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Bill Krier
Editor in Chief, WOOD magazine

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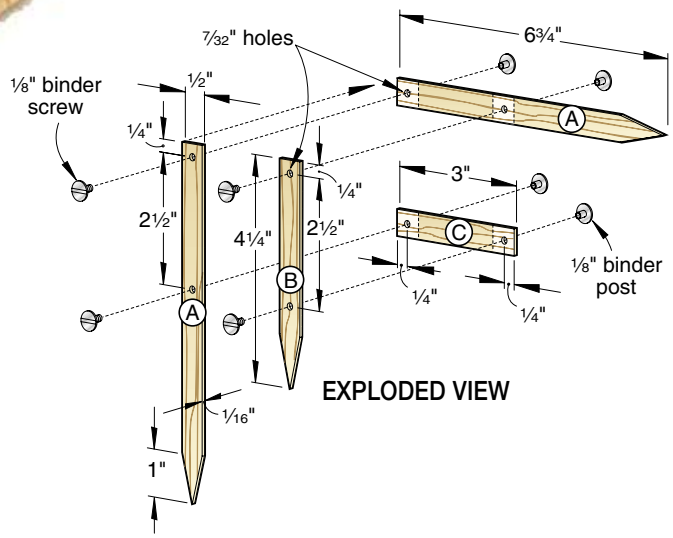
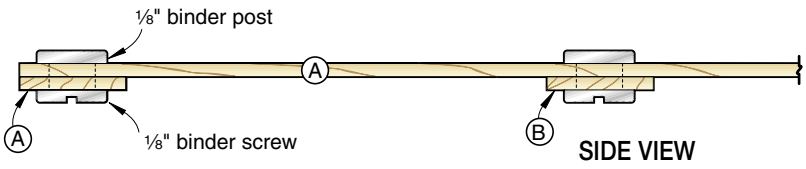
# Fibonacci gauge

Build this age-old guide to help you create pleasing project designs.




The Golden Mean of measuring was used by both the ancient Greeks and Egyptians to design their buildings and monuments for pleasing proportion. You can do the same for your projects by using the Fibonacci gauge. See *page 14* for an explanation of how to use this intriguing and effective tool.

To make your own, start by cutting the arms (A, B, C) to width and shape from 1/16" dense hardwood stock. (We used figured maple, but any wood will do.) Transfer the hole centerpoints from the full-size patterns, found in the *WOOD Patterns*® insert, to the arms. Drill the 7/32" holes where marked and add finish to each arm. Join the pieces in the configuration shown on the Exploded View and accompanying Side View drawings with binder posts and screws, using Loc-Tite to prevent the screws from loosening over time.

**DP-00522a**

## Materials List

| Parts | | FINISHED SIZE T | W | L | Matl. | Qty. |
|---|---|---|---|---|---|---|
| A | outside arms | 1/16" | ½" | 6¾" | C | 2 |
| B | inside arm | 1/16" | ½" | 4¼" | C | 1 |
| C | cross arm | 1/16" | ½" | 3" | C | 1 |

**Material key:** C-choice of wood.

## Source

**Kit.** ⅛" binder posts and screws (4), 2 ounce #609 Loc-Tite (1), Kit #300CAL, $9.95 ppd. plus $4.95 for each additional kit. Schlabaugh and Sons Woodworking, 720 14th Street, Kalona, IA 52247. Call 800/346-9663.

# how to use the Fibonacci gauge to proportion projects to please the eye

**For thousands of years, architects and artists have followed the principle of the Golden Mean to make designs look just right. With this simple invention you can, too, but without all the math!**

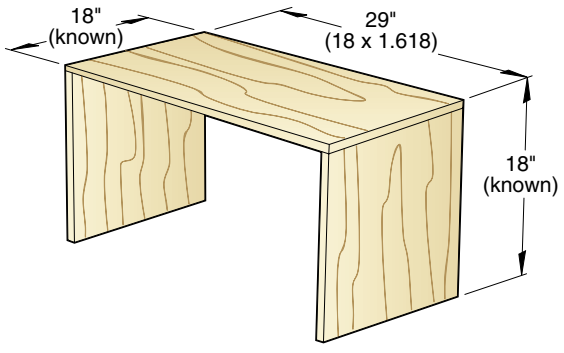
All the best furnituremakers and woodturners seem to have one thing in common—a natural eye for proportion. From sketch to finished project, they never lose their sense for balanced proportions. For those lacking this natural gift, thank goodness for the Golden Mean.

Believed to have originated in ancient Greece, the Golden Mean is a mathematical formula for proportioning one dimension to another for eye-appealing balance. A furnituremaker, for instance, can calculate the needed size of a coffee-table top in relation to its total height to arrive at a pleasing proportion.

Mathematically, he would utilize the Golden Mean ratio of 1:1.618, which determines *the length of the long side in relation to the short side of a rectangle.* Here's how it works:

Let's say the rectangular coffee table you want to make will stand 18" high (a standard dimension and the *short* side of the rectangle). To calculate the top's length (the *long* side of the rectangle), *multiply* 18×1.618 to arrive at about 29". Since the short side of the rectangle is 18", that dimension represents the top's width. (No need for fractional exactness.) See the **Drawing** *below* for how it's done.

THE GOLDEN MEAN RATIO




Too much math? Turn to the Fibonacci gauge for proportions at a glance. (To build your own, turn to the plan on *page 13.*)

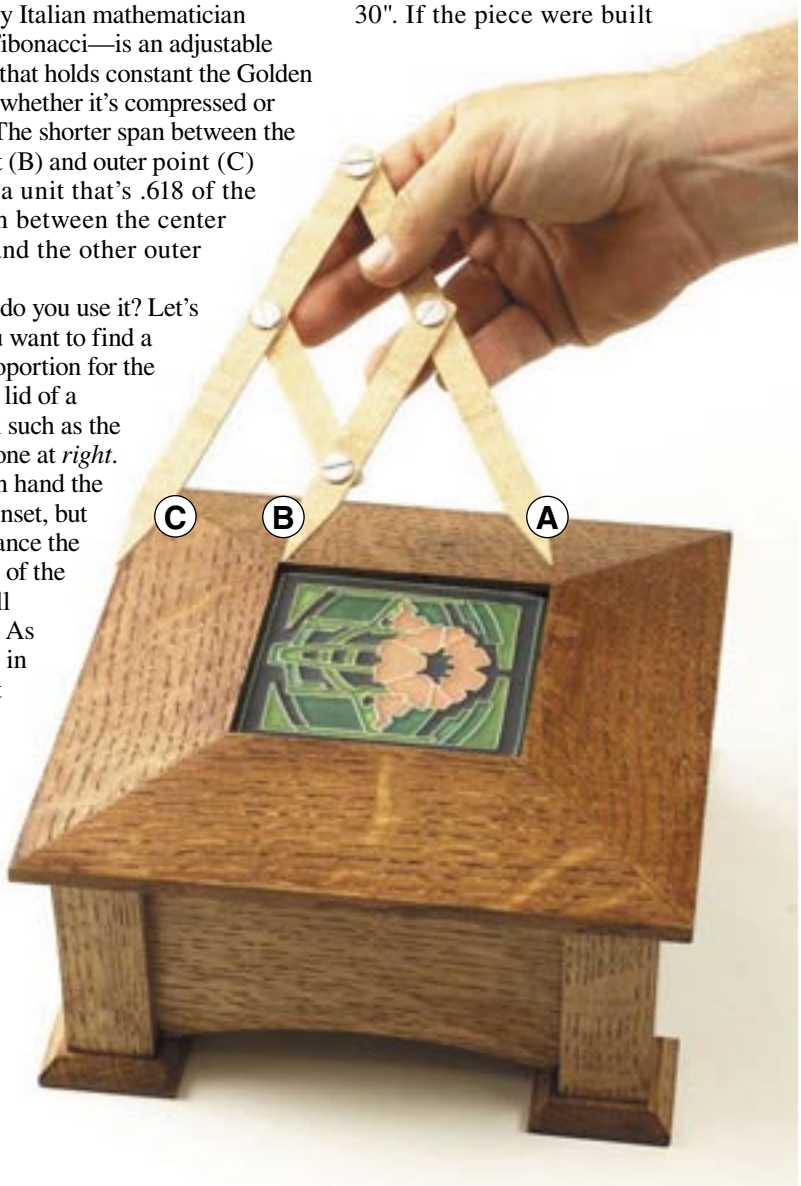
## Great proportions in a jiffy

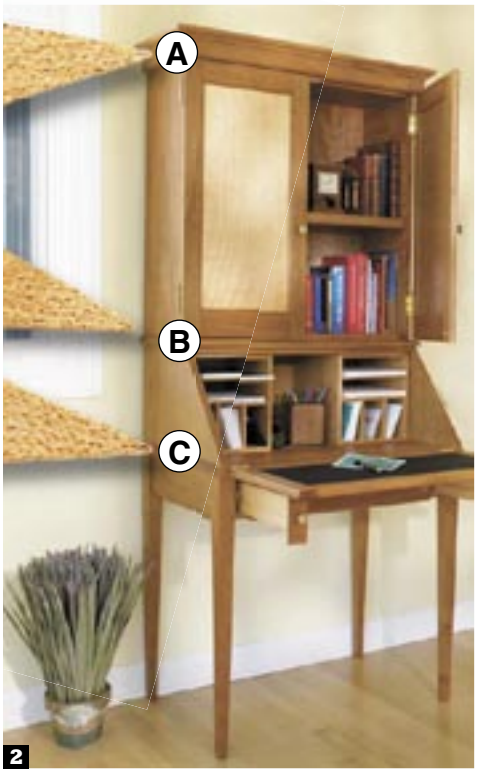
The Fibonacci gauge—named after 13th-century Italian mathematician Leonardo Fibonacci—is an adjustable design tool that holds constant the Golden Mean ratio whether it's compressed or expanded. The shorter span between the center point (B) and outer point (C) represents a unit that's .618 of the span length between the center point (B) and the other outer point (A).

So how do you use it? Let's say that you want to find a pleasing proportion for the rectangular lid of a jewelry box such as the completed one at *right*. You have on hand the tile for the inset, but need to balance the proportions of the oak that will surround it. As you can see in the photo at *right*, by spreading the gauge so that the distance between the center point (B) and the farther outer point (A) covers the width of the tile inset, the shorter span between the center (B) and the other point (C) automatically represents the proportional width of the surround.

You also can use the Fibonacci gauge to find the proportional dimensions for a piece of furniture (or its parts) shown in a photo. For example, you like the looks of a tall drop-front secretary and storage cabinet featured in a magazine, but no dimensions are given. You can, however, find its approximate proportional height with the Fibonacci gauge.

How? Start by assuming that the distance from the floor to the desk's writing surface is a fairly standard 30". Place the gauge on the photo so that the longer span (B to A) represents the 30". If the piece were built




proportionately, the outer point (C) should rest at or close to the top of the pigeon-holed center section, as you can see in **Photo 1**. Since the shorter span (B to C) represents .618 of 30", the center section's height comes in at about 18½". To find the height of the upper cabinet, reverse the gauge so that the smaller span (B to C) spreads across the center section. The point of the larger span (B to A) should rest at the cabinet top, revealing that its height is close to 30", as shown in **Photo 2**. The total height of the unit equals the sum of the three parts: 30" + 18½" + 30" = 78½". Use the same method to find widths.

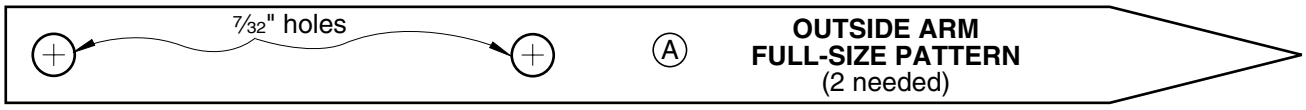
Remember, a Fibonacci gauge isn't for precise measurement. But using one will always get you close to pleasing proportions.

Interested in seeing the Fibonacci gauge in action? Visit woodmagazine.com/fibonacci to see a video of Jeff Mertz proportioning a table using the process described in this article.

Written by **Peter Stephano**
Illustration: **Lorna Johnson**







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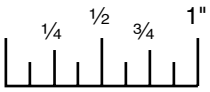

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