Aug. 18, 1936. A. KALTENBACH ET AL 2,051,718

ANGLE PIECE FOR DENTAL PURPOSES

Filed Dec. 3, 1934

Fig. 1

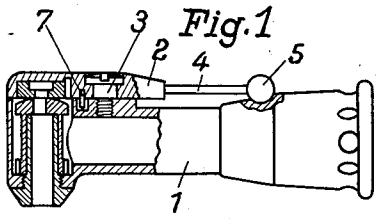


Fig. 1B

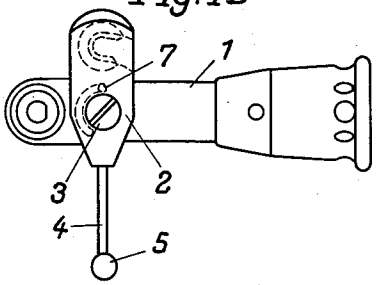


Fig. 1A

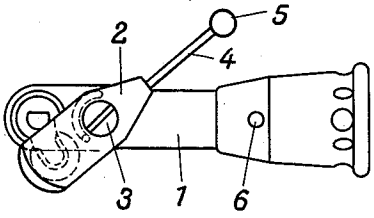


Fig. 1C

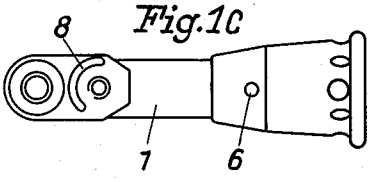


Fig. 2

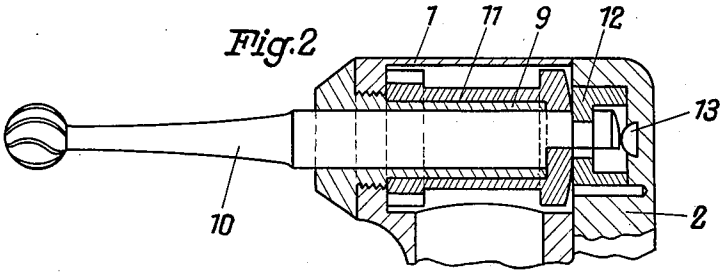


Fig. 3

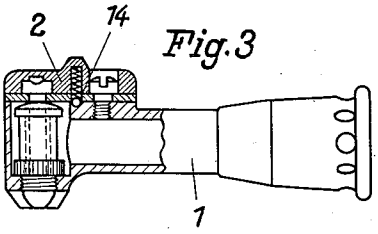


Fig. 3B

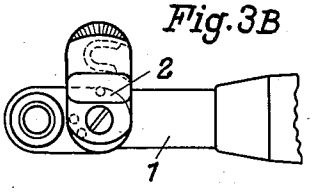


Fig. 3C

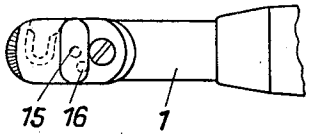
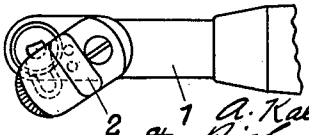


Fig. 3A



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By Watson, Cole, Morse & Grindle, Attys

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2,051,718

ANGLE PIECE FOR DENTAL PURPOSES

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Potsdam, Germany

Application December 3, 1934, Serial No. 755,788
In Germany December 9, 1933

3 Claims. (Cl. 32—27)

The invention relates to an angle-piece for dental purposes and has particularly for object to solve the problem of forming the head of the angle-piece in such a manner that the upper drive can for the purpose of cleaning and sterilization be in the simplest manner taken out and even exchanged. The invention deals also with a specially advantageous mounting for the bit and the upper drive in the head part. It is important on the one hand that the upper drive should have a long life and on the other hand that the wear that nevertheless takes place in time should not affect the bit.

In the angle-pieces heretofore known the bearings of the upper drive are protected only very little against dust and saliva entering from outside and emery grains projected by the grinding tools, and finally the badly worn parts can be exchanged only with considerable difficulty.

According to the invention the angle-piece is formed in such a manner that the bit-holder slide and the bit-holder closer which completely closes the rear head-opening are rigidly connected together and are movable in relation to the angle-piece head for the liberation of the rear opening of the head for the purpose of taking out the upper drive, and, if required, its bearing.

Advantageously there is provided for the bit-holder slide a locked middle position with which merely the withdrawal of the bit from the head is possible but not the withdrawal of the upper drive itself.

The limiting devices of the positions of opening for the bit-holder slide are advantageously placed in the bit-holder closer and in the head. They consist of an abutment pin and a groove and in this way are not visible from outside.

According to the invention it is also proposed to arrange in the bit-holder closer a counter-pressure bearing for the bit, and indeed suitably a jewel bearing. By the arrangement of a counter-pressure bearing all axial play for the bit is prevented.

An important characteristic of the invention is that there is arranged in the head for the bit a bearing bush which extends to the front head-opening and leaves free only the rear end of the bit for the purpose of coupling with the upper drive. In this way saliva or grinding dust is compelled to travel a very long way before reaching the upper drive. The driving is thus considerably improved. Advantageously the upper drive which is carried on a long sleeve is at the same time mounted externally on the bearing bush for the bit. The bearing bush for the bit may be screwed in a simple manner into the front end of the head.

In the drawing, the subject-matter of the invention is illustrated by way of example in several constructional forms.

Figure 1 shows in longitudinal section, partly in elevation, the upper part of an angle-piece which can be placed on an angle-piece with a shaft-elbow.

Figure 1A shows the same part in plan after the movement of the bit-holder slide and closer into the position necessary for engaging and disengaging the bit.

Figure 1B shows the subject-matter of Figure 1 likewise in plan, the bit-holder slide and closer being in the position necessary for removing the upper drive.

Figure 1C shows the upper part without the bit-holder slide and closer.

Figure 2 shows in longitudinal section to a much larger scale the head of the angle-piece with the screwed-in bearing bush for the bit and upper drive, a counter pressure bearing being arranged in the bit-holder closer.

Figure 3 shows, in longitudinal section, partly in elevation, a somewhat modified constructional form of the upper part of the angle-piece.

Figures 3A, 3B and 3C show the same upper part in different views corresponding to Figures 1A, 1B and 1C.

In the constructional form according to Figures 1 to 1C, 1 is the entire upper part of an angle-piece which can be placed upon an angle-piece with a shaft-elbow. The bit-holder slide and the bit-holder closer consist of the common part 2 and are rotatable on the upper part about the pin 3. If the bit-holder slide assumes the position shown in Figure 1A the bit can be secured in and taken out of the head without its being possible to take the upper drive itself out of the head. If, however, the bit-holder slide is brought into the position shown in Figure 1B—i. e. moved in the opposite direction—then by means of the bit the upper drive can be pushed out of the head backwards in a simple manner. Instead of the ordinary blade spring, the bit-holder slide has a spring 4 of piano wire, which terminates in a ball 5. In the position of closure of the slide the ball springs into a small hollow 6 in the upper part 1, whereby the bit-holder slide and closer are secured. The stopping devices for the positions of opening of the bit-holder slide are arranged in the bit-holder closer and in the head. They consist of the abutment pin 7 fastened to the bit-holder closer and the groove

8 (Figure 1C) in the upper part. The limiting devices are not visible from outside.

Figure 2 shows to an enlarged scale the mounting of the bit and of the upper drive in the head. Into the head proper 1 there is screwed from the front a bearing bush 9 which extends almost to the rear end of the head and which receives and journals substantially the whole shank of the bit 10 directly. Externally there is mounted on the bearing bush 9 the upper drive sleeve 11, which is in engagement with the bit directly at the rear end of the bearing bush 9 and carries the bit along with it. In the bit-holder slide and closer 2 there is exchangeably arranged a stopping piece 12 for the bit, which secures the bit against axial displacement in a per se known way. Furthermore, there is provided in the bit-holder closer a counter-pressure bearing 13, which may be formed for example as a jewel bearing. All axial play of the bit 10 is prevented by the counter-pressure bearing 13.

In the case of the constructional form according to Figures 3 to 3C the bit-holder slide and closer 2 consist again of one piece.

Figure 3 shows the slide and closer in the position of locking.

Figure 3A shows one position of opening, with which the bit can be inserted and taken out, and Figure 3B shows the other position of opening, with which it is possible to take out the entire upper drive.

The stopping of the slide and closer in the end positions is in this case produced by means of a spring-loaded ball 14, which engages in corresponding recesses 15, 16 (Figure 3C) in the head. In this constructional form a special elastic formation of the bit-holder slide is unnecessary.

We claim:

1. In an angle piece for dental purposes having a head with a front opening for a bit, a bearing bush within said head adapted to receive and journal the bit, an upper drive sleeve rotatably mounted externally on the said bearing bush, and means for coupling the rear end of the bit with the said upper drive sleeve.

2. In an angle piece for dental purposes having a head with a front opening for a bit, a stationary bearing bush within said head adapted to receive and journal the bit, an upper drive sleeve rotatably mounted externally on the said bearing bush, and means for coupling the rear end of the bit with the said upper drive sleeve.

3. In an angle piece for dental purposes having a head with a front opening for a bit, a bearing bush screwed into said opening and adapted to receive and journal the bit and extending from the front opening of the head toward the rear end of the bit for substantially the full length of the shank thereof, an upper driving sleeve rotatably mounted externally on the said bearing bush, and means for coupling the rear end of the bit to said upper drive.

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