

Sept. 29, 1953

C. R. YOUNKIN

2,653,636

MAGNETIC SCREW DRIVER

Filed Dec. 30, 1949

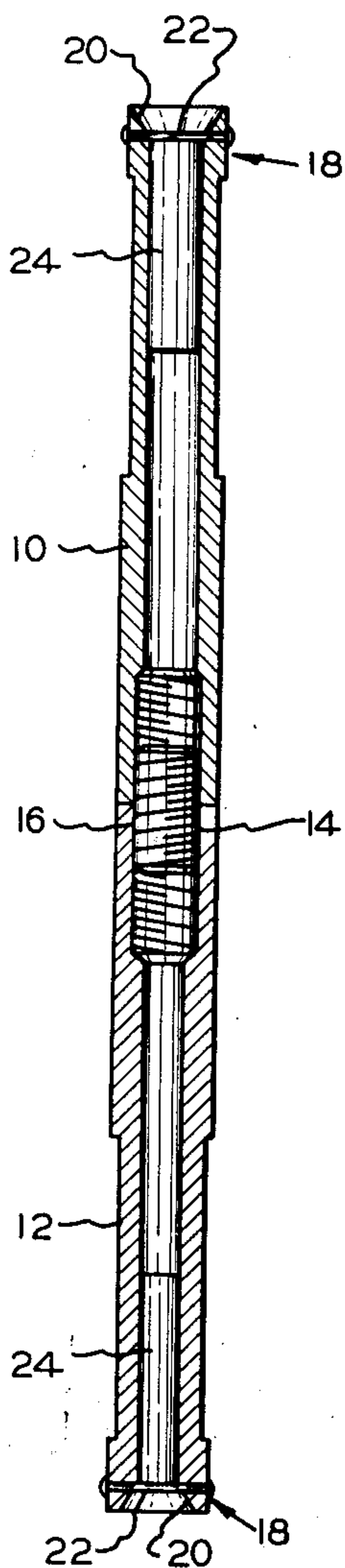


FIG. I.

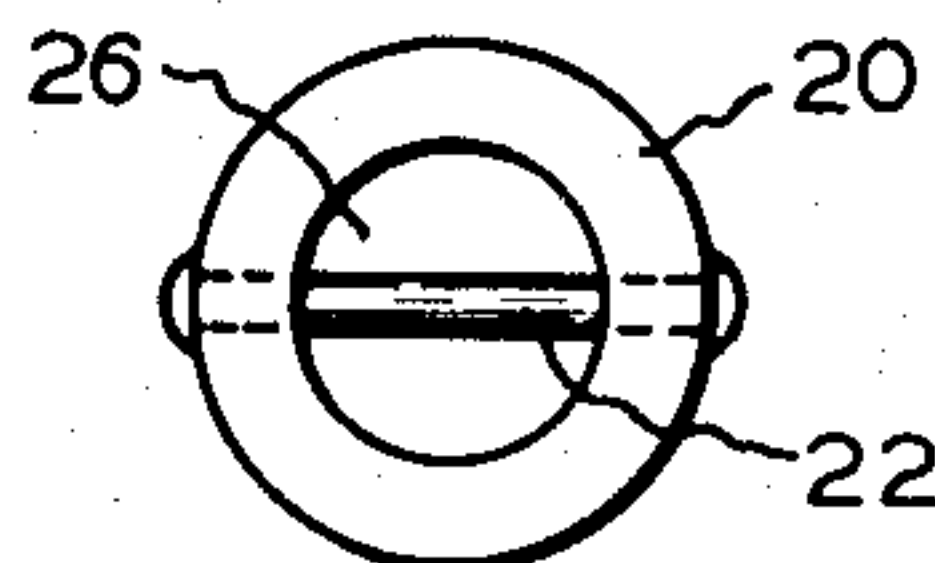


FIG. II.

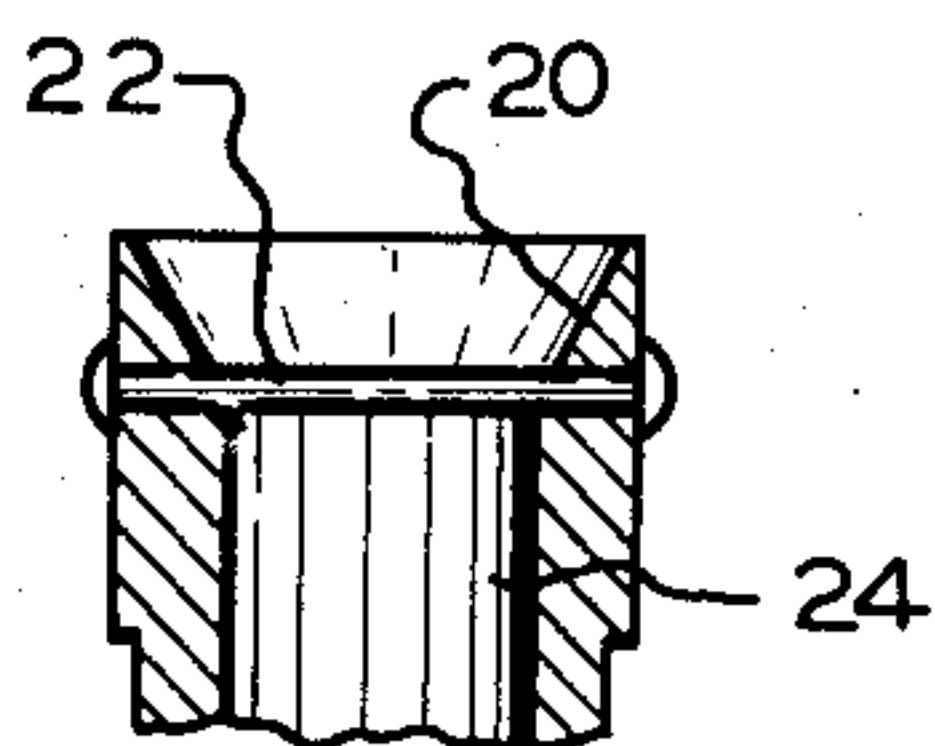


FIG. III.

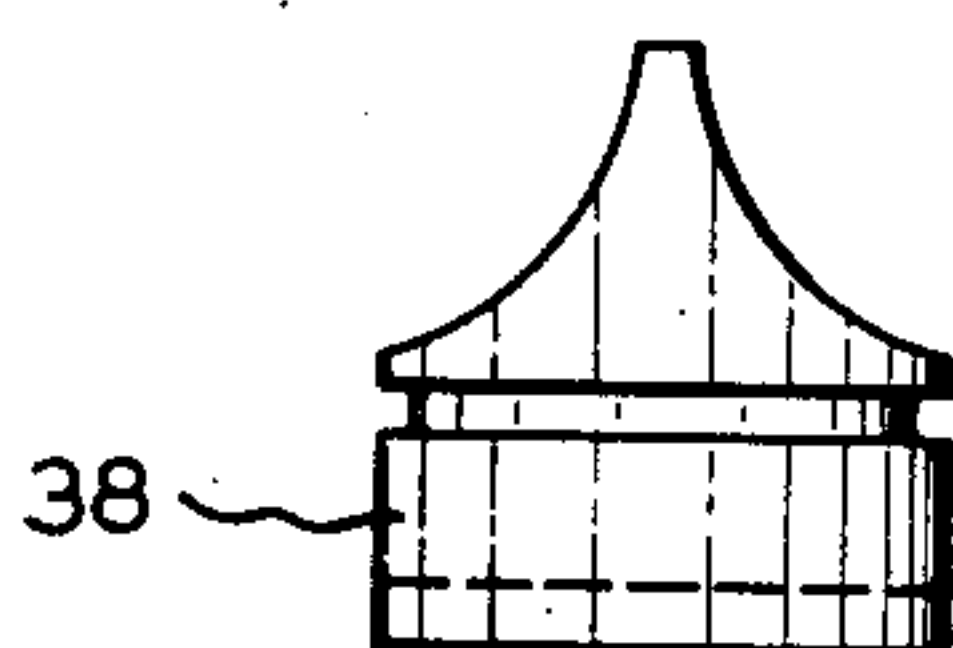


FIG. IV.

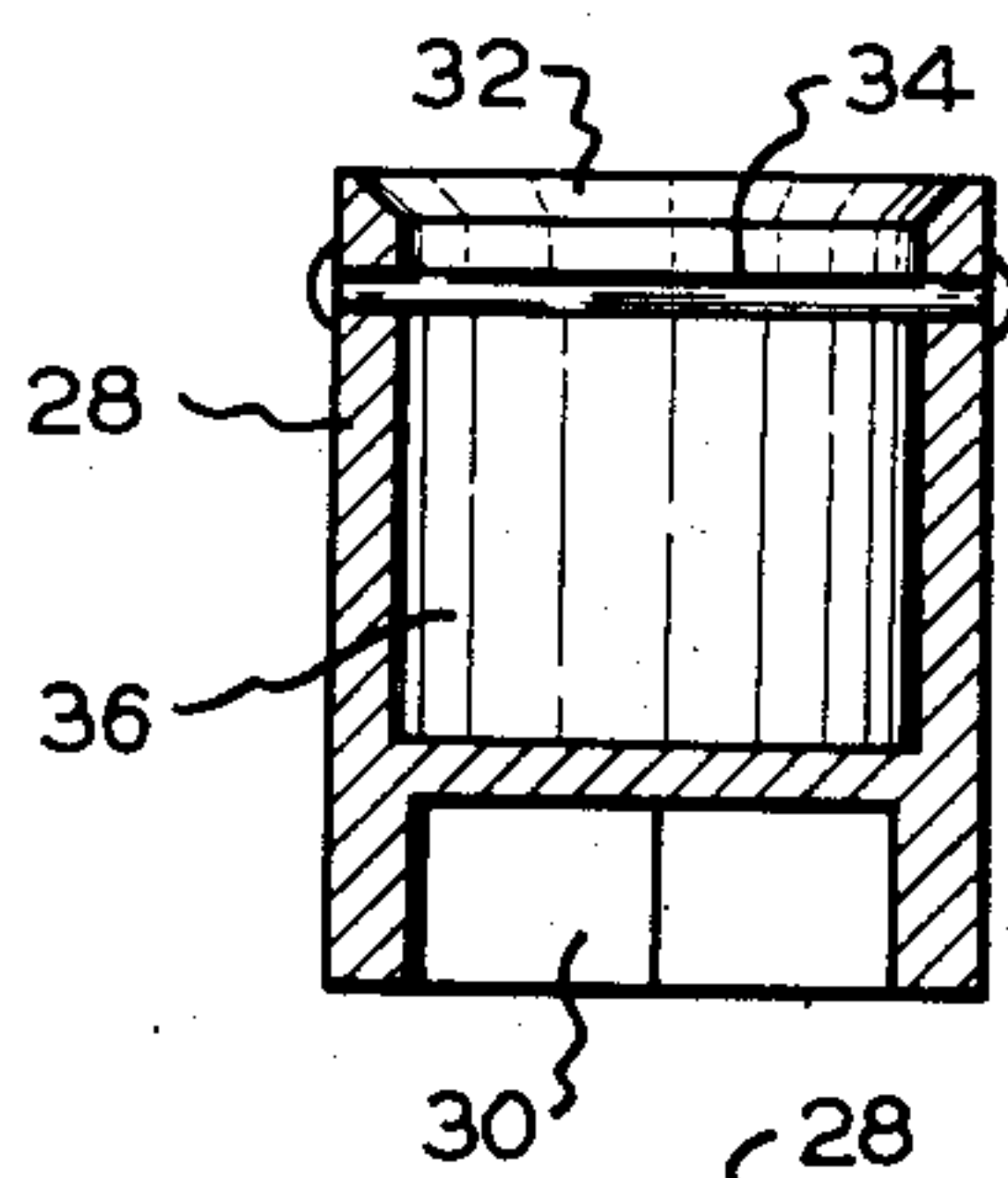


FIG. V.

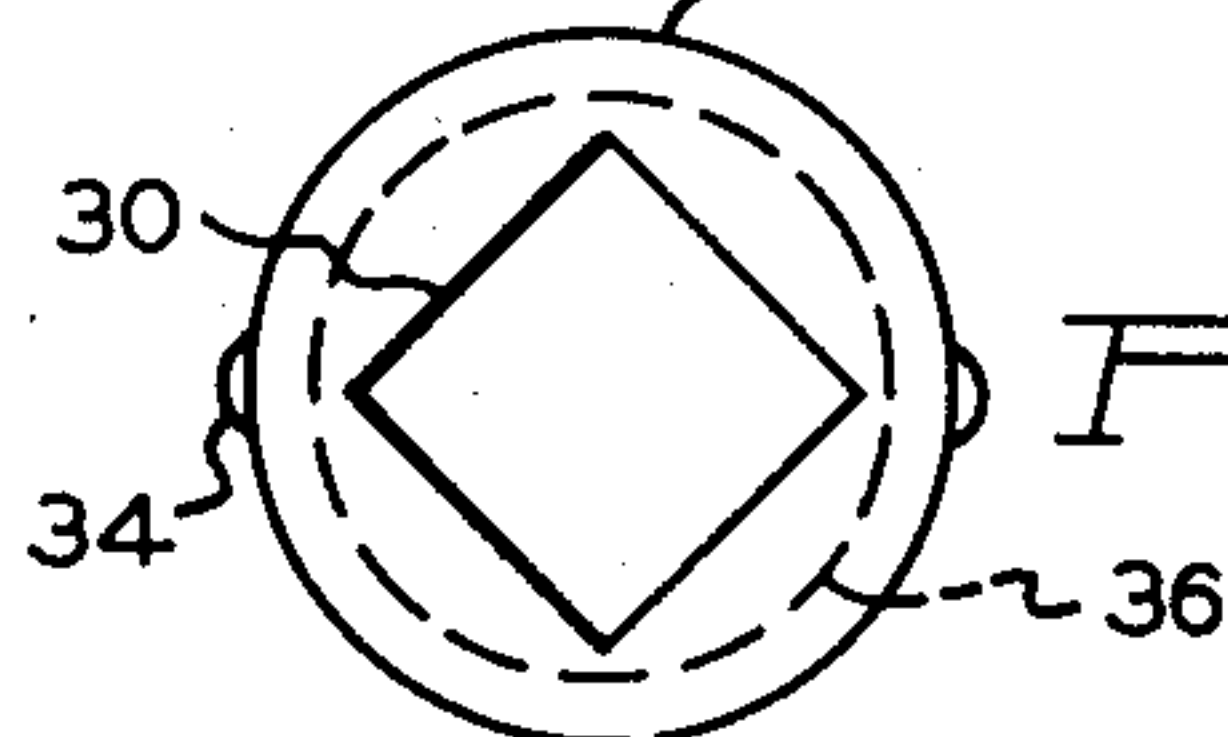


FIG. VI.

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2,653,636

MAGNETIC SCREW DRIVER

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Application December 30, 1949, Serial No. 136,075

1 Claim. (Cl. 145—50)

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This invention relates to magnetic tools and particularly to magnetic screw drivers which incorporate a socket head and associated permanent magnet for holding the screws, or the like, onto the head for rotation to affix the screws in position; especially to give the screws a start into their required screwed position.

An object of the invention is to provide a tool of the above described character, which is relatively inexpensive; is of simple yet strong construction, and which may be employed to start and drive screws and the like into locations which offer difficulty of access with the use of the conventional screw driver.

It is also an object of the invention to provide a magnetic screw driver incorporating a driving bit which has an automatic release camming action to free the tool from a screw being driven thereby, upon the occurrence of undue strain or resistance to rotation of the tool.

The above and other objects and advantages of the invention will appear clear from a consideration of the following description with reference to the accompanying drawings in which:

Fig. I is an elevational view, partly in section, of one form of magnetic tool in accordance with the invention, having different size magnet sockets at opposite ends and a divided handle which permits the tool to be separated into two parts, each usable as a screw driver,

Fig. II is an enlarged plan view of one of the magnet containing socket heads of Fig. I,

Fig. III is an enlarged fragmentary longitudinal section of one of the socket heads and contained permanent magnet of Fig. I,

Fig. IV is a longitudinal section of an alternative tool in accordance with the invention adaptable for use with a standard socket wrench,

Fig. V is an end view of Fig. IV showing the wrench socket, and

Fig. VI is a view of a screw driver head which may be employed with this tool by being magnetically held onto the magnetized end of the tool body.

Referring to the drawings and first of Figs. I to III the magnetic tool shown therein comprises a handle composed of two sections 10 and 12 of which the one section has an end screw plug 14 engageable in the screwed end 16 of the other handle section such that both sections can be readily united to form a common handle, or can be disconnected for use as separate tools, each having a magnetic screw holder socket at its outer end, as indicated generally at 18.

Each socket head 18 has an interior bevel 20

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by which a screw head is guided onto a diametral pin 22 secured in the socket to constitute a screw driver bit, against which a permanent magnet 24 bears to provide a magnetized surface 26 for magnetically attracting a screw onto the bit.

Each magnet is in the form of a rod section slidably mounted in the bore portion 28 of its handle section and held attracted to its bit 22, yet readily removable from the opposite end of the handle by shaking, thereby permitting the magnet to be readily cleaned or replaced when and if necessary.

The bit 22 may be constituted by a piece of piano wire or the like having its ends burred onto the outside of the head 18. By making the bit of round section the bit is given an automatic release action by camming out of the screw driver slot of a screw in case undue or excessive strain is encountered in the rotation of the tool to affix a screw in position. However, the invention is not to be regarded as limited to a bit of round section, since other sections, such as rectangular, could be employed.

Each socket head 18 is of different size to accommodate different size screws, which are capable of being held onto their respective socket heads by having their screw driver slots magnetically attracted onto the respective bit 22, as will be understood.

Whereas the tool might normally be employed with the handle sections 10 and 12 united, the ready separation thereof simply by unscrewing at 14, 16, enables either handle section to be employed separately, such as would be an advantage when access is required to confined or close locations not suited to the use of the tool with the united handle sections.

Figs. IV and V show a tool with a cylindrical body 28 formed with a standard size wrench socket 30 at one end and having its opposite socket end 32 beveled at 34 to give a lead to a screwhead or screw driver head introduced into the socket 32 and held attached to the diametral bit 34, this bit being secured across the socket in close proximity to the permanent magnet insert 36.

This tool, as well as any form of tool in accordance with the invention, can be employed either to hold a screw head attracted to the bit and magnet for the affixing or starting of a screw into position, or the tool can be adapted for use as a screw driver by the attachment of a separate screw-driver head 38, as seen in Fig. VI, where the screw driver head is shown with a pointed end 40 for engaging a screw head slot

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and with a cross slot 42 for engagement with the tool bit 34, against which the head 38 would be held by this attraction of the magnet 36.

Having thus described my invention, what I claim as novel and wish to secure by Letters Patent is as follows:

A magnetic screw driver comprising a socket to receive a slotted screw head, a bit for the rotation of the head in the form of a round rod extending across said socket normal to the longitudinal axis of said socket in bridging relationship therewith, said rod being of a diameter to be received in the slotted head of the screw, means for anchoring opposite ends of said bit in the wall of said socket, a permanent magnet located in said socket and contiguous to the side of said bit opposite the side engaged by the screw whereby said magnet acts as an abutment for the screw to limit the depth to which said bit may enter the slotted end of the screw to a

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distance approximating the diameter of said rod whereby said bit tends to be cammed out of the slot of said screw upon experiencing substantial resistance to rotation by the screw.

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