

No. 638,553.

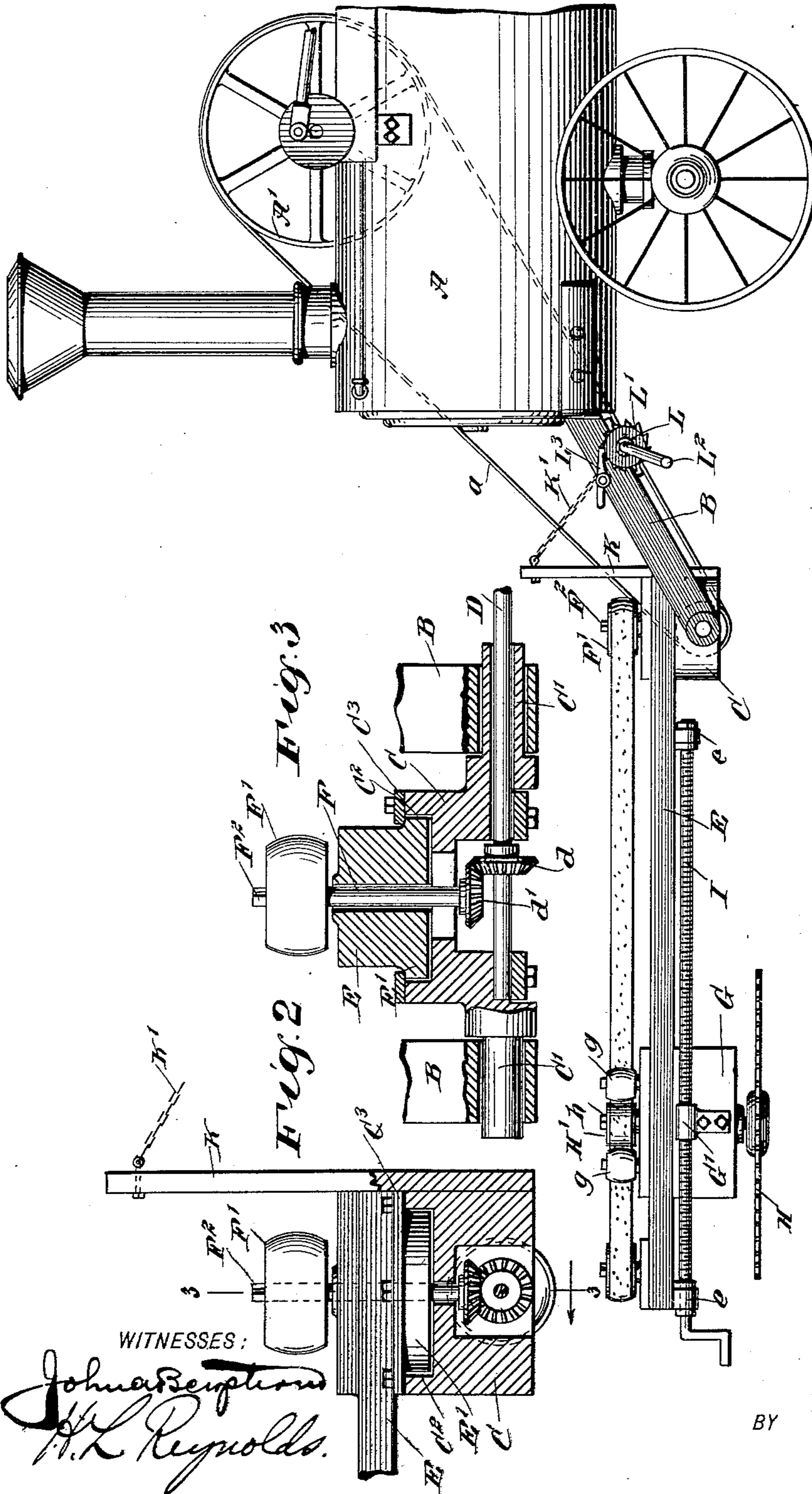
Patented Dec. 5, 1899.

E. BURKE.
TREE FELLING DEVICE.

(Application filed June 5, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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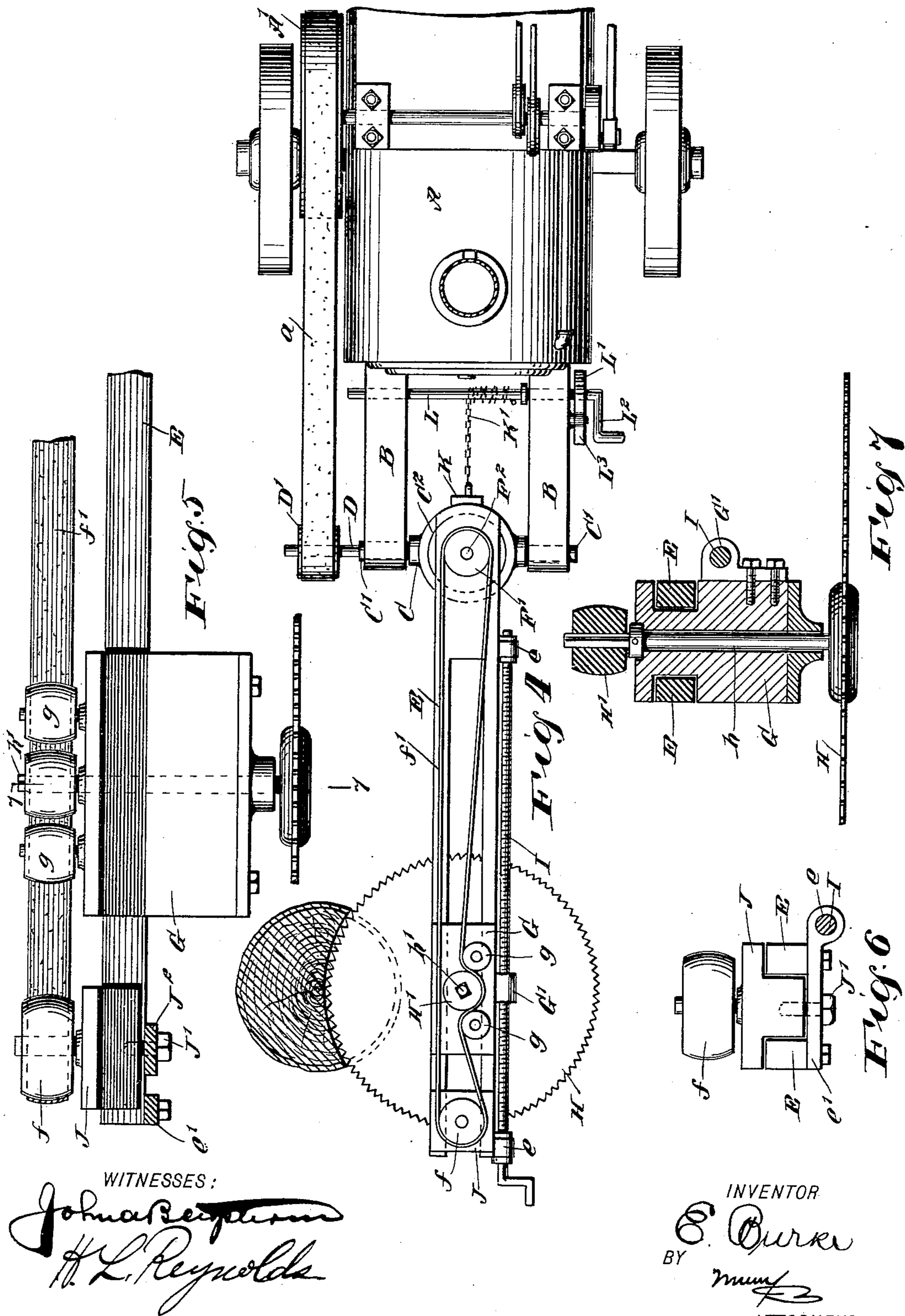
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UNITED STATES PATENT OFFICE.

ELI BURKE, OF TAMA, IOWA, ASSIGNOR OF ONE-THIRD TO HENRY
LUETHJE, OF SAME PLACE.

TREE-FELLING DEVICE.

SPECIFICATION forming part of Letters Patent No. 638,553, dated December 5, 1899.

Application filed June 5, 1899. Serial No. 719,405. (No model.)

To all whom it may concern:

Be it known that I, ELI BURKE, of Tama, in the county of Tama and State of Iowa, have invented a new and Improved Tree-Felling Device, of which the following is a full, clear, and exact description.

My invention relates to an improvement in devices by which power is applied for cutting down trees, and comprises the novel features hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my device. Fig. 2 is a longitudinal sectional elevation taken through the pivot end of the swinging arm. Fig. 3 is a cross-sectional elevation through the pivot end of the swinging arm. Fig. 4 is a plan view of my device. Fig. 5 is a longitudinal section taken through the outer or swinging end of the swinging arm. Fig. 6 is an outer end view of the swinging arm, and Fig. 7 is a cross-section through the block carrying the saw.

The object of my invention is to produce a device for cutting down or felling trees which may be attached to a portable engine or other equivalent motor, whereby power may be applied to the cutting down of trees. With this object in view I have mounted a swinging arm upon a traction or other suitable portable engine and upon this arm have journaled a saw which is connected by suitable power-transmitting means with the engine, said saw thus being movable in any direction desired, so as to cut down the trees.

In Figs. 1 and 4 a portion of the traction-engine A is shown. This engine may be of any convenient type or may be a motor of any other form mounted upon a truck, so that it is readily portable to the point where its services are desired. The engine or other motor which is carried thereby is provided with a fly-wheel A', from which a belt α is conducted downward, so as to engage with the mechanism communicating power to the saw. Upon the forward end of the engine are secured two arms B, which project forwardly and downwardly, being connected at their outer ends by a frame C, which is pro-

vided with journals C' at each end thereof, pivoted in the ends of the arms B. The body of this frame comprises a yoke which in its upper end has a circular recess C², within which is placed a circular boss or flange E' upon the pivot end of the swinging arm E. This flange is held securely in place by the ring C³, which is secured to the yoke C and projects over the flange E' of the arm. This swinging arm in the main consists of two parallel bars connected at their outer ends by a cross-bar e' and forming a guideway receiving a sliding block G, said block carrying the saw. In order to properly support the swinging arm E, an arm K extends upwardly therefrom and is connected, by means of a chain K' or other suitable device, with a windlass-shaft L, which is mounted upon the arms B and is provided with a crank L², ratchet-wheel L', and pawl L³, by means of which the elevation of the swinging arm may be controlled.

One of the pivots C' of the yoke or frame C is hollow and forms a journal for a shaft D, said shaft having a pulley D' upon one end adapted to receive the belt α , leading from the fly-wheel A', and having between the arms of the yoke a bevel-gear d , which meshes with the bevel-gear d' , secured upon the lower end of a vertical shaft F, which passes through the pivot-axis of the swinging arm E and has a pulley F' mounted upon its upper end. The upper end F² of the shaft F is made square or of some other non-circular section, so that the pulley may be readily removed and replaced by another of different size when it is desired to run the saw at a different rate of speed.

In the outer end of the swinging arm E is placed a block J, which has a limited adjustment within said arm. This block is secured in place by means of a bolt J', which passes through a bar J², connecting the outer ends of the swinging arm E. Upon this block J is pivotally mounted a pulley f , which receives a belt f' , which also passes about the pulley F' at the opposite end of the arm. This belt f' is adapted to engage a pulley upon the saw-shaft and revolve the same.

The block G, which is mounted to slide in the arm E, has a shaft h extending verti-

cally through the same and provided at its upper end with a pulley H' and at its lower end carrying the saw H. This block also carries two idler or tightener pulleys g, which
 5 are located at a slight distance from the pulley H' and so as to cause the belt to contact with a considerable arc of said pulley. The block G also has a boss or lug G' secured to one side thereof and threaded to receive a
 10 threaded shaft I, which extends along one side of the swinging arm E and is journaled in bearings e at each end of said arm. This shaft has a crank at one end by means of which it may be turned and the block G
 15 caused to travel along the swinging arm, thus varying the position of the saw.

By means of the two pivots formed by the pivots C' upon the yoke C and the vertical shaft F, upon which the swinging arm pivots,
 20 the saw may be raised or lowered or swung to either side, so as to engage the desired tree. Such movement of the saw will in no way affect the transfer of the power.

The device is shown in operation in Fig. 4, in which it is shown as having partially cut
 25 through the trunk of a tree.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

30 1. A device for felling trees, comprising a motor adapted to be moved about among the trees, arms fixed thereto and projecting forwardly, a yoke-shaped frame pivoted horizontally in said fixed arms, a power-shaft jour-
 35 naled in the pivots of the said yoke, a vertical shaft mounted to rotate in the yoke and having rotative connection with the horizontal power-shaft, a swinging arm pivoted on the yoke concentric with said vertical shaft but
 40 independently thereof, a saw mounted to slide upon the swinging arm, and a rotative connection between said vertical shaft and the saw permitting the sliding movement of the
 45 saw upon the arm, substantially as described.

2. A device for felling trees comprising a

motor adapted to be moved about among the trees, arms fixed thereto and projecting forwardly, a yoke-shaped frame pivoted horizontally in said fixed arms, a power-shaft jour-
 50 naled in the pivots of said yoke and having rotative connection with the horizontal power-shaft, a swinging arm pivoted on the yoke and concentric with said vertical shaft but independent thereof, a saw mounted to slide
 55 upon the swinging arm, two pulleys mounted respectively upon the outer end and the pivot-shaft of said arm, a belt passing over said pulleys, a block mounted to slide upon said
 60 arm, a saw mounted to turn upon a vertical shaft journaled in said block, and a pulley on the saw engaging the said belt to turn the saw, substantially as described.

3. A device for felling trees, comprising a portable engine or equivalent motor adapted to be moved about among the trees, arms fixed
 65 thereto and projecting forwardly, a frame having horizontal pivots in said arms, a power-shaft extending through one of said pivots and having a bevel-gear fixed thereto, a driv-
 70 ing connection for said shaft from the motor, a vertical shaft journaled in said frame and having a bevel-gear connected with the other bevel-gear, a pulley upon said vertical shaft,
 75 a swinging arm pivoted concentric with said shaft, a pulley on the outer end of the swinging arm in line with the pulley upon the pivot-shaft, a belt passing over said pulleys, a block
 80 sliding upon the swinging arm, a vertical shaft journaled in the block, a saw, and a belt-pulley upon said shaft, the belt-pulley engaging the belt, and idler or tightener pul-
 85 leys on the block engaging the belt on each side of the pulley on the saw-shaft, and a threaded shaft journaled on the swinging arm and engaging the block to shift it, substan-
 tially as described.

ELI BURKE.

Witnesses:

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