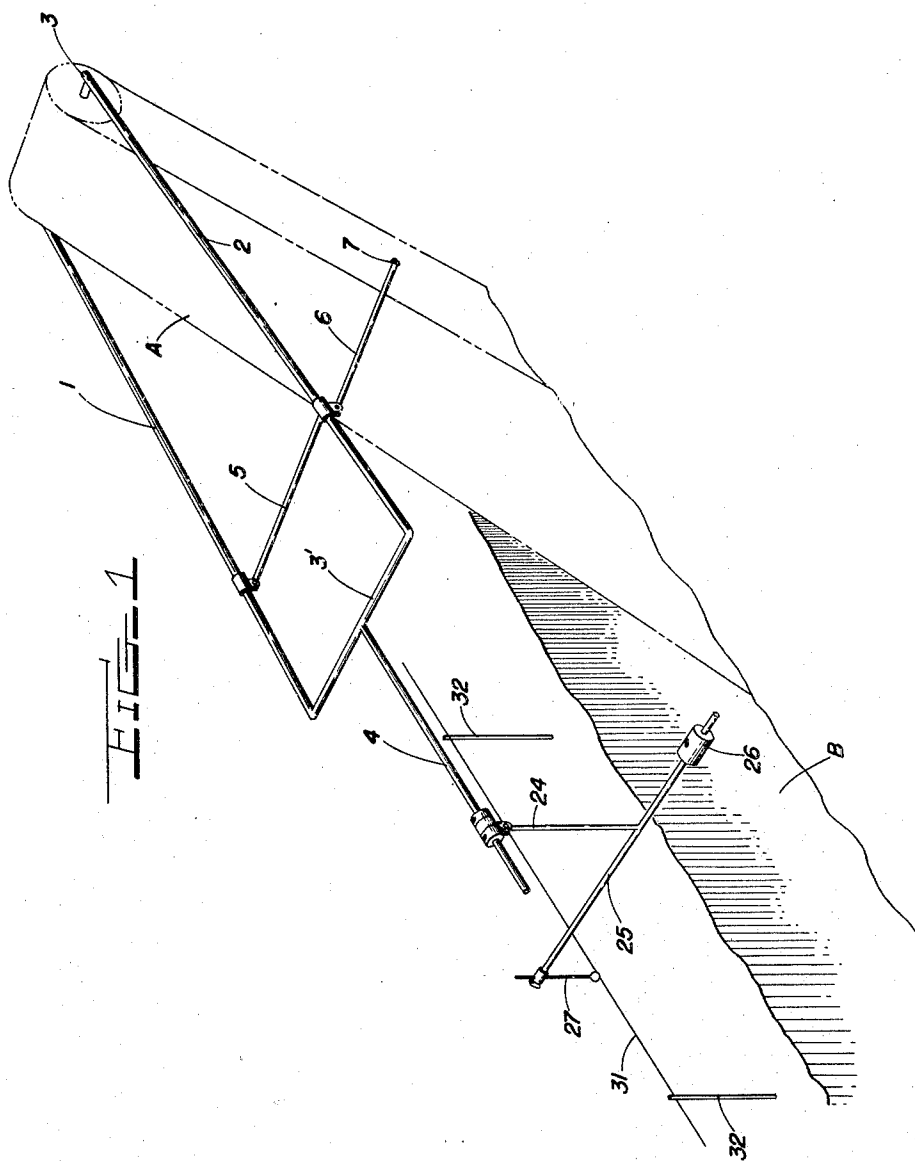


Filed May 2, 1946

GAUGING DEVICE FOR DITCHERS

2 Sheets-Sheet 1



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Nov. 22, 1949

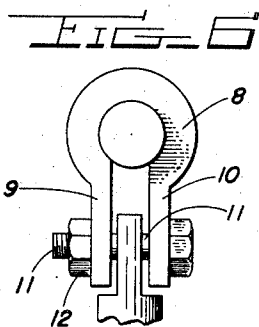
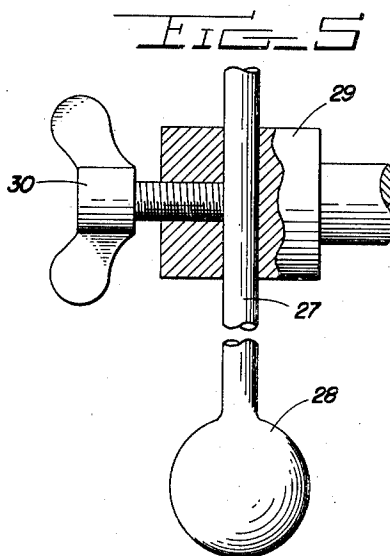
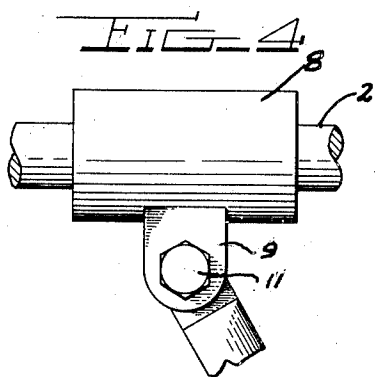
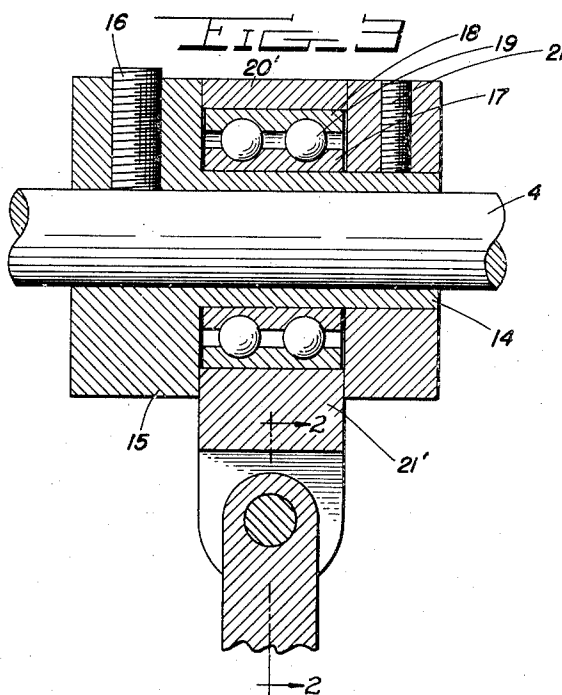
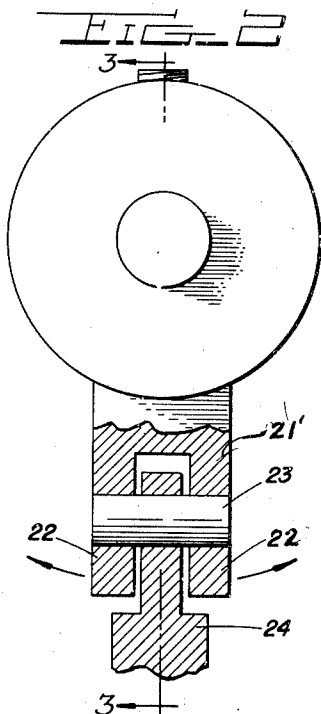
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2,489,196

GAUGING DEVICE FOR DITCHERS

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2 Sheets-Sheet 2



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GAUGING DEVICE FOR DITCHERS

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Application May 2, 1946, Serial No. 666,718

4 Claims. (Cl. 33—185)

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This invention relates to improvements in a gauging device for determining and maintaining the level of a shoring box associated with a ditching head.

One of the objects of this invention is to provide a device which can be readily attached or detached from the conventional ditching head, which device is constructed and arranged for associated cooperation with a line arranged at a predetermined level, whereby the operator of a ditching head can by inspection of the gauge retain his machine in constant operation and at a predetermined level by an inspection from the control position on the ditching machinery.

Another object of the present invention is to provide a structure of the type described which can be readily adjusted for use in connection with different types of heads or different conditions of terrain.

A further object of the invention is to provide a device of the type described which will be cheap to manufacture, easy to assemble and adjust, and capable of rough usage without damage causing expense in up-keep and repair.

Other features will more clearly herein after appear by reference to the accompanying drawings forming a part of this specification and herein like characters of references designate corresponding parts throughout the several views, in which;

Fig. 1 is a perspective view showing the present invention applied to a digger head, the latter being illustrated in dotted line.

Fig. 2 is a fragmentary sectional view showing the gauge arm supporting structure.

Fig. 3 is a longitudinal section through the gauge arm supporting structure.

Fig. 4 is a side elevation of the connecting clip between the gauge body and adjusting arm.

Fig. 5 is an enlarged sectional view showing the adjusting means for the gauge element, and

Fig. 6 is an end view of the structure of Figure 4.

Referring to Figure 1 the digger head of a conventional digging machine is indicated by reference character A and is shown in dotted line extending into a ditch indicated by the reference character B. The purpose of the present mechanism is to maintain the depth of the cut of the digger head A in the ditch B at a predetermined level and to accomplish this purpose the gauge structure is necessarily maintained on the digger head as shown. The gauge structure includes a main U-shaped frame having parallel arms 1 and 2 pivotally supported at 3, which is at the

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axis of the drive for the endless digger mechanism A. The parallel arms 1 and 2 are connected at their outer ends by the cross bar 3' and the latter is provided with the medial extension 4 projecting therefrom and in substantially the same plane. Supporting the arms 1 and 2 are the adjusting arms 5 and 6, the latter being slidably connected to the arms 1 and 2 at their upper ends and being pivoted at their inner ends 7 to the front of the digger head. In Figures 4 and 6 the connection between the arms 1 and 2 and the arms 5 and 6 is illustrated in detail and includes in each instance the U-shaped clamp member 8 through which the arms 1 and 2 extend. The clamp member 8 is formed with depending projections 9 and 10 through which a bolt 11 extends, the bolt 11 being provided with the nut 12 by which the clamp 8 can be secured on the arm to which it is applied. By this means the outer ends of the adjusting arms 5 and 6 can be slid along the arms 1 and 2 to elevate the arms 1 and 2 to a predetermined position and then the parts secured together by tightening the nuts 12 to bring the projections 9 and 10 together. The projecting arm 4 is in the form of a round straight rod, the axis of which is parallel to the axis of the supporting arms 1 and 2. Slidable along the rod-like projection 4 is the bushing 14 formed with the flange head 15 through which the set screw 16 extends for securing the same in fixed relation to the rod 4. Arranged on the bushing 14 is the bearing structure including inner raceway 17 and outer raceway 18 between which are interposed the spaced bearings 19. A stop collar 20 is secured in position by means of the set screw 21 and locks the raceways against relative lateral movement. On the outer bearing raceway 18 a collar 20' is maintained, this collar 20' including a depending hanger 21' provided with spaced ears 22 having a pivot pin 23 for mounting the gauge finger 24. By this structure it will be apparent that the collar 20' is free on the bearing assembly to turn thereabout while the gauge supporting upright 24 is provided with a transverse swinging movement by virtue of its mounting on the pin 23.

The gauge supporting upright 24, supported on the pin 23, having a universal movement, will maintain a vertical position under all conditions. This gauge supporting upright 24 supports at its lower extremity a cross arm 25, and on the cross arm 25 there is provided at one end the adjustable weight 26, and at the other end the gauge pin 27 is adjustably supported. The gauge pin

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27 includes a weight contacting extremity 28 which partly tends to counterbalance the weight 26 adjustably supported at the other end of the arm 25. By adjusting the weight 26 the arm 25 can be held on its vertical support 24 in a horizontal position. Referring now to Figure 5 it will be seen that the contacting element 27 is vertically adjustable in a slot formed in the head 29 of the arm 25 and is held in a predetermined adjustable position by the thumb screw 30. The adjustment of the gauge pin 27 will be determined by the height of the line 31, this line 31 being supported at spaced points by the uprights 32 at a predetermined level.

From the foregoing it will be obvious that the supporting frame formed of the parts 1, 2, and 3' can be adjusted on the digger head A at a predetermined level by sliding the arms 6 and 7 along the parts 1 and 2. Having adjusted the supporting frame the suspended arm 25 can be adjusted to a suitable position along the length of the member 4 and this arm 24 will retain its vertical position under all conditions, carrying with it cross arm 24, which latter being suitably adjusted will retain its proper horizontal position. By turning the thumb screw 30 the pin 27 can be adjusted until the enlarged extremity 28 on the gauge pin 27 contacts the line 31. The operator of the digging machinery by watching from his control position can maintain the extremity of the pin 28 in contact with the line 31, and as long as this association is maintained the digger head will operate at a predetermined level.

I claim:

1. In a gauge mechanism for use with a ditching machine having a movable part, a U-shaped frame member pivotally secured to said movable part, a brace for securing said frame in predetermined angular relation with respect to said part, a rod projecting from said frame, a vertical member having universal movement mounted on said rod, a horizontal member carried by said vertical member and counter-weighted for maintaining horizontal positions under all conditions, and an adjustable contact member at one end of said horizontal member.

2. In a gauge for a ditching head, a supporting frame including a pair of spaced arms having end portions adapted to be fixed to said ditching head for movement on horizontal pivots, means

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for adjusting said supporting frame on said horizontal pivots and maintaining the same in adjusted position, a slide bar extending medially of said arms from said supporting frame and in a common plane therewith, a longitudinally adjustable element suspended on said slide bar for swinging movement longitudinally and transversely of the axis of said bar, a horizontal rod carried in suspended position at the extremity of said suspended element, said rod having at one end a longitudinally adjustable counter-weight, and at its other end a vertically adjustable contact element.

3. The substance of claim 2 characterized in that the vertical adjustable contact element is counter-weighted, and the counter-weight forms the contacting element.

4. A gauge mechanism for use with a digger head of a ditching machine, said mechanism including a U-shaped frame, the ends of the arms of the U-shaped frame being mounted for vertical swinging movement of the frame on said head, a support for securing said frame in adjusted position, a slide bar carried by said frame, with said slide bar projecting from the medial portion of the base of said U-frame and lying in a common plane therewith, an element supported for longitudinal movement on said slide bar, said element being mounted for swinging movement longitudinally of said slide bar, a rod carried at the lower end of said element and arranged horizontally with respect thereto, an adjustable weight adjustably arranged on one end of said rod, and a vertically adjustable gauge pin supported at the other end of said rod.

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