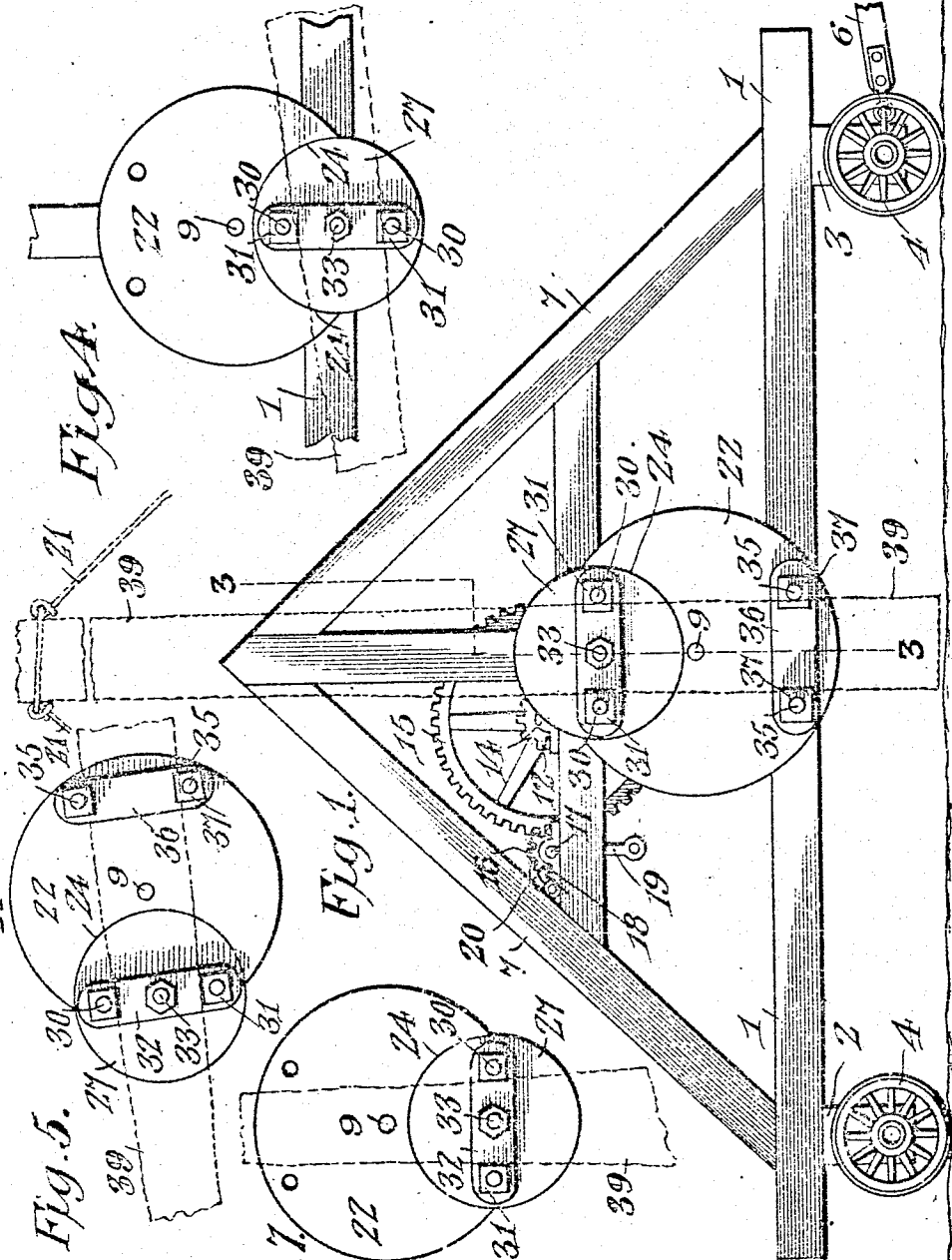


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 MEANS FOR SETTING TELEGRAPH POLES.
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1,010,903.

Patented Dec. 5, 1911.

2 SHEETS-SHEET 1.



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2 SHEETS-SHEET 2



Fig. 2.



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JEROME B. HARNER, OF POTTSVILLE, PENNSYLVANIA.

MEANS FOR SETTING TELEGRAPH-POLES.

1,010,903.

Specification of Letters Patent.

Patented Dec. 5, 1911.

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To all whom it may concern:

Be it known that I, JEROME B. HARNER, a citizen of the United States, residing at Pottsville, in the county of Schuylkill and State of Pennsylvania, have invented a new and useful Means for Setting Telegraph-Poles, of which the following is a specification.

This invention has reference to improvements in means for setting telegraph or other poles, and its object is to provide a means whereby the butt end of the pole may be engaged and the pole swung to an upright position, and then, if necessary, moved until coincident with the hole in which the pole is to be placed, after which the pole may be lowered into the hole while still engaged by the manipulating means. The whole structure is readily portable and is so designed that two workmen may handle and set a pole instead of requiring the services of a large number of workmen for the purpose.

In accordance with the present invention there is provided a structure carrying a train of gearing actuating a shaft which in turn carries a clamping mechanism for the pole having a member rotatable on an axis eccentric to the axis of the shaft, so that the pole may be moved from the prone to the upright position, and then lowered into the hole provided for the purpose without the necessity of removing the pole from the clamp except in part.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that while the drawings show a practical embodiment of the invention, the latter is susceptible of other embodiments without departure from the salient features of the invention.

In the drawings:—Figure 1 is a side elevation of the pole setting means with the parts in the position assumed when a pole has been moved thereby to the upright position. Fig. 2 is a longitudinal vertical central section of the structure shown in Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1 with some parts shown in elevation. Fig. 4 is a detail view of the clamp structure in position to receive a pole when in the sub-

stantially prone position. Fig. 5 is a detail view of the clamp structure showing the position assumed when the pole has been secured in both clamps. Figs. 6 and 7 are detail views showing different progressive positions during the lowering of the pole into the hole in the ground.

Referring to the drawings, there is shown a frame 1 constituting the main frame of a truck and carried by axles 2, 3, each provided with suitable truck wheels 4, the axle 3 being connected to the frame by a king bolt 5 and provided with a tongue 6, by means of which the truck may be drawn from place to place, the axle 3 providing for the turning of the truck as needed. The frame 1 may be an ordinary open rectangular frame of suitable length, or may be otherwise suitably shaped for the purpose, the structure being similar to that of an ordinary truck, and the frame 1 may be so shaped as to readily carry stone or other suitable weights to increase its stability.

Mounted on the opposite side members of the frame 1 are frames 7 shown as of general triangular form and suitably united where needed by cross pieces, one cross piece 8 being shown joining the apex portions of the two frames. It will be understood, of course, that the frames are suitably braced as needed. Journaled in transverse relation to the frames 7 is a shaft 9, which may carry a drum 10 and a gear wheel 11, both the drum and gear wheel being customarily located between the two frames 7. The gear wheel 11 is driven by a pinion 12 on a counter-shaft 13 suitably journaled in bearings 14 mounted on the frames 7, and this shaft 13 carries a gear wheel 15 in mesh with a pinion 16 on a drive shaft 17 having bearings 18 carried by the frames 7. The shaft 17 is provided at one end with a crank 19 and may be controlled by the usual pawl and ratchet mechanism indicated at 20, if this be desirable. The drum 10 is provided for carrying a suitable amount of rope, indicated at 21.

The shaft 9 extends beyond one of the frames 7 and there carries a disk 22 which may be made fast to the shaft by a key or spline 23, so that the disk is constrained at all times to turn with the shaft. This disk is provided at one side of its center with a counter-sunk portion 24 of circular contour

carrying a pivot 25 about which the counter-sunk portion or recess is described, this pivot being eccentric to the shaft 9, and the disk 22 has a side extension 26 conforming in shape to the general circular contour of the recess or counter-sink 24, the extension 26 being described about the pivot 25 as a center, to the point where it merges into the periphery of the disk. Lodged in the recess or counter-sink 24 is another disk 27, which may quite closely fit the recess and is backed up by the extension 26 of the disk 22, the pivot pin 25 extending through the second disk 27, and beyond the outer face of this disk the pivot pin may be formed into a point 28 and carry a washer 29 or other suitable means for confining the disk 27 to the disk 22, but still permitting a rotative movement of the disk 27 with relation to the disk 22 about the pivot 25. The disk 27 is provided at diametrically opposite points, preferably equi-distantly disposed with relation to the pivot 25, with tapped holes for the reception of the corresponding threaded ends of rods 30, these rods being substantially perpendicular to the plane of the exposed face of the disk 27. The outer ends of the rods 30 are threaded for the reception of nuts 31, and a flat bar 32 the latter being perforated for the passage of the rods 30. The bar 32 carries midway of its length a pointed stud 33 fast thereto and projecting toward the pointed end of the pivot 28.

That portion of the disk 22 remote from the seat 24 carries two rods 35 in chord relation to the disk 22, these rods being threaded and normally inserted in suitably tapped holes in the disk 22. These rods are also threaded at the outer ends, the rods projecting from the disk 22 in substantially perpendicular relation thereto and receive a strap or bar 36 held to the rods by nuts 37 applied to the outer ends of the rods where threaded for the purpose.

Let it be assumed that a telegraph or telephone or similar pole is lying on the ground and it is desirable to place this pole in a suitably prepared hole in the ground, such hole being indicated at 38 in Fig. 6, and the pole being indicated in dotted lines at 39 in Figs. 1, 4, 5, 6 and 7. The truck having been moved to a suitable position, the disk 22 is turned until the disk 27 is in its lowermost position, the rods 35 with the bar 36 having been removed from the disk 22 and the bar 32 having been either removed from the rods 30 or sufficiently separated from the disk 27 so that the butt end of the pole 39 may be placed between the rods 30 resting on the lower one of the rods, the disk 27 having first been moved so that one rod is immediately below the other and both are immediately below the pivot pin 9 of the disk 22.

The operator first measures the depth of

the hole 38 and then by appropriately marking this depth on the pole 39, introduces the latter between the rods 30, so that the butt end of the pole will project a distance through the space between the rods 30 equal to the depth of the hole 38. Now, the bar 32 is applied to the rods 30 and by means of the nuts 31 is caused to approach the disk 27 with the butt end of the pole intervening, the pointed ends of the pins 28 and 33 entering the pole to firmly hold the same, the structure being in the nature of a clamp.

The disk 22 may be turned until the holes for the rods 35 are on opposite sides of the butt end of the pole 39 when these rods may be screwed into place and the bar 36 applied and the nuts 37 screwed on to the rods 35 until in engaging relation to the pole 39, thus securing the pole to the disk 22 at diametrically opposite points on the disk, as shown in Fig. 5. The rope or ropes 21 are removed from the drum 10 at any suitable time and are appropriately fastened to the pole before the latter is moved from the ground, these ropes being employed as guy ropes, as will hereinafter appear. Power is now applied to the shaft 17 by the crank 19 and through the gear wheels 16, 15 and 11 this power is transmitted to the shaft 9 and the disk 22 is rotated thereby, until the pole 39 assumes a substantially upright position, as indicated in Fig. 1. If the butt end of the pole then lowermost is not directly over the hole 38 the truck may be moved sufficiently for the purpose. The guy ropes are held to keep the pole upright irrespective of the disk and the bar 36 and rods 35 are removed. The manipulating train of gearing is now operated in the proper direction, say, toward the right as viewed in the drawings, to cause the disk 22 to rotate in a manner to lower the pole 39 into the hole 38, the pole being held by the guy ropes in the upright position, while the turning of the disk 27 on the pin 28 will permit the rotation of the disk 22 about the axis of the shaft 9, while still maintaining the pole 39 in the upright position, and then may continue until the pole has been lowered into the hole 38, successive positions being shown in Figs. 1, 6 and 7. The bar 32 is then removed from the rods 30 and one or both of these latter may also be removed from the disk 27 when the whole truck may in turn be moved away from the set pole, which may be fixed in the hole by the introduction of the necessary amount of dirt. The guy ropes may be removed from the pole and either again wound upon the drum 10 or used for the net pole in order, if a number of poles are to be set in succession, the truck being drawn to the next pole, and, if necessary, being connected to and dragging the pole to proper relation to the hole into which the pole is to be inserted. By this means the

poles may be readily placed in position by two workmen instead of requiring a comparatively large number, as is necessary with the usual method of setting poles.

5 The size of the disk 22 and its location on the truck are such that when the disk 27 is in its highest position with reference to the ground the butt end of the pole 39 is close to the ground, so that when the disk 22 is
10 turned in the direction to lower the pole into the hole the pole is at the bottom of the hole when the disk 27 is in its lowermost position.

Since the ground where the poles are to
15 be set may vary considerably from the horizontal, the truck will correspondingly vary from a level position, and while the axis of the disk 22 would be horizontal if the truck were resting upon a level surface, such axis
20 may vary quite a little from the horizontal if the surface upon which the truck rests is not level. However, for convenience of description it may be assumed that any variation of the axis of the disk 22 from the horizontal will be included in the term substantially horizontal.

What is claimed is:—

1. In a means for setting poles, a supporting frame, a carrier for the poles mounted
30 for rotation on the supporting frame on a substantially horizontal axis, and a clamp for the pole on and rotatable bodily with said carrier, said clamp being also movable with relation to said carrier on an axis eccentric to and parallel with the axis of
35 rotation of the carrier.

2. In a means for setting poles, a supporting frame, a rotatable carrier for the poles mounted on the frame to rotate about a
40 substantially horizontal axis, said carrier having clamping means on opposite sides of its axis of rotation and rotatable bodily with said carrier, one of said clamping means being also rotatable independently of the
45 carrier on an axis eccentric to and parallel with the axis of rotation of the carrier.

3. In a means for setting poles, a supporting frame, a rotatable carrier thereon mounted on a substantially horizontal axis, said
50 carrier having means on one side of the axis of rotation for clamping the pole, and clamping means for the pole on the opposite side of the axis of rotation, both clamping means being rotatable bodily with the carrier and
55 the second named clamping means being mounted on the carrier to rotate freely on an axis eccentric to and parallel with the axis of rotation of the carrier, and means for rotating the carrier at will.

4. In a means for setting poles, a supporting frame and two associated clamps for a pole spaced one from another and mounted
60 on the supporting frame for bodily rotation about a substantially horizontal axis intermediate of the clamps, one of the clamps

being independently rotatable on an axis eccentric to and parallel with the axis about which the clamp is bodily movable.

5. In a means for setting poles, a supporting frame, a rotatable carrier thereon mounted to rotate about a substantially horizontal
70 axis, said carrier having a clamp removably secured thereto at one side of its axis of rotation, means for causing the rotation of the carrier at will, and another clamp on the
75 carrier on the opposite side of the axis of rotation of said carrier from the first named clamp, said second named clamp being rotatable with the carrier and also with relation thereto about an axis movable with the carrier and eccentric to and parallel with the
80 axis of rotation of said carrier and having its clamping means removable from the carrier.

6. In a means for setting poles, a supporting frame, a rotatable carrier thereon having its axis of rotation substantially horizontal, said carrier being provided with
85 clamping means on opposite sides of its axis of rotation, one of said clamping means having an orbital movement with the carrier and an axial movement individual thereto and eccentric to and parallel with the axis
90 of rotation of the carrier.

7. In a means for setting poles, a supporting frame, a rotatable carrier thereon and having a substantially horizontal axis of rotation, said carrier being provided with clamping
95 means on opposite sides of its axis of rotation, one of said clamping means having an orbital movement with the carrier and an axial movement individual thereto and eccentric to and parallel with the axis of rotation of the carrier, said second named clamp
100 having a pivotal support extended into engaging relation with a pole carried by the clamp.

8. In a means for setting poles, a rotatable carrier having pole clamps on opposite sides
110 of its axis of rotation, one of said clamps being provided with a pivotal mounting on the carrier about which the clamp has an axial movement independent of the carrier and parallel with the axis of rotation of said carrier, means for imparting rotative movement to the carrier at will, and a truck upon
115 which the carrier and its actuating means are supported, the axis of rotation of the carrier when the device is in operation being substantially horizontal.

9. A means for setting poles comprising a suitable truck, a shaft mounted therein in transverse relation to the truck, a carrier on the shaft at one side of the truck, means on the truck for imparting rotative movement
125 to the carrier, and clamps on the carrier on opposite sides of its axis of rotation, said clamps being each adapted to embrace a respective portion of a pole to move the pole with the clamp, through a plane per-
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pendicular to the ground in which the pole is to be set, one of the clamps on the carrier being rotatable with relation to the carrier on an axis eccentric to and parallel with the axis of rotation of the carrier.

10. A means for setting telegraph poles comprising a truck, a train of gearing thereon, a shaft in transverse relation to the truck and actuated by said train of gearing, said shaft extending on one side beyond the corresponding side of the truck, a carrier mounted on the extended end of the shaft to rotate in a plane perpendicular to the ground where the pole is to be set, a removable clamp mounted on the carrier on one side of the axis of rotation of the latter, and another removable clamp mounted on the carrier on the side of the axis of rotation of the latter remote from the first named clamp, said second named clamp having an axial support on the carrier individual to and parallel with said clamp and eccentric to the axis of rotation of the clamp.

11. A means for setting poles, comprising a truck, a train of gearing mounted on the truck, a shaft connected to said train of

gearing to be actuated thereby and extending beyond one side of the truck, a clamp carrier mounted on the extended end of the shaft to rotate in a plane perpendicular to the ground where the pole is to be set, said clamp carrier having a recess at one side of its axis of rotation, a supplemental clamp carrier on the first named clamp carrier seated in said recess and provided with an axis of rotation individual thereto and eccentric to and parallel with the axis of rotation of the carrier, and clamps removably secured to the body of the clamp carrier and to the supplemental clamp carrier, respectively, on opposite sides of the axis of rotation of the clamp carrier, the independently rotatable clamp carrier having its pivotal support and the clamp carried thereby provided with respective pole engaging means.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JEROME B. HARNER.

Witnesses:

LILLIAN BADER,
JOHN W. CONRAD.