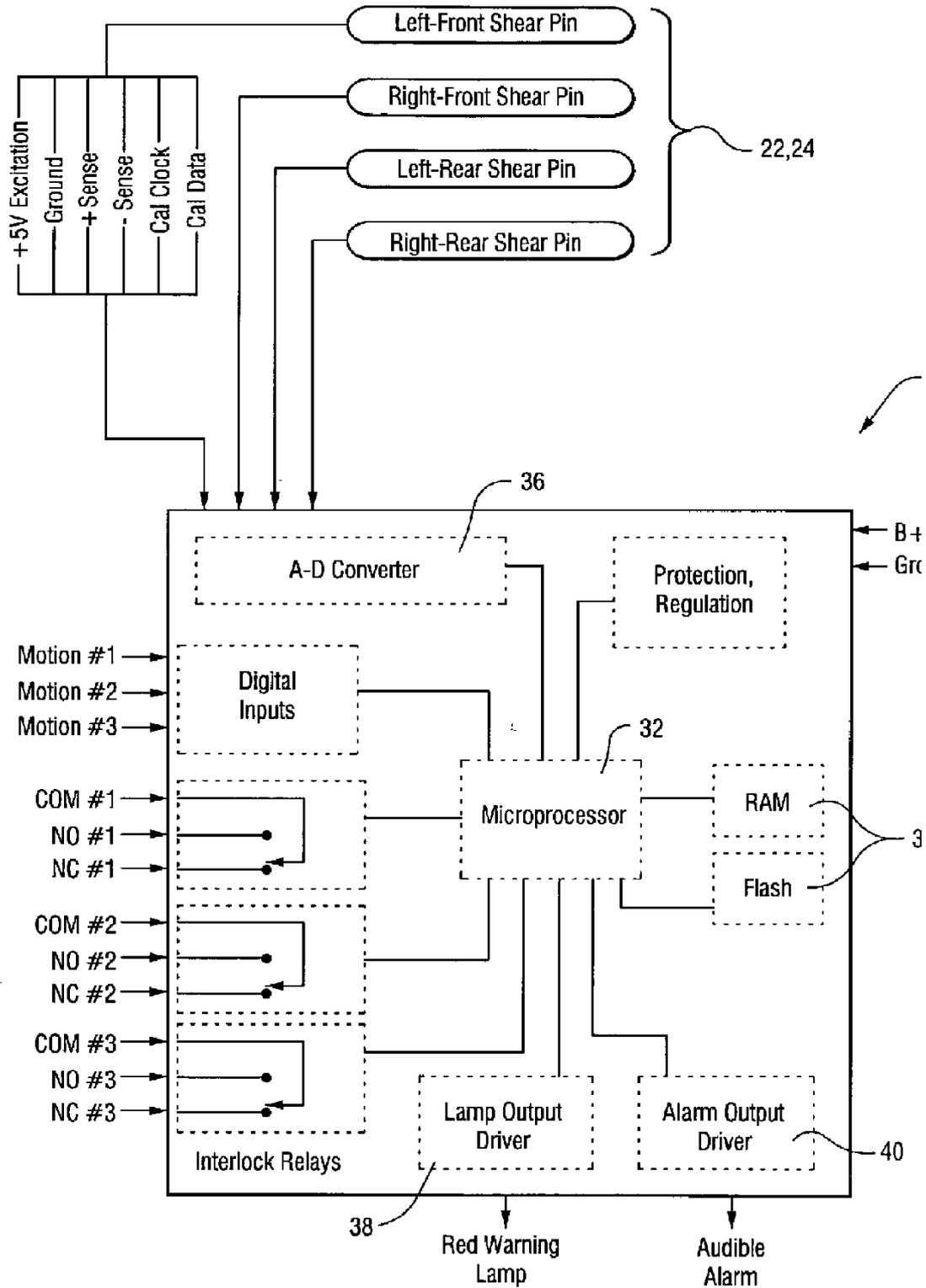
### Definition statement

This subclass/group 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

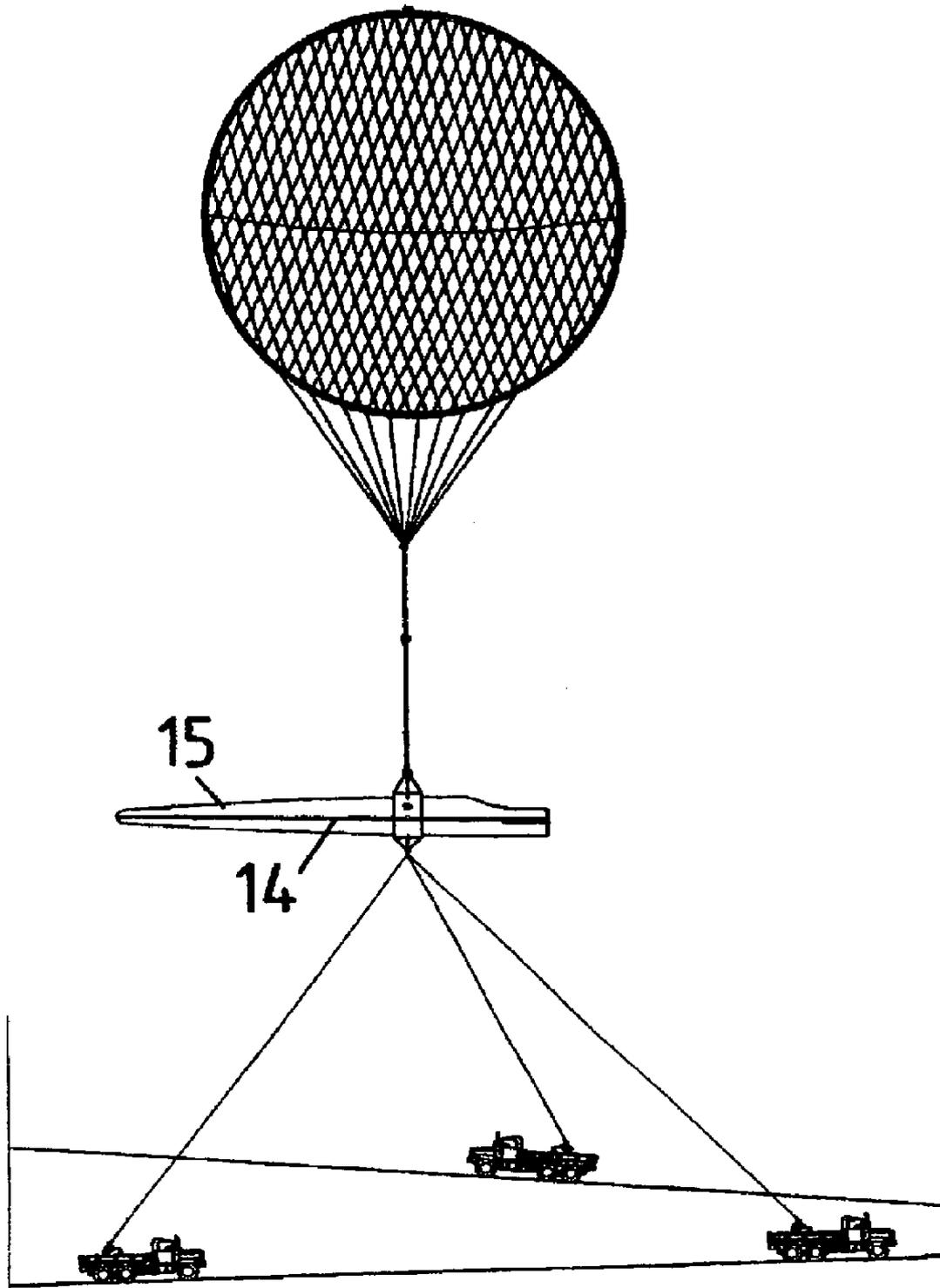
Hoisting, lifting, hauling or pushing, not otherwise provided for

**Definition statement**

*This subclass/group 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

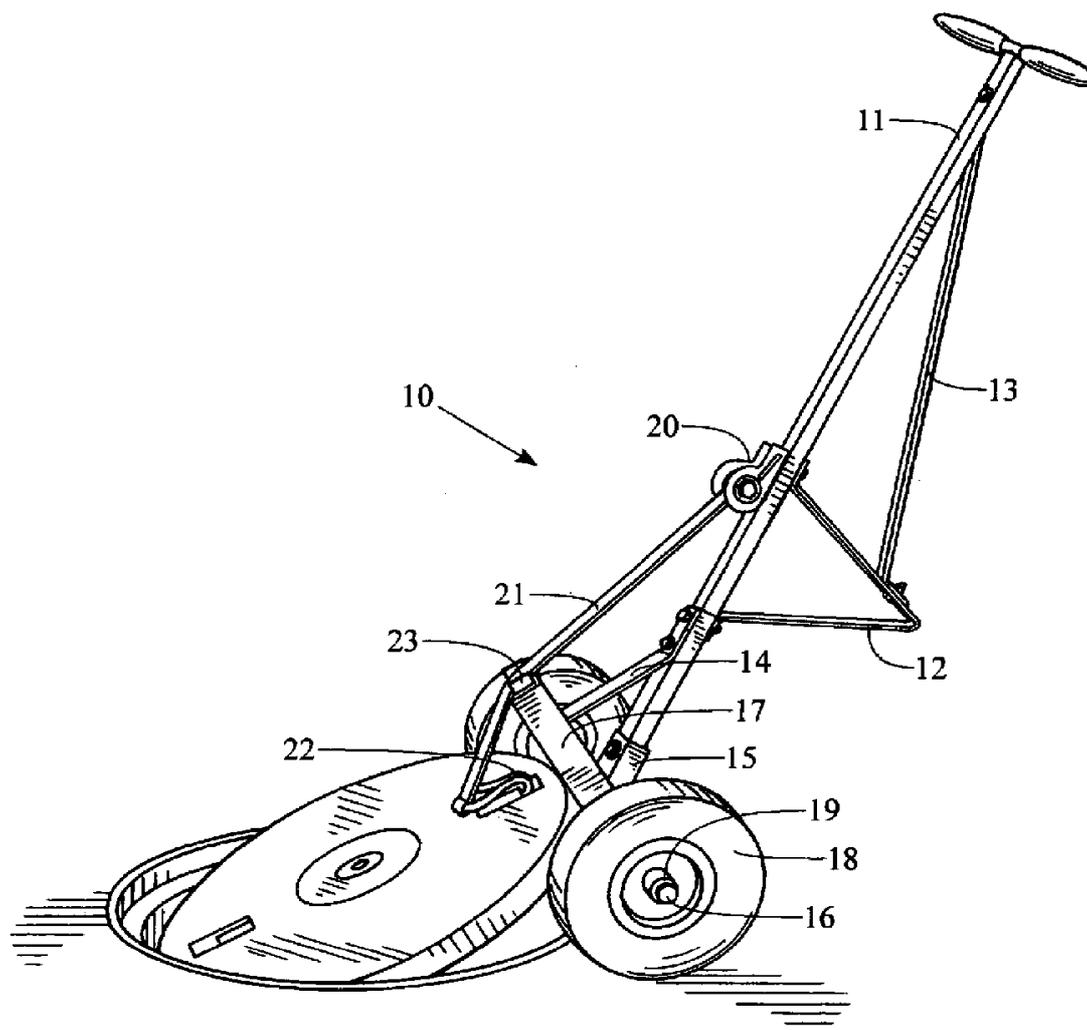
[N: Lifting devices for manhole covers]

### Definition statement

*This subclass/group covers:*

Illustrative example of subject matter classified in this group

see for example US 2011/0133140.



### References relevant to classification in this group

*This subclass/group does not cover:*

Lever for lifting general loads	<a href="#">B66F 15/00</a>
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