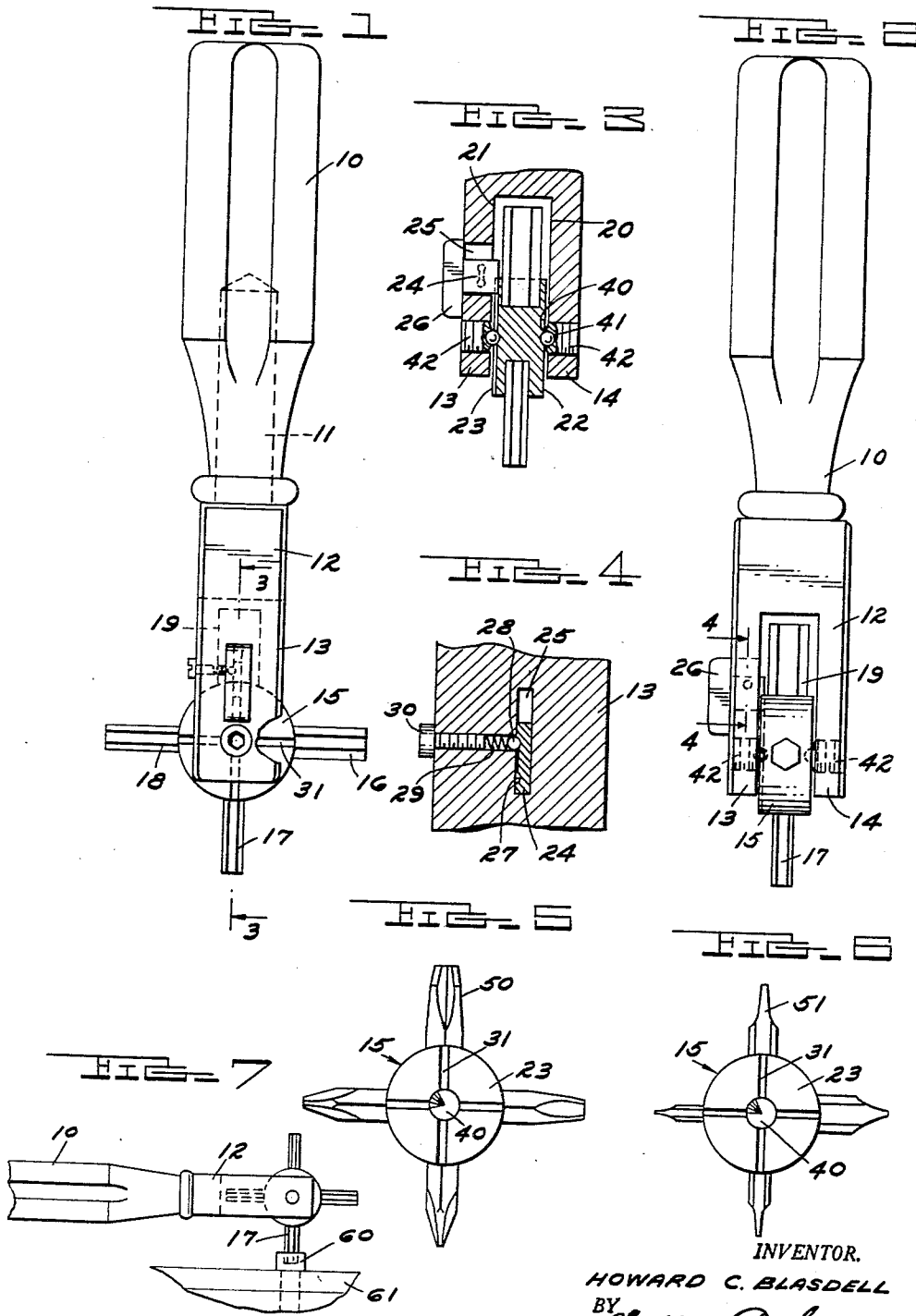


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H. C. BLASDELL  
MULTIPLE BIT TOOL

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## MULTIPLE BIT TOOL

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1 Claim. (Cl. 81—71)

This invention generally relates to hand tools and particularly pertains to a multiple bit tool convertible from a low-torque spinning condition to a high-torque lever condition relative to any selected tool bit.

The novel device is particularly suitable for quickly spinning nuts, bolts, screws, etc., into and out of workpieces while in the axial spinning condition and for easily forcing the item into or out of hand jamming contact with workpieces while in the transverse lever condition.

An object of the invention is to provide an axial handle, shank, head, and extending arms and a transverse rotating drum having tool bits thereon so that a tool bit can be selected and the handle and aligned parts can be either axially aligned in the spinning position or aligned at right angles in the lever position as desired.

An object of the invention is to provide means for locking the drum relative to the tool body or head in any selected position as desired relative to any selected tool bit.

An object of the invention is to provide associated means for supporting the drum relative to the extending arms so that the drum ends contact the arm faces to relieve the rotational support of the torque forces.

An object of the invention is to provide an easily removable drum relative to the rest of the assembly so that drums having graduated Allen head wrenches, graduated Phillips head screw driver bits, graduated regular screw driver bits, and/or graduated sockets can be selectively interchanged to provide the user with a highly useful and adaptable tool.

These and other object of the invention will become apparent by reference to the following description of a multiple-bit multiple-position tool embodying the invention taken in connection with the accompanying drawing in which:

Fig. 1 is a side elevational view of the inventive device showing the device in the spinning condition.

Fig. 2 is a side elevational view of the inventive device taken at 90 degrees to Fig. 1.

Fig. 3 is an enlarged cross-sectional view of Fig. 1 taken on line 3—3 thereof.

Fig. 4 is an enlarged cross-sectional view of the locking and positioning means taken on the line 4—4 of Fig. 2.

Fig. 5 is a plan view of a drum assembly showing Phillips head screw driver bits.

Fig. 6 is a view similar to Fig. 5 showing conventional screw driver bits; and

Fig. 7 is a reduced showing of the device of Figs. 1 and 2 showing the tool in the levering position.

Referring now to the drawing wherein like numerals refer to like and corresponding parts throughout the several views, the tool and multiple tool bits disclosed therein to illustrate the invention comprises a handle 10 fixed on the shank 11 leading to the head 12 which is equipped with arms 13 and 14, and, is to be noted that the handle, shank, head, and arms are axially aligned

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with one another. A drum 15 is rotationally located between the arms 13 and 14 and radially supports the tool bits 16, 17, 18, and 19 respectively.

More particularly, the arms 13 and 14 are spaced apart and have opposed inside faces 20 and 21 from which drum faces or ends 22 and 23 are slightly spaced and the face 23 is equipped with radial slots for each tool bit 16—19 for locking cooperation with the tang 24 which is slidably mounted in the slot 25 in the arm 13 and movable via the thumb button 26; the slide 24 has two positioning sockets 27 for receiving the ball 28 which is forced by the spring 29 and held by the screw 30 to locate the tang 24 in locking relation to the side walls of a drum slot 31 as seen in Figs. 3 and 4 or moved out of locking relationship by sliding the button 26 upwardly to move the tang 24 upwardly in the slot 25 and out of the drum head slot 31.

The drum faces or ends 22 and 23 are equipped with ball sockets 40 on either side thereof in which the balls 41 are disposed and the screws 42 are also equipped with ball sockets in the ends thereof for holding the balls axially relative to the drum sockets 40 of the drum 15. The drums 15, Figs. 5 and 6, can be furnished with various size Phillips head screw bits 50, various size standard screw bits 51, Allen head wrenches as seen in the other view or with sockets for bolt heads as desired.

In the operation of the device seen in Figs. 1, 2, and 7, the user selects the desired tool bit such as the tool bit 17 and spins the screw into contact with the work 60 with the device in the position relative to the tool bit 17 as seen in Figs. 1 and 2, namely axially, until the screw head contacts the work 61 whereupon the user moves the button 24 upwardly and moves the handle 10 to the position seen in Fig. 7 so that the handle, head, and arms are at right angles to the axis of the tool bit 17 whereupon the user can use the leverage of the members relative to the tool bit 17 to tighten the screw 60 into the work 61 with a higher degree of force than if the handle 10 was disposed axially relative to the tool bit 17. Conversely, in the event that the user wishes to extract a screw 60, he positions the device as seen in Fig. 7 and breaks the screw 60 loose from the work or body 61 and upon breaking it loose, he then moves the handle 10, head 12, and arms 13 to the position seen in Fig. 1 whereupon he can rapidly spin the screw 60 out of the work 61.

It is important to note that due to the large force developed by the lever condition as illustrated by Fig. 7 that the support between the drum 15 and arms 13 and 14 must be solid and this is effected by the balls 41 allowing a slight movement of the drum off its rotational axis to contact the inside faces 20 and 21 of the arms 14 and 13 so that the shear forces developed are sustained by the drum ends 22 and 23 against the faces 20 and 21 thereby relieving the balls and screws of any distorting forces and preserving the ready rotatability of the drum relative to the arms 13 and 14. It is also obvious that the screws 42 and balls 41 make the drums readily interchangeable with each other.

Although but a single embodiment of the invention has been shown and described in detail, it is obvious that many changes may be made in the size, shape, detail and arrangements of the elements of the invention within the scope of the appended claim.

I claim:

A multiple bit tool quickly inter-changeable between a high-torque slow-rotation lever-position and a low-torque fast-rotation spinning-position relative to any selected tool bit comprising a handle, a shank in said handle, a head on said shank, paired spaced arms extending from said head and having opposed faces and aligned transverse apertures; said handle, shank, head, and arms being axially aligned; a drum disposed between

said arms for rotational movement relative thereto, ends on said drum having center hole sockets aligned with said apertures, balls in said sockets, screws threaded in said apertures, ends on said screws having ball sockets contacting said balls; said drum and arms being rotationally inter-connected on said balls; said drum having a substantially round periphery; and tool bits extending radially from said drum periphery; said drum being rotatable relative to said arms for positioning a selected tool bit as desired; said handle, shank, head, and arms being rotatable relative to said selected tool bit between a spinning position axially aligned with said selected bit and a lever position transverse to said selected bit; said drum being slightly tiltable via said balls to contact said drum

ends against said arm faces to transfer torque therebetween relieving said balls of torque stresses and providing high-torque transfer abutment between said arms and drum; and means to hold said drum in each of the selected positions.

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