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E. LOESSER ET AL

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APPARATUS FOR GRINDING AND POLISHING PRECIOUS STONES

Filed April 23, 1929

Fig.1.

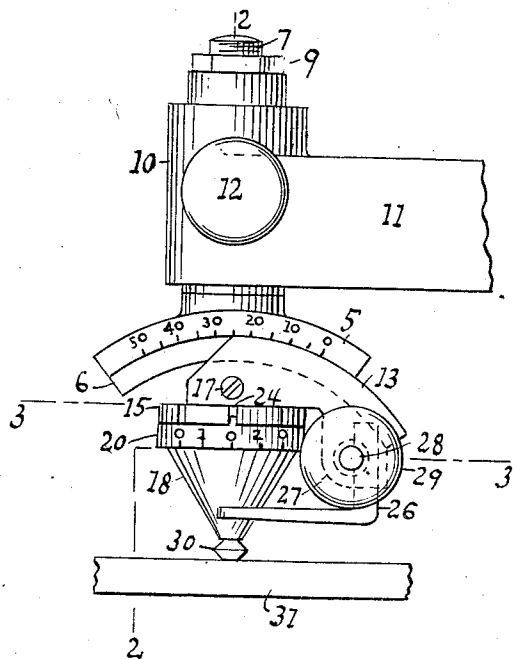


Fig.2.

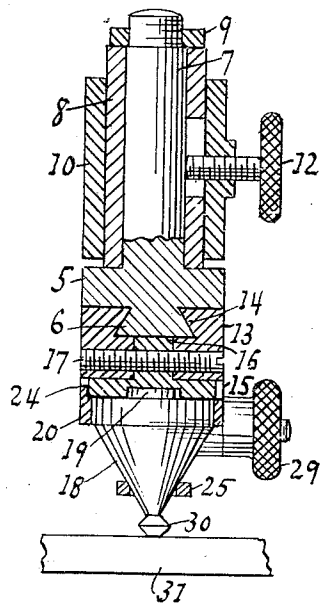


Fig.3.

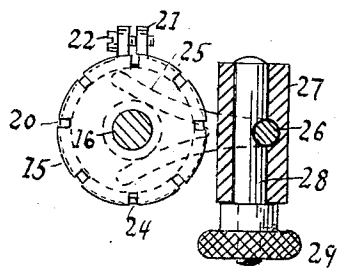
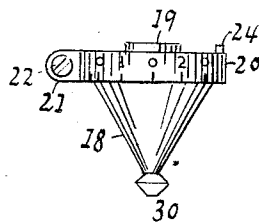


Fig.4.



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UNITED STATES PATENT OFFICE

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INC.

APPARATUS FOR GRINDING AND POLISHING PRECIOUS STONES

Application filed April 23, 1929. Serial No. 357,428.

This invention relates essentially to an apparatus for grinding and polishing precious stones especially such as diamonds, and which includes a dop for holding the stone which is readily removable from an arc shaped oscillating carrier adapted for mounting the dop.

An object of the invention is to provide the dop with devices whereby it is connected to the carrier and can easily be reset to a different axial position relative to the carrier so as to position the top or table and the successive facets of the diamond onto a revolving lap or polishing wheel.

Another object of the invention is to provide a bifurcated foot member engaging the periphery of the dop for forcing it up into a socket formed in a notched disk fixed to the lower part of the carrier.

Another object of the invention is to provide the upper portion of the dop with a clamp having a projecting stud or detent made to engage any one of the notches so as to securely fasten the dop thereby preventing rotary movement in its association with the carrier.

The invention resides more particularly in the novel combinations hereinafter described and claimed, reference being made to the accompanying drawings in which:

Fig. 1 represents a side elevation of an apparatus embodying this invention.

Fig. 2 is a vertical section taken along the line 2—2 of Fig. 1.

Fig. 3 is a horizontal section taken along the line 3—3 of Fig. 1.

Fig. 4 is a side elevation of the dop.

In the drawings the numeral 5 designates a segmental arc member having a tongue 6 and a shaft 7 extending upwardly from the top of the arc member. The shaft has a sleeve or boss 8 fixed to it by means of a nut 9 engaging an upper threaded end of the shaft. The shaft and its sleeve is arranged in the bore of a bearing 10 located at the free end of a frame or arm 11 suitable for supporting the apparatus on a table as is well-known. The set screw 12 secures the sleeve and shaft in the bore but when the screw is

loosened the shaft and its sleeve can be slid up and down in the bore.

Below the segment 5 is arranged a carrier 13 having a curved groove 14, engaging the tongue of the segment. In this arrangement the carrier can be moved or vibrated in an arc of a circle while the segmental member 5 remains stationary. At the lower end of the carrier is positioned a notched disk 15 having a stem 16 extending into a hole in the carrier, and the disk is fastened to the carrier by means of a screw 17 threaded in the side of the carrier. A dop 18 is provided with a short stem or cylindrical head or hub 19 at its upper end so that it can be slid into a shallow socket located in the notched disk as indicated in Fig. 2. On the upper rim of the dop is arranged a clamp consisting of a split band or ring 20 having ears 21 made to coact with a screw 22 for fastening the ring to the frame. The ring has an upwardly projecting stud 24 made to engage one of the notches when the dop is in place. In order to prevent downward movement of the dop a bifurcated foot 25 is provided. This foot has a bar or stem 26 extending upwardly into a bearing 27 depending from the lower part of the carrier and a bolt 28 when adjusted by a nut 29, will jam the bar against the bearing or loosen it to permit it to slide in said bearing.

A diamond 30 or other precious stone is fixed in a recess situated in the lower end of the dop and when it is desired to grind or polish a facet thereof the carrier is moved in an arc to position any one of the facets onto a revolving lap 31 as is well-known. In this device when it is desired to move a successive facet into engagement with the lap, the forked foot is slid down and the cylindrical head of the dop moves downward from the socket thereby disengaging the stud from the notch. The dop can thus be rotated and the stud pushed into the next notch. The numbered degree marks on the band denote the distance the dop should be turned about its axis to move the successive facets onto the lap. Likewise the numbered degree inscriptions on the segmental tongue member denote the angle at which the carrier is set. By

having the forked foot engage the periphery of the dop it does not interfere with the stone in its operative movement with the lap.

We claim:—

- 5 1. A grinding and polishing apparatus comprising a frame having a bearing, a segmental arc member having a stem secured in the bearing, a carrier slidably coacting with the arc member, a notched disk adjustably
10 secured to the carrier, a dop having a stud whereby it is fitted to the notched disk to prevent rotary movement thereof, and a bifurcated foot engaging the dop member and movably fixed to the carrier, said foot main-
15 taining the dop stud engaged with the notched disk.
2. A grinding and polishing apparatus comprising a frame having a bearing, a segmental arc member having a stem secured in
20 the bearing, a carrier slidably coacting with the arc member, a notched disk having a socket secured to the lower part of the carrier, a dop with a head engaging the socket, said
25 dop having a stud fixed to it whereby it is fitted to the notched disk to prevent rotary movement thereof, and a bifurcated foot connected to the carrier and engaging the periphery of the dop, to maintain the dop head seated in the socket in said disk.
- 30 3. A grinding and polishing apparatus comprising a frame having a bearing, a segmental arc member having a stem secured in the bearing, a carrier slidably coacting with the arc member, a notched disk having a
35 socket secured to the lower part of the carrier, a dop with a head engaging the socket, a split clamping ring secured to the upper part of the dop, said ring having a stud projecting upwardly to engage one of the
40 notches, and a bifurcated foot engaging the periphery of the dop whereby the head thereof is held into engagement with its socket, said foot having a bar movably fitted in a lower part of the carrier.
- 45 4. A grinding and polishing apparatus comprising a frame having a bearing provided with a bore, a segmental arc member having a shaft movably fitted in the bore, means for fastening the shaft in the bore, a
50 carrier slidably connected to the arc member, a notched disk having a socket fixed to the carrier centrally with its axis, a dop with a cylindrical head adapted for engagement with the socket, a split band having a stud for
55 engagement with one of the notches, and a bar adjustably connected to the carrier, said bar having a bifurcated foot member made to engage the periphery of the dop so as to prevent it from dropping from the socket.
- 60 5. A grinding and polishing apparatus comprising a carrier, a notched disk detachably secured to said carrier and provided with a socket, a dop having a head engaging the
65 socket, a split clamping ring secured to the upper part of the dop, said ring having a stud

projecting upwardly to engage one of the notches, and a bifurcated foot engaging the periphery of the dop whereby the head thereof is held into engagement with its socket, said foot having a bar movably fitted in a lower part of the carrier. 70

6. A grinding and polishing apparatus comprising a carrier, a notched disk having a socket fixed to the carrier centrally with its axis, a dop with a cylindrical head adapted for engagement with the socket, a split band having a stud for engagement with one of the notches, and a bar adjustably connected to the carrier, said bar having a bifurcated foot member made to engage the periphery of the dop so as to prevent it from dropping from the socket. 75 80

In testimony whereof we have hereunto set our hands.

ERNEST LOESSER. 85
ERNEST W. LOESSER.

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