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(72) Inventors:  
• **SHIMADA, Masaru**  
**Chikugo-shi**  
**Fukuoka 833-0055 (JP)**  
• **IKEMATSU, Takashi**  
**Chikugo-shi**  
**Fukuoka 833-0055 (JP)**

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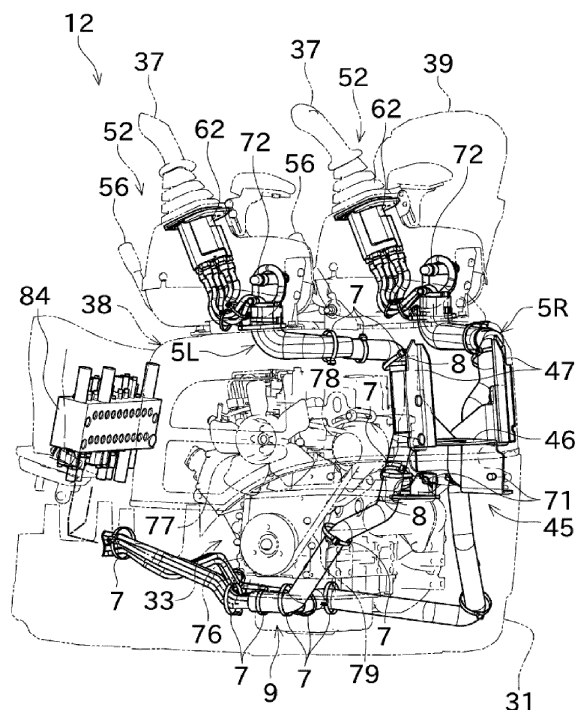
(74) Representative: **Vigand, Philippe et al**  
**Novagraaf International SA**  
**Chemin de l'Echo 3**  
**1213 Onex - Genève (CH)**

(71) Applicant: **Yanmar Co., Ltd.**  
**Osaka-shi, Osaka 530-8311 (JP)**

(54) **WORK VEHICLE**

(57) An engine hood (38) supported by a rotation shaft (71) in rear of an engine (33) is turnable about the rotation shaft (71), and turns relative to a revolving frame (31) for opening/closing. Console boxes (52) supported by hinge shafts (72) above the engine hood (38) are turnable about the hinge shafts (72). The console boxes (52) turn relative to the engine hood (38) to be changed between first posture and second posture. Hydraulic hoses (5L,5R) are connected to the console boxes (52). The console boxes (52) include work manipulation levers (37) whose manipulation is enabled while the console boxes (52) are in first posture and whose manipulation is disabled while the console boxes (52) are in second posture. A direction in which the engine hood (38) turns for opening coincides with a direction in which the console boxes (52) turn to be changed from first posture to second posture. The hydraulic hoses (5L,5R) extend along inner walls of the revolving frame (31) and the engine hood (38), and are partially close to the rotation shafts (71) and the hinge shafts (72).

Fig. 2



## Description

### Technical Field

**[0001]** The present invention relates to a work vehicle including a console box.

### Background Art

**[0002]** There has been known a work vehicle including console boxes disposed laterally to a driver's seat. Patent Literatures 1 and 2 (hereinafter, referred to as PTLs 1 and 2, respectively) disclose this type of work vehicle.

**[0003]** PTL 1 discloses a construction machine including an engine hood configured to open and close both of an opening on the upper side and an opening on the rear side of an engine room. The engine hood turns about a hinge attached to the front end of the engine hood. The engine hood includes an upper side portion having an upper surface on which a console box is disposed in such a manner that the console box is turnable together with the engine hood.

**[0004]** PTL 2 discloses a small construction machine including box covers turnable about an axis being at the upper edge of the front side of a main body cover. The box covers support their corresponding control boxes. Each of the box covers has a back surface to which a first end of a supporting column is attached via a bearing. A second end of the supporting column is fastened at a fastening hole in the main body cover. With this configuration, by lifting up the box covers and supporting rear ends of the box covers with the supporting columns, an opening for inspection and maintenance can be secured on the back surface sides of the box covers.

### Citation List

#### Patent Literature

#### **[0005]**

PTL 1: Japanese Patent Application Laid-Open No. 2010-265582

PTL 2: Japanese Patent No. 3610840

### Summary of Invention

#### Technical Problem

**[0006]** According to the configuration of PTL 1, however, if the console box is caused to turn toward the rear side of the engine hood with the engine hood opened, e.g., for the purpose of maintenance work, the engine hood may potentially be closed unintentionally as a result of the turning of the console box.

**[0007]** According to the configuration of PTL 2, the opening for inspection and maintenance secured by lifting up the box covers with the supporting columns is par-

tial and limited. For the purpose of effective maintenance on devices placed in the engine room through the opening, devices requiring maintenance need to be arranged to be exposed in the opening. Namely, PTL 2 involves the limitation on the layout of the devices, disadvantageously.

**[0008]** In addition, according to the configuration of PTL 2, maintenance on the engine and/or the like should be performed after the upper portion of the main body cover is entirely opened. However, according to the configuration of PTL 2, the top panel of the main body cover and the left and right box covers are independent of each other. Therefore, it is troublesome to open all the covers, and thus it is difficult to perform maintenance effectively. Thus, improvements have been required for the configuration of PTL 2 in terms of ease of maintenance.

**[0009]** The present invention was made in view of the above circumstances, and has an object to provide a work vehicle with ease of maintenance.

#### Solution to Problem and Advantageous Effects of Invention

**[0010]** The problem to be solved by the present invention has been described above. Next, the following will describe solutions to this problem and effects achieved by the solutions.

**[0011]** According to an aspect of the present invention, a work vehicle including the following features is provided. That is, the work vehicle includes a revolving frame, an engine hood, a console box, and a hydraulic hose. In the revolving frame, an engine is disposed. The engine hood is supported by a first shaft disposed in the rear of the engine such that the engine hood is turnable about the first shaft, and the engine hood is configured to turn relative to the revolving frame to be opened or closed. The console box is supported by a second shaft disposed above the engine hood, is turnable about the second shaft, and is configured to turn relative to the engine hood to be changed between a first posture and a second posture. The hydraulic hose is connected to the console box. The console box includes a work manipulation lever whose manipulation is enabled while the console box is in the first posture and whose manipulation is disabled while the console box is in the second posture. A direction in which the engine hood is caused to turn to be opened coincides with a direction in which the console box is caused to turn to be changed from the first posture to the second posture. The hydraulic hose is arranged to extend along an inner wall of the revolving frame and an inner wall of the engine hood and to be partially close to the first shaft and the second shaft.

**[0012]** With this configuration, even when the engine hood is opened and then the console box is caused to turn to disable manipulation of the work manipulation lever, it is possible to prevent a phenomenon that the opened engine hood is closed unintentionally, since the center of gravity of the entire turning configuration includ-

ing the engine hood and the console box is shifted in the opening direction of the engine hood. Consequently, it is possible to perform maintenance work free from care. In addition, since the hydraulic hose is positioned such that the hydraulic hose hardly interferes with the maintenance work, maintenance can be easily performed with the engine hood opened.

**[0013]** The work vehicle described above preferably includes the following features. That is, the hydraulic hose is fixed to the revolving frame or the engine hood with fixing members arranged at intervals along a longitudinal direction of the hydraulic hose. In a state where the engine hood is closed, a portion of the hydraulic hose which portion is located close to the first shaft and which is interposed between adjacent ones of the fixing members has slack.

**[0014]** With this configuration, it is possible to secure an extension allowance of the hydraulic hose at the location close to the first shaft, which is the rotation shaft of the engine hood, thereby making it possible to prevent a phenomenon that the hydraulic hose pulls the engine hood to hinder opening operation of the engine hood. Consequently, it is possible to open the engine hood smoothly.

**[0015]** Preferably, in the work vehicle described above, the hydraulic hose has a portion curved downward such that a side of the portion farther from the console box than is the first shaft faces downward, and the portion thus curved is partially close to the engine.

**[0016]** With this configuration, it is possible to arrange both of the engine and the hydraulic hose in a small space inside the engine hood.

**[0017]** The work vehicle described above preferably includes the following features. That is, the engine includes an output pulley, a fan pulley, and a belt. The output pulley is configured to receive rotation transmitted from an output shaft. The fan pulley is configured to drive a blower fan. The belt is wound around the output pulley and the fan pulley. The hydraulic hose has a portion that is close to the belt while extending in parallel with the belt.

**[0018]** With this configuration, it is possible to employ a short hydraulic hose, while preventing contact between the belt and the hydraulic hose.

#### Brief Description of Drawings

#### **[0019]**

[FIG. 1] A side view illustrating an overall structure of a work vehicle according to one embodiment of the present invention.

[FIG. 2] A perspective view showing hydraulic hoses that are disposed inside an engine hood and that are connected to work manipulation levers in console boxes.

[FIG. 3] A perspective view showing the hydraulic hoses viewed from a side different from that of FIG. 2.

[FIG. 4] A perspective view showing a state where

an engine hood is opened and the console boxes are in a second posture.

#### Description of Embodiments

**[0020]** The following will describe embodiments of the present invention with reference to the drawings. FIG. 1 is a side view illustrating an overall structure of a revolving work vehicle 1 according to one embodiment of the present invention. FIG. 2 is a perspective view showing hydraulic hoses 5L and 5R that are disposed inside an engine hood 38 and that are connected to work manipulation levers 37 in console boxes 52. FIG. 3 is a perspective view showing the hydraulic hoses 5L and 5R viewed from a side different from that of FIG. 2. FIG. 4 is a perspective view showing a state where the engine hood 38 is opened and the console boxes 52 are in a second posture.

**[0021]** The expressions "front", "rear", "left", and "right" in the following description respectively mean the front, rear, left, and right for an operator sitting on a driver's seat 39 in a state where both of a lower traveling body 11 and an upper revolving body 12 (each will be described later) face the front.

**[0022]** The revolving work vehicle (work vehicle) 1 of the present embodiment illustrated in FIG. 1 includes the lower traveling body 11 and the upper revolving body 12.

**[0023]** The lower traveling body 11 includes left and right paired crawler traveling devices 21 and hydraulic motors (not illustrated) configured to drive the crawler traveling devices 21. By individually driving the left and right crawler traveling devices 21 in various directions at various speeds, it is possible to drive the lower traveling body 11 so that the lower traveling body 11 travels in various ways, e.g., travels straight forward or backward or makes a turn.

**[0024]** The upper revolving body 12 includes a revolving frame 31, an engine 33, a hydraulic pump unit 34, the engine hood 38, a steering unit 35, and a work device 13.

**[0025]** The revolving frame 31 is disposed above the lower traveling body 11. The revolving frame 31 is supported by the lower traveling body 11 such that the revolving frame 31 is turnable about a vertical axis. By a revolving motor (not illustrated), the revolving frame 31 can be driven to turn relative to the lower traveling body 11. The engine 33 is a diesel engine, for example. The engine 33 is disposed in a rear portion of the revolving frame 31. The hydraulic pump unit 34 is driven by the engine 33 to generate hydraulic force that the revolving work vehicle 1 requires to travel and to perform work.

**[0026]** The engine hood 38 covers and protects an upper surface and the like of the engine 33. As illustrated in FIG. 2, the engine hood 38 has a rear portion coupled to the revolving frame 31 via a hinge portion 45, which is attached to a rear portion of the revolving frame 31.

**[0027]** The hinge portion 45 includes a base member 46 and left and right paired brackets 47. The base mem-

ber is fixed to the rear portion of the revolving frame 31 with a fixing member (not illustrated). Each of the brackets 47 is thin and elongated in a top-bottom direction, and is fixed to an inner wall of the rear portion of the engine hood 38.

**[0028]** This configuration makes the engine hood 38 turnable about a rotation shaft (first shaft) 71, which is disposed in the rear of the engine 33 and extends in a left-right horizontal direction, relative to the revolving frame 31. Specifically, by causing the engine hood 38 to turn upward and rearward, it is possible to open the engine hood 38. Meanwhile, by causing the engine hood 38 to turn in a reverse direction, it is possible to close the engine hood 38.

**[0029]** The steering unit 35 includes various manipulation members. As illustrated in FIG. 1, the manipulation members include left and right paired traveling manipulation levers 36 and left and right paired work manipulation levers 37. In the present embodiment, the work manipulation levers 37 correspond to the manipulation levers. The operator can manipulate these manipulation members to give various instructions to the revolving work vehicle 1.

**[0030]** The work device 13 includes a boom 41, an arm 42, and a bucket 43. The boom 41, the arm 42, and the bucket 43 are respectively coupled to hydraulic cylinders. By expanding and contracting the hydraulic cylinders, it is possible to perform various kinds of work, such as excavation with the bucket 43.

**[0031]** As illustrated in FIG. 2, the driver's seat 39, on which the operator can sit, is disposed at the center in a left-right direction of an upper surface of the upper revolving body 12. The driver's seat 39 is sandwiched by the left and right paired console boxes 52. In FIG. 2, the driver's seat 39 and the console boxes 52 are illustrated with the dashed lines in order to clearly show the hydraulic hoses 5L and 5R (described later) and other elements. The driver's seat 39 and the console boxes 52 are disposed on an upper surface of the engine hood 38 of the upper revolving body 12.

**[0032]** The structures of the left and right console boxes 52 are symmetric to each other, and thus are substantially identical to each other. Each of the console boxes 52 supports a corresponding one of the work manipulation levers 37 and a corresponding one of the lock levers 56.

**[0033]** The work manipulation levers 37 are disposed in upper portions of the console boxes 52 such that the work manipulation levers 37 protrude obliquely forward and upward. The operator can manipulate the work manipulation lever(s) 37 to give an instruction regarding an operation of the work device 13 or revolving of the upper revolving body 12.

**[0034]** The work manipulation levers 37 are connected to remote control valves (operation valves) 62 disposed inside the console boxes 52, respectively. Each of the remote control valves 62 has one input port and four output ports. The input ports of the remote control valves 62

are connected to pumps in the hydraulic pump unit 34 via the hydraulic hoses 5L and 5R (described later). The output ports of the remote control valves 62 are connected to a control valve 84, which is disposed in a front portion of the upper revolving body 12, via the hydraulic hoses 5L and 5R. Each of the remote control valves 62 opens or closes a space between the input port and the output ports according to operator's manipulating a corresponding one of the work manipulation levers 37 in a front-rear direction and/or a left-right direction. When the output ports are opened, operating oil is supplied from a corresponding one(s) of the remote control valves 62 to the control valve 84.

**[0035]** The control valve 84 includes a plurality of spools (not illustrated) for driving or stopping the hydraulic actuators of the work device 13 and the like. The spools of the control valve 84 are displaced by pilot pressures of streams of operating oil from the remote control valves 62. This can actuate the hydraulic actuators to cause the upper revolving body 12 to revolve and/or to cause the work device 13 to perform various kinds of work.

**[0036]** The lock levers 56 are disposed in lower portions of front surfaces of the console boxes 52 such that the lock levers 56 protrude obliquely forward and upward. The lock levers 56 are manipulated to change the postures of the console boxes 52.

**[0037]** Specifically, the console boxes 52 are supported such that the console boxes 52 are turnable about hinge shafts (second shafts) 72 disposed in the rear of the console boxes 52. The operator can manipulate the lock levers 56 to change the postures of the console boxes 52 between a normally-used first posture, which is indicated by the solid lines in FIG. 1, and a second posture, which is indicated by the dotted lines in FIG. 1, in a manner indicated by the hollow arrow in FIG. 1. The first posture is a normal posture allowing the operator to manipulate the work manipulation levers 37. The second posture is achieved as a result of upward and rearward movement of the console box from the first posture. For example, the second posture is selected to temporarily retract the console boxes 52 into an upward and rearward space so that the operator can get on or off the revolving work vehicle 1.

**[0038]** A direction in which the closed engine hood 38 is caused to turn to be opened coincides with a direction in which the console boxes 52 are caused to turn to be changed from the first posture to the second posture. Thus, in a case where the console boxes 52 are caused to turn from the first posture to the second posture after the engine hood 38 is opened, the center of gravity of the entire turning configuration including the engine hood 38 and the console boxes 52 is shifted in the opening direction of the engine hood 38. Consequently, it is possible to keep the engine hood 38 opened in a stable manner.

**[0039]** The revolving work vehicle 1 includes a hydraulic circuit having a lock function that disables manipulation of the work manipulation levers 37 while the console

boxes 52 are in the second posture. Thus, even if the operator's hand or the like unintentionally comes into contact with the work manipulation lever(s) 37 of the console box(es) 52 being in the second posture, it is possible to prevent a phenomenon that an unexpected operation is executed in response to the contact. For example, the lock function can be achieved by controlling supply of operating oil to the remote control valves 62 in the following manner. That is, if a sensor and/or the like detects that the console boxes 52 are in the second posture, the supply of the operating oil to the remote control valves 62 is interrupted.

**[0040]** The paired hydraulic hoses 5L and 5R are disposed on the left side and the right side, and have flexibility. Each of the left and right hydraulic hoses 5L and 5R includes four hoses connected to the output ports of a corresponding one of the remote control valves 62. The following will describe details of the hydraulic hoses 5L and 5R.

**[0041]** The hydraulic hose 5L on the left side has a first end connected to the remote control valve 62 inside the console box 52 on the left side. The hydraulic hose 5L has a portion which extends from the connection with the remote control valve 62, which is curved in a substantial S-shape, and which is followed by a portion close to a hinge shaft 72. Following the portion close to the hinge shaft 72, a portion of the hydraulic hose 5L extends through an opening (not illustrated) in a lower surface of the console box 52 and an opening (not illustrated) at a left end of the upper surface of the engine hood 38. Following the portion extending through the openings, a portion of the hydraulic hose 5L is disposed inside the engine hood 38.

**[0042]** The portion of the hydraulic hose 5L inside the engine hood 38 is bent toward the rear side at a location just below the opening in the engine hood 38. Following the bent portion, a portion of the hydraulic hose 5L extends obliquely rightward and rearward substantially along the ceiling surface of the engine hood 38. A portion of the hydraulic hose 5L which portion is close to the hinge portion 45 is bent substantially at a right angle. Following the bent portion, a portion of the hydraulic hose 5L extends downward along a longitudinal direction of the bracket 47 on the left side. To the bracket 47, holding members (fixing members) 8 arranged in a top-bottom direction are fixed. The holding members 8 are each made of a round-bar-shaped member curved in a C-shape or a hook shape. A portion of the hydraulic hose 5L extends through a space defined by inner sides of the holding members 8. This portion of the hydraulic hose 5L is partially close to a rotation shaft 71.

**[0043]** This portion of the hydraulic hose 5L further extends to a location below the rotation shaft 71. Following the portion below the rotation shaft 71, a portion of the hydraulic hose 5L extends forward and downward so as to be slightly inclined leftward, so that the portion of the hydraulic hose 5L extends through a location below the left side of the engine 33. This portion of the hydraulic

hose 5L, which portion is close to the engine 33, is curved substantially in a V-shape protruding downward. From this portion (referred to as a curved portion 9), a portion of the hydraulic hose 5L extends substantially forward to a location below the left side of the control valve 84. Following this portion, a portion of the hydraulic hose 5L is bent upward as appropriate so as to be connected to the control valve 84.

**[0044]** The hydraulic hose 5R on the right side has a first end connected to the remote control valve 62 inside the console box 52 on the right side. A portion of the hydraulic hose 5R extending from the remote control valve 62 to a rotation shaft 71 at the hinge portion 45 is substantially laterally symmetric to that of the hydraulic hose 5L on the left side, which has been described above. Therefore, explanation of this portion is omitted here.

**[0045]** Following the above-described portion, a portion of the hydraulic hose 5R extends to a location below the rotation shaft 71. Following this portion, a portion of the hydraulic hose 5R extends forward and downward so as to be inclined rightward, so that the portion of the hydraulic hose 5R extend through a location below the right side of the engine 33 and a location below the right side of the hydraulic pump unit 34. Following this portion, a portion of the hydraulic hose 5R extends leftward, and further extends forward to the location below the left side of the control valve 84. Following this portion, a portion of the hydraulic hose 5R is bent upward as appropriate so as to be connected to the control valve 84.

**[0046]** In this manner, the hydraulic hoses 5L and 5R are arranged along the inner wall of the revolving frame 31 and the inner wall of the engine hood 38. With this configuration, the space surrounded by the revolving frame 31 and the engine hood 38 can be secured large. Consequently, various kinds of devices can be arranged in the space effectively.

**[0047]** Each of the left and right hydraulic hoses 5L and 5R has multiple portions which reside along its longitudinal direction and around which cable ties (fixing members) 7 are wound. With the cable ties 7, each of the hydraulic hoses 5L and 5R is fixed to the revolving frame 31, the engine hood 38, or the like. Some of the cable ties 7 are fixed at locations where the holding members 8 of the brackets 47 reside.

**[0048]** In a state where the engine hood 38 is closed as illustrated in FIGs. 2 and 3, a portion of each of the hydraulic hoses 5L and 5R which portion is interposed between a portion fixed with a holding member 8 close to a corresponding one of the rotation shafts 71 and a portion fixed with a cable tie 7 located the closest to this holding member 8 from among cable ties 7 above or below this holding member 8 is slightly curved and has slack. Thanks to the curved portions, it is possible to secure extension allowances of the hydraulic hoses 5L and 5R during opening operation of the engine hood 38, as illustrated in FIG. 4. Consequently, it is possible to prevent a phenomenon that the hydraulic hoses 5L and 5R pull the engine hood 38 to hinder the opening operation.

**[0049]** As illustrated in FIG. 2, an output pulley 76 is fixed to a crankshaft on the left side of the engine 33. In addition, a fan pulley 77 and a tension pulley 78 are disposed at appropriate portions on a surface of the left side of the engine 33. Around the output pulley 76, the fan pulley 77, and the tension pulley 78, an endless belt 79 is wound. In the present embodiment, the curved portion 9 of the hydraulic hose 5L on the left side includes a portion that is close to a portion of the belt 79 interposed between the output pulley 76 and the tension pulley 78 while extending in parallel with this portion of the belt 79. With this configuration, it is possible to arrange the engine 33 and the hydraulic hose 5L in a small space while preventing a phenomenon that the belt 79 gets tangled with the hydraulic hose 5L, for example.

**[0050]** As described above, the revolving work vehicle 1 of the present embodiment includes the revolving frame 31, the engine hood 38, and the console boxes 52. In the revolving frame 31, the engine 33 is disposed. The engine hood 38 is supported by the rotation shafts 71, which are disposed in the rear of the engine 33, so as to be turnable about the rotation shafts 71. The engine hood 38 is configured to turn relative to the revolving frame 31 to be opened or closed. Each of the console boxes 52 is supported by the hinge shaft 72, and is turnable about the hinge shaft 72, which is disposed above the engine hood 38. Each of the console boxes 52 is configured to turn relative to the engine hood 38 to be changed between the first posture and the second posture. The console boxes 52 respectively include the work manipulation levers 37 whose manipulation is enabled while the console boxes 52 are in the first posture and whose manipulation is disabled while the console boxes 52 are in the second posture. The direction in which the engine hood 38 is caused to turn to be opened coincides with the direction in which the console boxes 52 are caused to turn to be changed from the first posture to the second posture. The hydraulic hoses 5L and 5R, which are connected to the console boxes 52, are arranged to extend along the inner wall of the revolving frame 31 and the inner wall of the engine hood 38 and to be partially close to the rotation shafts 71 and the hinge shafts 72.

**[0051]** With this configuration, even when the engine hood 38 is opened and then the console boxes 52 are caused to turn to disable manipulation of the work manipulation levers 37, it is possible to prevent a phenomenon that the opened engine hood 38 is closed unintentionally, since the center of gravity of the turning configuration including the engine hood 38 and the centers of gravity of the console boxes 52 is shifted in the opening direction of the engine hood 38. Consequently, it is possible to perform maintenance work free from care. In addition, since the hydraulic hoses 5L and 5R are positioned such that the hydraulic hoses 5L and 5R hardly interfere with maintenance work, maintenance can be easily performed with the engine hood 38 opened.

**[0052]** In the revolving work vehicle 1 of the present embodiment, the hydraulic hoses 5L and 5R are fixed to

the revolving frame 31 or the engine hood 38 with the cable ties 7 or the holding members 7 arranged at intervals along the longitudinal directions of the hydraulic hoses 5L and 5R. In a state where the engine hood 38 is closed, the portion of each of the hydraulic hoses 5L and 5R which portion is located close to a corresponding one of the rotation shafts 71 and which is interposed between adjacent ones of the cable ties 7 or adjacent ones of the holding members 7 has slack.

**[0053]** With this configuration, it is possible to secure extension allowances of the hydraulic hoses 5L and 5R at the locations close to the rotation shafts 71 of the engine hood 38, thereby making it possible to prevent a phenomenon that the hydraulic hoses 5L and 5R pull the engine hood 38 to hinder opening operation of the engine hood 38. Consequently, it is possible to open the engine hood 38 smoothly.

**[0054]** As illustrated in FIG. 2, in the revolving work vehicle 1 of the present embodiment, the hydraulic hose 5L on the left side has a portion curved downward such that a side of the portion farther from the console box 52 than is the rotation shaft 71 faces downward, and the portion thus curved (curved portion 9) is partially close to the engine 33.

**[0055]** With this configuration, it is possible to arrange both of the engine 33 and the hydraulic hose 5L in a small space inside the engine hood 38.

**[0056]** In the revolving work vehicle 1 of the present embodiment, the engine 33 includes the output pulley 76, the fan pulley 77, and the belt 79. The output pulley 76 is configured to receive rotation transmitted from an output shaft. The fan pulley 77 is configured to drive a blower fan. The belt 79 is wound around the output pulley 76 and the fan pulley 77. The hydraulic hose 5L has a portion that is close to the belt 79 while extending in parallel with the belt 79.

**[0057]** With this configuration, it is possible to employ a short hydraulic hose 5L, while preventing contact between the belt 79 and the hydraulic hose 5L.

**[0058]** The preferred embodiments of the present invention have been described above. However, the configurations described above can be modified as below, for example.

**[0059]** The routes along which the left and right hydraulic hoses 5L and 5R extend may be changed as appropriate, as long as the routes extend along the inner wall of the revolving frame 31 and the inner wall of the engine hood 38 and are partially close to the rotation shafts 71 and the hinge shafts 72. Here, the inner walls encompass not only the inner surfaces of the side walls but also the lower surfaces of the ceiling walls and the upper surfaces of the floor walls.

**[0060]** Instead of the work manipulation levers 37 configured to be manipulated in the front-rear direction and the left-right direction, work manipulation levers 37 configured to be manipulated solely in a front-rear direction or a left-right direction may be employed.

**[0061]** Instead of the configuration including the left

and right paired console boxes 52, a configuration including a single console box 52 disposed only on a left or right side may be employed.

**[0062]** The present invention is applicable not only to the revolving work vehicle but also to work vehicles having other various configurations and other various purposes.

#### Reference Signs List

#### [0063]

1	revolving work vehicle (work vehicle)
5L, 5R	hydraulic hose
7	cable tie (fixing member)
8	holding member (fixing member)
31	revolving frame
33	engine
37	work manipulation lever (manipulation lever)
38	engine hood
52	console box
71	rotation shaft (first shaft)
72	hinge shaft (second shaft)

#### Claims

##### 1. A work vehicle comprising:

a revolving frame in which an engine is disposed; 30  
 an engine hood supported by a first shaft disposed in rear of the engine, the engine hood being turnable about the first shaft, the engine hood being configured to turn relative to the revolving frame to be opened or closed; 35  
 a console box supported by a second shaft disposed above the engine hood, the console box being turnable about the second shaft, the console box being configured to turn relative to the engine hood to be changed between a first posture and a second posture; and 40  
 a hydraulic hose connected to the console box, wherein  
 the console box includes a work manipulation lever whose manipulation is enabled while the console box is in the first posture and whose manipulation is disabled while the console box is in the second posture, 45  
 a direction in which the engine hood is caused to turn to be opened coincides with a direction in which the console box is caused to turn to be changed from the first posture to the second posture, and 50  
 the hydraulic hose is arranged to extend along an inner wall of the revolving frame and an inner wall of the engine hood and to be partially close to the first shaft and the second shaft. 55

2. The work vehicle according to claim 1, wherein the hydraulic hose is fixed to the revolving frame or the engine hood with fixing members arranged at intervals along a longitudinal direction of the hydraulic hose, and 5  
 in a state where the engine hood is closed, a portion of the hydraulic hose which portion is located close to the first shaft and which is interposed between adjacent ones of the fixing members has slack. 10

3. The work vehicle according to claim 1, wherein the hydraulic hose has a portion curved downward such that a side of the portion farther from the console box than is the first shaft faces downward, and the portion thus curved is partially close to the engine. 15

4. The work vehicle according to claim 3, wherein the engine includes

an output pulley configured to receive rotation transmitted from an output shaft,  
 a fan pulley configured to drive a blower fan, and  
 a belt wound around the output pulley and the fan pulley, and 20

the hydraulic hose has a portion that is close to the belt while extending in parallel with the belt. 25

Fig. 1

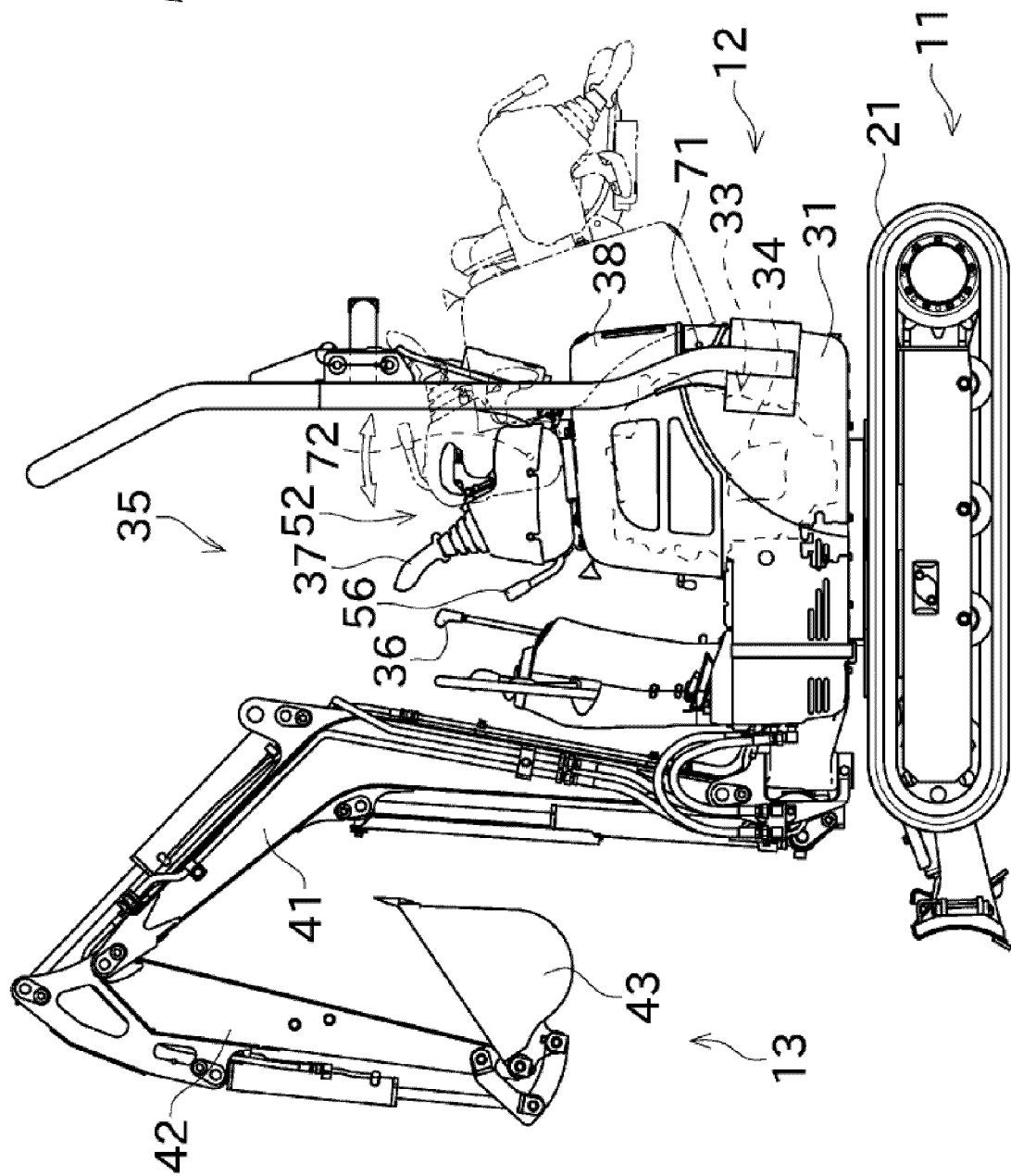




Fig. 2

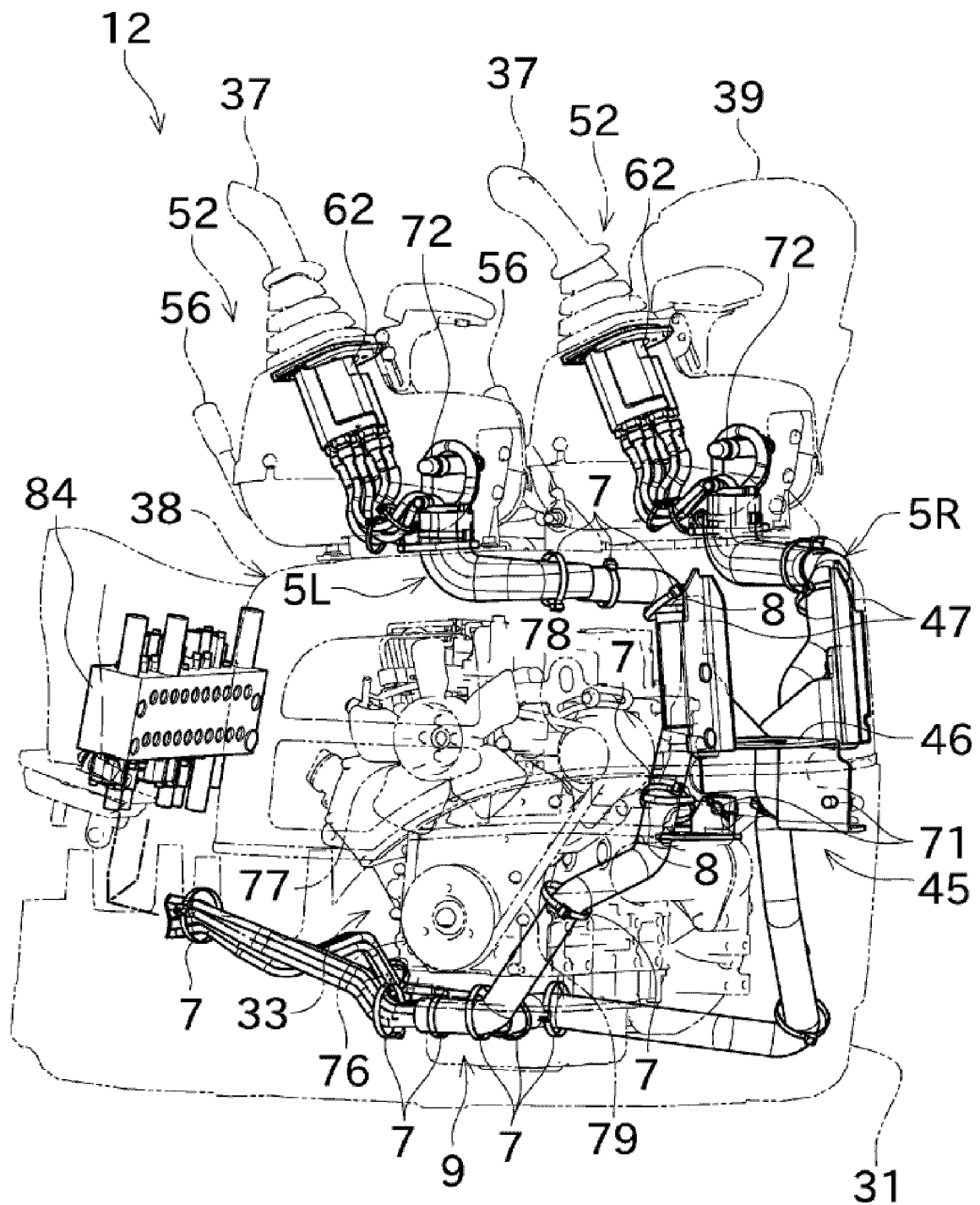


Fig. 3

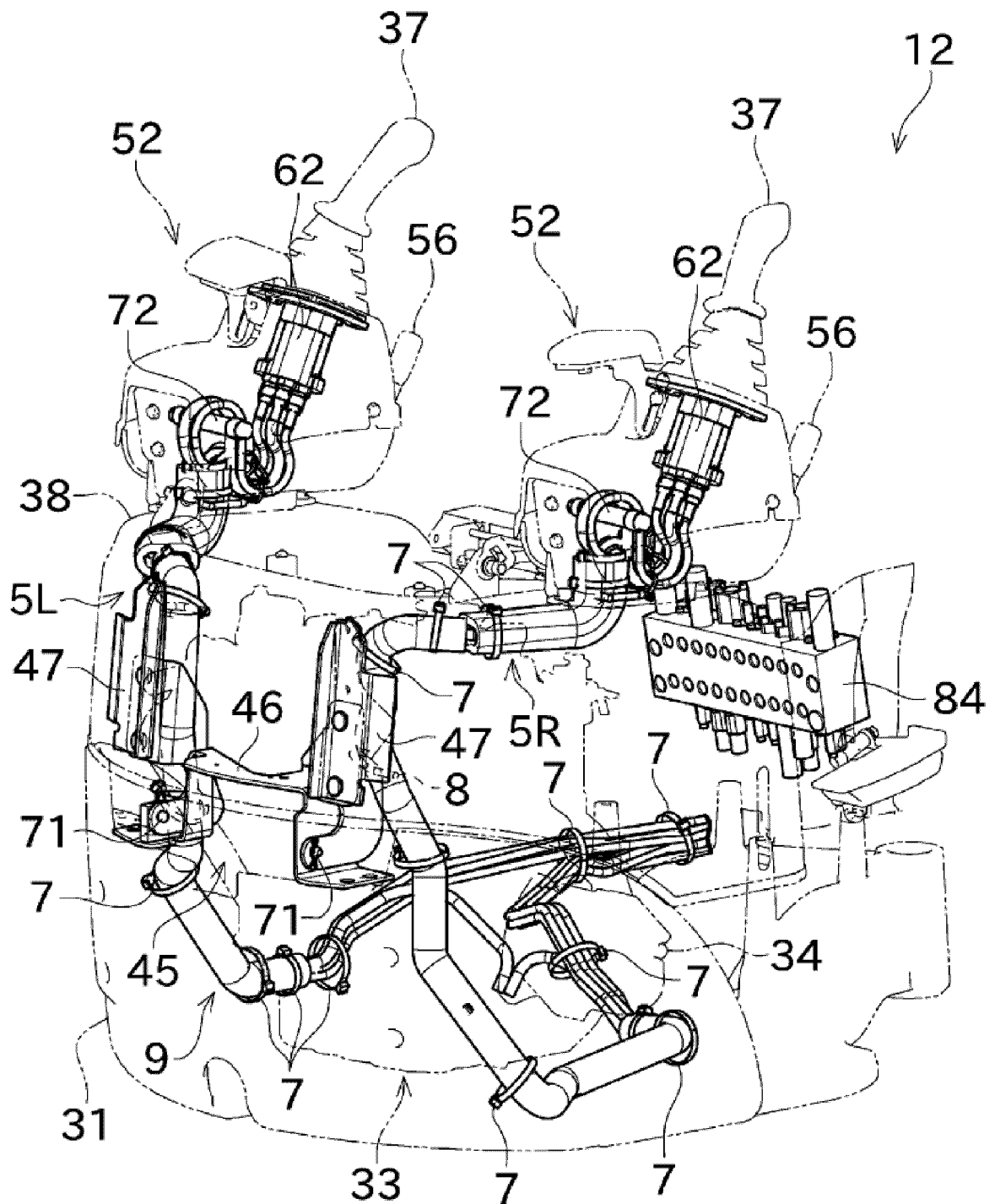
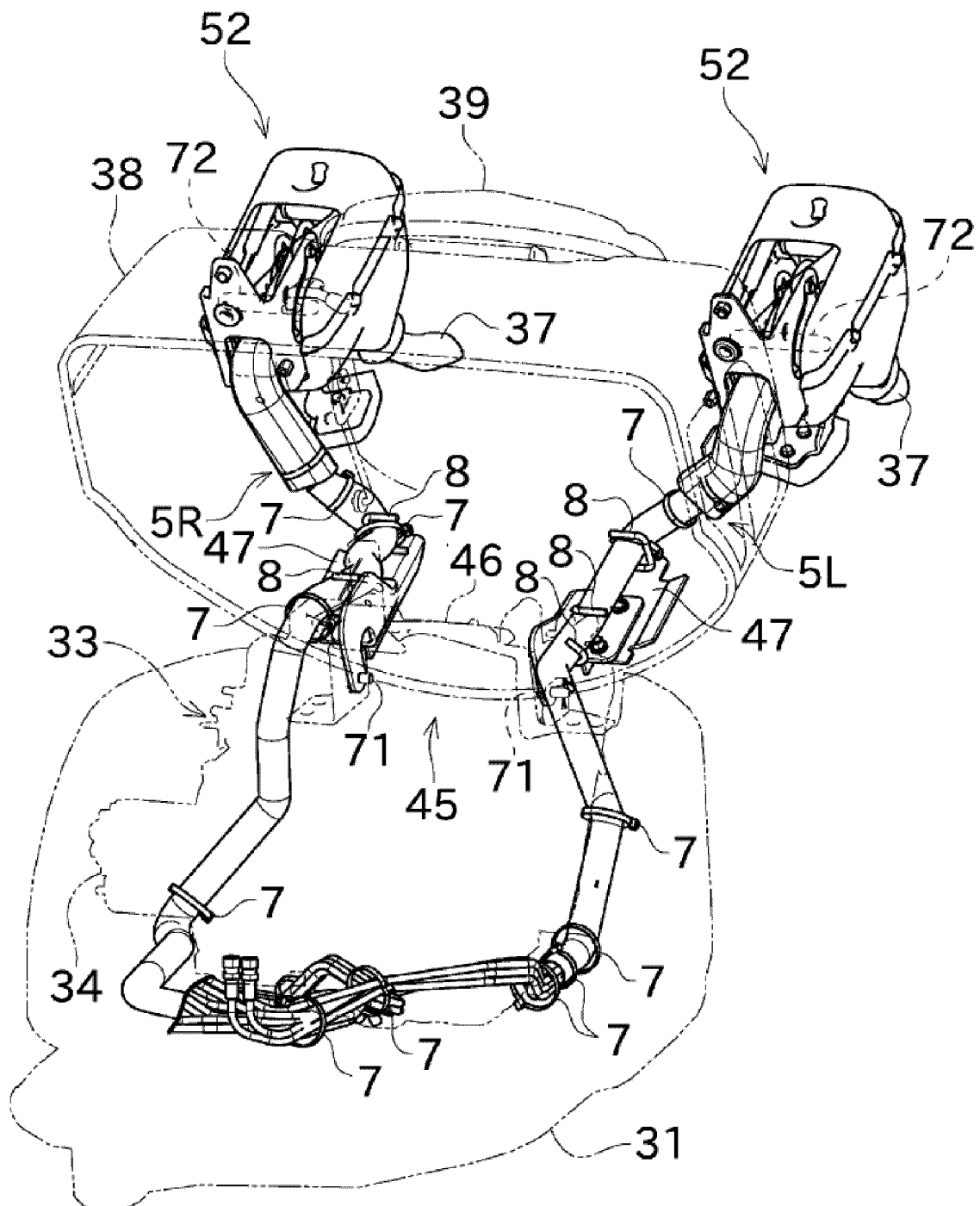


Fig. 4



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2018/025566

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. E02F9/16(2006.01)i, E02F9/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int. Cl. E02F9/16, E02F9/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922-1996

Published unexamined utility model applications of Japan 1971-2018

Registered utility model specifications of Japan 1996-2018

Published registered utility model applications of Japan 1994-2018

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 109492/1985 (Laid-open No. 16162/1987) (SEIREI INDUSTRY CO., LTD.) 30 January 1987, fig. 1-3 (Family: none)	1-4
A	JP 2010-265582 A (KOBELCO CONSTRUCTION MACHINERY CO., LTD.) 25 November 2010, claims, fig. 1-3 & EP 2253763 A1, claims, fig. 1-3 & KR 10-2010-0122452 A	1-4



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&amp;" document member of the same patent family

Date of the actual completion of the international search  
17.07.2018Date of mailing of the international search report  
31.07.2018Name and mailing address of the ISA/  
Japan Patent Office  
3-4-3, Kasumigaseki, Chiyoda-ku,  
Tokyo 100-8915, Japan

Authorized officer

Telephone No.

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- JP 2010265582 A [0005]
- JP 3610840 B [0005]