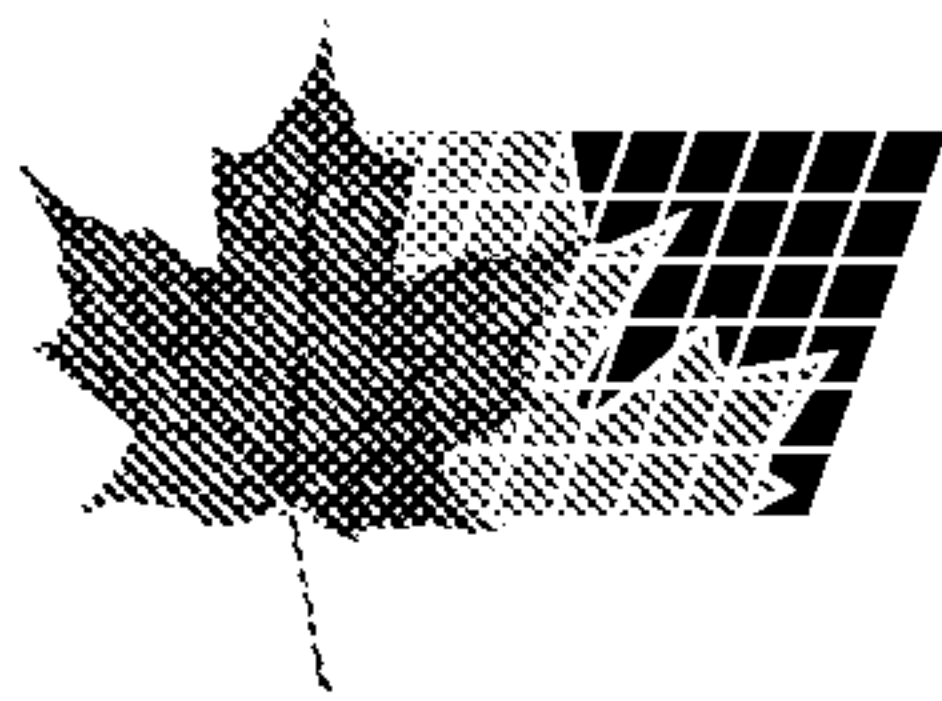
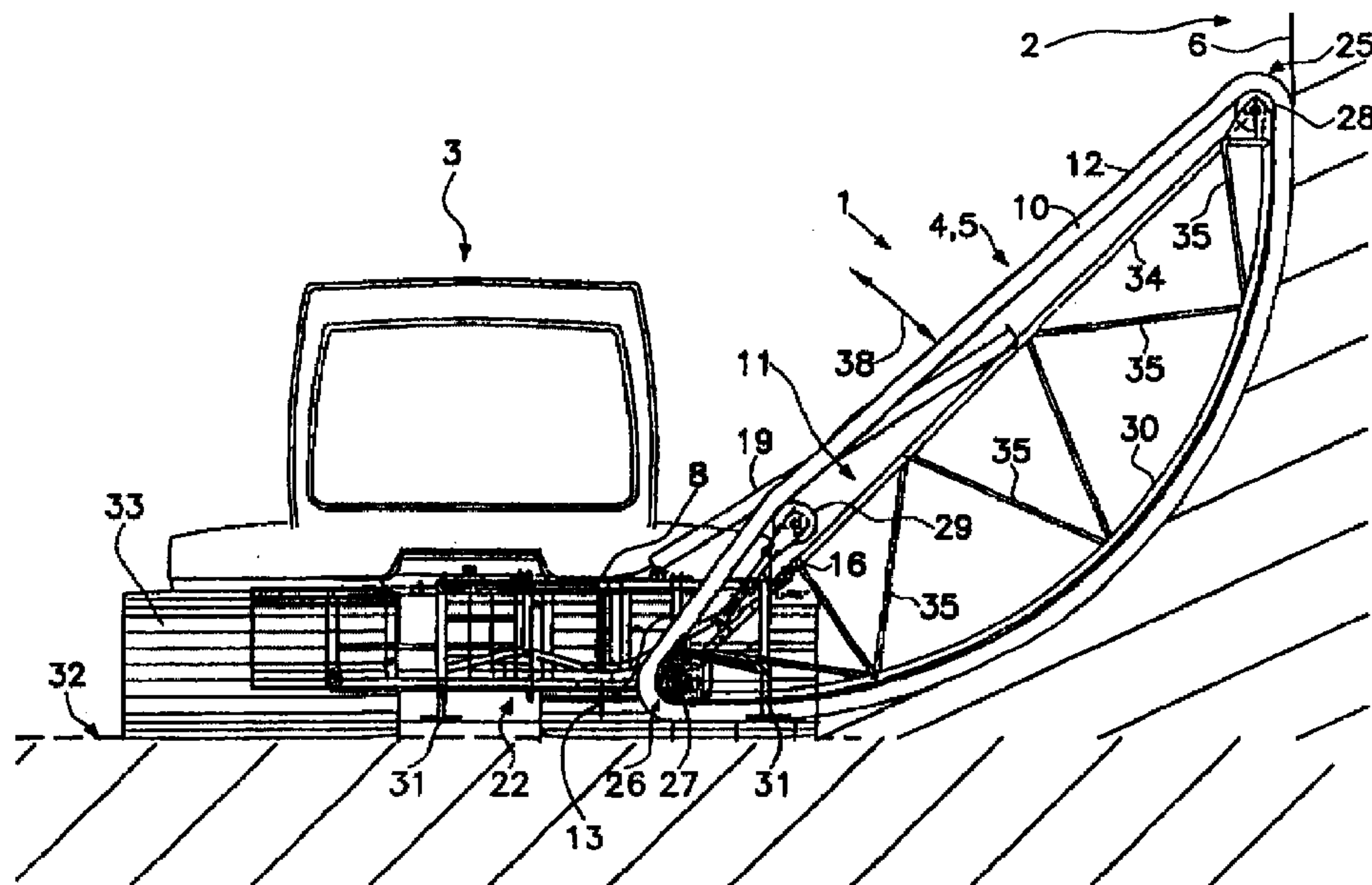




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(54) **DISPOSITIF DE FORMATION DE DEMI-LUNES**
(54) **DEVICE FOR FORMING HALF-PIPES**



(57) L'invention concerne un dispositif de formation de demi-lunes (1), destiné à préparer et/ou à entretenir une demi-lune (2) avec au moins un engin de déblaiement (4) pouvant être monté sur une dameuse (3) et placé de manière à pivoter par rapport à celle-ci. Dans sa position d'utilisation, cet engin de déblaiement peut être associé à une paroi latérale de la demi-lune (2). Afin d'améliorer le dispositif (1) de formation de demi-lunes de manière qu'une demi-lune (2) puisse être produite, définie avec un contour régulier, rapidement et aisément avec le moins de complexité possible en termes de travail, indépendamment de son tracé et des variations de section transversale, il est prévu que l'engin de déblaiement (4) puisse en outre se déplacer transversalement au sens de marche de la dameuse (3) et qu'il soit monté par rapport à la dameuse (3), de manière à pivoter autour d'un axe sensiblement vertical.

(57) The invention relates to a device (1) for forming half-pipes which prepares and/or maintains a half-pipe (2). The inventive device comprises at least one clearing device (4) which can be mounted on a skidoozer (3) and can pivot relative to said skidoozer. In an operation position, the clearing device can be assigned to at least one side wall of the half-pipe (2). In order to thus improve said device (1) such that a half-pipe (2) having uniform contouring can be quickly and easily constructed with as little work as possible independent of the course and changes in cross-section of said half-pipe, the invention provides that the clearing device (4) can additionally be displaced perpendicular to the driving direction of the skidoozer (3) and is mounted so as to pivot around an essentially vertical axis relative to the skidoozer.



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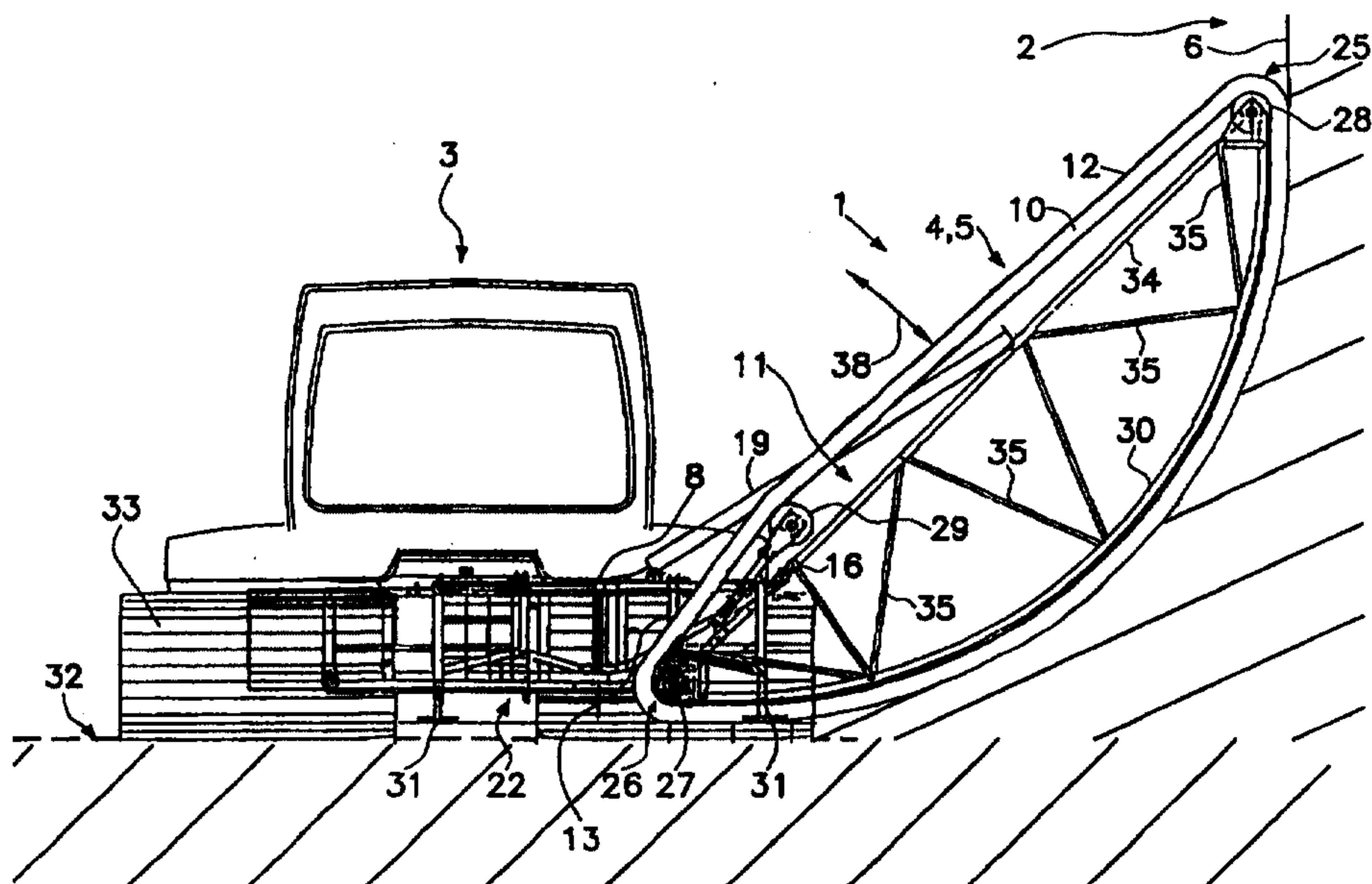
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Frist; Veröffentlichung wird wiederholt falls Änderungen
eintreffen.*

(54) Title: DEVICE FOR FORMING HALF-PIPES

(54) Bezeichnung: HALFPIPEANBAUVORRICHTUNG

(57) Abstract

The invention relates to a device (1) for forming half-pipes which prepares and/or maintains a half-pipe (2). The inventive device comprises at least one clearing device (4) which can be mounted on a skidozer (3) and can pivot relative to said skidozer. In an operation position, the clearing device can be assigned to at least one side wall of the half-pipe (2). In order to thus improve said device (1) such that a half-pipe (2) having uniform contouring can be quickly and easily constructed with as little work as possible independent of the course and changes in cross-section of said half-pipe, the invention provides that the clearing device (4) can additionally be displaced perpendicular to the driving direction of the skidozer (3) and is mounted so as to pivot around an essentially vertical axis relative to the skidozer.



"METHOD FOR FORMING HALF-PIPES"**DESCRIPTION**

The present invention relates to a halfpipe attachment unit for preparing and/or grooming a halfpipe, comprising at least one snow clearing means or rake means which is adapted to be attached to a snow grooming vehicle and which is supported such that it is pivotable relative to said snow grooming vehicle, said clearing means being adapted to be associated with at least one side wall of the halfpipe when it occupies its position of use.

Such a halfpipe attachment unit is known from DE 296 03 461.

This known halfpipe attachment unit is arranged laterally relative to a working unit, which is displaceably supported on the snow grooming vehicle, and is provided with a clearing means which is oriented substantially transversely to the direction of movement of the snow grooming vehicle. When occupying its position of use, said clearing means is adapted to be associated with at least one side wall of the halfpipe to be prepared or groomed.

It is true that the known halfpipe attachment unit already offers the possibility of extending lateral components, which define the clearing means, transversely to the direction of movement of the snow grooming vehicle. However, in view of the fact that a halfpipe does normally not extend along a straight line over its full length but comprises bends and can especially be implemented with different cross-sectional dimensions, in particular when the side walls thereof have a competition profile, such a halfpipe can only be prepared with difficulty and with an increased expenditure of work by means of the known halfpipe attachment unit. This applies especially to the shaping of the halfpipe contours in the area of bends or transitions between cross-sections of different dimensions.

It is therefore the object of the present invention to improve the halfpipe attachment unit mentioned at the start in such a way that a halfpipe can be produced rapidly and easily with the least possible expenditure of work and with uniform contours, independently of its shape and variations in cross-section.

In the case of the known halfpipe attachment unit this object is achieved in that the clearing means is additionally displaceable transversely to the direction of movement of the snow grooming vehicle and is supported such that it is pivotable about a substantially vertical shaft relative to the snow grooming vehicle.

The two relative movements between the clearing means and the snow grooming vehicle can be carried out simultaneously or separately from one another. Due to the displaceability transversely to the direction of movement, different cross-sectional dimensions of the halfpipe can be taken into account in a simple manner also without any changes in the direction of movement of the snow grooming vehicle. Due to the pivotability of the clearing means about the substantially vertical axis, the orientation of the clearing means relative to the vehicle and relative to the side walls of the halfpipe can be changed and this will be advantageous especially with respect to bends in the course of the halfpipe or transitions between halfpipe cross-sections of different dimensions. In addition, these possibilities of moving the clearing means or rather the halfpipe attachment unit relative to the snow grooming vehicle permit a purposeful treatment of one point of a side wall e.g. when the snow grooming vehicle is standing still and a fine adjustment of the halfpipe attachment unit relative to the snow grooming vehicle is possible in contrast to the comparatively coarse adjustment caused by changes in the direction of movement of the snow grooming vehicle.

The halfpipe attachment unit can be supported on the front end or on the rear end of the snow grooming vehicle. It is also imaginable that at least the clearing means of the halfpipe attachment unit is arranged e.g. laterally relative to the snow grooming vehicle and that it is there supported in a displaceable manner. In order to enable the driver of the snow grooming vehicle to supervise the clearing means more easily, said clearing means can be supported on one end, especially on the front end of the snow grooming vehicle in such a way that it is displaceable transversely to the direction of movement of the snow grooming vehicle.

The clearing means may have different structural designs. One example is the provision of lateral blades which are used for shaping the contours of the side walls of the halfpipe. The clearing means may be provided with clearing tools which, when said clearing means is at its position of use, are adapted to be moved transversely to the direction of movement of the snow grooming vehicle so that a halfpipe can be prepared and so that, even if the side

walls have hard surfaces, said side walls can be treated and a comparatively large amount of material can simultaneously be removed especially from the side walls of the halfpipe.

For permitting a continuous treatment of the side walls, the clearing tools may be arranged on a rotary chain which is supported such that it is movable around a clearing frame of the clearing means. The rotary chain moves continuously around the clearing frame and has suitable clearing tools on its outer surface which faces the side walls. Such clearing tools may be e.g. cross-ridges or other releasably attached scraper elements arranged on the chain. For more details of the structural design of the rotary chain and of the clearing tool reference is made to DE 296 03 461 which has been cited at the beginning.

The halfpipe attachment unit with its clearing means can be arranged laterally relative to a further working unit supported on the snow grooming vehicle. This further working unit can, for example, be used for preparing or grooming the halfpipe in the area of the snow grooming vehicle. The halfpipe attachment unit may, however, also be arranged on the snow grooming vehicle alone. In both cases it can be regarded as advantageous when the halfpipe attachment unit comprises a pivotable frame on which the clearing means is supported, said pivotable frame being supported on the snow grooming vehicle such that it is transversely displaceable relative to the direction of movement of said snow grooming vehicle and such that it is pivotable about the vertical shaft. In this way, the clearing means or rather the clearing frame is not articulated on the snow grooming vehicle such that it is directly displaceable and pivotable relative to said snow grooming vehicle so that the clearing means can be provided with a correspondingly simpler structural design.

For improving the contours of the halfpipe still further and for allowing simultaneously a pivotal movement of the clearing means between its position of use and e.g. a transport position, the clearing means can be pivotably supported on the pivotable frame.

For obtaining a simpler structural design of the pivotable frame and a simpler support of the clearing frame, the pivotable frame can have a substantially U-shaped structural design and the clearing frame can be pivotably supported on a support shaft extending transversely between the U-legs of the pivotable frame.

In this connection it must also be regarded as being advantageous when the support shaft is arranged at the free ends of the U-legs, whereby it will be more easily accessible and the clearing frame will be more easily pivotable.

For pivoting the clearing frame in a simple manner, a displacement means, in particular a hydraulic cylinder, may be arranged between the pivotable frame and the clearing frame. This hydraulic cylinder can, for example, be used for pivoting the clearing means relative to the pivotable frame from the driver's seat of the snow grooming vehicle.

For simple pivoting of the clearing means about the vertical shaft, the pivotable frame can, at the base interconnecting the two U-legs thereof, be supported on the snow grooming vehicle such that it is pivotable relative thereto about the substantially vertical shaft. In this connection, it is also possible that this substantially vertical shaft is arranged laterally relative to a further working unit of the snow grooming vehicle.

Normally, a snow grooming vehicle is provided with an attachment blade at the front and, if desired, also at the rear end thereof; a great variety of attachment units, such as snow propellers, smoothing boards and the like, can releasably be secured to these attachment blades. An electric or hydraulic supply of the attachment units via the attachment blade is possible as well. In the case of the halfpipe attachment unit according to the present invention, it must be regarded as advantageous when said the halfpipe attachment unit comprises at least one displacement frame which is supported on the attachment blade and which is displaceable transversely to the direction of movement of the snow grooming vehicle, the pivotable frame being supported on said displacement frame such that it is pivotable about the vertical shaft. In this case, the displaceability transversely to the direction of movement of the snow grooming vehicle is provided via the displacement frame, the pivoting about the substantially vertical shaft takes place between the pivotable frame and the displacement frame and the additional pivoting of the clearing means takes place between the pivotable frame and the clearing frame. These movements are therefore decoupled to a very large extent and can be carried out, more easily, separately and essentially independently of one another e.g. by the driver of the snow grooming vehicle.

For allowing a simple displacement of the displacement frame transversely to the direction of movement of the snow grooming vehicle, said displacement frame can be provided with

a transverse guide means. Along said transverse guide means displacement is effected e.g. by adjusting devices, especially by hydraulic adjusting devices. A corresponding hydraulic adjusting device can also be associated with the pivotable frame for pivoting said frame. The pivotable frame can also be pivoted by hand.

When the transverse guide means extends essentially over the whole operating width of the snow grooming vehicle, both side walls of a halfpipe can be prepared and/or groomed e.g. by a halfpipe attachment unit with only one clearing means. For this purpose, the displacement frame is displaced e.g. between its two end positions transversely to the direction of movement of the snow grooming vehicle and the clearing means is associated with the respective side wall by means of the pivotable frame. In addition, it will suffice to use only one clearing means for the halfpipe attachment unit when a halfpipe has only one side wall e.g. in the area of a bend.

For associating only one clearing means with both side walls of a halfpipe, it will also be of advantage when the pivotable frame is supported such that it is pivotable through an angle of substantially 180° . Making use of the pivotable frame, the clearing means can in this way be pivoted through 180° from a position of use associated with one side wall to a position of use associated with the opposite side wall. In this connection, it goes without saying that e.g. also a pivoting angle exceeding 180° is possible so that the clearing means can, for example, be pivoted between two end positions which are inclined outwards and rearwards relative to the snow grooming vehicle. In addition, when the pivoting angle is 180° or at least 90° , one or also two clearing means can be pivoted forwards in the direction of movement of the snow grooming vehicle. At such a position, it is e.g. possible to treat, again with the aid of the displacement frame, the area in front of the snow grooming vehicle, a possibility which will be useful for producing a fun park, jumping hills or the like. In addition, when the piste attachment unit has been pivoted to a position where it is orientated in the direction of movement of the snow grooming vehicle, it can be transported in a simple manner and without obstructing the view to any great extent.

For permitting the clearing means to be arrested at almost any position, the pivotable frame and/or the displacement frame can be adapted to be arrested at their respective positions.

In view of the fact that the side wall or side walls of a halfpipe have a substantially concave shape, the clearing frame can have substantially the shape of a circular segment. Rolls supporting and/or driving the rotary chain can be rotatably supported at the opposed ends of the clearing frame so that the rotary chain can be supported in movable manner in this connection.

For permitting, if necessary, a change in the tension of the rotary chain, at least one tightener for tightening the rotary chain can be pivotably supported on the clearing frame. This tightener is pivoted outwards from the clearing frame for increasing the chain tension. The support of this tightener can also be implemented such that said tightener is additionally extensible in the direction of the rotary chain.

In addition, it must be regarded as advantageous when at least one roll is implemented as a driving roll which is driven by a motor so that it will be easier to move the rotary chain without any necessity of providing additional drive means.

The rotary chain can be supported by a large number of rolls in the area of the clearing frame in which it abuts on a side wall of the halfpipe when the clearing means is at its position of use. For simplifying the structural design of the clearing means and for obtaining simultaneously good contours of the side wall of the halfpipe, the clearing frame can advantageously be provided with contour elements at least on its outer surface which is associated with a side wall of the halfpipe when the clearing frame occupies its position of use, said contour elements supporting the rotary chain. Instead of providing a plurality of contour elements, it is also possible to implement the whole outer side of the clearing frame as one continuous contour element.

The halfpipe attachment unit can be provided with support elements which are adapted to be extended in the direction of the ground so that said halfpipe attachment unit can be placed safely on the ground when not required. These support elements can be implemented as support legs. The support elements may be implemented as slide elements so that they can also be used when the halfpipe attachment unit is attached to the vehicle and when it is used.

In the following , a preferred embodiment of the present invention will be explained and described in detail making reference to the figures added in the form of the drawings, in which:

- Fig. 1 shows a front view of a halfpipe attachment unit attached to a snow grooming vehicle, the clearing means occupying the lateral position of use;
- Fig. 2 shows a top view of the halfpipe attachment unit and of the snow grooming vehicle according to Fig. 1 with two different pivotal positions of the clearing means;
- Fig. 3 shows a front view of the snow grooming vehicle according to Fig. 1, the clearing means occupying the transport position and
- Fig. 4 shows a side view of the snow grooming vehicle according to Fig. 1, the clearing means occupying its position of use in the direction of movement of the snow grooming vehicle.

Fig. 1 shows a front view of a halfpipe attachment unit 1 attached to the front end of a snow grooming vehicle 3. The halfpipe attachment unit 1 is provided with a snow clearing means or rake means 4 projecting laterally from the snow grooming vehicle 3 and associated with a side wall 6 of a halfpipe 2.

The snow grooming vehicle 3 is equipped with tracks 33 and an attachment blade or bowl 21 in a manner known per se, cf. Fig. 2.

The halfpipe attachment unit 1 comprises in addition to the clearing means 4 a pivotable frame 13, cf. Fig. 2, and a displacement frame 22 held on the attachment blade of the snow grooming vehicle 3.

In Fig. 1, the clearing means 4 is arranged at a lateral position of use 5. At this position of use, the side wall 6 of the halfpipe 2 is prepared or groomed, a rotary chain 12 with clearing tools 10 being in contact with at least part of the side wall 6 during this grooming process. The rotary chain 12 rotates on a clearing frame 11 at the ends of which 25 and 26 rolls 27 and 28 are rotatably supported, the rotary chain 12 extending around said rolls. At least roll

27 is implemented as a driving roll which is drivingly connected to a motor arranged in said clearing frame 11 as well.

The clearing frame 11 has, in principle, a lattice-type construction. It comprises at least one basic girder 34 and a contour element 30, a plurality of stiffening members 35 being arranged between said basic girder and said contour element. In the view according to Fig. 1, the clearing frame 11 has approximately the shape of a circular segment, the circular-arc-shaped contour line being defined by the contour element 30. The rotary chain 12 slides along the contour element 30 on the outer surface thereof. On the side of the clearing frame 11 located opposite the contour element 30, a tightener 29 is pivotably supported on the basic girder 34. This tightener 29 is adapted to be pressed against the inner side of the rotary chain 12 so as to tighten said chain.

The clearing frame 11 and consequently the clearing means 4 are supported on the pivotable frame 13 such that they are adapted to be pivoted about a support shaft 16, a hydraulic cylinder being arranged between the pivotable frame 13 and the basic girder 34 as a displacement means 19. The displacement frame 22 has arranged thereon support elements 31 which are adapted to be extended in the direction of the ground 32 and which are arranged in spaced relationship with the ground in Fig. 1.

Fig. 2 shows a top view of the snow grooming vehicle 3 according to Fig. 1 with a halfpipe attachment unit 1. The clearing means 4 is arranged on the right-hand side in Fig. 2 at the position according to Fig. 1 and, on the left-hand side, the clearing means 4 is shown at a position to which it has been pivoted through the pivoting angle 37. The two positions of the clearing means 4 shown in said figure are opposed positions, the pivoting angle being 180°. Pivoting through the angle 37 is carried out by pivoting the pivotable frame 13 about a vertical shaft 8. In the top view according to Fig. 2, the pivotable frame 13 is approximately U-shaped with two U-legs 14 and 15 and a base 20 interconnecting these U-legs. The base 20 is approximately V-shaped, the V-top of said base 20 being pivotably supported on the vertical shaft 8.

Between the two U-legs 14, 15, the clearing means 4 and, consequently, the clearing frame 11 are supported, cf. Fig. 1. At the free ends 17, 18 of the U-legs 14, 15, the support shaft 16, cf. Fig. 1, is supported for supporting the clearing frame 11 such that it is pivotable

relative to the pivotable frame 13 with the aid of the displacement means 19. The support shaft 16 extends in the plane of the figure shown in Fig. 2.

The vertical shaft 8 is held on the displacement frame 22 at the front of said frame 22 when seen in the direction of movement 7 of the snow grooming vehicle. The displacement frame 22 is shown in Fig. 2 at a right and at a left end position, said displacement frame 22 being adapted to be moved in displacement directions 36 relative to the attachment blade 21 transversely to said direction of movement 7. The displacement of the displacement frame 22 is carried out with the aid of a transverse guide means 23 extending in the direction of displacement 36.

The attachment blade 21 is held on a front end 9 of the snow grooming vehicle 3 in a manner known per se.

For displacing the displacement frame 22, said frame 22 has associated therewith an adjusting device 24 which is shown in principle. A further adjusting device used for pivoting the pivotable frame 13 through the pivoting angle 37 is not shown. The two adjusting devices can e.g. be hydraulically operable. The pivotable frame 13 can, however, also be adapted to be pivoted by hand.

Reference should here be made to the fact that also any intermediate position between the two end positions of the clearing means 4 shown in Fig. 2 is possible and, in particular, a position at which the 4 clearing means 4 is pivoted forwards in the direction of movement 7 of the snow grooming vehicle, cf. Fig. 4.

In Fig. 3, the snow grooming vehicle 3 of Fig. 1 is shown in a condition in which the clearing means 4 has been pivoted about the support shaft 16 to a position of transport. Identical reference numerals stand for identical parts and only part of these reference numerals is mentioned again.

At the position of transport, the clearing means 4 has been pivoted about the support shaft 16 with the aid of the displacement means 19 to a maximum extent in the pivoting direction 38, cf. Fig. 1, to a position in front of the snow grooming vehicle 3. At this position, the clearing means 4 is still arranged transversely to the direction of movement 7 of the snow

grooming vehicle, cf. also Fig. 2. The rotary chain 12 with clearing tools 10 is arranged in spaced relationship with the ground 32 and the side wall 6 of the half pipe 2, cf. Fig. 1, and the snow grooming vehicle 3 can travel for transporting the halfpipe attachment unit 1 away or to some other place.

Fig. 4 shows a side view of the snow grooming vehicle according to Fig. 3 in a condition in which the clearing means 4 has been pivoted forwards in the direction of movement 7 of the snow grooming vehicle, cf. Fig. 2. Identical components are again designated by identical reference numerals and only part of these components are mentioned again.

By means of the pivotable frame 13, which is also arranged in said direction of movement 7 in Fig. 4, the clearing means 4 is arranged at a position of use at which e.g. a ski-jump hill 40 for skiers or snowboarders can be produced or piled up. By means of the rotary chain 12 with clearing tools 10, the contours of a ramp of the ski-jump hill 40 are shaped..

According to Fig. 4, the clearing means 4 can be arranged in front of a track 33 of the snow grooming vehicle 3, cf. the position of the displacement frame 22 according to Fig. 1, as well as at a central position in front of the snow grooming vehicle 3, cf. the position of the displacement frame 22 according to Fig. 3. At both positions of the clearing means 4, said clearing means is adapted to be pivoted to a position of transport in the pivoting directing 38. This position of transport of the clearing means 4 corresponds to the position of the clearing means 4 relative to the pivotable frame 13 according to Fig. 3.

In Fig. 4 it can also be seen that the displacement means 19 is pivotably supported on the upper side of the pivotable frame 13 on a pillow block 39. The other end of the displacement means 19 is supported on the lateral surface of the clearing frame 11 such that it is pivotable about bearing means 41.

CLAIMS

1. A halfpipe attachment unit (1) for preparing and/or grooming a halfpipe (2), comprising at least one snow clearing means or rake means (4) which is adapted to be attached to a snow grooming vehicle (3) and which is supported such that it is pivotable relative to said snow grooming vehicle, said clearing means (4) being adapted to be associated with at least one side wall (6) of the halfpipe (2) when it occupies its position of use (5).

characterized in

that the clearing means (4) is additionally displaceable transversely to the direction of movement (7) of the snow grooming vehicle (3) and that it is supported such that it is pivotable about a substantially vertical shaft (8) relative to the snow grooming vehicle (3).

2. A halfpipe attachment unit according to claim 1,

characterized in

that the clearing means (4) is supported at one end (9) of the snow grooming vehicle (3) such that it is adapted to be displaced thereon transversely to the direction of movement (7) of said vehicle.

3. A halfpipe attachment unit according to claim 1 or 2,

characterized in

that the clearing means (4) is provided with clearing tools (10) which, when said clearing means is at its position of use, are adapted to be moved transversely to the direction of movement (7) of the snow grooming vehicle (3).

4. A halfpipe attachment unit according to at least one of the preceding claims,

characterized in

that the clearing tools (10) are arranged on a rotary chain (12) which is supported such that it is movable around a clearing frame (11) of the clearing means (4).

5. A halfpipe attachment unit according to at least one of the preceding claims,

characterized in

that the halfpipe attachment unit (1) comprises a pivotable frame (13) on which the clearing means (4) is supported, said pivotable frame (13) being supported on the snow grooming

vehicle such that it is transversely displaceable relative to the direction of movement (7) of said snow grooming vehicle (3) and such that it is pivotable about the vertical shaft (8).

6. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that the clearing means (4) is pivotably supported on the pivotable frame (13).

7. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that the pivotable frame (13) has a substantially U-shaped structural design and that the clearing frame (11) is pivotably supported on a support shaft (16) extending between the U-legs (14, 15) of the pivotable frame (13).

8. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that the support shaft (16) is arranged at free ends (17, 18) of the U-legs (14, 15).

9. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that a displacement means (19), in particular a hydraulic cylinder, is provided between the pivotable frame (13) and the clearing frame (11) for pivoting said clearing frame relative to said pivotable frame.

10. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that, at the base (20) interconnecting the two U-legs (14, 15) of the pivotable frame (13), said pivotable frame (13) is supported on the snow grooming vehicle (3) such that it is pivotable relative thereto about the substantially vertical shaft (8).

11. A halfpipe attachment unit according to at least one of the preceding claims, in the case of which the snow grooming vehicle (3) is provided with a front attachment blade (21) for supporting attachment units, such as a snow propeller or the like,
characterized in

that the halfpipe attachment unit (1) comprises at least one displacement frame which is supported on the attachment blade (21) and which is displaceable transversely to the direction of movement, the pivotable frame (13) being supported on said displacement frame such that it is pivotable about the vertical shaft (8).

12. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that the displacement frame (22) is provided with a transverse guide means (23) for supporting said displacement frame (22) such that it is displaceable transversely to the direction of movement of the snow grooming vehicle.

13. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that the displacement frame (22) and/or the pivotable frame (13) are adapted to be displaced and pivoted, respectively, by means of an adjusting device (24) which is especially a hydraulically operable adjusting device.

14. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that the pivotable frame (13) and/or the displacement frame (22) are adapted to be arrested at their respective positions.

15. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that the clearing frame (11) has substantially the shape of a circular segment and that at the opposed ends (25, 26) of said clearing frame (11) rolls (27, 28) supporting the rotary chain (12) are rotatably supported .

16. A halfpipe attachment unit according to at least one of the preceding claims,
characterized in

that at least one tightener (29) for tightening the rotary chain (12) is pivotably supported on the clearing frame (11).

17. A halfpipe attachment unit according to at least one of the preceding claims,

characterized in

that at least one roll (27) is implemented as a driving roll which is driven by a motor.

18. A halfpipe attachment unit according to at least one of the preceding claims,

characterized in

that the clearing frame (11) is provided with contour elements (30) at least on its outer surface which is associated with a side wall (6) of the halfpipe (2) when the clearing frame (11) occupies its position of use (5), said contour elements (30) supporting the rotary chain (12).

19. A halfpipe attachment unit according to at least one of the preceding claims,

characterized in

that the halfpipe attachment unit (1) is provided with support elements (31) which are adapted to be extended in the direction of the ground (32).

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FIG. 1

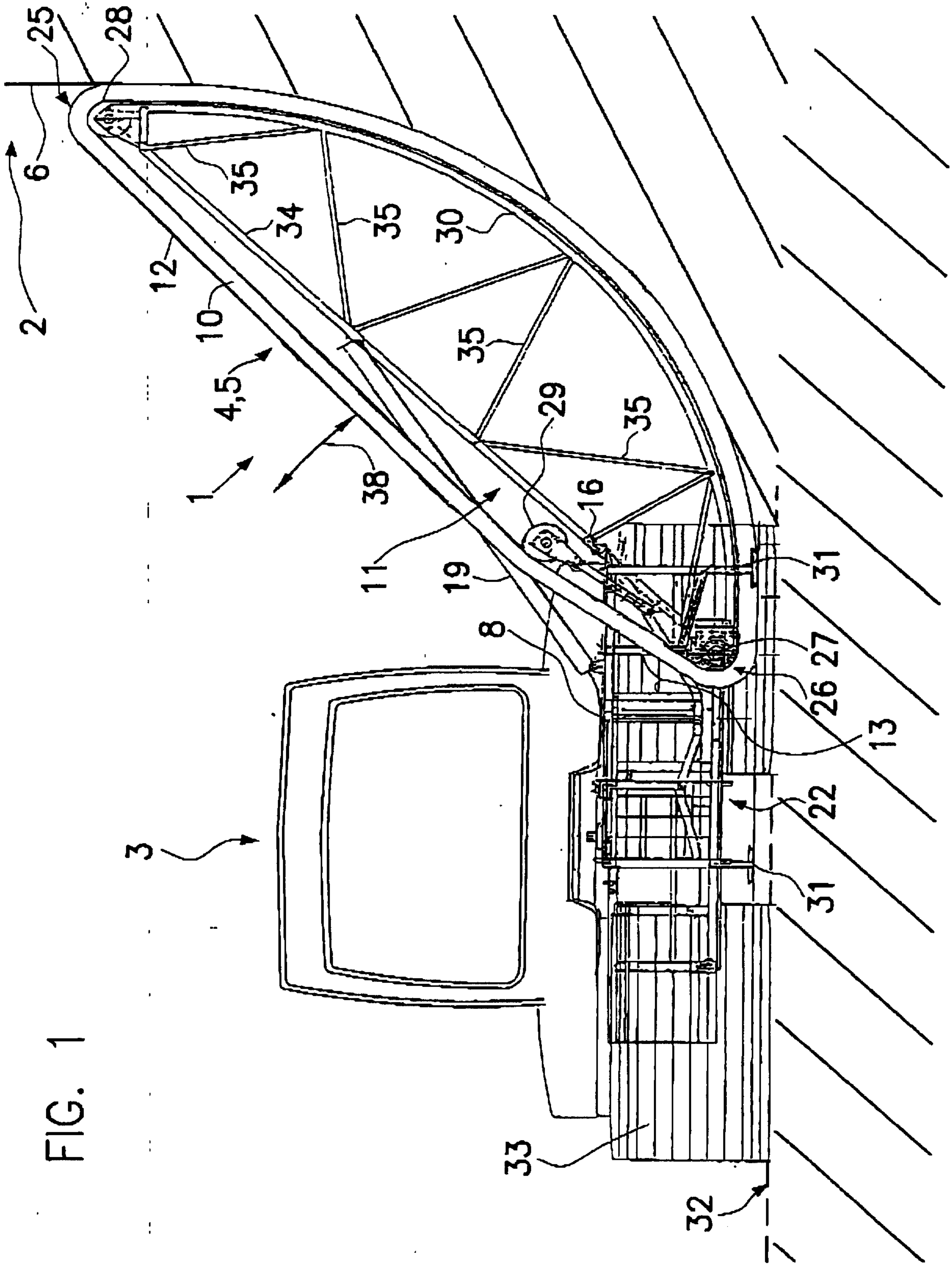


FIG. 2

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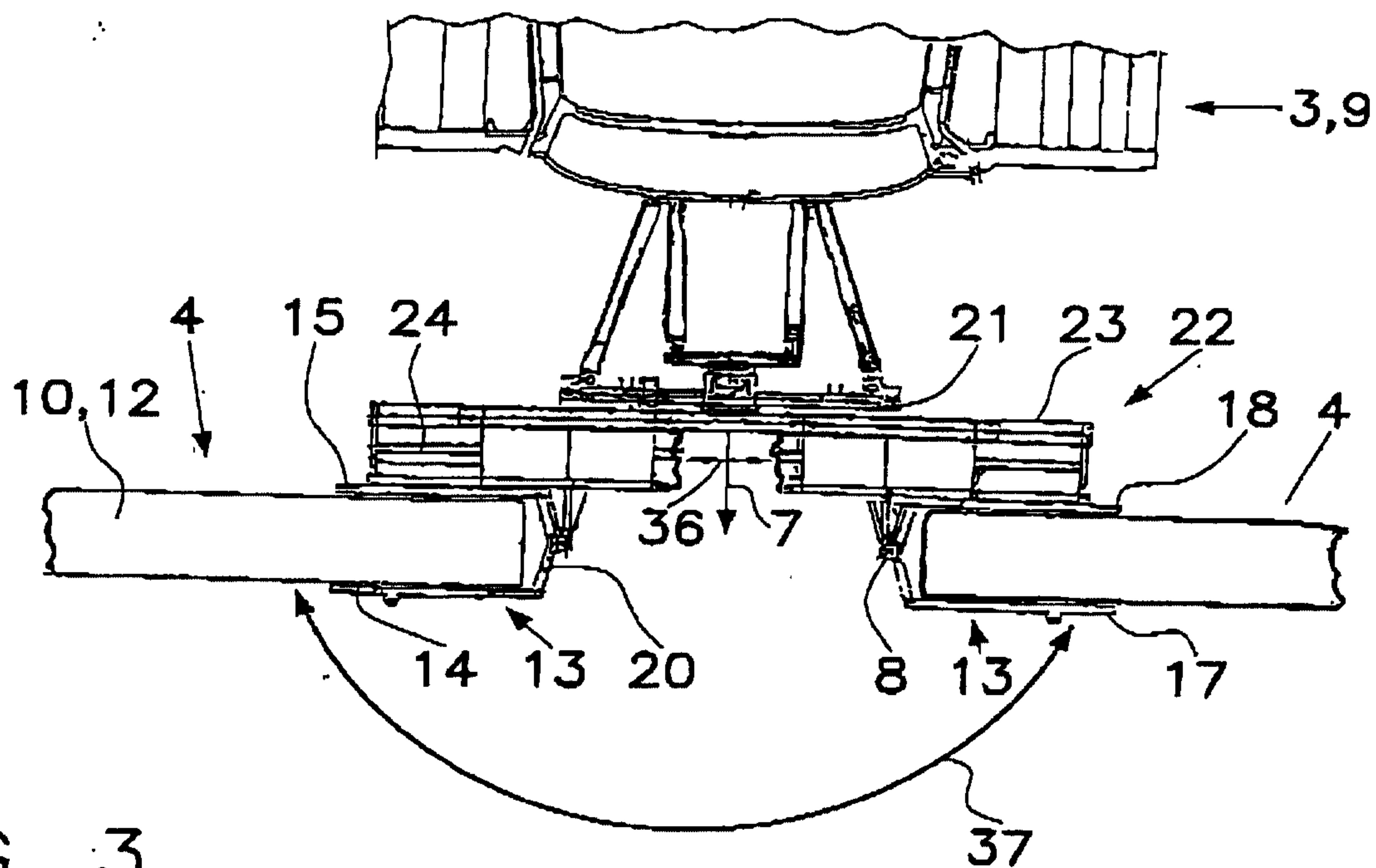


FIG. 3

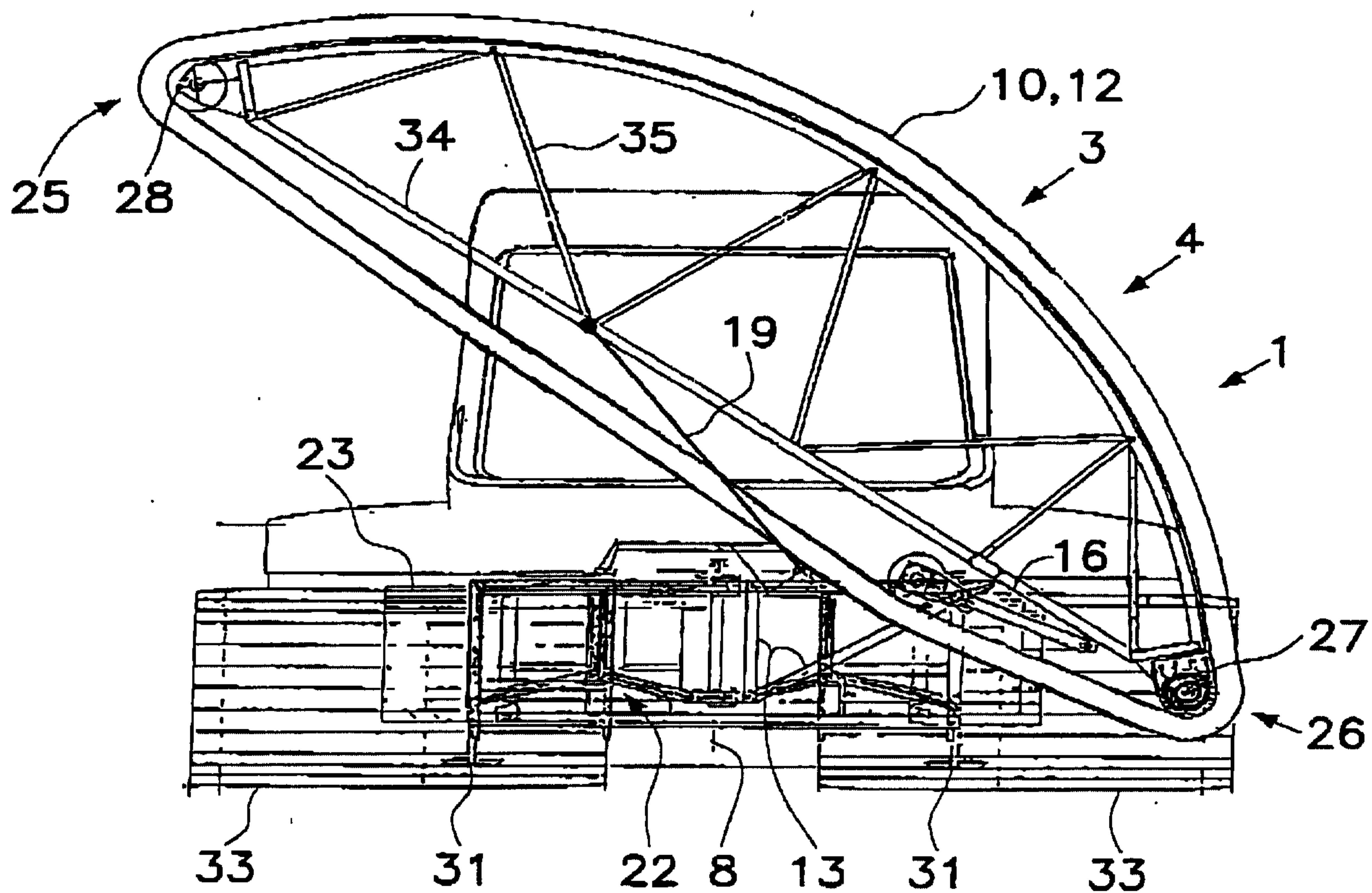


FIG. 4

