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J. H. BOSWORTH ET AL

2,169,079

TRENCHING MACHINE

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Fig. 1.

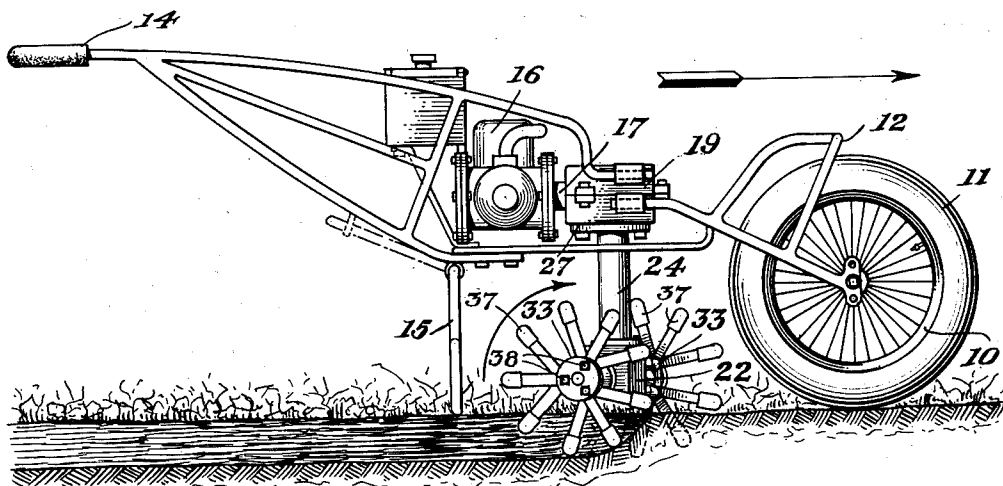


Fig. 2.

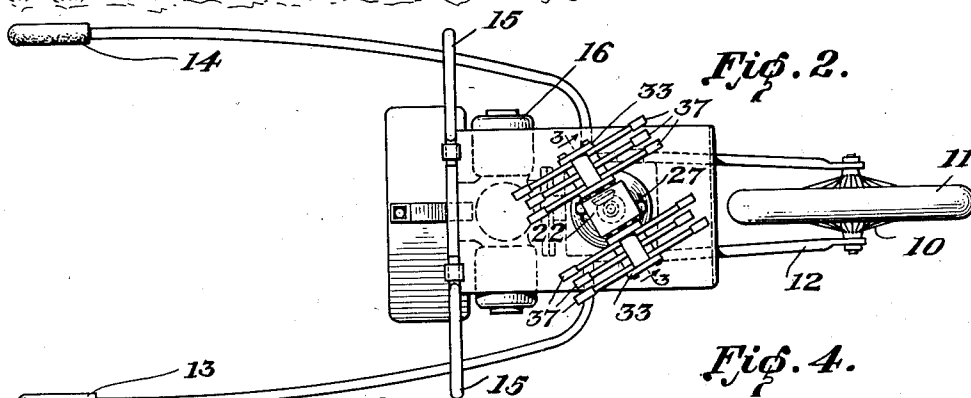


Fig. 4.

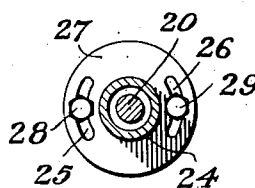
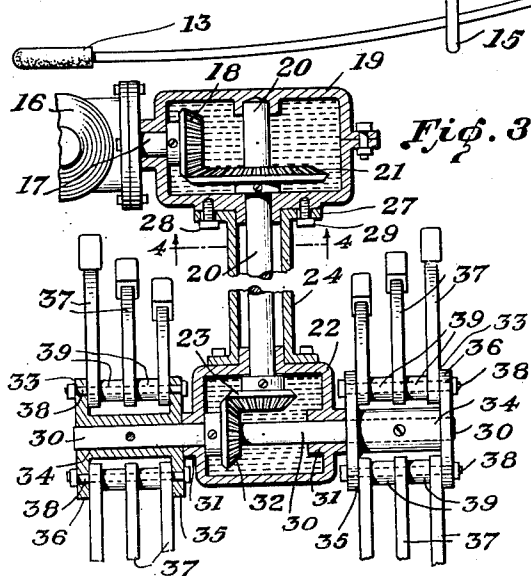


Fig. 3.



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TRENCHING MACHINE

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Application August 29, 1938, Serial No. 227,376

4 Claims. (Cl. 37—80)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This application is made under the act of March 3, 1883, as amended by the act of April 30, 1928, and the invention herein described and claimed, if patented, may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment to us of any royalty thereon.

We hereby dedicate the invention herein described to the free use of the People in the territory of the United States to take effect on the granting of a patent to us.

This invention relates to a fire line trenching machine.

One of the objects of this invention is the provision of a machine to clean a narrow strip of grass, leaves, needles, and other vegetable matter off a forest floor down to mineral soil, making a break in the combustible matter for the purpose of preventing the spread of an approaching ground fire. This type of work heretofore has been accomplished manually, with implements such as shovels, rakes, council tools, and fire line swatters in connection with water tank trucks, and so forth. Such manual methods, however, are very slow, inefficient, and require a large number of workers to successfully accomplish the objective. It has been found that by the use of this invention, one operator can accomplish the same work as twenty workers using manual means.

In the accompanying drawing, there is illustrated one of the preferred forms of this invention in which:

Figure 1 is a side elevational view;

Figure 2 is a bottom plan view; and

Figure 3 is a fragmentary section along the line 3—3 of Figure 2.

Figure 4 is a section along the line 4—4 of Figure 3.

Referring with more particularity to the drawing, in which like numerals designate like parts, the device as a unit is suggestive of an ordinary wheelbarrow, being a unicyclic vehicle having a wheel 10, preferably provided with a pneumatic tire 11 mounted on the front end of a frame 12, said frame having handle bars 13 and 14 and a vertical hinged bracket 15 for use when it is desired to support the machine at rest.

On top of said frame 12, a motor 16 of any suitable type, preferably a gasoline 5 horsepower motor, is mounted, having a horizontal power take-off shaft 17. A beveled gear 18 is fixed to the end of shaft 17 in upper gear box 19. A vertical shaft 20 projects down through the gear box 19. A beveled gear 21 is fixed to the shaft 20 in the gear box 19 and meshes with the gear 18.

The upper end of the shaft 20 is provided with a suitable bearing on the inside of the gear box 19, while the lower end projects through the lower gear box 22 to the end of which is fixed a beveled gear 23. The lower gear box 22 is supported from the upper gear box by means of a flanged pipe 24, secured to the top of the gear box 22 and the bottom of the gear box 19. The last-mentioned connection is made adjustable by means of slots 25 and 26 in the upper pipe flange 27, so that the entire assembly below the upper gear box can be rotated horizontally by simply loosening bolts 28 and 29.

Within the gear box 22, a horizontal shaft 30 is rotatably mounted in suitable bearings 31 and 31, and extends out from both sides of the gear box 22. A beveled gear 32 meshing with gear 23 is fixed to the shaft 30. On the outer extending ends of the shaft 30, hammer assemblies 33, 33 are fixed. Each of these assemblies consists of a spool hub 34 between the flanges 35 and 36 of which a plurality of short iron bars or hammers 37 are pivoted by means of bolts or axles 38. It is preferable to have the hammers 37 mounted in groups of, say, three on each of said bolts or axles 38, said axles or bolts being disposed in spaced relation around the circumference of the flanges 35 and 36. Spacers 39 are provided between the pivoted ends of said hammers to prevent them from being forced out of alignment. It is obvious that while only 9 hammers are shown in the drawing for each hub, more or less hammers may be provided by simply varying the width of the hubs 34 or the number of axles 38 disposed about the circumference of said hub.

To operate this machine the motor 16 is simply started. This has the effect of rotating the shaft 30 carrying with it the hammers 37. The centrifugal force created causes these hammers to strike into the ground and tear it apart, throwing all the light top soil to the side. By loosening the bolts 28 and 29, the shaft 30 together with the hammers 37 can be adjusted in a horizontal plane. This makes it possible to throw the dirt torn by the hammers in any direction desired by the operator. Also, by means of this adjustment, the machine can be made to create either two separate trenches simultaneously, two contiguous trenches, or just one trench.

It is to be understood that the fan-like arrangement shown in the drawing is for the purpose of illustration. In normal operation these hammers do not assume such a fan-like arrangement with respect to the hammers mounted on each common shaft 38. That is to say, each set

of hammers (three illustrated) will normally act together so that there will be no fan-like arrangement among the individual hammers (three illustrated) of a set, but there will be a fan-like arrangement among the sets themselves.

Having thus described our invention, we claim:

1. In a machine for trenching, a horizontal shaft mounted for rotation on said machine, a pair of hubs, each flanged at both ends, a plurality of hammers pivoted between the flanges of each of said hubs, said hubs being mounted on the ends of said horizontal shaft, means for rotating said shaft, and means for varying in a horizontal plane the angular relation of said shaft with respect to the ground to be trenched.

2. A trenching machine comprising a vehicle, a horizontal shaft mounted on said vehicle, a plurality of hammers radially hinged on the ends of said shaft, means for rotating said shaft, and means for varying in a horizontal plane the an-

gular relation of said shaft with respect to the ground to be trenched.

3. A trenching machine comprising a unicycle vehicle, a horizontal shaft mounted on said vehicle, a plurality of hammers radially hinged on the ends of said shaft, means for rotating said shaft, and means for varying in a horizontal plane the angular relation of said shaft with respect to the ground to be trenched.

4. A trenching machine comprising a unicycle vehicle, a source of power on said vehicle, a horizontal shaft mounted on said vehicle, a plurality of hammers radially hinged on the ends of said shaft, means for delivering power from said source to said shaft, and means for varying in a horizontal plane the angular relation of said shaft with respect to the ground to be trenched.

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