No. 762,490. PATENTED JUNE 14, 1904.

W. PARKER.

EARTH AUGER FOR ERECTING TELEGRAPH OR TELEPHONE POLES.

APPLICATION FILED SEPT. 29, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

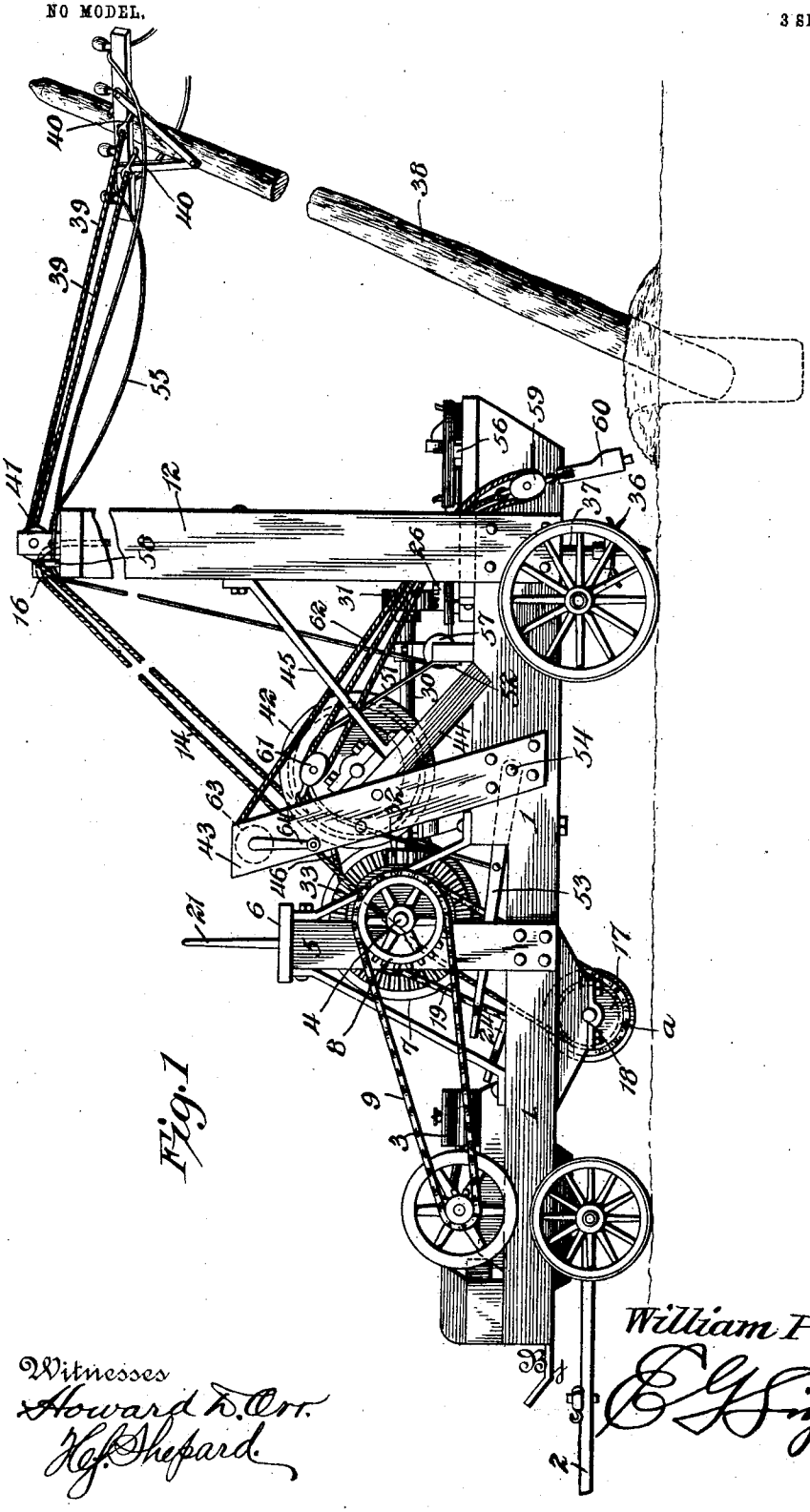


Fig. 1

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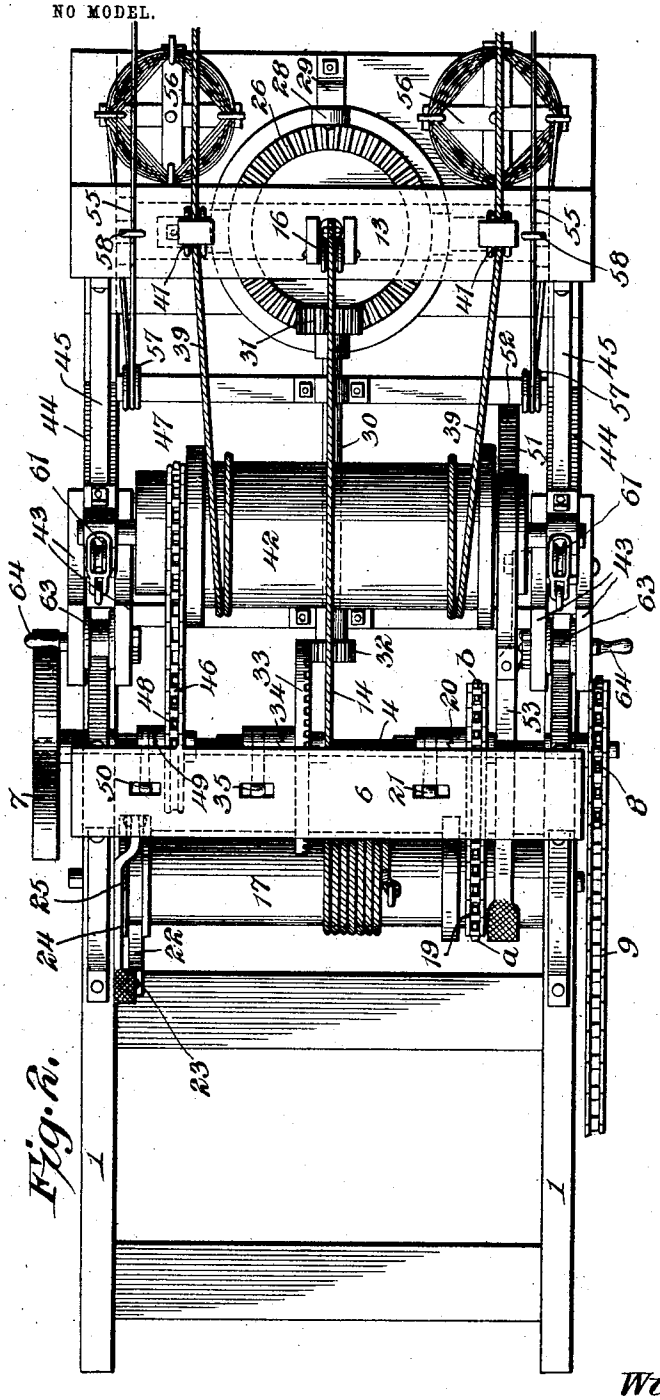


Fig. 2.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.

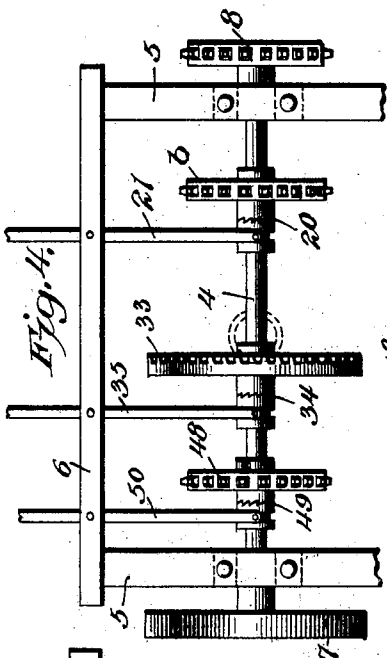


Fig. 5.

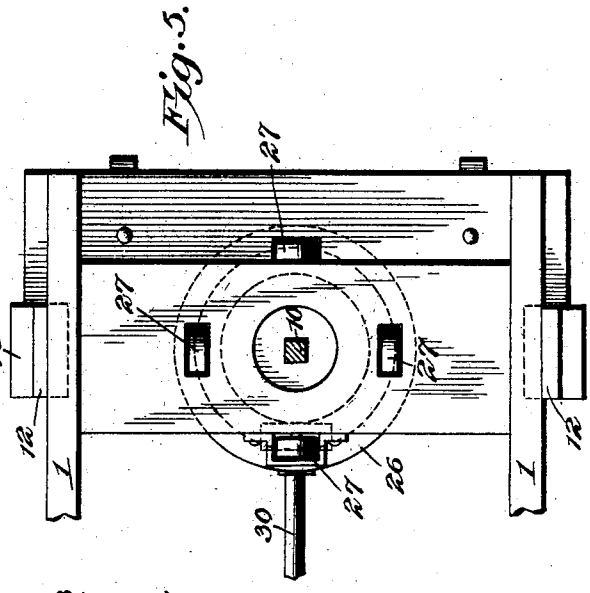
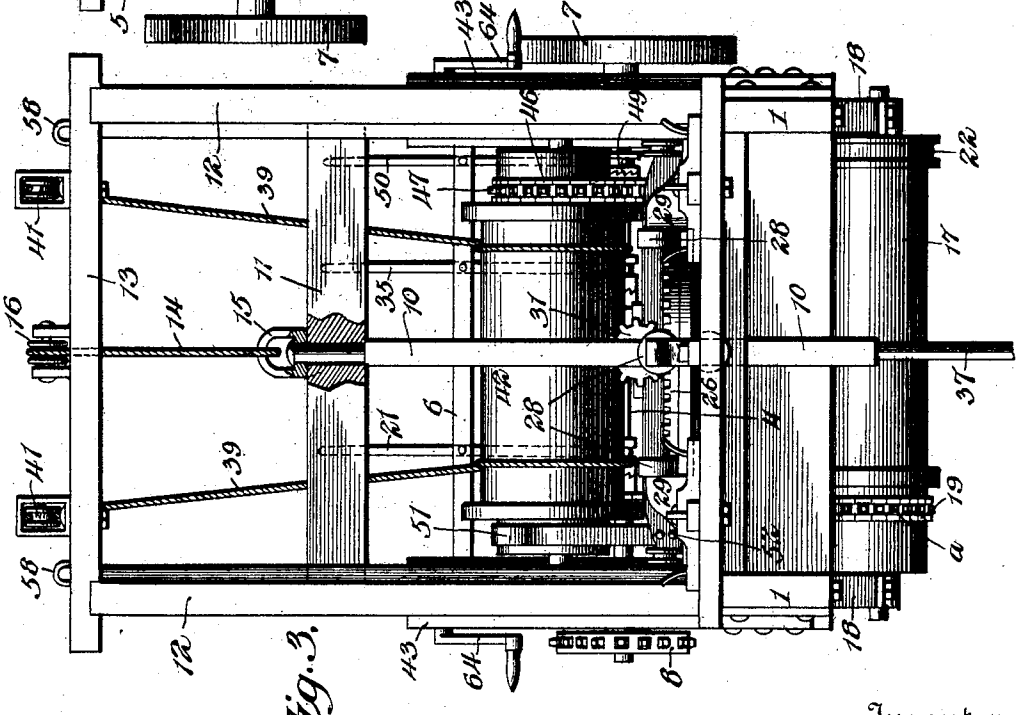


Fig. 3.



Witnesses
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No. 762,490. Patented June 14, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM PARKER, OF TECUMSEH, NEBRASKA.

EARTH-AUGER FOR ERECTING TELEGRAPH OR TELEPHONE POLES.

SPECIFICATION forming part of Letters Patent No. 762,490, dated June 14, 1904.

Application filed September 29, 1902. Serial No. 125,246. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PARKER, a citizen of the United States, residing at Tecumseh, in the county of Johnson and State of Nebraska, have invented a new and useful Earth-Auger for Erecting Telegraph or Telephone Poles, of which the following is a specification.

The invention relates to an earth-auger for erecting telegraph and telephone poles.

The object of the present invention is to provide a simple and comparatively inexpensive earth-auger for erecting telegraph and telephone poles capable of being conveniently transported or moved at regular intervals along the line of erection for the successive erection of several poles.

Furthermore, the invention has for its object to provide an apparatus of this character in which the several parts will be driven by a motor under the convenient control of the operator in order that they may be quickly and positively thrown into and out of operation.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a side elevation of an apparatus constructed and arranged in accordance with the present invention and shown in the act of elevating a pole. Fig. 2 is a top plan view thereof on a larger scale. Fig. 3 is a front elevation of the apparatus. Fig. 4 is a front detail elevation of the main drive-shaft. Fig. 5 is an inverted detail plan view to show the manner of mounting the rotatable head for the auger-shaft.

Like characters of reference designate corresponding parts in all the figures of the drawings.

For convenience in transportation the present apparatus has a wheeled platform or body 1, which is provided with a draft tongue or pole 2, to which draft-animals are designed to be hitched for moving the apparatus at intervals from the last pole erected to the site of the next pole. At the front of the body or platform there is an engine or motor 3, preferably a gasolene-engine, and at an intermediate portion of the platform is the main drive-shaft 4, which is disposed transversely of the platform and is supported above the same in the uprights 5, rising from opposite sides of the platform and connected at their upper ends by means of a cross-bar 6, thereby forming a strong and durable frame for the support of the shaft. One end of the shaft is provided with a fly-wheel 7, and the opposite end is provided with a sprocket-wheel 8, which is driven from the motor by means of a sprocket-chain 9, all of which parts lie at the outer sides of the shaft-supporting frame. For excavating a hole for the reception of a pole a rotatable upstanding polygonal auger-shaft 10 is located at the rear of the body or platform with its upper end journaled at the middle of a substantially horizontal vertically-movable cross-head 11, the opposite ends of which are mounted to slide in guideways consisting of the opposite posts 12, which rise from the platform and are connected at their upper ends by means of a cross-beam 13. The auger-shaft and cross-head are elevated by means of a cable 14, connected to the upper end of the shaft, which projects through the cross-head 11, by means of a swivel 15, from which the cable passes upwardly through an opening in the cross-beam 13 and forwardly over a guide-pulley 16, the forward end of the cable being wrapped about a drum 17, journaled in bearings 18, which hang from the under side of the platform and are disposed slightly in front of the main drive-shaft. This drum is operatively connected to the drive-shaft by means of a sprocket-chain 19, running over corresponding sprocket-wheels *a b* upon one end of the drum and the corresponding end of the drive-shaft, the sprocket-wheel *b* being provided with a clutch 20, which is controlled by a lever 21, passing upwardly through a slot in the top of the shaft-supporting frame and fulcrumed therein, whereby the drum 17 may be conveniently thrown into and out of operation, it of course being understood that

the operator stands upon the platform between the engine and the main drive-shaft. The winding-drum 17 is employed for elevating the auger-shaft after the excavation has been completed and is out of operation when the auger-shaft is in operation in order that the cable 14 may unwind from the drum and permit of the downward feed of the auger-shaft. The rotation of the drum may be controlled by means of a band-brake 22, (best shown in Fig. 2,) having one end secured to the platform, as at 23, and its opposite end connected to the free end of a foot-lever 24, intermediately fulcrumed upon the side of the platform, as indicated at 25, the intermediate portion of the band-brake frictionally embracing the under side of the drum and at that end which is opposite the drive-chain 19. To impart a rotatable movement to the auger-shaft, the latter works vertically through a central polygonal opening in a substantially horizontal rotatable head 26 in the form of a crown-gear, which is supported upon anti-friction-rollers 27 (best shown in Fig. 5 of the drawings) and held against accidental upward movement by means of similar rollers 28, which are carried by bearing-brackets 29 and engage the smooth upper face of the gear at the outer side of the teeth thereof. Connection is had between the crown-gear and the drive-shaft by means of a longitudinal counter-shaft 30, which is provided at its rear end with a gear 31 in mesh with the teeth of the crown-gear and at its forward end with a terminal gear 32 in mesh with an upstanding crown-gear 33, carried by the main drive-shaft. As shown in Fig. 4, the gear 33 is provided with a clutch 34, which has an upstanding controlling-lever 35, intermediately fulcrumed upon the cross-beam 6, whereby the auger-shaft may be conveniently thrown into and out of operation. Any suitable earth-auger 36 (shown in Fig. 1) has its stem 37 detachably connected to the lower end of the auger-shaft—as, for instance, by having its upper end fitted into a screw-threaded socket in the lower end of the shaft.

In preparing a hole for the reception of a pole the drum 17 is first disconnected from the drive-shaft and then the counter-shaft 30 is thrown into operation, whereby the auger is rotated and is automatically fed downward. When a suitable depth has been reached, the counter-shaft is thrown out of operation and the drum 17 is thrown into operation, whereby the auger-shaft and auger are elevated and the borings are elevated therewith out of the hole, after which the apparatus is moved ahead a short distance, so as to uncover the hole for the reception of the lower end of a pole, as indicated at 38 in Fig. 1 of the drawings. It will of course be understood that the pole is first laid upon the ground with its butt-end over the hole, and then its opposite end is slightly elevated in any suitable manner and then supported upon shears preparatory to being completely elevated by the present apparatus.

What is claimed is—

1. In an apparatus of the character described, the combination with a wheeled platform, of an engine mounted thereon, a derrick rising from the platform, a vertically-movable cross-head mounted in ways of the derrick, means operable by the engine for elevating the cross-head, a rotary auger carried by the cross-head, and means operable by the engine for rotating the auger, the latter being slidably connected with the means for rotating it, whereby it is permitted to move vertically, substantially as described.

2. In an apparatus of the character described, the combination with a wheeled platform, of an engine mounted thereon, a derrick-frame rising from the platform, a vertically-movable cross-head mounted in guideways of the derrick-frame, means operable by the engine for elevating the cross-head, a rotatable upright polygonal auger-shaft journaled at its upper end in the cross-head, a gear slidably receiving the auger-shaft, and gearing operable by the engine and meshing with the said gear for rotating the auger-shaft, substantially as described.

3. In an apparatus of the character described, the combination with a wheeled platform, of an engine mounted thereon, a derrick-frame rising from the platform, a vertically-movable cross-head slidable on the derrick-frame, means operable by the engine for raising the cross-head, a rotatable upright auger-shaft journaled on and carried by the cross-head, a gear slidably interlocked with the auger-shaft, and a drive-shaft operated by the engine and having a pinion meshing with said gearing, substantially as described.

4. In an apparatus of the character described, the combination with a wheeled platform, of an engine mounted thereon, a derrick-frame rising from the platform, a vertically-movable cross-head slidably mounted on the derrick-frame, a rotatable auger-shaft pendent from the cross-head and carried by the same, gearing operable by the engine and slidably connected with the auger-shaft for rotating the same, a drum connected with the engine, and a cable extending from the drum to the cross-head and depending from the upper portion of the derrick-frame, whereby the cross-head and auger-shaft are raised, substantially as described.

5. In an apparatus of the character described the combination with a wheeled platform, of an engine mounted thereon, a derrick-frame rising from the platform, a vertically-movable cross-head mounted in ways of the derrick-frame, a rotatable auger-shaft pendent from the cross-head, gearing operable by the engine and slidably connected with the auger-shaft for rotating the same, a drum

also driven by the engine, a guide located at the upper portion of the derrick-frame, and a flexible connection passing through the guide and connected with the cross-head and with the drum, substantially as described.

6. In an apparatus of the character described, the combination with a wheeled platform, of an engine mounted thereon, a derrick-frame rising from the platform, a vertically-movable cross-head mounted in suitable ways of the derrick-frame, a rotatable auger-shaft pendent from the cross-head and journaled therein, a main drive-shaft operated by the engine, an operative connection between the drive-shaft and the auger-shaft and including a clutch to render the connection inoperative, said connection slidably engaging the auger-shaft to permit the latter to move vertically, a drum having an operative connection with the drive-shaft, said connection including a clutch to render the same inoperative, and a cable connected with the cross-head and with the drum, substantially as described.

7. In an apparatus of the character described, the combination with a wheeled platform, of an engine at the forward end thereof, a transverse drive-shaft in rear of the engine and operatively connected therewith, a derrick-frame rising from the rear end of the platform, a vertically-movable earth-auger mounted in guideways of the derrick-frame, an operative connection between the auger-shaft and the drive-shaft and including a clutch, said connection being slidably engaged with the auger-shaft to permit the same to move vertically, a drum mounted beneath the platform and in front of the drive-shaft, an operative connection between the drive-shaft and the drum and including a clutch, and an elevating-cable connected to the earth-auger and to the drum, substantially as described.

8. In an apparatus of the character described, the combination with a wheeled platform, of an engine mounted thereon, a drive-shaft operatively connected with the engine, gears loosely mounted on the drive-shaft, each gear having a clutch and provided with a controlling-lever, a derrick-frame rising from the platform, a vertically-movable earth-auger mounted upon the derrick, means connected to one of the gears slidably connected with the auger for rotating the same, and auger-elevating means connected with the other gear, substantially as described.

9. In an apparatus of the character described, the combination with a wheeled platform, of an engine mounted thereon, a shaft-supporting frame disposed transversely of the platform, a transverse shaft mounted in the frame and driven by the engine, gears loosely mounted on the shaft and provided with clutches and having controlling-levers, a derrick-frame rising from the platform, a vertically-movable and rotatable auger mounted upon the derrick-frame, a longitudinal shaft slidably connected at one end with the auger and at the other end with one of the gears, a drum driven by the other gear, and an auger-elevating cable connected with the drum and with the auger, substantially as described.

10. In an apparatus of the character described, the combination of a wheeled platform, an upright frame rising from the platform and provided with ways, an earth-auger having a cross-head guided by the ways, a guide mounted on the upright frame, a cable arranged in the guide and connected with the auger, a drum receiving the cable, a drive-shaft, and gearing connecting the drive-shaft with the drum and with the auger, the latter being slidably connected with the said gearing, whereby it is permitted to move vertically, substantially as described.

11. In an apparatus of the character described, the combination of a wheeled platform, an upright frame, an auger having a cross-head guided on the frame, a guide arranged at the top of the frame, a cable arranged in the guide and connected with the auger, a horizontal gear-wheel slidably connected with the auger, a longitudinal shaft provided at its ends with pinions, one of the pinions meshing with the horizontal gear, a drive-shaft having a gear-wheel meshing with the other pinion, and means actuated by the drive-shaft for operating the cable, substantially as described.

12. In an apparatus of the character described, the combination with a wheeled platform, of an upright frame rising therefrom, an earth-auger having a cross-head guided on the frame, a cable guided at the top of the frame and connected with the auger, a horizontal gear-wheel slidably engaging the auger, a longitudinal shaft provided at its ends with pinions, one of the pinions meshing with the said gear-wheel, and a drive-shaft having a vertical gear meshing with the other pinion, substantially as described.

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

WILLIAM PARKER.

Witnesses:
CHAS. BOATMAN,
MARCUS E. BOATMAN.