Jan. 11, 1966 E. L. ALLEN 3,228,433

WIRE WRAPPING BIT

Filed Feb. 25, 1964 2 Sheets-Sheet 1

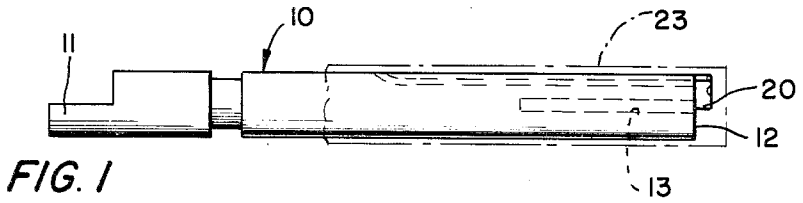


FIG. 1

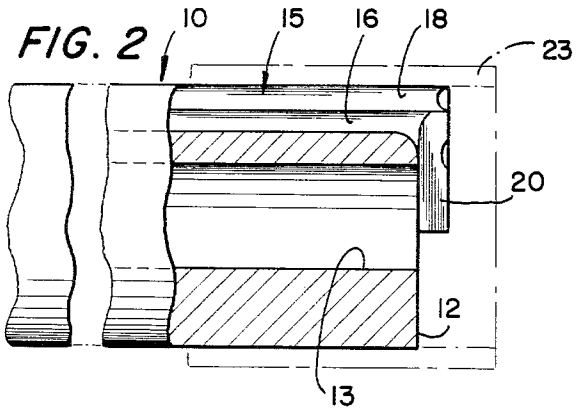


FIG. 2

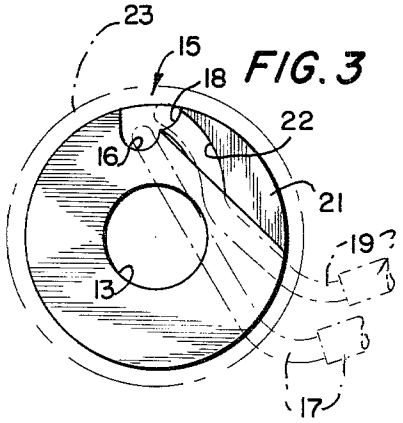


FIG. 3

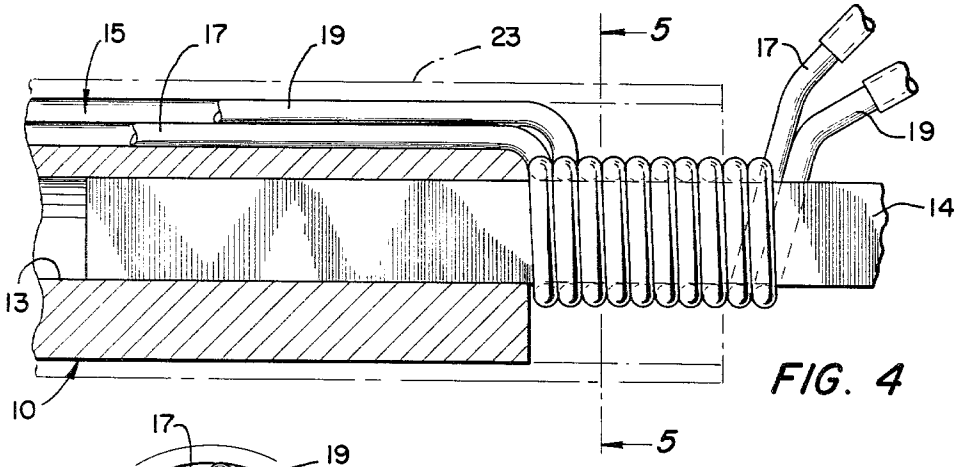


FIG. 4

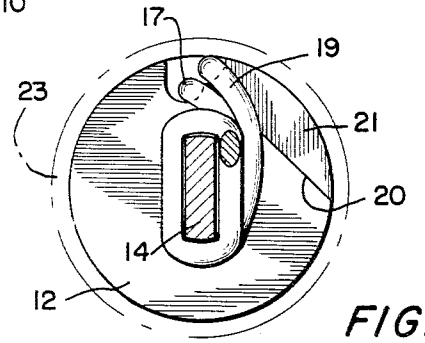


FIG. 5

INVENTOR.
EDWARD L. ALLEN
BY
Arthur Frederick
ATTORNEY

Jan. 11, 1966 E. L. ALLEN 3,228,433

WIRE WRAPPING BIT

Filed Feb. 25, 1964 2 Sheets-Sheet 2

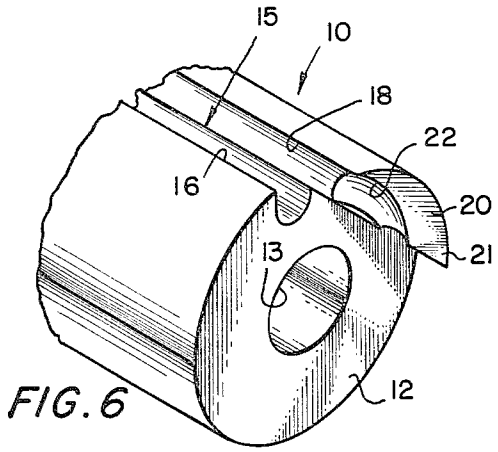


FIG. 6

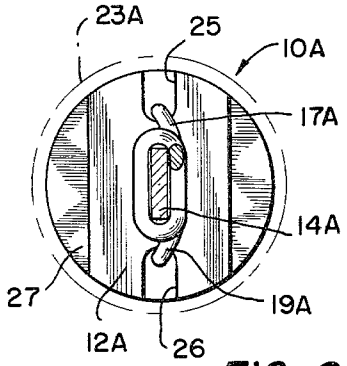


FIG. 8

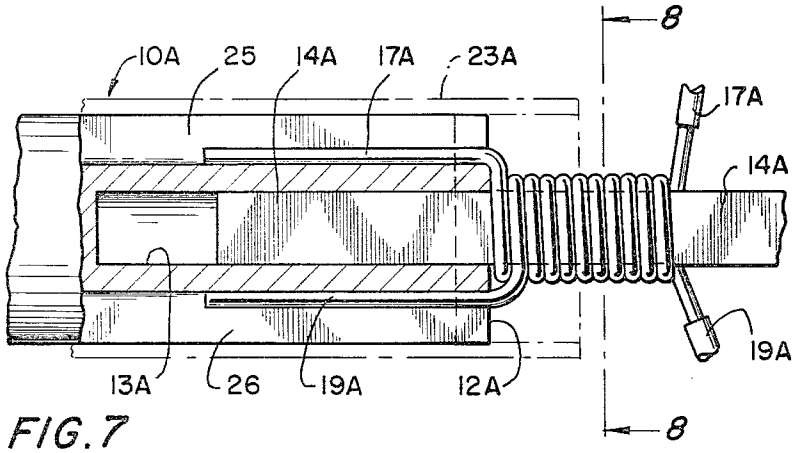


FIG. 7

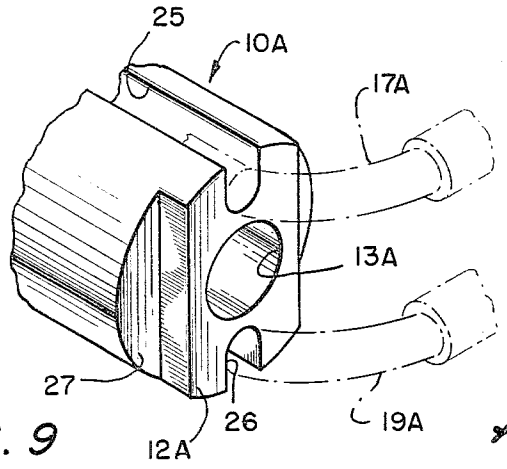


FIG. 9

INVENTOR.
EDWARD L. ALLEN
BY
Arthur Kalenick
ATTORNEY

United States Patent Office 3,228,433 Patented Jan. 11, 1966

3,228,433

WIRE WRAPPING BIT

Edward L. Allen, Ulster, Pa., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey

Filed Feb. 25, 1964, Ser. No. 347,248
4 Claims. (Cl. 140—124)

This invention relates to wire wrapping apparatus and more particularly to wire wrapping bits which function to wind a wire about a member, such as an electrical terminal.

Heretofore, wire wrapping bits were capable of winding only a single wire at each operation of the wire wrapping mechanism. Thus, where two wires had to be wrapped about the same member, such as an electrical terminal, each wire had to be wound about the member by two separate wire wrapping operations.

Accordingly, it is an object of this invention to provide a wire wrapping bit which is capable of coiling a plurality of wires simultaneously about a member.

In view of the foregoing, the present invention contemplates a wire wrapping bit having means for receiving a plurality of wires and wrapping those wires about a member upon rotation of the wire wrapping bit.

In one embodiment of the invention the wire wrapping bit is provided with a longitudinal wire-receiving groove constructed and arranged to receive two wires adjacent each other and means adjacent said groove for guiding one of the wires about the member in lateral-spaced relationship to the other wire being wrapped.

In another embodiment of this invention the wire wrapping bit has two diametrically opposed, longitudinally extending wire-receiving grooves, each of which is adapted to receive a wire to be wrapped.

The invention will be more fully understood from the following detailed description thereof when considered in connection with the accompanying drawings wherein two embodiments of the invention are illustrated by way of example and in which:

FIG. 1 is a view in elevation of a wire wrapping bit according to one embodiment of this invention;

FIG. 2 is an enlarged fragmentary view, partly in cross section, of the wire wrapping bit shown in FIG. 1;

FIG. 3 is an enlarged end view of the wire wrapping bit shown in FIGS. 1 and 2;

FIG. 4 is a cross-sectional view, similar to FIG. 2, showing wires partly wrapped about a member;

FIG. 5 is a cross-sectional view taken along line 5—5 of FIG. 4;

FIG. 6 is a fragmentary perspective view of the wire wrapping bit shown in FIGS. 1 to 5;

FIG. 7 is a fragmentary view, partly in cross section, of a wire wrapping bit according to another embodiment of this invention;

FIG. 8 is a cross-sectional view taken along line 8—8 of FIG. 7; and

FIG. 9 is a fragmentary view in perspective of the wire wrapping bit shown in FIGS. 7 and 8.

Now referring to the drawings and more particularly to FIGS. 1 to 6, 10 generally designates the wire wrapping bit according to one embodiment of this invention.

Wire wrapping bit 10 comprises an elongated cylindrical body having an offset tang portion 11 at one end, which tang portion is adapted to engage a driving member (not shown) of a wire wrapping mechanism (not shown) by which bit 10 is rotated. The opposite or distal end face 12 of bit 10 has an axial bore 13 extending inwardly therefrom, which bore, as shown in FIG. 4, is adapted to receive a member 14, such as an electrical terminal, about which a wire is to be wrapped. A longitudinal groove 15 is provided in the peripheral surface of the bit body. Groove 15 has a first arcuate-shaped trough 16 for receiving a first wire 17 to be wrapped and a second arcuate-shaped trough 18 adjacent trough 16 and extending parallel to the latter for receiving a second wire 19 to be wrapped.

To provide for axial displacement of the coils of wire 19 relative to the coils of wire 17, a chordal projection or detent 20 is provided on distal end face 12 of the bit. Detent 20 is so positioned in relation to groove 15 that trough 18 extends to the end face 21 of detent 20 to merge with a curved arcuate-shaped trough 22 in end face 21. Trough 22 serves to guide wire 19 in proper lateral-spaced relation to wire 17 so that the coils of wire 19 will lie in side-by-side contact with the coils of wire 17 as best shown in FIG. 4.

To hold wires 17 and 19 within groove 15 during the wire wrapping operation, bit 10 is journaled for rotation within a conventional sleeve 23 which is shown in broken lines in the several views of the drawings.

In FIGS. 7 to 9 is shown another embodiment of the present invention in which two wire-receiving grooves are provided in the bit rather than one as shown in FIGS. 1 to 6 and described above.

In this alternative embodiment the bit 10A is provided with an axially extending bore 13A which is adapted, as shown in FIGS. 7 and 8, to receive a member 14A about which the wires are to be wrapped.

A pair of diametrical grooves 25 and 26 is provided in the peripheral surface of bit 10A to extend inwardly a substantial distance from distal end face 12A. Groove 25 is constructed and arranged to receive a first wire 17A to be wrapped, while groove 26 is adapted to receive a second wire 19A to be wrapped.

The distal end face 12A of the bit has diametrical chordal recesses 27 to provide clearances for receiving the insulated covered portion of the wires to be wrapped.

It is now believed readily apparent that the present invention provides a novel wire wrapping bit wherein two wires may be wrapped simultaneously about a member in a single operation of the wire wrapping mechanism of which the bit is a part.

Although two embodiments of the invention have been illustrated and described in detail, it is to be expressly understood that the invention is not limited thereto. Various changes can be made in the arrangement of parts without departing from the spirit and scope of the invention as the same will now be understood by those skilled in the art.

I claim:

1. A wire wrapping bit comprising
   (a) an elongated body having one end adapted to be engaged and rotated,
   (b) an axial bore extending from the distal end of the body and adapted to receive at least part of a member upon which a plurality of wires are to be wrapped, and
   (c) groove means in the outer surface of said body extending from said distal end of the body for receiving in parallel relationship said plurality of wires to be wrapped upon said member,
   (d) said groove means including a first arcuate-shaped trough and a second arcuate-shaped trough extending adjacent and parallel to said first trough.

2. A wire wrapping bit comprising
   (a) an elongated body having one end adapted to be engaged and rotated,
   (b) an axial bore extending from the distal end of the body and adapted to receive at least part of a member upon which a plurality of wires are to be wrapped,
   (c) a groove in the outer surface of said body extending from the distal end of the body,

(d) a first arcuate-shaped trough in said groove to receive a first wire therein,

(e) a second arcuate-shaped trough in said groove extending adjacent and parallel to said first trough and adapted to receive a second wire therein, and

(f) an axial projection integral with and projecting from the face of the distal end of the body,

(g) said second trough extending along said axial projection to axially offset a coil of the second wire from a coil of the first wire so that the coils of the first and the second wires lie side by side.

3. The wire wrapping bit of claim 2 wherein a curved third arcuate-shaped trough for receiving the second wire is formed in the end face of the projection and in registry with the second trough.

4. The wire wrapping bit of claim 3 wherein said projection is in the form of a chordal extension of the distal end of the body.

References Cited by the Examiner

UNITED STATES PATENTS

450,671	4/1891	Hoffmann	140—118
1,067,790	7/1913	Williams	140—118
2,926,859	3/1960	Bos et al.	140—124
2,960,119	11/1960	Johnson	140—119

CHARLES W. LANHAM, *Primary Examiner.*

RICHARD J. HERBST *Examiner.*

L. A. LARSON, *Assistant Examiner.*