

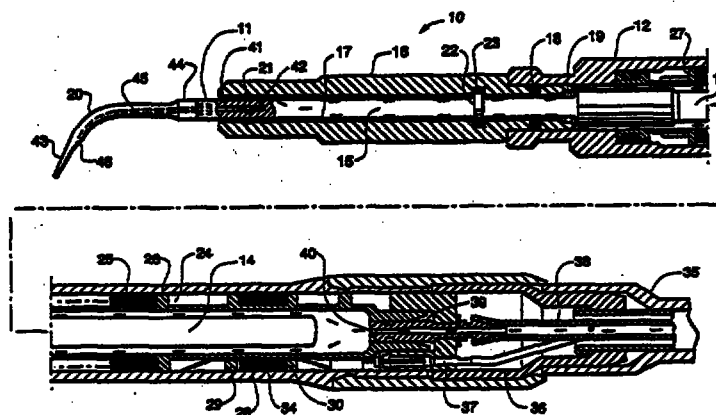
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(54) Title: TRANSDUCER ACTIVATED TOOL TIP



(57) Abstract

A transducer activated tool for contacting workpiece surfaces and directing fluid adjacent to said surfaces is disclosed. The tool may be ultrasonically activated by attachment to an insert (11) that includes a magnetostrictive element (14). The tip (20, 50, 60, 80, 90) includes distal surfaces (58, 63, 81, 95) shaped to contact the workpiece and additionally includes a fluid passageway (45, 53, 61, 91) internal to the tip (20, 50, 60, 80, 90) that is bored generally along the centerline of the tip (20, 50, 60, 80, 90) but is offset (54, 93) from the tip axis (56, 92) such that a discharge orifice (46, 52, 57) is formed in the tip (20, 20, 50, 60, 80, 90) displaced from the distal tip end (58, 63, 81, 95). The passageway (45, 53, 61, 91) is preferably angularly offset (54, 93) so that the discharge orifice (46, 62, 57) is formed in the distal end (58, 63, 81, 95) of the tip (20, 50, 60, 80, 90) about 2-8 mm from the distal end (58, 63, 81, 95) of the tip. The tip (20, 50, 60, 80, 90) when shaped to conform to dental or tooth surfaces is particularly useful as a dental tool. In another embodiment the fluid passageway (91) is eccentrically offset (93) from the tip axis (92) wherein the passageway (91) is substantially parallel to the center axis (92) but displaced therefrom preferably by about 0.1 to 0.5 mm. The tip end and fluid delivery passageway discharge orifice (46, 62, 57) are located relative to each other such that fluid is provided to the workpiece or tip without the formation of excessive spray and without weakening the distal tip such that it is sufficiently strong to provide useful service in resisting flexural stresses and the like.

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