



US 20030213760A1

(19) **United States**

(12) **Patent Application Publication**
Lee

(10) **Pub. No.: US 2003/0213760 A1**

(43) **Pub. Date: Nov. 20, 2003**

(54) **TOOL RETAINING DEVICE HAVING
STABLY RETAINING STRUCTURE**

Publication Classification

(51) **Int. Cl.⁷ A47F 7/00**

(52) **U.S. Cl. 211/70.6; 206/378**

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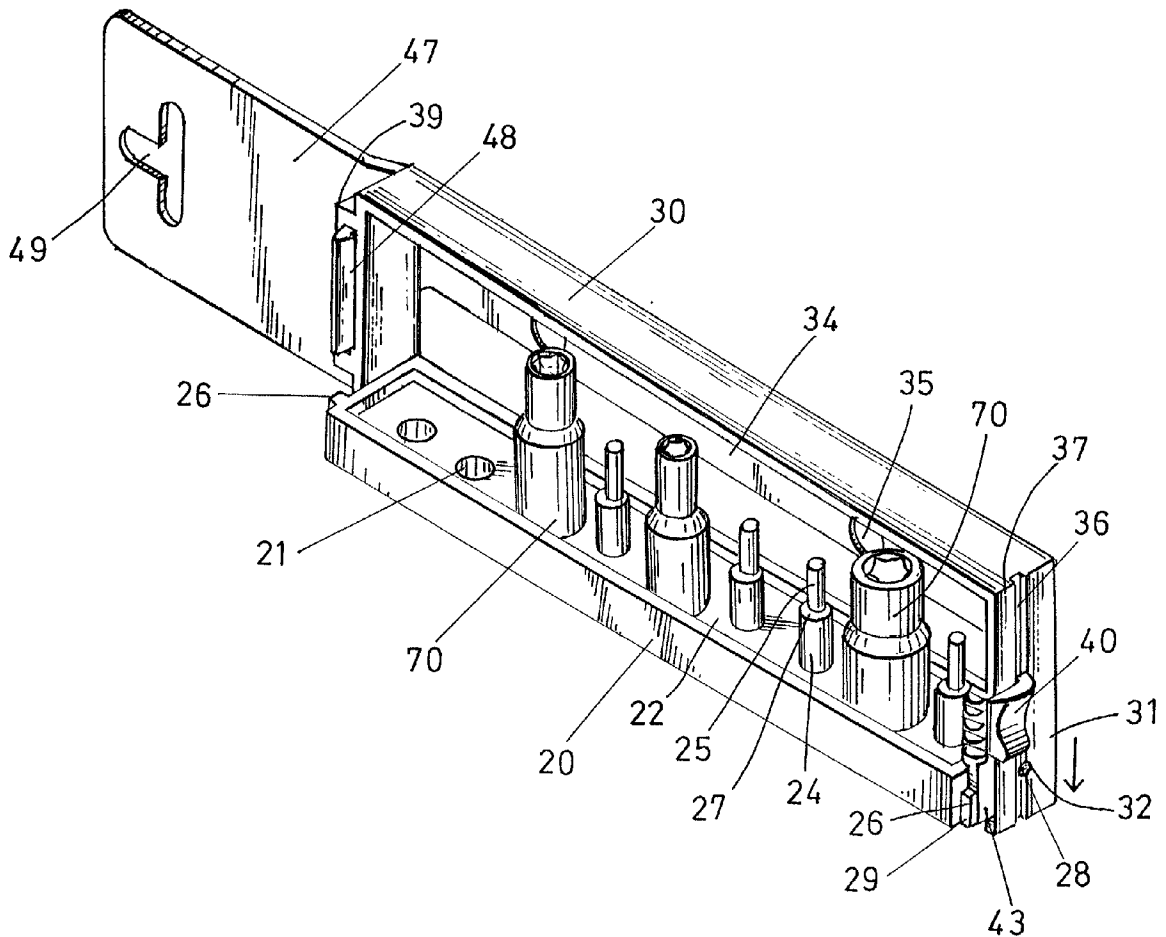
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(57) **ABSTRACT**

A tool retaining device includes a base for supporting tool members, a frame having two side arms pivotally secured to the base which is rotatable relative to the frame between an inward storing position and an outward working position. A knob is slidably secured to the frame and has a latch for latching the base to the frame. The arms may be adjustably secured to the base for receiving tool members of different lengths. The base has one or more stops for limiting the rotating of the base relative to the frame.

(21) **Appl. No.: 10/151,209**

(22) **Filed: May 16, 2002**



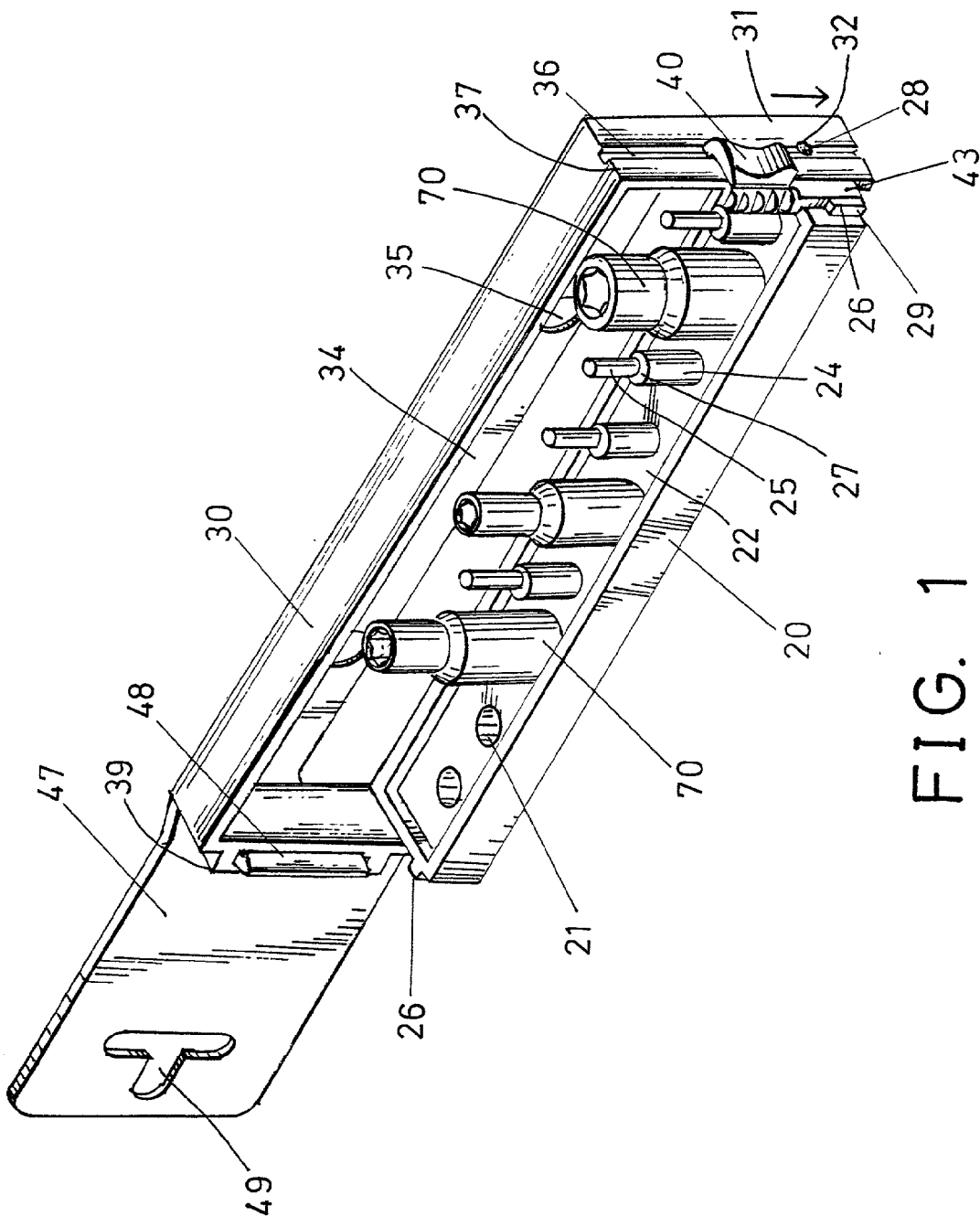
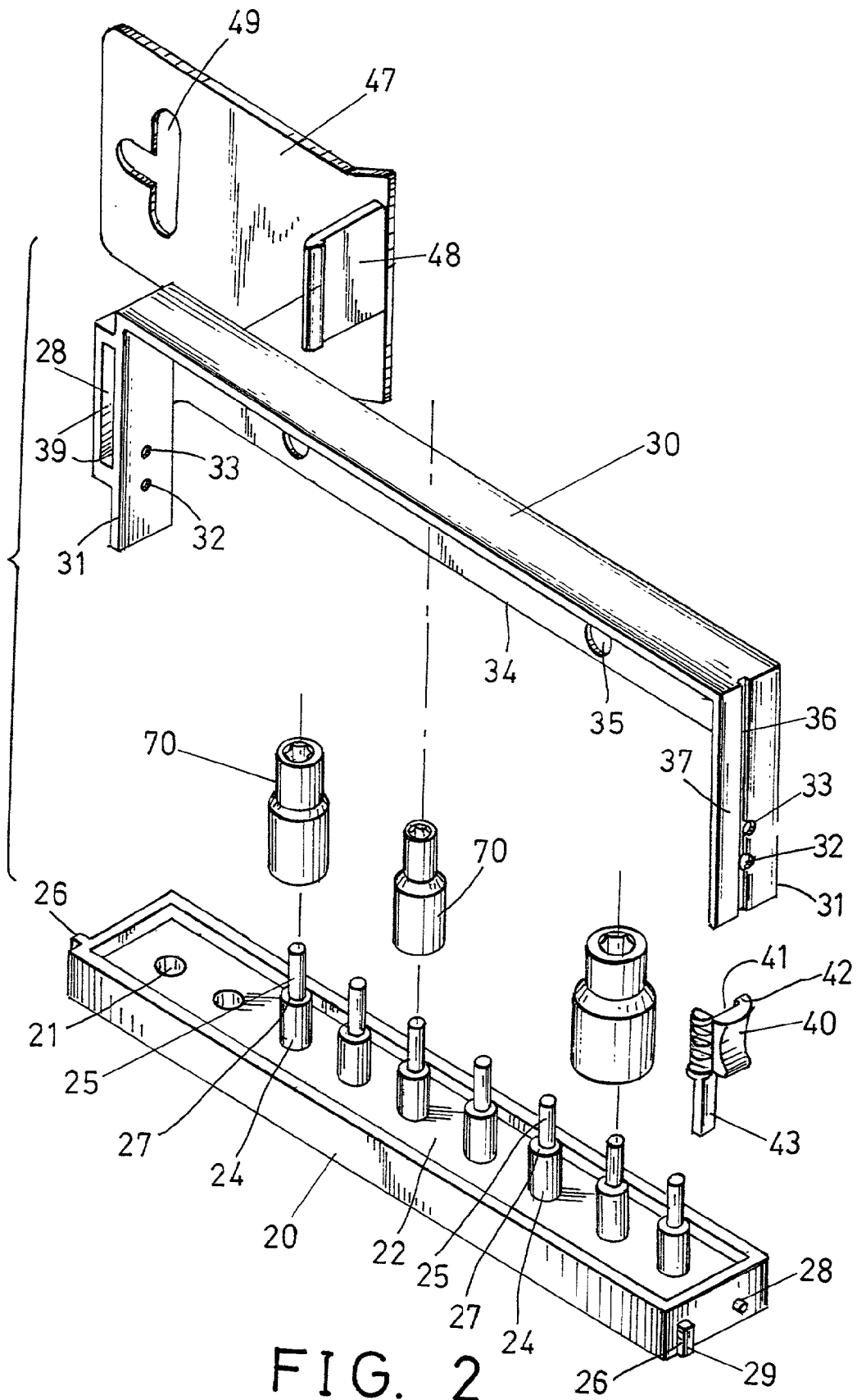
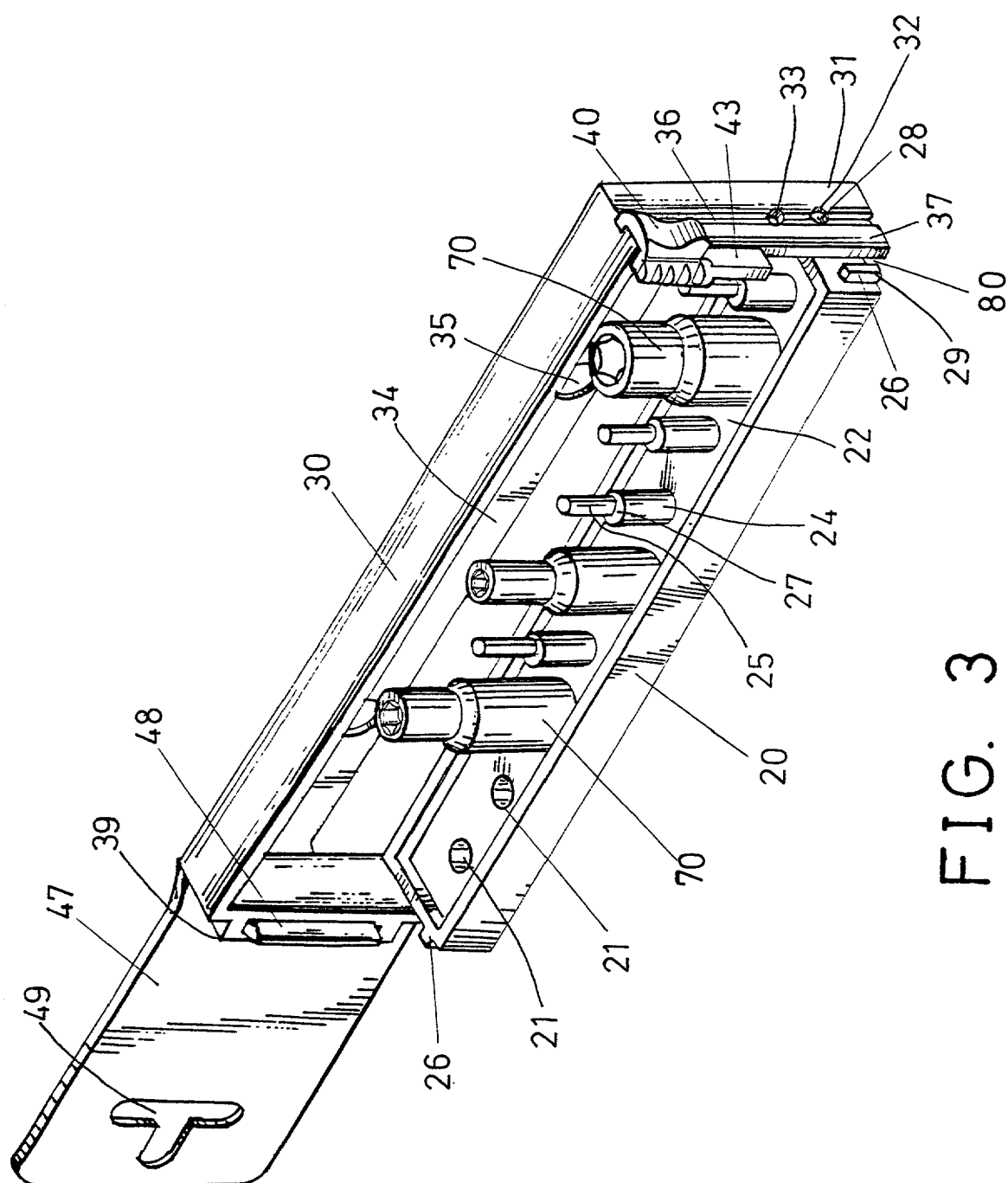


FIG. 1





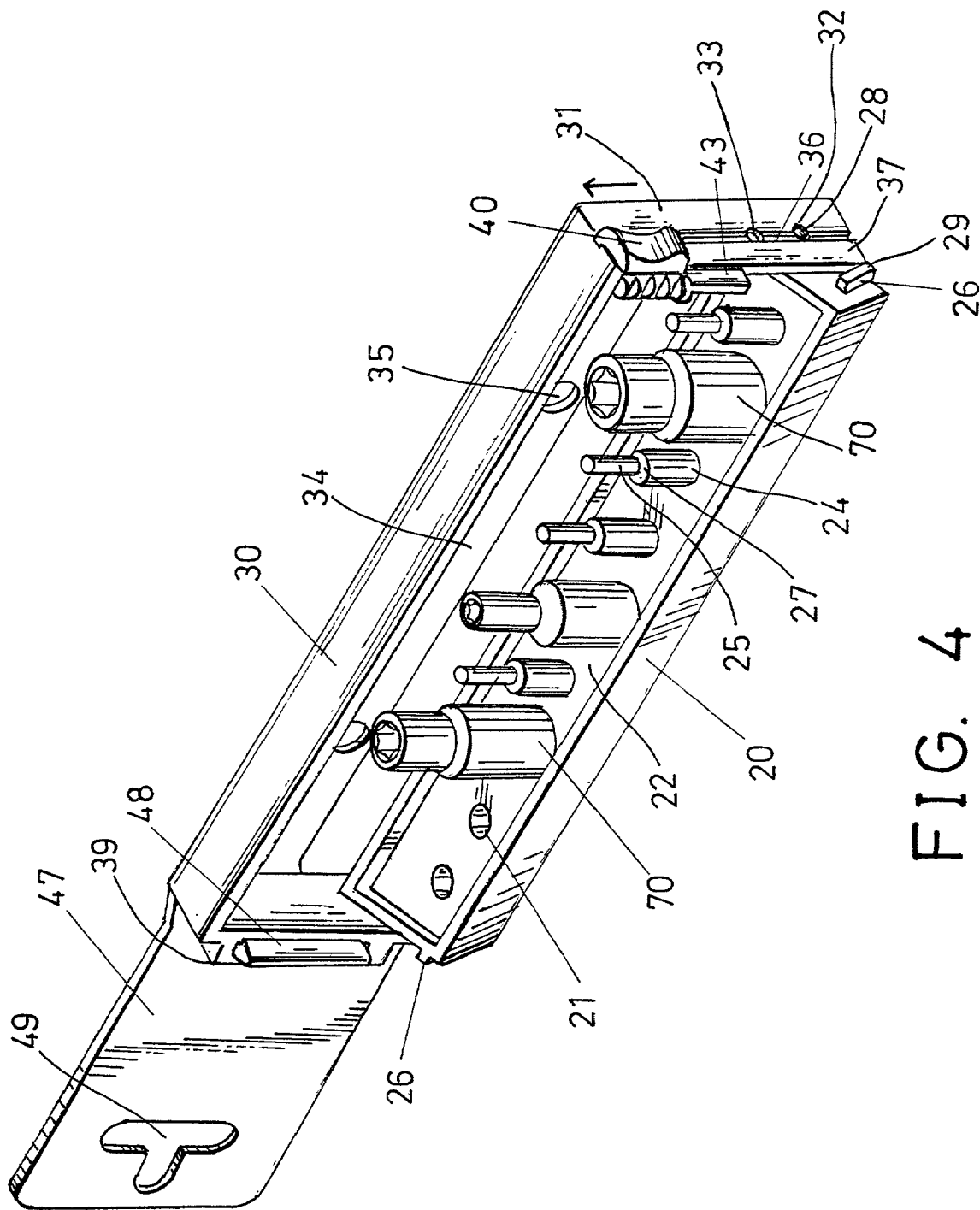


FIG. 4

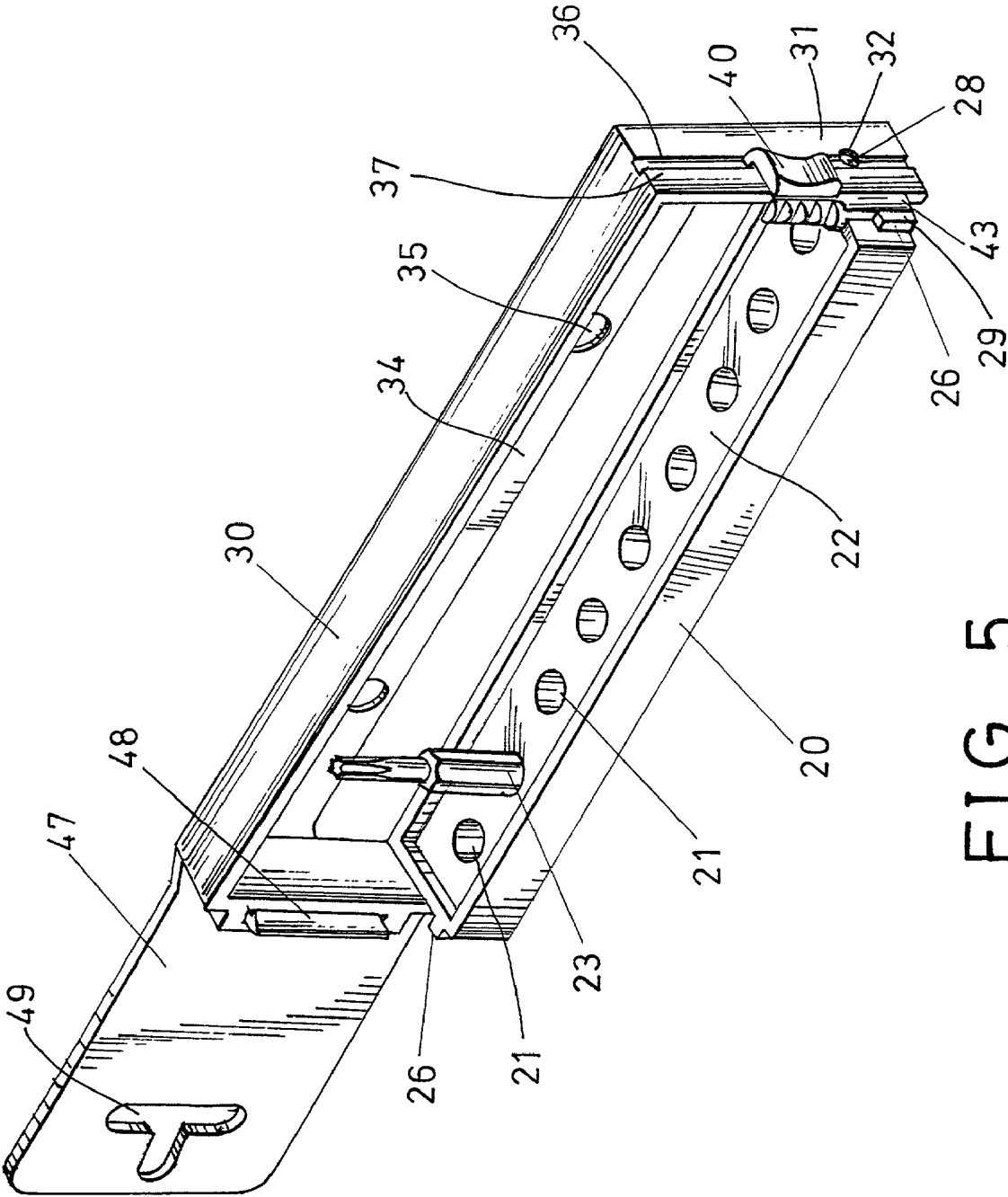


FIG. 5

TOOL RETAINING DEVICE HAVING STABLY RETAINING STRUCTURE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a tool retaining device, and more particularly to a tool retaining device having a stably retaining structure for stably retaining the tool members therein.

[0003] 2. Description of the Prior Art

[0004] Various kinds of typical tool retaining devices have been developed for retaining various kinds of tool members, such as the wrenches, the screw drivers, the pens, the brushes, the tool bits, the sockets, etc. One example of the typical tool retaining devices is disclosed in U.S. Pat. No. 5,005,710 to Hofer and comprises a number of incisions formed in a block for receiving and retaining the tool members. However, the tool retaining device do not include any stably retaining structure for stably retaining the tool members therein, such that the tool members may have a good chance to be disengaged from the tool retaining device.

[0005] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional tool retaining devices.

SUMMARY OF THE INVENTION

[0006] The primary objective of the present invention is to provide a tool retaining device including a stably retaining structure for stably retaining the tool members therein and for preventing the tool members from being disengaged from the tool retaining device.

[0007] The other objective of the present invention is to provide a tool retaining device including an adjustable retaining structure for stably retaining the tool members of different sizes or lengths.

[0008] In accordance with one aspect of the invention, there is provided a tool retaining device comprising a base for supporting tool members, the base including two sides, a frame including two sides each having an arm extended therefrom and pivotally secured to the sides of the base, the base being rotatable relative to the frame between an inward storing position and an outward working position, and means for latching the base to the frame and to retain the base in the inward storing position relative to the frame, such that the tool members may be stably retained in the base or between the base and the frame, and may be prevented from being disengaged from the base.

[0009] A device may further be provided for adjustably securing the base to the frame, and includes a pair of pivot pins extended from the sides of the base respectively, a first pair of orifices formed in the arms of the frame respectively for rotatably receiving the pair of pins respectively, and at least one second pair of orifices formed in the arms of the frame respectively for rotatably and selectively receiving the pair of pins respectively.

[0010] A device may further be provided for limiting a rotational movement of the base relative to the frame and includes at least one stop extended from the base and

engageable with a first of the arms for limiting the rotational movement of the base relative to the frame.

[0011] A device may further be provided for retaining the tool members in the base and includes at least one cavity formed in the base for receiving the tool member.

[0012] The retaining device includes at least one rod extended from the base for receiving the tool member. The rod may include an extension extended therefrom for engaging into the tool member.

[0013] The latching means includes a latch for selectively engaged between the frame and the base for latching and securing the base to the frame.

[0014] The base includes at least one stop extended from a first of the sides thereof, the latch is engageable between the at least one stop of the base and the first arm of the frame.

[0015] The latching means includes a knob slidably engaged on the first arm of the frame, and having the latch extended therefrom.

[0016] The first arm includes a track provided therein, the knob includes a channel formed therein for slidably receiving the track, for guiding the knob to slide relative to the first arm.

[0017] The first arm includes a slot formed therein, the knob includes a guide rid extended therefrom and slidably received in the slot of the first arm, for guiding the knob to slide relative to the first arm.

[0018] The frame includes a fence provided thereon and having at least one hole formed therein.

[0019] A panel is further provided and attached to the frame for hanging purposes. The frame includes a casing having a groove formed therein, the panel includes a tongue extended therefrom and engaged into the groove of the casing.

[0020] Further objectives and advantages of the present invention will become apparent from a careful reading of a detailed description provided hereinbelow, with appropriate reference to accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] **FIG. 1** is a perspective view of a tool retaining device in accordance with the present invention;

[0022] **FIG. 2** is an exploded view of the tool retaining device;

[0023] **FIGS. 3, 4** are perspective views illustrating the operation of the tool retaining device; and

[0024] **FIG. 5** is a perspective view similar to **FIGS. 3 and 4**, illustrating the other arrangement or embodiment of the tool retaining device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0025] Referring to the drawings, and initially to **FIGS. 1 and 2**, a tool retaining device in accordance with the present invention comprises a base **20** including one or more cavities **21** formed therein (**FIGS. 1-5**) for receiving tool members **23** therein (**FIG. 5**), such as the screw driver bits or the like, and including one or more rods **24** extended upwardly

therefrom, and one or more extensions 25 extended upwardly from the rods 24 respectively and having an outer diameter smaller than that of the rods 24 for forming or defining a peripheral shoulder 27 between the rods 24 and the extensions 25 respectively.

[0026] The other tool members 70, such as the sockets 70 may be engaged onto the rods 24 and the extensions 25. Normally, the typical sockets 70 may include a step hole formed therein (not shown) for receiving the rods 24 and the extensions 25. It is preferable that the rods 24 and the extensions 25 and the peripheral shoulders 27 of the rods 24 include a shape corresponding to that of the step holes of the sockets 70, for allowing the sockets 70 to be stably engaged onto and retained on the rods 24 and the extensions 25. The base 20 includes one or more, such as a pair of opposite pivot pins 28 extended laterally outward from the sides thereof respectively. The cavities 21 and the rods 24 and/or the extensions 25 thus may form as a retaining means or device for retaining the tool members 23, 70 in the base 20.

[0027] A frame 30 includes a pair of arms 31 extended downward from the sides thereof respectively, and each having one or more orifices 32, 33 for selectively receiving the pivot pins 28, and for adjustably and rotatably securing the arms 31 of the frame 30 to the base 20. For example, the frame 30 may be adjusted and spaced away from the base 20 when the pivot pins 28 are engaged in the lower pair of orifices 32 of the frame 30, and may be adjusted closer to the base 20 when the pivot pins 28 are engaged in the other or the upper pair of orifices 33 of the frame 30. The frame 30 may include one or more fences 34 each having one or more holes 35 formed therein for hanging purposes. The selective engagement of the pins 28 in the pairs of orifices 32, 33 thus forms as an adjusting means or device for adjusting the frame 30 relative to the base 20.

[0028] The base 20 further includes one or more, such as a pair of stops 26 extended laterally outward from the sides thereof. The base 20 is rotatable inward of the frame 30 in the inwardly rotating position or storing position (FIGS. 1, 3, 5), and rotatable outward of the frame 30 about the pivot pins 28 in the outwardly rotating position or working position (FIG. 4), for allowing the tool members 70, 23 to be easily removed or disengaged from the base 20. The lower portions 29 of the stops 26 may be engaged with the arms 31 of the frame 30 (FIG. 4) for limiting the outward rotation of the base 20 relative to the frame 30, such that the stops 26 may form as a limiting means or device for limiting the rotational movement of the base 20 relative to the frame 30. When the base 20 is rotated inward of the frame 30 (FIGS. 1, 3, 5), a space or a gap 80 (FIG. 3) may be formed between the stop 26 and the arm 31 of the frame 30.

[0029] The frame 30 further includes a slot 36 formed in one of the arms 31 thereof, for forming or defining a longitudinal track 37 in the arm 31. A knob 40 includes a channel 41 formed therein for slidably receiving the track 37, and includes a guide rib 42 extended therefrom for slidably engaging in the slot 36 of the frame 30, and for allowing the knob 40 to be moved upwardly and downwardly along the track 37 of the arm 31. The knob 40 includes a latch 43 extended therefrom for engaging into the gap 80 (FIG. 3) formed between the stop 26 and the arm 31 of the frame 30 (FIGS. 1, 5), so as to retain the base 20 in the inwardly rotating position or storing position relative to

the frame 30. The latch 43 of the knob 40 thus forms a latching means or device for retaining the base 20 in the inwardly rotating position or storing position relative to the frame 30.

[0030] In operation, as shown in FIG. 3, when the knob 40 is moved upward along the track 37 of the frame 30 in order to disengage the latch 43 of the knob 40 from the gap 80 that is formed between the stop 26 and the arm 31 of the frame 30, the base 20 is released relative to the frame 30 and is thus rotatable relative to the frame 30 about the pivot pins 28, such that the base 20 may be rotated outwardly of the frame 30 to the working position as shown in FIG. 4, for allowing the tool members 70 to be easily obtained or fetched by the users.

[0031] The pivot pins 28 of the base 20 may be selectively or adjustably engaged with either pairs of the orifices 32, 33 for adjusting the frame 30 relative to the base 20, and for allowing the tool members 23, 70 of different sizes or lengths to be stably retained in the base 20 and the frame 30, particularly when the base 20 is rotated relative to the frame 30 in the inwardly rotating position or storing position. The base 20 may include a recess 22 formed in the upper portion thereof for receiving or retaining or supporting the tool members 23, 70.

[0032] The tool retaining device may further includes a panel 47 having a tongue 48 extended therefrom for engaging into a groove 38 of the frame 30 which includes a casing 39 attached thereto or extended therefrom, such as extended from one side thereof for forming or defining the groove 38 therein. The panel 47 may include an aperture 49 formed therein for hanging purposes.

[0033] Accordingly, the tool retaining device in accordance with the present invention includes a stably retaining structure for stably retaining the tool members therein and for preventing the tool members from being disengaged from the tool retaining device, and/or includes an adjustable retaining structure for stably retaining the tool members of different sizes or lengths.

[0034] Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

I claim:

1. A tool retaining device comprising:

a base for supporting tool members, said base including two sides,

a frame including two sides each having an arm extended therefrom and pivotally secured to said sides of said base, said base being rotatable relative to said frame between an inward storing position and an outward working position, and

means for latching said base to said frame and to retain said base in said inward storing position relative to said frame.

2. The tool retaining device according to claim 1 further comprising means for adjustably securing said base to said frame.

3. The tool retaining device according to claim 2, wherein said adjustably securing means includes a pair of pivot pins extended from said sides of said base respectively, a first pair of orifices formed in said arms of said frame respectively for rotatably receiving said pair of pins respectively, and at least one second pair of orifices formed in said arms of said frame respectively for rotatably and selectively receiving said pair of pins respectively.

4. The tool retaining device according to claim 1 further comprising means for limiting a rotational movement of said base relative to said frame.

5. The tool retaining device according to claim 4, wherein said limiting means includes at least one stop extended from said base and engageable with a first of said arms for limiting the rotational movement of said base relative to said frame.

6. The tool retaining device according to claim 1 further comprising means for retaining the tool members in said base.

7. The tool retaining device according to claim 6, wherein said retaining means includes at least one cavity formed in said base for receiving the tool member.

8. The tool retaining device according to claim 6, wherein said retaining means includes at least one rod extended from said base for receiving the tool member.

9. The tool retaining device according to claim 8, wherein said at least one rod includes an extension extended therefrom for engaging into the tool member.

10. The tool retaining device according to claim 1, wherein said latching means includes a latch for selectively engaged between said frame and said base for latching and securing said base to said frame.

11. The tool retaining device according to claim 10, wherein said base includes at least one stop extended from a first of said sides thereof, said latch is engageable between said at least one stop of said base and a first of said arms of said frame.

12. The tool retaining device according to claim 10, wherein said latching means includes a knob slidably engaged on a first of said arms of said frame, and having said latch extended therefrom.

13. The tool retaining device according to claim 12, wherein said first arm includes a track provided therein, said knob includes a channel formed therein for slidably receiving said track, for guiding said knob to slide relative to said first arm.

14. The tool retaining device according to claim 12, wherein said first arm includes a slot formed therein, said knob includes a guide rid extended therefrom and slidably received in said slot of said first arm, for guiding said knob to slide relative to said first arm.

15. The tool retaining device according to claim 1, wherein said frame includes a fence provided thereon and having at least one hole formed therein for hanging purposes.

16. The tool retaining device according to claim 1 further comprising a panel attached to said frame for hanging purposes.

17. The tool retaining device according to claim 16, wherein said frame includes a casing having a groove formed therein, said panel includes a tongue extended therefrom and engaged into said groove of said casing.

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