

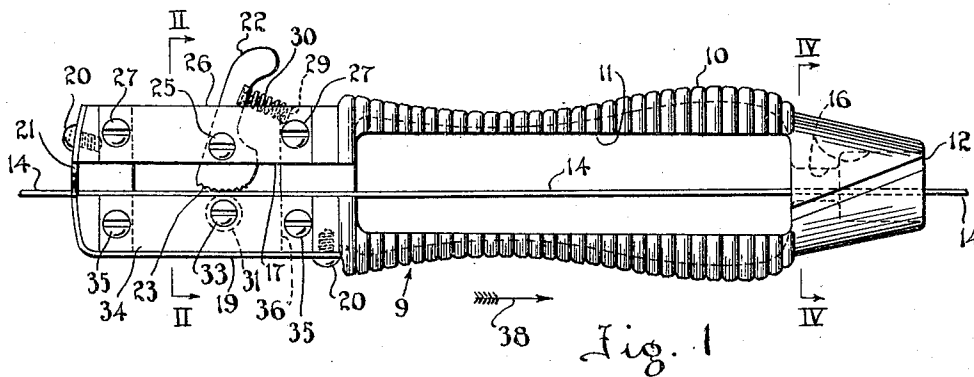
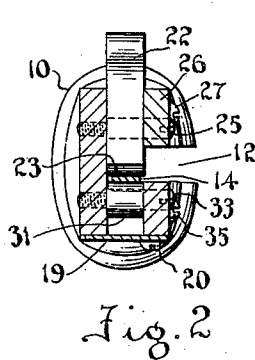
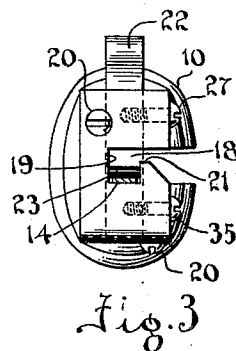
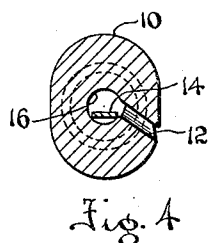
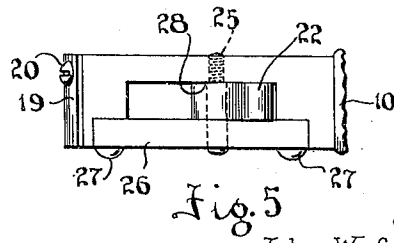
Oct. 4, 1932.

J. W. GOODALL

1,880,431

TOOL FOR FORCING AND DRAWING AN ELEMENT THROUGH CONDUITS

Filed Aug. 15, 1930



Inventor
John W. Goodall

Ree & Pugh

Attorneys

UNITED STATES PATENT OFFICE

JOHN W. GOODALL, OF AKRON, OHIO, ASSIGNOR TO THE GOODYEAR TIRE & RUBBER COMPANY, OF AKRON, OHIO, A CORPORATION OF OHIO

TOOL FOR FORCING AND DRAWING AN ELEMENT THROUGH CONDUITS

Application filed August 15, 1930. Serial No. 475,514.

This invention relates to wire manipulating tools, and it has particular relation to a tool for inserting an element such as a long steel wire, known in the electrical trade as a "fish wire", into conduits or partitions for drawing electric wires therein and there-through. The invention is adaptable for use with any flat, round or other similar metallic element used as a fish wire and for like purposes.

One object of the invention is to provide a suitable hand tool which is capable of being moved freely and quickly along an elongate element for the purpose of changing the point of contact, or gripping, and which is so constructed that the gripping means is operated automatically and not dependent upon the gripping pressure of the hand.

Another object of the invention is to provide a suitable hand tool that can readily be attached to the element at any location intermediate its ends.

Another object of the invention is to provide a tool which will automatically clamp the element when it is moved in the direction in which the element is to be fed, and which will automatically release the element when it is moved in the opposite direction for the purpose of changing the point of contact or gripping.

A further object of the invention is to provide a simple, convenient and inexpensive hand tool of the character designated which can be made economically of malleable iron or like material by a casting operation, the construction of which requires a minimum of machining operation.

For a better understanding of the invention, reference may now be had to the accompanying drawing, forming a part of the specification, of which:

Figure 1 is a side elevational view of a tool constructed in accordance with the invention and a portion of a flat fish wire attached thereto;

Figure 2 is a cross-sectional view of the tool taken substantially along the line II—II of Figure 1;

Figure 3 is an end elevational view of the tool;

Figure 4 is a cross-sectional view of the tool taken substantially along the line IV—IV of Figure 1; and

Figure 5 is a fragmentary plan view of one end of the tool.

A tool 9 illustrating one embodiment of my invention comprises a handle 10 having a central longitudinally extending opening 11 and a slot 12 communicating with the latter extending at an angle to the longitudinal axis of the handle. An element 14 is adapted to be inserted laterally through the slot 12. The slot 12 communicates laterally with a relatively small opening or bore 16 which extends axially of the handle, and the angular relation of the slot and bore is such as to prevent displacement of the element from the tool under ordinary conditions of operation. At the end of the tool opposite the opening 16, a slot 17 extending in longitudinal alinement with the latter is open laterally toward the same side of the tool as the slot 12, and the extreme outer end of the slot 17 is defined by an opening 18 in a strap 19 that is secured, as indicated at 20, to the body of the tool. The opening 18 is provided with a relatively narrow gap 21 through which the element 14 may be inserted laterally, but the opening 18 is of such contour as to prevent the element from lateral movement therein under normal conditions of operation. A clamping dog 22, provided with a knurled cam face 23, is pivoted upon a pin 25 that extends through a removable bar 26, and is threaded into the end portion of the tool. The bar 26 is secured to the body of the tool by means of screws 27, and a recess 28 in the tool is spanned by the bar 26, thereby providing a space within which the dog 22 operates.

A spring 30 mounted between the outwardly extending end portion of the dog 22 and a seat 29, on the body of the tool, exerts a force tending to pivot the dog in an anti-clockwise direction, as viewed in Figure 1, and the face of the cam, when the dog is so pivoted, approaches a coating roller 31 that is mounted in conjunction with a pin 33, bar 34, screws 35, and recess 36 in the same manner as the dog 22 is mounted with reference

to the pin 25, bar 26, screws 27 and recess 28, respectively. It will be observed that the bars 26 and 34 are so arranged in parallel relation as to define the outer boundaries of the opening 17. It is to be understood that the slots and openings 11, 12, 16, 17, 18 and 21 may be considered as a single slot although each has been described separately in order to clarify the peculiarities of each.

10 In operating the tool 9, the element 14 is inserted laterally through the slots 12, 11, 17 and through the gap 21 until it is disposed between the coating surfaces of the cam 23 and roller 31. The dog 22 is pressed down-
15 wardly to provide a space between the cam 23 and roller 31 for receiving the element 14.

With respect to the element 14, the tool can be freely moved manually or otherwise in the direction indicated by the arrow 38 (Figure 1). However, upon movement of the
20 tool in the opposite direction, the element 14 is automatically and immediately clamped between the cam 23 and the roller 31. By manually pressing the dog 22 the cam may be
25 pivoted away from the roller 31 and then the tool may be freely moved along the element 14 in either direction.

This tool is particularly useful in threading metallic strands or the like through a
30 conduit; for example, in inserting insulated telephone wires or other conductors of electricity into narrow passages.

Although only one form that the invention may assume has been described in detail, it
35 will be apparent to those skilled in the art that the invention is not so limited, but that various modifications may be made therein without departing from the spirit of the invention or from the scope of the appended
40 claims.

What I claim is:

1. A tool adapted to clamp on a flexible element, said tool comprising a hollow handle having a slot extending along one side, portions of said slot being in different planes
45 whereby the element is normally held in the tool, and a clamping device mounted within the handle for gripping an element extending therethrough.

50 2. A tool adapted to grip a flexible element, said tool comprising a hollow handle having a slot extending along one side, portions of said slot being in different planes so that the wire can be inserted and removed laterally
55 of the tool and yet is normally held in the tool by the different angles of the slot, a clamping device mounted within the handle including means for gripping an element extending therethrough when the handle is
60 moved in one direction, means for releasing the element when the handle is moved in the opposite direction, and means for manually releasing the element without movement of
65 the handle.

In witness whereof, I have hereunto signed my name.

Signed at Akron, in the county of Summit and State of Ohio, U. S. A., this 14th day of August, 1930.

JOHN W. GOODALL.