A timber handling machine has a jib mounted on a tractor and is movable vertically and horizontally. The jib has a grasping element for grabbing a felled tree. The machine also has a pruning device provided with timber handling equipment, which is turnable in the vertical and horizontal planes and is mounted on a transporting chassis. The invention is particularly characterized by a timber supporting frame surrounding the pruning device and mounted on the chassis. Thus the jib can deposit the tree it has hauled upon this frame and the pruning device can pick up this tree from the frame.

7 Claims, 2 Drawing Figures
The present invention concerns a timber handling machine, consisting of a fetching jib turnable in the vertical and horizontal planes and mounted on a tractor or other transporting chassis, which jib has a grasping element for grabbing the felled tree, and furthermore of a pruning device provided with timber handling equipment, turnable in the vertical and horizontal planes and mounted on the transporting chassis. Many types of timber handling machines of this kind are previously known, but they all have the circumstance in common that the elements performing various work phases have been dependent on each others’ operation. As a result, delays have been caused by the transfer of the piece of timber from one treatment phase to the other. In other words, the machine has not been able to operate at full capacity. Especially the handling of small trees has become expensive, per unit cubic volume of wood, with existing machines.

The aim of the present invention is to afford a timber handling machine which eliminates the drawbacks mentioned above. This invention is mainly characterized in that on the chassis belonging to the machine, on which the pruning unit provided with timber handling equipment has been mounted, there is, surrounding the said unit, a supporting frame or equivalent for the timber, upon which frame or equivalent the fetching jib may deposit a piece of timber which it has fetched from any direction, and from which the pruning unit may grab the piece of timber. Since a timber handling machine according to the invention has been provided with a timber supporting frame, upon which the fetching jib may at any time deposit the piece of timber which it has fetched and from which the pruning unit may, after having pruned the preceding tree, pick up another tree, the operation of the fetching jib is not restricted by the operation of the pruning unit. It is advantageous if the timber supporting frame consists of a ring-shaped support attached to the chassis by the aid of brackets and provided with chute-like, e.g., V-shaped, timber support elements. The timber supporting elements may be replaceable. It is advantageous if the timber supporting frame provided with timber supporting elements is raisable and lowerable. Thanks to the timber supporting device it is easy with the aid of the fetching jib to drag in timber from various directions and to leave them on the supporting frame in such orientation in which they have been fetched to the machine. Since the timber supporting frame has been provided with M-shaped timber supporting elements located in continuation of each other, it follows that when several trees are simultaneously deposited on the supporting frame, they assume such positions that their ends are separate from each other, whereby the grasping element of the pruning unit is easily able to pick up one tree at a time for pruning. As a consequence, it is possible to pick up with the grasping element of the fetching jib several trees at a time and to drag them simultaneously upon the timber supporting frame, which increases the capacity of the machine. The pruning device may be furnished with automatics so that there is a selection station for each timber supporting element, whereby depressing the push-button of any desired selection station causes the pruning unit automatically to turn into proper position and to grab the tree with its grasping element.

The invention is described in greater detail in the following with reference to the embodiment shown in the attached drawings.

In the drawings,

FIG. 1 shows a timber handling machine according to the invention, seen from above, and
FIG. 2 shows the same device in elevational view.

The timber handling device shown in the drawing comprises a movable chassis 1, which may be a forestry tractor or any equivalent vehicle able to negotiate roadless terrain. On this there has been mounted a fetching jib 2, which is turnable in the vertical and horizontal planes and can be shortened and lengthened, and which belongs to prior art. In the drawing it consists of an articulated jib, but it may also be of the telescopic type. To the end of the fetching jib there has been articulatedly attached a grasping element 3, in itself belonging to prior art. It can be used to grab a tree that has been felled and to transport it into desired location. On the said chassis 1 there has been mounted the body 4, turnable about its vertical axis, of a pruning unit provided with timber handling equipment. To the body 4, the sleeve-like frame 5 has been articulatedly attached. It has been attached to the body 4 by the aid of hydraulic cylinders 6, which may be used to turn the sleeve-like frame in the vertical plane. To the front end of the sleeve-like frame 5 there has been attached a timber grabbing element 7, which may be of any model belonging to prior art, and a timber cross-cutting element 8. In the said sleeve-like frame there has been placed, to be movable in it, a tree-pruning jib 9, to the front end of which there has been attached a pruning and grasping element 10, which in itself belongs to prior art.

To the movable chassis 1 there has been attached by means of brackets 11 a ring-shaped support 12 encircling it on three sides, in such manner that is is located higher than the platform and outside it, in order that the pruning device may readily grab any the resting on the supporting frame. The ring-shaped support 12 has been provided with timber support elements 13, which are positioned to lie on each others’ continuation and which have an M-shaped cross-section. Accordingly, there are formed in the timber supporting device V-shaped chutes 14 and 15, which are intended for one piece of timber each. As a result, when the fetching jib deposits on the timber support device several trees which it has hauled in simultaneously, the end of each piece of timber will be deposited in a chute of its own, from which the grasping element of the pruning device may easily pick up one piece at a time. The timber supporting frame may also be provided with timber support elements in such manner that the support elements are replaceable and can be locked in desired positions. It is also possible for the supporting elements to have chutes of other V shape. The timber support elements may also be provided with small spikes, which prevent the timbers from falling down if it is necessary to move the timber handling machine over a short distance. It may be advantageous in some instances to make the timber supporting frame to be raisable and lowerable.

Also many other modifications of the embodiment presented above may be made within the scope of the invention.

I claim:

The present invention concerns a timber handling machine, consisting of a fetching jib turnable in the vertical and horizontal planes and mounted on a tractor or other transporting chassis, which jib has a grasping element for grabbing the felled tree, and furthermore of a pruning device provided with timber handling equipment, turnable in the vertical and horizontal planes and mounted on the transporting chassis. Many types of timber handling machines of this kind are previously known, but they all have the circumstance in common that the elements performing various work phases have been dependent on each others’ operation. As a result, delays have been caused by the transfer of the piece of timber from one treatment phase to the other. In other words, the machine has not been able to operate at full capacity. Especially the handling of small trees has become expensive, per unit cubic volume of wood, with existing machines.

The aim of the present invention is to afford a timber handling machine which eliminates the drawbacks mentioned above. This invention is mainly characterized in that on the chassis belonging to the machine, on which the pruning unit provided with timber handling equipment has been mounted, there is, surrounding the said unit, a supporting frame or equivalent for the timber, upon which frame or equivalent the fetching jib may deposit a piece of timber which it has fetched from any direction, and from which the pruning unit may grab the piece of timber. Since a timber handling machine according to the invention has been provided with a timber supporting frame, upon which the fetching jib may at any time deposit the piece of timber which it has fetched and from which the pruning unit may, after having pruned the preceding tree, pick up another tree, the operation of the fetching jib is not restricted by the operation of the pruning unit. It is advantageous if the timber supporting frame consists of a ring-shaped support attached to the chassis by the aid of brackets and provided with chute-like, e.g., V-shaped, timber support elements. The timber supporting elements may be replaceable. It is advantageous if the timber supporting frame provided with timber supporting elements is raisable and lowerable. Thanks to the timber supporting device it is easy with the aid of the fetching jib to drag in timber from various directions and to leave them on the supporting frame in such orientation in which they have been fetched to the machine. Since the timber supporting frame has been provided with M-shaped timber supporting elements located in continuation of each other, it follows that when several trees are simultaneously deposited on the supporting frame, they assume such positions that their ends are separate from each other, whereby the grasping element of the pruning unit is easily able to pick up one tree at a time for pruning. As a consequence, it is possible to pick up with the grasping element of the fetching jib several trees at a time and to drag them simultaneously upon the timber supporting frame, which increases the capacity of the machine. The pruning device may be furnished with automatics so that there is a selection station for each timber supporting element, whereby depressing the push-button of any desired selection station causes the pruning unit automatically to turn into proper position and to grab the tree with its grasping element.

The invention is described in greater detail in the following with reference to the embodiment shown in the attached drawings.

In the drawings,

FIG. 1 shows a timber handling machine according to the invention, seen from above, and
FIG. 2 shows the same device in elevational view.

The timber handling device shown in the drawing comprises a movable chassis 1, which may be a forestry tractor or any equivalent vehicle able to negotiate roadless terrain. On this there has been mounted a fetching jib 2, which is turnable in the vertical and horizontal planes and can be shortened and lengthened, and which belongs to prior art. In the drawing it consists of an articulated jib, but it may also be of the telescopic type. To the end of the fetching jib there has been articulatedly attached a grasping element 3, in itself belonging to prior art. It can be used to grab a tree that has been felled and to transport it into desired location. On the said chassis 1 there has been mounted the body 4, turnable about its vertical axis, of a pruning unit provided with timber handling equipment. To the body 4, the sleeve-like frame 5 has been articulatedly attached. It has been attached to the body 4 by the aid of hydraulic cylinders 6, which may be used to turn the sleeve-like frame in the vertical plane. To the front end of the sleeve-like frame 5 there has been attached a timber grabbing element 7, which may be of any model belonging to prior art, and a timber cross-cutting element 8. In the said sleeve-like frame there has been placed, to be movable in it, a tree-pruning jib 9, to the front end of which there has been attached a pruning and grasping element 10, which in itself belongs to prior art.

To the movable chassis 1 there has been attached by means of brackets 11 a ring-shaped support 12 encircling it on three sides, in such manner that is is located higher than the platform and outside it, in order that the pruning device may readily grab any the resting on the supporting frame. The ring-shaped support 12 has been provided with timber support elements 13, which are positioned to lie on each others’ continuation and which have an M-shaped cross-section. Accordingly, there are formed in the timber supporting device V-shaped chutes 14 and 15, which are intended for one piece of timber each. As a result, when the fetching jib deposits on the timber support device several trees which it has hauled in simultaneously, the end of each piece of timber will be deposited in a chute of its own, from which the grasping element of the pruning device may easily pick up one piece at a time. The timber supporting frame may also be provided with timber support elements in such manner that the support elements are replaceable and can be locked in desired positions. It is also possible for the supporting elements to have chutes of other V shape. The timber support elements may also be provided with small spikes, which prevent the timbers from falling down if it is necessary to move the timber handling machine over a short distance. It may be advantageous in some instances to make the timber supporting frame to be raisable and lowerable.

Also many other modifications of the embodiment presented above may be made within the scope of the invention.

I claim:
1. Timber handling machine, consisting of a fetching jib (2) turnable in the vertical and horizontal planes and mounted on a tractor or other transporting chassis, which jib has a grasping element for grabbing a felled tree, and furthermore of a pruning device provided with timber handling equipment, which is turnable in the vertical and horizontal planes and is mounted on the transporting chassis, characterized in that on the chassis on which the tree pruning device has been mounted there is around said device a timber supporting frame, on which the fetching jib (2) may deposit the tree it has hauled in and from which the pruning device may grab the tree.

2. Timber handling machine according to claim 1, characterized in that the supporting frame belonging to it has been provided with chute-like timber supporting elements.

3. Timber handling machine according to claim 2, characterized in that the frame belonging to it consists of a ring-shaped support fixed to the chassis by brackets, which has been provided with timber support elements.

4. Timber handling machine according to claim 2, characterized in that the timber support elements are displaceable upon the ring-shaped support.

5. Timber handling machine according to claim 4, characterized in that the timber support elements are located one beside the other and that their cross section is M-shaped.

6. Timber handling machine according to claim 2, characterized in that the timber support device is one which is raisable and lowerable.

7. Timber handling machine according to claim 2, characterized in that the pruning device belonging to it has been provided with automatics so that it has a selection station for each timber support element, so that upon depression of a push-button the pruning device automatically turns into correct position and its grasping device grabs the tree.