

Dec. 19, 1950

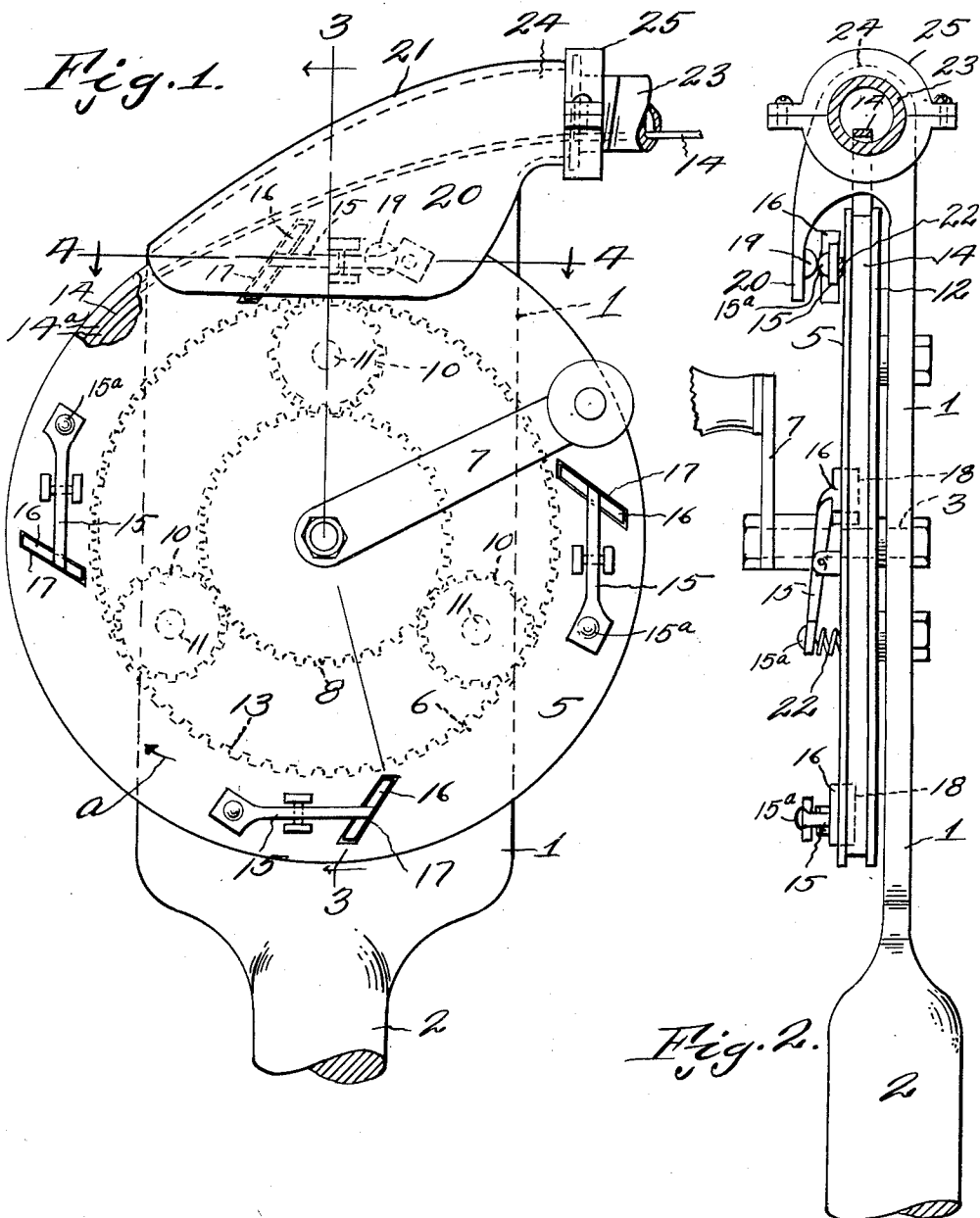
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2,534,472

CONDUIT SNAKE

Filed March 12, 1948

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Fig. 3.

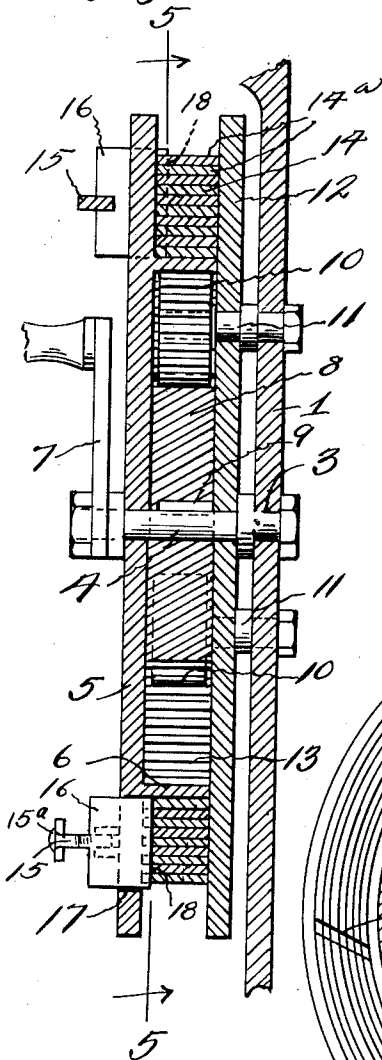


Fig. 6.

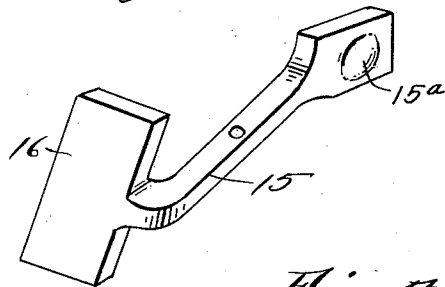


Fig. 4.

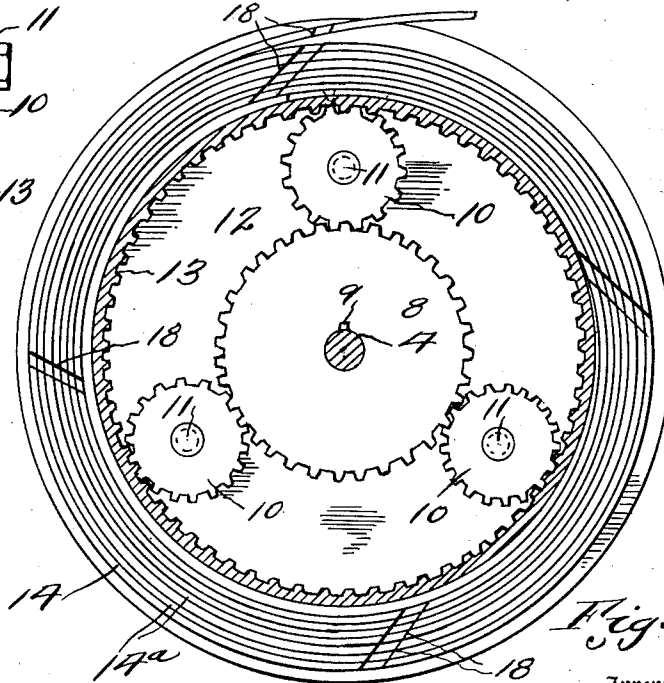
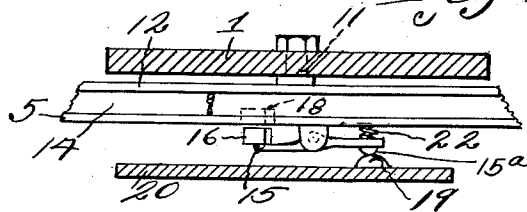


Fig. 5.

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CONDUIT SNAKE

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5 Claims. (Cl. 242—84.8)

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The invention relates to conduit snake operating machines, particularly of the portable type, and has for its object to provide a device of this character which may be attached to the end of the conduit, and operated to force a snake through a conduit so it can be attached to conductor wires, and reversely operated to snake the wires through the conduit.

A further object is to provide the rotatable reel plate with an internal gear meshing with spaced small gears, which small gears, in turn, are rotated in either direction by a large gear, rotated by an operating crank.

A further object is to provide the flexible steel tape with side notches, which notches aline with each other on the reel drum, and latching members carried by the drum plate and cooperating with the notches through openings in the plate for holding the convolutions of the tape tight against each other, as the drum is rotated, and unlatching the lead of the outer convolution of the tape as it is forced through the conduit.

A further object is to so incline the alined notches in the side of the tape and the latching members, so the latching members will have a tendency to tighten the convolutions of the tape as the drum is rotated.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:

Figure 1 is a front elevation of the machine, showing the machine attached to a conduit.

Figure 2 is a side elevation of the machine.

Figure 3 is a vertical transverse sectional view taken on line 3—3 of Figure 1.

Figure 4 is a horizontal sectional view taken on line 4—4 of Figure 1, showing one of the latches in unlatching position.

Figure 5 is a vertical longitudinal sectional view taken on line 5—5 of Figure 3.

Figure 6 is a perspective view of one of the latching elements.

Referring to the drawings, the numeral 1 designates a supporting plate, which plate is preferably provided with a handle member 2 for facilitating the handling of the device.

Rotatably mounted in a bearing 3 of the plate 1 is an operating shaft 4, which shaft extends through the face plate 5 of the drum 6, and pro-

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vided with an operating crank 7, adapted to be rotated by the operator for a snake inserting or withdrawing operation. Drum 6 rotates during, either inserting or withdrawing operation. The drum 6 is driven by a large central gear 8, keyed at 9 to the rotating shaft 4. Drive gear 8 meshes with circumferentially arranged small gear 10, rotatable on stub shaft 11, which stub shafts extend through the stationary inner plate 12, and small gears 10 mesh with an internal gear 13 carried by the drum, therefore it will be seen that when the crank is rotated a positive drive is imparted on the drum at all spaced points, consequently there is a positive driving of the drum at any time during the operation.

Surrounding the internal gear 8 of the drum is a steel snake 14. Referring to Figure 5, and Figure 3, it will be noted that the convolutions 14a of the snake are in close engagement and on the drum, and this close engagement is maintained at all times by spring and cam operated latches 15; the projections 16 are integral with the latches 15 and extend through elongated openings 17 in the outer drum plate 5 and into alined diagonally arranged notches 18 in the outer side of the steel tape. Referring to Figure 5, it will be noted, that the alined notches 18 are arranged, other than in a radial position, and the same is true of the projections 16 of the latching members 15, consequently, during a snake driving operation the projections 16 will maintain the convolutions 14a in tight engagement and obviate the possibility of the convolutions coming unlatched. As the drum is rotated in the direction of the arrow a, Figure 1, the cam engaging lugs 15a on one of the ends of the latches 15 will intermittently engage the cam 19 carried by the overlying lip 20 of the portion 21 of the plate 1, which portion arches the upper side of the rotatable drum 6. It will be seen that as each latch approaches the upper side of the device it is rocked to unlatching position against the action of the springs 22, thereby allowing the upper portion of the outer convolution to leave the drum and be forced through the conduit 23 by the rotation of the drum, and by the latches still in interengagement with the drum convolutions.

The arching portion 21 is preferably provided with a tubular extension 24 having a split coupling 25 thereon so the device can be easily attached to the conduit, and by having different sized split couplings 25, the device can be attached to the threaded end of conduits 23 of different sizes.

From the above it will be seen that a snake driving and pulling device is provided, which is

gear driven; may be easily transported from place to place and attached to conduits, and one wherein the convolutions of the snake are held in close engagement on the drum by a plurality of latching devices, which are automatically unlatched adjacent the point where the snake is driven or forced through the conduit.

The invention having been set forth what is claimed as new and useful is:

1. A conduit snake operating device, said device comprising a rotatable drum, a snake around said drum, convolutions of the snake extending around said drum, aligned notches in the sides of the convolutions of the snake, planetary gear means for rotating said drum, latching members carried by the drum and extending into the aligned notches in the side of the convolution of the snake on the drum, and means for successively unlatching said latching members at the point where the snake convolutions pass from the drum to a conduit.

2. A device as set forth in claim 1 wherein the aligned notches in the closely engaged convolutions in the side of the snake are at an angle other than radial position.

3. A device as set forth in claim 1 wherein the aligned notches in the side of the snake convolutions are in a position other than radial, said drum having openings, said latching members having similarly positioned notch engaging members extending through openings in the drum and into the aligned notches in the snake.

4. A device as set forth in claim 1 wherein the latching members are rockably mounted on the outer face of the drum, projections of said latch-

ing members extending through openings in the drum and into the aligned notches of the snake, springs for normally maintaining said latching members in interengagement with the notches in the snake, a stationary cam member adjacent the discharge point where the snake leaves the drum, said cam member being in the path of members carried by the latching members and forming means for successively rocking the latching members to unlatched position.

5. A device as set forth in claim 1 wherein the rotatable drum is mounted on a supporting plate, said supporting plate having a member arching the upper side of the drum, said arching member being provided with means whereby the device might be attached to a conduit, said arching member having a downwardly extending portion overlying the outer side of the drum, and means carried by said downwardly extending portion and cooperating with the latching members for successively unlatching the same as they reach the point for release of the successive snake convolutions.

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