Sept. 23, 1941. O. R. FRITZ 2,256,786

PORTABLE MOTOR-DRIVEN SAW

Filed Oct. 15, 1938

Fig. 1

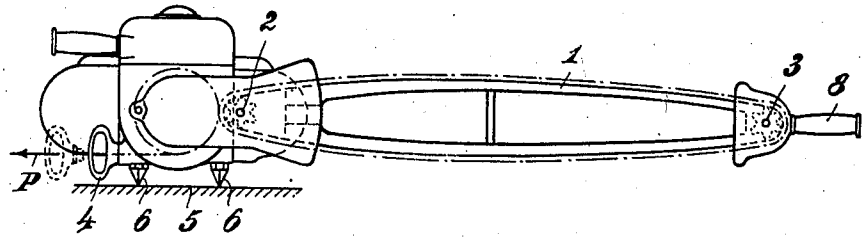


Fig. 2

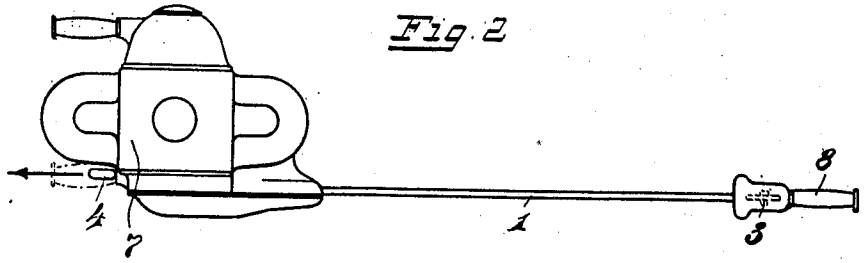
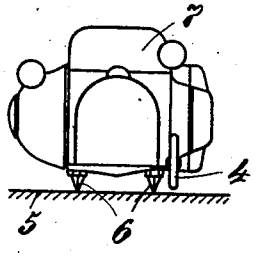


Fig. 3



Oswald Rudolf Fritz
INVENTOR
By Otto Munk
his ATTY.

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PORTABLE MOTOR-DRIVEN SAW

Oswald Rudolf Fritz, Vienna, Germany, assignor to the firm Ural-Maschinen-Vertriebsgesellschaft m. b. H., Vienna, Germany

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2 Claims. (Cl. 143—32)

The invention relates to portable saws driven by internal combustion engines, as used for felling trees, cross cutting and similar purposes, and having a chain saw with guide therefor, and the invention concerns more particularly the starting arrangement for the motor of such machines.

Various kinds of starting devices have been proposed for such machines, including crank starters, kick starters and others, one of the most simple starting devices which has been selected as an example to describe the principle of the present invention comprising a drum which is directly or indirectly connected to the crank shaft of the engine, and on which is wound a chain or rope which is given a sharp pull by hand to start the engine. Owing to the machine standing free without anchorage when the engine is first started, and its weight being insufficient to resist the sudden pull on the starter, the machine is drawn along more or less in the direction of the pull, or even if steadied by hand it is shifted from its position. The engine is also liable to stop while the machine is in operation so that it is necessary to start the engine under these conditions, and this must be possible without danger of the saw chain guide being bent, the latter being in the saw cut and being the sole support for the engine.

For these reasons according to the invention the starting device is so built into the machine or arranged therein that the direction of the force applied to the starting device for starting the engine is in the plane of the chain saw guide, or substantially so. Further, the direction in which the motor runs and the position of the pull member of the starter is such that in starting the engine the machine is forced downwards towards the ground so that it remains stationary thereby facilitating the starting up, particularly in the case of big machines.

The invention is illustrated in the accompanying drawing showing a portable motor driven saw provided with a starting device of the kind above referred to by way of example, and wherein

Fig. 1 is a side view of the machine,

Fig. 2 a plan view thereof; and

Fig. 3 an end view.

Referring to the drawing, the machine is provided with a built on guide 1 for the chain saw; 2 and 3 designate the points of reversal of the chain saw, and 4 designates the handle of the engine starter. P designates the direction in which the handle 4 is pulled to start the engine, this direction of pull being in the plane of the guide 1, or substantially so, as shown in Fig. 2. In starting with the machine on the ground 5 resistance to displacement of the machine is afforded to a certain extent by the base plate of the machine being provided with spikes 6 on which the machine stands. To start the engine the operator takes hold of the starting handle 4 with his right hand, places the other hand on the machine at 7 to steady it and gives the handle 4 a sharp pull in the direction P. The turning moment resulting from the two opposed forces represented by the pulling force and supporting force acts on the ground and the spikes 6 consequently dig into the ground so that the machine is held stationary. Owing to the direction of pull being in the plane of the guide there are no lateral turning moments which might bend the guide 1 in the event of an operator holding the handle 8 on said guide. Nor is there any tendency for the guide to be bent when the engine is started up again after stopping while in the sawing position, i. e. when the guide 1 is clamped in the kerf and carries the engine.

The guide is merely subjected to a pulling moment when starting the engine, this moment being taken up by the operator steadying the machine at 7 and by the other operator holding the handle 8, and the pull is also counteracted by the friction produced by the engagement of the guide 1 in the kerf. Thus it is impossible for the guide 1 to be bent, even should the operator starting the engine fail to steady the machine with one hand and use both hands to the handle 4 with a view to applying more power for starting.

The arrangement is preferably also such that the point at which the force is applied in operating the starter is in the saw guide plane bounded by a line connecting the points of reversal of the chain saw and the ground or substantially so.

What I claim, is:

1. A portable chain-saw construction comprising an endless chain-saw, an internal combustion engine for actuating said chain-saw, said engine comprising a starter, oblong supporting means for said engine, said supporting means serving also to support said chain-saw, the latter following substantially the oblong contour of said supporting means, said starter comprising pulling means for starting the engine, said pulling means being operative in substantially the same longitudinal plane as said supporting means and adapted to receive a longitudinally directed pulling force for starting the engine, whereby torsional strains on said oblong engine supporting means are prevented during the starting of the engine.

2. The device claimed in claim 1, in which said engine is provided with ground gripping means and said pulling means is disposed for operation below the longitudinal axis of the said oblong supporting means.

OSWALD RUDOLF FRITZ.