June 20, 1944. W. G. VAN VOORHIS 2,351,792

DEPTH INDICATOR FOR WHEEL TYPE TRENCHERS

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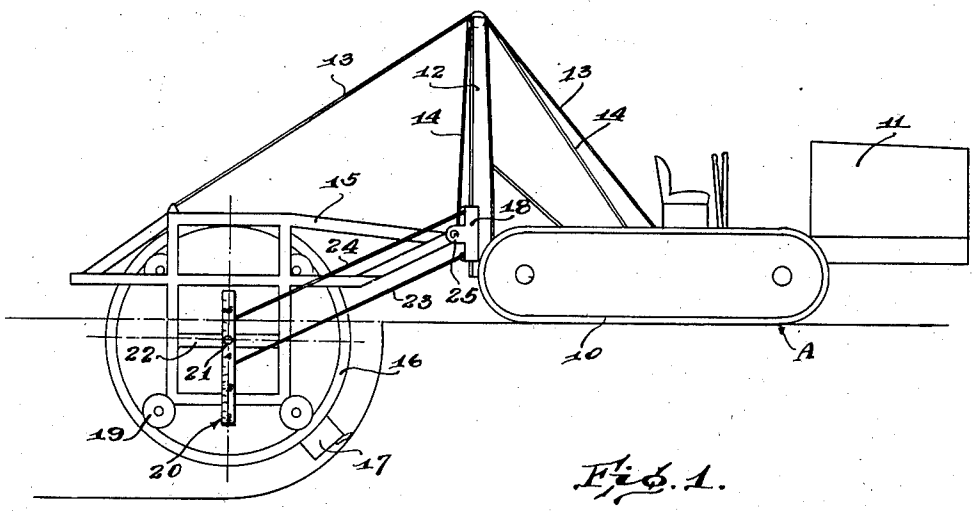


Fig. 1.

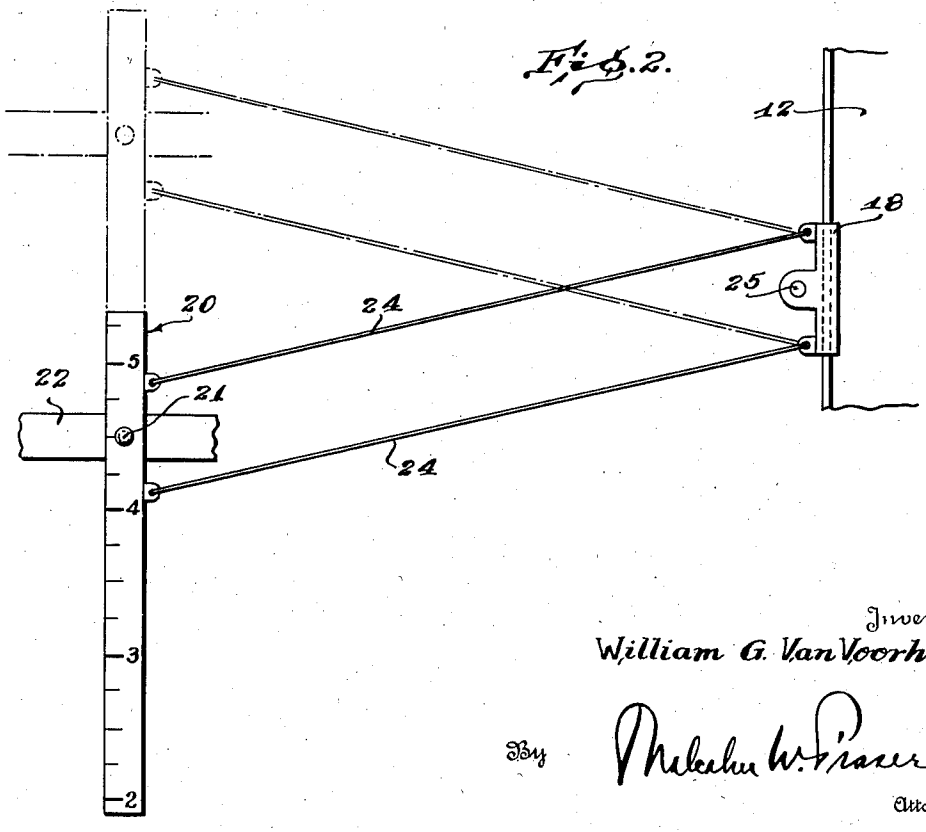


Fig. 2.

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DEPTH INDICATOR FOR WHEEL TYPE TRENCHERS

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3 Claims. (Cl. 33—185)

This invention relates to excavating machines but more particularly to an indicating device for a wheel type trenching machine for indicating the depth of the ditch or trench excavated by the machine.

An object is to produce a simple and efficient depth indicating device for a trenching or ditching machine equipped with a digging wheel thereby to facilitate the determination of the depth of the trench or ditch excavated by the machine.

Another object is to produce a depth indicator for a digging wheel which is at all times maintained in a position at right angles to the bottom of the trench.

Other objects and advantages of the invention will hereinafter appear and for purposes of illustration but not of limitation, an embodiment of the invention is shown on the accompanying drawing in which

Figure 1 is a diagrammatic side elevational view of a wheel type trenching machine equipped with a depth indicator; and

Figure 2 is an enlarged fragmentary elevation of the depth indicator showing the manner of attachment to the digging wheel frame and also the vertically movable slide on the elevator rail.

The illustrated embodiment of the invention comprises a trenching machine generally indicated at A, which is mounted upon crawlers 10 and powered by a suitable engine 11. It will be understood that only so much of the machine is shown as will enable those skilled in this art to understand the depth indicator mechanism.

Mounted on the rear end of the machine frame is an upright beam or elevator rail 12 which is rigidly mounted. Passing over sheaves at the upper end of the elevator rail 12 are cables 13 and 14. The cable 13 is anchored at its outer end to the rear end portion of a digging wheel frame 15 on which is supported a digging wheel 16 having an annular series of digging or excavating buckets 17. The cable 14 also passes over a sheave on the upper end of the elevator rail 12 and thence extends downwardly to a slide 18 which is movable upwardly or downwardly on the rail 12. Manifestly by proper manipulation of the cables 13 and 14, the digging wheel frame 15 may be raised or lowered relative to the ground thereby to excavate a trench or ditch of the desired depth.

As will be readily understood by those skilled in this art, the digging wheel frame 15 has a forward extension which is pivotally connected to the slide 18. It is also provided with four equidistantly spaced rollers 19 which engage the inner periphery of the digging wheel 16 to enable the latter to rotate during the digging operation. Suitable drive mechanism (not shown) transmits power from the engine 11 to the digging wheel 16 to impart rotation thereto, thereby to effect the digging operation during the advancing movement of the machine.

Difficulty has been experienced in accurately determining the depth of the cut made by the digging wheel. To overcome these difficulties, the scale 20 is pivotally mounted near its upper end at 21 on a cross bar 22 of the digging wheel frame. The pivot point 21 is disposed on the center of the digging wheel. The scale 21 is positioned vertically and is calibrated to indicate the depth of cut so that the operator merely by a glance, can readily and accurately determine the depth of the cut. The lower end of the scale may be spaced approximately two feet from the bottom of the cut and the scale may indicate the maximum depth of cut which can be effected by the particular digging wheel on which it is mounted.

It will be manifest that the scale 20 should be disposed in order to give accurate depth indication, at a position at right angles to the bottom of the trench or ditch. Spaced equally above and below the pivot point 21 for the scale 20 are pivotally mounted links 23 and 24 which extend to the slide 18 and are spaced an equal distance above and below the pivot point 25 between the slide 18 and the forward extension of the digging wheel frame 15. In view of this connection for the scale 20, it will be manifest that as the digging wheel is swung upwardly or downwardly relative to the pivot 25, the scale will maintain its vertical position at right angles to the bottom of the trench. Then, too, as the digging wheel and slide 18 are moved upwardly or downwardly, the scale will be retained in the desired position.

From the above description, it will be apparent that I have produced an exceedingly simple and inexpensive depth indicator for a wheel type trenching machine. The device can be readily and conveniently mounted in position of use and admirably serves the purpose for which it was intended, i. e. quickly to indicate the depth of cut made by the digging wheel, thus facilitating the excavating of a ditch or trench of the desired or uniform depth. Regardless of the angular position of adjustment of the digging wheel, the depth indicator would at all times be retained

in the proper position for indicating the depth of the trench.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claims.

What I claim is:

1. The combination of a trenching machine having an upright rail at the rear end thereof, a slide movable along said rail, a digging wheel frame pivoted at its forward end to said slide, a digging wheel rotatable in said frame, a vertically disposed calibrated indicator strip pivoted to said frame coaxially with said wheel, and means providing a connection between said strip and said slide for retaining said strip at right angles to the bottom of said trench in all angular positions of said frame relative to said slide.

2. The combination of a trenching machine having an upright rail at the rear end thereof, a slide movable along said rail, a digging wheel frame pivoted at its forward end to said slide, a digging wheel rotatable in said frame, a vertically disposed calibrated indicator strip pivoted to said frame coaxially with said wheel, and means providing a connection between said strip and said slide for retaining said strip at right angles to the bottom of said trench in all angular positions of said frame relative to said slide, said last means comprising links pivoted respectively to said strip and said slide for effecting a parallelogram movement.

3. The combination of a trenching machine having an upright rail at the rear end thereof, a slide movable along said rail, a digging wheel frame pivoted at its forward end to said slide, a digging wheel rotatable in said frame, a vertically disposed calibrated indicator strip pivoted to said frame coaxially with said wheel, and means providing a connection between said strip and said slide for retaining said strip at right angles to the bottom of said trench in all angular positions of said frame relative to said slide, said last means comprising a pair of links arranged equidistantly on opposite sides of the pivotal mounting of the strip at one end and equidistantly on opposite sides of the pivotal connection between said frame and slide at the opposite end.

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