

Jan. 11, 1938.

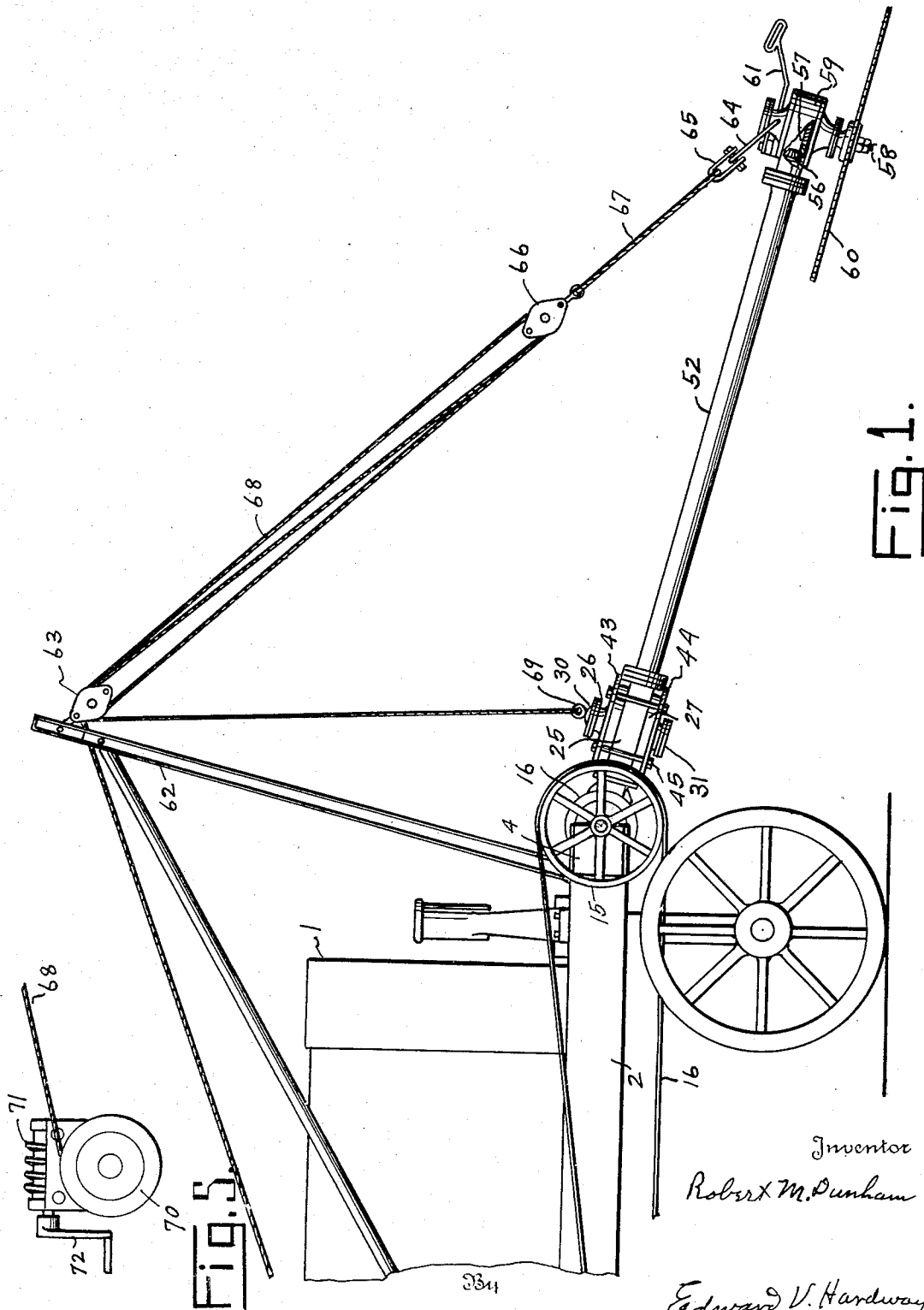
R. M. DUNHAM

2,105,030

SAW

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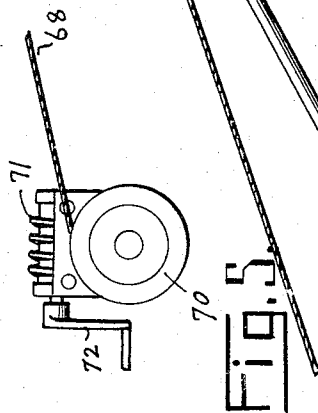
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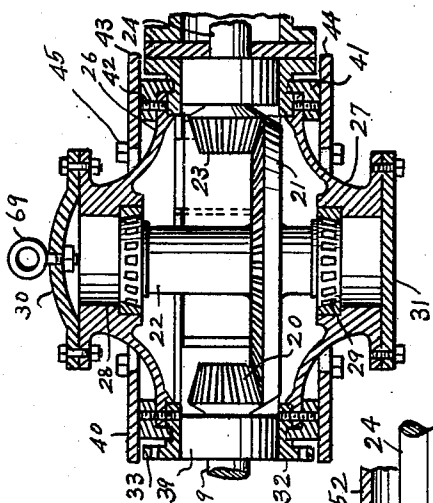


Fig. 3.

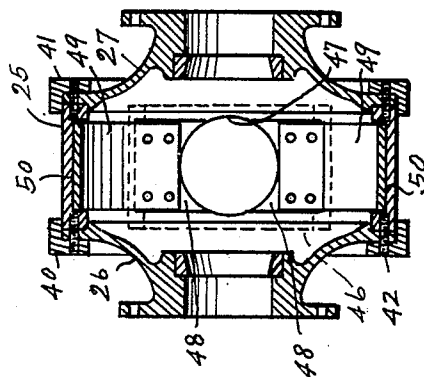


Fig. 4.

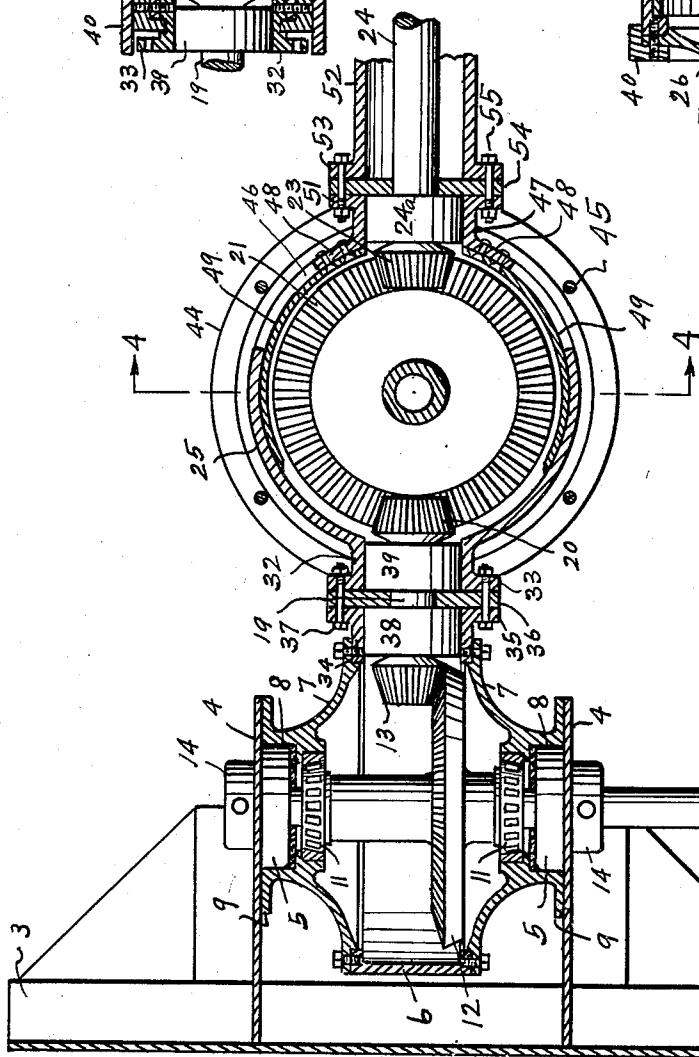
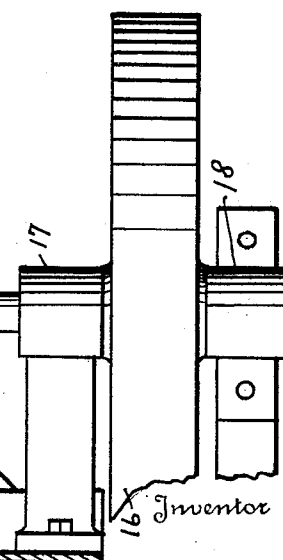


Fig. 2.



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UNITED STATES PATENT OFFICE

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2 Claims. (Cl. 143—43)

This invention relates to a saw and has particu-
lar relation to that type of saw specially designed
for felling trees.

It is an object of the invention to provide a saw
of the character described which is mounted in
a novel manner on a motor vehicle and the in-
vention includes means whereby the saw may be
driven from the vehicle motor.

It is another object of the invention to provide
a saw support and driving means so mounted on
the frame of the motor vehicle that the saw may
be readily elevated or swung horizontally to the
end that it may be readily applied to the work,
will be of sturdy construction and yet will possess
the required flexibility to accomplish the pur-
poses intended.

Another object of the invention is to provide, in
a device of the character described, a saw sup-
porting and driving means which embodies two
gear casings rigidly connected together and one
of which is mounted on the vehicle frame to pivot
on a horizontal axis and to the other of which the
main driving shaft and its housing are con-
nected so as to swing on an approximately vertical
axis, the construction thus provided being very
strong and durable and one which can be inex-
pensively produced and readily kept in repair.

With the above and other objects in view the
invention has particular relation to certain novel
features of construction, operation and arrange-
ment of parts, an example of which is given in this
specification and illustrated in the accompanying
drawings, wherein:

Figure 1 shows a side view of the saw and its
supporting and driving mechanism shown
mounted on the front end of the motor vehicle.

Figure 2 shows an enlarged fragmentary plan
view, partly in section.

Figure 3 shows a vertical sectional view of a
gear casing employed, showing the gearing
mounted therein,

Figure 4 shows a sectional view of said casing
taken on the line 4—4 of Figure 2 and Figure 5
shows an end view of a cable winding drum em-
ployed.

Referring now more particularly to the draw-
ings, wherein like numerals of reference desig-
nate similar parts in each of the figures, the
numeral 1 designates a motor vehicle as a whole
having a frame formed with side members 2.

At the forward end of the frame and secured
thereto there is a cross bar 3, extending forwardly
from which are the channels 4, 4, which are
spaced the required distance apart and secured
to the inner sides of which are the bosses 5, 5.

There is a substantially circular gear casing 6
having the end covers 7, 7 enclosing said casing
and whose outer ends are extended and tubular
and formed with the bearings 8, 8, to receive
said bosses. The casing covers 7 terminate in the
annular flanges 9, 9 which bear against the inner
sides of the channels 4.

A horizontal shaft 10 extends through the cas-
ing thus formed and the bosses 5 and the chan-
nels 4 are provided with suitable bearings to re-
ceive said shaft. The shaft is also equipped with
suitable antifriction bearings 11, 11.

Fixed on the shaft 10 and enclosed by said cas-
ing there is a bevel driving gear 12 which is in
mesh with a driven pinion 13 also enclosed by
said casing.

The shaft 10 is confined against lengthwise
movement by means of the collars 14, 14 which
are fastened to the shaft on opposite sides of the
channels 4. The shaft 10 is extended laterally
and has a belt pulley 15 fixed thereon over which
the belt 16 operates. This belt is driven from a
suitable power take off which is operatively con-
nected with and driven from the motor of the
vehicle.

The extended end of the shaft 10 is supported
by and is rotatably mounted in suitable bearings
17, 18 which are carried by the main frame of
the vehicle.

The pinion 13 is fixed on the rear end of a
stub shaft 19 which extends forwardly from the
casing 6. Fixed on the forward end of the shaft
19 there is a pinion 20 which is in mesh with and
drives the bevel gear wheel 21. This bevel gear
wheel is fixed on a vertical shaft 22 and is in mesh
with and drives a pinion 23 which is fixed on the
rear end of the main driving shaft 24. The trans-
mission including the gears 20, 21 and 23, is in-
closed in a transmission casing 25 which includes
the upper and lower covers 26, 27. The upper
and lower ends of the shaft 22 are mounted on
anti-friction bearings 28, 29 which are located
in said covers. These covers are extended and
the outer ends are formed tubular and closed by
the upper and lower cover plates 30 and 31. The
rear end of the transmission casing 25, is formed
with a tubular extended sleeve 32, which ter-
minates in an external annular flange 33 and
fastened to the forward end of the casing 6 is the
sleeve 34 which may be detached from the casing
and whose forward end terminates in an external
annular flange 35. Between the flanges 33, 35
there is an annular partition plate 36 which has
a central bearing for the shaft 19. The flanges
33, 35 are secured together by the bolts 37 which

pass also through the margin of the partition plate 36 whereby the casings 6 and 25 are secured rigidly together. Within the sleeves 32, 34 and arranged on opposite sides of the plate 36 are anti-friction bearing assemblies 38, 39 for the shaft 19.

The covers 26, 27 are secured to the casing 25 by means of the rings 40, 41, formed of angle irons which are fitted therearound as more accurately shown in Figure 3 and whose flanges rest against the outer margins of the covers 26, 27 and overlap the periphery of the casing 25. Said rings 40, 41, covers 26, 27 and the casing 25 are secured in assembled relation by means of the bolts 42. Upper and lower annular plates 43, 44, are fitted over the tubular ends of the covers 26, 27 and are secured together by means of the long clamp bolts 45 and rest against the upper and lower flanges of the rings 40, 41. This provides a very sturdy construction for the transmission casing.

The forward end of the transmission casing is cut away, providing an opening 46.

There is a tubular bearing sleeve 47 which is extended through said opening and whose inner end has the oppositely arranged anchors 48, 48 to which the opposing arcuate guides 49, 49 are attached. These guides work in the inside grooves 50, 50 of the casing 25.

The forward end of the bearing sleeve is formed with an external annular flange 51 and within said sleeve there is an antifriction bearing assembly 24a for the shaft 24. A tubular shaft housing 52 surrounds the shaft 24 and its rear end is formed with an external annular flange 53. Between the flanges 51, 53, there is an annular partition plate 54 having a central bearing for the shaft 24. This plate 54 abuts the outer end of the bearing assembly 24a and said plate is clamped between the flanges 51, 53 by the bolts 55 which secure the shaft housing 52 rigidly to the sleeve 47. This construction permits the shaft 24 and its housing to swing laterally about the axis of the shaft 22 and, as hereinabove explained, the transmission casing 25, together with the shaft 24 and its housing 52 may swing in a vertical plane about the axis of the shaft 10.

The shaft 24 and its housing are extended forwardly the required distance and fastened on the forward end of the shaft 24 there is a pinion 56 which is in mesh with and drives a bevel gear wheel 57. This gear wheel 57 is fastened on the sawshaft 58 and the gears 56, 57, are inclosed in a suitable housing designated generally by the numeral 59 and which is securely attached to the forward end of the housing 52 as more accurately shown in Figure 1. A circular saw 60 is suitably secured to the lower end of the shaft 58. The saw may be swung laterally to be applied to the work by means of a suitable handle 61 which is attached to the housing 59.

Mounted on the framework of the vehicle 1 there is an A-frame 62 whose upper end carries a tackle block 63. The housing 59 is provided with a link 64 to which a clevis 65 is connected and a lower tackle block 66 is attached to the clevis 65 by means of cable 67. A flexible line 68 has one end connected to the eye 69, carried by the end plate 30 and this line is threaded through the sheaves of the tackle block 63, 66 and its other end is wound around the drum 70 suitably located on the vehicle frame and operable by a

worm gearing 71 which may be turned by a crank 72 to wind up or release the cable 68.

The saw 60 may thus be elevated or lowered in an obvious manner and may be swung laterally as desired by means of the handle 61.

The saw hereinabove described has been particularly designed for cutting small timber in the process of clearing land but may be used also for cutting trees of relatively large dimensions by increasing the diameter of the saw 60. The saw has been arranged forwardly of the transporting vehicle so that the timber may be readily reached and a passageway cleared for the forward movement of the vehicle as the work progresses.

It is obvious that certain mechanical changes may be made without departing from the principle of the invention. The drawings and description, therefore, are intended to disclose what is now considered to be a preferred form of the invention by way of illustration only while the broad principle of the invention will be defined by the appended claims.

What I claim is:

1. A sawing machine comprising a motor vehicle having a frame, spaced anchors extending forwardly from the frame, gear casings, rigidly connected together, said anchors and one of the casings being provided, one with bosses and the other with bearings to receive said bosses whereby said casings are mounted on the frame to pivot about a horizontal axis, gearing in said casings, a power take off from the motor vehicle operatively connected with said gearing to drive the same, a driven shaft mounted to swing in an approximately common plane with said axis, a shaft housing about said shaft and swingable therewith, a bearing sleeve to which the shaft housing is connected, guides on said sleeve and working in the other casing and forming a connection between the sleeve and casing, a gear housing on the outer end of the shaft housing, a saw shaft mounted to rotate in the bearings in the gear housing, gearing in the gear housing operatively connecting said shafts whereby the latter is driven from the former and a circular saw on the saw shaft mounted to rotate in a plane approximately parallel with the driven shaft.

2. A sawing machine comprising a motor vehicle having a frame, spaced anchors extending forwardly from the frame, gear casings rigidly connected together, said anchors and one of the casings being provided with means whereby said casings are mounted on the frame to pivot about a horizontal axis, gearing in said casings, a power takeoff from the motor vehicle operatively connected with said gearing to drive the same, a driven shaft mounted to swing in an approximately common plane with said axis, a shaft housing about said shaft and swingable therewith, a bearing sleeve to which said shaft housing is connected, guides on said sleeve in working relation with the other casing and forming a connection between the sleeve and its casing, a gear housing on the outer end of the shaft housing, a saw shaft mounted to rotate in bearings in the gear housing, gearing in the gear housing operatively connecting said shafts whereby the latter is driven from the former and a saw on the saw shaft mounted to rotate in a plane approximately parallel to the driven shaft.

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