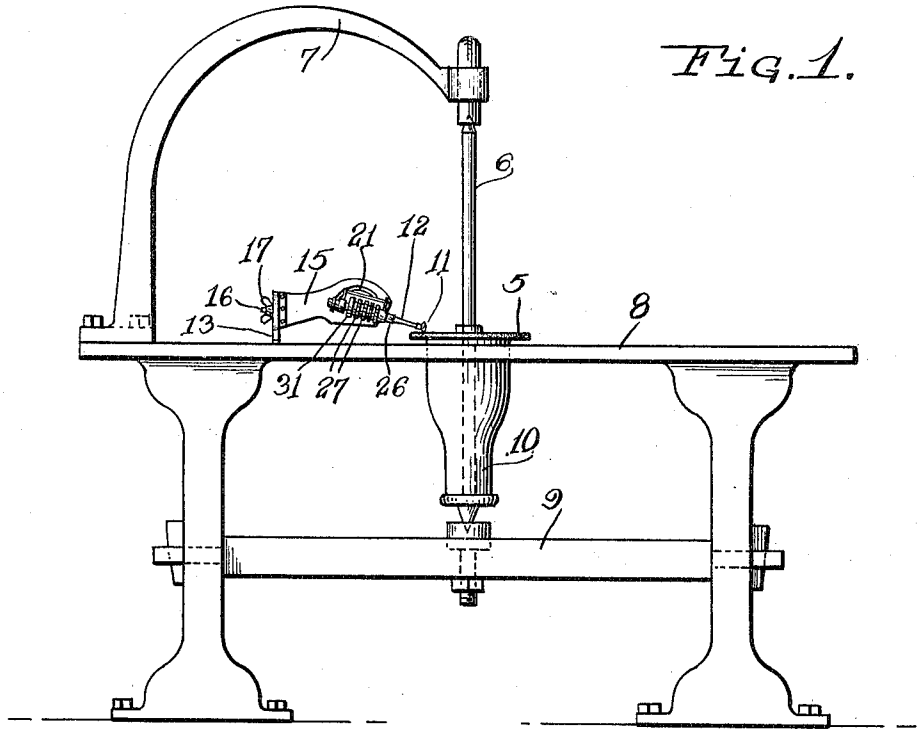
Oct. 8, 1929. F. HAVLICEK 1,730,767

GEM STICK HOLDER

Filed March 18, 1927 2 Sheets-Sheet 1

Fig. 1.



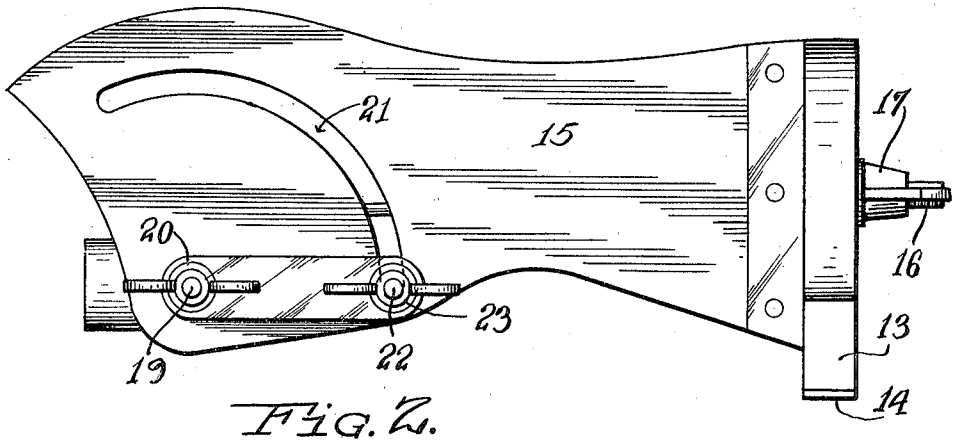


Fig. 2.

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Fig. 3.

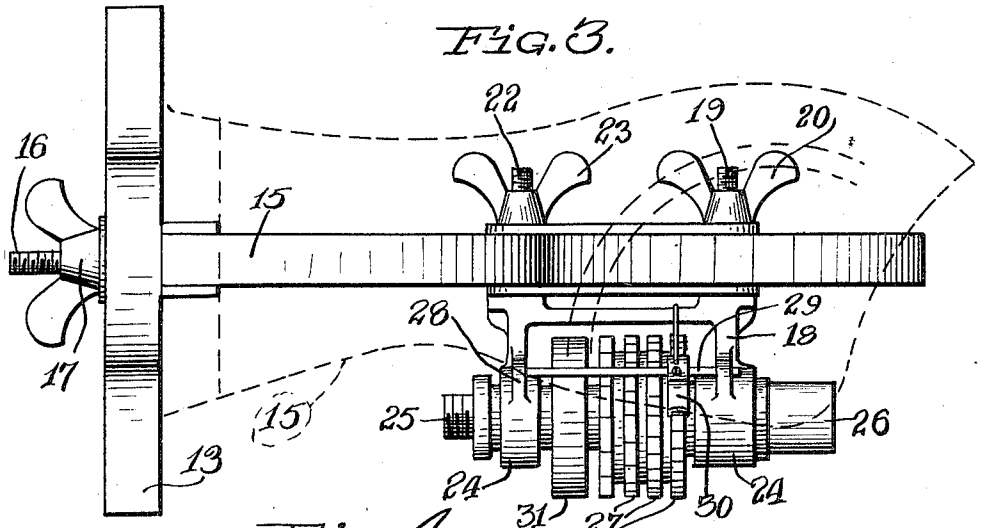


Fig. 4.

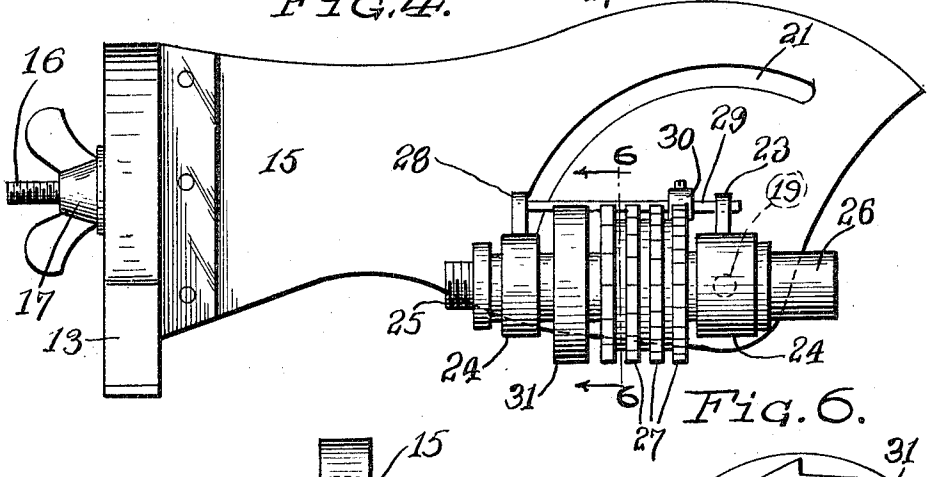


Fig. 6.

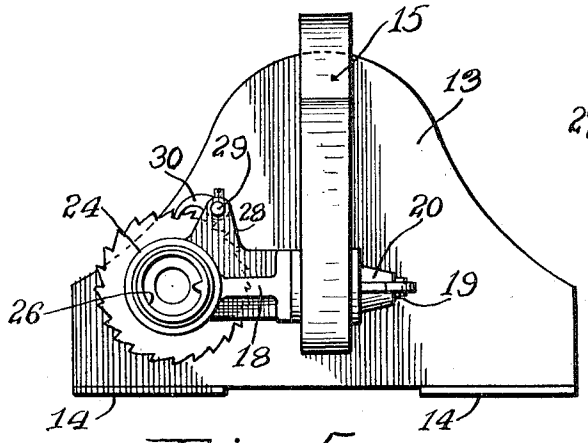
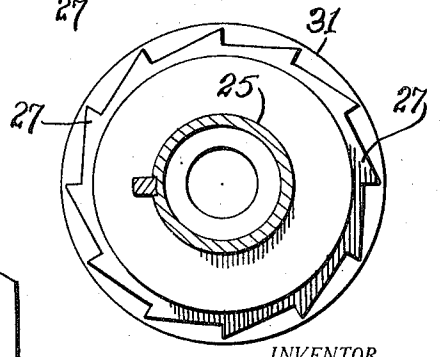


Fig. 5.



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UNITED STATES PATENT OFFICE

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GEM-STICK HOLDER

Application filed March 18, 1927. Serial No. 176,511.

This invention relates to gem cutting and polishing machines, and has more particular reference to an improved form of gem stick holder by means of which the gem may be effectively supported and adjusted to present its facets to the lapidary wheel or disk of such machines.

The invention has more particular reference to a portable gem stick holder adapted to rest upon the table of the gem cutting or polishing machine and to be held in proper position to maintain engagement of the gem with the lapidary wheel or disk, and a more specific object of the invention is to provide a gem stick holder of this type which is of generally simplified and improved construction.

A further object is to provide a gem stick holder of the above character embodying a support of improved form adapted to rest upon the table of the gem cutting or polishing machine, and a gem stick socket adjustably carried by the support for permitting angular and axial adjustments of the gem relative to the lapidary wheel or disk for properly presenting the facets of the gem to said wheel or disk.

Still another object of the invention is to provide improved means for mounting the gem stick socket upon the support for axial rotary and angular adjustment.

Other objects will become apparent as the nature of the invention is better understood, and the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings, wherein like reference characters indicate corresponding parts parts throughout the several views,

Figure 1 is a side elevational view of a gem cutting or polishing machine having a gem stick holder, constructed in accordance with the present invention, resting upon the table thereof, and carrying a gem stick with the gem in operative engagement with the lapidary disk or wheel of the machine;

Figure 2 is an enlarged side elevational view of the gem stick holder looking at the opposite side thereof from that shown in Figure 1;

Figure 3 is a top plan view of the device shown in Figure 2;

Figure 4 is a side elevational view of the holder looking at the opposite side thereof from that shown in Figure 2;

Figure 5 is an end elevational view looking toward the left of Figure 4; and

Figure 6 is an enlarged transverse section taken substantially upon line 6—6 of Figure 4.

Referring more in detail to the drawings, the usual gem cutting or polishing machine embodies a horizontal lapidary disk or wheel 5 which is secured upon a vertical spindle 6, the top bearing for which is provided in the head of a vertical bracket 7 secured upon the table 8, and the bottom bearing of which is provided in the head of a bracket 9 secured to the underside of the table. The lower portion of the spindle is furnished with a driving pulley 10 as is also usual.

The gem 11 is adapted to be cut or polished upon the upper surface of the lapidary wheel 5 and is usually cemented to the end of a gem stick 12 so as to be held with its axis in the axis of the gem stick.

The present gem stick holder includes a support composed of a vertical plate 13 preferably formed of wood and having suitable metal wear plates 14 secured to the lower or bottom edge thereof. The support further includes a horizontal arm in the form of a horizontally elongated plate 15 which extends from one side of the plate 13 and is pivoted at one end to the latter so as to be laterally tiltable or axially rotatable relative to the plate 13 upon a horizontal axis. For this purpose, the mentioned end of the arm plate 15 is provided with a longitudinally projecting pivot bolt which extends through and is rotatable in an opening provided in the upper portion of the plate 13 intermediate the ends of the latter, and a wing nut 17 is threaded upon the projecting end of the bolt 16 in engagement with the face of the plate 13 opposite that at which the adjacent end of the arm plate 15 is disposed, whereby the plates 13 and 15 are held connected. Obviously, upon

loosening the nut 17 the arm plate 15 may be laterally tilted about a horizontal axis defined by the bolt 16, and upon tightening the nut 17 said arm plate 15 may be retained against movement relative to the plate 15 so as to be maintained in any laterally tilted position to which it is adjusted. The plate 13 is adapted to be disposed to rest upon the surface of the table 8 at one side of the wheel 5 with the arm 15 projecting toward the wheel as shown in Figure 1 for a purpose which will presently become apparent, and the lower edge of the plate 13 is made perfectly flat so that it will not readily tilt in a direction laterally of the arm 15.

A U-shaped bracket 18 is carried by the outer free end portion of the arm 15, adjacent and at one side of the latter as clearly shown in Figures 3 and 5. Rigid with the forward end of this bracket 18 is a pivot bolt 19 which passes through and is rotatably disposed in a transverse horizontal opening provided in the lower portion of the outer end of arm plate 15, whereby said bracket may be angularly adjusted in a vertical plane or about a horizontal axis relative to the arm plate 15. A wing nut 20 is threaded upon the projecting end of the pivot bolt 19 at the opposite side of the arm plate 15 so as to maintain the bolt in place and retain the bracket 18 connected to the arm plate 15 in an obvious manner. Formed in the outer end of the arm plate 15 concentric to and above the bolt 19 is an arcuate slot 21, and rigid with the inner or rear end of the base of bracket 18 is a clamping bolt 22 that projects through and is freely movable in this slot. A wing nut 23 is threaded upon the bolt 22 at the opposite side of the arm plate 15, and it is thus apparent that upon loosening the nuts 20 and 23 the bearing bracket 18 may be tiltably or angularly adjusted about the horizontal axis defined by the bolt 19 to assume different inclinations, and upon tightening the nuts 20 and 23 said bracket 18 may be secured in any of its angularly adjusted positions. As shown clearly in Figure 3, the legs of the bracket 18 project laterally of the arm 15 and are provided at their outer ends with bearings 24 which are aligned longitudinally of the arm 15 and have the shank 25 of a gem stick socket 26 suitably journaled and secured therein so that said socket is rotatable upon an axis angularly adjustable with the bracket 18 relative to the arm 15. The socket 26 may be of any well known or preferred type within which the end of the gem stick 12 may be suitably fitted and secured against displacement and axial rotation relative to the socket.

Suitably splined or secured upon the shank of the socket 26 in slightly spaced side by side relation are a plurality of ratchet wheels 27 having differing spacings of teeth. The arms of the bracket 18 are provided with upstanding posts 28 in which the ends of a guide rod 29 are secured so that said rod is supported above and near the inner side of the shank 25 and the ratchet wheels 27 parallel to the axis of the socket 26. A suitable spring pressed pawl 30 is pivotally and slidably mounted upon the guide rod 29 so that it may be shifted longitudinally of the shank 25 into operative relation with any desired one of the ratchet wheels 27, the pivotal movement of the pawl being simply to allow its normal spring pressed engagement with the ratchet wheel coincident with which it is adjusted. In this way, an effective support for the pawl is had and the use of a separate pawl for each ratchet wheel is rendered unnecessary. The teeth of the ratchet wheels 27 all face in the same direction, and the pawl 30 engages the teeth so as to maintain the socket 26 and naturally the gem and stick against rotation in one direction, which is the direction in which they would be rotated, if allowed, by the engagement of the gem with the lapidary disk. It is thus apparent that the pawl and ratchet mechanism described will prevent undesirable accidental rotation of the gem when engaged with the lapidary disk, although permitting ready manual rotary adjustment thereof in the opposite direction for permitting successive engagement of the facets of the gem with the surface of the disk. In order to facilitate the rotary adjustment of the socket 26, a suitable knob or hand wheel 31 is fixed upon the shank 25 between the rear bearing 24 and the rearmost ratchet wheel 27.

It will be noted in Figure 4 that the pivot bolt 19 or horizontal axis of vertical angular adjustment of the socket 26 is disposed in a plane below that of the pivot bolt 16 about which the arm plate 15 tilts laterally relative to the plate 13. Thus, by effecting lateral tilting adjustment of the arm plate 15, the elevation of the socket 26 relative to the table 8 may be adjusted or changed so that the gem 11 may be properly raised or lowered to effect the proper engagement of its differently disposed facets with the surface of the lapidary disk. These adjustments are necessary from time to time in view of the different angular adjustments of the sockets and different sized gems operated upon.

The general manner of use of gem stick holders of this type is well known in the art, and for this reason it is not believed necessary to dwell at length upon a description thereof. However, it is noted that the device is placed as shown in Figure 1 so that the plate 13 rests at its lower edge upon the table 8 at one side of the lapidary disk 5, and the horizontal arm plate 15 projects toward said lapidary disk. It is of course to be understood that the gem stick with the gem previously secured thereto has been fitted and secured in the socket 26. The bracket 18 is then swung in a vertical plane to the necessary angular position relative to the arm 15 so that one of a cer-

tain series of facets of the gem is disposed parallel, in one direction, with the upper face of the disk 5. This face is adjusted parallel with the upper surface of the disk 5 in a transverse or opposite direction by laterally tilting the arm 15, and then the bracket 18 and arm 15 are secured in their properly adjusted positions by tightening the several wing nuts. After this facet of the gem has been properly cut or polished, the next facet of the same series is presented to the wheel or disk by simply rotating the socket and consequently the gem about their axes. The degree of movement necessary is accurately determined by the provision of the ratchet mechanism above described so that effective and uniform work is insured.

From the foregoing description it is believed that the construction and operation as well as the advantages of the present invention will be readily understood and appreciated by those skilled in the art.

Minor changes may be made without departing from the spirit and scope of the invention as claimed.

What I claim as new is:—

In a gem stick holder, a supporting plate adapted to rest at its lower edge upon the table of a gem cutting machine, an arm plate projecting horizontally from said supporting plate and pivoted at its inner end to the latter for lateral tilting adjustment about a horizontal axis extending parallel with the arm, a gem stick socket carried by and angularly adjustable relative to the arm plate upon an axis extending transverse to the arm plate and the socket in a plane below that of the first named axis, a bracket pivoted to and disposed at one side of the arm plate and carrying said socket, said socket being journaled in the bracket for axial rotation, a series of ratchet wheels secured on the socket, and a single pawl supported by and adjustable longitudinally of the socket for selective operative association with any desired one of said ratchet wheels, said bracket carrying a rod parallel with the socket and upon which said pawl is freely slidable.

In testimony whereof I affix my signature.

FRANK HAVLICEK.