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METHOD FOR MAKING GIRDLES

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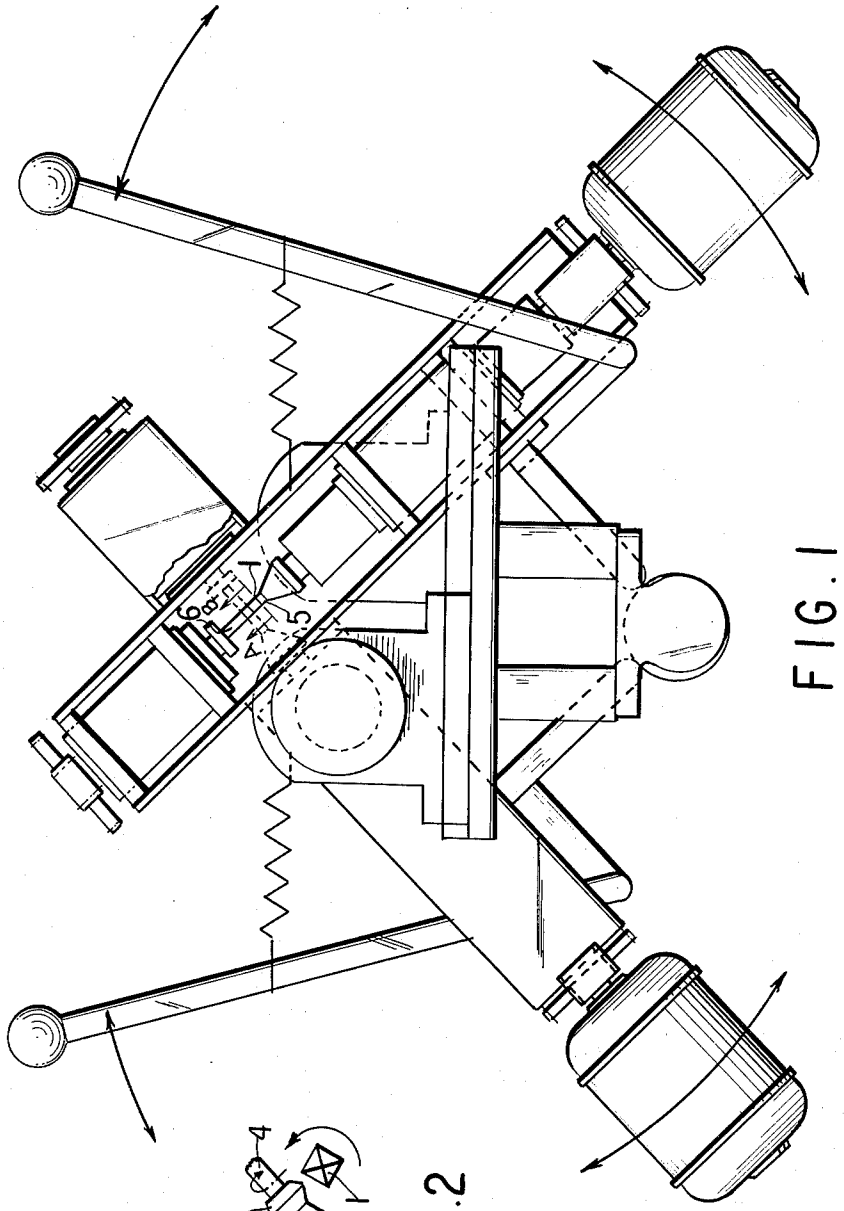


FIG. 1



FIG. 2

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METHOD FOR MAKING GIRDLES

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The invention relates to an improved method for making girdles (partly worked precious stones).

After the rough stones have been sawed, they have a polygonal base (table). Before the polishing of the facets can be proceeded to, this polygonal form must be trimmed into a pure round, so as to create the girdle.

The method generally employed for making a girdle consists in trimming a rough stone which is placed in a rotating dop, by means of another rough stone which is placed in a dop which does not rotate and can be moved in a direction perpendicular to the axis of the rotating dop, in order to bring both stones in attrition against each other. Another method is to move the rotating dop carrying the rough stone in the direction of a rotating grinding disk. It is generally known to mount the rotating dop and the rotating grinding disk in such a way that their axes cross each other at adjustable angles.

All of these methods have the drawback, that, quite apart from the long working time, a rough stone which is used as a cutting-tool or a grinding disk is required, which is worn out in a short time, while only one girdle is obtained per working.

In the drawings:

FIGURE 1 shows a schematic view of an apparatus for conducting the process of the invention and FIGURE 2 shows an enlarged view along lines A–B of FIGURE 1.

It is an object of the present invention to eliminate the use of separate trimming means.

The girdles obtained by the prior methods have rough surfaces and their edges are milled, which makes polishing necessary.

It is a further object of the invention to eliminate the polishing of the stones.

My improvement consists in that two rough stones rotate and work each other with the peripheral edges of their tables, while the axes of rotation cross each other. The advantage of this method is that the production can be at least doubled while the costs can be lowered even more because polishing disk or cutting stone are superfluous.

My invention is practiced utilizing the prior art grinding machine, in which the axes of the rotating dop and the rotating grinding disk cross each other. In my invention, the grinding disk is replaced by another rotating dop. The two crossed dops carrying the rough stones are moved towards and away from each other in the same way in order to obtain the desired girdle diameter.

This method has the important advantage that perfectly round girdles are obtained, although the circle need not always be completely developed. This purely round form is of the utmost importance exactly with a view to the automation of the different treatments of the diamond.

A further advantage is that the working time is shortened, because the two rough stones trimming each other, in view of the growth, can work each other in the most favourable sense.

The axes of the rotating dops carrying the stones cross each other at an adjustable angle; preferably their axes cross each other at a right angle.

If, in the method according to the invention the rotating dops do not move in axial directions, girdles are obtained having a hollow profile, which is an important asset for some machines having separate, clamping devices for hollow girdles.

If, however, these rotating dops are moved backward and forward in axial direction, girdles having purely straight profiles are obtained.

Example

In an ordinary cutting machine for rough stones as shown in FIGURES 1 and 2, in which both the stone 1 and the grinding disk rotate while the axes cross each other at right angles, the grinding disk was replaced a holder 3 for another rough stone 2, placed in such a way, that the surfaces of the tables were at right angles to each other and the stones could work each other with the table edges.

The rotation velocity amounted to 1300–1600 revolutions a minute.

Each of the two rough stones 1 and 2, the weight of which amounted to 8 per carat, i.e., 25 mg. apiece, was cemented with its collet into a dop 3 and 5 and pressed home by means of a counteracting pin 4 and 6.

During the process it was observed with the aid of a stroboscope when one of the two stones had reached the right size.

When one stone had the correct size, it was replaced by a new rough stone and the process went on until the other stone had assumed the correct size, and so on.

Purely round girdles were obtained showing a very fine matting and entire edges.

What I claim is:

1. An improved method for making girdles on more than one rough stone at a time which comprises the steps of firmly affixing a rough stone between a dop and a counteracting pin, rotating said affixed rough stone about the axis of the center of its table, firmly affixing a second rough stone between a dop and a counteracting pin, rotating said affixed second rough stone about the axis of the center of its table, said axes of rotation of said stones crossing each other and unyielding with respect to each other, bringing the peripheral edges of the tables of said rotating rough stones into firm contact whereby the peripheral edges of the tables of said rotating rough stones work on each other, continuing the firm contact between said tables of said rotating rough stones by moving said axes of rotation of said stones toward each other until a girdle is formed on one of said rough stones, and a partial girdle is formed on the other of said rough stones, removing the semifinished stone having said girdle, replacing said semifinished stone having said girdle with a third rough stone and repeating the process to form a girdle on said rough stone having a partial girdle and a partial girdle on said third rough stone.

2. The method of claim 1 wherein said axes of rotation of said stones cross each other at a right angle.

References Cited by the Examiner

UNITED STATES PATENTS

172,589	1/76	Stover	125—30
175,815	4/76	Field	51—229
216,955	7/79	Hessels	51—229 X
1,105,356	7/14	Ludlow	125—30
1,261,765	4/18	Challet	51—229 X
2,332,574	10/43	Hopp	125—30 X
2,484,253	10/49	Spira	125—30

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