Sept. 4, 1928. 1,683,197

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HANDLE CONSTRUCTION FOR ELECTRIC VACUUM CLEANERS AND THE LIKE

Filed Jan. 26, 1927

Fig. 1.

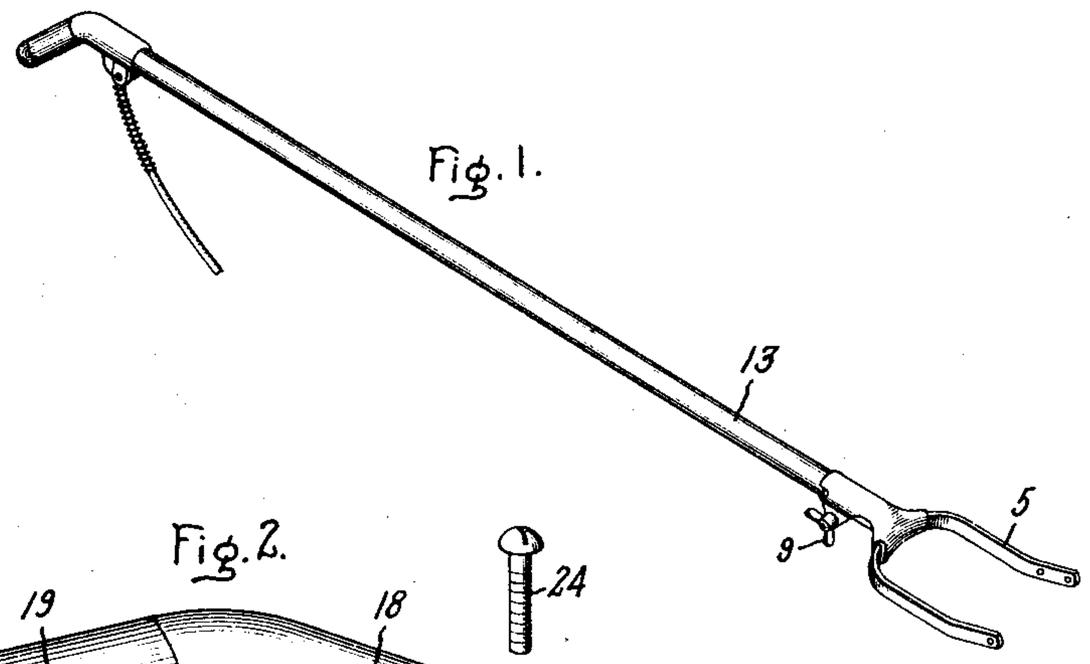


Fig. 2.

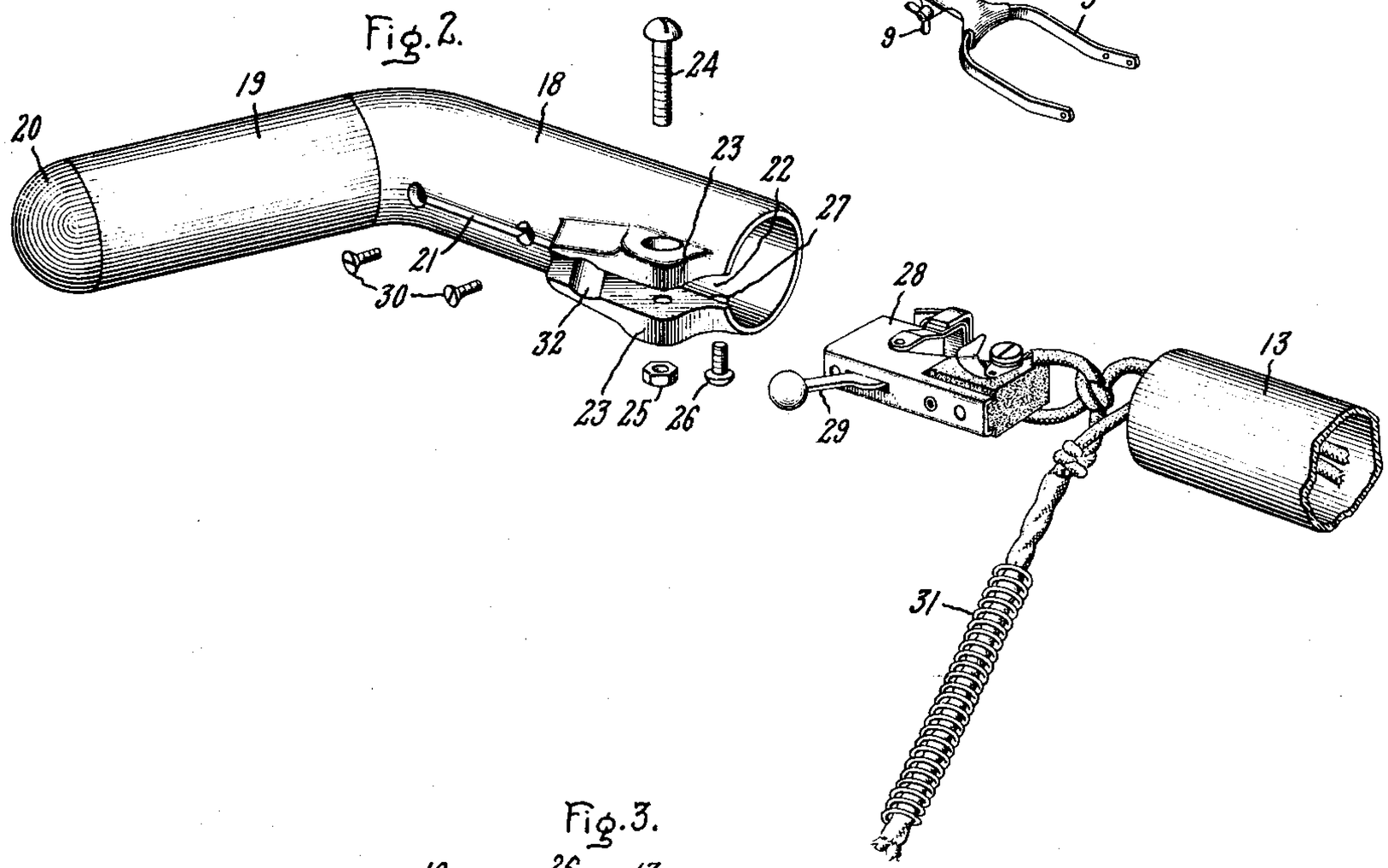
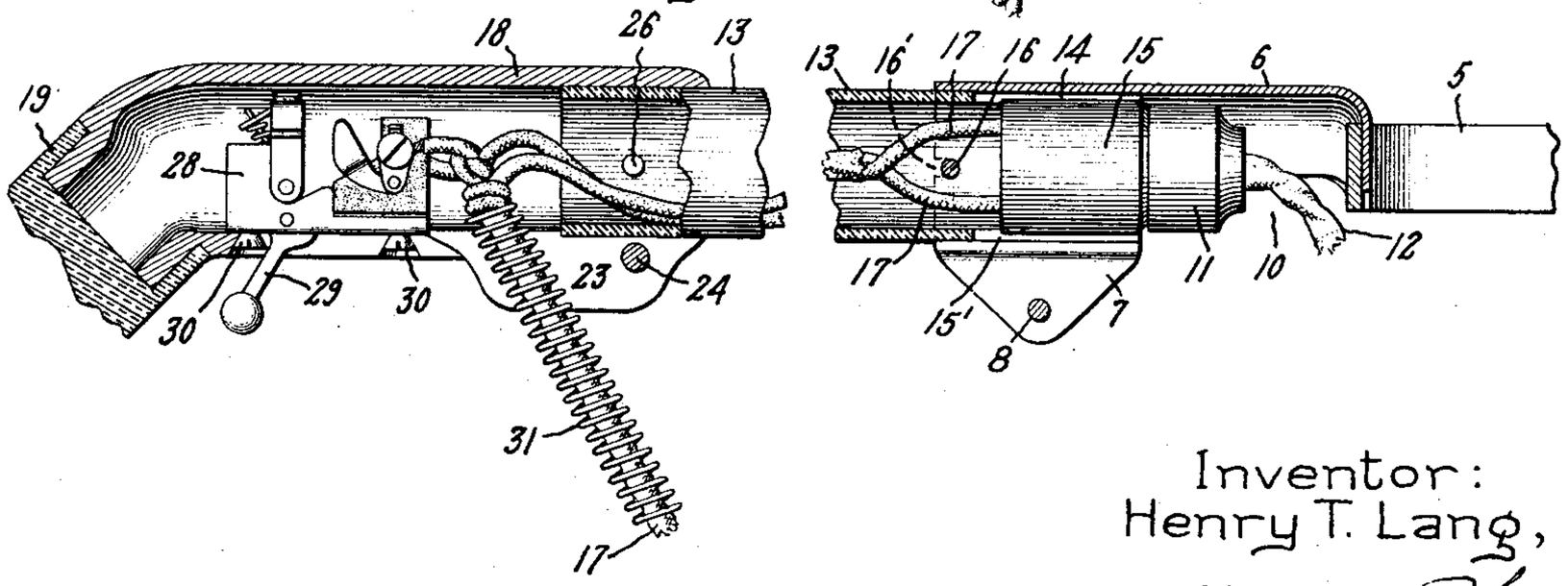


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY T. LANG, OF CLEVELAND, OHIO, ASSIGNOR TO ELECTRIC VACUUM CLEANER COMPANY, INC., OF CLEVELAND, OHIO, A CORPORATION OF NEW YORK.

HANDLE CONSTRUCTION FOR ELECTRIC VACUUM CLEANERS AND THE LIKE.

Application filed January 26, 1927. Serial No. 163,786.

The present invention relates to handle constructions for machines such as electric vacuum cleaners and the like wherein the construction embodies an electric switch and suitable wiring for the machine.

The primary object of the invention is to provide an improved construction which is easy to assemble and dismantle, attractive in appearance, and capable of being manufactured and assembled at low cost.

For a consideration of what I believe to be novel and my invention, attention is directed to the following description and the claims appended thereto.

Referring to the drawing, wherein I have illustrated my invention in connection with a vacuum cleaner handle, this being an application to which it is particularly well adapted, Fig. 1 is a perspective view of a complete vacuum cleaner handle assembly; Fig. 2 is an exploded view in perspective of the parts at the outer end of the handle; and Fig. 3 is an enlarged sectional view partly broken away of the two ends of the handle.

Referring to the drawing, 5 indicates the yoke of the vacuum cleaner handle, which yoke is used for attaching the handle to the cleaner. Connected to the central portion of the yoke is a sleeve 6 which is split on its under side and is provided with two ears 7 through which extends a bolt 8 having a wing nut 9 on its outer end. The under side of sleeve 6 is cut away as is indicated at 10 to provide a passage through which an electric plug 11 may be passed. Connected to electric plug 11 is a lead wire 12 which, in the case of a vacuum cleaner, is connected to the motor. In sleeve 6 is located the lower end of a tube 13 which forms the straight portion of the handle. The lower end of tube 13 is split longitudinally to form slots as are indicated at 14, and located in such split end is a plug receptacle 15. The end of the tube is provided with an abutment or shoulder 15′ which serves to position the receptacle correctly in the tube. The split end of the tube permits the end of the tube to spread slightly so that the plug receptacle can be inserted easily. It also enables the end of the tube to be clamped tightly about the plug receptacle when wing nut 9 is screwed up to clamp sleeve 6 around the end of the tube. Slots 14 extend beyond shoulders 15′ to leave openings through which the end of a tool, such as a screw driver, may be inserted for use in removing the plug receptacle. 16 is a pin which extends through the lower end of tube 13 and projects slightly on each side of it, sleeve 6 being provided with recesses 16′ in which the ends of pin 16 are located. Pin 16 thus serves to position yoke 5 correctly on the handle. Pin 16 serves also to separate the two conductors 17 which are connected to plug receptacle 15.

Attached to the upper end of tube 13 is a switch casing 18 and a grip 19. Switch casing 18 is formed of a suitable material such as aluminum, for example. The outer end of casing 18 is turned at an angle and has grip 19 suitably attached to it. Grip 19 may be formed of any suitable material, for example, it may be formed of hard fibre and be provided with a moulded rubber end as indicated at 20. On its under side, switch casing 18 is slotted to provide an inner slotted portion 21 and an outer slotted portion 22, the two slotted portions merging into each other, and the outer slotted portion 22 being substantially wider than the inner slotted portion 21. Adjacent the edges of slotted portion 22 are ears 23 provided with holes in which a bolt 24 is located. On the end of bolt 24 is a nut 25 by means of which ears 23 may be drawn together. The upper end of tube 13 fits into the end of switch casing 18 and is held therein by bolt 24 which clamps the end of casing 18 around it, and also by a set screw 26 which extends through an opening 27 in casing 18 into a suitable opening in tube 13. Located in casing 18 is a suitable electrical switch 28, the operating handle 29 of which projects through slot 21. The switch is held in position in the casing by means of screws 30. Electrical conductors 17 extend through tube 13 and are connected to electrical switch 28 and from there they extend out through slot 22, a suitable length of cord being provided for connection to a source of electrical energy, as is well understood. Surrounding the initial portion of the cord adjacent to casing 18 is a protecting spring 31, the inner end of which is gripped between ears 23, the ears being recessed as indicated at 32 to accommodate the spring. When nut 25 is tightened up drawing ears 23 together, tube 13

is gripped tightly in the end of switch casing 18 and at the same time spring 31 is clamped securely in place. This serves to hold the spring securely in position. The cord is provided with a suitable knot tied inside the switch casing which energizes the end of the spring and serves to take the strain off the cord connections.

In assembling the structure, the electric cord is first threaded through tube 13 and connected to plug receptacle 15 at its lower end, the plug receptacle at this time being outside the tube. Plug receptacle 15 is now inserted into the lower end of the tube, after which the end of the tube is inserted into sleeve 6 and wing nut 9 tightened to fasten the sleeve and tube together and the plug receptacle in the end of the tube. With this arrangement it will be seen that the plug receptacle can be wired before it is inserted in the tube and then the plug receptacle tube and sleeve all fastened together by the one operation of tightening the wing nut. Electric switch 28, which has not yet been assembled in its casing, is now connected to lead wires 17 at the other end of tube 13 and the lead wire then threaded through spring 31. The switch is now slipped into casing 18 from its open end, switch handle 29 being passed through slot 22 into slot 21. Screws 30 are then put in place to hold the switch in position. At the same time that the switch is put in position in the casing, the cord is passed through slot 22, and spring 31 is pushed up into groove 32. The end of switch casing 18 is then slipped over the outer end of tube 13, after which nut 25 is tightened to clamp the tube in position, and screw 26 is screwed into place. The assembling of the handle is then complete.

With the above described arrangement, it will be seen that the assembling of the handle structure is simple and can be carried out rapidly by unskilled operators and without the use of special tool equipment. At the same time after the parts have been assembled they are held firmly in position and together. A certain amount of slack is left in the lead wires between the plug receptacle 15 and the switch 28, the slack being sufficient to permit either the switch or the plug receptacle to be removed. This enables either to be replaced without dismantling the entire assembly. When assembled, lead wires 17 are concealed within tube 13, a thing which serves to improve materially the appearance of the handle.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a handle assembly of the character described, the combination of a tube, a switch casing, said casing having an open end in which the end of the tube is located and being split from said open end to a point adjacent to its other end to form a longitudinally extending groove, a switch in the casing, the operating handle of the switch extending out through said groove, a connector cord which extends through the tube, is connected to said switch and projects out through said groove, a spring surrounding said cord, and means for clamping the end of the spring in said groove and the split end of the casing to the end of the tube.

2. In a handle assembly of the character described, the combination of a tube, a switch casing, said casing having an open end in which the end of the tube is located and being split from said open end to a point adjacent to its other end to form a longitudinally extending groove, the initial portion of said groove being wider than the remaining portion, clamping ears at the edges of said initial groove portion, said initial portion being of a width such that said ears are spaced apart an amount sufficient to permit a switch handle to pass between them, a switch in the casing, the operating handle of the switch extending out through the narrower portion of said groove, a connector cord which extends through the wider portion of said groove and between said ears, and a guard spring on the cord, the end of said guard spring being clamped between said ears.

3. In a handle assembly of the character described, the combination of a tube, a switch casing, said switch casing having an open end and a groove extending longitudinally from such open end, a switch in said casing spaced from such open end, ears on the casing at its open end, a cord and cord guard located between said ears, and means for drawing said ears together for clamping the switch casing on the end of said tube and the cord and cord guard between the ears.

In witness whereof, I have hereunto set my hand this 21st day of January, 1927.

HENRY T. LANG.