United States Patent

Gauchet

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[54] **PUBLIC WORKS MACHINES**

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[52] **U.S. Cl.** ..... **214/138 R,** 214/768

[51] **Int. Cl.** **B66f 9/00**

[58] **Field of Search** 214/768, 138, 133, 132

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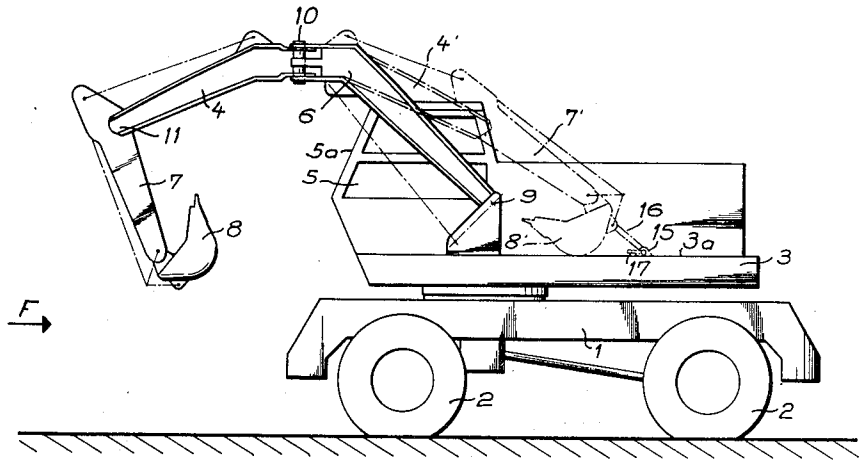
[57] **ABSTRACT**

This invention relates to a public works machine comprising a platform equipped with a driver's cabin which is fast therewith and is oriented in the direction of translation of the machine, and with an operating equipment comprising a jib articulated on the platform about an axis **9** disposed substantially to the side of the driver's cabin, while this jib is contituted by two elements articulated with respect to one another about an axis which is substantially perpendicular to the axis of oscillation of the jib on the platform, wherein the axis of articulation of the two elements of the jib may be in a substantially vertical position, in which it is disposed substantially plumb with the front face of the driver's cabin, while the relative rotation of the two articulated elements of the jib may be at least equal to 90° and while rotation preventing means may integrate the two elements of the jib.

4 Claims, 3 Drawing Figures



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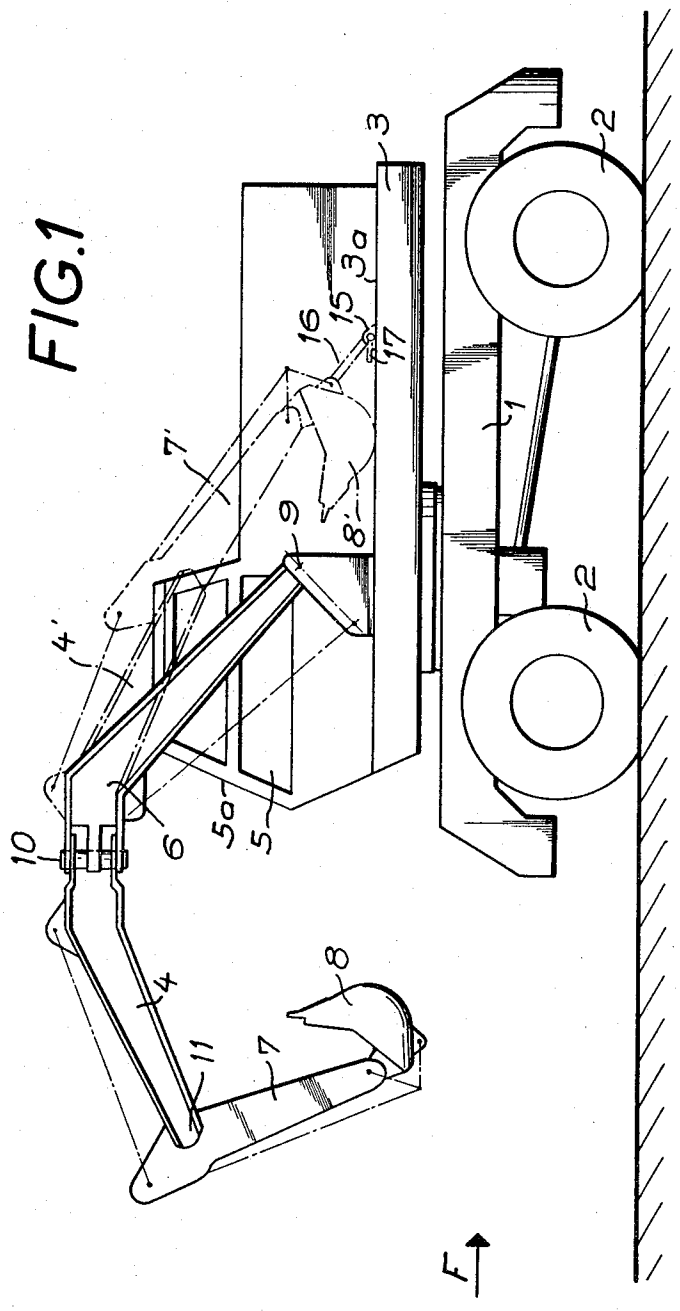
SHEET 1 OF 2

FIG.1



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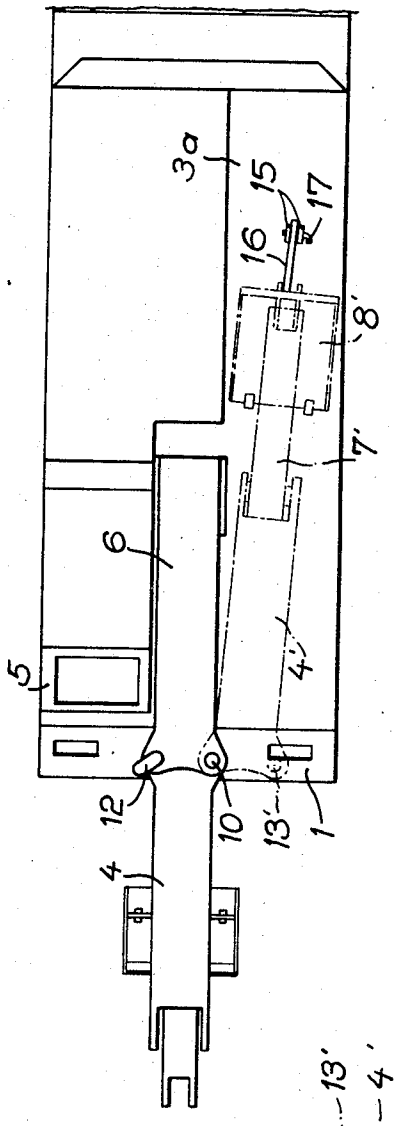
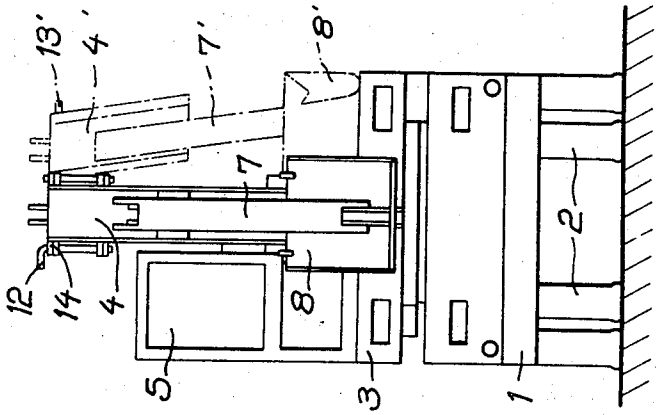


FIG. 3

FIG. 2



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PUBLIC WORKS MACHINES

Public works machines are known which are quipped with a jib mounted to oscillate on the chassis of the machine. This jib is sometimes constituted by two elements articulated together about an axis which may be vertical for a given inclination of the element of the jib articulated to the chassis with respect thereto. Such is the case, for example, of certain machines with an offset working, so that the working tool operates in a plane which is offset laterally with respect to the plane in which the element of the jib articulated to the chassis moves. In this case, a hydraulic ram is coupled between the two elements of the jib and may control a limited relative rotation of the two elements, this rotation being smaller than a few tens of degrees, through 30° in each direction for example.

It nevertheless remains that, in the machines equipped with a driver's cabin known heretofore, the operating equipment is continually disposed to the front of the driver's cabin; in the best of cases, this equipment is arranged to the front and to the side, as in the machines with an offset working.

The general result of these arrangements is a poor visibility of the ground in front of the driver'cabin, this being particularly awkward when the machine is moving, for example along the road.

The invention intends to remedy this state of affairs and to this end proposes a novel arrangement such that, when the operating equipment has a certain configuration, it is no longer disposed to the front of the driver's cabin but almost completely to the rear thereof, and therefore allows complete visibility of the ground in front of the driver's cabin, from said cabin.

The invention therefore has for its object an improved arrangement for a public works machine comprising a platform equipped with a driver's cabin is fast therewith and is oriented in the direction of translation of the machine, and with an operating equipment comprising a jib articulated to the platform about an axis disposed substantially to the side of the driver's cabin. This jib is contituted by two elements articulated with respect to one another an axis which is substantially perpendicular to the axis of oscillation of the jib on the platform.

When the axis of articulation of the two elements of the jib is vertical, it is disposed substantially plumb with the front face of the driver's cabin, while the relative rotation of the two articulated elements of the jib may be greater than 90° and preferably substantially equal to 180° and that rotation preventing means may integrate the two elements of the jib.

Second locking means are advantageously provided which are capable of integrating the element of the jib equipped with the operating tool and the zone of the platform located to the rear of the driver's cabin.

In order that the invention may be more clearly understood and to explain various secondary features and their advantages, one embodiment thereof will now be described by way of example with reference to the accompanying drawings, in which:

FIG. 1 is an elevational view of a machine with an arrangement according to the invention;

FIG. 2 is a view as seen in the direction of arrow F of FIG. 1;

FIG. 3 is a plane view of the machine shown in FIG. 1.

Referring now to the drawings, the machine with the arrangement according to the invention is constituted, in the embodiment chosen, by a chassis **1** provided with rolling members, here with wheels **2**. On the chassis **1** is rotatably mounted a platform **3** on which is disposed an operating equipment constituted by a jib articulated on the platform **3** about a horizontal axis **9** and by a balance beam **7** articulated to the jib and provided, at its free end, with a bucket **8**.

The jib is itself constituted by the elements **4** and **6**. These elements are articulated with respect to one another about an axis **10** perpendicular to the axis **9**. The element **6** is articulated to the platform **3** about the axis **9**, whilst the balance beam **7** is articulated to the element **4** about an axis **11**. Moreover, a driver's cabin **5** is fixedly mounted on the platform **3** and is oriented in the direction of movement of the machine, when the platform **3** is itself oriented so that, from the driver's cabin, one looks towards the front of the machine, as shown in FIG. **1**.

FIG. 1 shows that one of the notable points of the arrangement chosen is that, although the axis **9** is disposed to the side of the driver's cabin **5** and substantially at the same level thereas, neither to the front nor to the rear of the driver's cabin **5** and also close to the floor of said cabin **5**, the axis **10**, when it is vertical, is advantageously disposed higher than the upper part of the driver's cabin and substantially does not exceed the front face ***5a*** of said cabin. Consequently, the part of the operating equipment connected with the element **4** of the jib is disposed completely to the rear of the front face ***5a*** of the driver's cabin **5** when the element **4** has turned with respect to the element **6**, as shown in dashed and dotted lines in the Figures.

The relative rotation of the elements **4** and **6** is moreover substantially equal to 180° so that, in position **4'**, the element on which the beam is fixed has disposed the beam and the bucket at **7'** and **8'** to the rear of the driver's cabin **5**.

Rotation locking means are provided for integrating the elements **4** and **6** of the jib in operating position. In the embodiment shown, a pin **12** cooperates with apertures **13** and **14** made respectively in the elements **4** and **6**, aperture **13** being more clearly visible at **13'** in position **4'** of the element **4**. The pin **12** is of course able to be fast with the rod of a small control jack in order to have its engagement and disengagement in and from the apertures **13** and **14** remotely controlled from the driver's cabin for example. When the pin **12** is engaged in the apertures **13** and **14**, the elements **4** and **6** are generally in the same plane. However, they may also be contained in different planes forming a small angle therebetween.

Moreover, when the operating equipment connected with the jib element, on which the beam is articulated, is disposed at **4'–7'–8'**, it may be fixed to the zone ***3a*** of the platform **3** located to the rear of the driver's cabin **5**, by integration means. These means are for example constituted by a fastening member **15** welded to the platform **3** in the zone ***3a*** with which a connecting means such as a rod **16** articulated to the bucket cooperates, the fastening member **15** and the rod **16** being temporarily connected by a removable pin **7**.

The advantages of the arrangement according to the invention are considerable particularly when the machines which have adopted this arrangement are moving.

In fact, in displacement position, when the balance beam and the bucket are at **7'** and **8'**, as was emphasized hereinabove, forward visibility is completely unhindered.

It is very simple to pass from operating position (jib elements **4** and **6** fast with one another) to displacement position. The pin **12** is disengaged, possibly by remote control, and the part of the operating equipment connected to the jib element **4** is pushed by hand or by leaning against a shaft or a hydraulic ram and by rotating the platform **3** with respect to the chassis **1**, until said part reaches positions **4'–7'–8'**. The bucket **8'** is then placed on the zone ***3a*** of the platform. As an additional precaution, said bucket **8'** is fixed to the zone ***3a*** with the aid of integration or locking means **15–16–17**.

Finally, it will be noted that, provided that at least one of the elements **4** or **6** is judiciously shaped in the vicinity of the apertures **13** and **14**, the two elements, once integrated, may be contained in separate planes, so that the machine may be used for offset working. It is also very easy to imagine that, with the aid of a sector mounted to rotate on the element **6** for example and provided with a plurality of apertures **13** disposed at different distances from the axis of rotation of the sector on the element **6**, the angle of the planes of the elements **4** and **6** and therefore the amount of offset of the tool may be adjusted. Such a system may finally replace the locking means **15–16–17**, since in fact it enables the element **4'** to be held in a position facing the rear.

It may therefore be conceived that, due to the adaptation of the position of axis **10** and to the locking means provided, the

machine may operate in a manner which was hitherto unknown.

What is claimed is:

1. A public works machine comprising, a platform having a driver's cabin fixed thereon and oriented in the direction of translation of the machine, operating equipment including a jib having an inner part oriented in a first vertical plane and pivotally attached to the platform at one side and rearwardly of the driver's cabin for pivotal movement in said vertical plane and an outer part supporting an earthworking tool on its outer end and pivotally connected to the outer end of the jib inner part for horizontal swinging movement through an arc substantially greater than 90° relative to the inner part of the jib, between a first operative position extending outwardly from said inner part of the jib substantially in said first vertical plane and a second inoperative position extending rearwardly of the pivotal connection of the inner and outer jib parts in a second vertical plane substantially parallel to said first vertical plane, said pivotal connection between said jib parts lying in a plane which is immediately adjacent the front of the drivers cabin whereby movement of said outer part to said second position enables an unobstructed forward view from the drivers cabin, and means to lock the outer jib part against rotation and in alignment with the inner jib part to provide a unitary operative jib.

2. A public works machine as claimed in claim 1 wherein, the pivotal connection of the inner and outer jib parts is above the driver's cabin.

3. A public works machine as claimed in claim 1 wherein, the arc of horizontal rotation of the outer jib part relative to the inner jib part is at least 180°.

4. A public works machine as claimed in claim 1 wherein, there are second locking means located on the platform well back of the driver's cabin for securing the outer jib part to the platform when the outer jib part is in its second position.

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