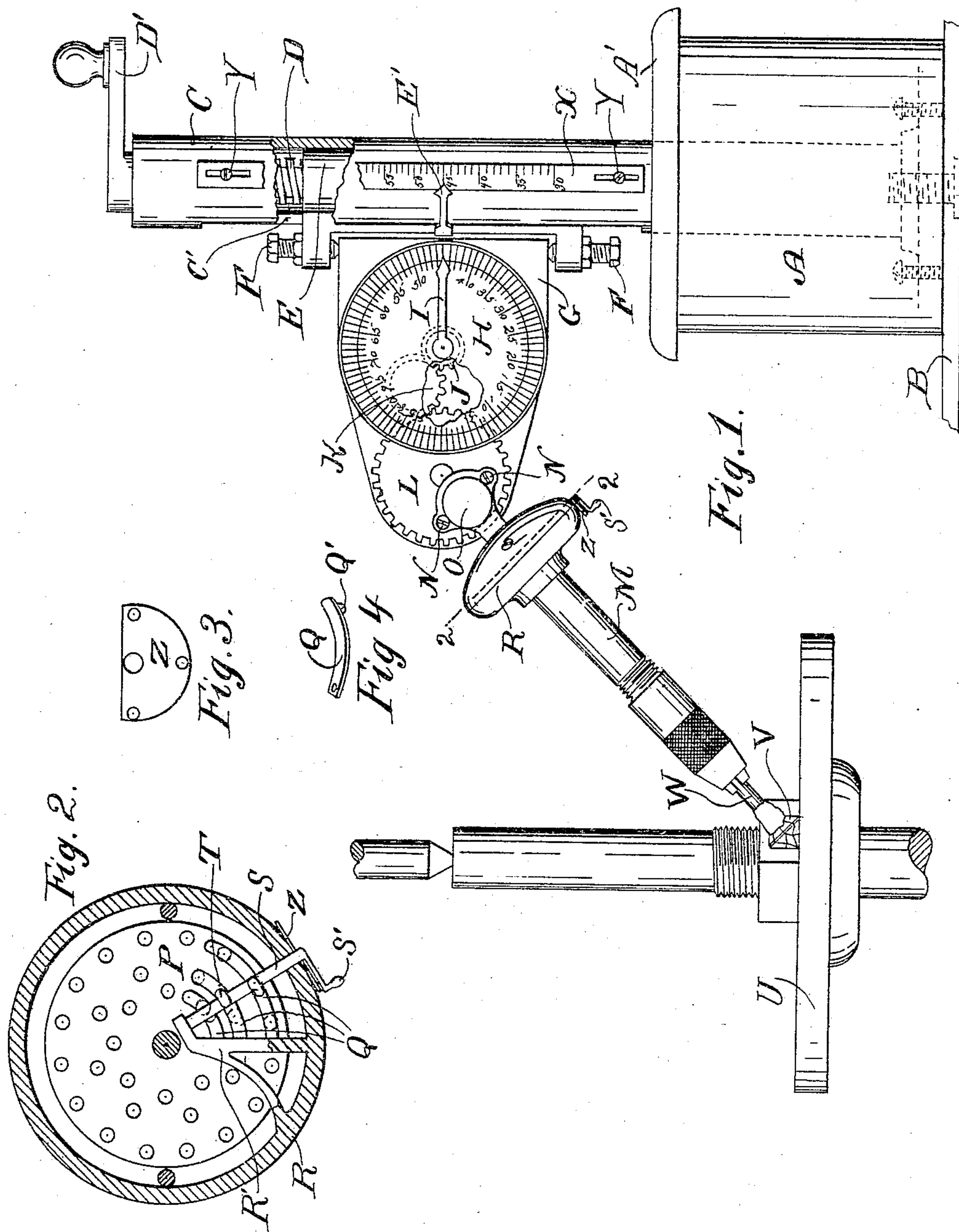


No. 765,800.

PATENTED JULY 26, 1904.

F. STANSFIELD.
FACET CUTTING MACHINE.
APPLICATION FILED AUG. 20, 1903.

NO MODEL.



Witnesses
Geo. C. Winton.
Margaret L. Nickerson

Inventor
Frank Stansfield
By Hazard & Harpham
Attorneys

UNITED STATES PATENT OFFICE.

FRANK STANSFIELD, OF LOS ANGELES, CALIFORNIA.

FACET-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 765,800, dated July 26, 1904.

Application filed August 20, 1903. Serial No. 170,193. (No model.)

To all whom it may concern:

Be it known that I, FRANK STANSFIELD, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Facet-Cutting Machines, of which the following is a specification.

My invention relates to machines designed to cut the surface of a stone or gem into variously-shaped segments or faces; and the object of my improvement thereon, as herein set forth, is to provide a simple and reliable machine by means of which the various angles or faces may be placed geometrically correct on the face of the stone. I accomplish this object by means of the device herein described, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a facet-cutting machine embodying my invention in position for use. Fig. 2 is a transverse section taken on line 2 2 of Fig. 1. Fig. 3 is an elevation of the crank-engaging plate Z, and Fig. 4 is a perspective view of the detent-spring Q.

In the drawings, A is a tubular foundation or shield, secured to the base B by screws, as shown in dotted lines in Fig. 1. Secured to the base B in the center of the tubular foundation A is the cylindrical upright C. The shield E is disposed in the center of the cylindrical upright and has a vertical movement therein by means of the threaded shank D, having handle D' thereon, which shank extends through an internally-threaded socket in the slide. This slide is provided at each end with a set-screw F, projecting through a longitudinal slot C' in the cylindrical upright and adapted to adjustably secure the face-plate G in proper position in the uprights. A dial-carrying plate G has upon its front face a circular graduated dial H, having graduation-marks thereon indicating degrees from "1" to "90." Rotatably secured in the center of the dial-plate is the index-pointer I, carrying upon the axle thereof spur-gear J, adapted to mesh with idler-gear K and spur-gear L. Secured to the vertical slide E and moving therewith is the index-

pointer E', adapted to move along graduated scale X, secured on the front side of the cylindrical upright C when the slide E moves up and down on the rotation of the handle D'. The position of this index-pointer on the dial-plate will indicate the angle which will be cut by a stone in position on the mandrel.

The spur-gear L is rotatably mounted on an axle projecting out of the dial-carrying plate G. Removably secured, by means of the screws N and the thumb-screw O, to this spur-gear L is the revoluble handle M. On the upper end of the handle M is transversely mounted the perforated plate P, having three concentric rows of perforations therein, one of eight holes on the inside, another of eight holes centrally disposed to the inner row and half-way between the inside eight and an outer row of holes, and a row of sixteen holes disposed half-way between the opening between the other two rows. These perforations or holes are arranged to engage the projecting stops Q' on the ratchet-spring Q. These springs are secured to a projection R' on the ratchet-casing R, the inner end of which forms a bearing for the crank-shaft S, having handle S'. On the crank-shaft S are three cams T, so arranged on said crank that by the rotation thereof all these springs will be alternately depressed, the normal condition of the springs being in their elevated position free of the perforations; but by the revolution of the crank-shaft one of the springs will be depressed, carrying with it the stop Q', causing the stop to drop into one of the openings in the perforated plate and hold the same in that position until the stop is removed therefrom by further rotation of the shaft or by the rotation of the mandrel M in the chuck to which the stone V is cemented. The lap U, suitably mounted on vertical axis, revolves in a horizontal plane adjacent to the facet-cutting machine and carries on the face thereof the cutting material for cutting stones. Motion is imparted to the lap in the usual well-known manner.

Upon the front face of the cylindrical casing C, I have mounted the graduated scale X. This scale is adjustable thereon by means of the screws Y, passing through vertical slots

in the graduated scale. The object of mounting the vertical scale X as shown is for the purpose of adapting it for use with a number of other like machines to be used in finishing the same stone, as the index-pointer E' on one machine will indicate the point on the vertical scale at which the index-pointer should be placed in every other machine to which the mandrel M, carrying the stone, may be removed for performing more work on the same stone. The machine is adapted to cut stones of different sizes and to give different angles to the faces cut on the stones by providing a vertical adjustment of the slide E.

The foundation of shield A has a hanging upper portion A', adapted to intercept the flying particles of the stones and the cutting material as they are thrown off the lap when the device is in operation, and thereby prevent these particles from working into the device.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a facet-cutting machine the combination of an upright cylindrical standard, a graduated scale thereon; a carrying-slide therein having screw-engaging lugs projecting therefrom, and having a screw-threaded socket; a screw-threaded shank in said slide and having a handle at its upper end; a rotatable mandrel secured to said slide, and means to connect rotatable mandrel with the slide substantially as herein shown and described.

2. A facet-cutting machine, comprising an upright cylindrical standard adapted to be removably attached to a suitable base or support; a cylindrical opening in said standard; a scale-carrying guide in said opening, having projecting lugs carrying set-screws; a central opening in said slide having internal threads therein; a handle in said vertical upright having a screw-threaded socket adapted to engage the screw-threaded opening in the

scale-carrying guide; a vertical plate adjustably secured between the set-screws in the projecting lug on a vertically-moving slide; a graduated scale on said face-plate; an index-pointer axled in the center of the circular index-plate; an axle on said pointers carrying spur-gears; a spur-gear on the plate; an intermediate idler-gear engaging the spur-gear on the axle of the index-pointer, and the spur-gear secured to the plate; a mandrel detachably secured to the spur-gear revolubly mounted on the vertical plate; a rotatable mandrel secured thereon as herein shown and described.

3. In a facet-cutting machine of the character herein described means to hold the mandrel to which the gem is cemented in a proper angle to the lap, comprising a circular graduated scale; a central axle therein, an index-pointer thereon; a spur-gear on said axle; an idler-gear meshing the same; a spur-gear carrying the gem-holding mandrel; and means to rotate the mandrel substantially as herein shown and described.

4. The herein-described means in a machine such as described to change the surface to be cut on a stone comprising a mandrel provided at the upper end with a transversely-mounted perforated plate having three rows of perforations therein; and means to rotate the plate from one hole to the other consisting of a number of springs having stops thereon adapted to engage holes in the perforated plate and a crank having cams thereon adapted to depress the springs against the perforated plate substantially as herein shown and described.

In witness that I claim the foregoing I have hereunto subscribed my name this 13th day of August, 1903.

FRANK STANSFIELD.

Witnesses:

HENRY T. HAZARD,
G. E. HARPHAM.