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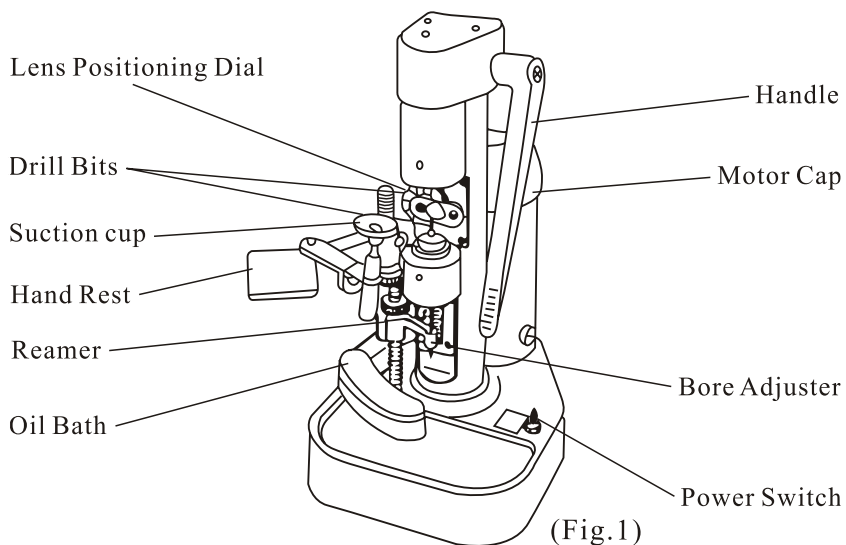
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1.Safety Precautions

- (1) Don't start this machine before you read the manual over and grasp all the instructions and rules;
- (2) Don't use this machine for other purposes than drilling spectacles lenses.
- (3) Handle those drill bits and reamer with sufficient care to avoid any injury by the sharp-pointed drill bits and reamer.
- (4) Don't use this machine when the power requirements(voltage and frequency)are not met.You should be clear about the actual working power supply;
- (5)If any liquid or other materials come into the machine,turn the switch off immediately and pull the plug out of the wall socket; Please don't start the machine again until the machine is thoroughly checkedand repaired by an expert in this line;
- (6) Replacing the spare parts after the machine working for a long time,you'd better to buy the matching ones from the original
- (7) If the machine not to be used for a long time,please pull the power plug out of the wall socket.

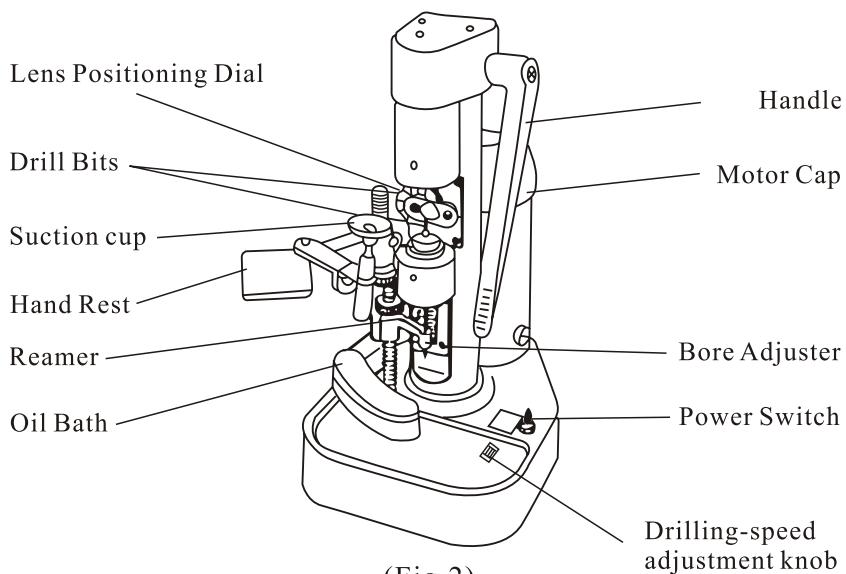
2. Accessories and Mechanisms

(1)SMD-I



Drill Bits	Two drill bits of the same style,drill a lens simultaneously from the upper and lower sides,
Reamer	Ream the drilled hole with high accuracy in the
Bore Adjuster	range of 0.8mm Φ to 2.8mm Φ in increments of 0.2mm.
Handle	By pushing this handle,the lens is drilled.
Lens Positioning Dial	Set the lens position relatively to the drill bits.The distance from an edge of the lens to the point to be drilled can be adjusted in the range of 2.0mm to 8.0mm in increments of 0.5mm.
Suction cup	Fix the lens.
Hand Rest	Stabilize the hand holding a lens for drilling properly.
Oil Bath	Contains the cutting oil to be used for drilling lenses.

(2)SMD- II



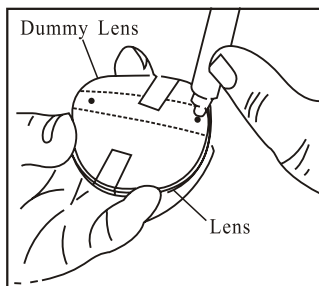
(Fig.2)

By rotate the drilling- speed adjustment knob,you can adjust the bits runing speed to the desirable speed you want.Note: when simultaneously turn on the power switch and drilling-speed adjustment knob,the function of drilling-speed adjustment will be disabled.Ture off the power switch,only keep the drilling-speed adjustment knob working,the function will be available.

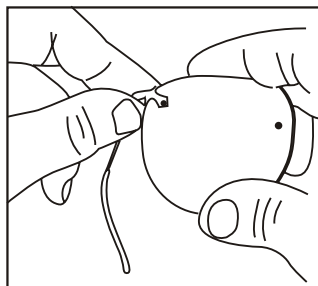
3. Operations Instruction

(1) Preparations before operation

- <1-1> First wrap up both surface of the lens with an adhesive tape to protect it from any accidental scratch.
- <1-2> Place the dummy lens removed from the frame over the lens to be drilled, and firmly fix both lenses each other with an adhesive tape. (Fig.3)
- <1-3> Mark points on the lens through the holes in the dummy lens with a marking pen. (Fig.3)
- <1-4> Remove the dummy lens from the lens and check to make sure the points marked on the lens are placed correctly by applying each part of the frame to the lens as shown in Fig.4



(Fig.3)



(Fig.4)

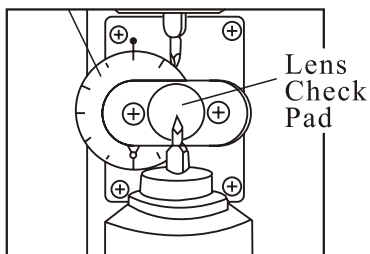
(2) Drilling Lens

- <2-1> Put an edge of the lens to the lens check pad and adjust the lens Position by turning the lens positioning dial so that the points of the drill bits exactly come onto the drilling point marked on the lens. (Fig.5)
- <2-2> Hold the lens by hand and keep the lens surface to be drilled horizontally. Adjust the height of the hand rest properly by turning a knob located under the hand rest, so that your hand holding the lens can be stabilized. (Fig.6)

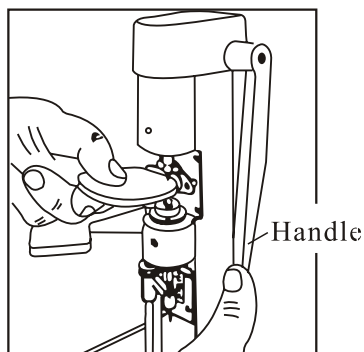
<2-3> Switch the power on and on trial, make a slight hole onto the point marked on the lens, by pushing the handle carefully. (Fig.6)

Then check to make sure the trial hole is made in place.

Lens positioning Dial



(Fig.5)



(Fig.6)

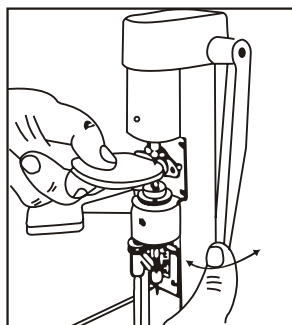
(3) Drilling of differew lens materials

<3-1> Plastic (CR-39) Lens

- The lens can be placed either side of face up.
- No cutting oil is necessary.

<3-2> Glass (mineral) Lens

- Place the lens back-face side up.
- Put the accessory cutting oil in the oil bath (Fig.1), and soak the part of the lens to be processed in the cutting oil when ever drilling scraps become white and dry.



(Fig.7).

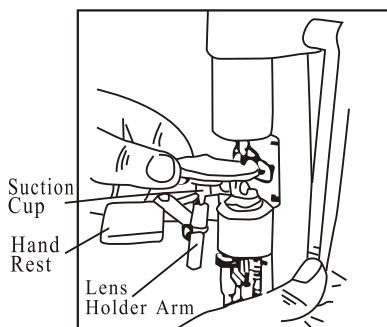
<3-3> Polycarbonate Lens

- Do not attempt to drill at a sitting but carefully and slowly drill by pushing and releasing the handle alternately several times over.

(Fig.7)

- No cutting oil is necessary.

(4) Drilling with suction cup



(Fig.8)

<4-1> Set the lens holder arm onto the hand rest.(Fig.8)

<4-2> Fix the lens with the suction cup and set it onto the holder arm.(Fig.8)

<4-3> Adjust the inclination of the lens so that the lens surface to be drilled is placed horizontally.(Fig.8)

<4-4> Adjust the height of the lens properly by turning a knob located under the hand rest.(Fig.8)

(5) Reaming drilled hole

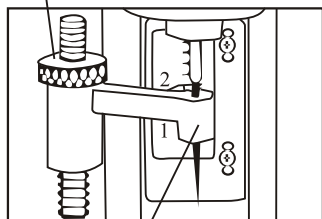
<5-1> Set the diameter of the hole to be finished by turning the bore adjuster knob.(Fig.9) The bore can be adjusted in the range of 0.8mm Φ to 2.8mm Φ in increments of 0.2mm.

<5-2> Insert the point of the reamer into the drilled hole in the lens, then lift up the lens slowly until it touches the bore adjuster arm slightly.(Fig.10 & 9)

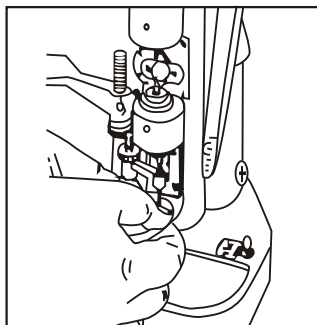
<5-3> Turn the lens over and ream the same hole again in the same manner as the above<5-2>.

[CAUTION] Use the cutting oil when reaming a glass (mineral) lens. In case the reaming process takes too long, the interval between both drill bits should be adjusted in accordance with the procedures for “ADJUSTMENT OF DRILL BITS INTERVAL” in next chapter.

Bore Adjuster Knob



Bore Adjuster Arm (Fig.9)

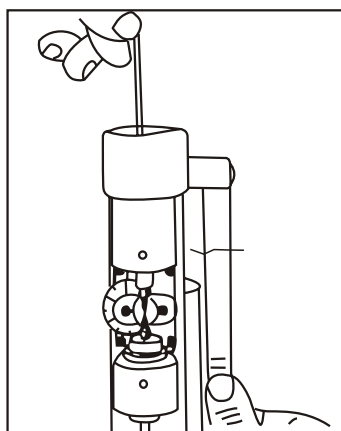


(Fig.10)

4.Maintenance

(1) Adjustment of drill bits interval

The interval between the upper drill bit and lower drill bit should be as small as possible, but they must not touch each other. The



(Fig.11)

optimum interval is 0.1mm. To check this interval push the handle completely, and adjust it, proceed as follows:

<1-1> Insert the accessory 3mm allen key into the hole on the top of the machine while pushing the handle completely. (Fig. 11)

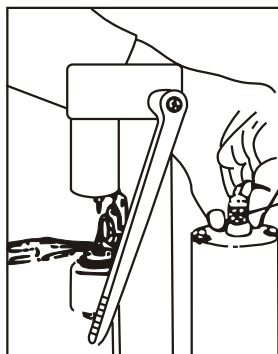
<1-2> To make the interval smaller, turn the allen key clockwise. To make the interval larger, turn the allen key anti-clockwise.

(Fig.11)

(2) Replacement of drill bits

<2-1> Remove the motor cap from the motor. (Fig. 12)

<2-2> Grip the neck of the drill bit with a pliers and turn the motor knob, and the drill bit will come off. (Fig. 12)



Motor Knob

(Fig. 12)

<2-3> To reset the drill bit, follow the above procedures oppositely.

[NOTE]

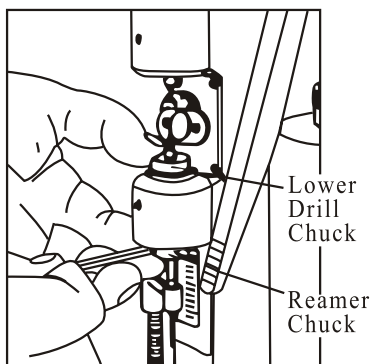
Both the upper and lower drill bits should be set so that those edges align strictly. As both drill bits are the same in size and shape, they can be set to either position.

(3)Replacement of reamer

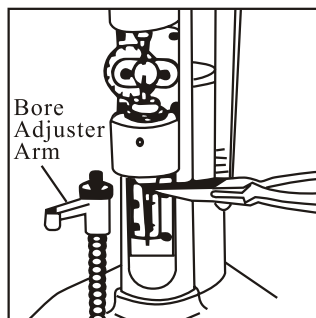
- <3-1> Remove the reamer by loosening its setscrew located on the reamer chuck. (Fig.14)
- <3-2> Insert the new reamer into the reamer chuck completely. Then tighten the setscrew while gripping the lower drill chuck and reamer chuck by fingers so that both chucks don't play.(Fig.14)
- <3-3> Check to make sure the reamer rotates without deflection.
- <3-4> If there is any deflection on the reamer.....

Depress the bore adjuster arm completely and release it from the reamer. Then correct the deflection by gripping the haft of the reamer with a pliers.(Fig.15)

[WARNING] Do not attempt to bend the reamer with a pliers gripping the edge part of the reamer. Doing so can break off the reamer.



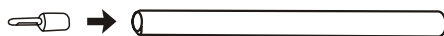
(Fig.14)



(Fig.15)

(4)Sharpening drill bit

If the drill bit becomes dull in the long period of use, it can be sharpened on a whetstone by using the accessory drill bit holder. (Fig. 13)

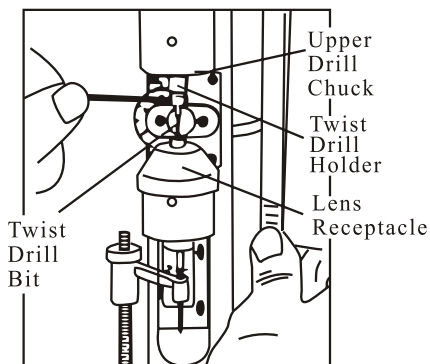


(Fig.13)

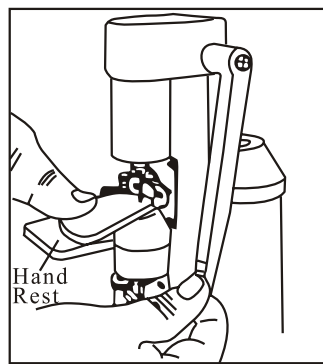
5. One-sided Drilling With Twist Drill Bit

By using an optional accessory one-sided drilling attachment, plastic (CR-39) and polycarbonate lenses can be drilled with a twist drill bit of 0.8mm Φ to 2.2mm Φ .

- (1) Take off both the upper and lower drill bits in accordance with the procedures for “REPLACEMENT OF DRILL BIT” on page 8;
- (2) Insert the twist drill holder into the upper drill chuck firmly and set the lens receptacle over the lower drill chuck. (Fig.16)
- (3) Insert a twist drill bit into the twist drill holder. Adjust the position of the twist drill bit so that its point comes into the hold on the top of lens receptacle by approx. 1.0mm when the handle is pushed completely, then tighten the setscrew on the twist drill holder. (Fig.16)
- (4) To drill a lens adjust the hand rest in a proper position so that the lens can be placed correctly and stably as shown in Fig.17. Then push the handle lightly and slowly. Do not drill at a sitting.



(Fig.16)



(Fig.17)

6.Main Technical Indexes

Materials of Lens Acceptable	Glass(mineral)/ Plastic (CR-39) Polycarbonate / etc.
Acceptable Diameter of Drilling	0.8mm Φ to 2.8mm Φ
Dimensions	140(W) \times 185(D) \times 275(H)mm
Weight	4.1kg
Power Requirements	100 to 120V / 60Hz AC or 200 to 240V / 50Hz AC,