Dec. 3, 1935. G. V. KUGEL 2,023,053

INDICATING ATTACHMENT FOR PLOWS

Filed Aug. 10, 1935

Fig. 1.

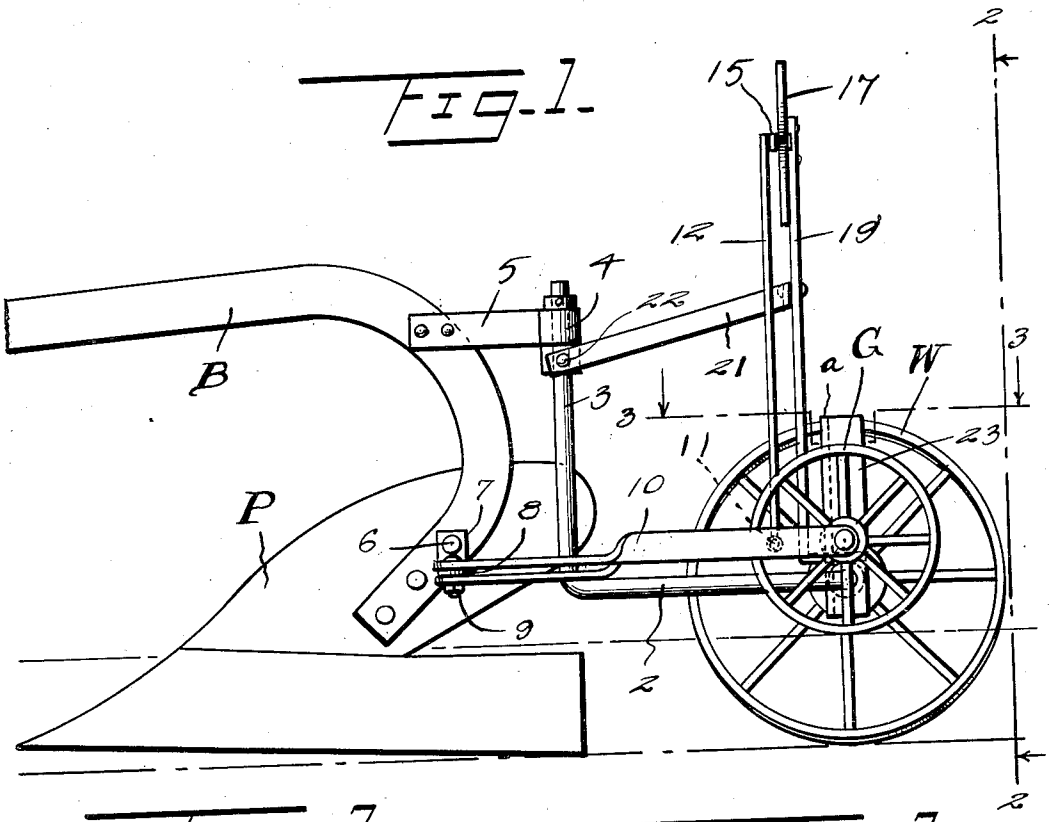


Fig. 2.

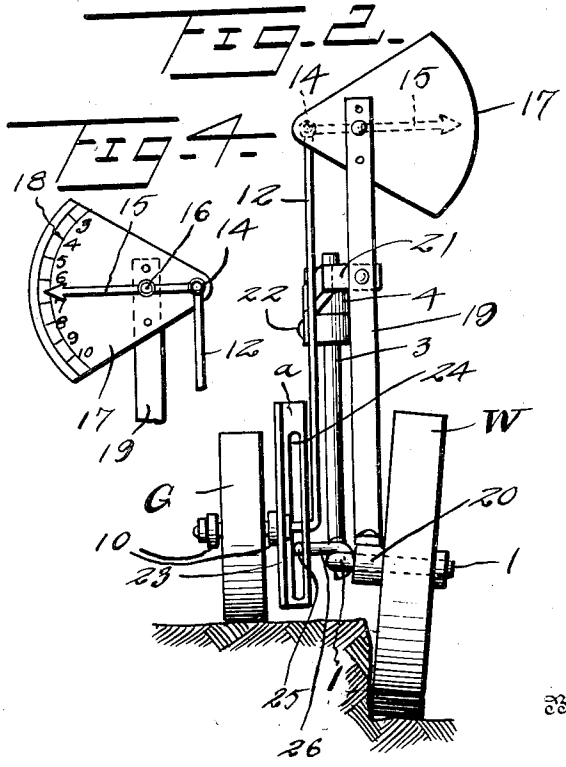


Fig. 3.

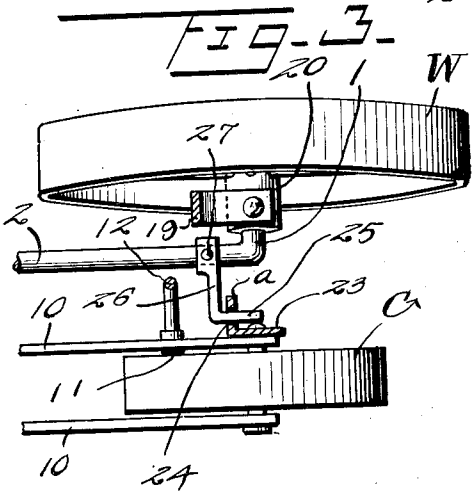


Fig. 4.

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Patented Dec. 3, 1935

2,023,053

UNITED STATES PATENT OFFICE

2,023,053

INDICATING ATTACHMENT FOR PLOWS

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Application August 10, 1935, Serial No. 35,664

6 Claims. (Cl. 97—189)

This invention relates to an indicating attachment for a plow, and it is primarily an object of the invention to provide an attachment which, when in applied position, provides means whereby by the operator may readily determine the depth of the plowing.

Another object of the invention is to provide an attachment of this kind which includes a member contacting with the ground to one side of the furrow and which is supported to effect an adjustment of an index or pointer as the plow varies in its depth so that the operator may readily determine at any time during a plowing operation the depth at which the plow is working.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved indicating attachment whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawing, wherein:—

Figure 1 is a view in side elevation illustrating an attachment constructed in accordance with an embodiment of my invention and in applied position, the associated portion of the plow being somewhat diagrammatic;

Figure 2 is a view in rear elevation of the structure as shown in Figure 1 as indicated by the line 2—2 of Figure 1;

Figure 3 is a view partly in section and partly in top plan of the structure as herein disclosed, the section being on the line 3—3 of Figure 1 looking in the direction of the arrows; and

Figure 4 is a fragmentary elevational view of the index or pointer and its associated dial.

As disclosed in the accompanying drawing, B denotes a beam carrying a conventional plow P, the same being of a structure such as commonly employed in connection with wheel plows and wherein the beam has associated therewith a rear supporting wheel W which follows the plow P and travels in the furrow in a well known manner. This wheel W is mounted upon a spindle 1 extending laterally from the outer end portion of an elongated arm 2 arranged at the lower extremity of a vertically disposed rod 3. The upper portion of the rod 3 is rotatably mounted in a conventional manner within a bearing 4 carried by an arm or bracket 5 secured to and extending rearwardly from the beam B. This wheel W and its mounting as herein described form no part of my invention as it embodies a structure already known and in use.

Pivotally connected, as at 6, to the lower portion of the beam B is a plate 7 provided with an outstanding flange or lip 8. This flange or lip 8 extends between and is pivotally connected, as at 9, to the rear end portions of the spaced parallel straps 10, said end portions of the straps 10 having their flat faces horizontally disposed when the plow is in use. It is to be particularly noted that the pivot 9 is at right angles to the pivot 6 so that the straps 10 are free to have swinging movement in either a vertical direction or laterally in opposite directions.

The rear or opposite end portions of the straps 10 are twisted to bring the flat faces thereof into a vertical position when the plow is at work, and the outer end portions of the straps 10, or arms as they may be termed, have mounted therebetween a ground wheel G which is adapted to have rolling contact with the surface of the ground to one side of the furrow as made by the plow P and serves as a fulcrum to permit vertical swinging movement of the straps or arms 10 as the plow P rises or falls in accordance with the varying depths at which the plow may work. The flange or lip 8 carried by the plate 7 is of course of a length sufficient to assure the proper positioning of the wheel G to one side of the furrow, and said wheel is also positioned at the landside of the plow.

Pivotally connected, as at 11, to one of the straps or arms 10 is the lower end portion of a rod 12. This rod 12 extends upwardly and is operatively connected, as at 14, to an end portion of a pointer or index 15. This pointer or index is pivotally supported, as at 16, at a desired point intermediate its ends upon a dial 17, said dial being herein disclosed as segmental in form although it may be of any other style or form as preferred. This dial 17 carries a series of graduations 18 consecutively numbered to indicate inches and with which the pointer or index 15 coacts to give ready information as to the depth at which the plow P may be working in the ground. The graduations 18 are spaced apart in accordance with the location of the pivotal mounting 16 so that upon one inch drop or rise of the plow the index or pointer 15 will pass from one graduation to the other. It is believed to be obvious that as the plow either drops or rises the arms 10 will swing upwardly or downwardly with the

ground engaging member or wheel G as the fulcrum.

The dial 17 as herein disclosed is carried by the upper end portion of an upright 19 freely engaged at its lower end, as at 20, to the spindle 1 and having its upper portion secured by the brace bar 21 which is also suitably secured, as at 22, to the upper portion of the rod or shaft 3.

It is highly important that means be provided to prevent lateral movement of the member or wheel G yet without offering any hindrance or obstruction to the desired swinging movement of the straps or arms 10 upon rise and fall of the plow P. As herein disclosed the outer or rear end portion of the inner strap or arm 10 has welded or otherwise rigidly secured thereto an angle iron or bar 23 which is vertically disposed when the plow is in working position.

This bar or iron 23 has an outstanding flange *a* disposed in a direction toward the wheel W and said flange *a* for a desired distance therealong is provided with a slot 24 through which projects a finger 25 extending laterally from a bracket 26 fixedly secured, as at 27, to the arm 2 and preferably at a point closely adjacent to the spindle 1. It is believed to be obvious that the finger 25 working within the slot 24 coacts with the flange *a* in a manner to prevent lateral movement of the wheel or member G in either direction, thus assuring its maintenance at all times in desired set position.

From the foregoing description it is thought to be obvious that an indicating attachment constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:—

1. In combination with a plow structure including a furrow wheel, an elongated member pivotally engaged with the structure and extending in a general direction toward the furrow wheel, said elongated member having swinging movement in a vertical direction, a ground engaging member carried by the elongated member for contact with the ground to one side of the furrow, a depth indicating dial, an index coacting with the dial, and an operative connection between the index and the elongated member to shift the position of the index with respect to the dial upon rise and fall of the plow.

2. In combination with a plow structure including a furrow wheel, an elongated member pivotally engaged with the structure and extending in a general direction toward the furrow wheel, said elongated member having swinging movement in a vertical direction, a ground engaging member carried by the elongated member for contact with the ground to one side of the furrow, a depth indicating dial, an index coacting with the dial, and an operative connection between the index and the elongated member to shift the position of the index with respect to the dial upon rise and fall of the plow, said dial being operatively supported by the furrow wheel.

3. In combination with a plow structure including a furrow wheel, an elongated member pivotally engaged with the structure and extending in a general direction toward the furrow wheel, said elongated member having swinging movement in a vertical direction, a ground engaging member carried by the elongated member for contact with the ground to one side of the furrow, a depth indicating dial, an index coacting with the dial, and an operative connection between the index and the elongated member to shift the position of the index with respect to the dial upon rise and fall of the plow, said elongated member being articulated to permit lateral swinging movement of said elongated member in opposite directions independently of the vertical swinging movement of the elongated member.

4. An indicating attachment for a plow structure including a plow beam and a trailing furrow wheel comprising an elongated member, means for pivotally connecting said member to the plow beam, a ground engaging member carried by the elongated member for contact with the ground to one side of the furrow, depth indicating means operatively supported by the trailing furrow wheel and including a movable index, and an operative connection between the elongated member and the movable index to shift the index upon rise or fall of the plow.

5. In combination with a plow structure including a plow beam, a vertically disposed shaft rotatably supported by the beam, a rearwardly directed arm carried by the shaft, a furrow wheel carried by the arm, an elongated member pivotally connected with the beam and disposed in the same general direction as the arm of the shaft, a ground engaging member carried by the elongated member for contact with the ground to one side of the furrow, an upright carried by the arm of the shaft, a dial operatively supported by the upright, an index mounted for coaction with the dial, a rigid member connecting the index and the elongated member to shift the index upon rise and fall of the plow, and coacting means carried by the arm of the shaft and the elongated member for holding the furrow wheel and the ground engaging member in assembled relation.

6. In combination with a plow structure including a plow beam, a vertically disposed shaft rotatably supported by the beam, a rearwardly directed arm carried by the shaft, a furrow wheel carried by the arm, an elongated member pivotally connected with the beam and disposed in the same general direction as the arm of the shaft, a ground engaging member carried by the elongated member for contact with the ground to one side of the furrow, an upright carried by the arm of the shaft, a dial operatively supported by the upright, an index mounted for coaction with the dial, a rigid member connecting the index and the elongated member to shift the index upon rise and fall of the plow, a vertically disposed member carried by the elongated member and being provided therealong with a slot, and a member carried by the arm of the shaft extending through the slot to hold the furrow wheel and the ground engaging member in assembled relation.

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