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MEANS FOR PLACING GEMS IN HOLDING ARBORS.

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1,149,552. Patented Aug. 10, 1915.

Fig. 2.

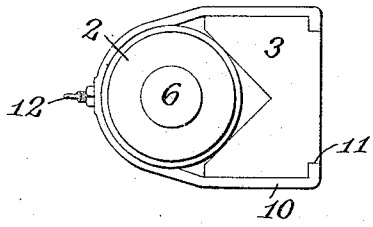
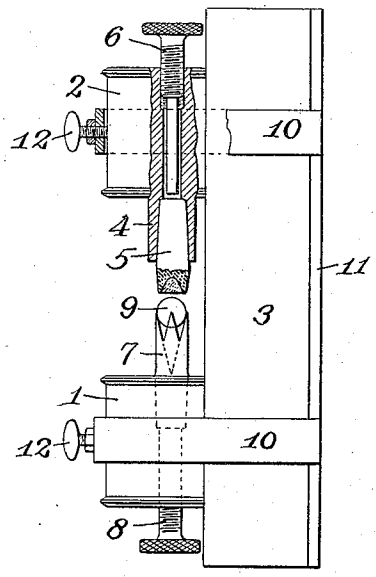


Fig. 1.



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MEANS FOR PLACING GEMS IN HOLDING-ARBORS.

1,149,552. Specification of Letters Patent. **Patented Aug. 10, 1915.**

Application filed November 25, 1912. Serial No. 733,420.

To all whom it may concern:

Be it known that I, CLYDE J. COLEMAN, a citizen of the United States, residing at New Rochelle, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Means for Placing Gems in Holding-Arbors, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates to means for placing gems in holding arbors preparatory to polishing the gems.

During the polishing process, the bruted gems are usually applied to a rotary polishing lap and are held in the end of an arbor which is inserted in a dop, the dop being either controlled by hand or by an automatic machine. It is important in order to secure the proper symmetrical arrangement of the facets on a gem, that the gem be disposed in the arbor with its central axis in the axial line of the arbor, and one object of my invention is to provide a device by means of which a gem may be easily and accurately attached to an arbor with its axis in the axial line of the arbor.

Other objects of my invention are simplicity and durability of construction, and convenience and reliability in operation.

Still other objects and advantages of my invention will appear from the following description.

In carrying out my invention in one form I provide a chuck member for holding the bruted gem, and an arbor holder arranged to hold an arbor in axial alinement with the gem, at least one of the two members being adjustable along the axial line of the arbor to bring the gem and arbor together, while maintaining the relative axial disposition between the gem and the arbor.

My invention also comprehends various details of construction and arrangements and combinations of parts, as will hereinafter more fully appear.

I shall now describe the embodiment of my invention illustrated in the accompanying drawings, and shall thereafter point out my invention in claims.

Figure 1 is a side elevation, partly in section, of a device embodying my invention. Fig. 2 is an end elevation of the same.

In the illustrated embodiment I employ a cylindrical chuck-holding member 1 and a similar arbor-holding member 2, arranged in axial alinement and supported for longitudinal adjustment in a V-shape guide groove extending longitudinally of the supporting side or face of a supporting block 3. The arbor holder 2 is provided on one end with a concentric reduced arbor-holding extension 4 which has a tapered axial bore for the reception of the carbon arbor 5, and the cylindrical member 2 is also provided with an axial bore of somewhat smaller diameter and communicating with the arbor-receiving bore in the extension 4. The outer end of this bore is screw-threaded for engagement with an adjustable arbor-displacing screw 6, the inner end of which is adapted to abut against the inner end of the arbor and displace the arbor as the screw is turned. The chuck holder 1 is also provided with a tapered bore for the reception of the chuck 7, which is preferably composed of steel, and with a chuck-displacing screw 8 operating similarly to the arbor-displacing screw 6. The chuck 7 is provided on its end with four pointed holding prongs, flat on their inner sides and tapering in thickness and forming continuations of the solid wall of a square tapered gem-holding socket in the end of the chuck 7. This socket is arranged in axial alinement with the chuck and will therefore hold gems of various sizes each with its geometric center in the axial line with the chuck. The bruted gem 9 is inserted in the chuck with its girdle resiliently gripped by the prongs and with its axis in alinement with that of the chuck 7.

The members are so designed that when the chuck holder 1 and the arbor holder 2 are disposed in the guide groove in the supporting block 3, the arbor 5 is held in axial alinement with the chuck 7 and therefore with the gem 9. The cupped end of the arbor 5 is arranged toward the gem 9 and suitable cement is placed in the gem-holding recess. To hold the members in the guide grooves, two substantially U-shape resilient tension straps 10 are provided, one for each member and each strap embracing its member and having its ends bent inwardly to engage guide grooves 11 along the rear cor-

ners of the supporting block 3. These resilient straps are secured to the respective holding members by set screws 12, and these tension straps not only hold the members against escaping outwardly from the guide grooves, but also permit the members to be adjusted longitudinally of the groove, while holding the members in adjusted position because of the frictional engagement between the turned-in ends of the straps 10 with the grooves 11.

In operation the block 3 is preferably placed on end in the position shown in the drawings, with the holding members in vertical alinement, and with the chuck-holding member lowermost. The gem 9 is set in the gem-receiving socket in the chuck and is held there by gravity assisted by the resiliency of the prongs of the chuck, and the two holding members are then made to approach each other, preferably by moving the arbor-holding member toward its cooperative member, the adjusted member being guided during its adjustment by the tension strap 10 which holds the member securely in the guide groove in the supporting block 3. The relative axial disposition of the gem and the arbor is thus maintained during the adjustment and the gem and arbor are brought together and the gem inserted in the socket in the end of the arbor with the axis of the gem in alinement with that of the arbor. The members are then separated, preferably by withdrawing the arbor-holding member, the gem adhering to the cement in the cupped end of the arbor. Thus the gem is transferred from the chuck to the arbor in the proper relative position, irrespective of the size of the gem, care only being taken that the gem is originally properly set in the chuck. After the gem is thus attached to the arbor, the arbor-displacing screw 6 is screwed up and the arbor is loosened in the holder, after which it is placed in a furnace and baked in the well known way. It is apparent that, after the two members have been brought together by adjustment along the guide groove in the supporting block 3, the adjusting screws 6 and 8 may be utilized in the final insertion of the gem into the cupped end of the arbor. Various chucks 7 may be used for various sized gems.

It is obvious that various modifications may be made in the construction shown in the drawings and above particularly described within the principle and scope of my invention.

I claim:

1. A device for attaching gems to arbors, having in combination a frame provided with guideways, a chuck-holding member mounted on the frame, a gem-holding chuck on the chuck-holding member, and an arbor-holding member mounted on the frame, one of said members being slidable along the guideways to move toward the other member.

2. A device for attaching gems to arbors, having in combination a frame, a gem-holding chuck member supported by the frame, an arbor-holding member, one of said members being slidably mounted on the frame to move toward the other member, an arbor displacing means for forcing the arbor from its holding member.

3. A device for attaching gems to arbors, having in combination a frame, a gem-holding chuck member, an arbor-holding member, and means provided for the movement of each of these members toward the other member parallel to the axial line of the gem.

4. Means for attaching gems to arbors comprising a gem-holding chuck member, an arbor-holding member arranged to hold an arbor in axial alinement with the central axis of the gem in the chuck member and means rendering one of the members shiftable toward and away from its coöperative member along the axial line of the arbor.

5. Means for attaching gems to arbors comprising a chuck-holding member, a chuck thereon adapted to hold a gem with its central axis in the axial line of the chuck, an arbor-holding member, and a support for the two members adapted to hold the two members with the arbor in axial alinement with the chuck, one of the two members being shiftable on the support toward and away from its coöperative member along the axial line of the arbor.

6. Means for attaching gems to arbors comprising a gem-holding chuck adapted to hold a gem with its central axis in the axial line of the chuck, an arbor holder relatively shiftable toward and away from the chuck, and a holder-guiding support for the arbor holder adapted to support the arbor holder with the arbor in axial alinement with the chuck and to guide the arbor holder along the axial line of the arbor.

7. Means for attaching gems to arbors comprising a gem-holding chuck adapted to hold a gem with its central axis in the axial line of the chuck, an arbor holder relatively adjustable toward and away from the chuck, a guide support for the arbor holder arranged to support the arbor holder with the arbor in axial alinement with the chuck and to guide the arbor holder along the axial line of the arbor, and an adjustable arbor-displacing screw in the arbor holder.

8. Means for attaching gems to arbors comprising a gem-holding chuck adapted to hold a gem with its central axis in the axial line of the chuck, an arbor holder adjustable toward and away from the chuck, and a supporting block for the arbor holder having a V-shape guide groove along its

supporting face adapted to support and to guide the arbor holder along the axial line of the arbor with the arbor in axial alinement with the chuck.

9. Means for attaching gems to arbors comprising a gem-holding chuck adapted to hold a gem with its central axis in the axial line of the chuck, an arbor holder adjustable toward and away from the chuck, a supporting block for the arbor holder having a V-shape guide groove along its supporting face adapted to support and to guide the arbor holder along the axial line of the arbor with the arbor in axial alinement with the chuck, and a tension strap embracing the arbor holder and slidably engaging the supporting block and holding the gem holder in the guide groove.

10. Means for attaching gems to arbors comprising a gem-holding chuck having in one end a tapering gem receiving socket adapted to hold a gem with its central axis in the axial line of the chuck, an arbor-holding member, and a guide support for the two members arranged to hold the two members with the arbor in axial alinement with the chuck member, one of the two members being adjusted on the guide support toward and away from its coöperative member along the axial line of the arbor.

11. Means for attaching gems to arbors comprising a cylindrical chuck-holding member, a chuck thereon adapted to hold a gem with its central axis in the axial line of the chuck, a cylindrical arbor-holding member, a supporting block for the two members having a V-shape guide groove along its supporting face adapted to support the two members for the shifting of each longitudinally of the groove with the arbor in axial alinement with the chuck, and a tension strap for each member embracing the member and slidably engaging the supporting block and holding the member in the guide groove.

12. Means for attaching gems to arbors comprising a cylindrical gem-holding chuck member adapted to hold a gem with its central axis in the axial line of the chuck, a cylindrical arbor-holding member, a supporting block for the two members having a V-shape guide groove along its supporting face adapted to support the two members for adjustment longitudinally of the groove with the arbor in axial alinement with the chuck, a tension strap for each member embracing the member and slidably engaging the supporting block and holding the member in the guide groove, and an adjustable arbor-displacing screw in the arbor holder.

13. Means for attaching gems to arbors comprising a chuck-holding member, a chuck thereon adapted to hold a gem with its central axis in the axial line of the chuck, an arbor-holding member, a support for the two members adapted to hold the two members with the arbor in axial alinement with the chuck, each of the two members being shiftable toward or away from the other member along the axial line of the arbor, chuck-displacing means for moving the chuck longitudinally in its holding member, and arbor-displacing means for moving the arbor longitudinally in its holding member.

14. Means for attaching gems to arbors comprising a chuck-holding member, a chuck thereon adapted to hold the gem with its central axis in the axial line of the chuck, an arbor-holding member, a supporting block for the two members having a V-shape guide groove along its supporting face adapted to support the two members for the shifting of each longitudinally of the groove with the arbor in axial alinement with the chuck, means for holding the members in the guide groove, a chuck-displacing screw for the chuck holder, and an arbor-displacing screw for the arbor holder.

15. A device for placing gems in arbors comprising a suitable frame, arbor holding means thereon, gem holding means also carried thereby, said frame having a guiding means whereby one of said holding means may be moved relatively to the other to bring the gem into the holding socket of the arbor in proper alinement therewith.

In testimony whereof I have affixed my signature in presence of two witnesses.

CLYDE J. COLEMAN.

Witnesses:
VICTOR D. BORST,
WM. A. KELLY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."

Correction in Letters Patent No. 1,149,552.

It is hereby certified that in Letters Patent No. 1,149,552, granted August 10, 1915, upon the application of Clyde J. Coleman, of New Rochelle, New York, for an improvement in "Means for Placing Gems in Holding-Arbors," an error appears in the printed specification requiring correction as follows: Page 2, line 72, claim 2, after the word "member" insert the words *supported by the frame;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of September, A. D., 1915.

[SEAL.]

J. T. NEWTON,

Acting Commissioner of Patents.