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BUNK STAKE EQUIPMENT

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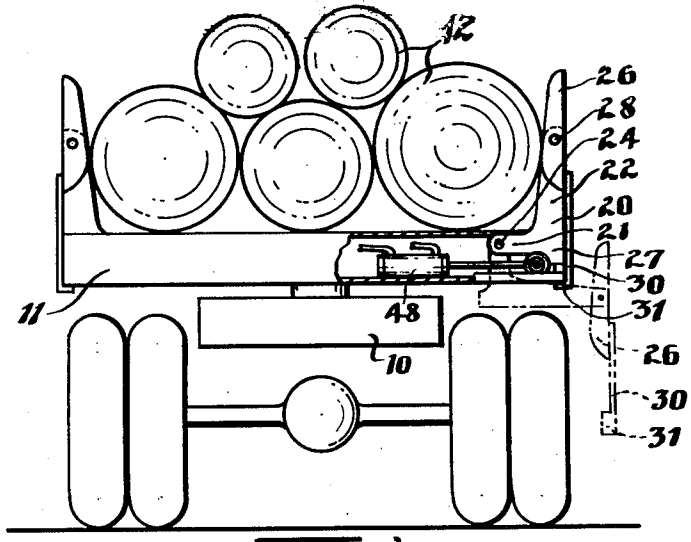


Fig. 1.

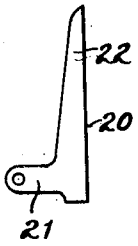


Fig. 5.

Fig. 2.

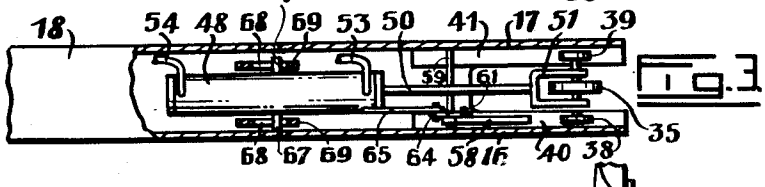


Fig. 3.

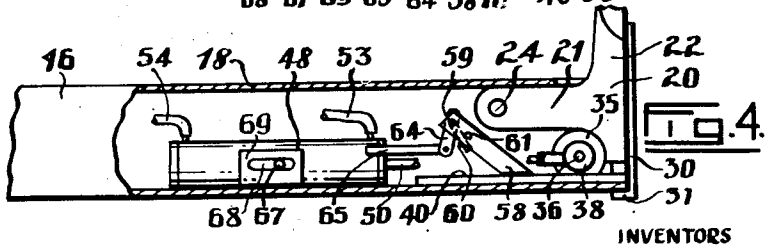


Fig. 4.

INVENTORS
ERNEST. E. JORGENSEN
LINCOLN JOHNSON
BY
Fetherstonhaugh & Co.
ATTORNEYS

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BUNK STAKE EQUIPMENT

Ernest E. Jorgensen and Lincoln Johnson,
Halfmoon Bay, British Columbia, Canada

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7 Claims. (Cl. 280—145)

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This invention relates to improvements in bunk stake equipment.

An object of the present invention is the provision of a bunk stake which may be released from a point remote from it.

Another object is the provision of a bunk stake for relatively heavy loads which may be quickly and easily released.

A further object is the provision of releasing means for a bunk stake which is not subjected to the full load retained in place by the stake.

Yet another object is the provision of fluid-operated means for releasing a bunk stake and returning it to its working position.

A still further object is the provision of fluid-operated means for controlling a bunk stake, and including a safety lock which is operated by this means and yet is not released in the event of the fluid system going out of order.

With the above and other objects in view, the present invention consists essentially of bunk stake equipment comprising a substantially L-shaped stake, means pivotally connecting the horizontal section of the stake to a bunk adjacent the end thereof, said horizontal section extending inwardly from the vertical section of the stake, a bearing removably positioned beneath the stake holding the latter in its normal working position, and means for withdrawing the bearing to permit the stake to swing downwardly on its pivot out of its normal position, as more fully described in the following specification and illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a diagrammatic under view of a logging truck incorporating the stake equipment,

Figure 2 is an enlarged side elevation of the stake equipment,

Figure 3 is an enlarged plan view of the equipment with the stake removed,

Figure 4 is an enlarged detail of the safety latch mechanism, and

Figure 5 is a reduced side elevation of an alternative form of stake.

Referring to Figure 1, 10 represents a logging truck having one or more bunks 11 mounted thereon, upon which the logs 12 rest. Each bunk is constructed in any desired manner. In this example, the bunk is formed with a base 15 having spaced side members 16 and 17 projecting upwardly therefrom. The load may rest on the upward edges of these side members, or it may rest on a web 18 extending across and supported by said upper edges. The web 18, if used, terminates short of the outer ends of the bunk.

A stake 20 is provided, and this is preferably L-shaped and formed with a horizontal section 21 and a vertical section 22. A suitable means is provided for pivotally connecting the horizontal section of the stake to the bunk adjacent the end thereof. In this case a pin 24 is carried by the side members 16 and 17 and extends through the section 21 near its free end, said section extending inwardly in relation to the bunk from the vertical section 22.

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The upper part 26 of the vertical section of the stake may be separate from the lower part 27 thereof, in which case it is pivotally connected to the latter at 28. Actually, the part 26 is U-shaped in cross section and fits over the upper end of the part 27 of the stake. An arm 30 extends downwardly from the lower end of the upper part 26 and has a weight 31 on its lower end which extends under the vertical section of the stake. This weight maintains the upper part 26 in a vertical position at all times. If desired, the vertical section of the stake may be formed in a single piece, as shown in Figure 5.

By referring to Figure 2, it will be noted that the horizontal section 21 is located below the upper surface of the bunk 11. Suitable means is provided for retaining the stake in its normal working position, that is, with its vertical section extending upwardly at the end of the bunk. This may be accomplished by removably positioning a bearing beneath the stake outside the pivot point 24 thereof. It is preferable that this bearing be in the form of a roller 35 rotatably mounted on a shaft 36 which extends transversely on the bunk beneath the stake. Rollers 38 and 39 are rotatably mounted on the ends of said shaft and ride on tracks 40 and 41 carried by and extending longitudinally of the bottom of the bunk. The stake is provided with a bearing surface 44 which normally rests on the bearing roller 35. Thus, this bearing roller normally retains the stake in its proper working position. When this roller is withdrawn from beneath the stake, the latter swings downwardly on its pivot 24 to allow the logs 12 to be rolled off the bunk. If the stake is constructed as shown, the upper part 26 thereof is maintained in a vertical position by the weight 31 even at this time. By forming the vertical section of the stake in two pivotally connected parts, the stake does not project laterally when it is in its lowermost position, as far as it otherwise would.

A convenient means is provided for withdrawing the bearing roller from beneath the stake and for returning it to its normal position. Suitable manual means may be provided, but it is preferable to control it by means of a fluid-operated cylinder. In this example, the cylinder is operated by air.

A cylinder 48 is located adjacent the stake, and this cylinder has a piston 49 operating therein. A rod 50 extends outwardly from one end of the cylinder and is connected by means of a yoke 51 to the shaft 36. One way of moving

the piston in the cylinder is to supply air to either end of the latter by pipes 53 or 54, said pipes extending from a suitable source of supply (not shown) which may be controlled in any convenient way. With this arrangement, when air is supplied to one end of the cylinder through pipe 53, the bearing roller 35 is withdrawn from beneath the stake, and when air is supplied to the opposite end of the cylinder through the pipe 54, the bearing roller is moved back under the stake to return it to its normal working position.

When the logs are on the bunk, the only pressure against the stake is a side thrust against the vertical section thereof and this helps the withdrawal of the bearing roller from beneath the stake, since said roller is normally located outside the stake pivot 24.

Suitable means may be provided for preventing the accidental withdrawal of the bearing roller. This may be in the form of a latch 58 which normally rests on one of the rails, say rail 40, behind the roller 38 so that the latter cannot move inwardly. The latch may be removed manually or mechanically.

One way of controlling the latch 58 is to mount it freely at its inner end on a shaft 59. A finger 60 projects outwardly and beneath a pin 61 on the latch. A link 64 is secured to the shaft 59 and extends downwardly therefrom, said link being connected to the cylinder 48 by an arm 65. In this example, the cylinder is carried by lateral pins 67 which ride in short slots 68 formed in supports 69.

Figure 2 shows the latch 58 in its normal position behind the roller 38. When air is supplied through the pipe 53 to withdraw the bearing roller from beneath the stake, reaction first causes the cylinder to move towards the stake within the limits of the slots 68. This rotates the shaft 59 and, since the finger 60 is below and engages the pin 61 of the latch, the latter is raised above the roller 38. Then, the movement of the piston in the cylinder releases the stake. When air is supplied from the cylinder through the pipe 54, reaction causes the cylinder to move away from the stake. This pivots the shaft 59 to move the finger 60 downwardly, and as the latch is resting on the roller 38, its pin 61 cannot follow the finger. However, the movement of the piston in the cylinder moves the bearing roller outwardly and returns the stake to its normal working position. As soon as the roller 38 clears the latch 58, the latter drops downwardly on to the track 40 to prevent accidental movement of said roller, and, consequently the bearing roller.

What we claim as our invention is:

1. Bunk stake equipment comprising a substantially L-shaped stake, means pivotally connecting the horizontal section of the stake to a bunk adjacent the end thereof, said horizontal section extending inwardly from the vertical section of the stake, a bearing independent of the stake removably positioned beneath the latter outside its pivot point, said stake when in its normal working position resting on the bearing and means for withdrawing the bearing from supporting the stake to permit the stake to swing downwardly on its pivot out of its normal position.

2. Bunk stake equipment comprising a substantially L-shaped stake, means pivotally connecting the horizontal section of the stake to a bunk adjacent the end thereof, a bearing roller removably positioned beneath the stake outside its pivot point, said stake when in its normal working position resting on the roller means for retaining the roller in position, and means for withdrawing the roller from supporting the stake to permit the stake to swing downwardly on its pivot out of its normal position.

3. Bunk stake equipment comprising a substantially L-shaped stake, means pivotally connecting the horizontal section of the stake to a bunk adjacent the end thereof, a bearing roller removably positioned beneath the stake holding the latter in its normal working position, a cylinder mounted adjacent the stake, a piston in said cylinder, means connecting the piston to the roller, and fluid operating means for moving the piston in the cylinder to remove and return the bearing roller from and to the stake to permit the latter to swing downwardly and to return it to its normal position.

4. Bunk stake equipment comprising a substantially L-shaped stake, means pivotally connecting the horizontal section of the stake to a bunk adjacent the end thereof, a shaft extending transversely of the bunk, rollers at the ends of the shaft, tracks extending longitudinally of the bunk on which the rollers ride, a bearing roller on said shaft removably positioned beneath the stake and holding the latter in its normal working position, and means for moving the shaft to withdraw the bearing roller to permit the stake to swing downwardly on its pivot out of its normal position.

5. Bunk stake equipment comprising a substantially L-shaped stake, means pivotally connecting the horizontal section of the stake to a bunk adjacent the end thereof, a shaft extending transversely of the bunk, rollers at the ends of the shaft, tracks extending longitudinally of the bunk on which the rollers ride, a bearing roller on said shaft removably positioned beneath the stake and holding the latter in its normal working position, a cylinder mounted adjacent the stake, a piston in said cylinder, means connecting the piston to the roller shaft, and fluid operating means for moving the piston in the cylinder to remove and return the bearing roller from and to the stake to permit the latter to swing downwardly and to return it to its normal position.

6. Bunk stake equipment as claimed in claim 3 in which the cylinder is mounted for limited movement, and including safety lock means for preventing accidental movement of the bearing roller, said lock means being connected to the cylinder and operated by movement thereof.

7. Bunk stake equipment as claimed in claim 3 in which the cylinder is mounted for limited movement, said cylinder being moved by reaction each time the piston is moved therein, and including a safety latch mounted adjacent the bearing roller for preventing accidental movement thereof, and means connecting the latch to the cylinder, whereby said latch is moved into and out of its operative position.

ERNEST E. JORGENSEN.
LINCOLN JOHNSON.

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