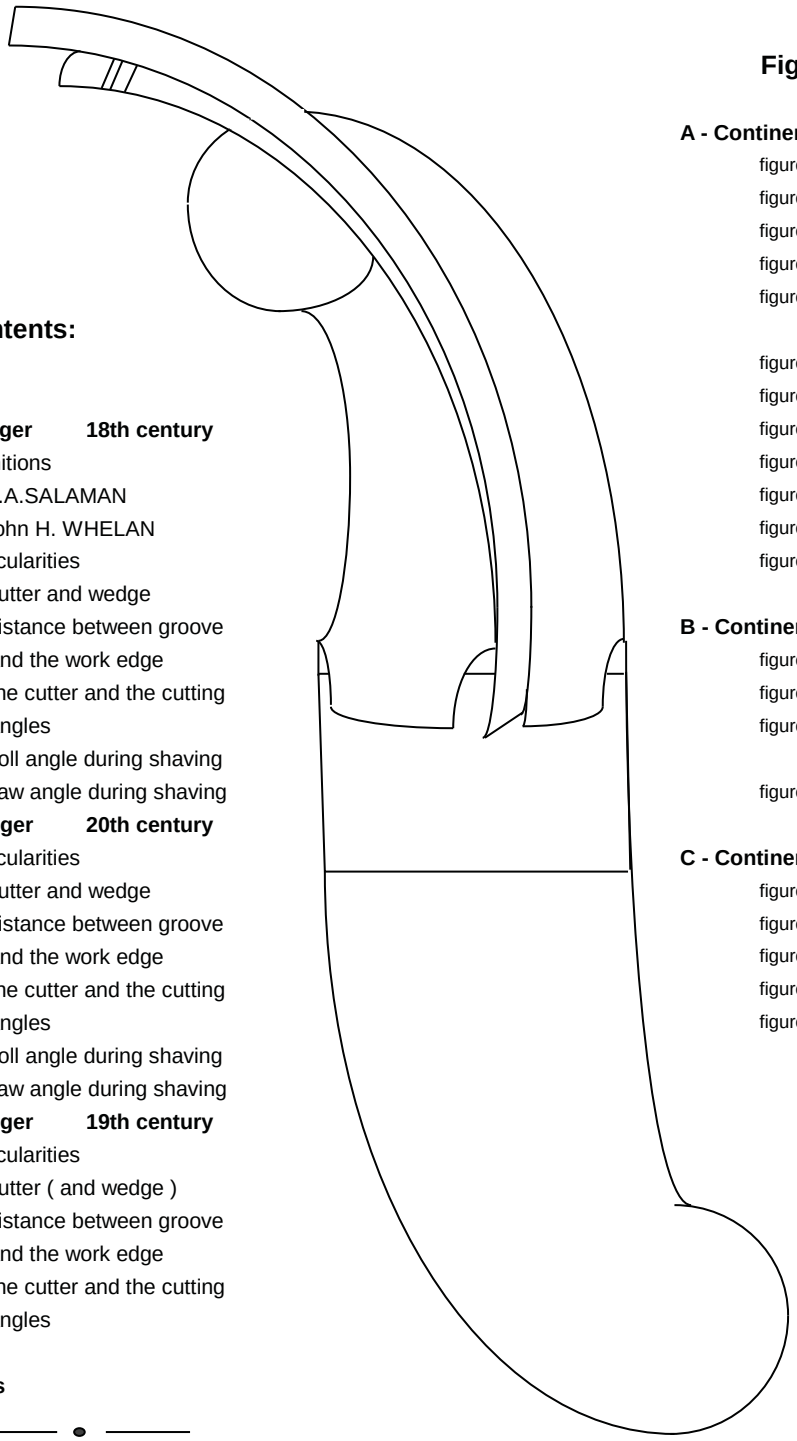
MUSEUM VOOR DE OUDERE TECHNIEKEN
Guldendal 209
1850 GRIMBERGEN

1/06/2000

THE CONTINENTAL JIGGERS

descriptions of three specific pieces



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G.Vanlaer

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THE " CONTINENTAL JIGGERS "

Introduction

Prior to the last century, tools were often made individually to user's requirements, largely based on ideas circulated by word of mouth, and consequently they varied from area to area.

Specific variations and adaptations would also be made to allow for specialist work in particular branches of trades. The routers are certainly some of those tools.

Defined by R.A.Salaman (1) as a tool used for ' routing out ' a depression in a surface of the work, the term ' router ' covers a lot of tools having in fact the same characteristics: a wooden stock, about 14 to 17 in long, with the ends shaped to serve as handles. The cutters are either bedded in the stock itself like a plane iron or in a special fitting screwed to it.

All of them have the same appearance except the so called " Continental type jigger ". This last one has a S-shaped stock and very special cutters. Normally made in pairs for working on either hand, they are used for finishing grooves for taking a panel or glass. For this purpose a groove was first cut with a plough plane to the required depth as close as possible to the finished outline; then, when the work-piece was mounted (in carriage frames, carts or vans) and adjustment was necessary, the "continental jigger" was used to give the final touch.

Two definitions have been found, one by R.A. Salaman and one by Whelan, the latter being far more adequate to describe this specific tool.

1 - Definitions

a - By - R.A. Salaman -

" A jigger made in France and Sweden (known also as a Coachmaker's Plow or Grooving Router) has an S-shaped stock with the cutter mounted at one end, leaving the lower curve to be used as a handle.The cutters are about 1/4 in square and held by a closely fitted steel wedge which follows the same curve as the cutter." (2)

b - By - J. H. Whelan -

" It is a stock in the form of the old S or an integral sign. The cutter is held on one end with the cutting edge in the center of the S, the other end of the stock forming the handgrip. The area beside the cutting edge is plated and serves as the fence. The cutter and wedge are both curved.....sometimes called in English a French coachmaker's plow" (3)

(1) R.A. Salaman . Dictionary of woodworking tools
(2) R.A. Salaman , page 393 .
(3) J.H. Whelan, page 360.

In view of these facts I intend to give detailed drawings of the jigger itself and specific technical informations about the cutters, the cutting angles and other useful caracteristics.

Three models are to my disposal:

A :	Continental Jigger	18th century
B :	Continental Jigger	20th century
C :	Continental Jigger	19th century

A - Continental Jigger **18th century.**

maker: R. Lamartine

figure 1

Face

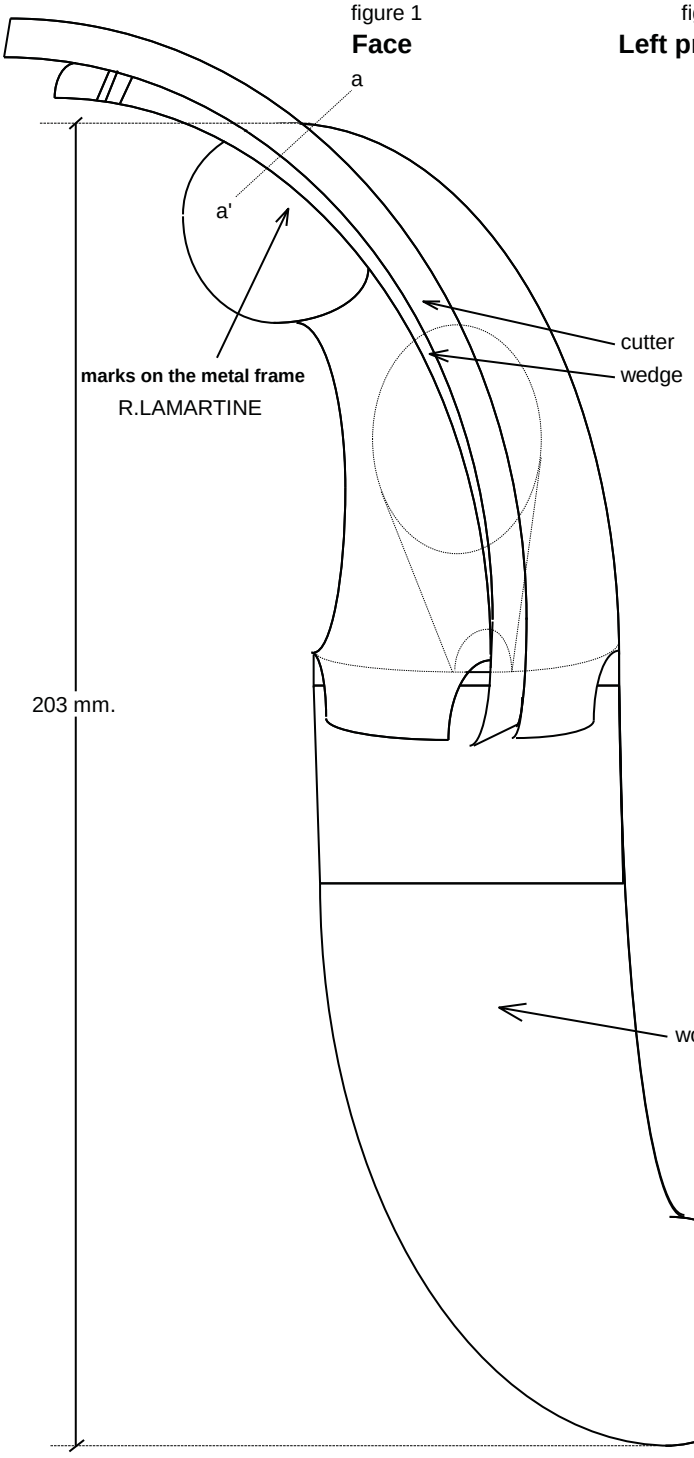


figure 2

Left profile

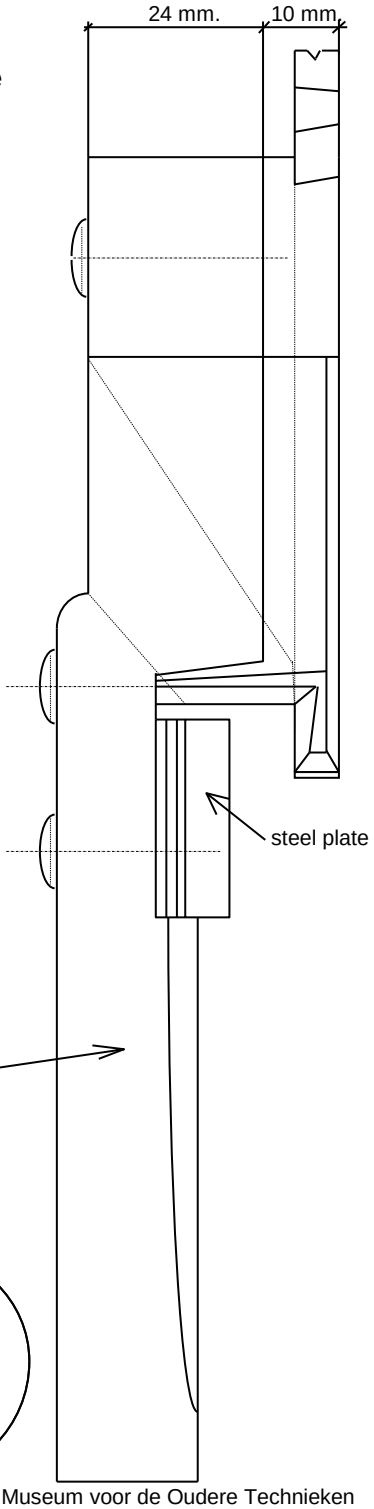
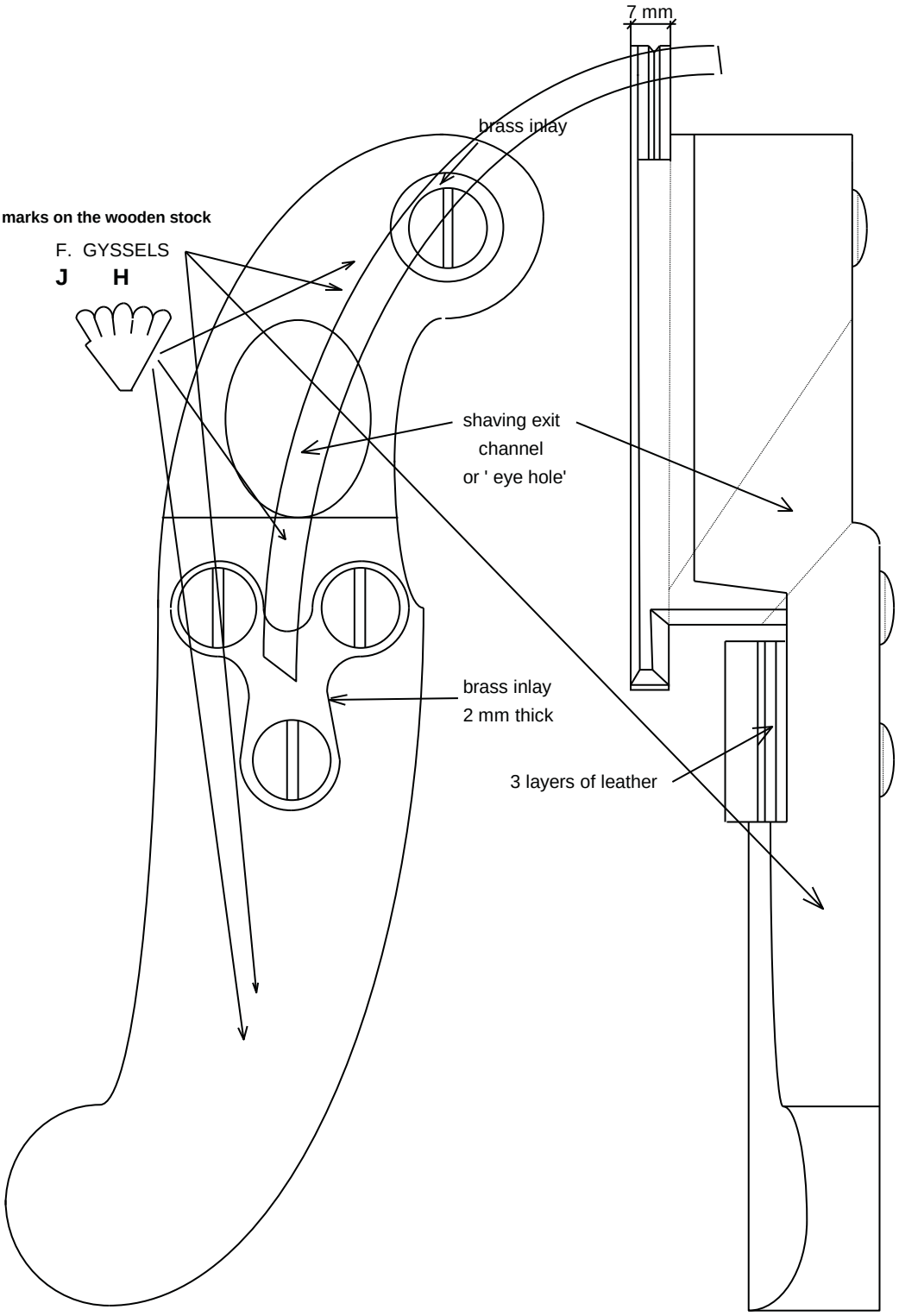


figure 3
Rear

figure 4
Right profile



2 - Particularities

a - Cutter and wedge

The cutter and wedge are two fine pieces of engineering. They are both made out of steel, shaped in circular arcs, mating closely along the curve. But the most important feature of those two pieces is their profil (see figure below).

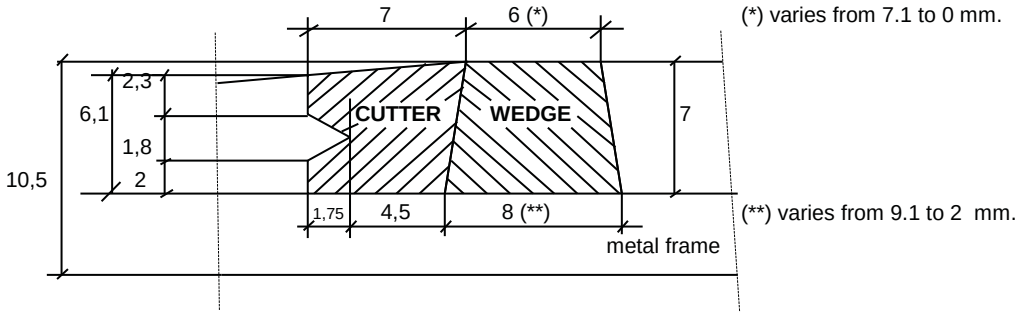
Everything is done to prevent lateral sliding.

All the metalwork must be of a very high order of accuracy.

figure 5

cross section of the cutter and his wedge

(along the dotted line a - a' fig.1)

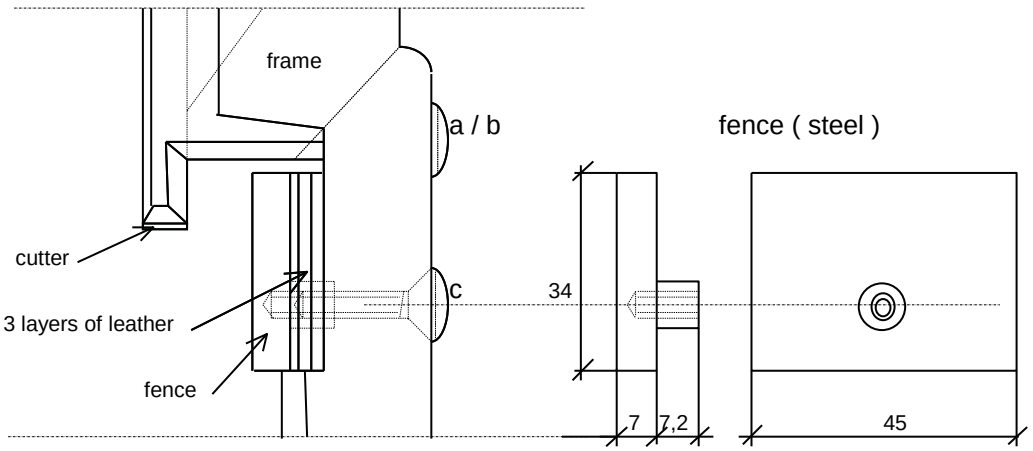


b - Distance between the groove and the work edge.

There is no mechanical part to adjust the distance between the groove and the work edge. This distance can be slightly adjusted by inserting one or more layers of leather as shown below. Since the screw c is holding the fence and the layers of leather, the latter can be maximum 7 mm thick with the actual screw. The maximum distance between the fence and the groove is 11 mm.

figure 6

fence and adjustment

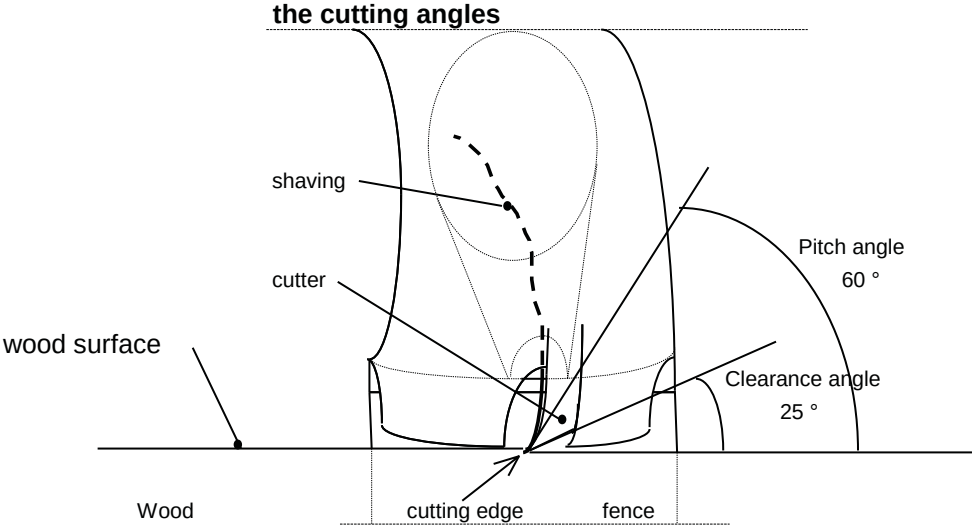


c - The cutter and the cutting angles.

It is absurd to pretend to make full grooves from beginning to the end with this tool. It will be used to make corrections or small adaptations. In that case, the blade will be adjusted to remove thin cuts. The force needed to bend the shaving will be smaller and the tool will be more easy to control.

figure 7

the cutting angles



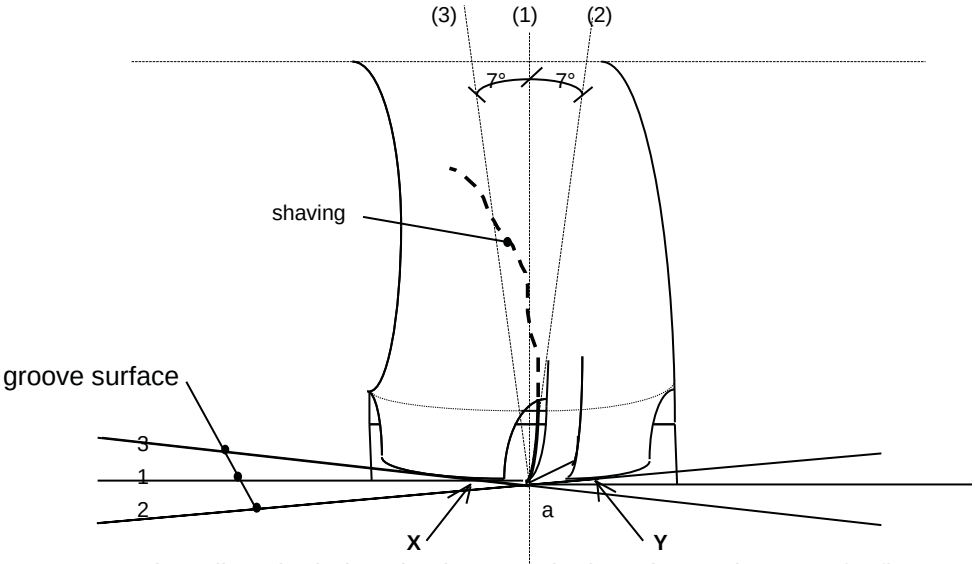
Pitch angle: 60 °. Is defined between the tangent on the inside curve of the cutter at the cutting edge and the wood surface.
Clearance angle: 25 °.
Sharpness angle: 35 °.

The shaving slides up the face of the cutter and exits from the plane through the exit channel or eye hole. It works perfectly.

d - roll angle during shaving.

figure 8

Impact of the roll angle (for a shaving of maximum 0,25 mm thick)



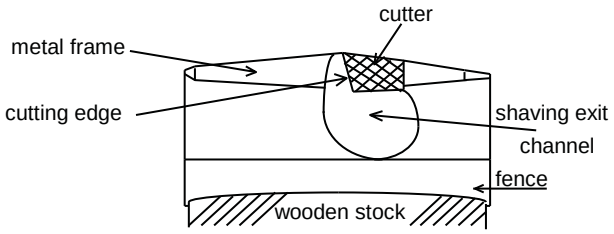
The roll angle during shaving must be less than 7° in case of a flat groove. If the angle is more than 7°, the tool kicks at point x or y and the cutter looses contact

with the groove. If the working surface is lightly concave, the maximum roll angle becomes rapidly less than 2°.

e - yaw angle during shaving.

figure 9

bottom view : cutter

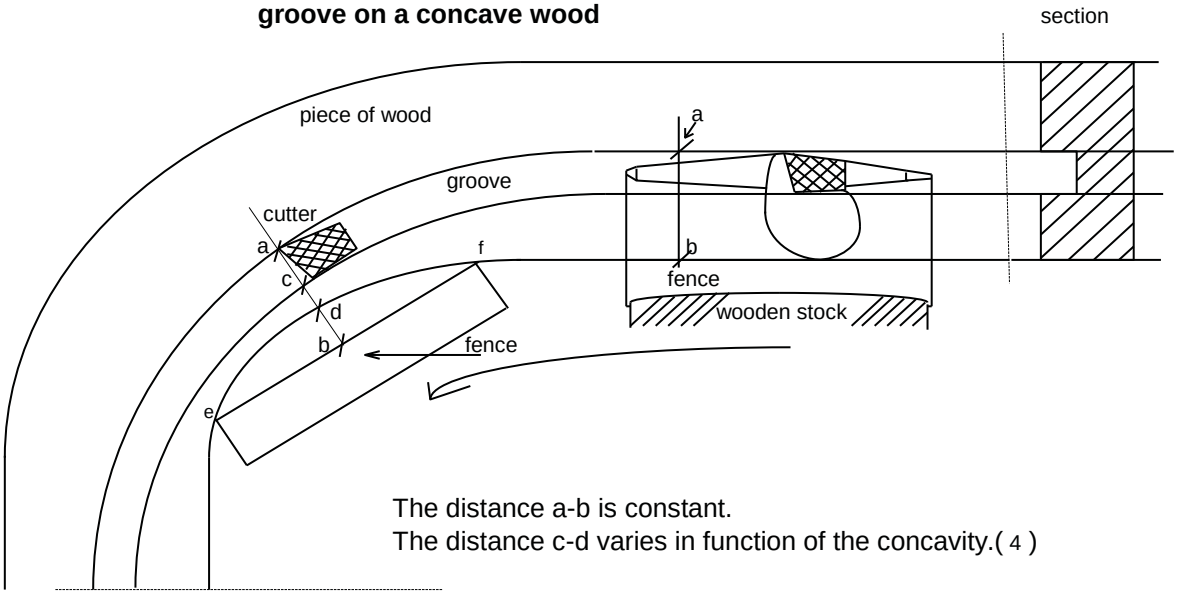


For a straight piece of wood , the fence must be in full contact with the wood. If it doesn't, the distance between the edge and the groove will vary (effect of a yaw rotation).

If the piece of wood is concave, the distance between the edge of the piece of wood and the fence will decrease (see figure 10).

figure 10

groove on a concave wood

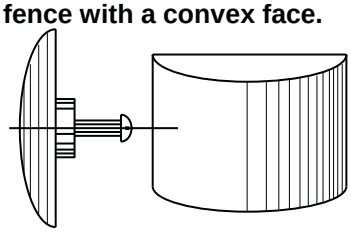


The distance a-b is constant.
The distance c-d varies in function of the concavity.(4)

(4) This is due to the fact that the face e - f of the fence is straight (like on the model we have). In the catalog of " FERON & Cie, la forge royale " probably dated from 1927, there are two figures of a " continental jigger " (page 43). Fig. 709 shows a picture front face (equivalent of figure 1 of this article) and fig. 710, the rear face (equivalent of figure 3 of this article). Both figures are 42 mm in height (small but very clear). Just behind are two small drawings (8 by 9 mm) not at the same scale. They represent **fences** with a curved convex e-f face like shown fig 11.

figure 11

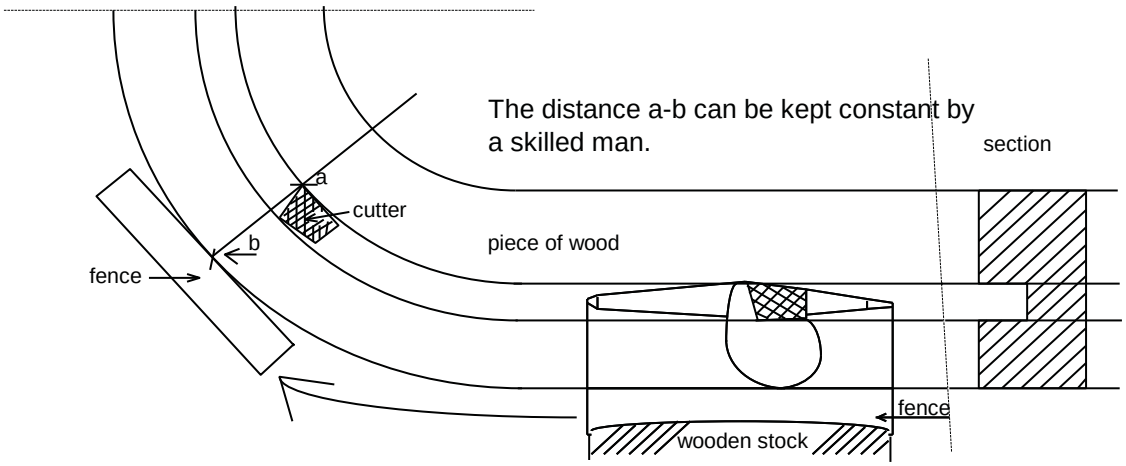
fence with a convex face.



(copy from catalog Feron , pl 43)

Fitted on a " continental jigger ", used to make a groove on a concave piece of wood, handle by a skilled man, ...
The result will be a groove at constant distance from the edge .
(The distance c-d will be constant. fig 10)

figure 12
groove on a convex wood



The minimum radius in both cases is about 120 mm.

B - Continental Jigger **20th century.**

maker: G. Vanlaer

figure 13

Face

no marks

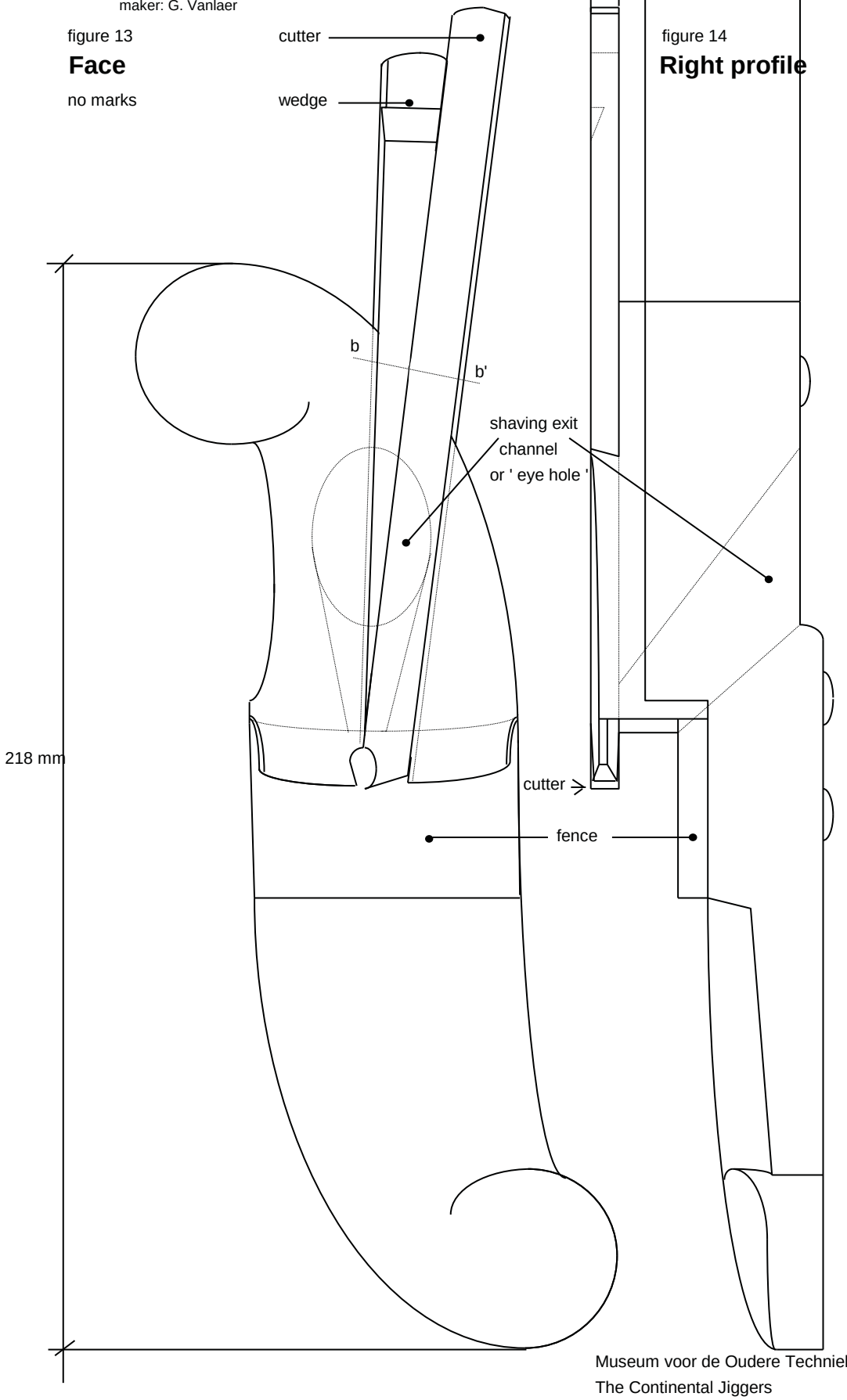


figure 14

Right profile

This jigger was made in 1999 by myself. It is the same model as the previous one. It's a " pièce unique ".

The biggest difference lies in the fact that the cutter and the wedge are straight and theirs profiles reduced to a minimum of complexity. (see figure 15)

Particularities

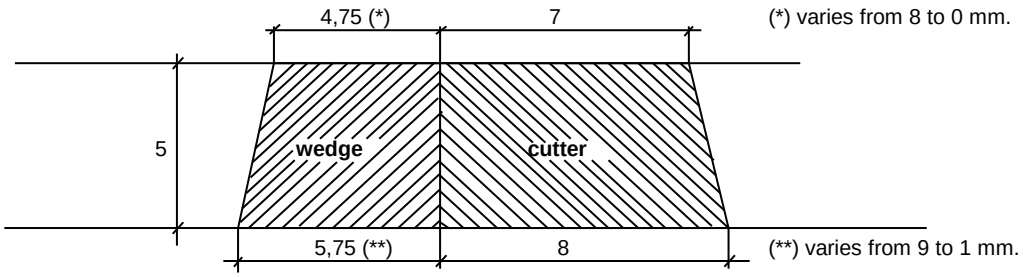
a - Cutter and wedge

The cutter and wedge are both made of steel.They are straight, mating closely along each other and with the groove made in the metal frame, holding them, as compared to the previous jigger but no groove is made in the cutter itself (see figure 5). Their profiles are very simple (see figure below). There is no lateral sliding possible. All the metalwork must also be of a very high order of accuracy.

figure 15

cross section of the cutter and his wedge

(along the dotted line b - b', figure 13)



b - Distance between the groove and the work edge.

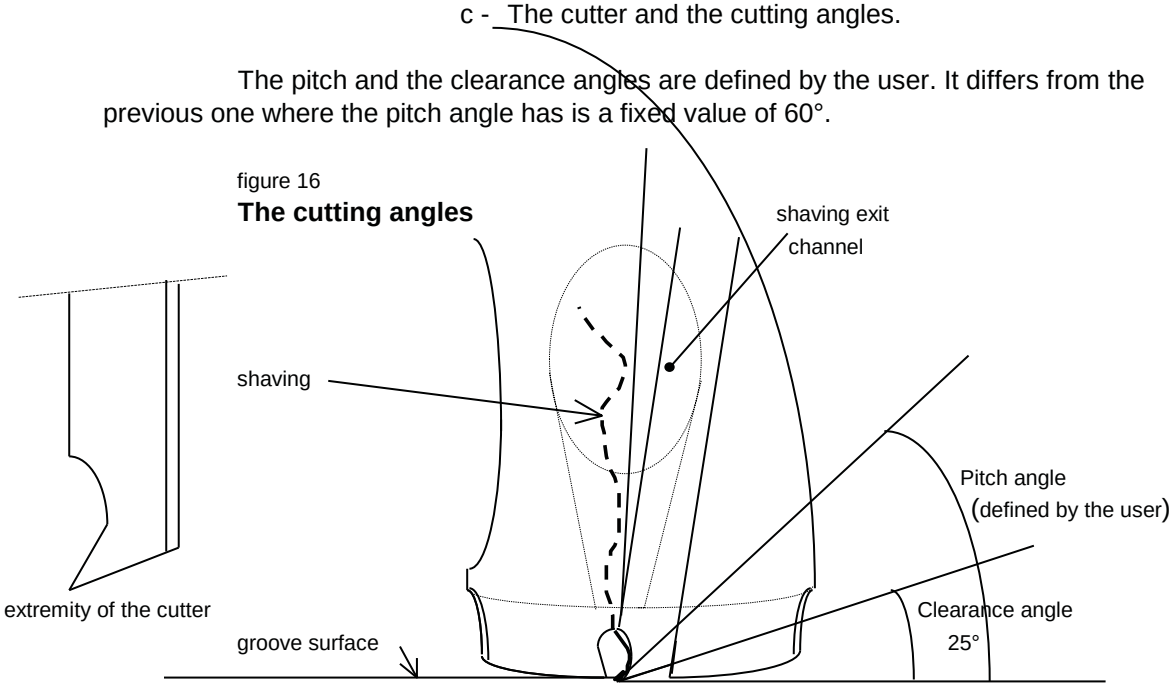
No difference exists between this model and the previous one. A piece of leather of max. 5 mm thick could be inserted between stock and fence with the actuel screw. The maximum distance between the fence and the groove is 10 mm.

c - The cutter and the cutting angles.

The pitch and the clearance angles are defined by the user. It differs from the previous one where the pitch angle has is a fixed value of 60°.

figure 16

The cutting angles



d - Impact of the roll angle during shaving.

There are no differences between this model and the previous one.

e - Yaw angle during shaving.

There are no differences between this model and the previous one.

———— o —— o ————

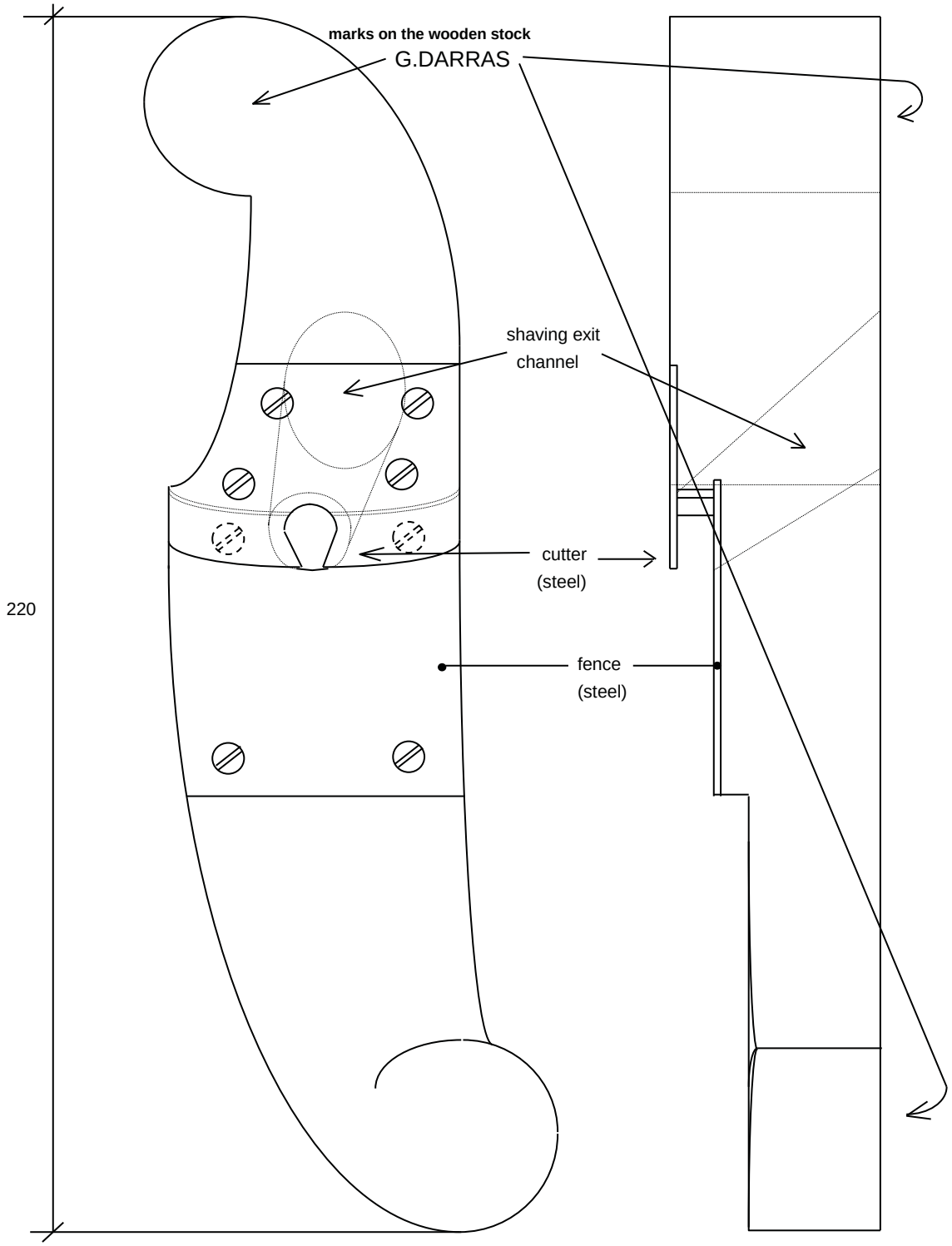
C - Continental Jigger **19th century.**

maker: G. Darras

The simplest one !

figure 17 **Face**

figure 18 **Right profile**



The maker and previous owner was a coachmaker by the name of G. Darras.
This special example was discovered in 1991 together with 4 other routers.

Particularities

a - Cutter (and wedge)

The cutter is made of a simple steel plate correctly shaped to form the cutter, fixed on the stock by 4 simple wood screws.It is 1,1 mm thick.
No wedge is needed, no adjustment is possible!

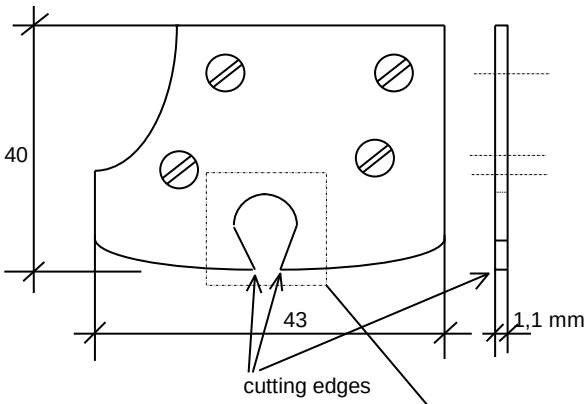
b - Distance between the groove and the work edge.

The distance between the fence and the groove is not adjustable and has a fixed value of 6,8 mm.

c - The cutter and the cutting angles.

figure 19

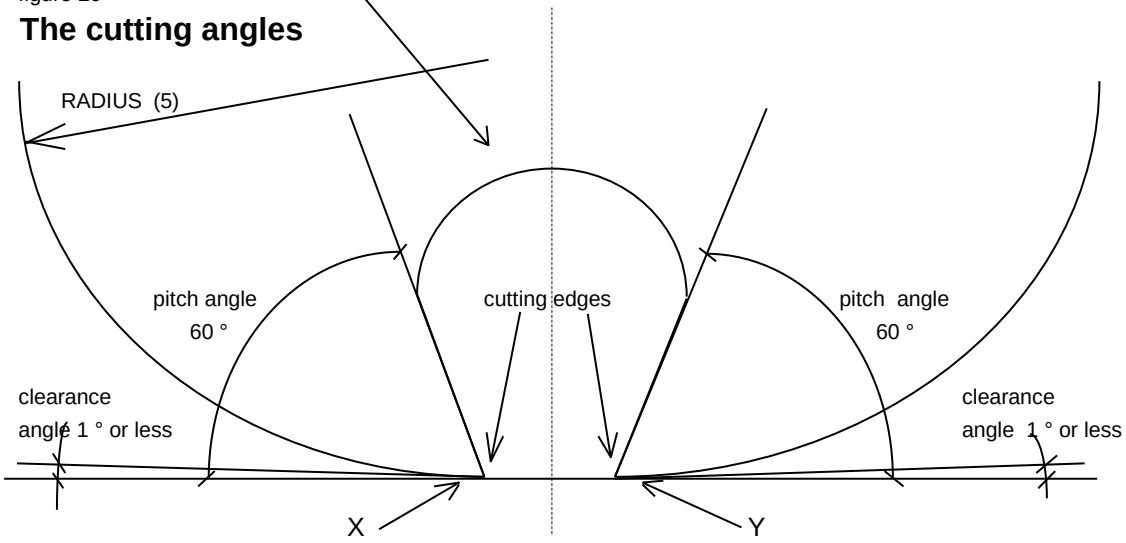
The cutter



The cutter is made of a tiny steel plate, fixed on the stock by 4 screws.
The cut out made on the lower side presents two cutting edges: one for each direction of shaving.
The pitch angle is defined by the shape of the cut out. The clearance angle by the radius of the part of circle defining the lower side of the cutter and by the distance between the 2 cutting edges.

figure 20

The cutting angles



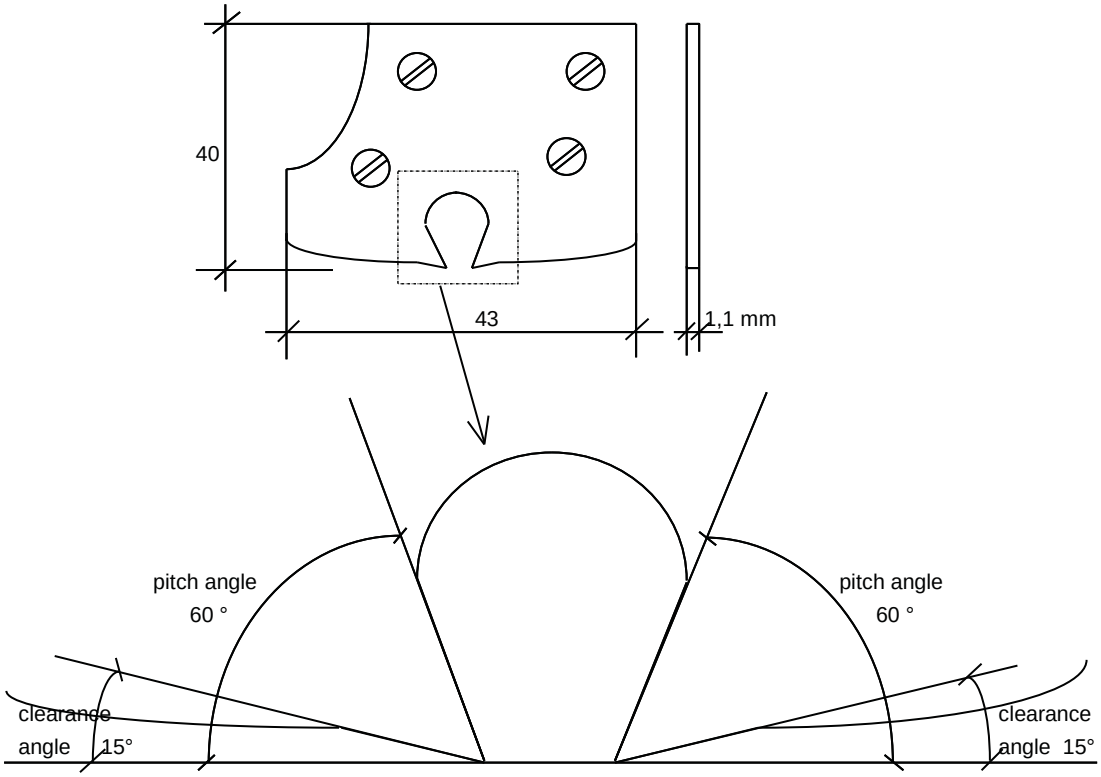
The roll angle during shaving must be less than 1° in case of a flat groove. If the angle is more than 1°, the tool kicks at point x or y and the cutter looses contact with the groove. The working process of such tool is too sharp. That's why it 's very difficult to work with. (6)

(5) The radius has been drastically shortened to have the ability to show a minimum of clearance angle (where it can be). But, in practice, there are virtually no clearance angles on this cutter.

(6) It's very easy to come up with a solution: just mill the lower side of the cutter like shown on figure 21.

figure 21

The modified cutter



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(catalog) Féron et Cie. A la forge royale. Fabrique d' outils montés à travailler le bois. reprint, july 1981

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In expressing my gratitude to this helper, I want to make it clear that the final presentation of both fact and opinion, including any possible mistakes, is my responsability alone.