

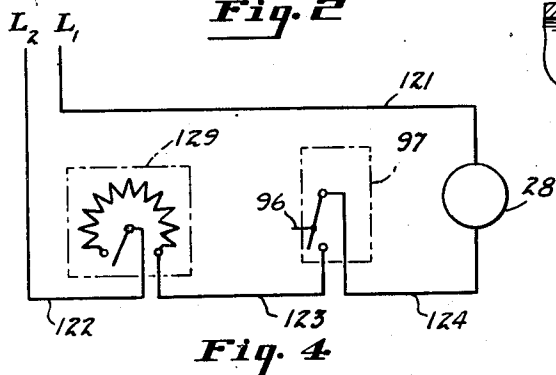
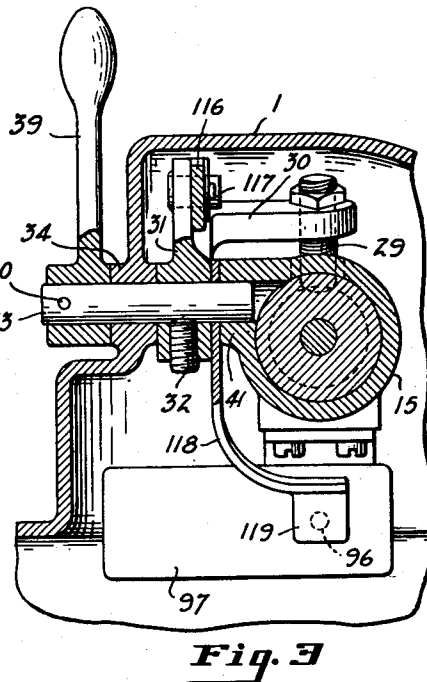
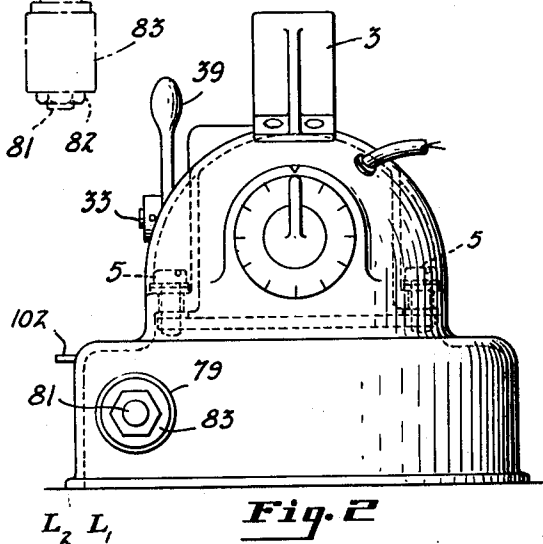
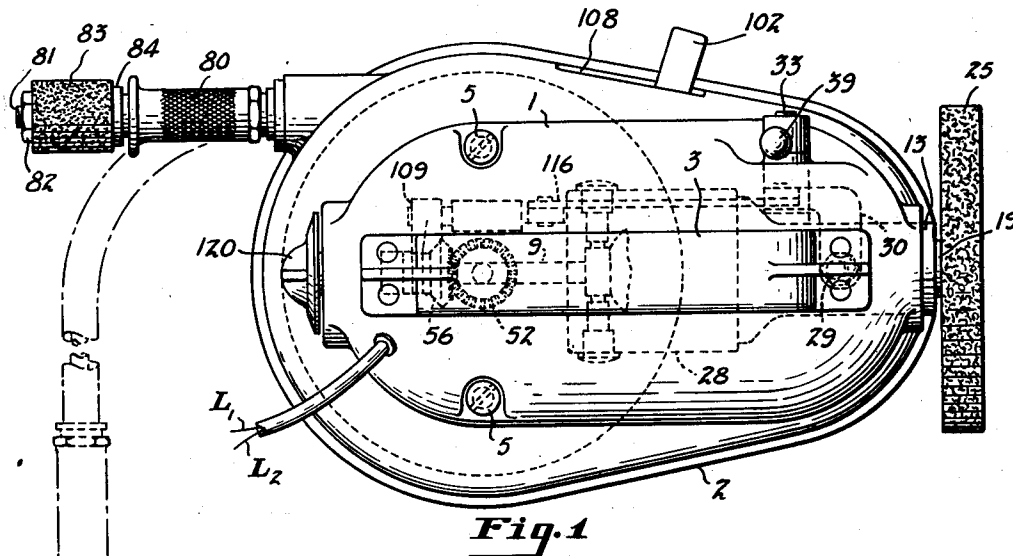
Aug. 19, 1952

A. VON HAASE
UTILITY APPLIANCE

2,607,232

Filed June 7, 1946

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

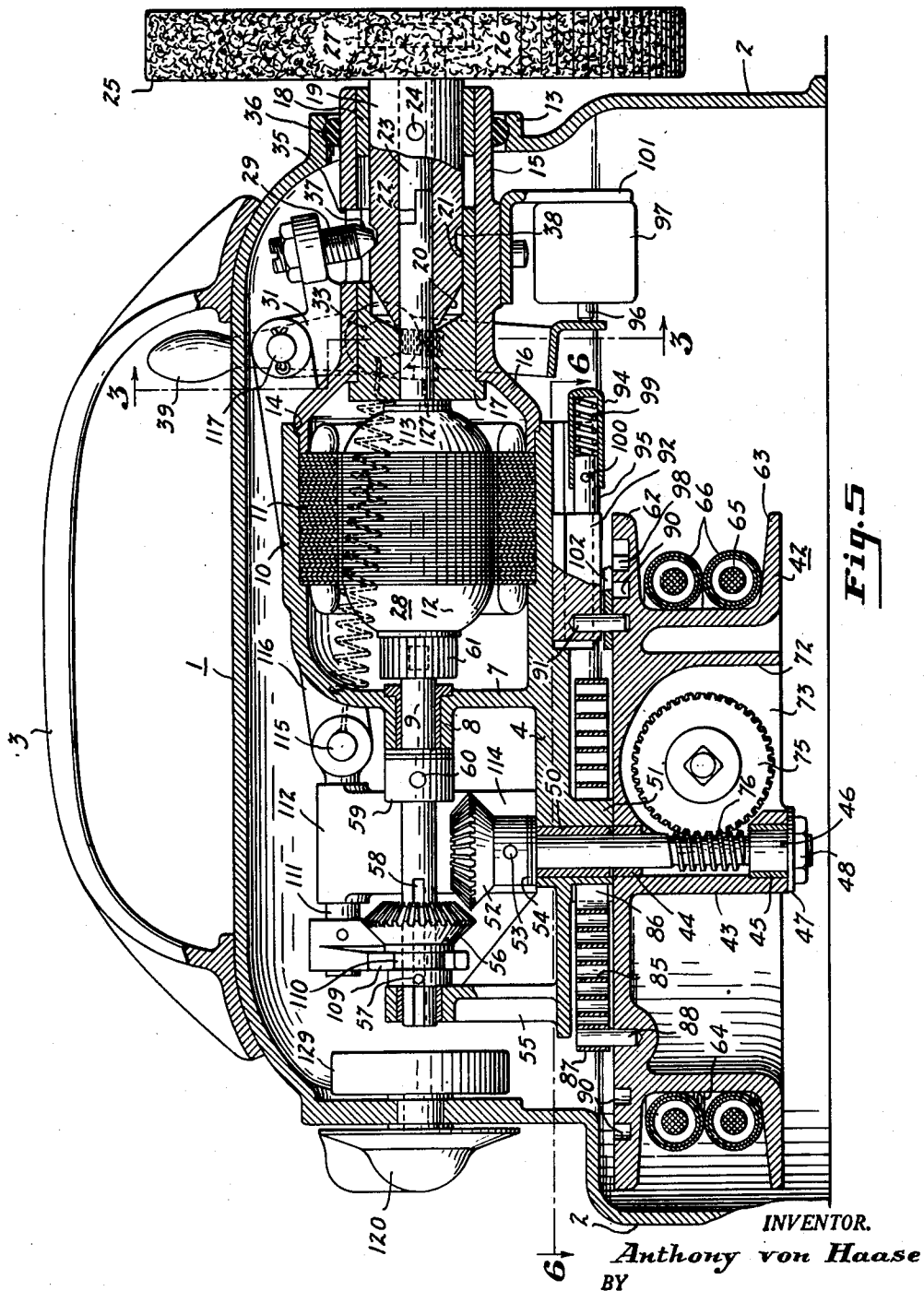


Fig. 5

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3 Sheets-Sheet 3

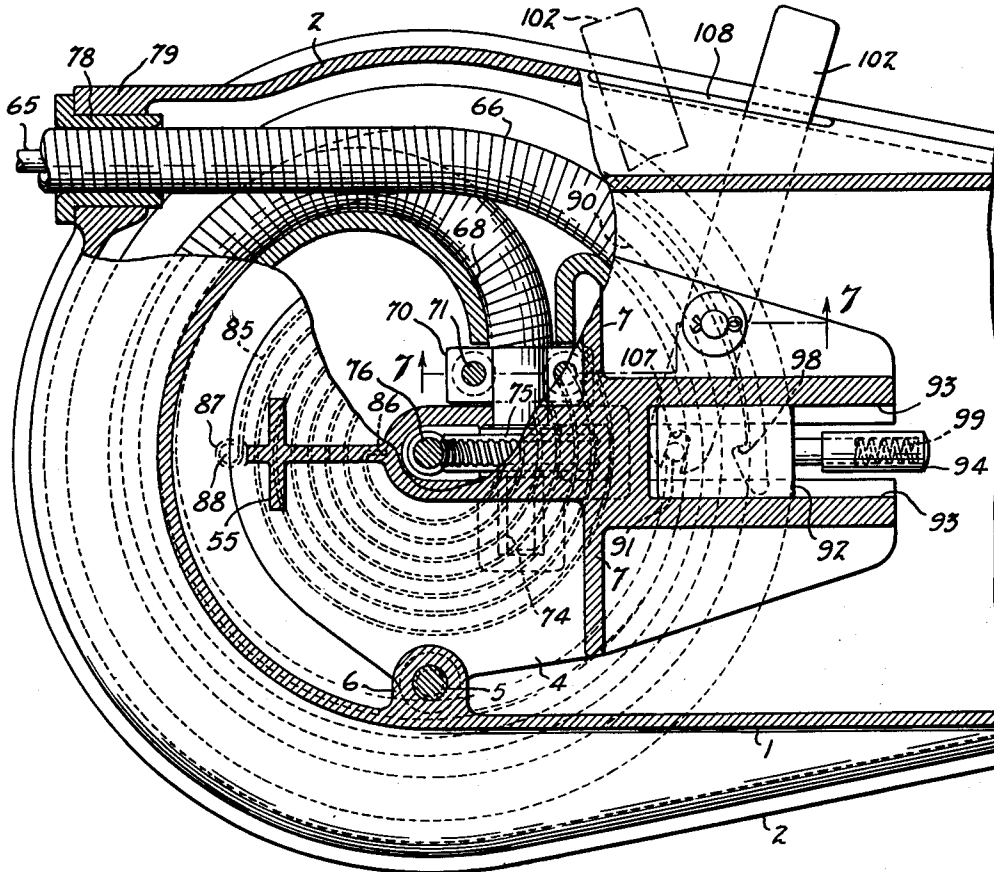


Fig. 6

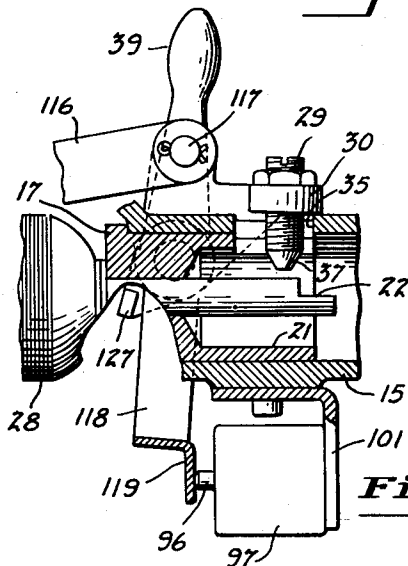


Fig. 8

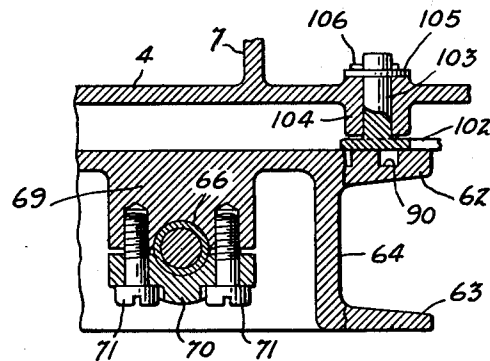


Fig. 7

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UTILITY APPLIANCE

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11 Claims. (Cl. 74-16)

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This invention relates to utility devices or appliances and more particularly to electrically driven power appliances for use about the home.

There are numerous instances in which a powered hand tool is useful in performing household tasks, in hobby crafts, and in making minor repairs and alterations about the home. It is impractical to have a large or bulky device, and the expense and inconvenience of storing and caring for a number of such tools is not attractive to the average family.

It, is therefore, one of the principal objects of the present invention to provide a new and improved economical household utility appliance which is capable of being used in the performance of numerous tasks and yet occupies a minimum of space and can be readily moved about.

A more specific object is to provide an economical electric utility device which is portable and incorporates a flexible sheathed drive cable, normally retracted, and which can be extended for use as desired.

Another object is to provide in a household utility, the combination of a rotatable drive arbor or shaft for "fixed position" devices such as buffers, grindstones, and the like, and a flexible sheathed drive cable which can be used alternatively to drive buffers, grinders, drills scouring brushes, and the like.

A further object is to provide in an electrically powered flexible shaft device having a reel for carrying the flexible shaft in retracted position and from which the flexible shaft can be extended for use, a control responsive to the position of the cable or the reel for governing the electric drive motor to prevent driving of the cable when the latter is retracted.

A further object is to provide in a combination device having an arbor and a flexible drive shaft powered by a common motor, means for automatically disconnecting the flexible drive shaft from the motor when the arbor is used.

A still further object is to provide a powered utility appliance which is relatively simple in design and construction and inexpensive to manufacture. The invention will be found to embody numerous features which reside in novel combinations and arrangements of parts. Additional objects and advantages will become apparent as the description proceeds. In the drawings:

Figure 1 is a plan view of a combination utility appliance or device incorporating features of the present invention. In this figure, the flexible sheathed cable is shown retracted in full lines and extended in broken lines;

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Fig. 2 is an end elevational view of the device;

Fig. 3 is a sectional detail taken substantially on the line 3-3 of Fig. 5;

Fig. 4 is a wiring diagram showing the electrical connections for the device;

Fig. 5 is a longitudinal vertical sectional view of the device with parts removed;

Fig. 6 is a horizontal sectional detail with parts removed and with parts broken away taken substantially on the line 6-6 of Fig. 5;

Fig. 7 is a fragmentary sectional detail taken substantially on the line 7-7 of Fig. 6; and

Fig. 8 is a fragmentary vertical sectional detail showing the control mechanism and switch.

Referring to the drawings by numerals of reference which indicate like parts throughout the several views, the device comprises an elongated enclosing casing or housing having an arched top or cover portion 1 and a lower upright skirt portion 2 continuous with the arched top. The particular shape of the casing is not critical but is preferably formed with smooth contours, so that it can be readily kept clean and will not have sharp corners to catch or snag the clothing of the person using the device. A handle 3 secured to the casing top 1 provides for carrying the device from place to place.

Within the casing, which also serves as part of the supporting frame structure for the device, is a supplemental cross frame 4 secured by screws 5 to the under side of inwardly extending brackets 6 formed on opposite sides of the interior of the casing. Rubber cushions or rings are interposed between the screws and the brackets. The supplemental frame includes a transverse upstanding portion 7 having formed thereon a journal boss 8 which generally parallels the cross frame 4 and is bushed to rotatably receive one end of shaft 9 of an electrical drive motor. The supplemental frame 4 also carries an electric drive motor 23 for the appliance. This motor may be of commercial make, but is preferably constructed as an integral part of the appliance. A combined motor casing and yoke 10, integral with the supplemental frame 4 and continuous with the upstanding journal support 7 receives motor field windings 11 and armature windings 12, the latter being secured on the motor shaft 9 in accordance with conventional armature construction. The end of the motor yoke 10, opposite the journal 8, is formed with a circular opening having an annular shoulder 14. A combination member including a tubular journal portion 15 and a motor end bell portion 16 is disposed in axial alignment about the motor shaft. The large diameter end of the bell por-

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tion 16 is received and centered in the circular opening of the motor yoke against the shoulder 14, being secured by screws not shown. The end of the tubular portion 15 adjacent the motor bell receives a bushing 17 for supporting the motor shaft 9.

The outer end of the tubular portion 15 of the motor end member extends through the end wall of the casing 1 and is received and supported by rubber ring 36 frictionally held in a larger diameter opening formed in a circular boss 13 integral with the casing. The motor end member thus provides a socket or receptacle opening through the end of the casing to receive a removable drive plug or arbor for rotatably supporting and driving a tool.

In the outer end of the tubular portion 15 is secured a bushing 18 which rotatably receives an axially slidable removable tool supporting sleeve or plug arbor 19. The inner end of the arbor sleeve 19 is externally coned at 20 to facilitate inserting it into the bushing 18 in assembling the removable sleeve with the appliance and to de-clutch the drive as will later appear. The sleeve 19 is formed with an axial bore to have a sliding fit over the motor shaft 9, and the inner end of the shaft bushing 17 is formed with an increased diameter axial bore 21 to receive and guide the inner end of the tool supporting sleeve 19. Internally of the tool sleeve or arbor 19, the motor shaft 9 has an interfitting half-shaft drive connection indicated at 22 with a shaft 23 of corresponding diameter also received in the axial bore of the sleeve 19 and secured therein by transverse pin 24. A tool such as a grinding wheel 25 is removably supported externally of the casing of the appliance on an increased diameter portion 26 of the shaft 23 and in abutment against the tool supporting sleeve 19. A nut 27 threaded on the end of the shaft 23 permits removal of the grindstone 25 for replacement by another grinder, brush, buffer, sandwheel, or the like.

Retaining the tool supporting sleeve or arbor against axial movement out of the socket therefor and in predetermined position in the anti-friction bushings 17 and 18 is an adjustable screw or detent pin 29 threaded through a lateral arm 30 carried by a pivoted lever 31 secured as by set screw 32 on a shaft 33 journaled in a boss 34 formed in the side of the casing 1.

The tubular portion 15 of the motor end member may be formed with an external lateral boss 41 recessed to receive the inner end of the shaft 33 (Fig. 3).

The adjustable pin 29 is directed downwardly toward the motor shaft 9 through an opening 35 in the upper part of the tubular portion 15 of the motor end member. On the lower end of the pin 29 is formed a coned detent portion 37 which rides in a circumferential channel or groove 38 (Fig. 5) formed about the tool supporting arbor 19. This interlocking connection between the detent pin 29 and the tool arbor retains the latter in driving relation to the motor shaft 9 to be actuated thereby. The pin 29 can be raised to clear the channel 38 for axial removal of the tool supporting sleeve arbor out of its socket by moving a lever 39 mounted on the shaft 33 externally of the casing. The lever 39, secured on the shaft 33 as by pin 40 is actuable to rotate the shaft and the lever 31, thus raising the arm 30 and withdrawing the detent pin 29 through the opening 35 in the motor end member. The tool supporting arbor sleeve 19 can then be removed and the arm

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30 and the detent screw 29 moved to the position shown in Fig. 8.

A number of the tool supporting arbors or sleeves 19 may be provided, mounting different types of tools such as buffers, polishers, brushes and the like. Thus the various implements or tools can be readily interchanged with one another in the driving socket of the device for use as desired.

Beneath the supplemental frame 4 in that portion of the internal chamber of the device which is surrounded by the skirt 2 of the casing is disposed a reel 42 mounted for rotation about a normally upright axis which is at a 90 degree angle to the motor shaft 9. A central sleeve portion 43 of the reel is fitted with anti-friction bushings 44 and 45 which rotatably receive a supporting and cable driving shaft 46. A bearing washer 47 holds the reel on the shaft and bears against a retaining nut 48 threaded on the bottom end of the shaft 46. This drive shaft is rotatable within the reel and in bushing 50 secured in boss 51 formed on the supplemental frame 4. The upper end of the shaft carries a bevel pinion 52 secured as by pin 53. Antifriction washers 54 are disposed between the hub of the gear pinion 52 and the supplemental frame 4 to rotatably support the drive shaft thereon.

The motor shaft 9 is extended beyond the journal 8 in upstanding portion 7 of the frame and at its outer extremity is supported in a bushed pedestal 55 carried by the cross frame 4. Slidable along the outer portion of the motor shaft 9 is a bevel drive gear or pinion 56.

A transverse pin 57 secured in the hub of the bevel gear 56 extends through an axially elongated slot 58 formed in the outer end of the motor shaft 9 to maintain a driving connection between the shaft and the gear while permitting axial movement of the gear along the shaft. The reel drive shaft 46 is so disposed that the bevel gear 56, in being moved back and forth on the motor shaft, can be brought into and withdrawn from driving engagement or relationship with the bevel gear 52. The gears thus function as a disconnectible clutch structure to establish a driving connection between the motor shaft 9 and the reel shaft 46 and to interrupt such driving connection, as desired. Axial shifting of the motor shaft 9 is limited by a collar 59 pinned at 60 on the outside of the journal 8 and by armature commutator 61 inside the motor.

The reel 42 is formed with radially disposed spaced peripheral flanges 62 and 63 which define a circumferential channel having a bottom 64 about which is wound a flexible sheathed drive cable of conventional construction, the cable being indicated at 65 and the flexible sheath at 66. Two turns of sheathed cable about the reel 42 are shown in the drawings and provide a cable of sufficient length for general use. Additional turns may be provided for if desired. The inner end of the cable sheath combination is carried in a continuous curve around a helically curved portion 68 formed in the bottom wall 64 of the reel channel and is received in a clamping boss 69 (Fig. 7) adjacent to but radially offset from the rotational axis of the reel. A cap 70 held by screws 71 clamps the inner end of the sheath 66 against the boss 69 to secure the inner end of the cable sheath combination. The clamping boss 69 may be integral and continuous with the axial sleeve 43 of the reel and may include wall portions 72 which define a gear chamber 73. The inner end of the cable 65 extends across the gear

chamber 73 and its tip is received in an aligned journal 74 formed in one of the wall portions 72 of the clamping boss and shaft sleeve of the reel. A gear 75 in the chamber 73 is secured on the cable 65 to drive the latter. The teeth of the gear 75 mesh with a worm 76 formed on the reel drive shaft 46. Rotation of the drive shaft 46 through the gears 52 and 56 upon energization of the electric motor is imparted to the flexible cable 65 through the worm 76 and gear 75.

The outer end of the flexible cable-sheath combination is carried through a flanged sleeve 78 secured in an apertured boss formed in the skirt 2 of the casing. The sheath is slidable through the sleeve 78 in extending the cable for use and in retracting the cable and sheath onto the reel. Externally of the casing the sheath is attached to a handle 80 which journals a shaft 81 secured to the end of the flexible cable 65. The shaft 81 is threaded to receive a nut 82 which retains a grinder 83 or similar tool mounted thereon against the shoulder of an integral flange 84 formed on the shaft 81, thereby locking the tool in place to rotate with the shaft.

Disposed about the journal boss 51 and located between the cross frame 4 and the upper side of the reel 42 is a helical coil flat leaf spring 85, inner end 86 of which is received in a radial slot formed in the boss 51. The outer end of the spring is formed into a loop 87 received on a pin 88 secured in the upper side of the reel 42. Rotation of the reel in extending the sheathed cable twists the spring 85 storing energy therein which operates to reversely rotate the reel for retraction of the cable.

A helical channel or groove 90 is formed in the upper side of peripheral flange 62 of the reel and guidingly receives the lower end of a pin 91 carried in a slide 92 positioned and supported between guides 93 formed on the underside of the cross frame 4. The slide 92 is thus supported for straight line reciprocating movement radially with respect to the reel axis and during the rotation of reel 42 in extending and retracting the sheathed cable.

Rotation of the reel in extending the cable occurs in a counterclockwise direction viewed from above in Fig. 6, and the pin 91 guided in the helical channel 90 moves from left to right (Fig. 5) shifting the slide 92 in the same direction. A cap 94 telescopically mounted on a finger 95 carried by the slide is thus brought to bear against actuating button 96 of an electrical control switch 97 carried by bracket 101 secured to the motor end member. The pressure of the cap 94, under the influence of a helical coil compression spring 99 contained therein, acting against the switch button 96 actuates the switch, which is of conventional construction, to close the electrical circuit which energizes the drive motor of the device as will later appear. Extension of the sheathed cable thus may be made to operate automatically to effect energization of the electrical drive motor. The switch control slide 92 prevents driving of the cable except when the cable is extended for use. This feature prevents excessive loads being imposed on the electric motor by inadvertence. The internal friction in the sheath and cable combination is considerable when they are in the form of a coil. It is uneconomical and impractical to provide an electric motor of sufficient power to drive the coiled cable and the smaller electric motor provided for normal use would likely be damaged if energized with the cable in retracted position. By the

present arrangement damage to the motor is avoided.

To retain the reel 42 in cable extended position, the outer end of the helical channel 90 is formed with a radial offset providing a shoulder 98 which, when the cable is fully extended, is engaged by the pin 91 thereby locking the reel against reverse rotation. The spring 99 disposed in the cap 94 and compressed between the head end of the cap and the end of the finger 95 reacts against the button of the electric switch 97 to shift the slide 92 in a reverse direction and to move the pin 91 into the radial offset portion of the channel 90. A cross pin 100 secured in the finger 95 on the slide 92 and extending into elongated slots in the tubular cap 94 retains the cap on the finger.

To release the latch or detent pin 91 from the shoulder 98 to permit retraction of the sheathed cable by the energy stored in the spring 85, a lever 102 is actuated. This lever is secured on a pivot pin 103 retained for horizontal swinging movement of the lever in a boss 104 formed in the supplemental cross frame 4 and suspended by a washer 105 and pin 106. The lever extends laterally through a slot opening 108 in the skirt 2 of the casing and its inner end is formed with an open ended slot 107 which receives or embraces the detent pin 91. During movement of the pin from the inner end of the helical channel 90 to the shoulder 98 at the outer end of the channel and as the sheathed cable is extended, the lever 102 swings in a counterclockwise direction from approximately the full line position to the broken line position indicated in Fig. 6. The pin 91 is released from the shoulder 98 by actuating the lever 102 to move it in a counterclockwise direction, as viewed from above, sufficiently to withdraw the pin 91 from the shoulder 98. The reel 42 is then free to be rotated clockwise by the spring 85.

Provision is made for optional actuation of either the sheathed cable or the tool mounting sleeve arbor 19 by the electrical motor. When the sleeve arbor is to be used, the driving connection between the motor and the sheathed cable is interrupted by moving the bevel gear 56 axially along the motor shaft 9 to the left as viewed in Fig. 5 to the position there shown. Such movement is effected by a yoke 109 which is received in a circumferential groove or channel 110 formed in the hub of the gear 56. The yoke is secured on a rod 111 slidable in a sleeve 112 formed on the upper end of a pedestal 114 carried by the cross frame 4. The rod 111 which is thus movable along an axis paralleling the rotational axis of the motor shaft 9 is formed with pivot end 115 to which is pivotally connected one end of a link 116. The other end of the link is pivotally carried by a pin 117 secured in the lever 31 which carries the supporting arm 30 previously mentioned in connection with the adjustable detent screw 29. When the gears 52 and 56 are engaged for actuation of the flexible drive cable by the motor, the lever 31 and detent pin 29 are positioned as shown in Fig. 8.

Movement of the lever 31 in a counterclockwise direction as from the position of Fig. 8 to the position of Fig. 5 thus operates to shift the slide rod 111 and the bevel gear 56 to the left, disengaging such gear from the reel drive gear 52. This disengaging of the gears may be effected either by actuation of the lever 39 externally of the casing or by insertion of the tool carrying sleeve 19 into the tubular end member

15 of the motor. In the latter case, the coned end 20 of the tubular sleeve 19 moves into tubular portion 15 of the motor end member and engages the coned end 37 on the adjustable retaining screw 29. The angularity of the cones and the offset position of the pivot axis of the shaft 33 causes the screw 29 to ride up and along the conical end of the sleeve, causing rotation of the lever 31 and effecting gear disengaging movement of the linkage and the slide 111. When the tool supporting sleeve or arbor 19 has been thus moved into the tubular portion 15 of the motor end member to operative position, the detent screw 29 drops into the annular groove 38 to retain the arbor in the socket. A tension spring 113 is connected between the slide 111 and the boss 41 on the motor end member to yieldingly hold the bevel gears 52 and 56 in driving engagement.

A downwardly extending curved arm 118 is pivotally carried by the lever shaft 33 and is positioned between the hub of the lever 31 and the journal boss 41. An angular extension 119 on the arm 118 is disposed for movement to engage the switch button 96 so as to bear against the same and actuate the switch 97. A lateral finger 127 (Fig. 8) on the hub of the lever 31 moves with the lever to engage and shift the arm 118 for switch actuating movement. In this manner the switch is actuated to permit energization of the electric motor 28 to drive the tool supporting sleeve 19 simultaneously with the shifting of the gear 56 declutching or disconnecting the flexible cable 65.

The arm 118 is thus freely movable on the shaft 33 and is actuated by either the finger 127 on the arm 31 or by the spring pressed cap 94 on the slide 92. The electrical switch 97 thus serves as a master control responsive to either the movement of the lever 31, when a tool supporting arbor 19 is mounted in the drive socket, or to the movement of the slide 92 which is shifted upon extension of the flexible drive cable 65 to operative position for use. With the flexible drive cable retracted on the reel, the motor 28 cannot be energized through the switch 97 unless the gears 53 and 56 are de-clutched by movement of the manual lever 39. This arrangement not only prevents driving of the flexible cable 65 in coiled position, but also prevents driving the tool arbor 19 at the same time as the flexible cable.

A combination rheostat and switch 129 is mounted on the inside of the casing 1 at the end of the latter opposite the opening in the boss 13 for the tubular portion of the motor end member. The rheostat-switch device is actuated by a shaft which extends through an opening in the casing and carries a hand wheel 120 for manipulation externally of the casing.

Fig. 4 shows a suitable wiring diagram for the device, electrical current being furnished through a two wire cable containing conductors L1 and L2. The conductor L1 is connected by a wire or conductor 121 to one terminal of the motor 28. The other conductor L2 is connected by a wire or conductor 122 to the contact arm of the rheostat-switch combination 129. The other side or resistor terminal of the rheostat-switch combination is connected by conductor 123 to one side of the master control switch 97, the other side or terminal of the latter switch being connected by conductor 124 to the other terminal of the electric motor 28. Thus the rheostat-switch combination 129 operates as a variable control for the

electric motor and permits adjustment of the motor to the desired speed in operating either the arbor sleeve 19 or alternatively the sheathed cable. While a particular design and construction of certain of the motor parts has been described herein and shown in the drawings, the armature windings 12, commutator 61, brushes, and field windings 11 may be of conventional construction.

The design of the utility device or appliance of the present invention is so arranged that servicing and repairing is facilitated. The supplemental or cross frame 4 may be readily removed by releasing the screws 5, which permits the motor and related drive mechanism carried by the supplemental frame to be withdrawn from the casing as a unit.

The principles of the present invention may be utilized in various ways, numerous modifications and alterations being contemplated, substitution of parts and changes in construction being resorted to as desired, it being understood that the embodiment shown in the drawings and described above is given merely for purposes of explanation and illustration without intending to limit the scope of the claims to the specific details disclosed.

What I claim is:

1. In a utility appliance having a motor and a frame, a flexible sheathed driving cable and a supporting reel therefor mounted on the frame, the reel being rotatable in one direction to extend the cable and rotatable reversely to retrieve the cable, means drivingly connecting the cable to the motor to be actuated thereby, a casing enclosing the frame, motor and reel and provided with an opening for the cable, spring means having connection with the reel for energization by cable extending rotation of the reel, and means for latching the reel with the cable in extended position, said latch means extending through the casing and being actuatable to release the reel for cable retrieving rotation by the energized spring means.
2. In an electrically driven utility appliance having a frame and a motor, a reel carried by the frame and rotatable thereon, a flexible driving cable and sheath carried by the reel and arranged to be extended and retrieved upon forward and reverse reel rotation, means drivingly connecting the cable to the motor to be actuated thereby, an electric switch governing the energization of the motor, and a control element for the switch mounted on the appliance, said element being movable upon forward rotation of the reel to actuate the switch and energize the motor and being movable upon reverse rotation of the reel to effect motor de-energizing operation of the switch, said control element also having latching connection with the forwardly rotated reel to prevent reverse rotation and retrieving of the cable thereby and being movable to unlatch the reel for cable retrieving rotation, a casing enclosing the frame, motor and reel and having an opening for the flexible cable, and said control element extending through the casing and actuatable externally thereof for releasing the reel for cable retrieving rotation and to effect motor de-energizing operation of the switch.
3. In a powered utility appliance having a frame and a motor, a shaft having driving threads thereon, means connecting the shaft to the motor to be actuated thereby, a reel mounted for rotation in coaxial relation to the shaft, a flexible cable and sheath therefor mounted on the

reel, drive gear means on the cable meshing with the driving threads of the shaft in all rotative positions of the reel for actuation of the cable through the shaft, and means on the appliance governing the energization of the motor.

4. In a powered utility appliance having a supporting frame structure and an electric motor, a reel rotatably mounted on the frame structure, a flexible drive cable and sheath therefor carried by the reel for extension and retraction, means drivingly connecting the cable to the motor to be actuated thereby in extended position, a switch controlling the energization of the motor, means governing the switch for actuation thereof to energize the motor upon extension of the flexible cable and to de-energize the motor upon retraction of the cable, and combined switch and rheostat means monitoring the supply of energy to the motor through the first named switch means.

5. In a powered utility appliance of the type having a supporting frame structure, a motor, and a plurality of power take-offs arranged to be actuated by the motor, a flexible drive cable and sheath therefor, means drivingly connecting the cable to the motor, a tool support and means rotatably mounting the same on the frame for facile removal therefrom, means connecting the mounted tool support in driving relation to the motor to be actuated thereby, and means connected between the tool support mounting means and the cable connecting means to disconnect the cable from the motor upon mounting of the tool support on the frame in driving relation to the motor.

6. In a powered utility appliance of the type having a supporting frame structure, a motor, and a plurality of power take-offs arranged to be actuated by the motor, a flexible driving shaft and a sheath therefor, means mounting the flexible shaft on the frame structure, means including a clutch connecting the flexible shaft to the motor to be actuated thereby, means providing a drive connecting socket also supported by the frame structure, an arbor receivable in the socket, means for drivingly connecting the arbor to the motor to be driven thereby, means engageable by the arbor for holding the flexible cable drive clutch disconnected while the arbor is in the socket in driving relation to the motor, and means governing the energization of the motor.

7. In a powered utility appliance of the type having a supporting frame structure, a motor, and a plurality of power take-offs arranged to be actuated by the motor, a flexible drive shaft and means mounting the same on the frame structure, disconnectible drive means for actuation of the flexible shaft by the motor, means carried by the frame structure providing a receiving socket for a removable drive arbor, an arbor receivable in the socket, means effecting a driving connection between the motor and the arbor upon movement of the latter into the socket, releasable means engageable with the arbor to retain the latter in the socket during driving thereof by the motor, and means including the retaining means for disconnecting the drive between the motor and the flexible shaft upon movement of the drive arbor into the socket.

8. In a powered utility appliance of the type having a supporting frame structure, a motor, and a plurality of power take-offs arranged to be actuated by the motor, an enclosing housing for the frame structure and motor, a flexible drive cable and sheath combination and means

mounting the same on the frame, said mounting means permitting extension and retraction of the cable and sheath through the housing, disconnectible means for effecting a driving connection between the motor and the flexible cable, means carried by the frame structure providing a receiving socket for a removable drive arbor, an arbor receivable in the socket, means effecting a driving connection between the motor and the arbor upon movement of the arbor into the socket, means engageable with the arbor normally to retain the latter in the socket for maintaining a driving connection between the motor and the arbor, said last named means including a member extending through the housing and operable manually on the outside of the housing to effect release of the arbor for withdrawal thereof from the socket, and means including the arbor retaining means and having connection with the manually operable release member for disconnecting the drive between the flexible cable and the motor upon movement of the arbor into the socket and also upon actuation of the manually operable member externally of the housing.

9. In a powered utility appliance of the type having a supporting frame structure, a motor, and a plurality of power take-offs arranged to be actuated by the motor, an enclosing housing for the motor and frame structure, a flexible drive cable and sheath combination and means mounting the same on the frame, said mounting means permitting extension and retraction of the cable and sheath through the housing, means for effecting a driving connection between the motor and the flexible cable, means carried by the frame structure providing a receiving socket for a removable plug, a drive plug receivable in the socket, means effecting a driving connection between the motor and the drive plug upon movement of the drive plug into the socket, a switch governing the energization of the motor, means engageable with the received drive plug to retain the latter in the socket, said retaining means including a member extending through the housing and manually operable externally of the housing to effect release of the drive plug for withdrawal of the latter from the socket, means including the plug retaining means for disconnecting the drive between the flexible cable and the motor upon movement of the drive plug into the socket and also in response to actuation of the manually operable release member externally of the housing, and further means having connection with the plug retaining means for controlling the switch to actuate the latter for energization of the motor in response both to movement of the plug into the socket and to actuation of the manual release member externally of the housing.

10. In a powered utility appliance of the type having a supporting frame structure, a motor, and a plurality of power take-offs arranged to be actuated by the motor, a reel and means rotatably mounting the same on the frame structure, a flexible cable and sheath carried by the reel for extension and retraction, means for driving the cable from the motor, a removable arbor and means rotatably mounting the same on the frame, means for driving the arbor from the motor, a switch governing energization of the motor, means for actuating the switch to energize the motor upon extension of the cable, moveable means carried by the arbor mounting means for engagement with a mounted arbor for disengag-

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ing the cable drive to prevent simultaneous driving of the cable and the mounted arbor, and means having connection with the drive disengaging means for actuating the switch to energize the motor for driving the mounted arbor.

11. In a powered utility appliance of the type having a supporting frame structure, a motor, and a plurality of power take-offs arranged to be actuated by the motor, a reel rotatably mounted on the frame structure, a flexible cable and sheath therefor carried by the reel for extension and retraction, a switch governing energization of the motor, an element having connection with the reel and moveable during cable extending rotation of the reel to actuate the switch to energize the motor, energy storing means connected to the reel to be actuated during cable extending rotation thereof for storing energy and arranged to rotate the reel in a reverse direction to retract the flexible cable and sheath, a removable arbor and means for mounting the same on the frame in driving relation to the motor, and means moveable simultaneously to disconnect the drive between the motor and the flexible cable and to

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actuate the switch to energize the motor to drive the arbor.

ANTHONY VON HAASE.

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