Dec. 19, 1939. B. S. OSTROM 2,183,690

DENTAL INSTRUMENT

Filed Feb. 4, 1939

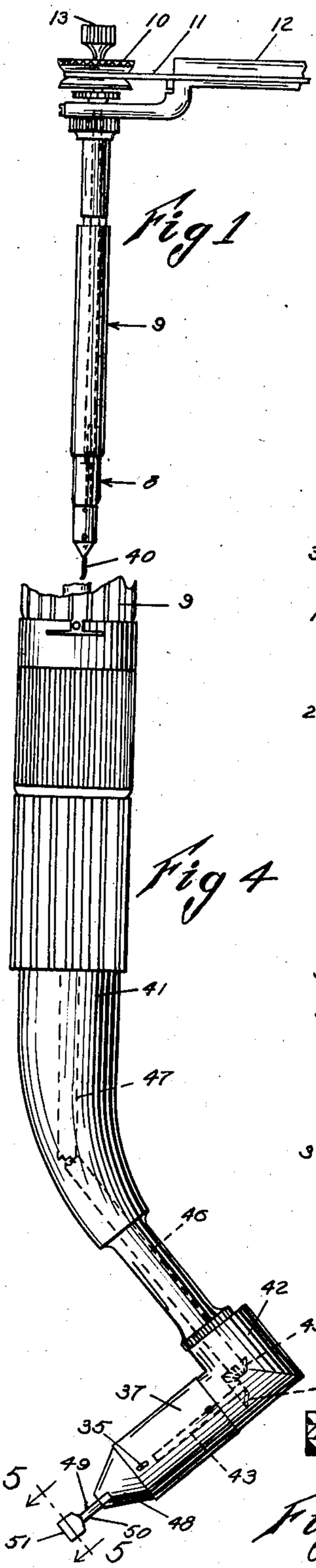

Fig 1

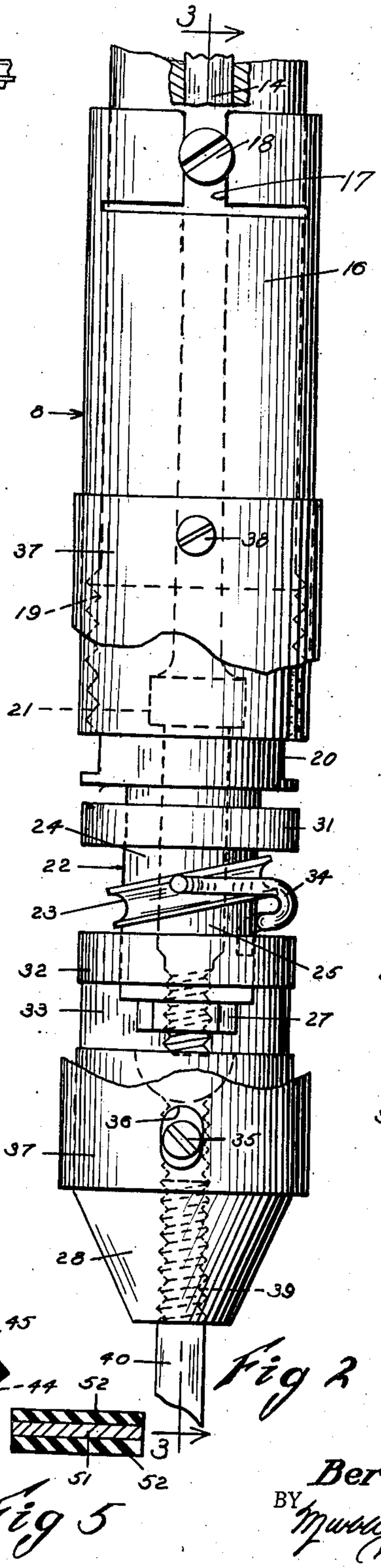

Fig 2

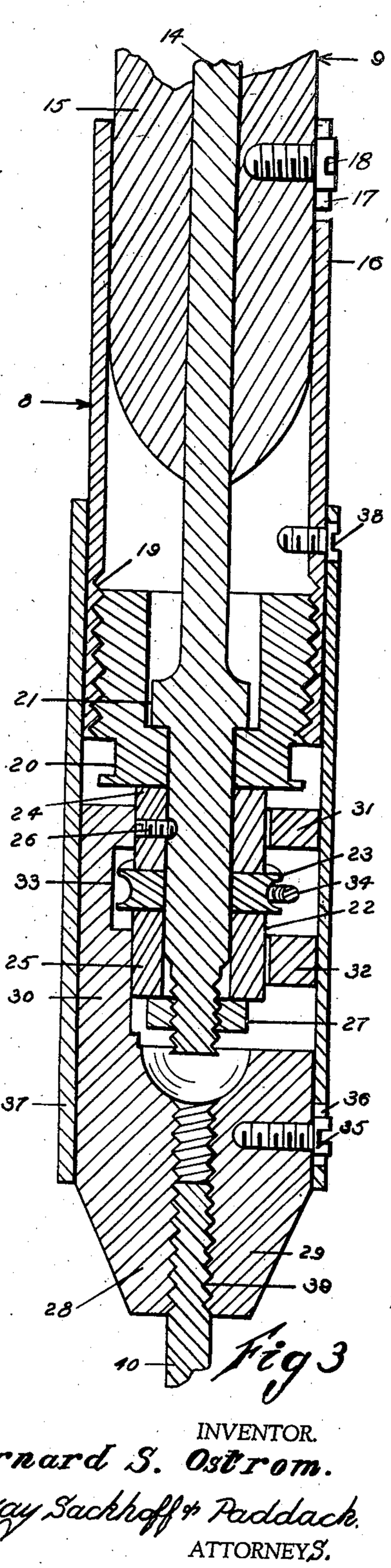

Fig 3

Fig 4

Fig 5

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DENTAL INSTRUMENT

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1 Claim. (Cl. 32—26)

The present invention relates to dental instruments and is particularly directed to appliances used in cleaning teeth, finishing the edges of a cavity in a tooth preparatory to filling it, tamping a filling material into a cavity or in numerous other dental operations where vertical reciprocation as distinguished from rotary movement may be advantageously utilized.

An object of the invention is to provide an instrument which is capable of translating the rotary driving movement conventionally employed in the burr-holder of a dental machine into a reciprocating movement, said movement being preferably longitudinal of the axis of rotation of the driving movement.

Another object of the invention is to provide a cushioned reciprocating movement to a dental tool actuating head so that a patient upon whom said tool is being used will not noticeably experience shock or concussion set up by the tool movement.

A further object of the invention is to provide a dental instrument which is economically constructed, compact, sturdy, and inherently capable of producing positive reciprocating movement.

A still further object of the invention is to provide a novel dental cleaning tool, particularly adapted for use with my instrument.

Other objects will be apparent from the following specification and drawing, in which:

Fig. 1 is an elevational view of a burr-holder with my dental instrument removably positioned thereon.

Fig. 2 is an enlarged elevational view of my dental instrument, a housing being broken away to show the moving parts thereof.

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 2, a means for removably fastening the instrument to the burr-holder being indicated.

Fig. 4 is an elevational view of my dental instrument incorporated in a burr-holder attachment having a right-angled bend formed therein.

Fig. 5 is a cross-sectional view taken on line 5—5 of Fig. 4.

The embodiment of the invention consists of my dental instrument 8 removably positioned to the tip of a burr-holder 9, said burr-holder having a grooved wheel 10 driven by a belt 11. The belt is actuated by means of a motor (not shown), the belt being guided by means of a universally movable and extensible carriage 12. My dental instrument is fastened to the burr-holder by means of a conventional device operated by thumb screw 13.

The rotary drive means for my instrument comprises a shaft 14 removably positioned to the tip 15 of the burr-holder 9 in the conventional manner. The instrument has a sleeve casing 16 which encircles the tip of the holder and is held from rotating thereon by means of a slot 17 formed in the sleeve which engages a lug on the holder which takes the form of a screw thread 18. The lower end of the sleeve is provided with interior threads 19 to receive exterior threads formed in a journal 20. The driven shaft 14 has a shoulder 21 formed thereon which forms a bearing surface for the shaft against the journal 20.

A cylinder cam generally indicated as 22 is mounted coaxially on the lower end of the shaft 14 and comprises a flat grooved disk 23 mounted centrally on and at an acute angle to the shaft. The means for fastening the disk to the shaft comprises two cylinders 24 and 25 which are provided with inclined transverse faces which abut the opposed faces of the disk, the upper cylinder being fastened to the shaft by means of set screw 26. The lower end of the shaft 14 is threaded to receive a nut 27 which rigidly clamps the disk and the lower cylinder 25 against the lower surface of the upper cylinder 24.

The tool head 28 is adapted to be reciprocated by the rotary driven means, the former comprising a lower exposed portion 29 and a substantially tubular carriage portion 30. The carriage has two ring members 31 and 32 which encircle the cylinder cam 22, said ring members being joined by a vertical portion 33, the lower end of the vertical portion being connected to the head 28. A cam follower which takes the form of a spring finger 34 is fastened to the upper surface of the ring member 32, means for preventing rotation of the reciprocating head comprising a lug 35 extending from the head and moving in an elongated, vertical slot 36 formed in the housing 37. The housing 37 encircles the sleeve casing 16 adjacent its upper edge and is rigidly fastened thereto by means of a screw 38. The lower central portion of the head is preferably provided with a threaded and vertically disposed aperture 39 to receive a threaded portion of a suitable dental tool 40. I also contemplate the use of my device in connection with a conventional burr-holder 41 which is provided with a right-angled bend 42 adjacent the end thereof. The shaft 43, corresponding to shaft 14 in the preferred form, is driven by means of a gear 44 meshed with gear 45, the latter being connected to the rotary drive means by shafts 46 and 47. The head 48 of this device is reciprocated in the same manner as the

hereinbefore described device. A tool 49 is threaded to the head and comprises a shaft 50 connected to a rectangular flat plate 51, the latter having a thin layer of cleaning material 52 applied to its two surfaces.

What is claimed is:

A dental instrument for removable attachment on a burr holder comprising a shaft driven by the holder, a cam positioned on the end of the shaft and comprising a flat disk mounted centrally on and at an acute angle to the shaft and having an annular groove formed in its periphery and disposed in a plane parallel to the opposed faces of said disk, cylinders mounted coaxially on the shaft and provided with adjacent and transversely inclined ends which abut the faces of the disk and means for fastening the cylinders to said shaft, a tool head adapted for reciprocation longitudinally of the shaft and comprising an exposed tool engaging portion and a carriage portion, two spaced ring members on the carriage portion which encircle the cam, a resilient cam follower mounted longitudinally on one ring member and having a horizontal spring finger disposed between the ring members and at its outer end engaging the grooved periphery of the disk, a tubular housing rigidly fastened at one end to the holder and having a longitudinal slot formed therein and a pin on the tool head extending into the slot.

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