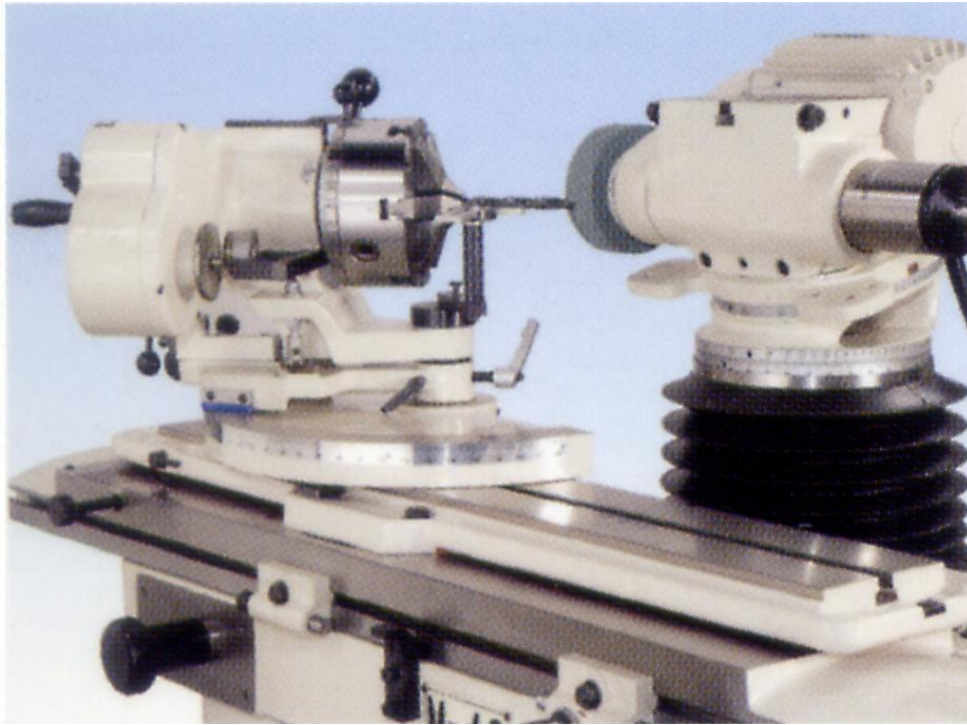


8.10 Drill Grinding Device



1. Introduction

Device can accurately grind precision drill and tools, this drill grinding machine system consists of a motor and grinding wheel head composed of the drill tool in a precision six claw clip manual chuck, and with a rotatable operating handle, when swing operation handle, that produce the following actions:

- (A) The rotation of the drill blade in contact with the wheel.
- (B) Drill bit to the forward movement of the wheel, which is determined by a simple plane caused by the cam and the drive arm.
- (C) By the rotation of the operation 1 and 2 together, can produce about necessary, Forward and backward rotation, and rotation of the left and right around the vertical arm by means of proper adjustment of the cam drive for grinding.

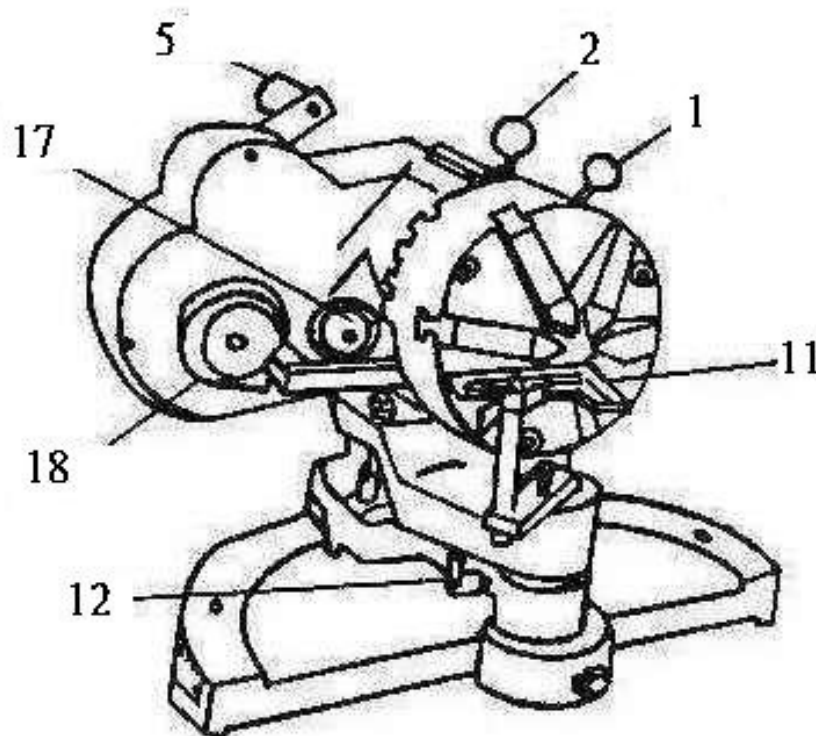
2. Installation

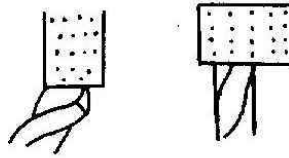
Three methods of operation

- (A) By the arrows in the slider on the scale required in the angle, and then tighten (12) handles. Pulled the latch position behind the locking screws, remember locking.
- (B) Fitted inside the grinding cam 6, the upper fixed block (2) on the green slot.
- (C) After setting the required bevel adjustment (1) handle rake angle $0^{\circ} \sim 18^{\circ}$ can be adjusted after the oblique angle is larger, thinner blade. The higher the

hardness of the material to be cut, then the posterior oblique angle should be smaller; lower the hardness of the material to be cut, then the posterior oblique angle should be larger.

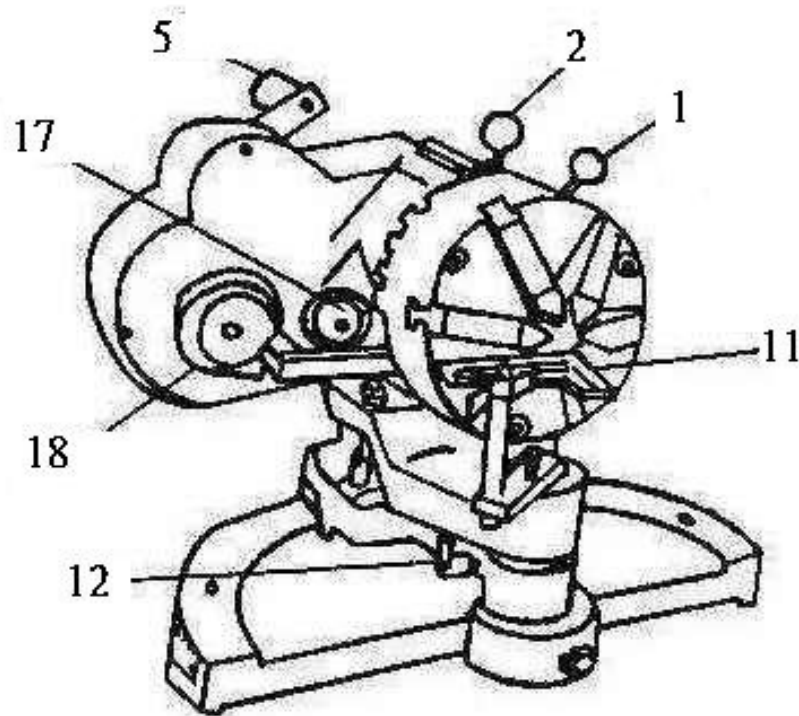
- (D) If a straight shank drill bit, then caught in six claw clip directly to the head; such as slope handle, is mounted on the right sleeve of Mohs, and then to six claw tip drill chuck clamping, which can center of the drill grinding more solid and more accurate.
- (E) Using the drill center setting gauge (11), the cutting edge of drill lips gently touch (11) at the center of the ladder of regulation, while the length of drill chuck sticking out than the drill diameter is about small 2MM. Drill stretched longer, the latter angle smaller; outstretched shorter, the latter angle gets.
- (F) The drill bit tip angle. Rake set up, drill length extending six jaw chuck and drill lip height fixed Well, then the fixed block (2) board from six jaw chuck green tank, rotation (5) Handle, working head that is swinging around. Rotary and forth movement three movements.
- (G) Operations before and right hand wheel, the wheel near the drill bit, and then start switch, grinding wheel that is fast turning, the wheel head before turning left hand wheel, right hand rotation (5) working head handle, has been ground to both sides of the diamond polished lip and all that available. To stop grinding, you must no longer feed wheel, the drill ground to be removed when no spark drill.



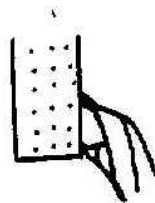
(1) Front Angle $80^{\circ} \sim 180^{\circ}$ Grinding


- (a) By the arrows in the slider on the scale required in the angle, and then tighten (12) handles. Pulled the latch position behind the locking screws, remember locking.
- (b) A grinding unit mounted on the inside of the cam on the 4th, the upper fixed block (2) on the green slot.
- (c) After setting the required bevel adjustment (1) handle rake angle $0^{\circ} \sim 80^{\circ}$ can be adjusted after the oblique angle is larger, thinner blade. The higher the hardness of the material to be cut, then the posterior oblique angle should be smaller; lower the hardness of the material to be cut, then the posterior oblique angle should be larger.
- (d) If a straight shank drill bit, then caught in six claw clip directly to the head; such as slope handle, is mounted on the right sleeve of Mohs, and then to six claw tip drill chuck clamping, which can center of the drill grinding more solid and more accurate.
- (e) Using a drill center setting gauge (11), the diamond cutting edge lightly touch the lip (11) at the center of the step gauge and length of the drill chuck projecting approximately smaller than the drill diameter 2MM. Drill stretched longer, the latter angle smaller; outstretched shorter, the latter angle gets.
- (f) The drill bit tip angle. rake set up, drill length extending six jaw chuck and drill lip height fixed Well, then the fixed block (2) board from six jaw chuck green tank, rotation (5) handle, working head that is swinging around. rotary and forth movement three movements.
- (g) Operations before and right hand wheel, the wheel near the drill bit, and then start switch, rotary grinding wheel that is fast,

Turn left front wheel pedestal hand wheel, right hand rotation (5) working hand, has been ground to both sides of the entire drill lip Polishing can be. To stop grinding, you must no longer feed wheel, the drill ground to no sparks when desirable The next bit.

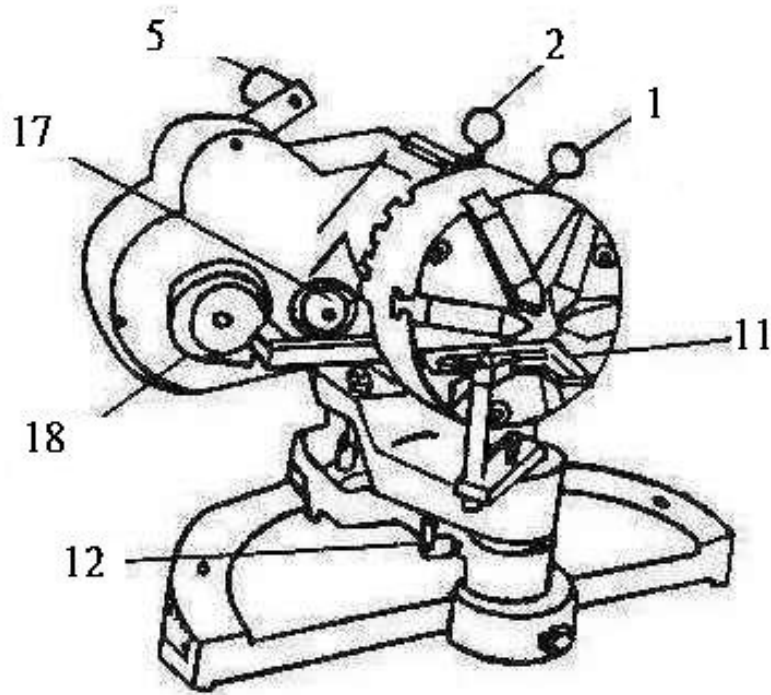


- (2) Front Angle $40^{\circ} \sim 80^{\circ}$ Grinding
Drill front wheel angle in the side as shown:



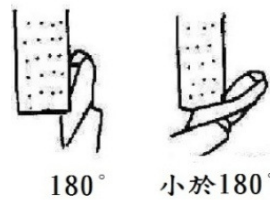
- (a) To 6 grinding unit mounted on the inside of the cam.
- (b) The release handle swing arm regulating pin placed in the seat position adjustment.
- (c) Determine the set position on the right side of the chuck on the ruler.
- (d) To (12) fixed to the handle screw loosen host header, and go all the required half angle, then (12) fixed to Hand screw the host header locked.
- (e) If the angle and the end angle is not required at the same time, the bit is set in the normal operation of the blade tip angle grinding until

The same position with the required date, when the angle obtained when the drill along the (11) side of the scale away and then continue grinding.



(3) Class drill grinding

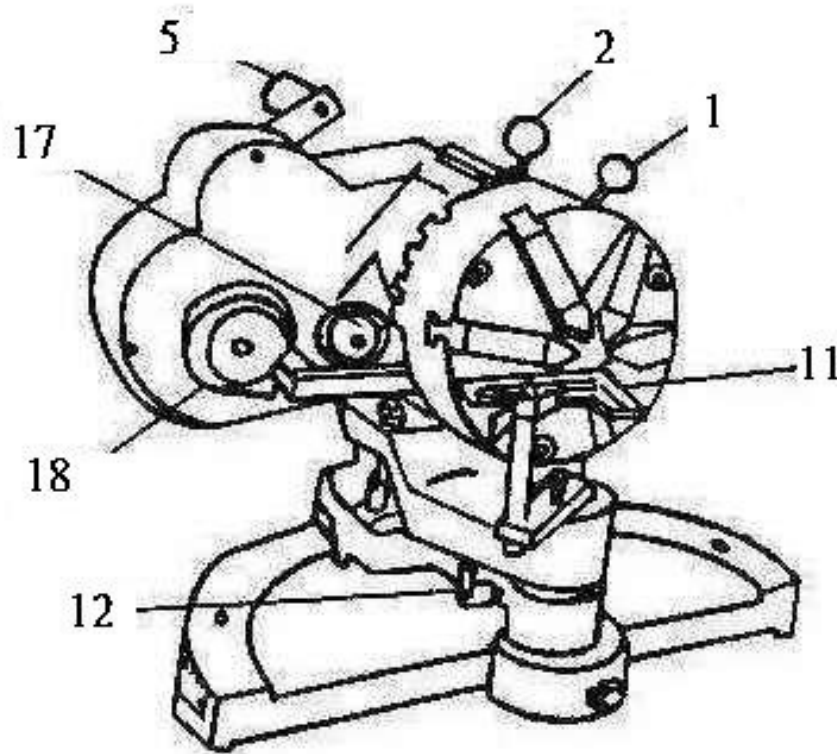
Working head from side to side, just before and after exercise.



- (a) Loaded on the 6th cam inside the grinding pedestal.
- (b) Relaxation (12) fixed to the handle screw, adjust the angle by moving the handle to the desired position.
- (c) Check whether the bolt in position, that pin is inserted in the working head of the pin hole, so that clip

Head does not produce rocking action, only a fixed rotation.

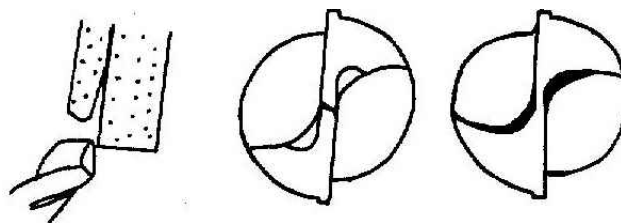
- (d) Less than 180 ° drill hierarchy, then fixed the same way as normal abrasive grinding will be (12) to tighten the screws.
- (e) First class drill cutting edge aligned (11) Regulation of the ladder at the drill center, aligning manner and grinding the same way as ordinary drill.
- (f) After a good bit fixed, at the wheel turn the handle to move the ladder drill, rotary drill bit that is done and moves back and forth on both sides to remove the drill after drill grinding lip.

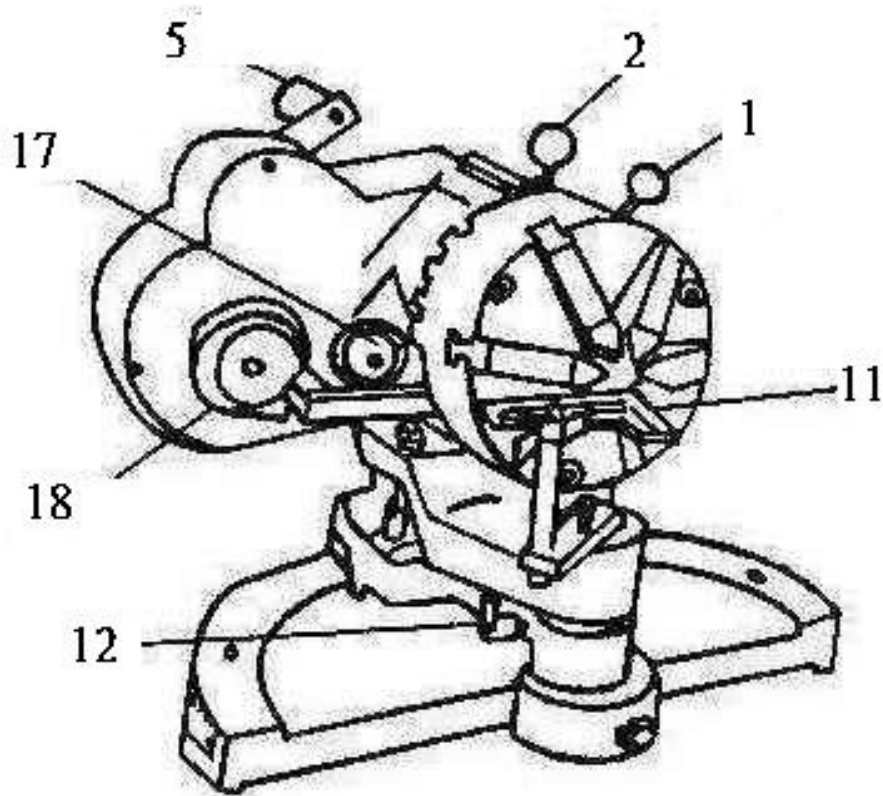


(4) Center thinning

Drill grinding is complete, do not remove, you can move forward and thinning action:

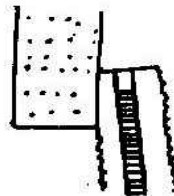
- (a) To (2) Chuck fixed block placed in the six-claw chuck groove (1 to 12) of any one trench, the trench is marked with LH drill grinding L switch.
- (b) A wheel fell indicators ruler about 25mm place. Before and after using the left and right wheels, deep dish wheel to move the drill bit at the belly. Well, when the left position adjustment, followed by the use of front and rear wheel infeed depth determined after a good, then remember that scored above the handwheel.
- (c) When the first plane After grinding, left and right wheels (infeed) does not move, the use of front and rear hand wheel (vertical) to wheel back, chuck rotates 180 ° for edge-to-digital (eg: two pairs of 8 or 1 pair 7), re-do the plunging, and the same as the first side.



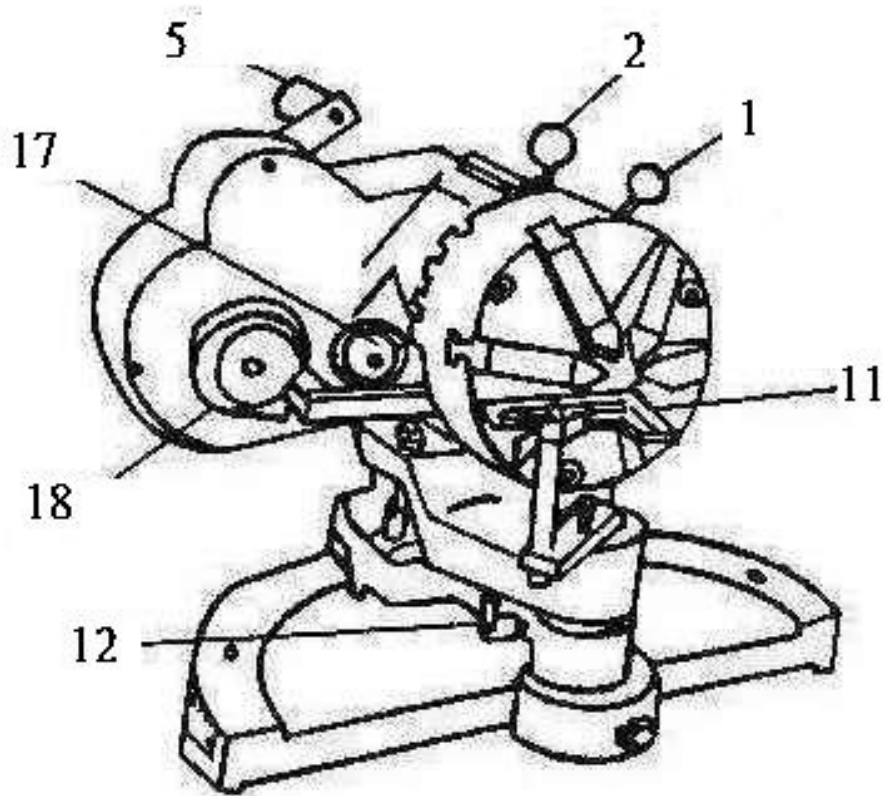


(5) 4 Flute Taps

Chuck only rotary and forth movement, no rocking movement.



- (a) A cam mounted on the 8th seat inside the grinding, the use of wheel side grinding.
- (b) Checking whether to loosen locking screw, bolt is placed in position.
- (c) Moving the carriage to the desired angle, then (12) fixed to the handle screws.
- (d) The chuck (2) fixed to the block is placed in the green channel.
- (e) The screw attack trimming encounter (11) at the center of the ladder rules and methods and general drill set the same, but the extended length limit.
- (f) After the bevel size is determined by (1) is determined after the bevel adjustment lever.
- (g) Turn left and right wheels and rotary (5) working head can handle grinding.

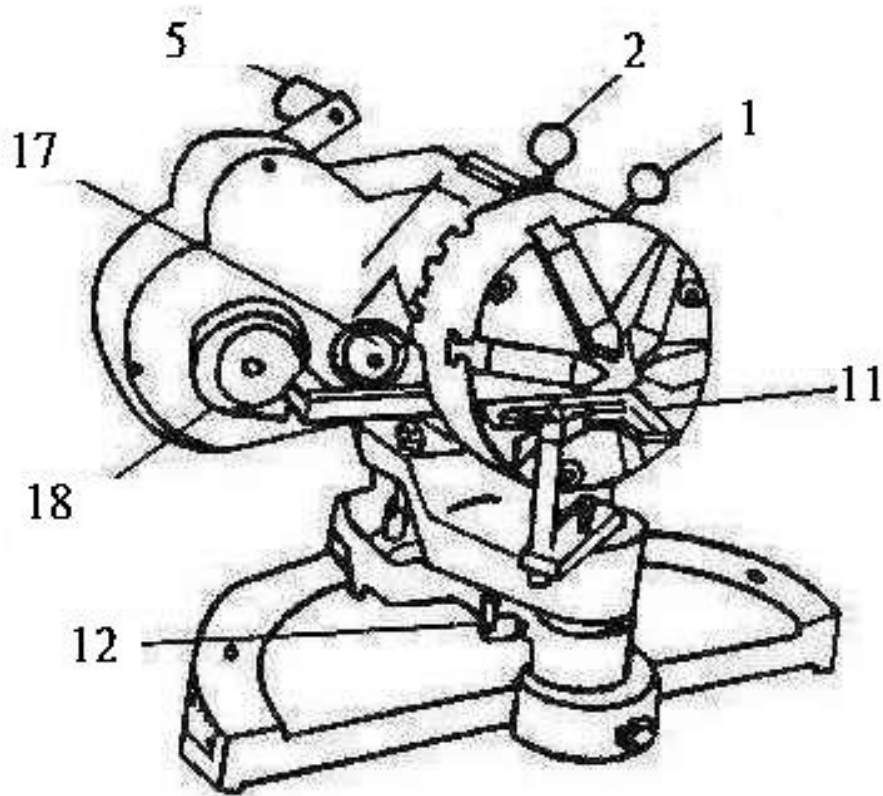


(6) 3 blade screw attack

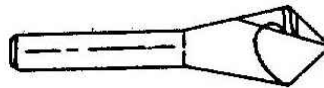
Chuck only rotary and forth movement, no rocking movement.



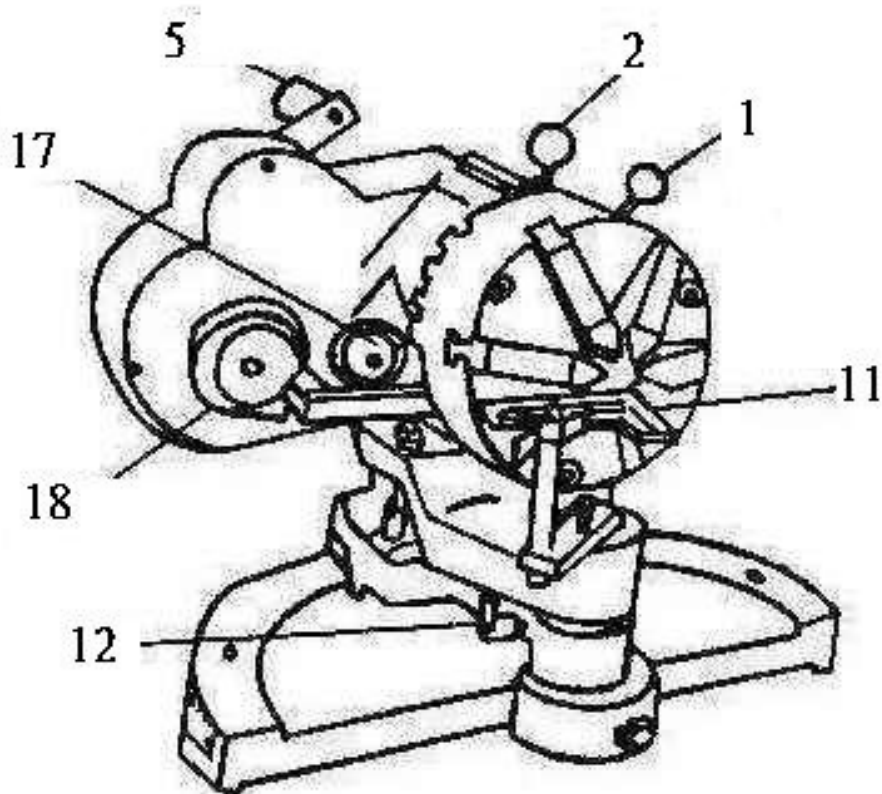
- (a) Loaded on the 9th cam grinding seat on the outside, using the grinding wheel side.
- (b) Checking whether the relaxation locking screw, bolt is placed in position.
- (c) Moving the carriage to the desired angle, then (12) fixed to the handle screws.
- (d) The chuck (2) is fixed on the block is placed in the green channel (12 ~ House No.1).
- (e) The screw attack trimming, aligning chuck groove marks at the green, because it is a single-edged knife, so I do not Jiong drill bit set (drill Flutes as a double-edged).
- (f) After the bevel size is determined by (1) is determined after the bevel adjustment lever.
- (g) Turn left and right wheels and rotary (5) working head can handle grinding.



(7) Chamfering cutter



- (a) No. A2 cam mounted on the outside of the grinding pedestal, the use of grinding wheel can be front or side.
- (b) Checking whether the relaxation locking screw, bolt is placed in position.
- (c) Moving the carriage to the desired angle, then (12) fixed to the handle screws.
- (d) The chuck (2) fixed to the block is placed in the green channel.
- (e) The chamfer knife cutting, aligning chuck groove marks at the green, because it is a single-edged knife, so different drill bit set (drill Flutes as a double-edged).
- (f) After the bevel size is determined by (1) is determined after the bevel adjustment lever.
- (g) Turn left and right wheels and rotary (5) working head can handle grinding.



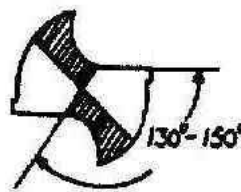
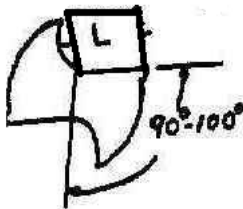
(8) center split (chop Ministry angle grinding)

Center split in two parts operation, we recommend that all drills, first set up in accordance with tradition, then the center of Split.

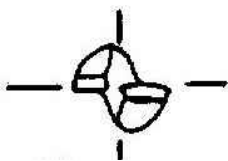
- (a) in accordance with the traditional way of grinding center, but keep the clearance angle at 9° . Cut angle section $90^\circ \sim 100^\circ$, between the center point in the $130^\circ \sim 140^\circ$.
- (b) to 6 "diameter center partition representative of the general grinding wheel grinding. (fine grinding wheel to be used, but the wheel angle must be 90°).
- (c) moving the polishing head to 60° vertical ladder. Will be adjusted to increase the pin to position the rotation movement.
- (d) grinding the working head to the side at a 20° angle, which is to move the center of the scale at the left 150° , which angle can be set to a V-shape, and according to the changes required.
- (e) to (2) Chuck Green set bolt placed among relying seam 1 and 12. The drill bit into the chuck, rotary drill lip to set the blade, and set the number to 44, turn the clamps and take the blade.
- (f) Open the chuck, the index to the red seam and then relying on the chuck bolt.
- (g) both left and right and front and rear feed, the grinding wheel moves RH edge angle corner cut portion. Carefully feed to the left until the big wheel edge just right across the like. Until then previously backward knife cut corners rubbed off about half of the department so far.

- (h) set about infeed axis to the "0" and take grinding wheel clamp placed on red relying seam split across and around the infeed axis until the infeed axis to "0" so far.
- (i) for the front left and right feed and feed are required to complete the center segmentation using indexing plate, unless a small quiet spot in the center, otherwise all angles cut portion must be removed.
- (j) around the feed axis is set to "0" and remove the wheel, do not touch (9) into the left hand wheel.
- (k) Loosen the chuck, release drills, so feed through until the "0", the second side of the cut portion can be split grinding Well, be careful not to move around or left and right wheels.

Sustainable need to split the center wheel dressing up.



- (9) 180 ° drill bit and the end of the grinding mill
(2.3.4.6.12 of the sheet-shaped end mill) (remove the drill bit can be freely rotated cam)



- (a) Check to make sure the screws loosen the handle, and the adjustment pin in position.
- (b) Relaxing the host header, and to align the front angle of 180 ° of the position of the latches engage the pin holes at the position On.
- (c) The adjustment bolt (2) engages in the nip gap (1) inside.
- (d) Until it clenched claw clasp tied endpoint Therefore, the blade should be ground in a horizontal line (Figure).
- (e) The grinding wheel head to lift the ruler lowest position.

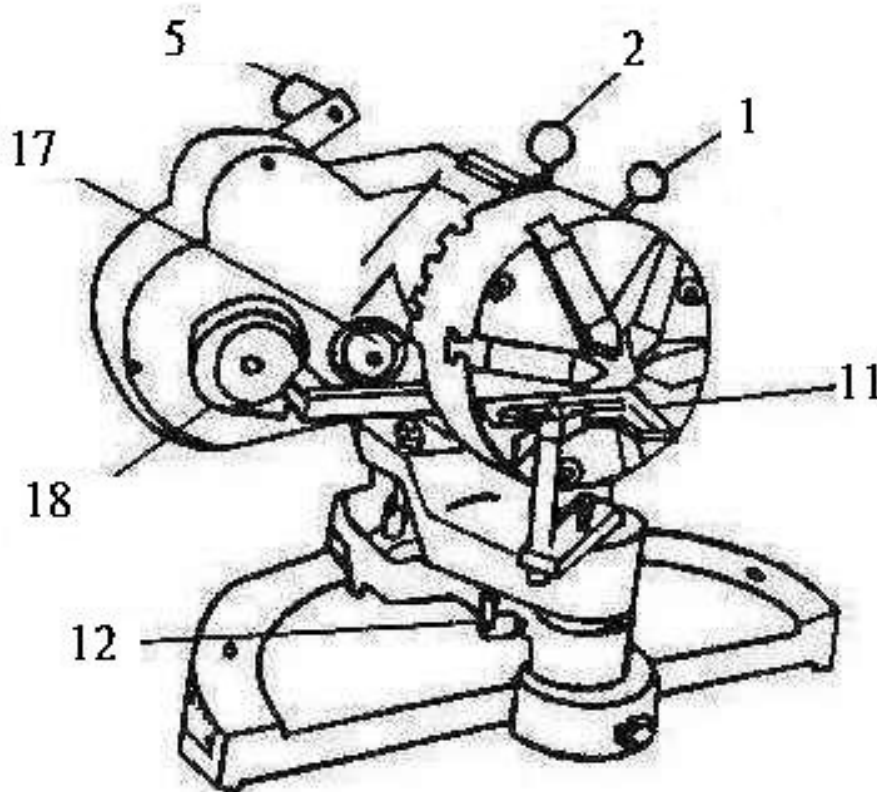
- (f) When grinding, the use of front and rear wheel and right-hand man, so that the endpoints of the blade inside the wheel, and the transverse feed, so the second facet finish grinding (when grinding other facets, will not touch the front hand wheel).
- (g) Pick up (2) adjusting bolt, replace the other blade surface, chuck rotate 180 °, the adjustment bolt (2) to rely on seam (7) within Engagement.

For example:

- 2 end mill: Use rely seam 1.7.
- 3 end mill: Using relying seam 1.5.9
- 4 end mill: Using relying seam 1.4.7.10
- 6 end mill: Using relying seam 1.3.5.7.9

- (h) After completion of the second facet, will adjust the bolt in relying seam (1) to re-engage inside, move up to the vertical standard grinding head

Ruler, both left and right and front and rear feed this second edge, a third edge and so on, will and so on.

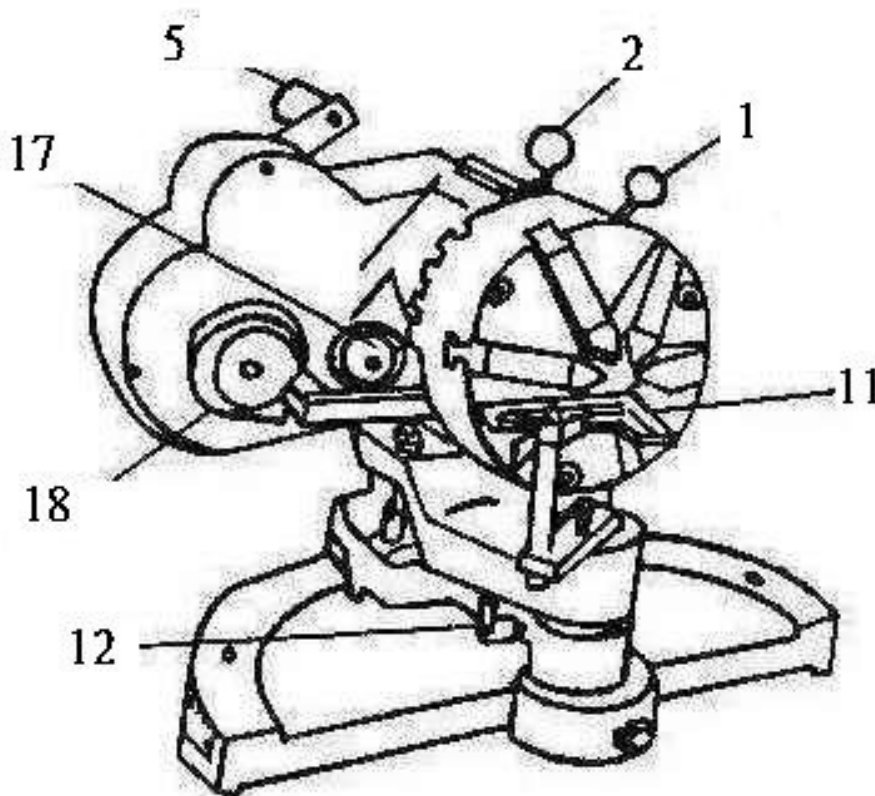
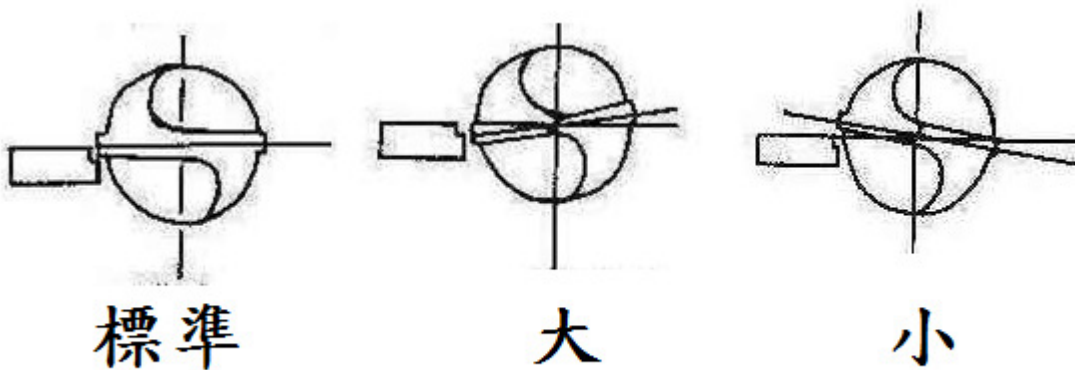


(10) drill grinding Conditions

4.8 mm drill bit diameter less suitable M80 wheel. If successive grinding small drill bit, you must use fine grinding wheel.

Clearance angle adjustment in three ways:

- (a) extend the drill chuck longer, the latter angle smaller; Conversely, the shorter the drill bit stretched, then rake gets.
- (b) drill lip ratio (11) center gauge height is low, the latter angle greater; drill lip ratio (11) center gauge height is high, then the smaller rake angle, as shown.
- (c) Adjustment (1) after adjustment lever angle setting gauge, $0^{\circ} \sim 18^{\circ}$ can easily adjust the angle is larger, the larger the rake angle.



(11) Dresser**(1) plane Dresser**

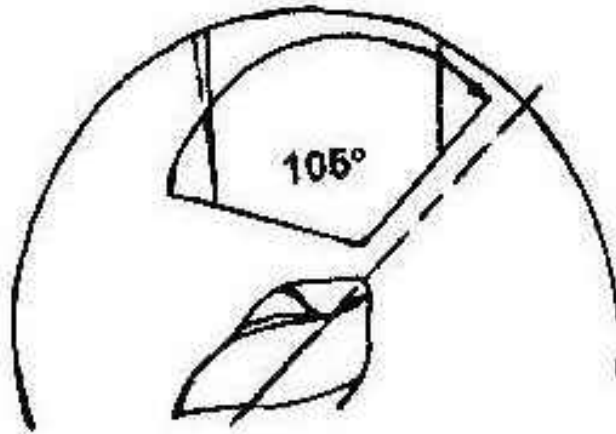
- (a) placing the drill and the wheel at approximately right angles.
- (b) The Diamond Dresser caught in the chuck locking.
- (c) Using (8) before and after the hand wheel to move the diamond Diamond Dresser place, then use the left and right wheel left or right direction.

(2) side trim (right angle)

The Diamond Dresser caught in the chuck, make use of the working head bolt fixed at 180 ° place before and after the hand wheel to make use of the plunging can.

(3) the angle trim (diamond blade thinning of the dressing wheel)

Center thinning with wheel dressing method and angle trim France the same, but the angle wheel side must drill into parallel, while the total wheel angle will be for 105 °, and the front wheel must have a little arc, as shown.

**(12) Guidebooks**

- (a) wheel dressing, you must use paper or other cover will chuck wrap, then reveal only repair diamond knife, so to avoid wheel miscellaneous debris into the folder within the gap.
- (b) drill chuck grip, you can not be too hard, as long as you can gently tighten.
- (c) spindle bore must always remain bright, otherwise it will rust.
- (d) there are two injection hole at skateboarding, you must refuel once a week, any brand of lubricants can be. Machine if the continuous daily use, is about 2 to 3 months time the dust cover must be opened skateboard, check inside is kept clean.
- (e) There are two ball head base supports, ball point must always be kept in the sliding lubrication.
- (f) the cam surface must be kept clean and lubricate.
- (g) use of cooling fluid, must be green polishing liquid, high viscosity can not be used for cutting fluid.

