How to Make a Celtic Knot Wood Project

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Agenda

• Intro
  • History
• Design Considerations
• Jigs Required
• Process for constructing
• Key learning
• Improvement Ideas
• Variations
Is “keltic” or “seltic” correct?

Until the mid-20th century, Celtic was usually pronounced with /s/ in English except by academics.

The pronunciation with /k/ has been gaining ground recently. /k/ is now almost invariably used with reference to Celtic culture.

However, the /s/ pronunciation remains the most recognized form when it occurs in the names of sports teams.
Intro

• Pre-Christian Celts drew these particular symbols because they were not allowed to create other images; ie living creatures.

• Dated after 450 A.D when Christian influence on the Celtic civilization began to take hold.

• As you might expect, original Celtic knotwork underwent assimilation and adaption with the cultures that adopted it.

• The **interlaced** designs was a reflection of the Celtic belief in life’s interconnectedness and continuity.
  • The best known Celtic knot and is also called the **Triquetra**.
  • These knots are complete loops that have no start or finish.
  • Could represent eternity - loyalty, faith, friendship or love.
  • Represent the Holy Trinity of the Father, Son & Holy Spirit.
Design Considerations

• What project
  • Rolling Pin
  • Bowl
  • Pen Blank
  • Vase

• What “knot” design
  • Angle(s)
  • Symmetrical / Non-symmetrical

• Inlays
  • Wood choices
  • Thickness / Contrast

• Handles Designs & Method of Attachment (if required)

• Tool Considerations
  • Table Saw cut depth, Band Saw, Lathe bed length etc
JIGs Recommended

- **Table Saw / Band Saw Jig** to cut angles
  - Sets angle
  - Most importantly “width of cut”
  - Could be one angle or variable

- **Glue Up Clamp Table**
  - To help insure precise alignment

- **Method to drill perpendicular holes** in pin & handle

- **Jig to hold handles on lathe**
JIGs Recommended

• **Table Saw Jig** to cut angles
  • Sets angle (A)
    • Visual appeal
    • Utilize the length of the pin
  • Cut Width B
    • Exact width of the inlays
  • B actually set by C
    • But C in different axis
• Set C spacer by
  • Trial and error method or
  • Math
    • Measure A
    • Measure B
    • \( \sin A = \frac{B}{C} \)
JIGs Recommended

- **Glue Up Clamp Table**
  - Optional ....
  - Not required if you don’t cut entirely through pin blank
  - Critical if you do ....

If you’re not careful
JIGs Recommended

- **Drill Jig**
  - Method to drill perpendicular holes in pin & handle
  - Drill press recommended
JIGs Recommended

- Jig to hold handles on lathe
  - Through hole challenge
  - Simple threaded rod but recessed to accept live center
Process for constructing- Rolling Pin

• Select pin blank
  • Needs to be square (6 sides), fit lathe.
  • Thick enough to avoid cut through and give desired end diameter.

• Select pattern
  • Easiest is symmetric (more later)
    • Angles and length of inlays the same

• Select Inlays
  • Choose wood and thickness based on artistic goals
  • Must be the same net thickness (May need to plane etc)
  • Need 4 sets of inlays (typically on 90 degree project)
Process for constructing - Rolling Pin

• Cut pin blank for 1st inlay
  • Use spacer for dimension C
  • Mark end (furthest away from blade) and use consistently as reference
  • If thick enough, don’t cut through, leave ~3/16.
    • Careful, Reduces overall diameter by 2x above

• Glue up
  • Must use jig if cut through
  • Apply glue to inlay & pin blank
  • Insure inlay is fully seated
  • Clamp, clamp, clamp
Process for constructing- Rolling Pin

• Let glue dry.

• Trim excess inlay, but **don’t reduce** pin blank dimension.

• **Repeat for next cut**
  • If you are impatient, you can wait as little as 1 hour.
  • Rotate 90 degrees-good to mark sides ahead of time
  • Be careful to insure correct end to be cut. (consistent)
  • Check and recheck for correct angle/side

• **Repeat for 3\textsuperscript{rd} and 4\textsuperscript{th} cuts**
  • Let dry more thoroughly before these cuts
  • Preferably over night
Process for constructing - Rolling Pin

- **Turn your pin blank**
  - Interesting how the knot forms
  - Good lathe skills or sanding board helps make pin flat and level

- **Drill pin to accept dowels**
  - Insure alignment in both dimensions to drill bit
  - Drill press recommended.

- **Drill handle blanks** for through hole for dowels
  - Use jig as above.
  - A little less critical – can turn on lathe to straighten

- **Turn handles** – using handle jig

* Asymmetric rings shown
Process for constructing - Rolling Pin

• Check and adjust dowel as necessary (can sand on lathe)
  • Optimize diameter for tight fit in pin, but loose fit in handle

• Design & install end cap
  • Color, Shape (artistic choice)
  • Glue on end cap (but install handle on dowel first)

• Wax dowel where handle spins.

• Attach dowel/handle.
  • Being very careful not to get glue on handle
  • Stainless steel washer reduces friction and adds a glue barrier

Impress your significant other
Key learning

• Errors are everywhere...and additive

• Initial Blank (6 sides) must be square
• Dimension B and C from Jig are critical
• Mark and don’t swap front vs back of pin blank
• Not cutting through pin blank eliminates alignment issue
  • Careful, Reduces overall diameter by 2x above
• Don’t reduce the pin blank between cuts when trimming inlays
• Not all 3/8” dowels are the same diameter
• Dowel must be tight in pin but loose to rotate in handle
• Try to avoid on the fly changes
• Some errors are mitigated after turning as the diameter decreases
Improvement Ideas

• Improved Table Saw Jig for variable angles
  • Even on one project for non symmetrical rings
Variations

Concept to add multiple rings

Bowl Blank
Thanks !