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A. FISCHER

3,208,542

DOWEL BIT

Filed May 9, 1960

FIG. 1

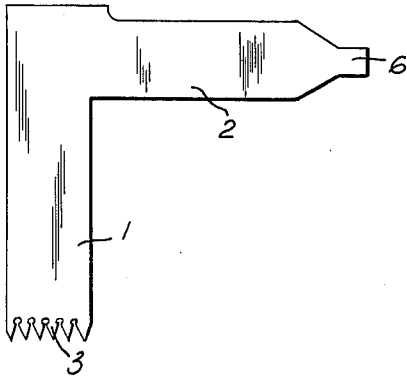


FIG. 4

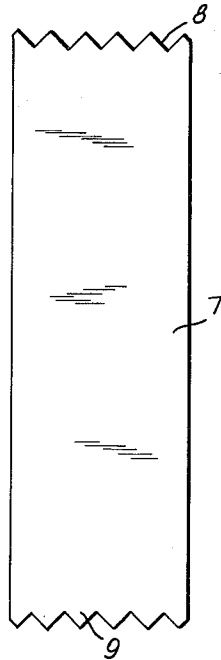


FIG. 5

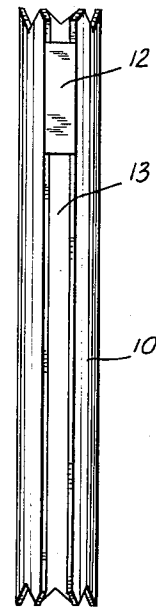


FIG. 2

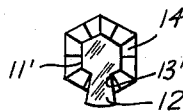
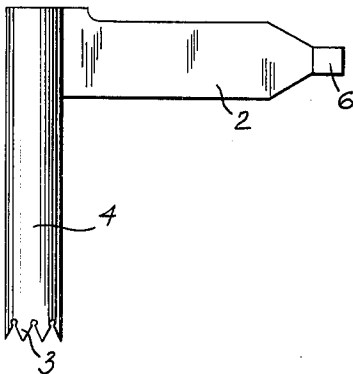


FIG. 7

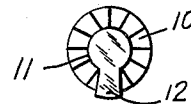
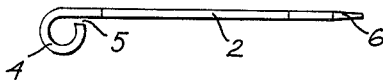


FIG. 6

FIG. 3



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3,208,542

DOWEL BIT

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2 Claims. (Cl. 175-403)

The present invention relates to improvements in dowel bits of the type utilized for drilling bores in plaster, brick, concrete and like materials, and to a method of manufacturing such bits.

An important object of the present invention is to provide a one-piece dowel bit which may be manufactured and assembled in a very simple, time-saving and inexpensive manner.

Another important object of the invention is to provide a dowel bit which may be utilized as a means for forming dowel holes while held by an operator's hand or in a drilling or boring machine, and wherein the bore-forming portion and the holder portion constitute an integral unit.

A further object of the present invention is to provide a dowel bit which may be utilized to perform an additional function, for example, that of a screwdriver or the like.

An additional object of the invention is to provide a dowel bit of the above outlined characteristics which is constructed in such a way that the material removed from a wall or the like in which a dowel hole is to be formed is discharged in a fully automatic way when the tool is put to use.

A concomitant object of the instant invention is to provide a dowel bit of the above outlined type which is constructed and assembled in such a way that it cannot become damaged if inserted into the chuck of a drilling machine or the like, and which may be formed with more than one cutting edge so as to require less frequent sharpening.

Still another object of the invention is to provide a dowel bit which is constructed and assembled in such a way that it may permit automatic discharge of removed material at two or more points.

With the above objects in view, the invention resides in the provision of a dowel bit which comprises essentially a first portion which is formed with at least one cutting end and which is of tubular shape, and an integral second portion which may constitute a coaxial extension of the first portion or an extension which projects substantially at right angles from and acts as a holder for the first portion. The first portion is preferably formed with a serrated cutting end and is slotted to permit automatic discharge of material removed from a wall or the like when the dowel bit is in actual use. When the two portions are coaxial with each other, the second portion is also formed with a cutting end and the slot extends all the way between the two cutting ends so that the bit may be used from either end, for example, by inserting one portion and one cutting end into the chuck of a drilling or boring machine. In such instances, the hollow interior of the tubular body preferably receives a core member which is formed with a projection extending through the aforementioned slot, this core member preventing collapse or any other deformation of the portion received in the chuck and its projection at the same time preventing rotation of the tubular body with respect to the chuck. This is particularly important when the tubular body is of cylindrical cross sectional contour. On the other hand, it is often preferred to form the tubular body with a polygonal, e.g. square, hexagonal or like cross section in order to prevent its rotation in the chuck and also to provide additional passages for discharge of material from the dowel hole when the bit is put to use.

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The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, as to its construction, together with additional objects and advantages thereof, will be best understood from the following detailed description of three specific embodiments when read in connection with the accompanying drawings, in which:

FIG. 1 is a plan view of a blank before rolling into the shape of a dowel bit with a distinct holder portion extending at right angles from the portion which is provided with a cutting end;

FIG. 2 is a side elevational view of the bit formed from the blank shown in FIG. 1;

FIG. 3 is an end view of the bit;

FIG. 4 illustrates a blank prior to rolling into a tubular dowel bit with two cutting ends;

FIG. 5 is a side elevational view of the bit formed from the blank shown in FIG. 4;

FIG. 6 is an end view of the bit shown in FIG. 5; and

FIG. 7 is an end view of a slightly modified bit.

Referring now in greater detail to the illustrated embodiments, and first to FIG. 1, there is shown a metallic plate-like blank which is of L-shape and comprises a first portion 1 formed with a serrated cutting edge 3 and a second portion 2 which is formed with a screwdriver 6 at its end remote from the portion 1. The two portions are integral and, after rolling into the tubular shape 4 as shown in FIGS. 2 and 3, the cutting edge 3 of the portion 1 constitutes the cutting end of the dowel bit. During rolling, there is preferably formed an elongated slot 5 which permits discharge of material removed by the cutting end from a concrete, brick, plaster or other wall to which the bit is applied. When in use, the bit is held by the holder-shaped portion 2 and the rear end of the tubular portion 4 is struck by a hammer or the like while the portion 4 is rocked back and forth by the holder 2. After forming a dowel hole in the wall and after inserting a wooden dowel pin or the like, the screwdriver 6 may be utilized to drive home a screw into the dowel pin. The blank of FIG. 1 is preferably formed by stamping and may be furnished in many dimensions depending upon the desired diameter of the tubular body 4, i.e. upon the diameter of the holes to be formed with my improved dowel bit.

FIG. 4 illustrates a modified blank 7 which is of rectangular shape and whose longitudinal ends are formed with serrated cutting edges 8, 9. After rolling into the shape of a hollow cylindrical tube 10 which is shown in FIGS. 5 and 6, the cutting edges constitute the cutting ends of the dowel bit. In this embodiment, the lower portion of the tubular body 10 may constitute the actual dowel bit while the upper portion constitutes the holder, or vice versa. The tubular body 10 is formed with an elongated slot 13 which extends between the two cutting ends and slidably guides a projection 12 which forms part of a cylindrical core member 11, the latter being slidably received in and filling a portion of the space within the tubular body 10. This core member is preferably made of a hard synthetic plastic material and is slidable all the way between the two cutting ends 8, 9 of the tubular body 10. When the modified dowel bit of FIG. 5 is inserted into a drilling or boring machine, its upper or its lower portion is received in the customary chuck, not shown, together with the core member 11 so that the chuck cannot cause a collapse or other deformation of the hollow tubular body 10. The projection 12 extends through the slot 13 and prevents a rotation of the tubular body 10 with respect to the boring machine by engaging with the chuck.

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FIG. 7 shows a slight modification of the dowel bit whose tubular body 14 is of polygonal cross-sectional contour. The configuration of the core member 11' is changed accordingly so as to completely fill the interior of the tubular body 14. In the embodiment of FIG. 7, the tubular body 14 is of hexagonal cross section; however, it will be readily understood that this tubular body may be of pentagonal, square, octagonal or any other polygonal cross-sectional shape. An important advantage of a dowel bit constructed as shown in FIG. 7 is that it permits discharge of comminuted material at more than one point, i.e. through the slot 13' for the projection 12 of the core member 11', as well as between the wall of the circular bore drilled in a wall and the outer facets of the tubular body 14.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic and specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A dowel bit for drilling bores in plaster, brick, concrete and like materials, consisting of a single piece of sheet metal comprising a first elongated portion formed with a cutting end and bent into a substantially cylindrical shape so as to serve as a dowel bit, and a free flat second elongated portion integral with said first cylindrical portion and extending transversely thereto spaced from said cutting end so as to serve as a handle for said dowel bit, said free flat second portion having a width substantially less than the length of said first cylindrical portion and substantially less than its own length in the direction transverse to said first portion.

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2. A dowel bit consisting of an L-shaped piece of sheet metal, said L-shaped piece having a first leg formed with a cutting edge at the free end thereof and bent into the shape of a cylinder so as to serve as a dowel bit, and a second leg having a free flat elongated portion having a length substantially greater than the width thereof and adapted to serve as a handle for said dowel bit.

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