

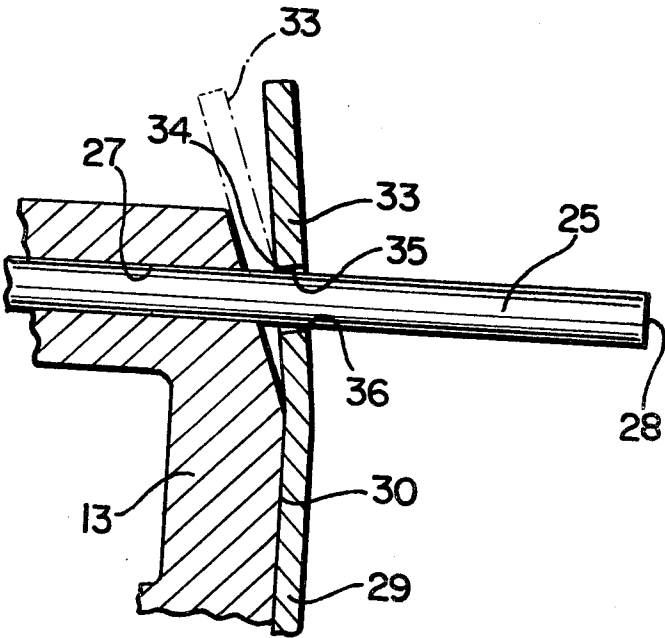
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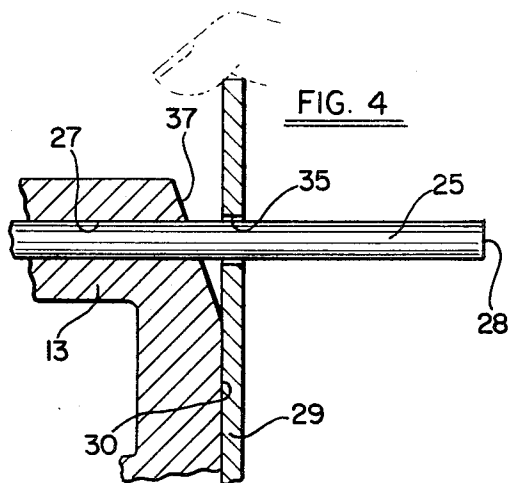
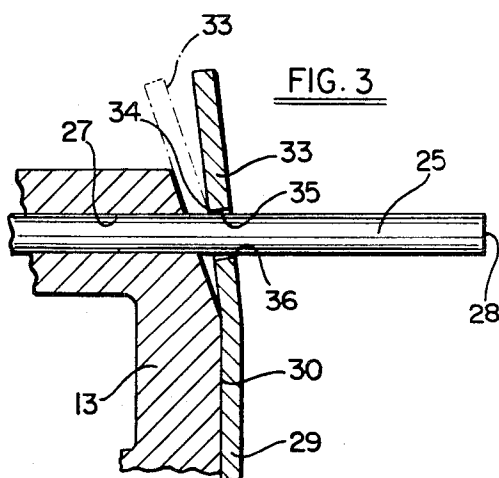
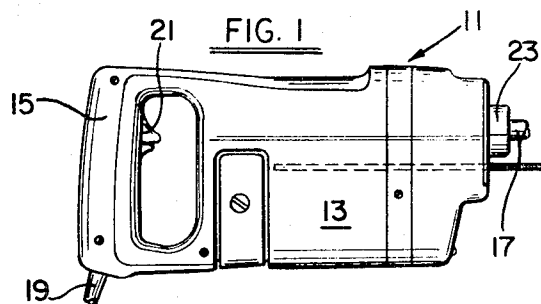
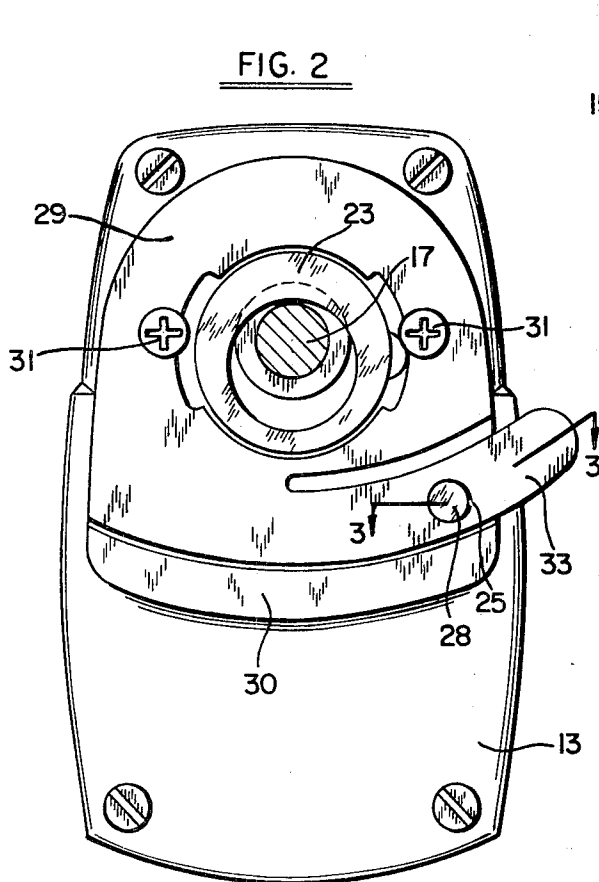
[54] **DEPTH GAUGE FOR TOOL**
6 Claims, 4 Drawing Figs.

[52] U.S. Cl..... 173/46,
33/185, 145/129, 173/21, 408/241
[51] Int. Cl..... B25d 17/00
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175/40; 33/181, 185; 408/113, 202, 241; 145/129

[56] **References Cited**
UNITED STATES PATENTS
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ABSTRACT: A portable power tool including a housing adapted to have an electric motor supported therein. A handle is provided at one end of the housing and has a trigger disposed thereon. A tool bit extends outwardly from the other end of the housing and is rotated and impacted against by means within the housing driven by the motor. A depth rod extends from the housing parallel to the tool bit and engages the work surface when the tool bit has penetrated the work surface to the desired depth. Novel means is provided on the housing to adjustably secure the depth rod thereto.





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DEPTH GAUGE FOR TOOL

SUMMARY OF THE INVENTION

The present invention is directed to a adjustable depth rod retainer construction for a portable power tool. The construction includes a deflectable plate mounted on the tool housing. The plate has an opening slidably receiving a depth rod and which, when the plate is in a normal position, grips the rod to hold it in a selected longitudinal position relative to the housing. The plate is manually deflectable away from this normal position to allow free adjustment of the depth rod. Thereafter, when relaxed, the plate regrips the rod and holds it in its newly adjusted position.

Main objects, therefore, of the present invention are to provide an improved depth rod retainer construction for a portable power tool, which construction is adapted to selectively grip and hold a depth rod in incremental longitudinally adjusted positions relative to the tool housing and which is readily and manually releasable from the depth rod to facilitate manual adjustment thereof.

Further important objects of the present invention are to provide an improved depth rod retainer construction of the above character which is relatively inexpensive to manufacture, rugged in construction, and reliable in use.

Other objects and advantages of the present invention will become more apparent from a consideration of a detailed description to follow taken in conjunction with the drawings annexed hereto.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view illustrating a rotary hammer embodying the present invention;

FIG. 2 is an enlarged end view of the construction of FIG. 1;

FIG. 3 is a sectional view of the construction of FIG. 2 taken along the line 3—3 thereof and showing the depth rod retainer in its normal position gripping the depth rod; and

FIG. 4 is a view similar to FIG. 3 and showing the retainer in a position released from the depth rod.

BROAD STATEMENT OF THE INVENTION

Broadly described, the present invention relates to a portable power tool of the type which includes a housing, a tool bit supported upon said housing and extending forwardly thereof, a motor in said housing adapted to drive said tool bit, a depth rod on said housing for indicating the depth to which said tool bit has penetrated a work surface, said depth rod including an elongated rod slidably disposed on said housing for adjustable movement in a direction generally parallel to the axis of said tool bit, means releasably retaining said rod in selected adjustable positions; the improvement wherein said retaining means includes a deflectable plate secured to said housing and having opening means through which said rod slidably extends, said plate being normally disposed to grip and hold said rod against movement longitudinally thereof relative to said housing, said plate being manually deflectable whereby to release said plate from said rod, whereby said rod is manually adjustable upon said housing.

In another aspect the present invention relates to a depth rod retainer for a portable tool, said tool including a power-driven elongated bit adapted to penetrate a work surface, said depth rod including an elongated rod slidably disposed on a tool housing adjacent to and parallel to said tool bit, a plate mounted on said housing and adapted to releasably grip said rod in incrementally adjusted positions relative to said housing, said plate being movable relative to said housing substantially about an axis coplanar with said plate and perpendicular to the axis of said rod from a first position where said plate grips said rod to a second position where said rod is released for longitudinal adjustment upon said housing, said plate being resiliently biased towards said first position and manually movable to said second position.

DETAILED DESCRIPTION

Referring now more specifically to the drawings, a portable tool in which the present invention finds use, is illustrated generally at 11 in FIG. 1 and is seen to include a housing 13 having a handle 15 at one end and an elongated tool bit 17 supported at its other end. An electric motor (not shown) is disposed within the housing 13 and is powered from an electrical source connected thereto through a line cord 19 and is controlled by a trigger 21 mounted on the handle 15. A transmission (not shown) also enclosed in the housing 13 interconnects the motor (not shown) with the tool bit 17 to transmit rotation and longitudinal impact blows to the tool bit 17. A tool bit retainer 23 is provided on the front of the housing 13 and surrounds the tool bit 17 to prevent the latter from coming out of the housing 13 during operation of the tool.

It is desirable in tools of this type to provide a depth gage to indicate or inform the operator when the tool bit has penetrated the work surface to the desired extent. Importantly, these depth gages should be readily adjustable to gage different depths, and the retainer should readily resecure the depth gage in a variety of adjusted positions preferably without the need for special tools. Furthermore, the depth gage and its holder should be compact, inexpensive, sturdy and reliable.

In accordance with the present invention, a depth gage is provided which includes an elongated, generally cylindrical rod 25 slidably disposed in an elongated opening 27 in the housing 13. The rod 25 is disposed laterally of and below the tool bit 17 and is generally parallel thereto. The rod 25 has an outer end 28 adapted to engage the surface of the work when the tool bit 17 has penetrated the work surface to the desired extent. Thus, by adjusting the longitudinal position of the rod 25 relative to the housing 13, various depths of penetration of the work surface can be gaged.

A retainer plate 29 for the rod 25 is secured to the front of the housing 13 by screws 31. The plate 29, which is constructed from a spring steel, is generally flat and bears solidly against a flat surface 30 on the housing 13. The plate 29 has a finger portion 33 which is integral therewith and overlays a flat surface 37 on the housing 13 tapering rearwardly from the surface 30. The finger portion 33 is preformed to conform and lay substantially against the surface 37 as shown by dot-dash lines in FIG. 3; however, the finger portion 33 extends laterally beyond the housing 13 so that it may be grasped by the operator and deflected away from the surface 37.

As shown in FIGS. 3 and 4, the finger portion 33 has an aperture 35 through which the rod 25 extends. This aperture 35 is adapted to generally align with the opening 27 when the finger portion 33 is in the position shown in FIG. 4, but is misaligned with the opening 27 when the finger portion 33 is in the position shown in FIG. 3. Thus, in the FIG. 3 position edges 34, 36 of aperture 35 grip the rod 25 and prevent it from moving in either longitudinal direction relative to the housing 13. However, when the finger portion 33 is manually moved from the position shown in FIG. 3 to the position shown in FIG. 4, as by finger pressure to bend the portion 33 about an axis substantially coplanar with the portion 33 and perpendicular to the axis of the rod 25, the axis of the aperture 35 is aligned with the axis of the opening 27 and rod 25 whereupon the rod 25 is freely manually adjustable relative to the housing 13. Thereafter, when finger portion 33 is released it returns to the FIG. 3 position and regrips the rod 25.

It will be appreciated that the rod 25 may be quickly and easily adjusted without the need for any special tools so as to indicate virtually any desired depth of penetration of the work surface by the tool bit 17. Furthermore, the depth rod and the holder of the present invention is extremely simple, compact, and inexpensive.

By the foregoing there has been disclosed an improved adjustable depth rod retainer construction calculated to fulfill the inventive objects hereinabove set forth, and while it

preferred form of the present invention has been illustrated and described above in detail, various additions, substitutions, modifications, and omissions may be made thereto without departing from the spirit of the invention.

I claim:

1. In a portable power tool of the type which includes a housing, a tool bit supported upon said housing and extending forwardly thereof, a motor in said housing adapted to drive said tool bit, a depth rod on said housing for indicating the depth to which said tool bit has penetrated a work surface, said depth rod including an elongated rod slidably disposed on said housing for adjustable movement in a direction generally parallel to the axis of said tool bit, means releasably retaining said rod in selected adjustable positions; the improvement wherein said retaining means includes a deflectable plate secured to said housing and having opening means through which said rod slidably extends, said plate being normally disposed to grip and hold said rod against movement longitudinally thereof relative to said housing, said plate being manually deflectable whereby to release said plate from said rod, whereby said rod is manually adjustable upon said housing.

2. The improvement as defined in claim 1 wherein said rod is slidably supported in an opening means in said plate including an opening which is misaligned with said housing opening when said plate is normally disposed but which is aligned with

said housing opening when said plate is deflected relative to said housing.

3. The improvement as defined in claim 2 wherein said plate is constructed of spring steel.

4. A depth rod retainer for a portable tool, said tool including a power-driven elongated bit adapted to penetrate a work surface, said depth rod including an elongated rod slidably disposed on a tool housing adjacent to and parallel to said tool bit, a plate mounted on said housing and adapted to releasably grip said rod in incrementally adjusted positions relative to said housing, said plate being movable relative to said housing substantially about an axis coplanar with said plate and perpendicular to the axis of said rod from a first position where said plate grips said rod to a second position where said rod is released for longitudinal adjustment upon said housing, said plate being resiliently biased towards said first position and manually movable to said second position.

5. A retainer as defined in claim 4 wherein said plate is constructed from spring steel and is normally biased toward said first position.

6. A retainer as defined in claim 5 wherein said spring steel plate is apertured to slidably receive said depth rod, said aperture being misaligned with the axis of said rod when said plate is in said first position and aligned therewith when in said second position.

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