Oct. 6, 1953 R. A. ELLIOTT 2,654,638

POLE CLIMBING DEVICE

Filed April 13, 1951 2 Sheets-Sheet 1

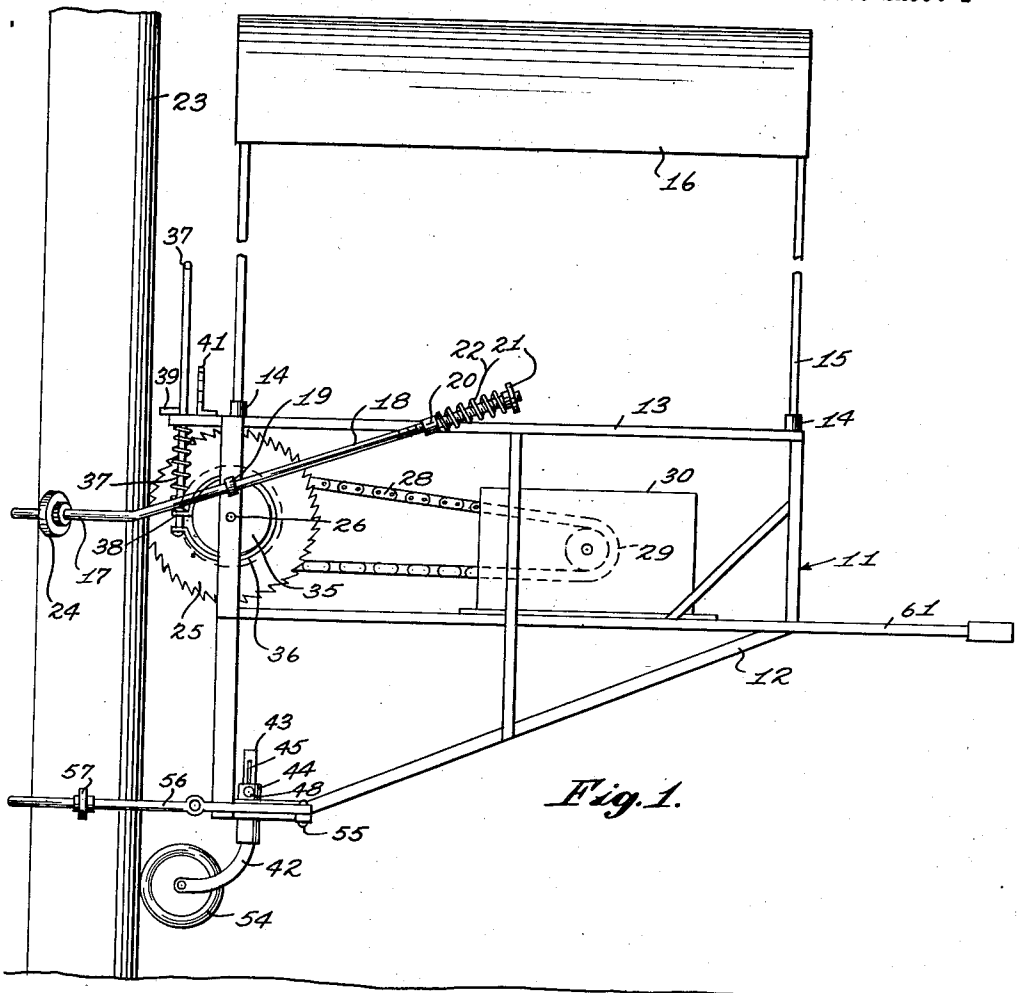


Fig. 1.

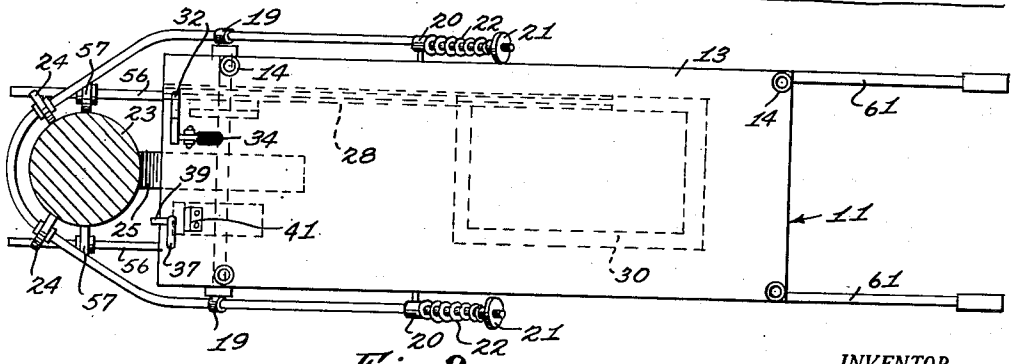


Fig. 2.

INVENTOR.
ROBERT A. ELLIOTT
BY
McMorrow, Berman & Davidson
ATTORNEYS

Oct. 6, 1953 R. A. ELLIOTT 2,654,638

POLE CLIMBING DEVICE

Filed April 13, 1951 2 Sheets-Sheet 2

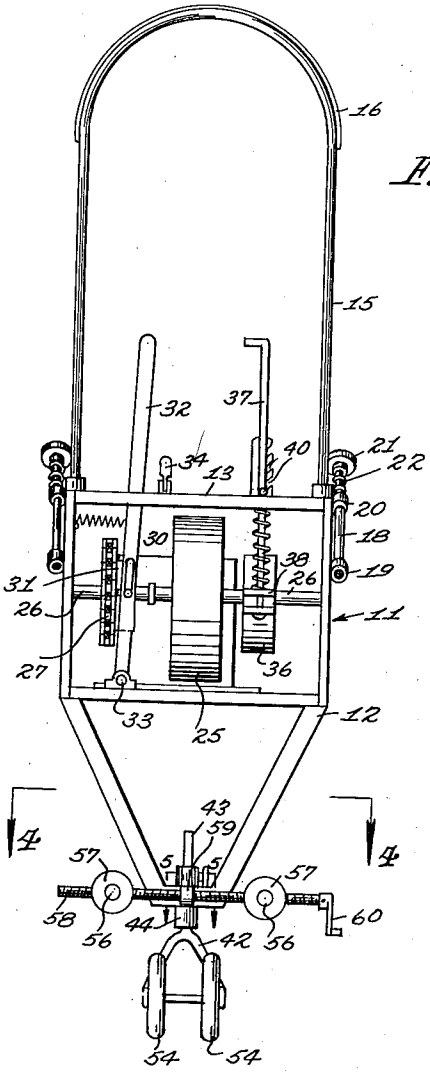


Fig. 3

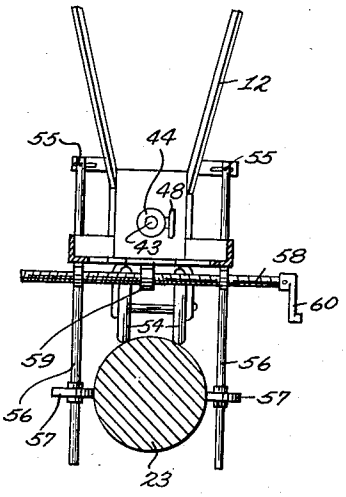


Fig. 4.

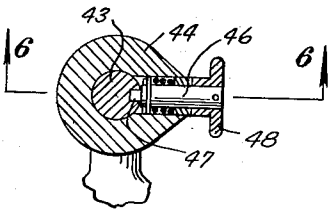


Fig. 5.

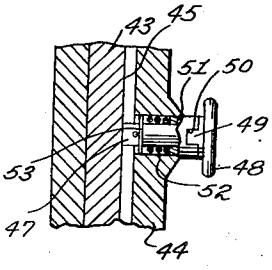


Fig. 6.

INVENTOR.
ROBERT A. ELLIOTT
BY

McMorrow, Berman & Davidson
ATTORNEYS

Patented Oct. 6, 1953

2,654,638

UNITED STATES PATENT OFFICE

2,654,638

POLE CLIMBING DEVICE

Robert A. Elliott, Fallston, N. C.

Application April 13, 1951, Serial No. 220,940

1 Claim. (Cl. 304—28)

1

This invention relates to portable scaffold devices, and more particularly to an improved portable device especially adapted to be used for climbing poles, such as telephone poles and power line poles.

A main object of the invention is to provide a novel and improved pole climbing device which is simple in construction, which may be readily transported from one location to another, and which may be rapidly set up for use.

A further object of the invention is to provide an improved portable pole climbing device which involves relatively inexpensive parts, which is sturdy in construction, which is easily adjustable in accordance with the size of the pole with which it is to be used, and which provides a safe and rapid means for ascending and descending poles, such as telephone poles, power line poles, and the like.

Further objects and advantages of the invention will become apparent from the following description and claim, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view of an improved pole climbing device constructed in accordance with the present invention, shown engaged with a pole in operating position;

Figure 2 is a horizontal cross-sectional view taken through the pole of Figure 1, and showing the pole climbing device in top plan view with the protective canopy thereof removed;

Figure 3 is a front end elevational view of the pole climbing device of Figure 1;

Figure 4 is a cross-sectional view taken on the line 4—4 of Figure 3;

Figure 5 is an enlarged cross-sectional detail view taken on line 5—5 of Figure 3;

Figure 6 is a cross-sectional view taken on the line 6—6 of Figure 5.

Referring to the drawings, the device is generally designated at 11 and comprises a framework 12 constructed of tubular metal sections and provided with a platform 13 which is rigidly secured to the top of the framework 12. The corner portions of the platform 13 are provided with the respective upstanding cylindrical sleeves 14 adapted to receive the vertical corner post elements 15 of a protective canopy 16 which may be disposed over the platform 13 in the manner shown in Figure 1.

Designated at 17 is a yoke member whose side arms 18 extend slidably through respective apertured lug members 19 and 20 secured to the sides of the frame 12, the ends of the arms being provided with nut elements 21 threaded thereon and with coil springs 22 engaged around the end portions of the arms and bearing between the nut elements 21 and the apertured lugs 20 to bias the bight portion of the yoke 17 inwardly toward the frame 12. As shown in Figure 1, the yoke 17 is adapted to surround a pole 23, and the bight portion of the yoke has journaled thereon

2

a pair of rollers 24, 24 arranged to engage the surface of the pole 23 in the manner shown in Figure 2, the rollers 24 being in respective, outwardly extending, radial planes with respect to pole 23. As shown in Figure 1, the bight portion of the yoke 17 is horizontal and the arms of said yoke member are inclined upwardly and outwardly, whereby the springs 22 exert an upwardly inclined, biasing force directed along the arms of the yoke member 17.

Designated at 25 is a toothed wheel which is secured on a transverse shaft 26 journaled in the forward end portion of the frame 12 and extending outwardly from said frame, so as to be engageable with the surface of a pole 23 in the manner shown in Figure 1 when the device is mounted on the pole. The wheel 25 is arranged with its teeth directed in a counterclockwise direction, as viewed in Figure 1, whereby counterclockwise rotation of the wheel 25 will exert lifting action on the frame and elevate the frame relative to the pole 23. Rotatably secured on the shaft 26 is a sprocket wheel 27 which is coupled by a sprocket chain 28 to the driving sprocket 29 on the output shaft of a gasoline engine 30 mounted on the frame 12 below the platform 13. Designated at 31 is a conventional clutch device keyed to the shaft 26 and provided with a control lever 32 arranged to extend upwardly adjacent the forward end of the platform 13 and pivoted at its lower end to the lower portion of frame 12, as shown at 33. The lever 32 may be provided with a suitable yoke arrangement well known in the art, engaging the disc portion of the clutch device 31 and is spring biased so as to urge said disc device into coupling engagement with the sprocket wheel 27, whereby the shaft 26 is normally coupled to said sprocket wheel and the toothed wheel 25 will be rotated by the engine 30, thereby causing elevating force to be exerted by the toothed wheel on the pole 23. The motor 30 is controlled in the usual manner and a foot pedal 34 may be provided on the platform 13 which is connected to the throttle of motor 30 for controlling the supply of fuel to the motor and for regulating the speed thereof.

Secured on the shaft 26 is a brake disc 35, and surrounding the periphery of said disc is a brake band 36. One end of the brake band 36 is connected to the end of a vertical brake control rod 37 which extends slidably through the forward end of the platform 13 and through the other end of the brake band 36, as shown at 38. A coil spring 39 encircles the rod 37 and bears between the end 38 of brake band 36 and the platform 13, as shown in Figure 1. The rod 37 is provided with a laterally extending pin element 39 which limits downward movement of the rod relative to the platform 13 and which is lockingly engageable with respective notches 40 in an upstanding bracket member 41 secured on platform 13 to lock the brake rod in various positions wherein brake

band 36 is clampingly engaged with the brake disc 35. The pin element 39 may be engaged in any one of the notches 40, depending upon the amount of braking pressure required to lock the shaft 26, in accordance with the weight of the person to be supported on the platform 13 with the device in an elevated position.

Designated at 42 is a caster bracket having a shank 43 slidably engaging in a vertical sleeve member 44 secured to the lower portion of the frame 12 adjacent the forward end of the frame. The shank 43 is formed with a vertical groove 45, and the sleeve 44 is provided with a radial pin element 46 having a flat end 47, adapted to engage in the groove 45 to lock shank 43 against rotation. Secured on the shank of pin element 46 is a disc member 48 formed with diametrically opposed lugs 49 lockingly engageable in opposed recesses 50 formed in the boss 51 through which the element 46 extends. Pin element 46 is biased inwardly by a coil spring 52 surrounding the pin element in its bore and bearing on a washer 53 anchored to the pin element, whereby the reduced rectangular end portion 47 of the pin element is urged into the groove 45 and at the same time the lugs 49 are engaged in the recesses 50. The shank 43 is free to move vertically, but is locked against rotation when the parts are positioned as shown in Figures 5 and 6. The shank 43 may be released for free rotation by merely pulling outwardly on the disc 48 and rotating said disc so that the lugs 49 will engage on the periphery of the boss 51 rather than in the recesses 50.

Journaled to the ends of the arms of the caster bracket 42 are the spaced parallel caster wheels 54, 54 adapted to engage the surface of the pole 23 below the frame 12, as shown in Figure 1.

Slidably and pivotally connected to the lower portion of the frame 12 at 55, 55 are respective forwardly extending arms 56, 56 provided with rollers 57 journaled thereon adapted to engage the pole 23 at diametrically opposite points, as shown in Figure 2. The intermediate portions of the arms 56 are connected by a transverse shaft 58 which is rotatably secured to the frame 12 by a bracket 59 arranged so that the shaft 58 is free to rotate in the bracket, but is held against longitudinal movement with respect thereto. The shaft 58 is formed with opposite threads on opposite sides of the bracket 49 which are respectively threadedly engaged with the arms 56, 56, and the end of the shaft 58 is provided with a handle 60 for rotating the shaft 58 to adjust the spacing between the rollers 57, 57 carried on the respective arms 56, 56. By rotating the handle 60, the spacing between the rollers 57, 57 may be adjusted in accordance with the diameter of the pole 23 on which the device is to be mounted.

The rear end of the frame 12 is formed with the rearwardly projecting parallel handle bars 61, 61 which are arranged so that the device may be moved along the ground in the manner of a conventional wheel barrow when being transported from one location to another. Under these conditions, the caster wheels 54, 54 serve to support the forward end of the device during transportation thereof. Alternatively, the device may be connected to a vehicle in the manner of a trailer by securing the handle bars 61, 61 to the rear portion of the vehicle, the wheels 54, 54 supporting the device on the ground behind the vehicle, and the shank 43 of the caster bracket 42 being unlocked to allow shank 43 to rotate freely.

In operation, the device is engaged on the pole 23 in the manner illustrated in Figure 1, the yoke 17 surrounding the pole and the nuts 21 on the ends of the yoke arms being tightened to provide substantial biasing force acting to engage the toothed wheel 25 with the pole 23. The arms 56 are adjusted so that their rollers 57 engage the pole in the manner shown in Figure 2, and the caster wheels 54 are engaged with the pole below the frame 12, the shank 43 of the caster bracket 42 being locked against rotation. The brake rod 37 is moved to releasing position and motor 30 is energized. The clutch lever 32 is normally biased to a position to couple shaft 26 with sprocket wheel 27, whereby the toothed wheel 25 is rotated, causing the device to be elevated along pole 23. When the device has been elevated to a desired position, brake band 36 is clamped to brake disc 35 by raising the brake rod 37 and locking said brake rod in an elevated position by means of the pin member 39 and a selected notch 40 in the bracket 41, as above described. The clutch lever 32 may be rotated to uncouple shaft 26 from sprocket wheel 27, whereby the device is secured in elevated position, uncoupled from motor 30.

In descending, it is merely necessary to release the brake band 36 by means of brake rod 37, the engine 30 being cut off, the rate of descent being controlled by exerting braking force on the brake rod 37 to retard the rotation of the toothed wheel 25.

While a specific embodiment of an improved pole climbing device has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claim.

What is claimed is:

A pole climbing device comprising a frame, a motor mounted on said frame, a toothed wheel journaled to said frame at one margin thereof and projecting outwardly from said frame, a yoke member resiliently secured to said frame and projecting outwardly therefrom at said one margin, the plane of said wheel being within said yoke member, a plurality of rollers journaled on said yoke member, means drivingly coupling said wheel to said motor, a caster bracket rotatably secured to the lower portion of said frame adjacent said margin and projecting outwardly therefrom, a pair of parallel guide wheels journaled on said caster bracket, means releasably locking said caster bracket in a position wherein said guide wheels are parallel to the plane of said toothed wheel, a pair of side arms movably secured to the lower portion of the frame and projecting outwardly therefrom at said margin, an additional roller journaled on each of said arms, and a transverse shaft journaled to said frame at said margin, said shaft having oppositely threaded portions threadedly engaging the respective side arms, whereby said side arms may be adjusted to vary the spacing therebetween so that said additional rollers engage the pole at the sides thereof to retain said guide wheels in contact with said pole.

ROBERT A. ELLIOTT.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
742,447	Kidder	Oct. 27, 1903
1,299,289	Berg	Apr. 1, 1919
2,174,525	Padernal	Oct. 3, 1939