PATENT SPECIFICATION

Application Date: July 3, 1930. No. 20,165/30. **353,659**

Complete Left: April 7, 1931.

Complete Accepted: July 30, 1931.

PROVISIONAL SPECIFICATION.

Improvements in Taper Shank Drills and Cutters, and Wrenches therefor.

We, WILLIAM TAYLOR, a British Subject, and KAPELLA LIMITED, a British Company, both of 104, Stoughton Street, Leicester, do hereby declare the nature of this invention to be as follows:—

This invention relates to cutters of the kind employed in drilling, milling, engraving and the like, and having a taper shank by which they are held and centered in the spindle of the machine; and its principal object is to provide improved means for holding them so that they can be rotated under endwise pressure to wring them into the machine spindle or to remove them therefrom. Cutters of this kind are sometimes provided with a pair of opposed flats adapted to engage an ordinary wrench or spanner.

According to the present invention, we provide each cutter with a lateral transverse notch in a position where it is clear of the mouth of the spindle, and we provide a wrench having opposed jaws of section corresponding to that of the notch and adapted to engage, one of them in said notch, and the other against the side of the cutter opposite thereto. Preferably, the jaws of the wrench are somewhat splayed out so as to facilitate placing the wrench on the cutter, and to ensure its fitting cutters in spite of variations of their diameter, and the jaws are symmetrical in section so that the wrench can be used either side up indifferently.

The notch is preferably symmetrical in the same sense, and may be of any section adapted to prevent the wrench sliding along the cutter, but we prefer a V section which may have a rounded root, and we prefer to form the wrench jaws so that they bear upon the sides of the V but not on the root.

In order to guide the wrench into the notch, we may place the notch on the cutter with its centre distant from the end of the cutter spindle by slightly more than half the thickness of the wrench.

In the case of cutters of half-round section, such as are commonly used for engraving, we prefer to place the notch on the side of the cutter formed with the flat, and in line therewith.

Dated the 2nd day of July, 1930.

WILLIAM TAYLOR,
KAPELLA LIMITED,
The common seal of Kapella Limited was hereunto affixed in the presence of:—
WM. TAYLOR,
G. STAFFORD,
Directors,
G. STAFFORD,
Secretary.

COMPLETE SPECIFICATION.

Improvements in Taper Shank Drills and Cutters, and Wrenches therefor.

We, WILLIAM TAYLOR, a British Subject, and KAPELLA LIMITED, a British Company, both of 104, Stoughton Street, Leicester, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to cutters of the kind employed in drilling, milling, engraving and the like, and having taper shanks by which they are held and centered in the spindle of the machine; and its principal object is to provide improved means for holding them so that they can be rotated under endwise pressure to wring them into the machine spindle or to remove them therefrom. Cutters of this kind are sometimes provided with a pair of opposed flats adapted to engage an ordinary wrench or spanner.

According to the present invention, we provide each cutter with one lateral transverse notch in a position where it is clear

of the mouth of the spindle, and we provide a wrench having opposed jaws of section corresponding to that of the notch and adapted to engage, one of them in said notch, and the other against the side of the cutter opposite thereto. Preferably, the jaws of the wrench are somewhat splayed out so as to facilitate placing the wrench on the cutter, and to ensure its fitting cutters in spite of variations of their diameter, and the jaws are symmetrical in section so that the wrench can be used either side up indifferently.

We illustrate the invention with reference to the accompanying drawings, which shown in Fig. 1 a side elevation of a cutter according to the invention, seated in a spindle having a pulley attached thereto. In Fig. 2 the same in part section, but with the cutter shown in front elevation; in Fig. 3, an enlarged side elevation of the middle portion of a cutter and its lateral notch; in Fig. 4 a plan view of the operative end of a wrench according to the invention; and in Fig. 5, an end elevation of such wrench.

The cutter has a taper shank B by which it is held and centered in the spindle C. The operative end A of the cutter is of D section, and between the shank and the operative end is a short body portion D having at one side a transverse notch E, the opposite side L being plain and, for example, cylindrical.

The notch E may be of any convenient section, but we prefer a 90 degree V section with a rounded root. In the case of cutters of half-round section, such as are commonly used for engraving, we prefer to place the notch on the side of the cutter formed with the flat. The depth of the notch is best about one-fourth of the diameter of the body D, and the axis of symmetry of the notch is preferably normal to the opposite side of the body, so that a symmetrical wrench applied in any of the four possible ways may fit equally in all. A cutter body, notched in this way, we term symmetrical.

The wrench F is provided with a pair of opposed jaws G, H, one, but preferably both, of which are bevelled at their edges to fit the sides of the notch E, but the central portions I, J, of the jaws are preferably straight and parallel in section, so that either will make line contact with the portion L of a symmetrical cutter body, and they are sufficiently wide to bridge completely the rounded root of the notch E. The angle at which the jaws of the wrench are splayed out is best about eight degrees.

In order to guide the wrench into the notch, we place the notch, on the cutter, with its centre distant from the end of the cutter spindle by slightly more than half, but less than the total, thickness of the wrench.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A cutter of the kind referred to, having a body notched at one side and plain at the opposite side, said notch and opposite side being adapted for engagement by the jaws of a wrench for the purpose described.

2. A cutter as claimed in claim 1, in which the notch is of V section.

3. A cutter as claimed in claim 2, in which the axis of symmetry of the V is normal to the opposite side of the cutter.

4. In combination with a cutter as claimed in Claim 2 or Claim 3, a spanner wrench having a pair of opposed jaws, one of which is bevelled in section for engagement with the notch, and the other adapted to engage the side of the cutter opposite the notch.

5. In combination with a cutter as claimed in Claim 3, a spanner wrench having a pair of opposed jaws with operative edges of truncated V section adapted to engage alike in any of the four possible ways the sides of the notch and the side of the cutter opposite the notch.

6. A wrench as claimed in Claim 4 or Claim 5, having jaws splayed out substantially as and for the purpose described.

Dated the 1st day of April, 1931.

WILLIAM TAYLOR,
KAPELLA LIMITED,
The common seal of Kapella Limited was hereunto affixed in the presence of:— ,
J. RONALD TAYLOR,
WM. TAYLOR,
Directors,
G. STAFFORD,
Secretary.

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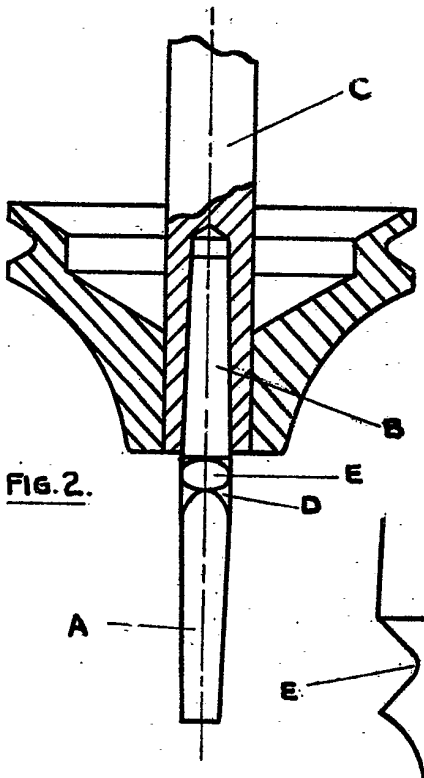

FIG. 2.

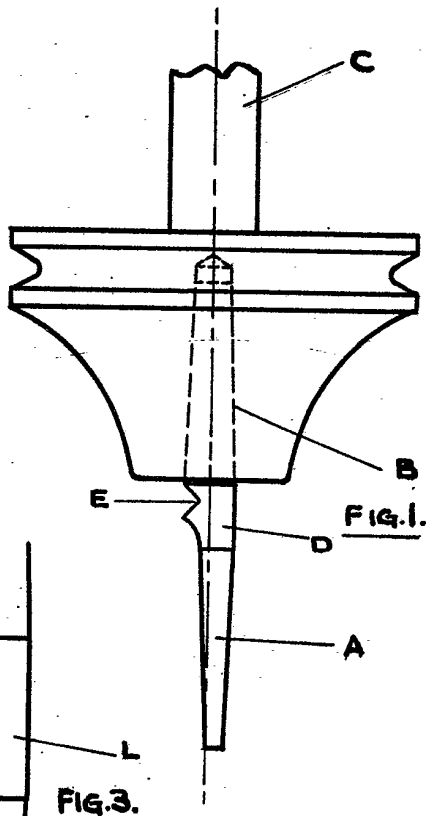

FIG. 1.

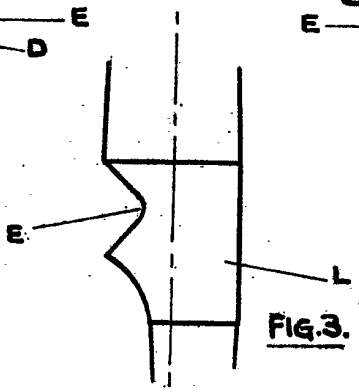

FIG. 3.

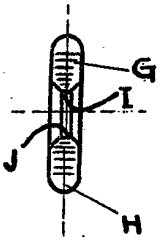

FIG 5

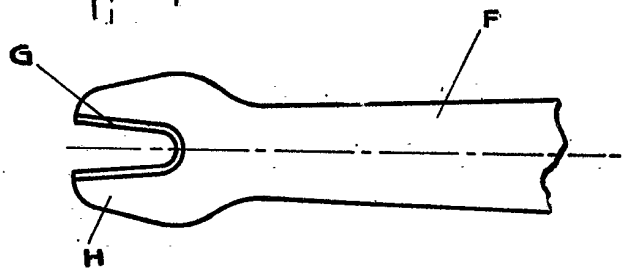

FIG. 4.

Charles & Read Ltd. Photo Litho.