Office de la Propriété Intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An agency of Industry Canada

CA 2526709 A1 2004/12/09

(21) 2 526 709

(12) DEMANDE DE BREVET CANADIEN
CANADIAN PATENT APPLICATION

(13) A1

(86) Date de dépôt PCT/PCT Filing Date: 2004/05/03
(87) Date publication PCT/PCT Publication Date: 2004/12/09
(85) Entrée phase nationale/National Entry: 2005/11/21
(86) N° demande PCT/PCT Application No.: US 2004/013777
(87) N° publication PCT/PCT Publication No.: 2004/106006
(30) Priorité/Priority: 2003/05/23 (10/444,732) US

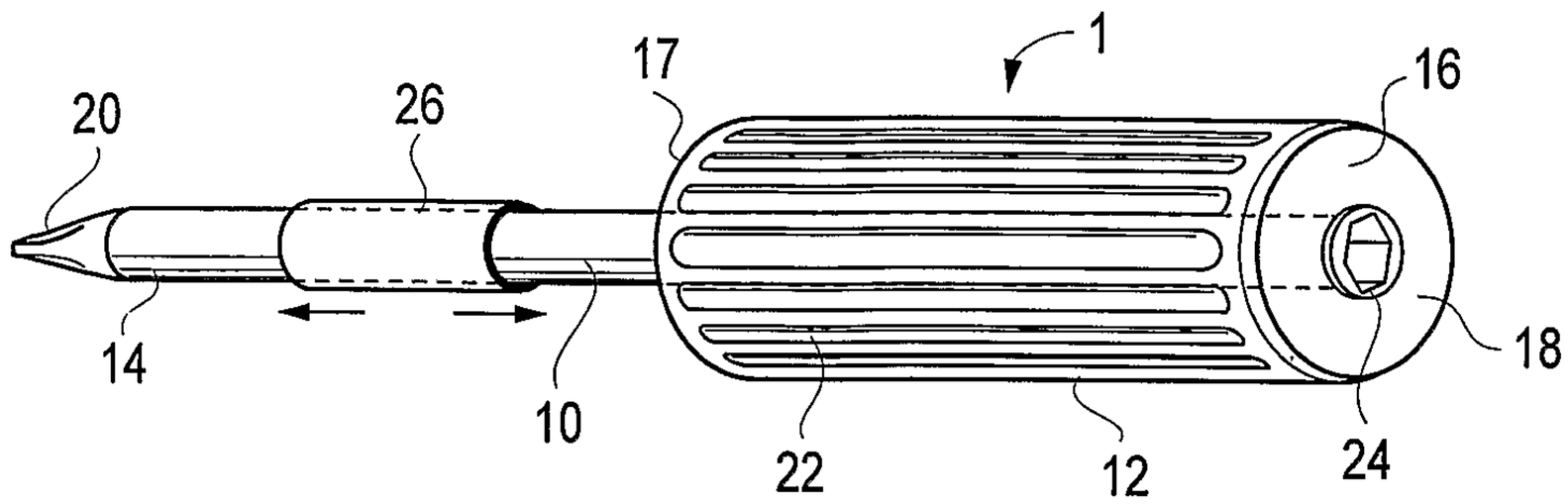
(51) Cl.Int./Int.Cl. *B25B 15/02* (2006.01)

(71) Demandeur/Applicant:
ODACHOWSKI, MARK, US

(72) Inventeur/Inventor:
ODACHOWSKI, MARK, US

(74) Agent: PARKS, WILLIAM D.

(54) Titre : OUTIL A ENTRAINEMENT MANUEL OU AUTOMATIQUE POUR FIXER DES ANCRES VISSEES
(54) Title: HAND OR AUTOMATIC DRIVEN TOOL FOR ATTACHING SCREWED ANCHORS



(57) Abrégé/Abstract:
A tool (1) for inserting screwed, anchoring devices, with the tool being capable of being operated manually or automatically, comprises an elongated handle (12), a shaft (10) that extends between the ends of said handle with a tip end (14) that extends from the front end of the handle and a distal end (16) that lies in the rear end of the handle. The rear end of the shaft has a well (24) that extends along the centerline of the shaft, with the well being configured to receive a standard drill bit of the type that fits within the chuck of a power drill. The depth and wall thickness of the well (24) are such that the well allows a drill bit to enter the well to a depth so that there is ample surface area of the well interior wall in contact with the drill bit to absorb the torque applied to the tool by the power drill. The tip end (14) of the shaft may be configured to attach to one of the anchoring devices, or it may be configured with a well (27) for receiving any one of a number of screw bits that may be used with the tool to insert an anchor which has a head configuration that matches that of the screw bit. Anchoring devices suitable for use with this tool include screws, bolts, nuts, and socketed devices.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
9 December 2004 (09.12.2004)

PCT

(10) International Publication Number
WO 2004/106006 A1

(51) International Patent Classification[7]: B25B 15/02

(21) International Application Number:
PCT/US2004/013777

(22) International Filing Date: 3 May 2004 (03.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/444,732 23 May 2003 (23.05.2003) US

(71) Applicant and
(72) Inventor: **ODACHOWSKI, Mark** [US/US]; 9939 Jerry Mack Road, Suite 400, Ocean City, MD 21842 (US).

(74) Agent: **GUFFEY, Larry, J.**; World Trade Center, Suite 1800, 401 East Pratt Street, Baltimore, MD 21202 (US).

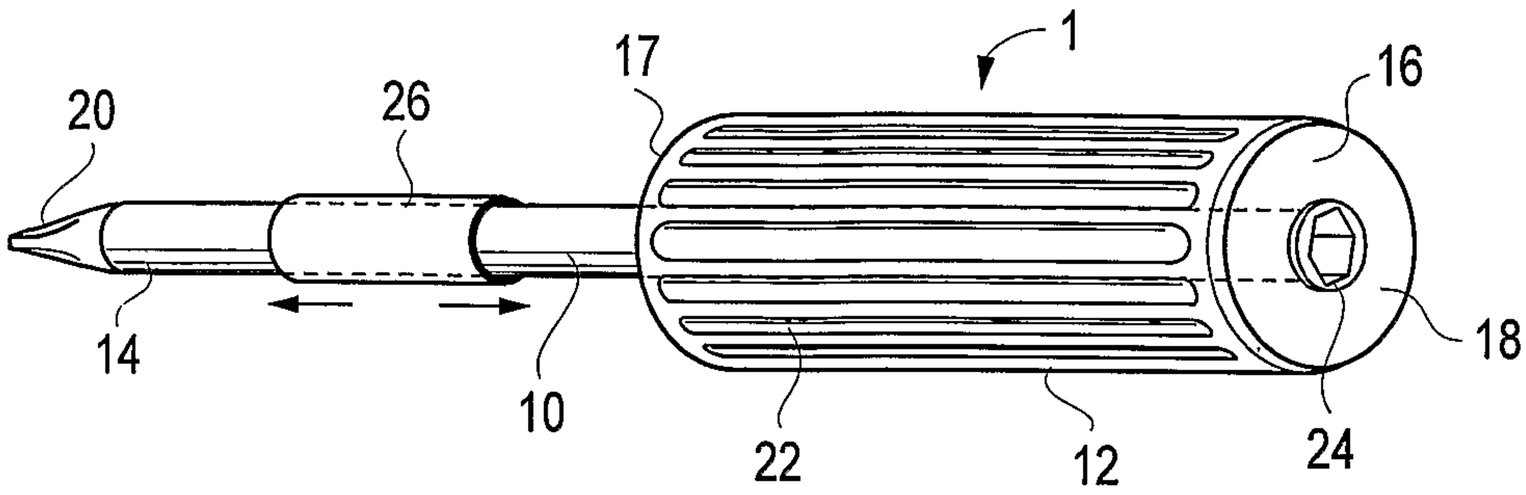
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HAND OR AUTOMATIC DRIVEN TOOL FOR ATTACHING SCREWED ANCHORS



(57) Abstract: A tool (1) for inserting screwed, anchoring devices, with the tool being capable of being operated manually or automatically, comprises an elongated handle (12), a shaft (10) that extends between the ends of said handle with a tip end (14) that extends from the front end of the handle and a distal end (16) that lies in the rear end of the handle. The rear end of the shaft has a well (24) that extends along the centerline of the shaft, with the well being configured to receive a standard drill bit of the type that fits within the chuck of a power drill. The depth and wall thickness of the well (24) are such that the well allows a drill bit to enter the well to a depth so that there is ample surface area of the well interior wall in contact with the drill bit to absorb the torque applied to the tool by the power drill. The tip end (14) of the shaft may be configured to attach to one of the anchoring devices, or it may be configured with a well (27) for receiving any one of a number of screw bits that may be used with the tool to insert an anchor which has a head configuration that matches that of the screw bit. Anchoring devices suitable for use with this tool include screws, bolts, nuts, and socketed devices.

WO 2004/106006 A1

HAND OR AUTOMATIC DRIVEN TOOL FOR ATTACHING SCREWED ANCHORS

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

The present invention generally relates to screwdrivers and other similar hand tools for attaching anchors of the type that have to be screwed together or into the surface to which the anchor is to be attached. More particularly, this invention relates to improved versions of hand tools that may alternately be operated by attaching their especially configured handles to a standard drill bit that fits within the chuck of a power drill which is then used to power the tool.

2. DESCRIPTION OF THE RELATED ART

Cordless, power drills have, in many instances, made significant improvements in the efficiency with which many construction jobs can be completed. Because of these improvements, their use in many construction trades have become very widespread in the past ten to fifteen years.

Additionally, their use has tended to make those who use them more mobile in that they no longer have to be tethered by a drill's cord to a nearby power outlet. With this increased mobility, construction workers often find it even more advantageous to wear tool belts which allow them to carry greater numbers of tools on their belts so that they don't have to make frequent trips back to a centralized tool box.

Such tool belts will often include spaces for carrying a number of items for attaching a wide assortment of screw-type anchors. These tools will typically include various hand tools (e.g., screwdrivers, socket and Allen wrenches) and power tools (e.g., cordless drill and appropriate drill bits), and can consume a significant portion of the storage spaces available on a typical tool belt. Additionally, because of the size differences between such tools, the smaller items (e.g., drill bits) can often be difficult to find in a typical tool belt and are often at risk of being lost.

The usefulness of such tool belts could be improved upon if there were some way to consolidate some of these tools. This sort of logic has over the years led to the invention of a large number of hand tools that have multiple, interchangeable tips which can be used on a wide range of anchors. For example, see USPN 6,374,711 to Anderson for a "50-In-1 Screwdriver and Socket Driver."

Additionally, some attempts have been made to design various hand tools so as to adapt them to be driven by attaching their distal ends to some form of an auxiliary drive device, including a power drill. For example, for a tap wrench, see USPN 3,738,768; for a screwdriver, see USPN 2,620,001 and 4,437,365, and for an extension for a socket wrench, see USPN 5,950,507.

As far as a consolidation of the various tools that might be carried in a tool belt, the concept of adapting a hand tool such that it might be driven by a power tool seems very appealing. However, the prior art applications (e.g., USPN 4,437,365) of this idea seem to not have met with much success, as one does not see such items in the marketplace or in use in the construction industry. This situation exists in spite of the fact that the increased use of cordless drills would seem to make the use of such tools more appealing.

One potential reason, that one does not see in the marketplace hand tools adapted so that they are capable of being driven by power drills, is that such prior art devices have always had certain limitations that greatly diminishes their usefulness. For example, the screwdriver of USPN 2,620,001 as seen in FIG. 1, which was intended to be driven only by a non-powered, handheld device, has the limitation that if one were to try to drive it by a power drill, it could present a potential physical danger to its user from its use. This danger exists because an anchor being driven by

such a device can be launched sideways due to the anchor being misaligned on its tip and the high rate of angular rotation being applied by the drill.

The screwdriver of USPN 4,437,365 has this same problem. Additionally, to be driven by a power drill, it has the disadvantage of requiring the use of a special coupling. This coupling ends up being just one more accessory with which a user must keep up. See FIG. 2 from USPN 4,437,365.

Additionally, none of the prior art devices are very versatile. This is due to their being designed so that they are able to work with only one type of anchor. Additionally, they can only be used for inserting anchors, and not for removing them.

Thus, despite this prior art, one finds that further improvements are needed to make more versatile and useful the hand tools and cordless drill that the typical construction worker carries in his/her tool belt. Such improvements should also help to reduce the number of items that must be carried in a tool belt, while also helping to make the user of such improved tools more efficient in the act of installing a wide assortment of screw anchors.

3. OBJECTS AND ADVANTAGES

There has been summarized above, rather broadly, the prior art that is related to the present invention in order that the context of the present invention may be better understood and appreciated. In this regard, it is instructive to also consider the objects and advantages of the present invention.

An object of the present invention is to provide more efficient and safer tools for use in attaching anchors of the type that have to be screwed together or into the surface to which the anchor is to be attached.

Another object of the present invention is to provide more efficient and safer hand tools that may alternately be operated by attaching their especially configured handles to a standard drill bit that fits within the chuck of a power drill which may then be used to power such tools.

Yet another object of the present invention is to provide more efficient and safer tools for use with cordless drills, thereby increasing the usefulness of such drill.

Still another object of the present invention is to provide improved hand tools that will reduce the storage space requirements in a constructing worker's tool belt, which can ultimately contribute to assisting the worker to work more efficiently while also adding to their mobility.

Other objects and advantages of the present invention will become readily apparent as the invention is better understood by reference to the accompanying drawings and the detailed description that follows.

SUMMARY OF THE INVENTION

The present invention is generally directed to satisfying the need set forth above and the problems identified with prior retractable, tape measures.

A preferred embodiment of the present invention is a tool for inserting screwed, anchoring devices, with the tool capable of being operated manually or automatically. This tool comprises an elongated handle, a shaft that extends between the ends of the handle with a tip end that extends from the front end of the handle and a distal end that lies in the rear end of the handle. The rear end of the shaft has a well that extends along the centerline of the shaft, with the well being configured to receive a standard drill bit of the type that fits within the chuck of a power drill. The depth and wall thickness of the well are such that the well allows a drill bit to enter the well to a depth so that there is ample surface area of the well interior wall in contact with the drill bit to absorb the torque applied to the tool by the power drill.

In a preferred embodiment, the tip end of the shaft is configured to attach to one of the screwed, anchoring devices that a tool user desires to insert. Such

anchoring devices may be chosen from the group consisting of screws, bolts, nuts, and socketed devices.

In another preferred embodiment, the tip end of the shaft has a well that is configured so as to receive any one of a number of different screw bits that may be used with the tool to insert an anchor which has a head configuration that matches that of the screw bit. This embodiment may also have in the handle one or more slot configured to store a drill bit of the kind that is suitable for insertion into this well.

In yet another preferred embodiment, the tool of the present invention consists of an elongated handle, a shaft that extends through and along the axis of this handle, with the ends of the shaft lying in close proximity to the handle ends. This shaft has both front and rear wells, with the rear well configured to receive a standard drill bit and the front well configured to receive a shaft extension of the type having a driver head that is used to drive a specific type of anchoring device.

In another preferred embodiment, the tool of the present invention consists of an elongated handle, a first shaft mounted on the axis of and in the rear end of the handle, with this shaft having a well configured to receive a standard drill bit of the type that fits within the chuck of a power drill. This tool also has a second shaft that is rotatably mounted on the centerline of the handle with a portion that extends from the front end of the handle. These shafts are connected by a clutching means that operates to allow the shafts to rotate in the same or the opposite directions.

Other embodiments of the present invention will become readily apparent as the invention is better understood by reference to the accompanying drawings and the detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of a prior art screwdriver from USPN 2,620,001 that can be operated at its distal end by a non-powered, auxiliary device.

FIG. 2 is a side view of a prior art screwdriver from USPN 4,437,365 that utilizes an especially configured coupling to enable it to be operated at its distal end by an electric drill which attaches to the coupling.

FIG. 3 a perspective view of an embodiment of the present invention in the form of an improved screwdriver.

FIG. 4 illustrates examples of various types of screw heads that can be driven by various embodiments of the present invention.

FIG. 5 illustrates examples of various types of nuts, bolts and sockets that can be driven by various embodiments of the present invention.

FIG. 6 is a perspective view of an embodiment of the present invention that can be used with interchangeable drill bits to install a wide assortment of screwed anchors

FIG. 7 is a perspective view of the handle portion of a preferred embodiment of the present invention that one may choose to use in applications where relatively low levels of torque are need to install the anchors.

FIG. 8 is a perspective view of the handle portion of a preferred embodiment of the present invention which has a shaft extension that serves as a male adapter that may be inserted into the chuck of a power drill.

FIG. 9 is a perspective view of the handle portion of a preferred embodiment of the present invention that has a retractable type of male adapter that can be extended from the rear end of the tool's handle.

FIG. 10 is a perspective view of a preferred embodiment of the present invention that accommodates a number of dual-use, interchangeable drill bits.

FIG. 11 is a perspective view of a preferred embodiment of the present invention that has a clutching mechanism in its handle that allows this device to both insert and remove screwed anchors.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings wherein are shown preferred embodiments and wherein like reference numerals designate like elements throughout, there is shown in FIG. 3 a perspective view of an embodiment of the present invention in the form of an improved tool (1) or screwdriver which has been modified so that it can easily be driven by using a standard screwdriver drill bit (2) with a conventional, cordless power drill (3).

This improved screwdriver (1) includes a shaft (10) and a handle (12). The shaft (10) has a tip end (14) and extends all the way through the handle so as to have a distal end (16) that is flush with the handle's rear end surface (18). The tip (14) shown in FIG. 3 has a straight or knife edge (20) designed to engage a single slotted head of a screw. However, it will be appreciated that the tip (14) may take other forms such as, for example, that intended to engage the cross slot of a PHILLIPS head screw. See FIG. 4 for illustrative examples of various types of screw heads 4 that can be driven by various embodiments of the present invention.

This screwdriver's handle (12) may be provided with axially extending grooves (22) on its surface to enable the handle to be gripped conveniently by the user. These handles will usually be molded of plastic or other like material.

The distal end (16) of the shaft extension has a well (24) within it that is configured to receive the end of a standard drill bit (2), such as any of those shown on the right side of FIG. 4. The depth of this well is such that it can allow the bit to enter the well to a depth so that there is ample surface area of the well interior wall in contact with the drill bit to absorb with little deformation the larger torques applied by a power drill. To aid in holding a drill bit, which is typically made of steel and is an iron containing material, in place within this well (24), the distal end (16) of the shaft can be magnetized so that it will magnetically attract an iron containing drill bit. If the shaft is of a magnetizable material, this can be accomplished by magnetizing the shaft directly. If not, a suitably shaped magnet can be placed in proximity to the

shaft's distal end (16). Similarly, the tip end (14) of the shaft (10) can be magnetized to aid in holding iron-containing screws or other anchors on the shaft's tip.

The shaft of this embodiment of a screwdriver according to the present invention has a tube-like screwguide (26) that encircles the shaft (10) in such a manner that the shaft of the screwdriver (1) can rotate freely within this screwguide (26) while the screwguide itself is held stationary. The screwguide (26) also can be moved laterally on the shaft (10). This screwguide is used to guide screws into place as the screwdriver (1) is powered by a drill.

To use this screwguide (26), one places a screw on the tip (14) of the shaft (10) and then slides the screwguide forward to enclose the screw. One then places a hand on the outer surface of the screwguide (26) to hold it stationary, thereby stabilizing the position of both the screw and the screwdriver (1).

When power it applied to the handle's distal end (16), the shaft (10) turns and drives the screw forward as it is held in place by the screwguide (26) until it is fully anchored in its desired location. This screwguide (26) is also seen to serve the safety purpose of preventing a misaligned screw on the tip (14) of the screwdriver from being thrown off line and possibly even launched sideways, so as to become a threat to those in the area, when a large amount of torque and a high rotation rate are applied to the screw. If the tip end (14) of the shaft (10) has been magnetized, the choice of the material for the construction of the screwguide (26) will be made so that the screwguide is not attracted by the magnetic properties of the shaft's tip end (14).

To aide the further versatility of such a screwdriver, another preferred embodiment of the present invention consists of a screwdriver similar to that described above, but having a tip end (14) that is configured so that it can accommodate any one of a number of multiple ends or screw bits. For example, if the tip end (14) has a hexagonal shaped well (27) in its tip, it can interchangeably accommodate any of the screw drivers or drill bits (5) shown on the right hand side in FIG. 4. To aid in holding such drivers in place, the tip end (14) would also be magnetized.

To make it easy to keep up with various driver or drill bits (5), another embodiment of the present invention has a handle which has slots (15) around the

perimeter of its front (17) face. These slots (15) are configured so as to accommodate and allow one of the various driver bits to be inserted and stored within each of the slots. See FIG. 6.

In addition to performing as a screwdriver, this device can easily be made to perform as a nut or other type of driver by configuring the tip (14) of the shaft (10) so that it can mate with various types of nuts, bolts or sockets. Again, the tip can be magnetized to aide in holding an anchor on the tip. Some of the types of drivers (7) that can be used with this device are shown on the right side of FIG. 5, while shown on the left side of are the various bolts, nuts, sockets (6), etc. that can be inserted with these drivers.

For various low torque applications, it may be desirable to configure these devices so that they consist not of a single shaft which extends all the way thorough the handle, but to insert into the end surface (18) of the handle (12) a metal insert (28) which has within it an especially configured, magnetized well (24) for receiving a standard drill bit. See FIG. 7.

It should also be noted, that for some specialized applications, it may be desirable to configure these devices so that they have a male shaft adapter (30) that extends from the handle's end surface (18) rather than have the well (24), or female adapter, at the distal end (16) of the shaft (12). In such an embodiment, this adapter (30) would be configured so that it could be directly accommodated and fit within the chuck of a standard electric drill. See FIG. 8.

In still other applications, it may be desirable to configure the present invention into another embodiment in which the shaft does not extends all the way thorough the handle. This embodiments has an insert (32) which has a well (33) that contains an especially configured, male, pop-out adapter (34). See FIG. 9. The insert (32) also has a spring mechanism (36) which is operable by an extension (38) that extends to a location (40) on the outer surface of the handle (12) and serves to make the adapter (34) interchangeable between a first and a second position. In its first position, this adapter (34) extends from the handle (12), and in its second position, the adapter is retracted into the insert (32). In its first position, this adapter is easily fitted within the chuck of an electric drill, while in its second or retracted position, the

adapter does not interfere with a user who wishes to grip the device by its handle and use it, without the aid of an electric drill, to install a screw anchor.

Another preferred embodiment of a driver device (1) having multiple tip interchangeable capability is shown in FIG. 10. It consists of a shaft (42) and a handle (44). The shaft (42) has front (46) and rear (48) ends. Each of these has an especially configured well (50), (52).

The rear end well (52), as before, is configured to receive the end of a standard drill bit (2), such as any of those shown on the right side of FIG. 4. The depth of this well (52) is such that it can allow the bit to enter the well to a depth so that there is ample surface area of the well interior wall in contact with the drill bit so as to absorb with little deformation the larger torques applied by a power drill. To aid in holding a drill bit in place within this well (52), the rear end (48) of the shaft can be magnetized so that it will magnetically attract an iron containing drill bit.

The front end well (50) is configured to receive the rear end (56) of any one of a number of interchangeable shaft extensions (54). Again, the depth and wall thickness of this well (50) is chosen so as to accommodate the expected torque to be applied by the device. Both the front (58) and the rear (56) ends of these extensions (54) are configured in the form of a driver head which is to be used to drive a specific type of screw or anchor, such as those shown in FIG. 4. These ends will preferably be magnetized to aid in holding iron-containing screws or other anchors on either of the extension's tips.

For higher torque applications, a portion of length of the shaft extension (54) can have one or more ribs (60). With such an extension, the front well (50) would then be configured so as to have matching slots (62) to accommodate the ribs (60) so that the extension (54) can still fit within the front well (50).

For even more versatility, an embodiment of the present invention is provided with a two piece shaft, front (66) and rear (68), and a clutching mechanism (70) in the handle (72) which enables the tip (74) of the front shaft (66) to be rotated in either a forward, for inserting a screw anchor, or a reverse, for withdrawing a screw anchor, mode of operation. The rear shaft (68) has a well (76) in its rear end so that it can be driven by the insertion of the bit of an electric drill. The front portion of this rear

shaft has a connecting end (73) that connects with the clutching mechanism (70) which also connects with the rear portion (75) of the front shaft (66). This embodiment is also provided with the ability to fit multiple types of bits into a well (78) that exists on the tip (74) of the front shaft. It has storage slots (80) on the front face (82) of the handle (72) for storage of the various bits that can be used with the device. See FIG. 11.

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as hereinafter set forth in the claims.

CLAIMS

I claim:

1. A tool (1) for inserting screwed, anchoring devices, said tool capable of being operated manually or automatically, said tool comprising:

an elongated handle (12) having a front (17) end and a rear (18) end,

a shaft (10) having a tip (14) end and a distal (16) end, said shaft extending between the ends of said handle with said tip end (14) extending from the front end (17) of said handle and said distal end (16) lying in close proximity to the rear end (18) of said handle, and

said distal end (16) of said shaft having a well (14) that extends along the centerline of said shaft (10), said well configured to receive a drill bit of the type that fits within the chuck of a power drill, the depth and wall thickness of said well (24) being such that the well allows a drill bit to enter said well to a depth so that the surface area of the well interior wall in contact with said drill bit can absorb the torque applied to said tool (1) by said power drill.

2. A tool (1) as recited in Claim 1, wherein said shaft tip end (14) configured to attach to the head of one of said screwed, anchoring devices.

3. A tool (1) as recited in Claim 2, further comprising a screwguide (26) having a tip end and a rear end, said screwguide configured so as to encircle a portion of the length of said shaft (10) that extends from said handle front end (17), and mounted so as to allow said shaft (10) to rotate within said screwguide (26) and to allow said screwguide to slide on said shaft (10) between a first position and a second position, wherein when said screwguide (26) is in said first position said screwguide tip end fits around a to-be-insert screwed anchor so as to hold said anchor in place while said anchor is being screwed into place, wherein when said screwguide (26) is in said second position said screwguide tip end is retracted towards said handle front end (17) so as to fully expose said shaft tip end (14).

4. A tool (1) as recited in Claim 3, wherein a portion of said well (24) is magnetized so as to aide in retaining a drill bit that is inserted into said well (24).

5. A tool (1) as recited in Claim 4, wherein said shaft tip end (14) is magnetized so as to aide in retaining an anchor that is placed on said shaft tip end (14).

6. A tool (1) as recited in Claim 5, wherein a screwed anchoring device suitable for use with said tool is chosen from the group consisting of screws, bolts, nuts, and socketed devices.

7. A tool (1) as recited in Claim 1, wherein said shaft tip end (14) having a well (27) that is configured so as to receive any one of a number of screw bits that may be used with said tool (1) to insert a screwed anchor which has a head configuration that matches that of said screw bit and is chosen from among the various designs for said screw heads.

8. A tool (1) as recited in Claim 7, further comprising a screwguide (26) having a tip end and a rear end, said screwguide configured so as to encircle a portion of the length of said shaft that extends from said handle front end (17), and mounted so as to allow said shaft (10) to rotate within said screwguide and to allow said screwguide (26) to slide on said shaft between a first position and a second position, wherein when said screwguide (26) is in said first position said screwguide tip end fits around a to-be-insert screwed anchor so as to hold said anchor in place while said anchor is being screwed into place, wherein when said screwguide (26) is in said second position said screwguide tip end is retracted towards said handle front end (17) so as to fully expose said shaft tip end (14).

9. A tool (1) as recited in Claim 8, wherein a portion of said shaft rear end well (24) is magnetized so as to aide in retaining a drill bit that is placed in said shaft rear end well.

10. A tool (1) as recited in Claim 9, wherein a portion of said shaft tip end well (24) is magnetized so as to aide in retaining a drill bit that is placed in said shaft tip end well.

11. A tool (1) as recited in Claim 10, wherein said shaft handle front end (17) having a slot (15) configured to store a drill bit of the kind that is suitable for insertion into said shaft tip end well (27).

12. A tool (1) as recited in Claim 11, wherein a screwed anchoring device suitable for use with said tool is chosen from the group consisting of screws, bolts, nuts, and socketed devices.

13. A tool (1) for inserting screwed, anchoring devices, said tool capable of being operated manually or automatically, said tool comprising:

an elongated handle (12) having a front (17) end and a rear (18) end,

a shaft (10) having a tip (14) end and a distal (16) end,

wherein said handle (12) is mounted on a portion of said shaft (10) that includes said distal end (16) and allows a portion of said shaft proximate said tip end (14) to extend from said front end (17) of said handle, and

an elongated insert (28) that is mounted in the rear end (18) of said handle, said insert having a longitudinal axis that aligns with the centerline of said shaft (10), said insert having a well (24) that extends along the centerline of said insert, said well (24) configured to receive a drill bit of the type that fits within the chuck of a power drill, the depth and wall thickness of said well (24) being such that the well allows a drill bit to enter said well (24) to a depth so that the surface area of the well interior wall in contact with said drill bit can absorb the torque applied to said tool (1) by said power drill.

14. A tool (1) as recited in Claim 13, wherein said shaft tip end (14) configured to attach to the head of one of said screwed, anchoring devices.

15. A tool (1) as recited in Claim 14, wherein a screwed anchoring device suitable for use with said tool is chosen from the group consisting of screws, bolts, nuts, and socketed devices.

16. A tool (1) as recited in Claim 15, further comprising a screwguide (26) having a tip end and a rear end, said screwguide (26) configured so as to encircle a portion of the length of said shaft (10) that extends from said handle front end (17), and mounted so as to allow said shaft to rotate within said screwguide (26) and to allow said screwguide (26) to slide on said shaft between a first position and a second position, wherein when said screwguide (26) is in said first position said screwguide tip end fits around a to-be-insert anchor so as to hold said anchor in place while said anchor is being screwed into place, wherein when said screwguide (26) is in said second

position said screwguide tip end is retracted towards said handle front end (17) so as to fully expose said shaft tip end (14).

17. A tool (1) as recited in Claim 16, wherein a portion of said insert (28) is magnetized so as to aide in retaining a drill bit that is inserted into said insert well.

18. A tool (1) as recited in Claim 17, wherein a portion of said shaft tip end (14) is magnetized so as to aide in retaining an anchor that is placed on said shaft tip end.

19. A tool (1) for inserting screwed, anchoring devices, said tool capable of being operated manually or automatically, said tool comprising:

an elongated handle (12) having a front (17) end and a rear (18) end,

a shaft (10) having a tip (14) end and a distal (16) end, said shaft (10) extending between the ends of said handle with said tip end (14) extending from the front end (17) of said handle and said distal end (16) extending from the rear end (18) of said handle, and

said shaft distal end (16) configured so as to allow said end to fit within the chuck of a power drill.

20. A tool (1) as recited in Claim 19, wherein said shaft tip end (14) configured to attach to the head of one of said screwed, anchoring devices.

21. A tool (1) as recited in Claim 20, wherein a screwed anchoring device suitable for use with said tool is chosen from the group consisting of screws, bolts, nuts, and socketed devices.

22. A tool (1) as recited in Claim 21, further comprising a screwguide (26) having a tip end and a rear end, said screwguide configured so as to encircle a portion of the length of said shaft (10) that extends from said handle front end (17), and mounted so as to allow said shaft to rotate within said screwguide (26) and to allow said screwguide to slide on said shaft (10) between a first position and a second position, wherein when said screwguide (26) is in said first position said screwguide tip end fits around a to-be-insert anchor so as to hold said anchor in place while said anchor is being screwed into place, wherein when said screwguide (26) is in said second position said screwguide tip end is retracted towards said handle front end (17) so as to fully expose said shaft tip end (14).

23. A tool (1) as recited in Claim 22, wherein a portion of said shaft tip end (14) is magnetized so as to aide in retaining an anchor that is placed on said shaft tip end.

24. A tool (1) for inserting screwed, anchoring devices, said tool capable of being operated manually or automatically, said tool comprising:

an elongated handle (12) having a front (17) end and a rear (18) end,

a shaft (10) having a tip (14) end and a distal (16) end,

wherein said handle (12) is mounted on a portion of said shaft (10) that includes said distal end (16) and allows a portion of said shaft proximate said tip end (14) to extend from said front end (17) of said handle,

an elongated insert (32) that is mounted in the rear end (18) of said handle, said insert having a longitudinal axis that aligns with the centerline of said shaft (10) and an outer end and an inner end, said insert outer end lying in close proximity to said handle rear end (18), said insert (32) having a well (33) that extends from said insert outer end and along a portion of the centerline of said insert,

an adapter (34) slidably mounted within said well (33), said adapter having an inward end and an outward end, said outward end configured so as to allow said outward end to fit within the chuck of a power drill, and

a spring mechanism (36) mounted within the bottom of said well (33), said mechanism having a front end and a rear end, with said mechanism front end contacting the rear end of said adapter (34), said mechanism serving to move said adapter (34) between a first position in which the outward end of said adapter is in close proximity to said handle rear end (18) and a second position in which the outward end of said adapter (34) extends from said well (33) so that said end can be clamped onto by the chuck of a power drill.

25. A tool (1) as recited in Claim 24, wherein said shaft tip end (14) configured to attach to the head of one of said screwed, anchoring devices.

26. A tool (1) as recited in Claim 25, wherein a screwed anchoring device suitable for use with said tool is chosen from the group consisting of screws, bolts, nuts, and socketed devices.

27. A tool (1) as recited in Claim 26, further comprising a screwguide (26) having a tip end and a rear end, said screwguide configured so as to encircle a portion of the

length of said shaft (10) that extends from said handle front end (17), and mounted so as to allow said shaft (10) to rotate within said screwguide (26) and to allow said screwguide to slide on said shaft (10) between a first position and a second position, wherein when said screwguide (26) is in said first position said screwguide tip end fits around a to-be-insert anchor so as to hold said anchor in place while said anchor is being screwed into place, wherein when said screwguide (26) is in said second position said screwguide tip end is retracted towards said handle front end (17) so as to fully expose said shaft tip end (24).

28. A tool (1) as recited in Claim 27, wherein a portion of said shaft tip end (14) is magnetized so as to aide in retaining an anchor that is placed on said shaft tip end.

29. A tool (1) for inserting screwed, anchoring devices, said tool capable of being operated manually or automatically, said tool comprising:

an elongated handle (44) having a front end and a rear end,

a shaft (42) extending through and along the axis of said handle, said shaft having a front (46) end and a rear (48) end, with said front end lying in close proximity to said handle front end, and said shaft rear end lying in close proximity to said handle rear end,

said shaft (42) having a rear well (52) that extends from said shaft rear end and along a portion of the centerline of said shaft, said rear well (52) configured to receive a drill bit of the type that fits within the chuck of a power drill, the depth and wall thickness of said rear well (52) being such that the well allows a drill bit to enter said well to a depth so that the surface area of the well interior wall in contact with said drill bit can absorb the torque applied to said tool (1) by said power drill, and

said shaft (42) having a front well (50) that extends from said shaft front end and along a portion of the centerline of said shaft, said front well (50) configured to receive a shaft extension (54) of the type having a driver head that is used to drive a specific type of anchoring device.

30. A tool (1) as recited in Claim 29, further comprising a shaft extension (54) having a rear end (56) and a front end (58), said rear end configured so as to slidably fit within said shaft front well (50), said front end (58) configured so as to mate with the

head of one of said screwed anchoring devices so as to drive said anchor into a position where it is desired that said anchor be located.

31. A tool (1) as recited in Claim 30, wherein a portion of said shaft extension front end (58) is magnetized so as to aide in retaining an anchor that is placed on said shaft extension front end.

32. A tool (1) for inserting screwed, anchoring devices, said tool capable of being operated manually or automatically, said tool comprising:

an elongated handle (72) having a front end and a rear end,

a first shaft (68) mounted in the rear end of said handle, said first shaft having a longitudinal axis that aligns with the centerline of said handle, said first shaft having a rear end and a connecting end (73), said first shaft rear end lying in close proximity to the rear end of said handle, said first shaft having a well (76) that extends from said shaft rear end and along the centerline of said shaft, said well configured to receive a standard drill bit of the type that fits within the chuck of a power drill, the depth and wall thickness of said well being such that the well allows a drill bit to enter said well to a depth so that the surface area of the well interior wall in contact with said drill bit can absorb the torque applied to said tool by said power drill,

a second shaft (66) having a tip end (74) and a connecting end (75), said second shaft being rotatably mounted along the centerline of said handle (72) such that said tip end (74) extends from the front end of said handle, said second shaft connecting end (75) being proximate the connecting end (73) of said first shaft,

a means for clutching (70) that connects said connecting ends (73, 75) of said shafts, said clutching means operable between a first and a second position, wherein when in said first position said clutching means enables said first and second shafts to rotate together, wherein when in said second position said clutching means enables said first and second shafts to rotate in opposite directions.

33. A tool (1) as recited in Claim 32, wherein said second shaft tip end (74) configured to attach to the head of one of said screwed, anchoring devices.

34. A tool (1) as recited in Claim 33, wherein a screwed anchoring device suitable for use with said tool is chosen from the group consisting of screws, bolts, nuts, and socketed devices.

35. A tool (1) as recited in Claim 34, further comprising a screwguide (26) having a tip end and a rear end, said screwguide configured so as to encircle a portion of the length of said second shaft (66) that extends from said handle front end, and mounted so as to allow said second shaft (66) to rotate within said screwguide and to allow said screwguide to slide on said second shaft (66) between a first position and a second position, wherein when said screwguide is in said first position said screwguide tip end fits around a to-be-insert anchor so as to hold said anchor in place while said anchor is being screwed into place, wherein when said screwguide is in said second position said screwguide tip end is retracted towards said handle front end so as to fully expose said second shaft tip end (74).

36. A tool (1) as recited in Claim 35, wherein a portion of said well (76) is magnetized so as to aide in retaining a drill bit that is inserted into said well.

37. A tool (1) as recited in Claim 36, wherein a portion of said second shaft tip end (74) is magnetized so as to aide in retaining an anchor that is placed on said second shaft tip end.

38. A tool (1) as recited in Claim 32, wherein said second shaft tip end (74) having a well (78) that is configured so as to receive any one of a number of screw bits that may be used with said tool to insert a screwed anchor which has a head configuration that matches that of said screw bit and is chosen from among the many various designs for said screw heads.

39. A tool (1) as recited in Claim 38, wherein a screwed anchoring device suitable for use with said tool is chosen from the group consisting of screws, bolts, nuts, and socketed devices.

40. A tool (1) as recited in Claim 39, further comprising a screwguide (26) having a tip end and a rear end, said screwguide configured so as to encircle a portion of the length of said second shaft (66) that extends from said handle front end, and mounted so as to allow said second shaft (66) to rotate within said screwguide and to allow said screwguide to slide on said second shaft (66) between a first position and a second position, wherein when said screwguide is in said first position said screwguide tip end fits around a to-be-insert anchor so as to hold said anchor in place while said anchor is being screwed into place, wherein when said screwguide is in said second

position said screwguide tip end is retracted towards said handle front end so as to fully expose said second shaft tip end.

41. A tool (1) as recited in Claim 40, wherein a portion of said first shaft well (76) is magnetized so as to aide in retaining a drill bit that is inserted into said well.

42. A tool (1) as recited in Claim 41, wherein a portion of said second shaft well (78) is magnetized so as to aide in retaining a drill bit that is placed on said second shaft well.

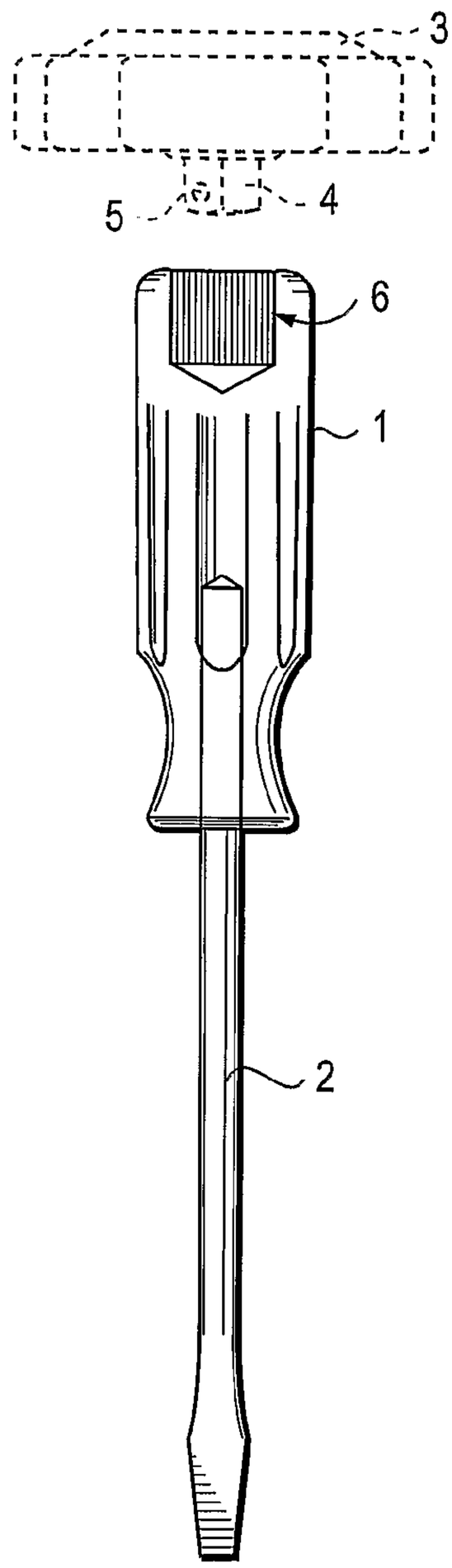


FIG. 1
PRIOR ART

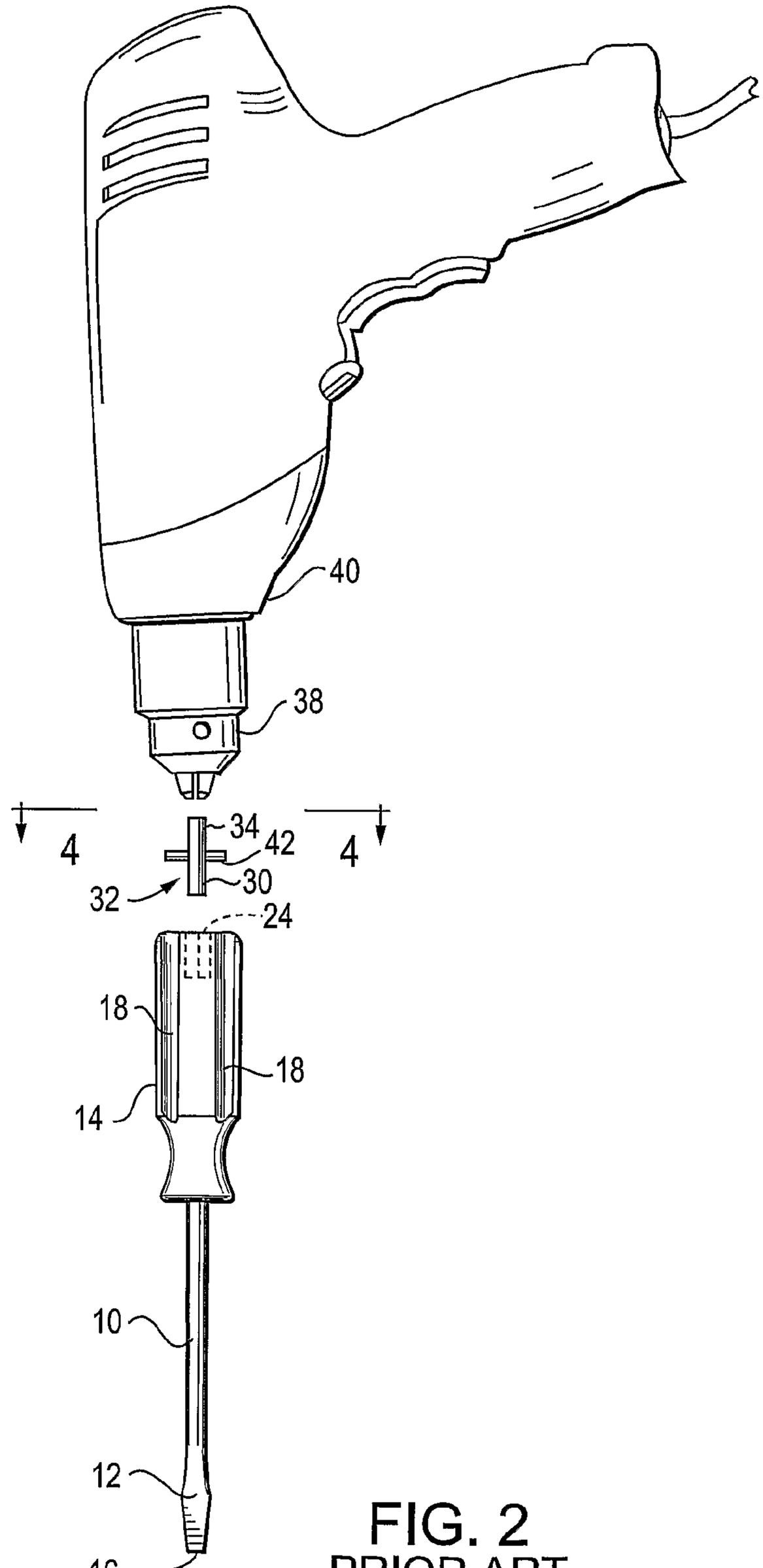


FIG. 2
PRIOR ART

FIG. 3

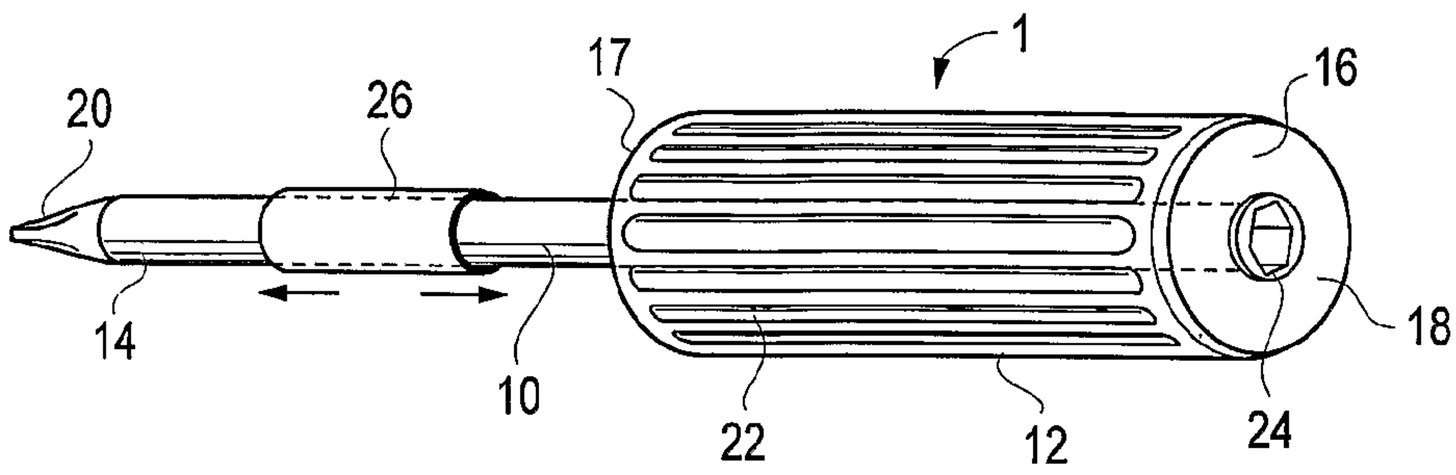


FIG. 4

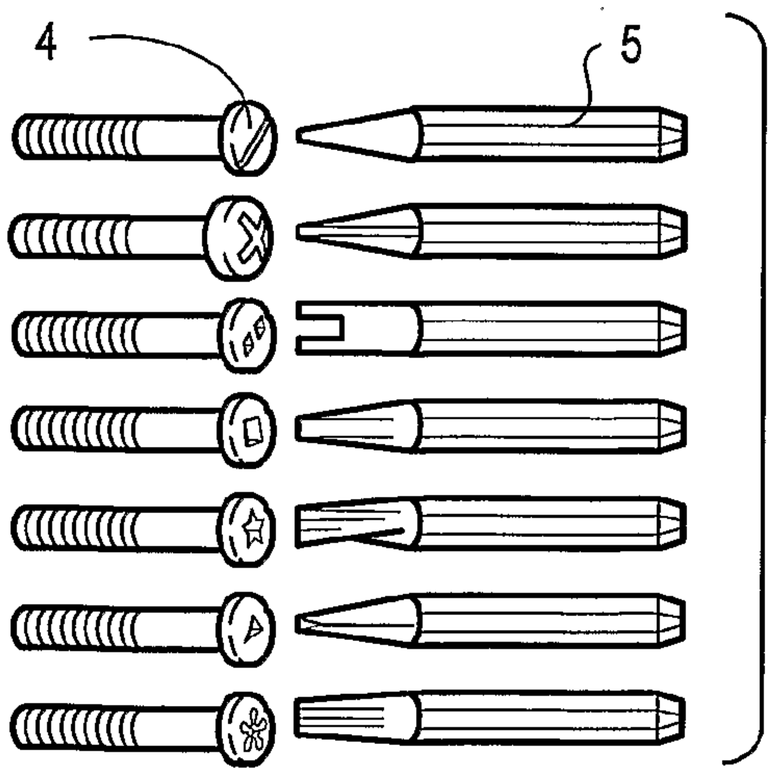
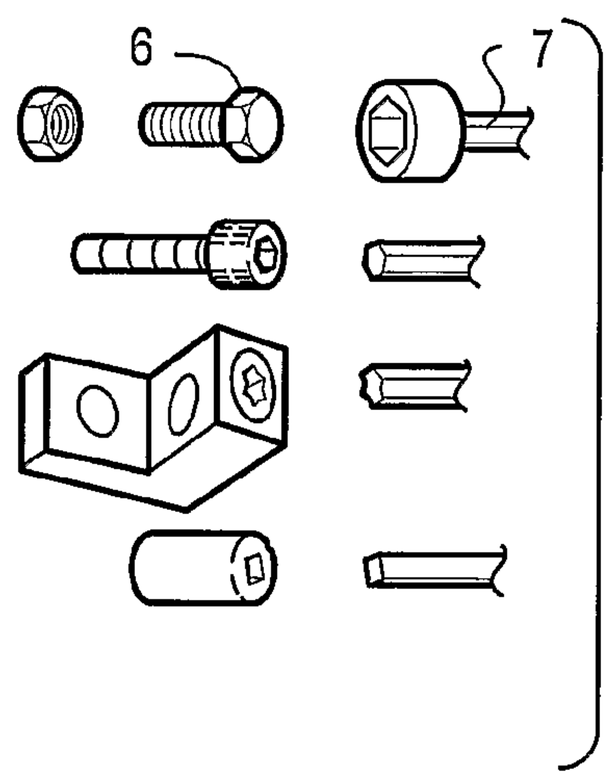


FIG. 5



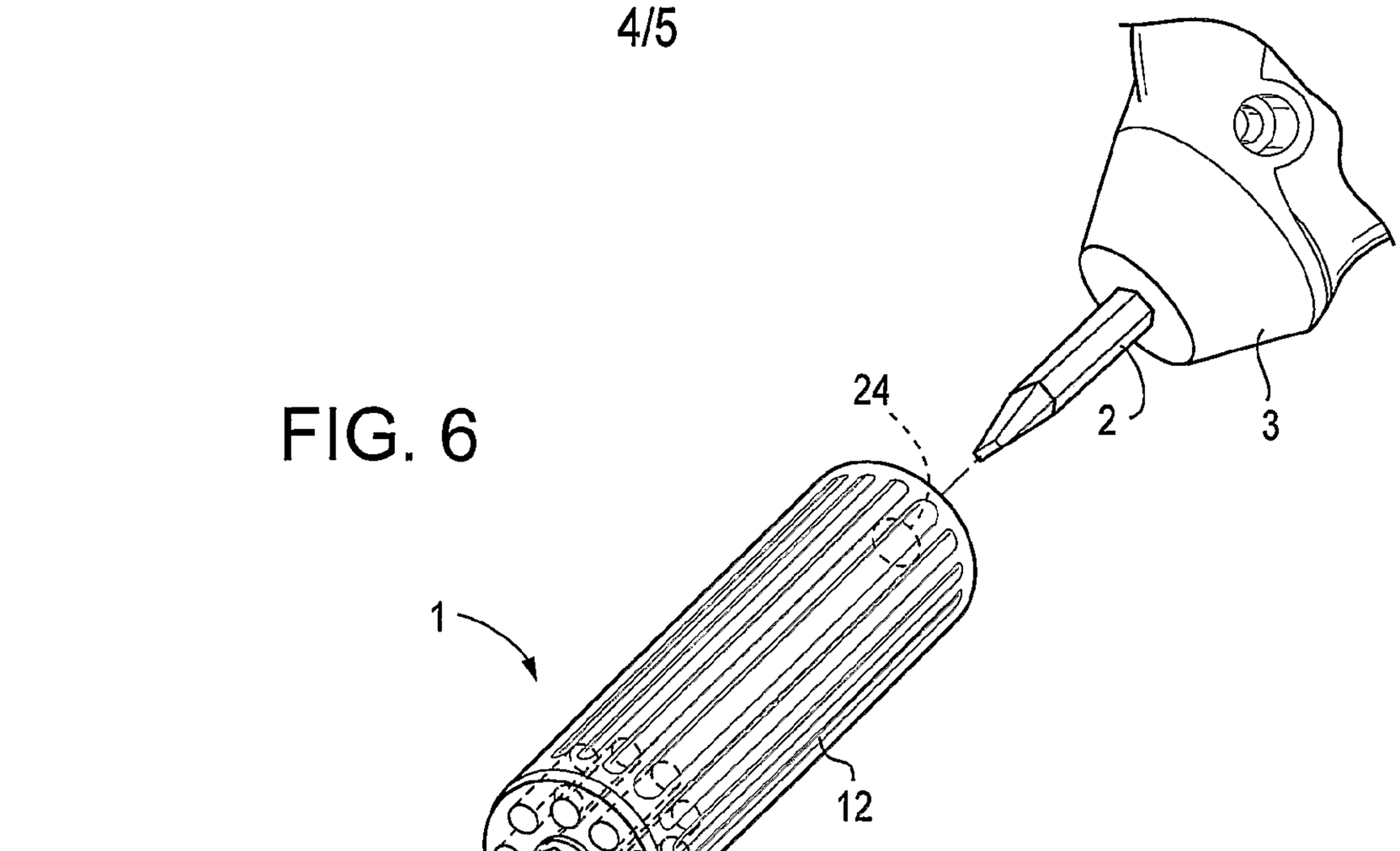


FIG. 6

FIG. 7

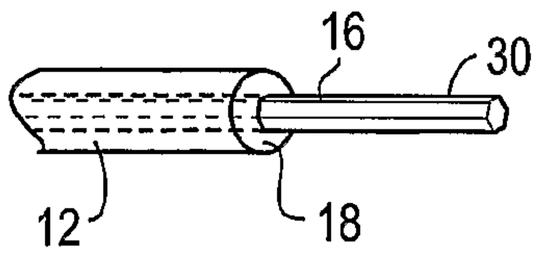


FIG. 8

FIG. 9

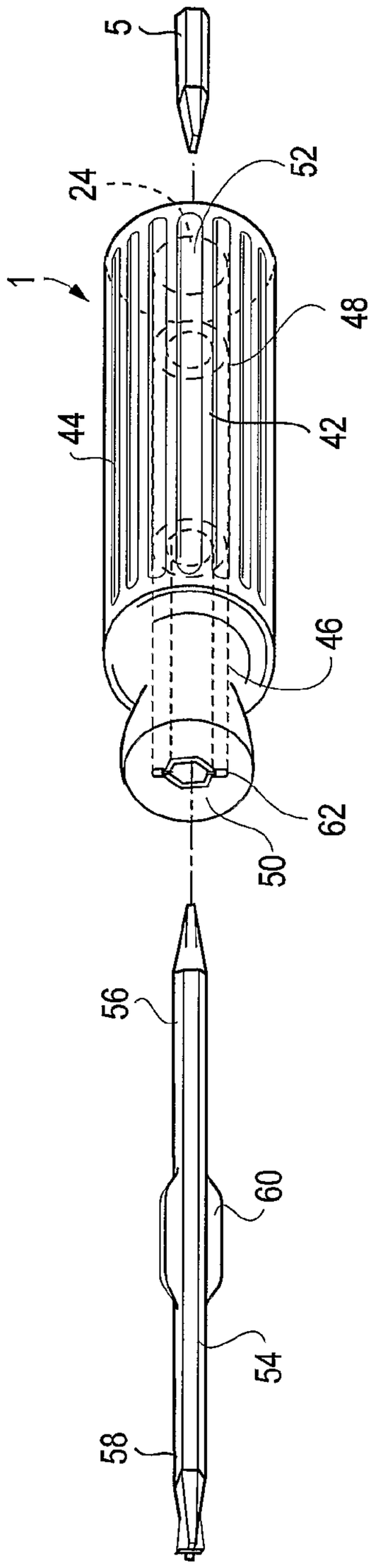

5
24
52
1
48
44
42
46
62
50
56
60
54
58

FIG. 10

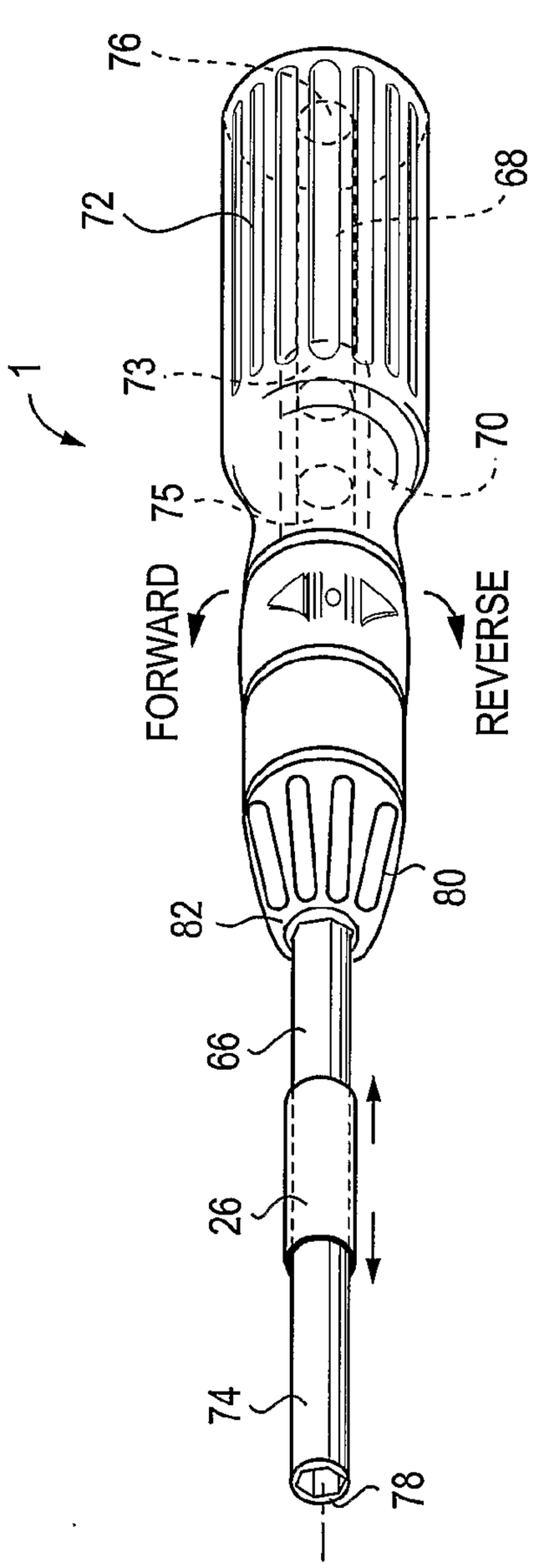
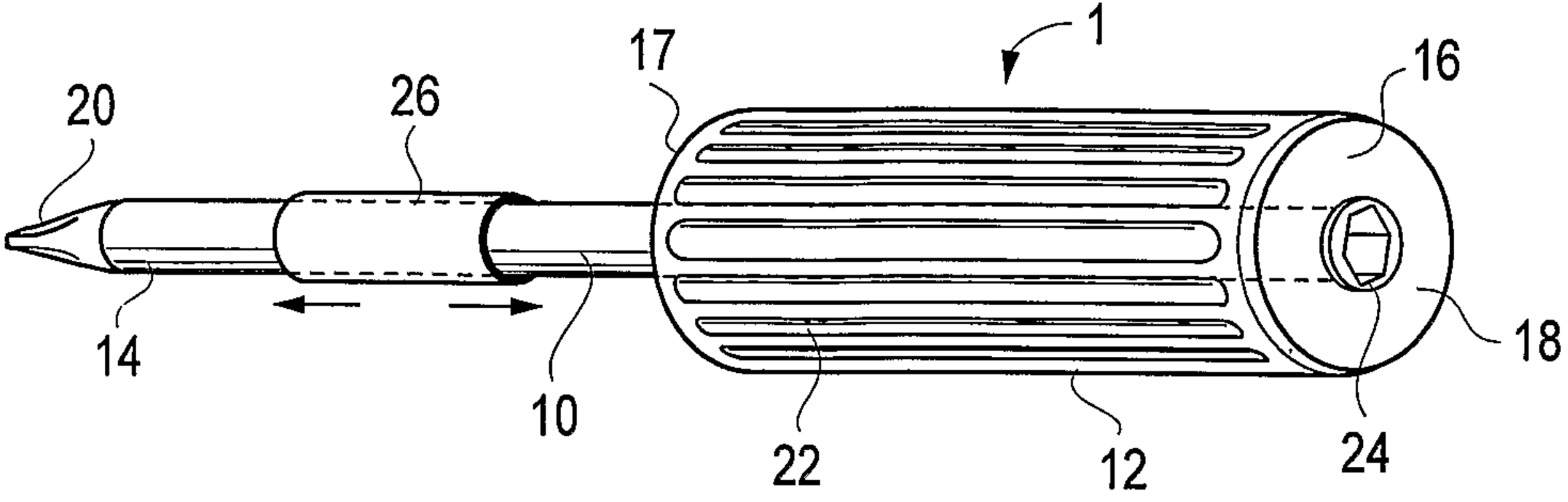

76
72
68
1
73
70
75
FORWARD
REVERSE
82
80
66
26
74
78

FIG. 11


1
17
16
20
26
14
10
22
12
24
18