This beautiful wheel is much easier to make than you may think. It consists of four felloes (rim sections), eight spokes, eight small spacers and two hub halves. ***Note: The Taper Jig and Universal Tenon Jig, for which we offer free plans on this site, make this wheel very easy to make.***

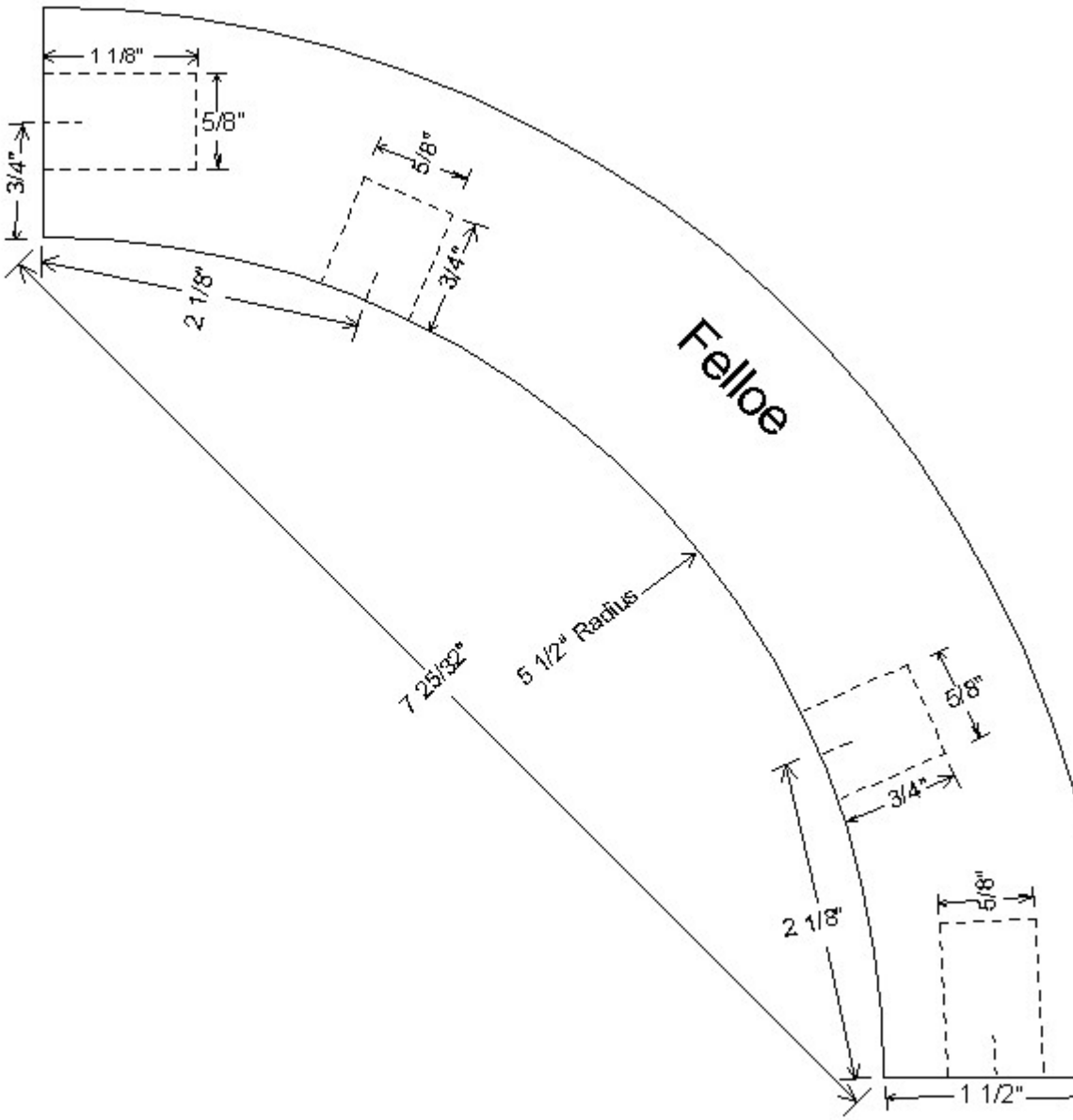
14" Spoke Wheel.

You'll need a table saw, scroll saw, drill press, and router. You'll also need a lathe for making the hub. If you don't have a lathe, the instructions show how to make a simple hub without one.

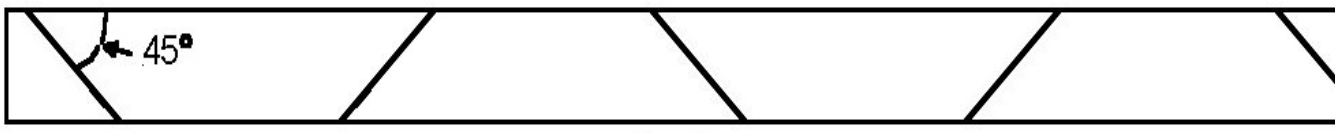
This wheel was designed for use on the 53" Wooden Wheelbarrow pictured on our home page. But you may well find other uses for it too.

To print the free plans, use the link below. Be sure to print and review the instructions and tips.

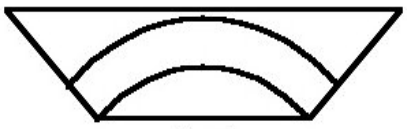
Free 14" Wagon Wheel Plans



Felloe Pattern



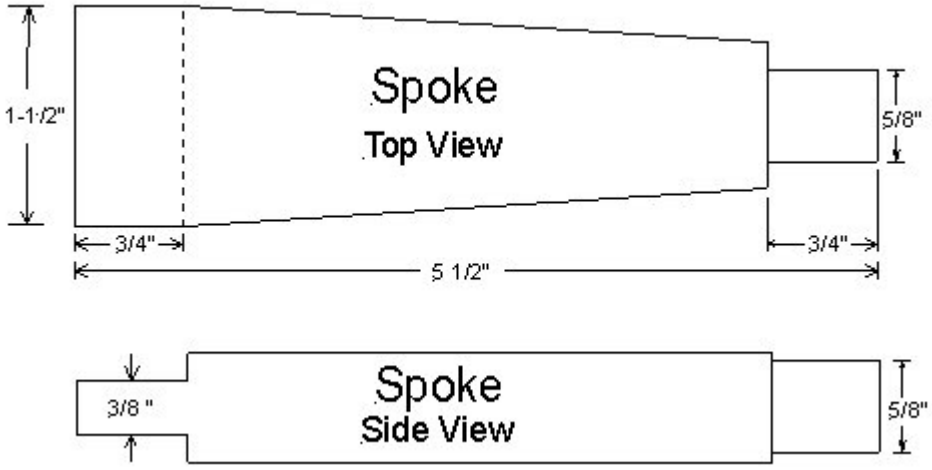
Step 1



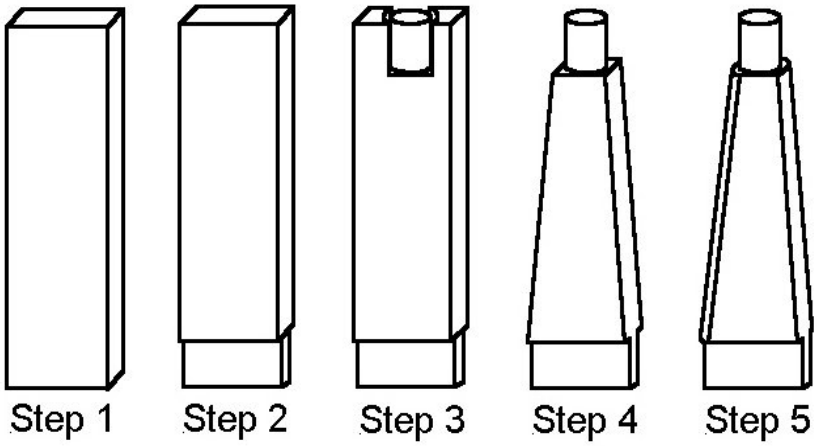
Step 2

Step 3

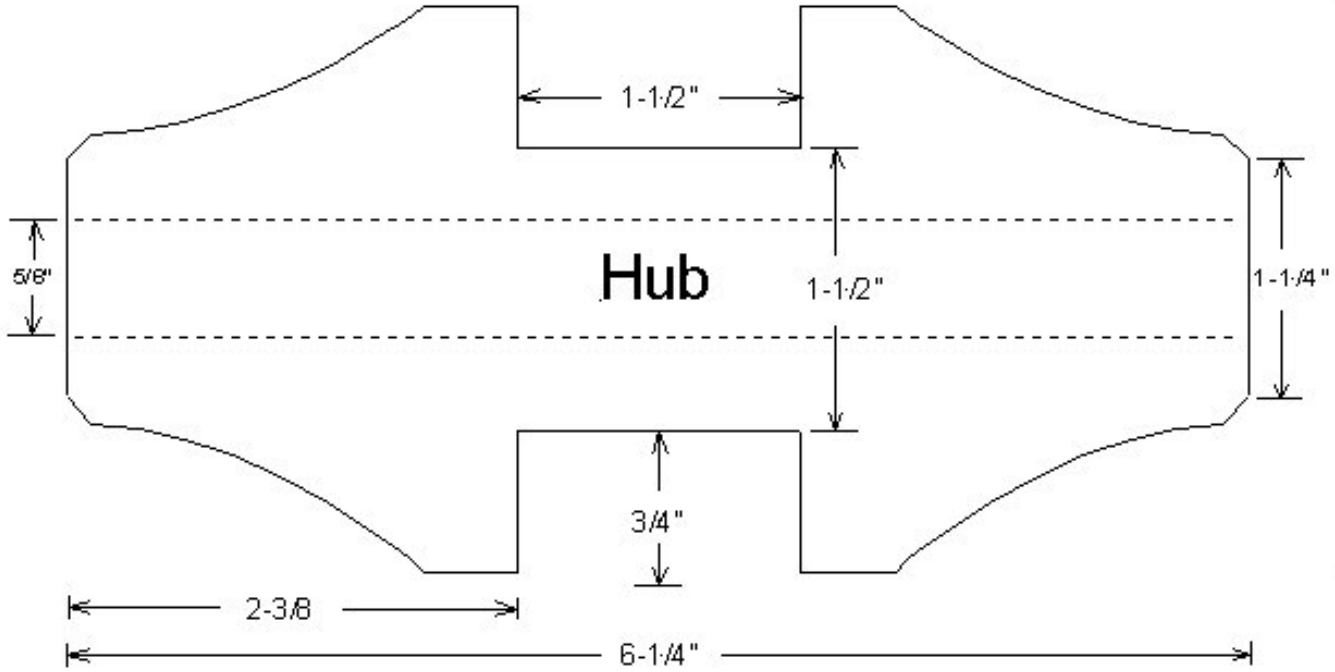
Felloes Tips



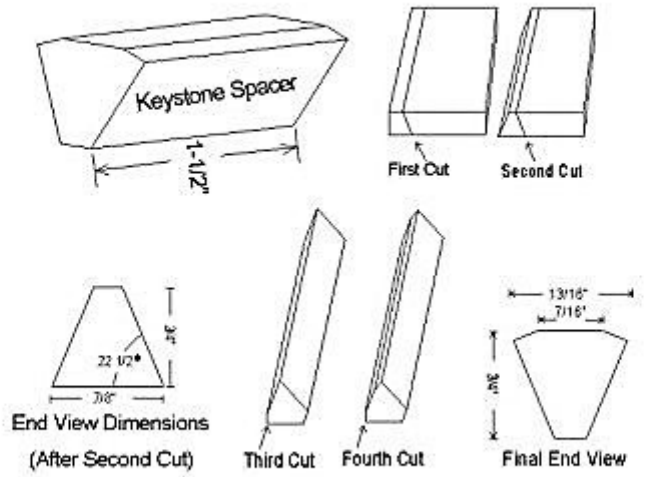
Spoke Pattern

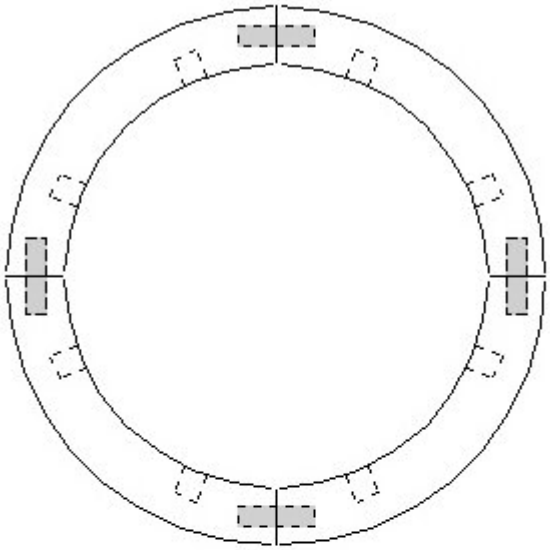


Spoke Tips

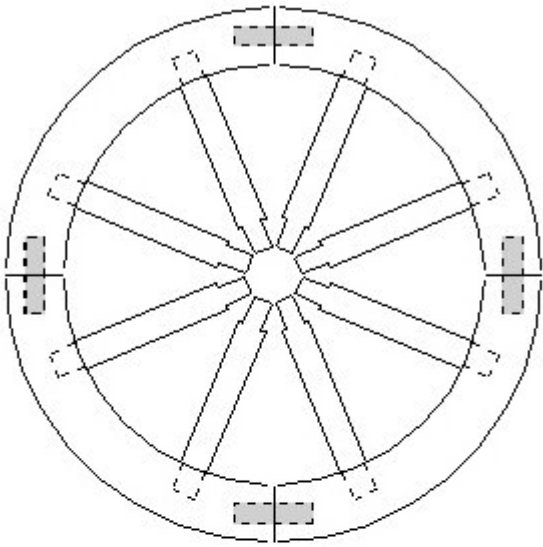

1-1/2"
Hub
1-1/2"
5/8"
1-1/4"
3/4"
2-3/8
6-1/4"

Hub Pattern

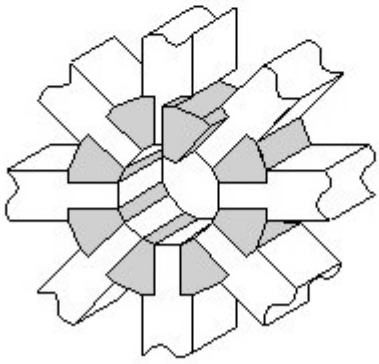

Keystone Spacer
1-1/2"
First Cut
Second Cut
22 1/2°
End View Dimensions
(After Second Cut)
Third Cut
Fourth Cut
13/16"
7/16"
Final End View



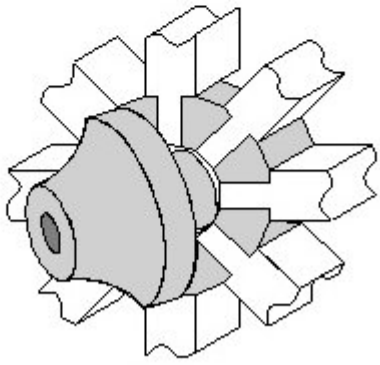
Step 4



Step 5



Step 6



Step 7

14" Wheel Instructions

It is our pleasure to provide you our free 14" Wooden Wagon Wheel Plans. Please read through these instructions entirely before starting.

This wheel is not a working wheel. It is designed for decorational use only

Please read and follow all tool manufacturers safety and operating instructions before operating equipment. Always wear safety glasses and hearing protection.

This project requires you to make four felloes (rim sections), eight spokes, eight keystone spacers, and two hub halves. For your convenience, we have printed the plans on an 11" by 17" (B size) drawing. B size plans are much easier to work with than larger drawings as they don’t take up as much space on your workbench.

After cutting out all the parts, it is recommended you assemble them without glue to ensure they fit properly. It takes a lot of skill to have all the spokes fit together properly and have an exact 1 1/2" cavity in the center for the hub halves to fit into. But it is quite easy to change the size of the keystone spacers with a sander, hand plane, or sharp chisel. Be sure to clamp the spacers in a vice if trimming with a hand plane or chisel.

Keep in mind that the ends of the hub spacers and sides of the spoke points will be covered by the hub halves. I recommend using polyurethane glue like Titebond Quickset or Gorilla Glue. These glues expand and will fill small gaps. Since the hub halves will cover the area, the glue filled small gaps won't be visible. Polyurethane glues are very strong and are rated for exterior use.

Making the Spokes

For your convenience, isometric views of the spokes as each cut is performed are provided on the drawing. Please refer to these isometric views while reading.

1. Cut eight 1 1/2" wide by 5 1/2" long pieces from 3/4" stock.

2. Cut the hub tenons. A tenon jig is recommended for this cut. Free plans for a great tenon jig are available at on this site.

3. Cut the round tenons with a 5/8" round plug cutter. A tenon jig and drill press is recommended.

4. Cut the tapers on the sides. This step is easily done with the taper jig for which free plans are available on this site.

5. Trim the spokes'exposed edges with your router using a 1/4" or 3/8" rounding over bit.

Making the Felloes

Isometric views of the felloes are provided Please refer to these isometric views while reading.

Note: While minor imperfections in the center of the wheel will be covered up by the hub halves, any imperfections in the felloes will show. Be sure each felloe is cut accurately.

1. This wheel uses four felloes (sections of the rim). You can minimize waste by cutting them from a 50" length of 1 1/2" by 3 1/2" stock at a 45° angle as shown in Step 1. The bottom (shorter length) of each section is 7 25/32" long. This will be the same as the distance between the inside corners of the felloes. Please refer to the Felloes full size pattern on the drawing.

2. Trace the felloes outline onto each piece. and cut with a scroll saw or band saw. Cut on the outside of the line to leave room for final sanding .

3. Drill the tenon holes and dowel holes in each piece. There are pictures for this step on the "Tips" page

4. Glue and assemble the felloes to form the rim with 5/8" by 2" dowels and clamp with a band clamp. (Use exterior glue).

Making the Hub

The design of this wheel allows you to be as creative as you like when making the hub. A full size pattern for a simple hub is provided on the drawing. This one will produce an attractive finished wheel and will enable the wheel to be easily mounted on the project of your choice.

For those who have a wood lathe, making the hub from the included pattern involves gluing up a couple of 7" long pieces of two by four stock and turning the hub on your lathe. When finished, you need to saw the hub in half through the middle so it can be inserted through the hub cavity in the center of the wheel.

The 5/8" hole through the center of the hub will allow you to insert a piect of 1’2" ID copper tubing in the hub as an axle bushing when the wheel is completed. Remember, this wheel is NOT designed to be a working wheel nor to carry heavy loads. But it can be used for the 53" wooden wheelbarrow (which is also only for decorative use as a flower planter).

If do not have a lathe, you can make a simple hub by cutting round disks with your scroll saw and assembling them as shown in the following Optional Hub section. Make enough of the outer disks so the width of the finished hub is 6" wide

Optional Hub

For the optional hub, you need to cut five round disks with 5/8" center holes using your scroll saw. See Figure 1.

The 1 ½" by 1 ½" disk is used to fill the hub cavity in the center of the wheel. Make the two hub halves by attaching a 1 ½" by 1 ½" disk to one of the 3" by 1 ½" disks. You can attach them with a couple of nails from the back side of the 3" disk. Be sure to predrill the screw holes to prevent splitting.

1. Apply exterior glue to the mating surfaces.
2. Insert the 1 ½" by 1 ½" disk into the hub cavity.
3. Attach the hub halves to the wheel with four 1 ½" Number 6 woodscrews on each hub half.

Note: Be sure to postion the second hub half so the screws don’t intefere with the screws for the fisrt hub half.

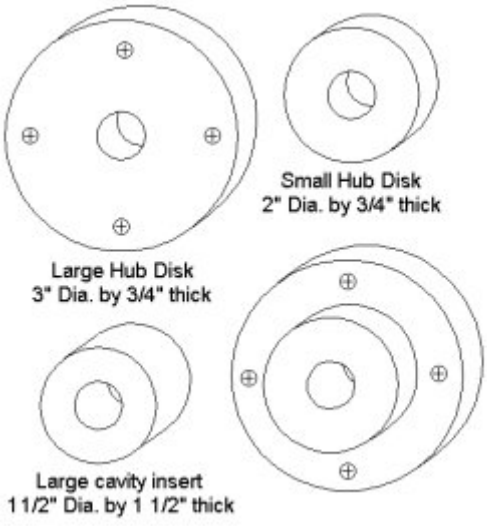


Figure 1

14 Inch Wheel with optional hub.

Assembling the Wheel

Isometric views for assembling the wheel are provided on the drawing. Please refer to these isometric views while reading.

Note: You'll need a 7" (1/4" or 5/16" diameter) long bolt or threaded bar with nuts and two washers before starting the assembly. The washers must be larger than 5/8" diameter. This bolt is used to clamp the hub halves together during the assembly.

1. Make sure the spokes, keystone spacers, and hub halves fit properly. When all fits well, apply glue to the felloe tenons and insert all the spokes in the rim.

2. Apply glue and insert the keystone spacers between each spoke as shown in Step 6 of the isometric views. Make sure the spacers are flush with the spoke sides.

3. Apply glue and insert the hub halves into the hub cavity as shown. Use the long bolt with large washers and a nut mentioned above to clamp the hub halves together. Run the bolt through the hub axle hole and tighten snugly so the hub halves fit flat

against the spoke sides. If using polyurethane glue, moisten one side of each surface with a damp cloth. Please read the instructions on the polyurethane glue container.