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2,434,089

PORTABLE DRILL TREE TAPPING MACHINE

Filed July 14, 1944

2 Sheets-Sheet 1

Fig. 1.

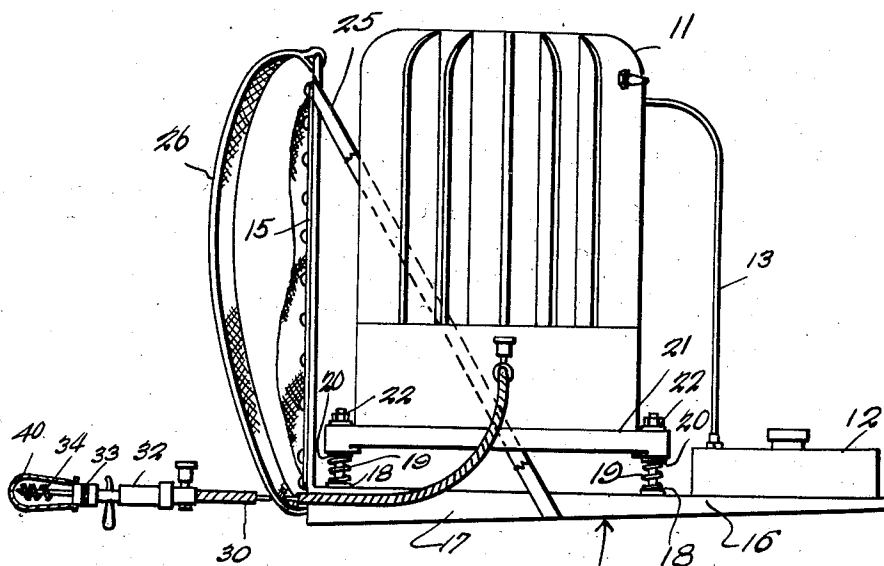


Fig. 2.

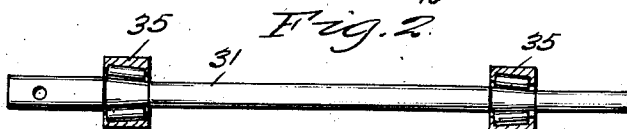
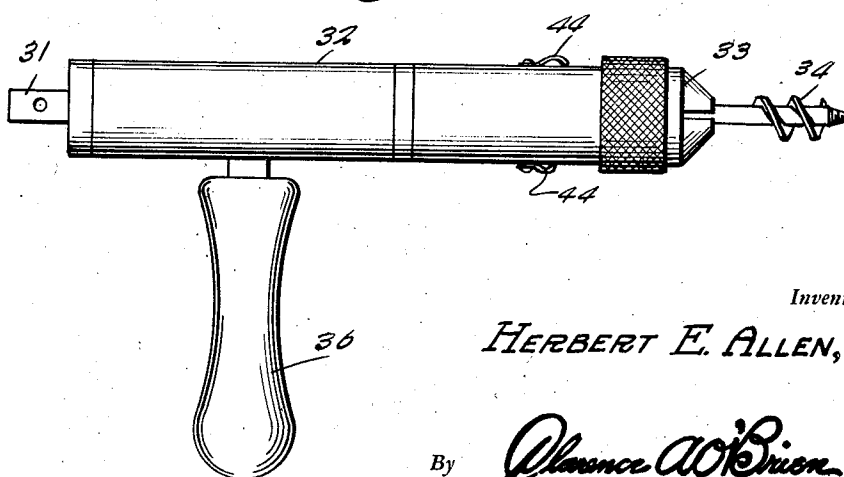


Fig. 3.



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Fig. 4.

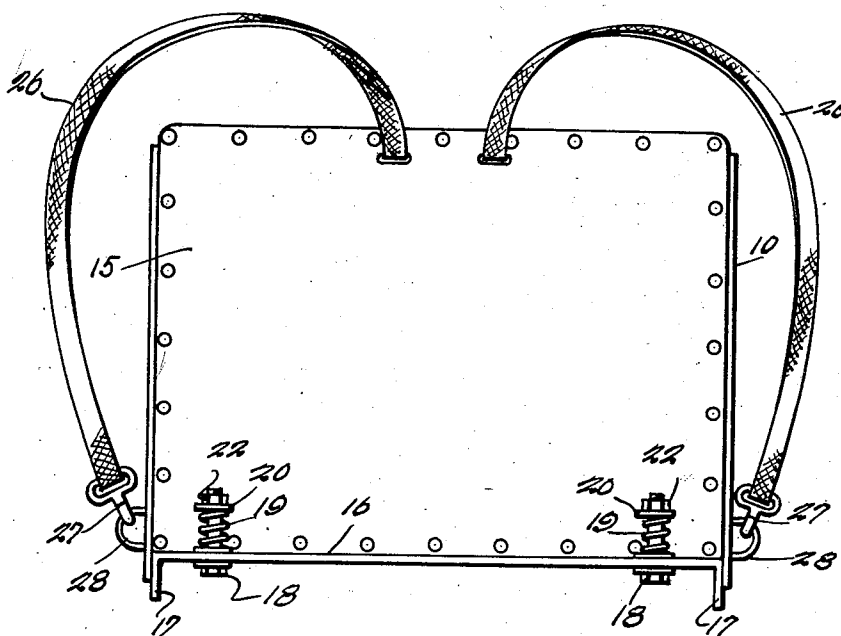
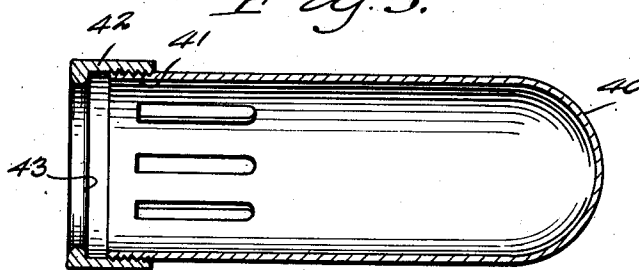


Fig. 5.



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PORTABLE DRILL TREE TAPPING MACHINE

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2 Claims. (Cl. 224-5)

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This invention relates to portable drills and more particularly to a drill especially suited for tapping trees, such, for example, as maple trees.

A primary object of this invention is the provision of a completely self-contained portable drill requiring no external source of power, which may be easily carried by one man.

An additional object is the provision of such a drill particularly adapted for tapping trees, as for example, maple trees, in a rapid and efficient manner.

A more specific object is the provision of such a drill driven by a motor, the motor being so mounted as to reduce vibration and corresponding discomfort to the user, to a minimum.

A still further object is the provision of a portable drill which is sturdy and durable in construction, reliable in operation, and relatively light and easy to carry.

A further specific object is the provision of an improved cover for the bit of the drill when the same is not in use, both to protect the bit from injury, and the person of the user.

Other objects reside in the combinations of elements, features of construction, and arrangement of parts, all as will be more fully pointed out hereinafter and shown in the accompanying drawings, wherein there is shown one preferred form of this inventive concept.

In the drawings:

Figure 1 is a side elevational view of one form of this invention, certain parts thereof being shown in section and certain other parts being broken away.

Figure 2 is an enlarged detail view of a drive shaft for the bit comprising a part of this invention.

Figure 3 is a side elevational view of the drill head and bit.

Figure 4 is a front elevational view of the carrying device for the motor comprising an element of this invention, and

Figure 5 is an enlarged sectional view of the protective cover member for the bit.

Like reference numerals refer to like parts throughout the several views of the drawings.

Having particular reference now to Figure 1 there is generally indicated at 10 a carrying or supporting member, adapted to support a gasoline motor 11 of any desired type. Support 10 also carries a fuel tank 12, from which a feed line 13 leads to motor 11. Having particular reference now to the supporting member 10 it will be seen, as shown in Figures 1 and 4, that the same is comprised of a plate 15, adapted to

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rest adjacent the back of the user, when in operative position, and a second supporting plate 16 secured to plate 15 and extending at substantially right angles thereto adapted to carry motor 11 and gas tank 12. As shown, the motor is adjacent to but slightly spaced from the back plate and thus there is provided a space functioning as a dead air or heating insulating space, protecting the back of the person to some extent from the heat of the motor. Plate 16 has its side edges turned downwardly to provide flanges 17 for strengthening and reinforcing the plate. A plurality, preferably four, bolts 18 are passed through suitably spaced apertures in plate 16 and have positioned thereabout coil springs 19 adapted to abut washers 20. As best shown in Figure 1, when motor 11 is mounted on plate 15 bolts 18 extend upwardly through suitable apertures in a flange 21 comprising the base of motor 11 and have nuts 22 threaded to the upper extremities thereof to hold the motor in related assembly with respect to carrier member 10. Thus it will be seen that the motor is cushioned on springs 19, and floatingly supported thereby, so that the vibration incident to the operation of the motor is largely absorbed by springs 19 and not transmitted to carrier plate 16 and thence to the person of the user. Reinforcing straps 25 (see Figure 1) extend from the upper portion of plate 15 to a midpoint of plate 16, being secured to these plates in any desired manner and provide additional support for the weight of motor 11 and to some extent constitutes a guard or shield therefor. Suitable carrying straps 26 are secured to plate 15 whereby the same may be supported on the back of the user in a manner similar to that of the conventional packs or knap-sack. The lower ends of straps 26 may be detachably secured to the base of plate 15, as, for example, by means of snap-hooks 27 engaging suitable extending rings 28 secured to plate 15.

Motor 11 drives through a conventional flexible drive shaft 30, a drill shaft 31 adapted to fit within the casing of a drill 32 provided with a clamping head 33, adapted to hold a bit 34. Positioned about drive shaft 31 is a pair of roller bearing members 35 spacing the shaft from the inner walls of casing 32. Roller bearings are used in preference to ball or similar type bearings, for the reason that the thrust force exerted when utilizing the device to drill a hole tends to shift the position of ball-bearings occasioning scouring of the drive shaft. The use of roller bearings obviates this difficulty. Casing 32 is provided

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with a handle portion 36 to facilitate handling of the drill.

A shield 40, as best shown in Figure 5, is provided to cover the bit 34 when the same is not in use. The shield is comprised of a cup-shaped member having threads 41 adjacent its open end adapted to engage a ring 42 having a channel 43 therein, parts 40 and 42 forming an integral structure. Casing 32 is, as best shown in Figure 3, provided with a plurality of springs 44 adapted, when guard member 40 is in position about drill 34 to engage channel 43, to prevent the guard from being accidentally displaced, or slipping out of position.

From the foregoing the mode of operation of the device should now be readily understood. The user merely places frame 10 on his back securing the same in carrying positions by means of straps 36, and starts the motor 11. Guard 40 is retained in position over bit 34 until the first tree to be tapped is reached when it is removed, and a suitable hole drilled into the tree. The operation is then successively repeated until all the trees of a particular tract have been tapped. The motor is then shut off, guard member 40 replaced and the apparatus removed from the user's back.

While the invention has been described particularly in conjunction with the tapping of trees, such as maple trees, it will be understood that it may be utilized with equal advantage for other purposes, as for example, the tapping of rubber trees or the tapping of citrus fruit trees for grafting.

It will also be understood that while the device has been herein described as an implement for tapping trees it may be advantageously utilized in any situation where the use of a portable drill is required or desirable.

It will also be understood that while the apparatus has been described in conjunction with a gasoline engine, any suitable source of power, provided the same is wholly self-contained and portable may be utilized.

From the foregoing it will now be seen that there is herein provided an apparatus achieving all the objects of this invention and others including many advantages of great practical utility and commercial importance.

As many modifications may be made in the apparatus hereinbefore shown and described and as many modifications may be made in this embodiment, it is to be understood that all matter hereinbefore shown or disclosed in the accompanying drawings is to be interpreted merely as illustrative and not in a limiting sense.

Having described the invention, what is claimed as new is:

1. A portable power plant including a base

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plate, a back plate rigidly secured perpendicularly to said base plate upon a back edge thereof, a supporting harness secured to said back plate for carrying and suspending said power plant upon the back of a user, a pair of reinforcing and shielding bars attached at one end to the upper portion of said back plate and at their other end to the sides of said base plate intermediate thereof, an internal combustion engine mounted solely upon said base plate, resilient support means interposed between said engine and said base plate, a power take-off from said engine and a fuel tank connected with said engine and mounted upon said base plate, said engine being mounted upon the back portion of said base plate and adjacent said back plate but slightly spaced from said back plate to provide a dead air heat insulating space therebetween and between said reinforcing bars.

2. A portable power plant including a base plate, a back plate rigidly secured perpendicularly to said base plate upon a back edge thereof, a supporting harness secured to said back plate for carrying and suspending said power plant upon the back of a user, a pair of reinforcing and shielding bars attached at one end to the upper portion of said back plate and at their other end to the sides of said base plate intermediate thereof, an internal combustion engine mounted solely upon said base plate, resilient support means interposed between said engine and said base plate, a power take-off from said engine and a fuel tank connected with said engine and mounted upon said base plate, said engine being mounted upon the back portion of said base plate and adjacent said back plate but slightly spaced from said back plate to provide a dead air heat insulating space therebetween and between said reinforcing bars, and said fuel tank being mounted on the outward portion of said base plate and outwardly from said engine.

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