





M K U K 

— GEMS & JEWELRY —



GEMSTONE FACETING

INTRODUCTION

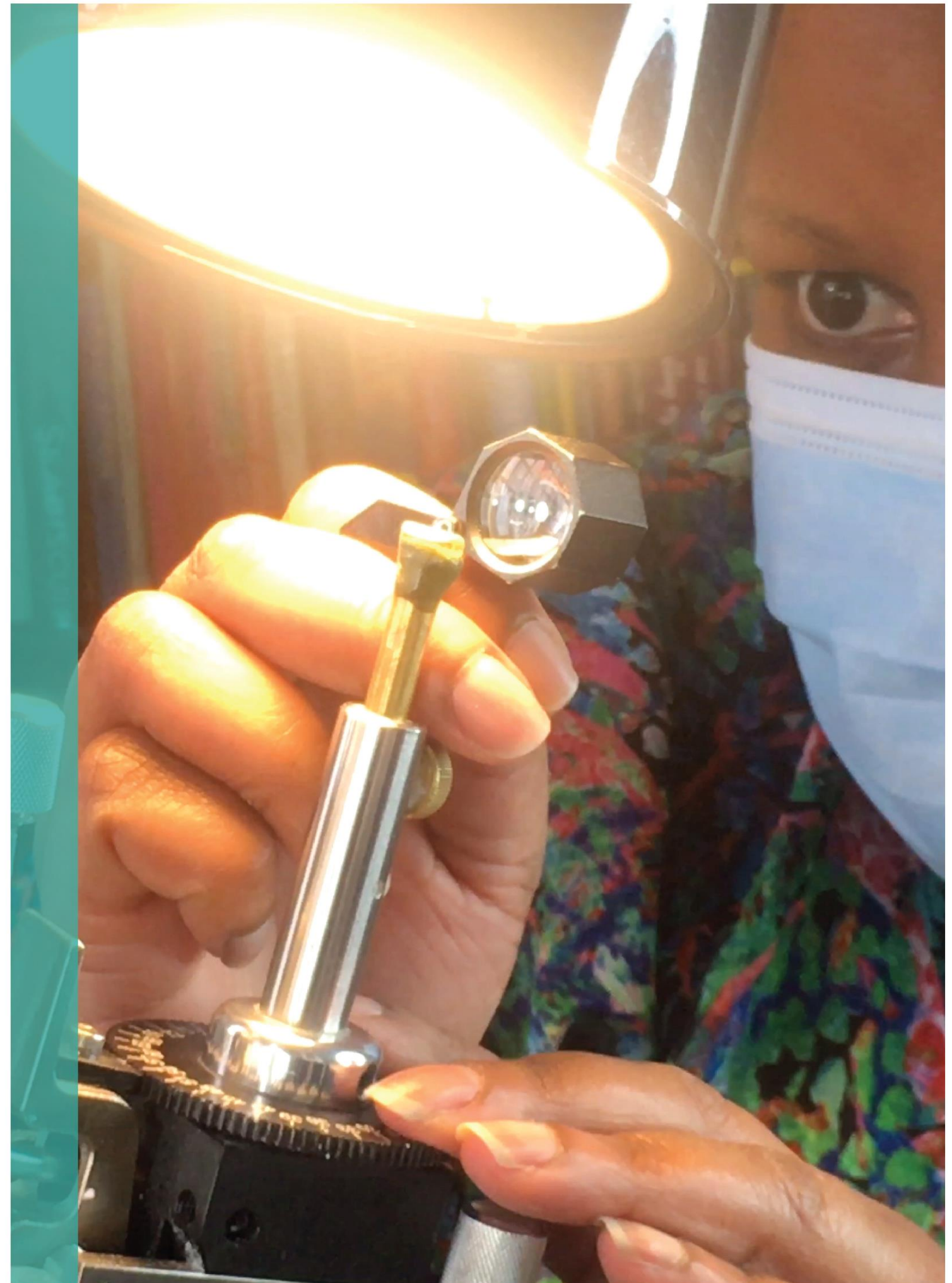
Faceting is the process of cutting and polishing flat surfaces on a gemstone. There are various shapes that can be cut such as ovals, cushions, Hearts, Rounds, Emeralds, Marquise, Pears and many others.

When cutting a gem, we use precise angles and index values. The angles that we use are determined by the refractive index of the gemstone. In this case, we will be using a 96 tooth index Gear.

While cutting water drips constantly from the drip tank. The water flushes the dust away thus preventing the cutter from inhaling it. The water also keeps the gemstone cool during cutting.

We use Laps to cut. These are metal disks with abrasives on the surface normally charged with diamond. We start by using a course Lap in this case a 260 grit lap, then 600 grit lap and finally a 1200 Grit lap.

There are three main parts of a cut gemstone. The pavilion, the Girdle and the Crown. We will start by cutting the pavilion and girdle facets, then we will turn the gemstone and proceed to cut the crown.



STEP 1.

INSPECT THE GEMSTONE

The shape of the rough gemstone will determine the best shape to cut. Using a course lap, pre-shape the gemstone into the desired shape while removing imperfections.



STEP 2.

DOP THE STONE

This is the process of attaching a metal or wooden rod to the stone by using wax or various Glues and Epoxys. This dopping stick is then attached to the faceting machine. We used a flat dop.



STEP 3.

CUT THE MAIN PAVILION FACETS

Start by cutting the main pavilion facets with a course lap. We used a 260 grit lap. In this case we cut the main facets to centre point. After that change the angle to 90° and cut the girdle facets.



STEP 4.

RECUT THE FACETS

Change the lap to a 600 grit lap and recut the facets that were placed with the previous 260 grit lap. This will remove the scratches that were created by the courser lap.



STEP 5.

RECUT THE FACETS AGAIN

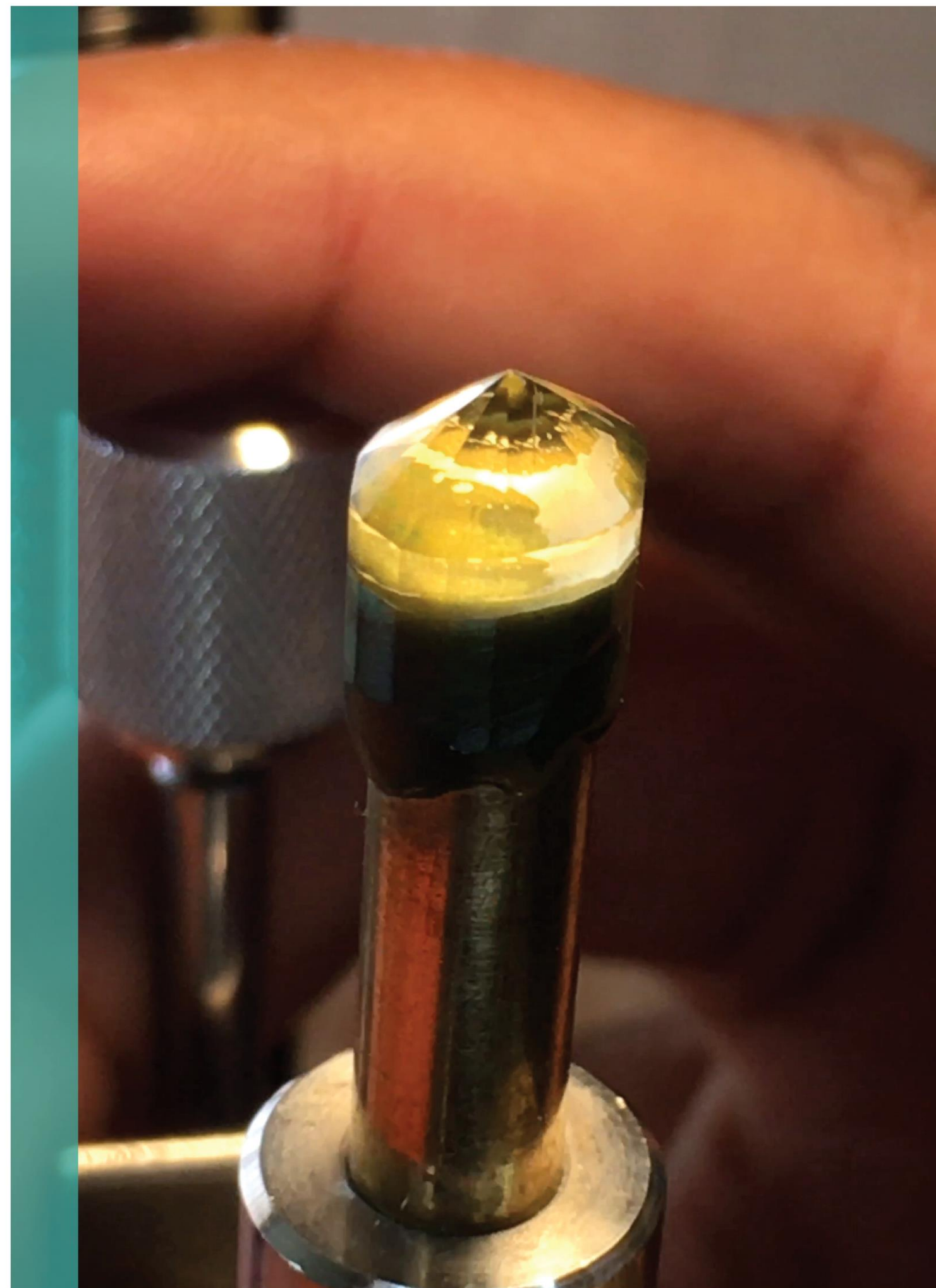
Change the lap to a 1200 grit lap and recut the facets again. Make sure to use a loupe so as to ensure that the facets all meet at a sharp point. This lap will make the facets smooth and ready for polishing. At this stage, we will cut the smaller star and break facets which cut very fast.



STEP 6.

POLISH THE GEMSTONE

All the facets have now been cut. It is time to polish the gemstone. Using the same angles and index values polish all the facets and check with a loupe that the full facet is polished. In this case we used a blue Spectra Cerium Oxide Ultra Lap. These are thin coated mylar discs. After all facets have been polished, mark one or two facets area and the index number. This will make it easier to orient the gemstone precisely when cutting the crown after transfer.



STEP 7.

TRANSFER

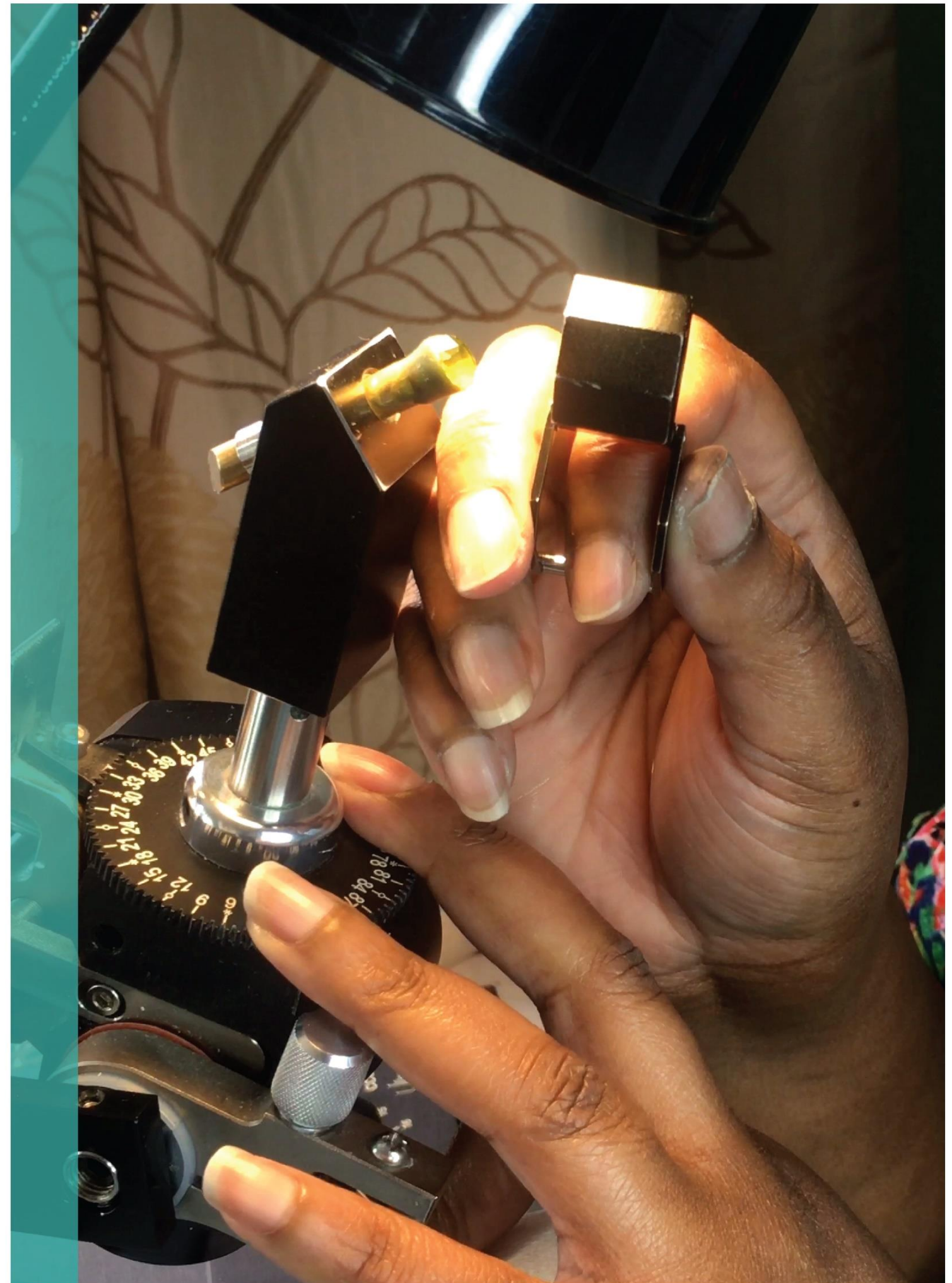
This is the process of turning the gemstone so as to cut the crown and table. For this we use a transfer fixture. The dop used will be cone shaped to allow the pavilion to be dopped without breaking. Place the dop with the stone on one side of the transfer fixture and secure it. On the opposite end, place the cone shaped dop and apply melted wax or epoxy. Move this dop until it makes firm contact with the gemstone and secure by tightening the screw. Wait for the adhesive to dry and set. Using heat, remove the first dipstick carefully.



STEP 8.

CUT THE CROWN

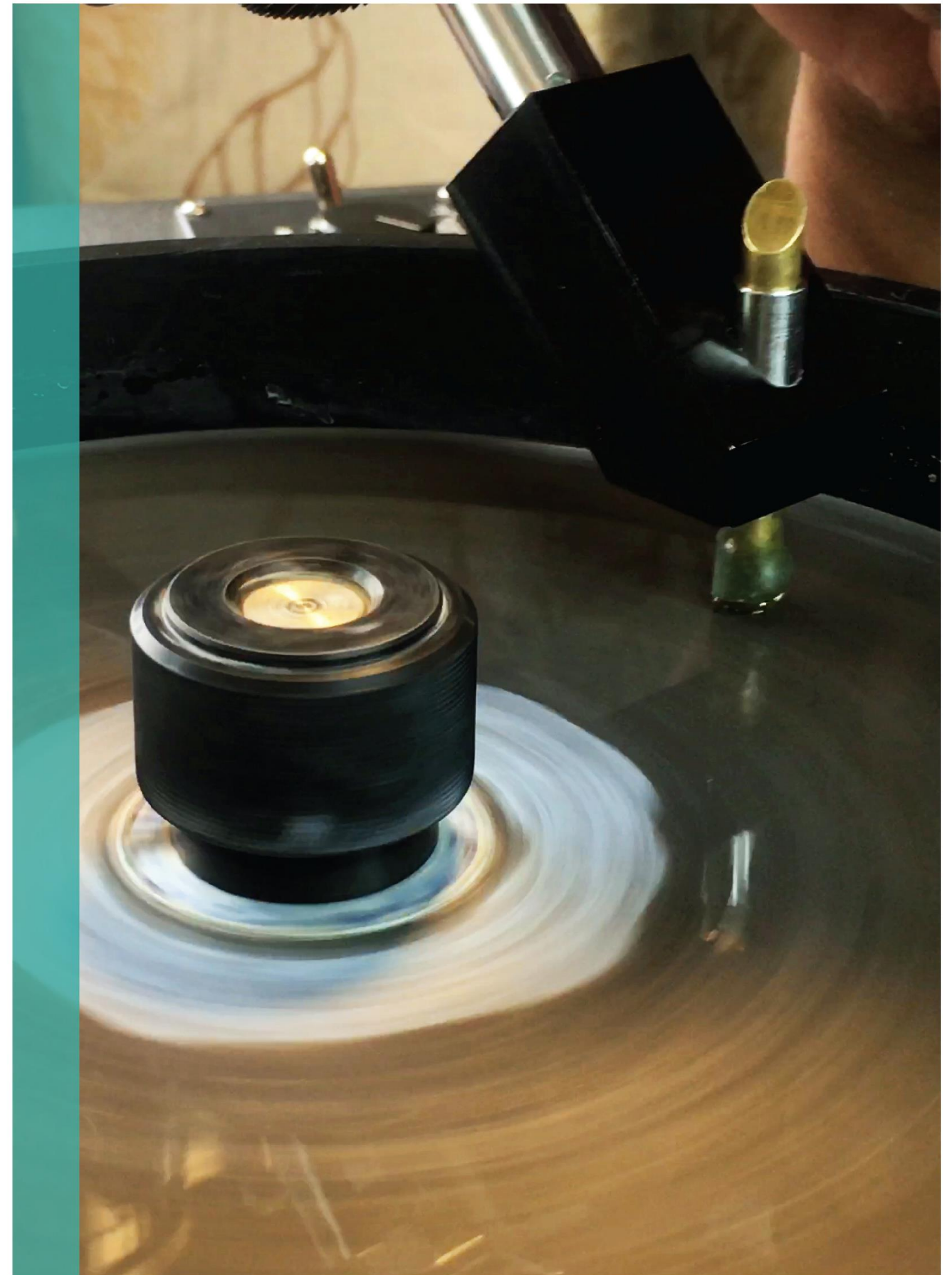
Set the machine to 90°. Set the index you had marked earlier and make sure the facet sits flat on the lap. Sweep gently and check if the facet is placed correctly. You can now proceed to cut the crown facets starting with the main crown facets. Use 600 grit lap to cut the main facets down towards the girdle and stop when you are satisfied with the girdle size. Change to a 1200 grit lap and cut the main facets again. Then proceed to cut the break and star facets. Finally polish all the facets.

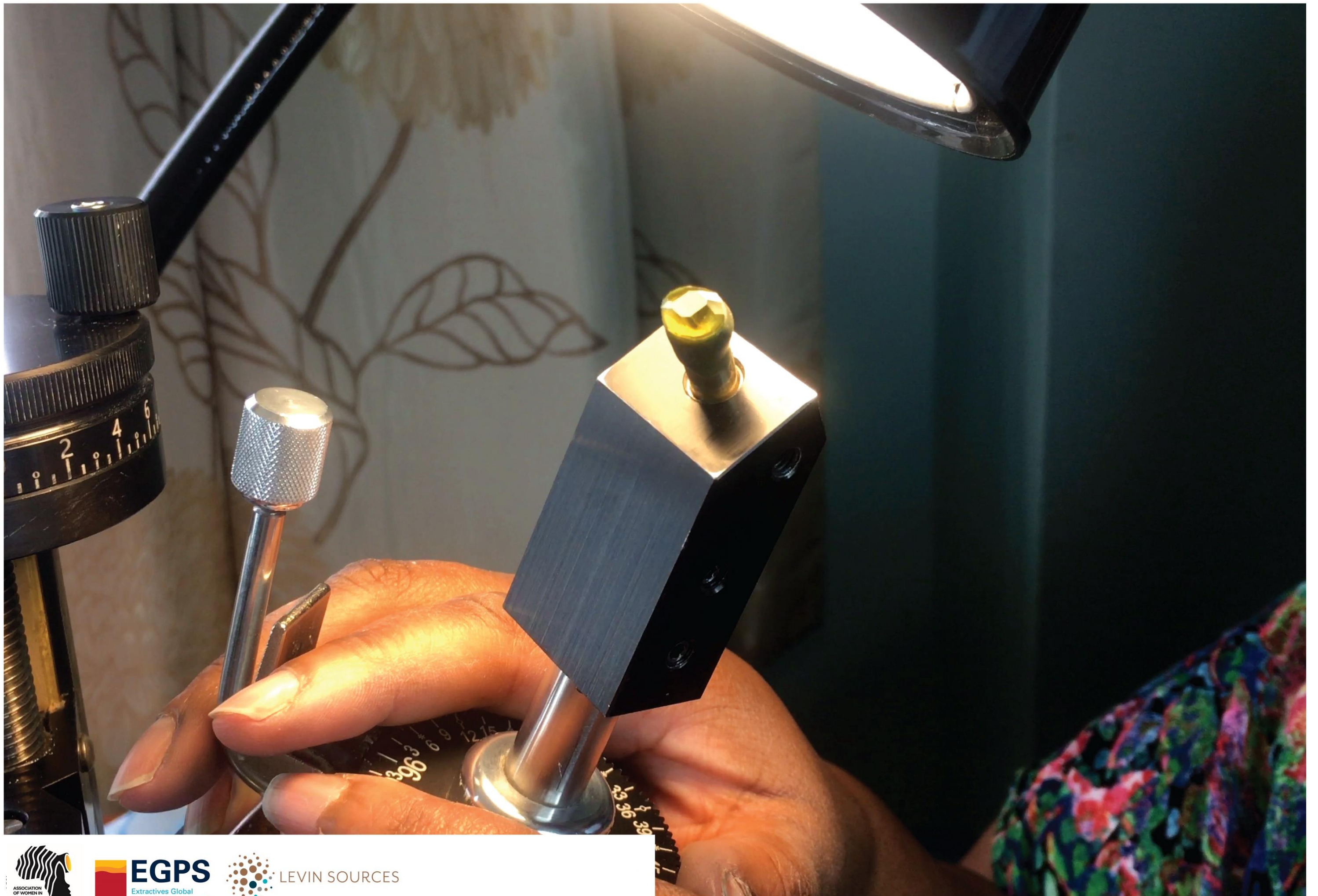


STEP 9.

CUT THE TABLE

To cut the table we use a table adapter. Remove the dop stick from the machine and attach a table adapter to the faceting machine. Insert the dop into the table adapter and set the angle to 45°. Use a 600 grit lap to cut a bit of the table. Switch to the 1200 grit lap to cut the rest of the table. Cut until the table almost touches the juncture of the break and main facets. Then polish the table to touch the break and main facets. Remove the doptick from the machine and detach the stone from the dop and clean it.







THANK YOU