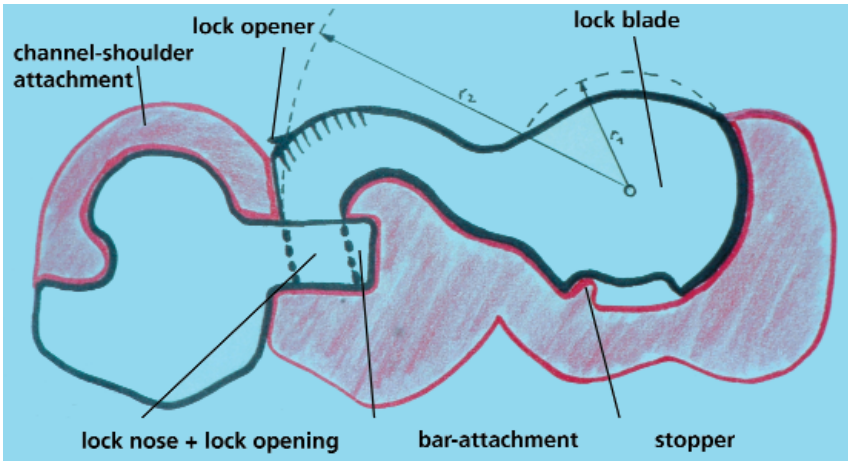
# The swinglock - high tech CoCr

By Frieder Galura

Locks secure doors, letterboxes, gaols and safes in banks - most of the time - but they are also used for the protection of unilateral free-end dentures against uncontrolled removal. In general, this technique routinely uses precious alloys. This article shows an economic fabrication of a swing lock denture by using CoCr-based alloys. These alloys enable more delicate constructions due to their high elasticity, which is approximately twice as high as that of precious alloys. The complete procedure is explained in the following sequence of images.

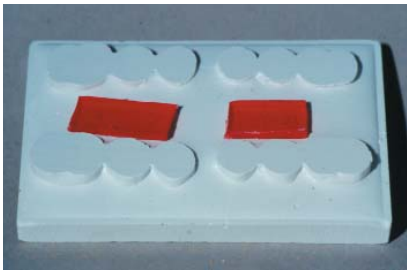
Doing quality specialised lock work can really show customers the potential of your lab. It's like a stamp of quality which can demonstrate that your lab is working with modern innovative techniques.



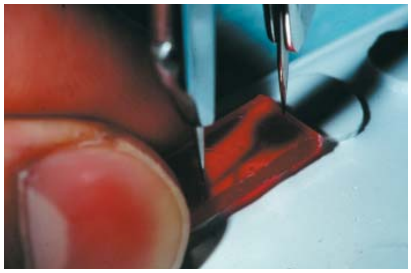

*1. The schematic view shows how the lock technique works. The rotation of the lock blade and the lock nose have two different radii, r1 and r2. A stopper allows for a limited opening movement of the swinglock. The lock is closed when the lock nose swings into the opening of the vertical bar-attachment.*

*2. The model shows the case of a unilateral free-end saddle.*

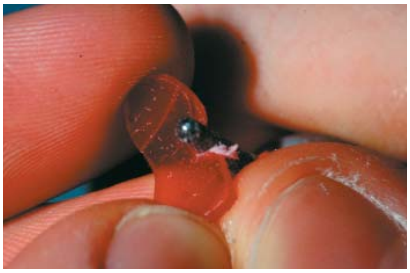
*3. Cutting of an acrylic blade according to the lock size.*



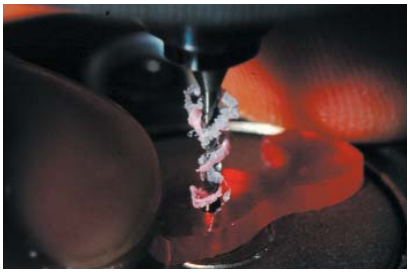
*4. The lock template for the planning of the lock size.*



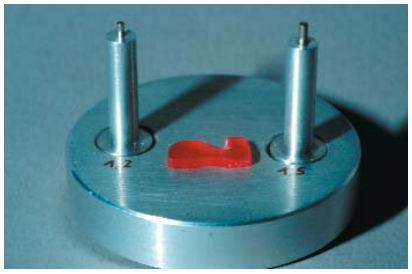
*5. The scratching of r1 and r2 with dividers for the planned rotation of the lock blade and the lock nose.*



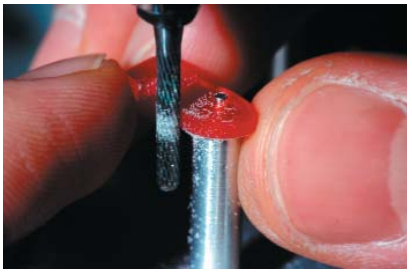
*6. The processing of the rough lock with a TC cutter.*



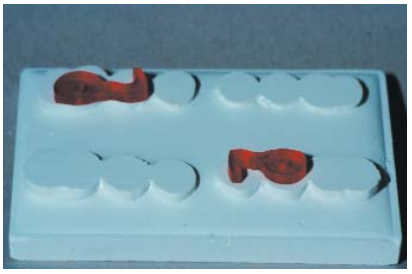
*7. The drilling of the axis hole (diameter 1.5mm).*



*8. The prototype of the lock-milling tool.*

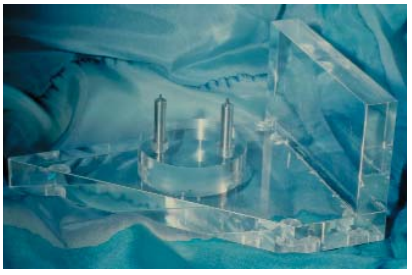


*9. The milling of the acrylic lock.*

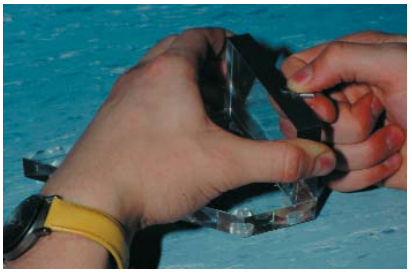


*10. The finished acrylic locks in two sizes on top of the lock template.*


*11. The locks are cast with remanium® star (Dentaurum, Germany), a CoCr based alloy with a low hardness of HV 280! From an economic viewpoin, a lab can prefabricate CoCr locks with different sizes. Who'll really keep gold locks on stock in the drawer?*

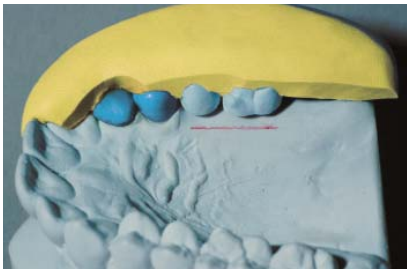


*12. The lock tools in series production.*



*13. The handling of the lock-smoothing tool. The surface of the lock is smoothed with strips of different abrasive papers (corn sizes 240, 500 and 1200).*

*14. The milling of the CoCr lock. The lock is turned in a clockwise direction against the cutters of the milling tool with a fixed milling arm of the milling machine. The lock blade is finished after the milling of the stopper.*



*15. It's required to make an anatomical wax-up of the crowns with milling wax like Star Wax M for the wax milling of the channel-shoulder attachment and a set-up for the correct alignment of the lock.*

*16. The alignment of the lock. The red line shows the palatal limit of the lock.*

*17. The vertical bar-attachment is waxed up around the lock nose.*

*18. The finished wax milling of the channel-shoulder attachment and the bar attachment. The anatomical shape of the crowns is reduced for the ceramic veneering.*


*19. The cast crowns have been invested with Castorit all speed. That's an investment material for C&B technique with a maximum expansion of 3.3% for casting CoCr alloys or precious alloys.*

*20. The finished crowns after ceramic veneering and milling of the attachments with fixed lock.*

*21. The modelling of the lock housing with resin and fixed lock axis.*

*22. The finished wax-up of the secondary construction.*

*23. The view into the lock housing after casting with remanium star.*

*24. All parts of the lock denture processed and put together. The sprue attachment is transformed into the lock opener. The lock axis can be revited.*

*25. The finished lock denture with opened…*

*26...*

*27. . . .and with closed swinglock.*

*28...*

*29. The client has the choice between standard supply...*

*30.... and luxury. Every comfort has its special price!*