

STANTON STOOL
Materials, Specifications & Instructions
September 2019
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Credits:

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Notice:

- *A three leg stool is inherently unstable. **Do not use** as a ladder and/or stand on stool seat.*
- *I was unable [ie.,at this time] in determining if the Stanton Stool is copyrighted.*

GENERAL INSTRUCTIONS:

Seat: [all dimensions are in inches and approx.]

- Circular Seat: It is made from a 2" x 12 piece of construction lumber.
- Three seat *leg position lines* and holes are located 120 degrees apart from each other. *Leg position lines* are measured from the center of the circular seat. Each leg hole is centered on one of the 120 degree leg position lines 2" in from the outside edge.
- Seat leg holes are 1" in diameter and drilled at an 8.5 degree angle. These holes are drilled using a *special jig*.

Legs:

- Three legs -- each leg is 18" to 19" in length. The legs are made from construction lumber.
- Each leg is 1.5" x 1.5 " square
- Each leg is cut on a table saw to make an octagon pattern.
- Each leg is turned on a lathe. At the top of each leg, the lathe is used to round the leg to a 1" diameter and elongated to fit into and through the 8.5 degree seat holes.
- From the bottom of each leg, at approximately 9" up the leg, a mark is placed in its center. A 0.75" diameter hole is then drilled at an 8.5 degree angle. The 8.5 degree hole depth is about 0.5". These holes are drilled using a *special jig*.

TIP: Each leg must now be marked to fit a specific seat leg hole. This is required to accommodate the two [*Leg Stretchers*](#).

Leg Stretchers:

- The Stanton Stool requires two stretchers. One stretcher fits between any two leg holes. Example: Legs 1 & 2. This stretcher is called the *horizontal stretcher*. The second stretcher is connected from the remaining leg [Leg 3] hole to the middle of the *horizontal stretcher* hole. It is referred to as the *perpendicular stretcher*.
- Stretchers were made from construction lumber. Determining the length of the *horizontal stretcher* is made by measuring the distance between Legs 1 & 2 plus the depth of the two leg holes. The *perpendicular stretcher* is measured from the third leg hole to the middle of the *horizontal stretcher* hole plus the two hole depths. Lay-out of the *horizontal leg stretcher* hole is covered below.
- Each stretcher is either 1" x 1" or 1.5" x 1.5" square. They are made from construction lumber and then cut to length as per the above instruction.
- Each stretcher is cut on a table saw to make an octagon pattern.
- Both ends of each stretcher is turned on a lathe. The lathe is used to round both ends of each stretcher to a 0.75" diameter and elongated to fit into the leg holes and one center *horizontal stretcher* hole. More about the center stretcher hole later.

- The horizontal stretcher that is placed between the two legs [Legs 1 & 2] and is marked for a center hole half way along its length. A 0.75" center stretcher hole is then drilled in this stretcher. This hole is drilled perpendicular to the stretcher.
- One end of the perpendicular stretcher is placed in the remaining leg hole [Leg 3]. Its other end is placed in the center of the horizontal stretcher's center hole.

Tip: For best assembly, remove the three legs from the seat. Then assemble the stretchers into their designated positions. With the above loosely constructed, leg/stretcher configuration, place the rounded legs into the seat holes. This assembly will tighten as the legs begin to protrude through the seat holes.

Wedges:

- Three hard wood wedges are required. One for each leg that extends through the seat hole.
- Using a saw cut the wedge slats in the top of each leg perpendicular to the to the grain of the seat.

Note: Leg wedge slats cut parallel to the seat grain could result in splitting the seat over time.

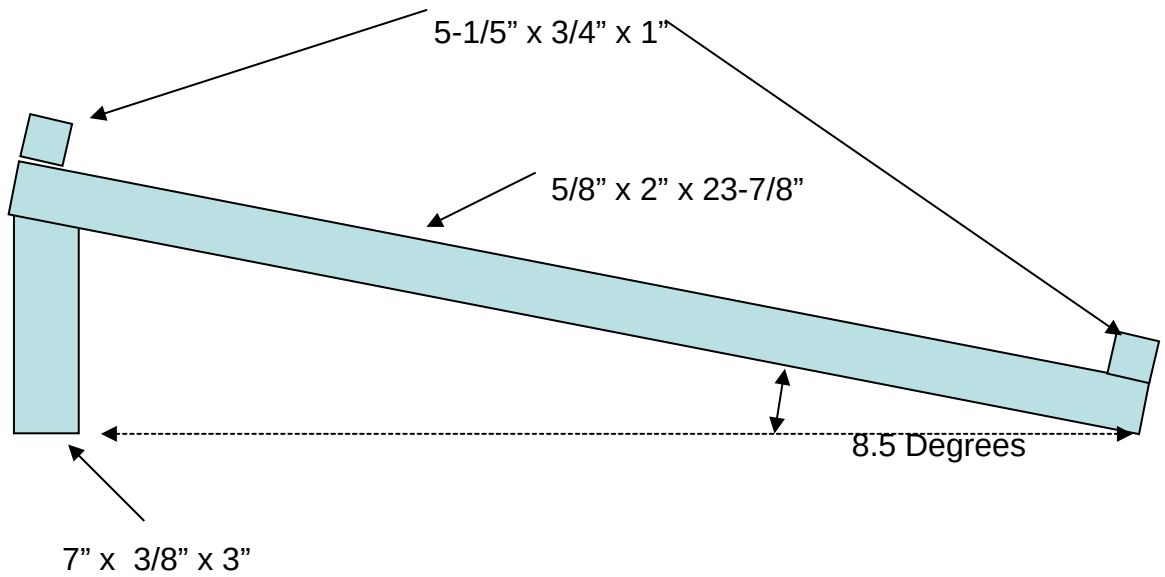
Tips:

- Assemble the stool with stretchers, on a flat and level surface, and prior to installing the leg wedges use a bubble level on top of the stool to square up the stool legs.
- Using a compass and/or carpenters pencil mark around the bottom of each leg and trim the legs as required. When the stool is reassembled the legs should now rest level on a flat surface.
- Reassemble the stool and level the Stanton Stool with stretchers and install the hardwood wedges. Cut/sand the seat to minimize leg protrusions.
- Finish the Stanton Stool to your specifications.

Jig



- The jig is made from scrap construction lumber.



DETAILED INSTRUCTIONS: [Materials, Specifications & Construction]

Seat:

- From a piece of 2" x 12" construction timber, cut a square slab of seat lumber .
- Find the center of the square slab, and place a mark.
- From the center of the square slab draw a single straight line perpendicular to the middle of one of the square slab's edges [ie., not to the corners].

Note: This line is called the Reference Line.

- Using the Reference Line as a starting point, use a protractor and draw two more lines 120 degrees apart from each other. The three radii are now referred to as LEG Position Lines.
- Using a compass draw a circular line from the center that maximizes the use of the material on the square slab of seat lumber.
- Using a band saw cut a circle and then round and sand the seat edge until it suits the user.
- If necessary redraw the three Leg Position Lines.
- Using the seat's circumference as the reference edge place a mark 2" in from this edge along each of the LEG Position Lines. This procedure marks the center of the 1" diameter leg holes. These leg holes are drilled at an 8.5 degree angle with respect to the seat's circumference.
- Using the jig: Place the seat on the jig with one of the LEG Position Lines up [ie., one at a time] toward the top of the jig. With a 1" diameter bit, drill a perpendicular hole almost all the way through the seat. Now flip the seat over and place the hole at the bottom of the jig. Using the drill in a perpendicular position, drill through the seat until it comes through the previous partially drilled hole. Repeat the above instructions for the remaining two leg/seat holes.

Tip: With a much smaller drill bit, place the seat at the top of the jig then drill a small perpendicular hole all the way through the seat. Hence, when you flip the seat over and place it at the bottom of the jig, the reference hole can be found easily.

- Lightly sand around the three seat holes.

Legs:

- Cut three matching legs ---- 1.5" x 1.5" x 18"to 19"
- Using the table saw cut the three legs into an octagon shape.

Tip: Square legs to octagon legs: Tilt the saw blade to 45 degrees and lock-in its position. With one of the square leg's flat sides resting on the saw blade and its associated corner on the table saw bed, move the fence until it just touches the other corner of the leg. Lock the fence. Now with the saw running place the flat side of the leg next to the fence. Run the leg through the saw blade. Repeat this procedure for the remaining three leg sides. Refine the octagon to suit via moving the fence closer to the saw blade. Remember a small fence repositioning goes a long way.

- Place each leg, one at a time, onto a lathe. Using a seat leg hole as a reference, measure its depth. Transfer this measurement to one end of the seat leg. Using a ruler measure down from this reference 1" and place another reference mark.
- Turn the leg to a 1" diameter down to the first mark. Check to see [this make take a few iterations] that the leg fits snugly into one of the seat holes. Refine as necessary using sand paper.

- When the leg fits snugly into one of the seat holes it should protrude about an 1/8" to 1/4". Now, taper the leg on the lathe to the second reference mark. Sand the leg to suit.
- When all three legs are turned, align the tops of the three legs on a flat level surface. From the bottom of each leg place a mark 9" up the leg. This mark must be placed in the center of the leg.
- Using the jig: Sequentially place each leg on the jig. Drill a perpendicular 0.75" hole approximately 0.5" deep into each leg.
- Sand each leg to suit.

Seat & Legs:

- Sequentially place each leg into a seat hole and make sure that the top of each leg protrudes [1/8" to 1/4"] a small amount through the top of the seat.
- At this point mark each leg with its designated seat hole number. This step is important because the two stretchers will be mated to specific leg/seat positions.

Stretcher - Leg Construction:

Cut two stretchers about 24" long. These stretchers can be made from 1" x 1" or 1.5" x 1.5" construction lumber.

Note: The two stretchers are usually made from left over leg material. However, you can make the 1"x1" stretchers from left over construction lumber. The smaller size stretcher [ie., 1" x 1"] should be shaped into an octagon using the table saw, as outlined above.

- Select any two legs and align their stretcher holes. All three legs must be protruding [1/8" to 1/4"] through their designated seat holes. Level the seat and leg combination on a flat (ie., level) surface.
- Measure the distance from the bottom of one stretcher-leg hole to the bottom of the adjacent stretcher-leg hole.
- Place this measurement on one of the stretchers. This stretcher is now referred to as the horizontal stretcher.
- Cut the horizontal stretcher to length.
- Given that the stretcher-leg holes are 0.5" in depth, mark the ends of the horizontal stretcher down 0.5". From these marks place another mark 1" down from the previous marks.
- Turn each end of the horizontal stretcher to a 0.75" diameter up to the first mark. Using sand paper fine tune the horizontal stretcher until it fits snugly into the two horizontal stretcher leg holes. Then taper each end to the second mark. Sand the horizontal stretcher to suit.
- Find the mid position on the horizontal stretcher and mark its mid position. Using a drill-press, drill a 0.75" perpendicular hole to a 0.5" depth.

Note: This hole must be drilled on a flat level surface perpendicular to the horizontal stretcher. If you drill this hole at any other angle, final assembly just won't work. Do not use the jig for this procedure.

- Reassemble the set-legs and the horizontal stretcher. Turn the horizontal stretcher mid-position hole so that it is perpendicular the third leg stretcher hole.

Note: Rotate the third seat-leg hole so that it is perpendicular to the horizontal stretcher mid position hole.

- Measure the distance from the bottom of the horizontal stretcher mid position hole to the bottom of the third leg stretcher hole. This stretcher is designated as the perpendicular stretcher.
- As with the directions for the horizontal stretcher perform the same tasks on the perpendicular stretcher.

Note: Do not drill a mid position hole into the perpendicular stretcher.

Final Assembly:

- Reassemble the seat, legs and stretchers. Make sure the legs fit snugly and protrude [1/8" to 1/4"] through the seat.
- Place the Stanton Stool on a flat level surface.
- Using a bubble-level adjust the legs until the seat is level on its two axis.
- Wedge slat marking: Mark the top of each leg such that its wedge slat mark is perpendicular to the grain of the seat.

Note: Leg wedge slats cut parallel to the seat grain could result in splitting the seat over time.

Tip: Using a compass or carpenters pencil --- place the compass or carpenters pencil on the flat level surface where the Stanton Stool is resting. Mark the bottom of each leg by rotating the compass or carpenters pencil around each leg. This procedure marks the angle that each leg must be trimmed so that it will rest level on a flat surface.

- Disassemble the Stanton Stool: Cut the wedge slats in the top of each leg.
- Trim the bottom of each leg. Reassemble the seat, legs and stretchers.

Tip: Cut a 4"x 4" piece of 220 grit sandpaper. Mark its center and punch a 1" diameter hole through the sandpaper. Place the sand paper's hole sequentially over each protruding leg hole. Using a Japanese pull-saw remove the tips of each leg that protrude through the seat. The sand paper acts like a shield to prevent accidental saw-seat marks.

- Install the three leg-seat wedges into the assembled stool and sand the seat surface smooth.

TIP: A small portable belt sander worked miracles with respect to removing minor construction marks and/or remaining leg/wedge protrusions.

- Finish the Stanton Stool using your favorite products.

ENJOY YOUR STOOL

ITS A NICE ADDITION TO ANY WORKSHOP!!!