A hand tool, such as a screwdriver, of the replaceable bit type, in which bits can be stored in longitudinal grooves on the outside of the handle. Spring means are provided to resiliently hold each bit in its groove.

5 Claims, 4 Drawing Figures
SCREW DRIVER HOLDER

BACKGROUND OF THE INVENTION

This invention relates to an improved tool handle of the replaceable bit type, and more particularly to a tool handle which includes storage means in its outer surface in which the bits may be detachably mounted.

Many tools of the detachable bit variety, for instance the type disclosed in U.S. Pat. No. 1,555,109, granted on Sept. 29, 1925 to A. Eliason, have a plurality of bits which may be stored in a hollow handle. When it is necessary to use a tool stored in the handle, a cap or plug in the end of the handle is removed, and the operator withdraws all the bit elements and selects the desired one. This arrangement is time consuming and inconvenient and is not suitable for an operator who wishes to change bits frequently and as rapidly as possible.

U.S. Pat. No. 2,337,514 granted on Dec. 21, 1943 to G.R. Wilcox discloses a further tool of this type in which the bits are each mounted in separate chambers within the handle. A rotatable member provides a means for aligning one of several holes in the cap of the handle with the chamber containing the desired bit, whereby the bit may be removed. This type of tool also does not facilitate rapid selection and extraction of the required bit, primarily because it is difficult for the operator to tell at a glance which bit is the one required for a particular job.

Other more elaborate tools, such as the type disclosed in U.S. Pat. No. 1,579,498, granted on Apr. 6, 1926 to A.G. Anderson, incorporate a plunger in the handle for ejecting a selected tool element into the operative position. However, this type, like the tool disclosed in U.S. Pat. No. 2,337,514, also has the disadvantage that it is difficult for the operator to determine which of the enclosed bits is the one he requires and further is too elaborate to be economically made. In order to facilitate selection, the tools of the enclosed bit type have incorporated transparent handles, or have various character markings on the outside of the handle, each marking corresponding to a certain bit. The operator must therefore either learn which symbol represents a given bit, or, in tools of the transparent handle type, he must rely on vision through the handle which is unsatisfactory in that the handle partially distorts vision, and almost certainly the handle will soon become dirty and scratched in the workshop environment making bit selection difficult.

In U.S. Pat. No. 637,735, granted on Nov. 21, 1899 to W.H.C. Harrison, a tool is disclosed which includes a means for externally mounting various bits between a chuck and a handle. These bits are pivoted below the chuck and may be rotated on a hinge from the storage position into a socket in the chuck. This however constitutes a rather cumbersome tool structure which would be relatively costly to manufacture and would be difficult to use.

SUMMARY OF THE INVENTION

It is, accordingly, an object of the present invention to provide an improved tool handle incorporating means for mounting several easily removable bits around the exterior of the handle which facilitates rapid selection of a required bit.

It is a further object of the invention to provide a tool handle which is relatively cheap to manufacture, and in which the tools are mounted so as not to interfere with the action of the tool.

According to this invention there is provided a tool handle incorporating means for detachably attaching bits in storage positions on the outer surface of the handle.

In a preferred embodiment there is provided a screwdriver handle, a chuck for securing a bit in an operative position at one end of the handle, a series of axial grooves in the outside of the handle for accommodating a number of different bits, and resilient means for holding the bits in the grooves. The resilient means may be a spring at one end of each groove which may act to urge a bit into a recess at an opposite end of the groove.

SUMMARY OF THE DRAWINGS

FIG. 1 is a side elevation of a preferred embodiment of the tool handle.

FIG. 2 is a vertical section through FIG. 1 on the lines 2—2.

FIG. 3 is a vertical section taken on the line 3—3 of FIG. 2, viewed in the direction of the arrows.

FIG. 4 is a vertical section taken on the line 4—4 of FIG. 2, viewed in the direction of the arrows.

DETAILED DESCRIPTION WITH REFERENCE TO THE DRAWINGS

In the preferred embodiment of the present invention shown in the drawings there is a cap 1 rigidly secured by means of a screw 2 to one end of the body 3 of the tool handle. The opposite end of the body 3 from cap 1 bears a chuck 4, of which a shank 5 extends into the body 3 at least as far as shoulder 8 and is firmly held therein. The present invention relates to the handle portion of the tool and not to the chuck per se which may be of conventional design.

A cross section of the body 3 looking toward the cap 1 is shown in FIG. 3, and from the figure it can be seen that the body 3 is provided with a number of grooves 7 extending axially from shoulder 8 to the cap 1. The number of grooves 7 will be determined by the thickness of the bits, bearing in mind the requirement for space for the easy removal of the bits by the user in a manner described below. In a position remote from cap 1, there is an annular recess 9 which is defined between shoulder 8 and the skirt shaped portion 11 of the body 3. An annular channel 19 is provided in portion 11, this channel 19 facing the ends of the grooves 7.

Each longitudinally extending recess 7 is aligned with a bore 12 in the cap 1. Each bore 12 contains a spring 13 bearing a spring cap member 14. Each spring cap member 14 has a greater width than its adjacent groove 7 and is urged by the spring 13 up against the shoulder 24 formed by the junction of groove 7 and bore 12. To ensure alignment of the bores 12 with the grooves 7 means may be provided to prevent relative rotation of the cap 1 and body 3.

The above described spring, recess and skirt arrangement of the tool handle provides a means for the detachable mounting of a bit element 15 in the outer surface of the tool handle. An end of each bit 15 is in-
serted in a groove 7 and is manually urged against the spring cap member 14. The spring 13 may thus be depressed sufficiently to permit insertion of the bit into the groove 7, the locating of end 16 (see FIG. 2) of bit 15 in bore 12 and the locating of the opposite end 18 of the bit 15 opposite annular channel 19. Release of the bit 15 results in its being urged by spring 13 into channel 19. The bit is thereby firmly held within its groove 7.

When the operator wishes to remove a bit, he is able to tell at a glance which bit is required, since the working end 18 of the bit is clearly visible. To remove a bit, the portion of the bit in peripheral recess 9 is grasped between finger and thumb and urged against the bias of spring 13. When the spring has been sufficiently depressed that the end 18 of bit 15 is free of lip 10, the bit may be removed from the tool handle and then inserted in chuck 4 for use in driving a screw.

In the preferred embodiment of the invention, each groove has an increased width, at 22, relative to the remainder of the recess 7. This provides for the mounting of bits of known type bearing projections or lugs 23, these lugs being shaped so as to key into the chuck 4.

It will be obvious than an effect of providing the grooves 7 on the outside of the handle is to provide a good grip for the user, the grooves 7 being similar in this effect to the grooves on the handle of a conventional screwdriver.

From the above description it can be seen that the present invention provides a very simple, inexpensive and efficient tool handle, which enables different bits to be carried in the outer surface of the handle without interfering with the action of the tool. The arrangement permits the tool operator to easily select and remove whichever bit is required for a particular purpose. While the invention may obviously be most suitable for use as a screwdriver, it will be realized that it can be put to other uses. For example, a saw blade, or a drill bit of bradawl type, or a gimlet, could be used with a tool handle of the type described.

What I claim as my invention is:

1. A tool comprising a handle, means integral with the handle for removably securing a bit to the handle in an operative position, means including a plurality of axially extending grooves arranged around the handle for storing a plurality of bits which are not in use, resilient means for retaining bits in said grooves, and means for preventing removal of bits from the grooves excepting sideways with respect to the handle, whereby bits may be easily removed manually from storage positions but are restrained from accidental removal therefrom, and whereby said bits when in storage position are readily visible from outside the handle.

2. The tool defined in claim 1 wherein the resilient means are provided at one end of each groove and a detent is provided at an opposite end of each groove, whereby a bit may be urged by the resilient means into the detent to retain the bit in its groove.

3. The tool defined in claim 2 wherein an annular recess extends around the handle to facilitate removal of a bit from its respective groove.

4. The tool defined in claim 3 wherein one side of the recess is undercut to define a skirt, axially spaced from the resilient means, the detent being defined by the skirt.

5. The tool defined in claim 3 wherein the resilient means comprise a spring having a spring cap member housed in an axial bore in a cap mounted on an end of the handle, each bore being aligned with a respective groove, each cap and each bore being wider than a groove so that the springs and caps are prevented from moving from their bores into the grooves.