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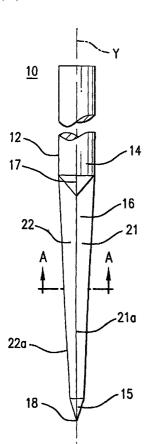
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(54) Title: ENDODONTIC INSTRUMENT



(57) Abstract: An endodontic instrument for use in performing root canal therapy on a tooth having at least one straight flute which prevents self-threading or screwing of the instrument into a root canal during use. The instrument includes a shaft having a longitudinal central axis, a shank portion and an elongated working portion extending from the shank portion along the central axis, the elongated working portion having a proximal end, a distal end, and at least one peripheral surface and at least one straight flute formed on at least a portion of the peripheral surface of the working portion, the straight flute forming at least one cutting edge on the peripheral surface. The straight flute may be formed of a plurality of flute sections disposed on the peripheral surface of the instrument, the plurality of flute sections angularly displaced about the central axis with respect to one another. A method of manufacturing an endodontic instrument is also disclosed.

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Category *	· · · · · · · · · · · · · · · · · · ·			Relevant to claim No.
X	US 5,857,852A (GARMAN) 12 January 1999 (12.01.1999), see entire document.			1,2,4,5,8,13,15
X	US 4,284,406A (HUGHES) 18 August 1981 (18.08.1081), see entire document.			1,13,14,16-19
X	US 4,345,899A (VLOCK) 24 August 1982 (24.08.1982), see entire document.			1,3-5,8-12,19-21
X	US 5,464,362A (HEATH et al.) 07 November 1995 (07.11.1995), see entire document.			24-26
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