



ORIGINAL SHUT - DOWN STATE OF THE TURRET

- Brake connected
 - Motor disconnected
 - Electromagnet disconnected
 - Rotating crown 003 linked to the fixed crown 002 through the short circuiting crown 004.
- The dished springs press, by means of the three rollers on three cam ends of the short circuiting crown, keeping the Hirth teeth of the crown in contact.

SEQUENCE FOR A CHANGING OF POSITION:

Electricity is cut off from the brake and connected to the motor which, through reduction stages (the first coaxial and the second epicycloid), starts rotating the planetary roller ring 006 which stops, after a preset angle, against a positive stop. During this phase the central spring 034 pushes the short circuiting crown back, causing the cam ends of the roller to descend and thus disconnect the movable crown which is then made to rotate by the pinion 008.

Nearing the destination station, on the signal given by angular encoder 160, the electromagnet 200 is excited and pushes the catch 017 to make it enter the appropriate pre-positioning recess in the divider 005 thus stopping the rotation of the crown and the associated toolholder disk.

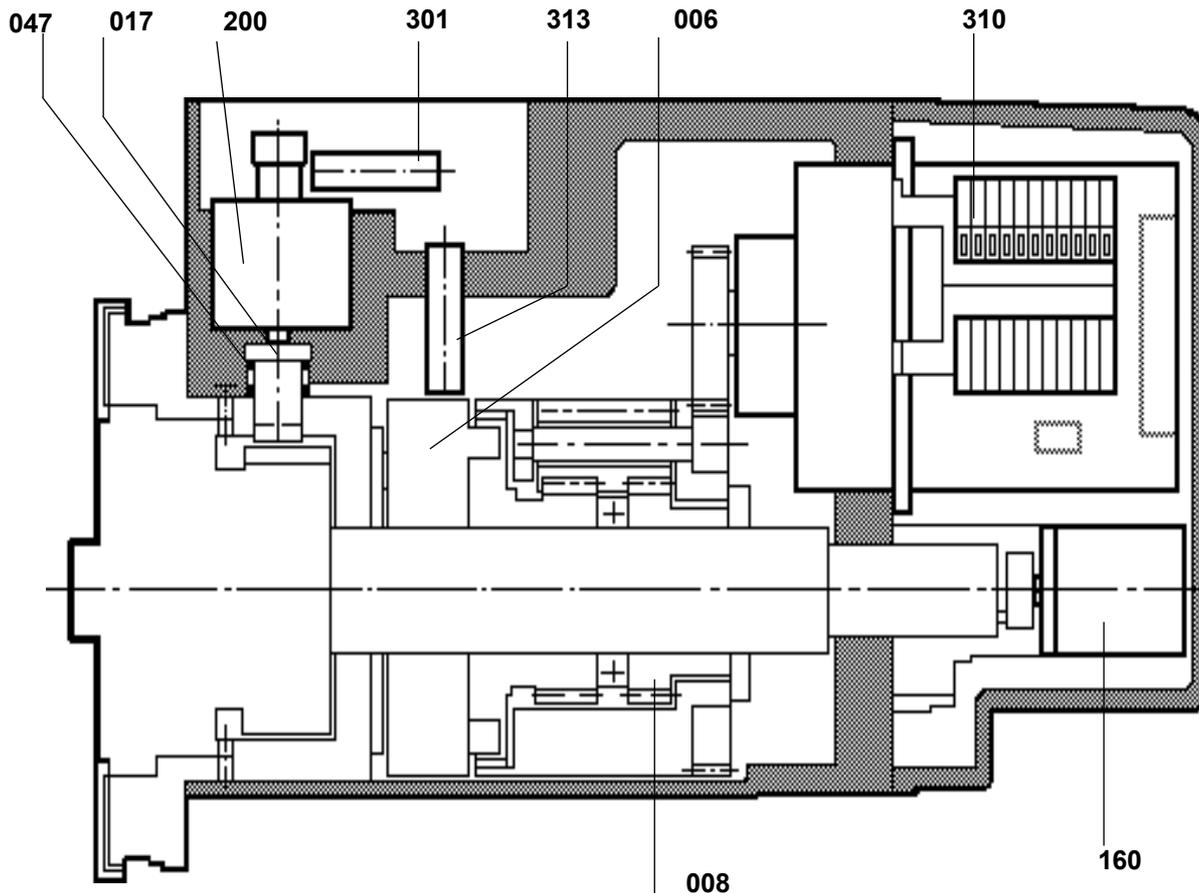
The resulting shock is absorbed by the buffer pads 032.

The completed insertion of the catch into the recess and consequent stopping of the rotation of the disk, is signalled by the pre-indexing proximity switch 301.

Arrival of this signal causes the reverse of the rotation of the motor, and thus also of the planetary roller ring 006; so that the rollers rise on their cam ends and push the short circuiting crown ahead, causing the Hirth teeth to engage.

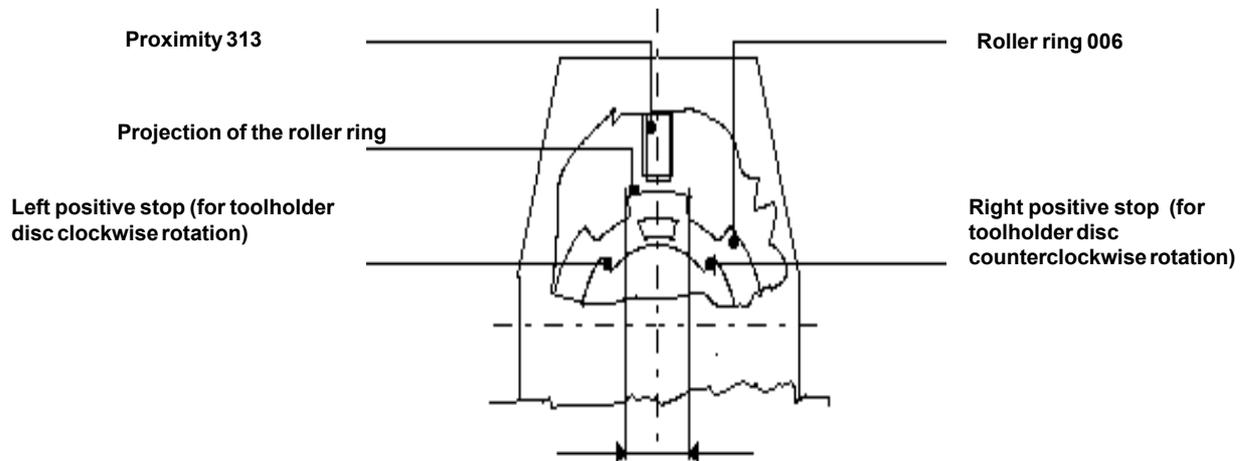
Passage of the external profile (i) of the planetary roller ring 006, activates the locking proximity switch 313, indicating that the turret is closed, or, in other words, that the rollers are on the extreme end of the cams.

When this signal arrives current is cut off from the motor and the brake 175 goes into action to stop it. Immediately afterwards the electromagnet is deactivated, and consequently the catch is pushed out of the recess in the divider by the spring 047.



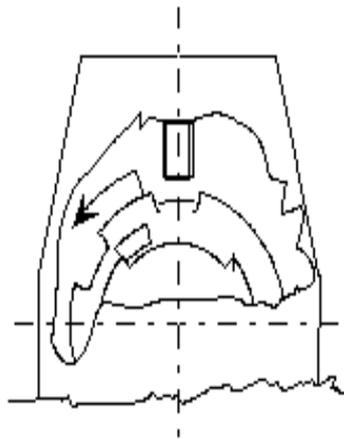


Locked turret (rollers on the high central part of the cams)

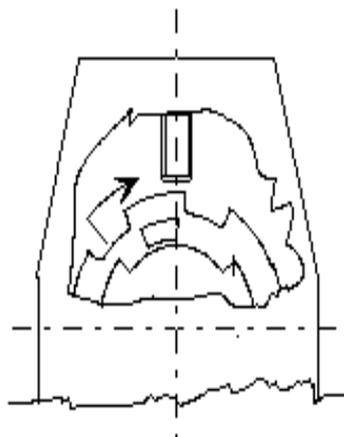


(i) 313 Proximity operating sector (corresponding to the highest part of the cam)

Turret unlocked (the rollers are on the bottom of the cams - Hirth teeth disengaged)



Locked turret (rollers at the beginning of the high level part of the cam . Proximity switch 313 triggers.



The above diagrams show the phases corresponding to a clockwise rotation of the toolholder disk. The movement (or phases) with counterclockwise rotation are the mirror image of the above.