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ABSTRACT
RATCHET TOOL

A ratchet tool includes an activating member (30) in the head (20) of the tool and the actuating member has teeth (33) on its outside. Two pawl members (40) are received in the head and connected to a disk (50). Each pawl member has a curved toothed inside (41) which is engaged with the teeth of the actuating member. A spring (43) is connected between the two pawl members and when rotating the disk, one of the two pawl members is disengaged from the teeth of the actuating member.

10 Fig. 1

The claims defining the invention are as followings:

1. A ratchet tool comprising:

a ring-shaped head having a recess defined in the inside thereof, a shank extending from said head ;

5 an activating member having teeth defined in the outside thereof and said activating member engaged in said ring-shaped head, said activating member having an engaging means connected thereto;

two pawl members each having a curved toothed inside and said two pawl members received in said recess in said head so as to engage with said teeth of said activating member, a spring connected between said two pawl members;

10 a disk rotatably connected to said head and connected to said two pawl members so that when rotating said disk, one of said two pawl members is disengaged from said teeth of said activating member.

2. The ratchet tool as claimed in claim 1, wherein each pawl member has a protrusion extending therefrom and said disk has a notch defined therein with which said two protrusions are engaged.

3. The ratchet tool as claimed in claim 2, wherein said notch of said disk is a U-shaped notch which is defined by two inclined sides, said two protrusions respectively engaged with said two inclined sides of said notch.

DATED this 2nd day of May, 2000

JACK LEE

By his Patent Attorneys

Davies Collison Cave



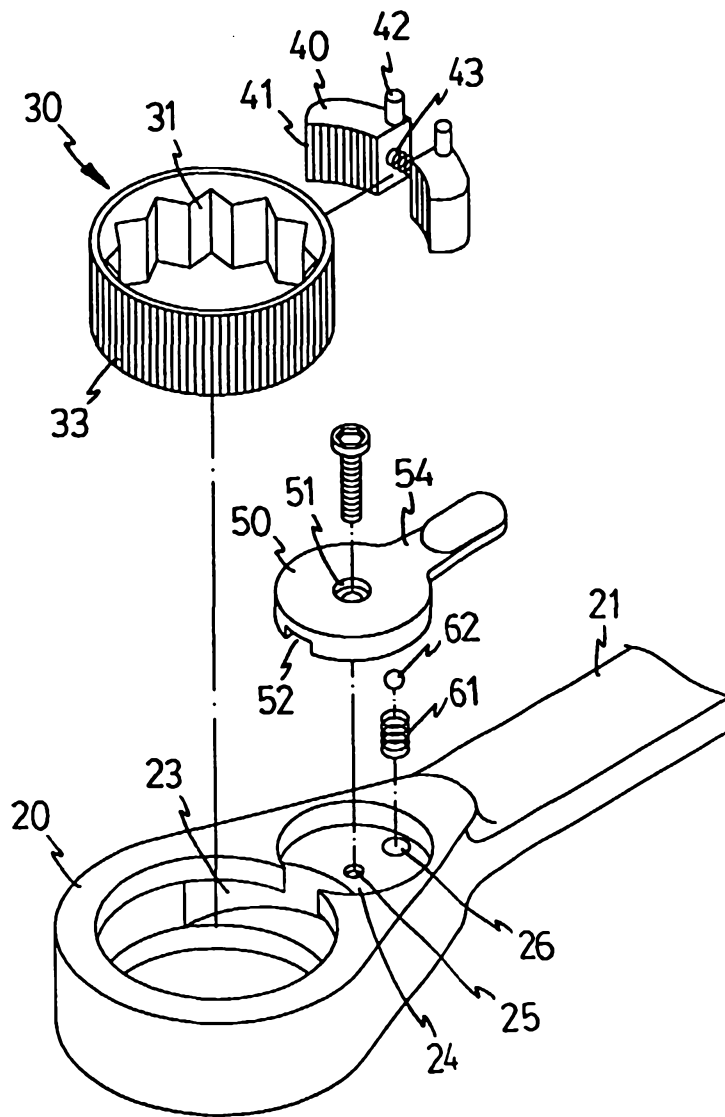


FIG. 1

A U S T R A L I A
P A T E N T S A C T 1 9 9 0
C O M P L E T E S P E C I F I C A T I O N
F O R A P E T T Y P A T E N T
(O R I G I N A L)

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INVENTION TITLE: "Ratchet Tool"

The following statement is a full description of this invention, including the best method of performing it known to me:

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RATCHET TOOL

The present utility model relates to a ratchet tool, and more particularly, to a ratchet tool having two curved pawl members respectively engaged with a toothed outside of a ring member in the head of the ratchet tool.

5 A conventional ratchet tool is shown in Fig. 6 and generally includes a head (11) with teeth (12) defined in the inside thereof and a pawl member (13) having teeth (14) is engaged with the teeth (12) of the head (11). A control member (130) is connected to the pawl member (13) so that when rotating the control member (130), the pawl member (13) is pivoted so that one of two ends is engaged
10 with the teeth (12) of the head (11) so as to set the output direction of the ratchet tool. It is to be noted that the engaging teeth (14) and (12) between the pawl member (13) and the head (11) are very few so that the ratchet tool cannot output a high torque because the teeth (14) and (12) will slip with each other. Although some improved ratchet tools are developed to have more engaging teeth when output a torque, a
15 large volume is required to retain a larger pawl member. Such tool is heavy and expensive.

In accordance with one aspect of the present utility model, there is provided a ratchet tool comprising a ring-shaped head having a recess defined in the inside thereof so that two pawl members are received in the recess. An activating
20 member has teeth defined in the outside thereof and the activating member is engaged in the ring-shaped head. The two pawl members each have a curved toothed inside which is engaged with the teeth of the activating member. A spring is connected between the two pawl members. A disk is rotatably connected to the head and connected to the two pawl members so that one of the two pawl members is
25 disengaged from the teeth of the activating member when rotating the disk.

The primary object of the present utility model is to provide a ratchet tool having two curved pawl members which are respectively engaged with the teeth of the activating member when shifting a lever.

5 These and further objects, features and advantages of the present utility model will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, several embodiments in accordance with the present utility model.

IN THE DRAWINGS

10 Fig. 1 is an exploded view of the ratchet tool in accordance with the present utility model;

Fig. 2 is an illustrative view to illustrate the two pawl members are engaged with the actuating member when the lever is positioned at a neutral position;

15 Fig. 3 is an illustrative view to illustrate one of the two pawl members is engaged with the actuating member when the lever is shifted to a first position;

Fig. 4 is an illustrative view to illustrate the other pawl member is engaged with the actuating member when the lever is shifted to a second position;

Fig. 5 is an exploded view of another embodiment of the ratchet tool in accordance with the present utility model, and

20 Fig. 6 is an exploded view of a conventional ratchet tool.

Referring to Figs. 2 and 3, the ratchet tool in accordance with the present utility model comprises a ring-shaped head (20) having a recess (23) defined in the inside thereof, a recessed area (24) defined in one of two sides of the head (20) and communicating with the recess (23). A shank (21) extends from the head (20). An activating member (30) is rotatably received in the ring-shaped head (20) and the
25 activating member is a ring member which has teeth (33) defined in the outside thereof. An engaging means which comprises engaging teeth (31) defined in the

inside of the activating member (30). Therefore, a socket (not shown) can be engaged with the engaging teeth (31) of the activating member (30).

Two pawl members (40) each have a curved toothed inside (41) which is engaged with the teeth (33) of the activating member and the two pawl members (40) are received in the recess (23) in the head (20) with a spring (43) connected between the two pawl members (40). A disk (50) is rotatably connected to the head (20) and is received in the recessed area (24) by a bolt extending through the hole (51) defined in the disk (50) and engaged with the threaded hole (25) defined in the recessed area (24). The disk (50) has a lever (54) connected thereto so that the user is convenient to shift the lever (54) to rotate the disk (50). Each pawl member (40) has a protrusion (42) extending therefrom and the disk (50) has a notch (52) defined in the bottom thereof so that the two protrusions (42) are engaged with the notch (52). It is to be noted that the notch (52) is a U-shaped notch which is defined by two inclined sides, and the two protrusions (42) are respectively engaged with the two inclined sides of the notch (52). A spring (61) and a ball (62) are engaged between the disk (50) and the head (20), wherein the spring (61) is received in a retaining recess (26) defined in the bottom of the recessed area (24). The disk (50) has three dims (53) defined in the bottom thereof so that the ball (62) is received in one of the three dims (53). As shown in Fig. 3, the ball (62) is received in the middle dim (53) so that the two curved toothed insides (41) of the two pawl members (40) are engaged with the teeth (33), it is the neutral position.

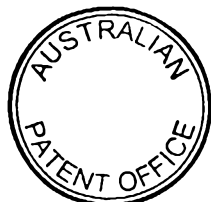
Referring to figure 3, when shifting the lever (54) to the right, the two inclined sides of the notch (52) are moved so as to let one of the two protrusions (42) move away from the activating member (30) so that only one pawl member (40) is engaged with the teeth (33) of the activating member (30). Therefore, the direction of the ratchet tool is set. When shifting the lever (54) to the left as shown in Fig. 4, the pawl member (40) engaged with the teeth (33) as shown in Fig. 3 is disengaged

from the teeth (33), and other pawl member (40) is engaged with the teeth (33) of the activating member (30).

Figure 5 shows another embodiment of the engaging means on the activating member (30), wherein the activating member (30) is a disk member and
5 the engaging means is an engaging shaft (63) extending therefrom which is adapted to be connected to a socket (not shown).

While we have shown and described various embodiments in accordance with the present utility model, it should be clear to those skilled in the art that further
10 embodiments may be made without departing from the scope of the present utility model.

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will be understood to imply the inclusion of a stated integer or
15 step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.



The claims defining the invention are as followings:

1. A ratchet tool comprising:

a ring-shaped head having a recess defined in the inside thereof, a shank extending from said head ;

5 an activating member having teeth defined in the outside thereof and said activating member engaged in said ring-shaped head, said activating member having an engaging means connected thereto;

two pawl members each having a curved toothed inside and said two pawl members received in said recess in said head so as to engage with said teeth of said activating member, a spring connected between said two pawl members;

10 a disk rotatably connected to said head and connected to said two pawl members so that when rotating said disk, one of said two pawl members is disengaged from said teeth of said activating member.

2. The ratchet tool as claimed in claim 1, wherein each pawl member has a protrusion extending therefrom and said disk has a notch defined therein with which said two protrusions are engaged.

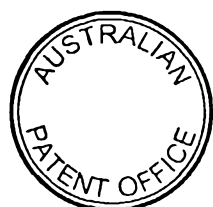
3. The ratchet tool as claimed in claim 2, wherein said notch of said disk is a U-shaped notch which is defined by two inclined sides, said two protrusions respectively engaged with said two inclined sides of said notch.

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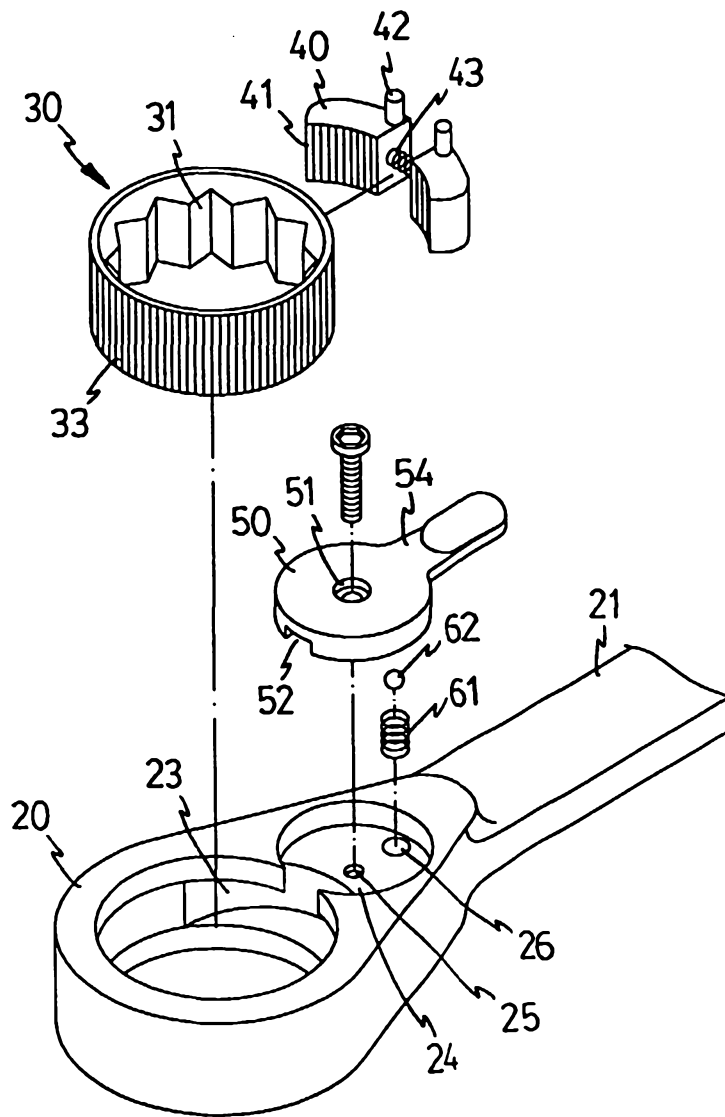


FIG. 1

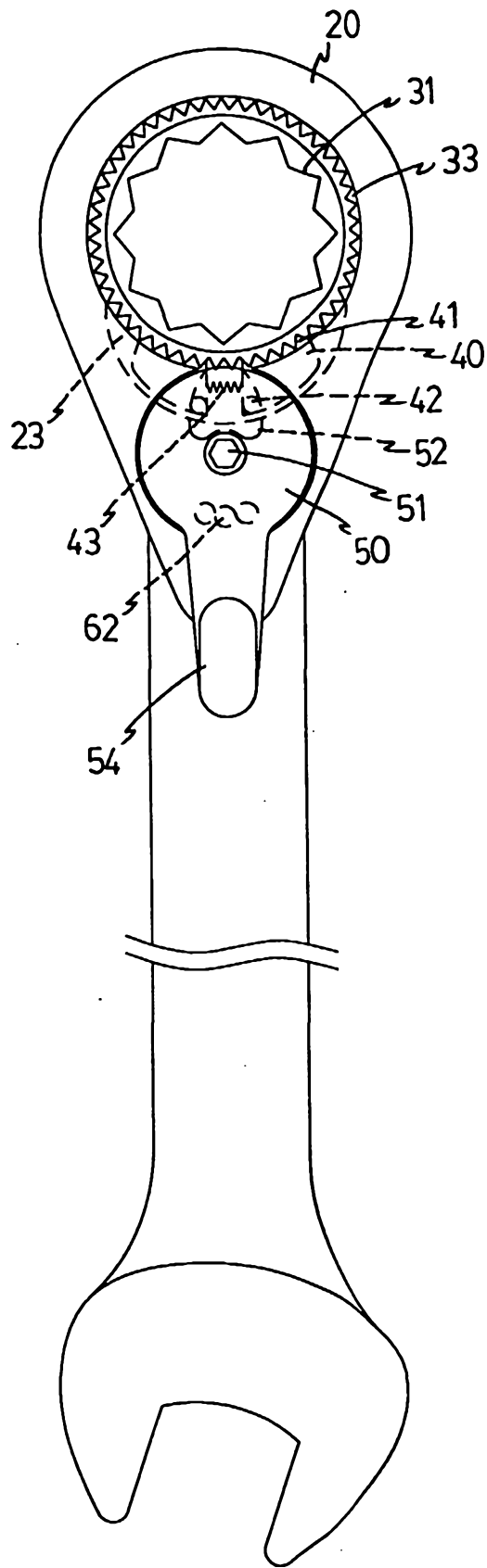


FIG. 2

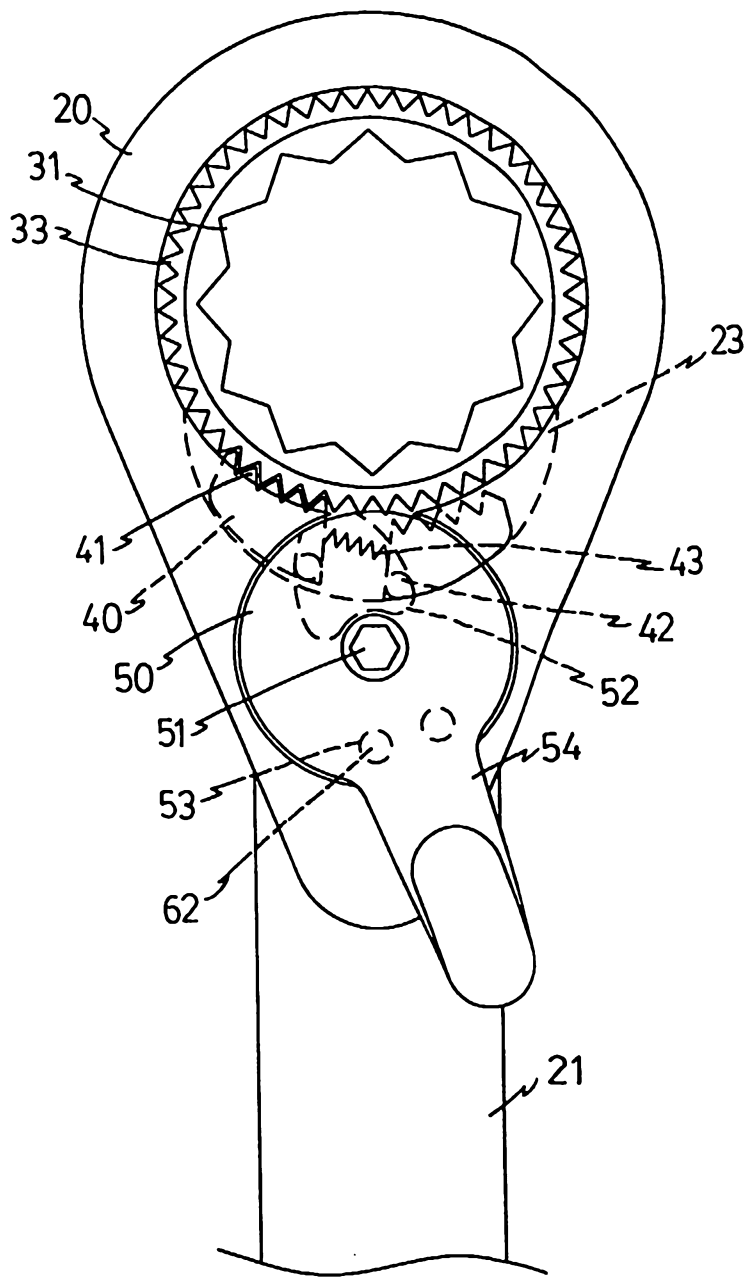


FIG. 3

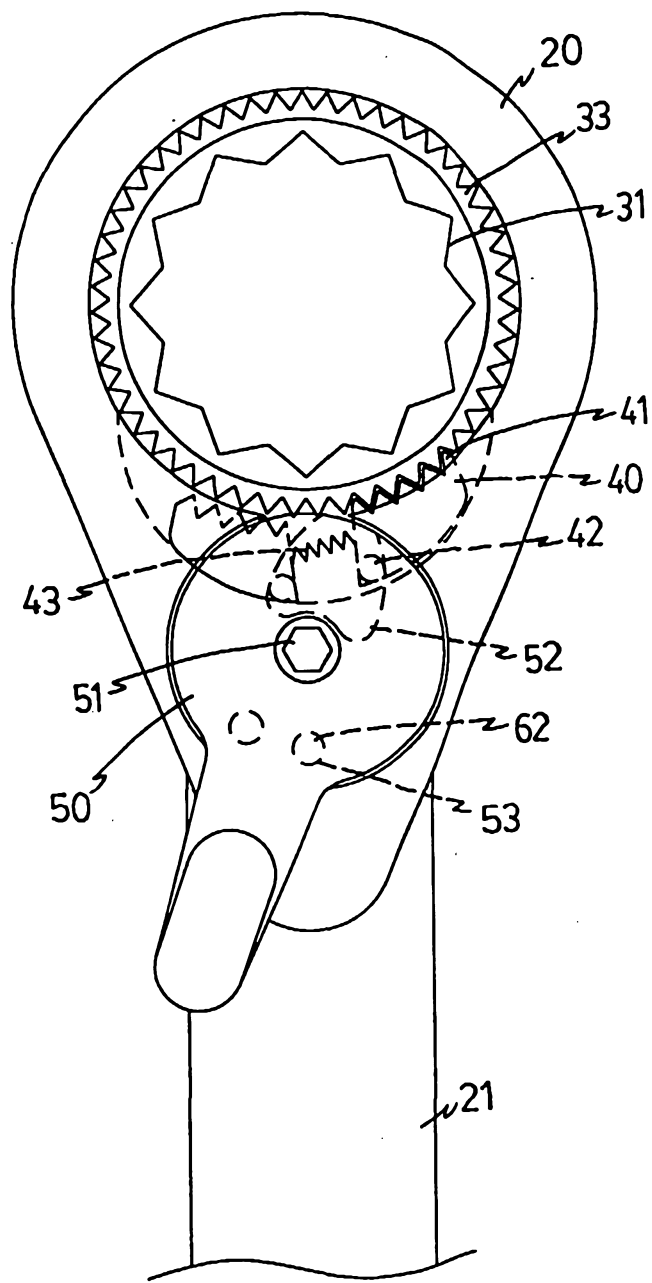


FIG. 4

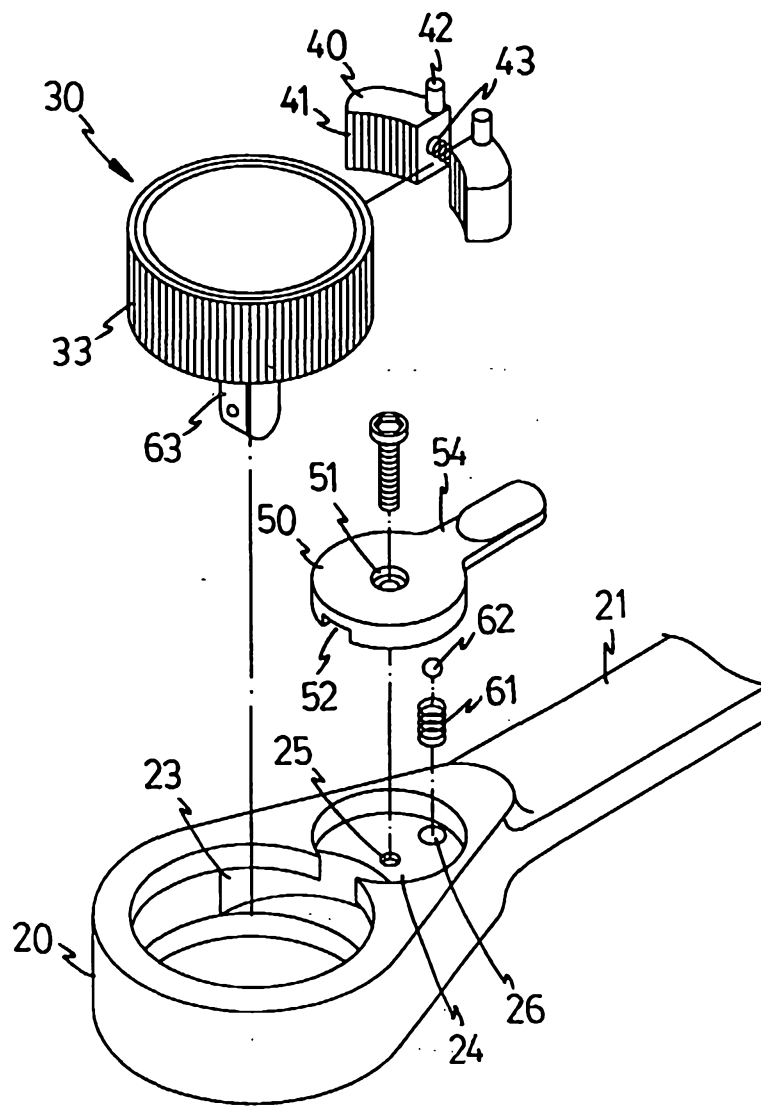


FIG. 5

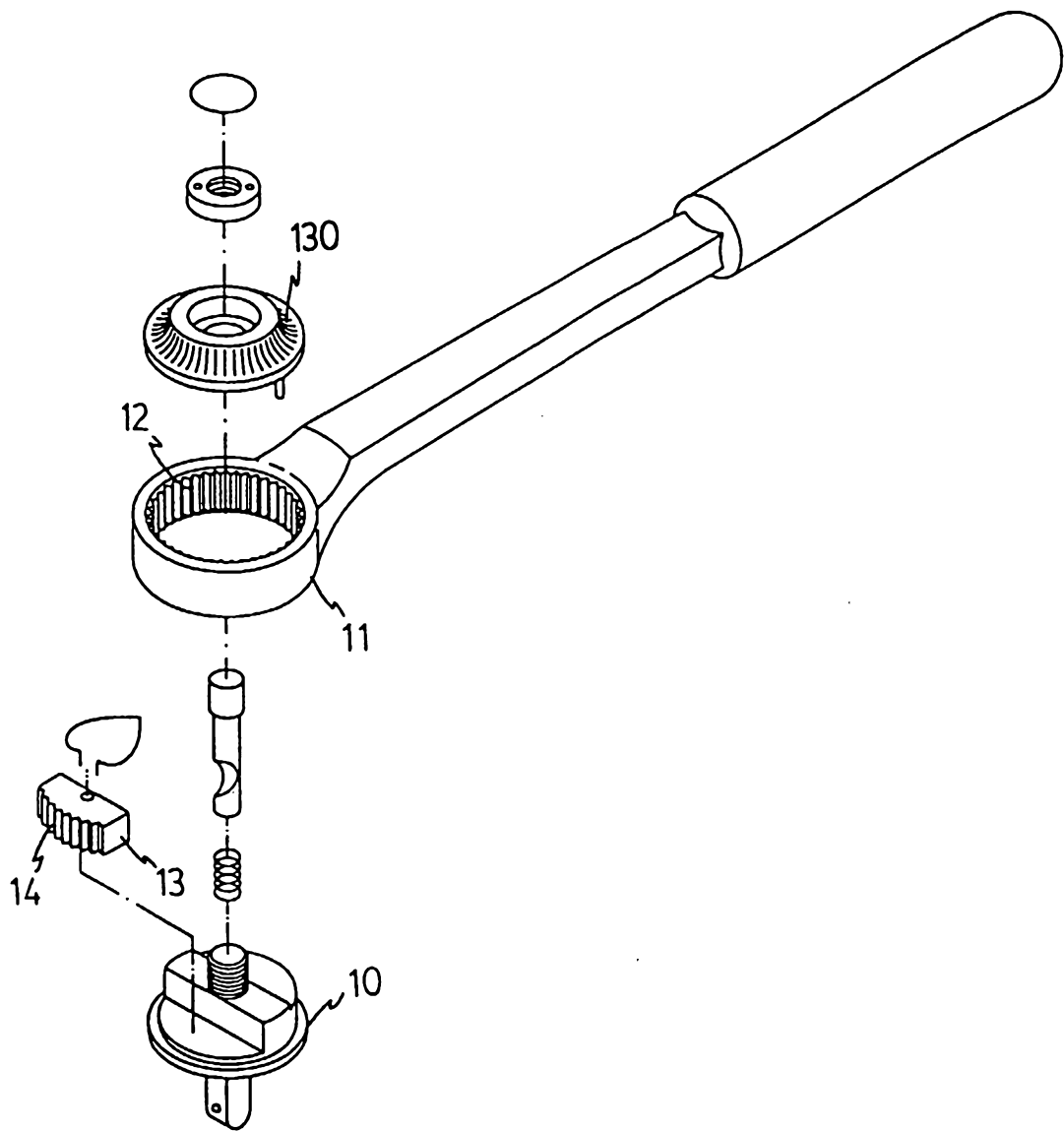


FIG. 6
PRIOR ART