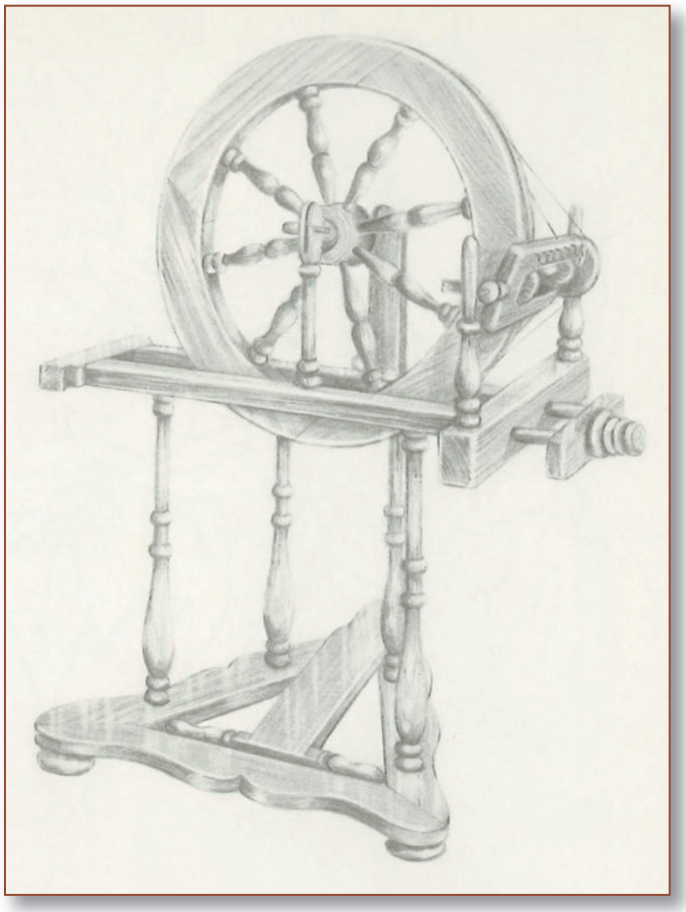
WOODWORKER'S JOURNAL
"America's leading woodworking authority"™

Classic Project

In this plan you'll find:

- Step-by-step construction instruction.
- A complete bill of materials.
- Construction drawings and related photos.
- Tips to help you complete the project and become a better woodworker.

European Spinning Wheel



Published in *Woodworker's Journal* January/February 1983

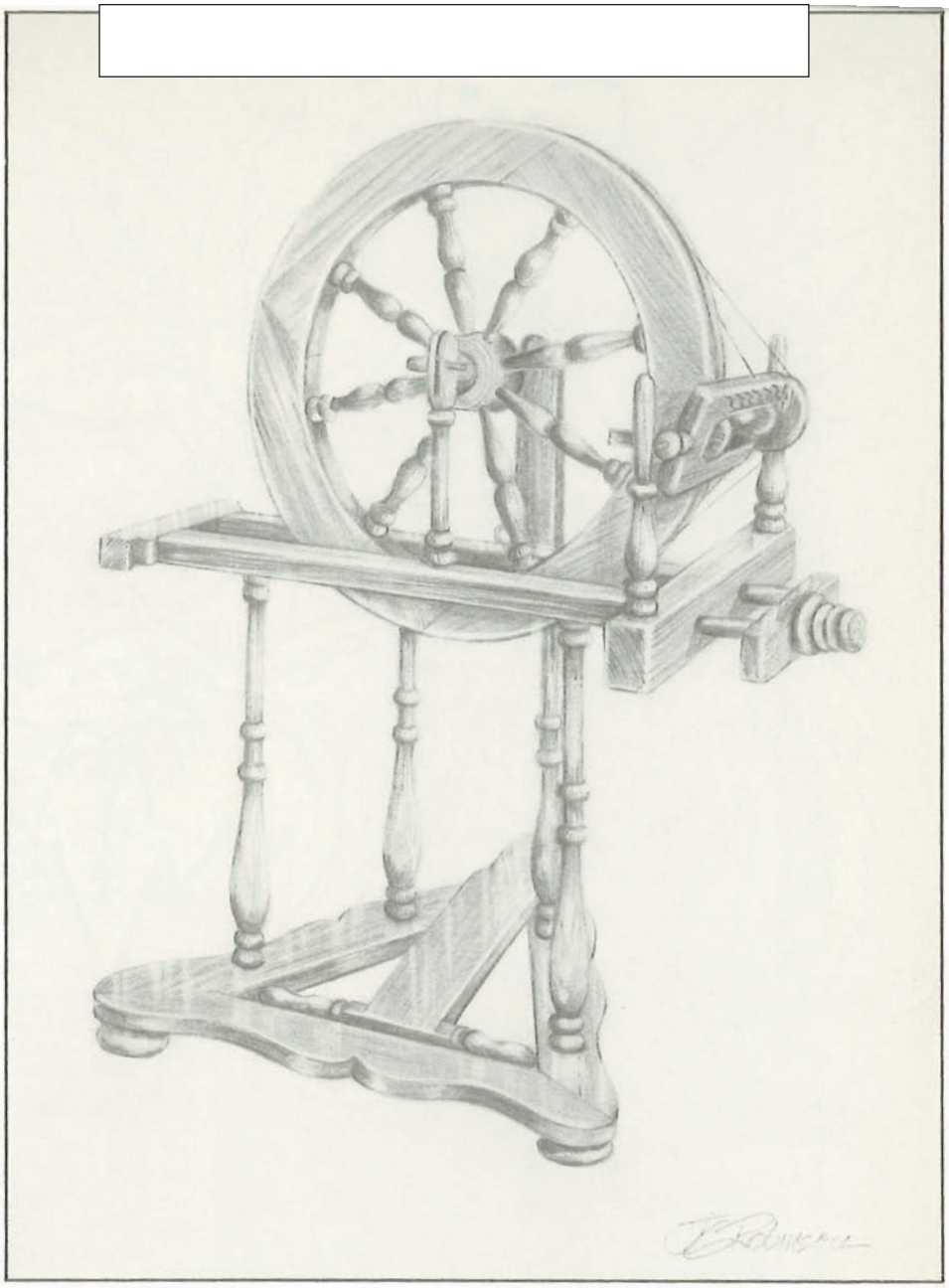
$1.00
WJC196

European Spinning Wheel

by Dave Batten

This lovely little spinning wheel, which is under 30 inches high, was made by a friend of mine, and as he wants his design to remain unique, I have altered several of the decorative features and some of the dimensions. However, it remains a most attractive piece which will not only spin wool but will also give your fireside an old-world appeal.

Editor's Note: Readers should keep in mind that this is a project that requires considerable woodworking skill, particularly the turning operations and construction of the wheel. There just isn't enough room to thoroughly describe each detail of construction, so for some operations, the woodworker will find it necessary to work out his or her own techniques.



In the old days a piece like this would be made from whatever lumber was handy. Today, either cherry or maple would be a good choice. There is some metalwork required, which you can probably adapt from pieces in your odds and ends box, as none of it is dimensionally critical.

Figure 1 shows the complete wheel viewed from the back while Figure 2 shows a front view. A plan of the triangular base is given in Figure 3, and Figure 4 details the framing. Let's deal with the base, pillars, and framing first.

The base is made up of three base rails (B) each 16 inches long by 1¾ inches wide by ⅝ inches thick. They are mitered and doweled together. It would be best to cut the miters first and then dry assemble the base rails so that you can drill the holes for the metal pins on the ends of the treadle stretcher (D). These metal pins are epoxied in place. Once this treadle stretcher has been positioned, you can glue and clamp the whole assembly. If you cut the shapes after you have done this, and not before, it will be easier to apply the clamps. Gluing the feet (C), one at each corner, comes next. Before leaving this section, bore the holes for the pins on the ends of the pillars (A); the positions are shown in Figure 3. Note, too, that the shaped edges of the base rails have a small quirk worked on them as shown in Figure 1.

The pillars (A) are striaghtforward turnery, and they are detailed in Figure 5. As we are working upwards from the base, this is the appropriate time to deal with the treadle (E), which is also drawn in Figure 5. It is ½ inch thick, and is pinned and glued to the slot in the treadle stretcher (D) (see Figure 3); two holes for the leather lacing which joins the treadle to the pitman rod (F) need to be drilled about one inch from the end.

Turning to details of the framing (Figure 4), you will see that the center for the holes to receive the tenons on the top ends of the pillars (A) are marked as 6 inches center to center at the back, and 11½ inches at the front. At one end, the frame rails (G) are doweled into the frame (H), while at the other end we have a tensioning device for tightening the leather driving belts on the wheel. This works as follows (Figure 6 will help you here): a 5 inch length of ⅜ inch diameter threaded rod is fixed centrally in a hole bored in the end of the tensioning knob (K) and is glued in place with an epoxy resin adhesive so that a 4 inch length protrudes, which revolves freely in a hole in the tension frame rail (L). The tension frame rail is fixed to the frame by twin ⅝ inch diameter dowel tension guides (M) which are glued into the ends of the frame rails (G).

But before you can assemble this, the maiden support bar (I) needs to be dealt with, and dimensions are given in Figure 5. Two ⅝ inch diameter holes need to be bored right through it to be a sliding fit on the tension guide dowels (M), and another ⅜ inch diameter hole which accepts the threaded rod. Ideally, this hole should be tapped so that its thread matches that of the rod, but you can get over this problem by selecting two nuts with the appropriate thread and insetting them in line with the hole, one at each side. This will mean that as you turn the tension knob (K), the maiden support bar (I) will be drawn backwards and for-

(continued on page 33)

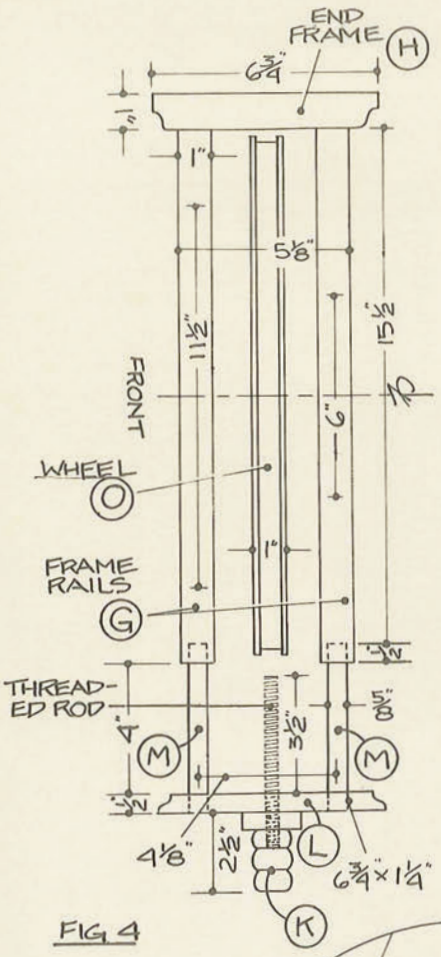


FIG 4

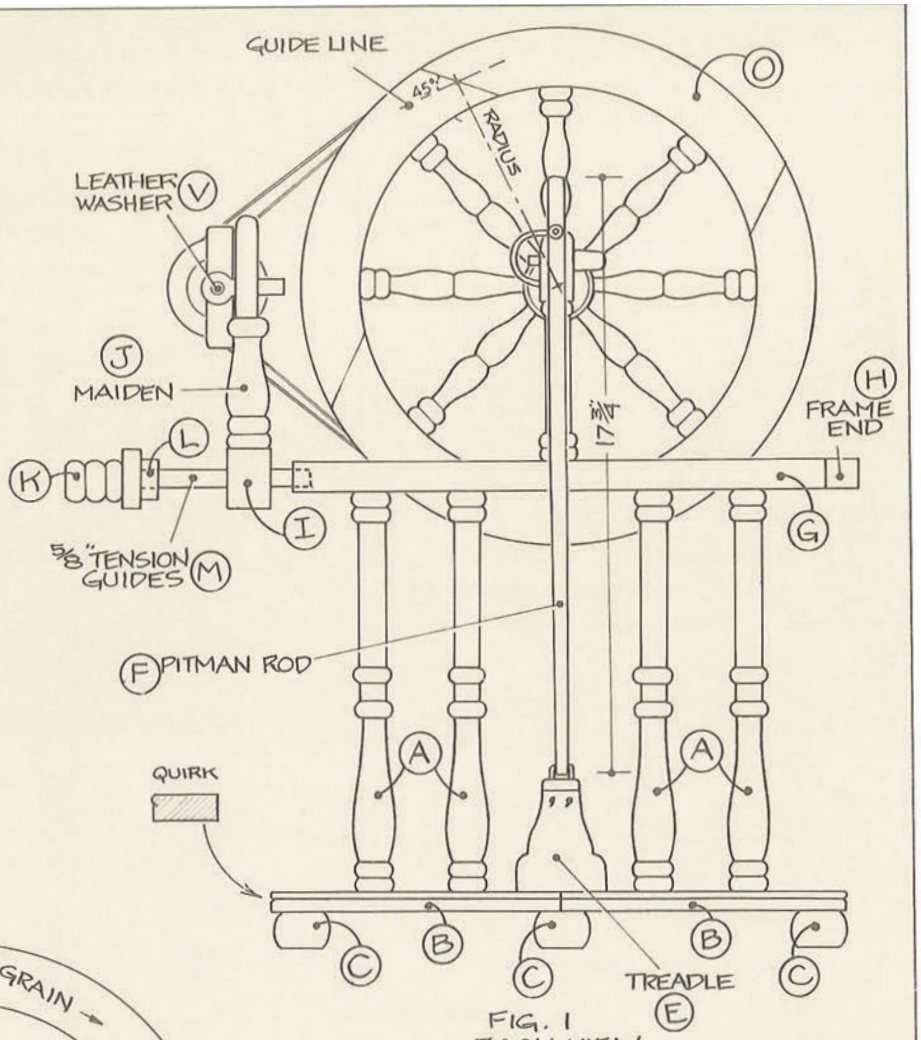


FIG. 1
BACK VIEW

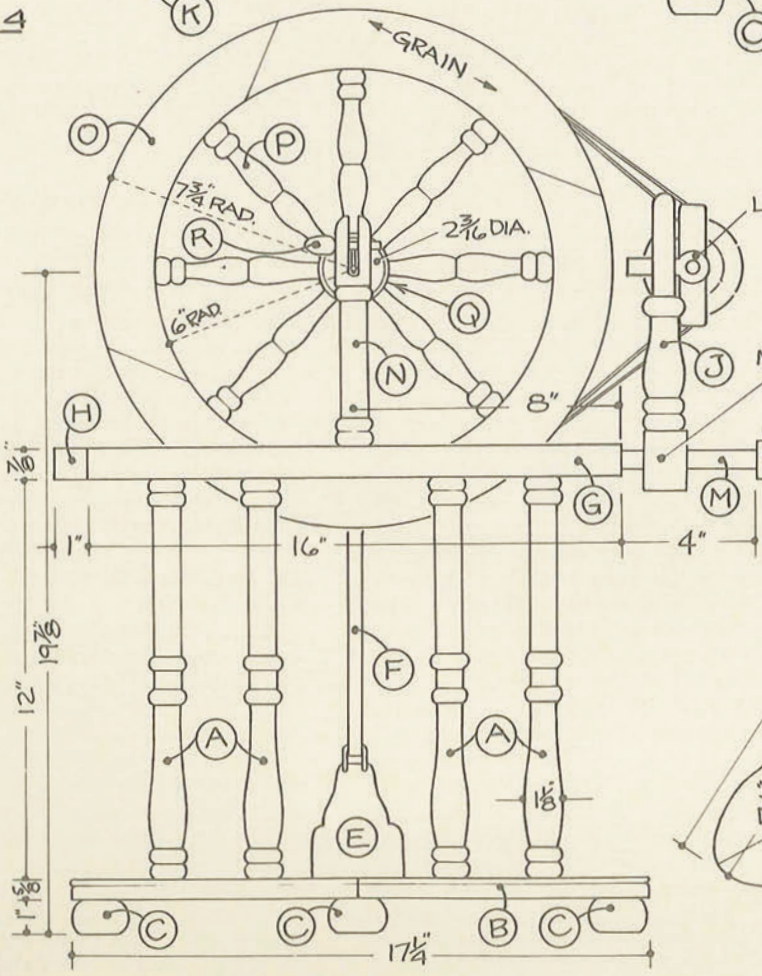


FIG 2. FRONT VIEW

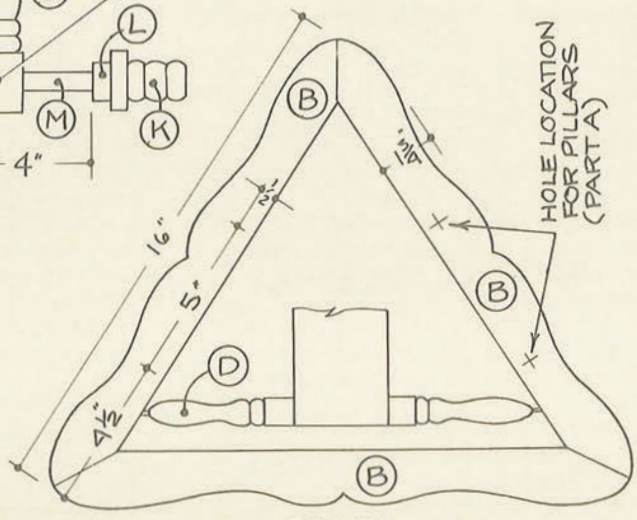


FIG 3-TOP VIEW: BASE

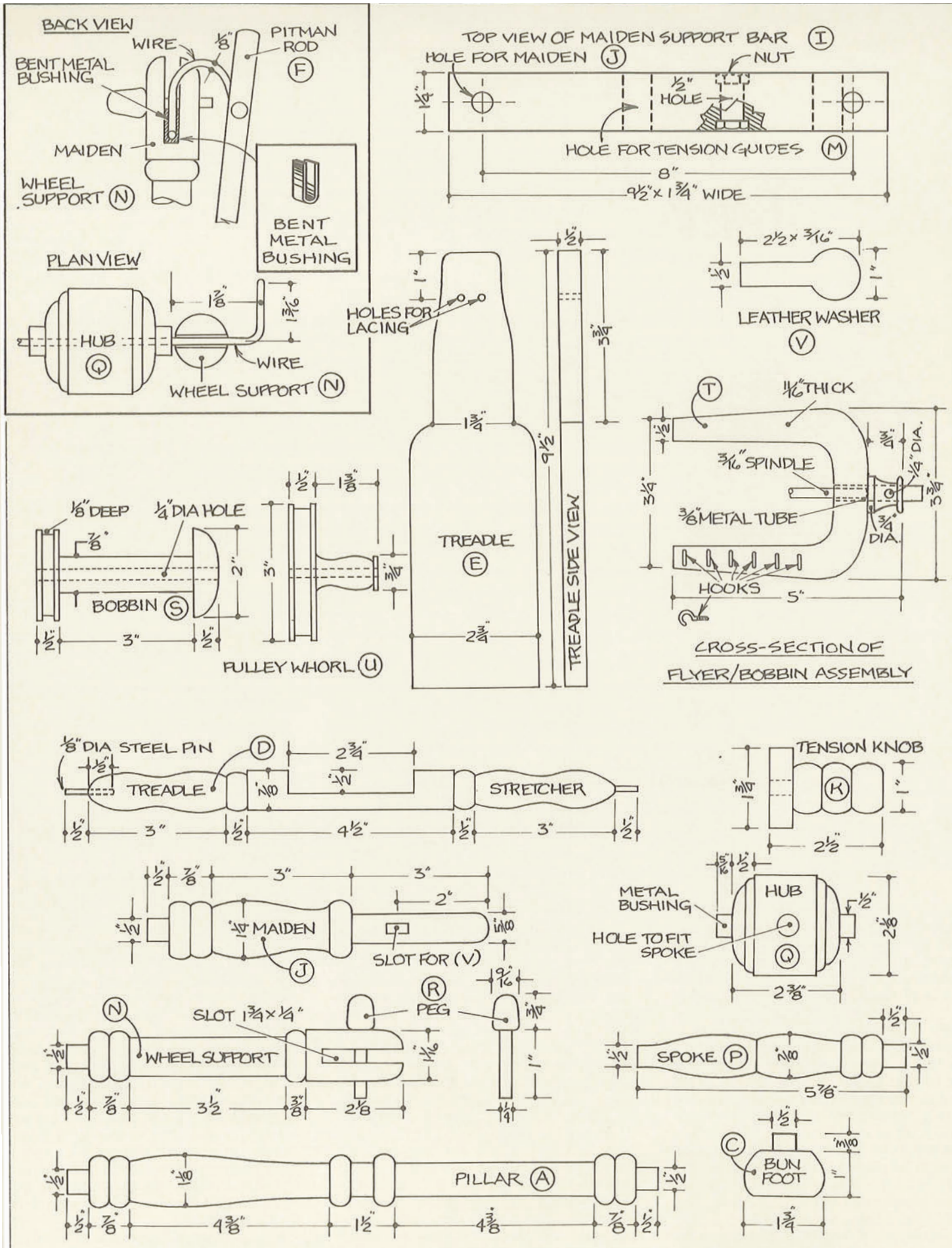
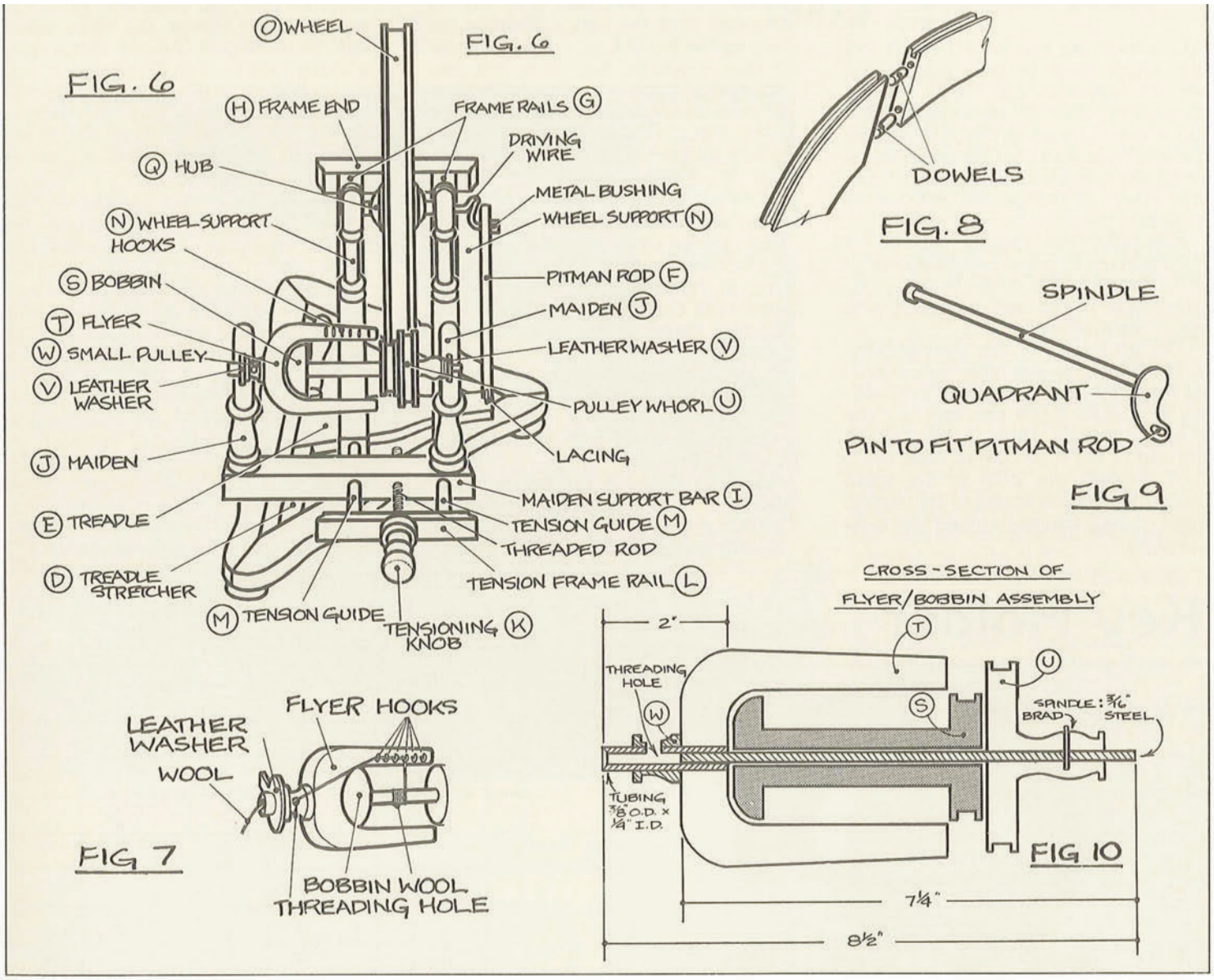


FIG 5



(Spinning Wheel, cont'd)

wards as the threaded rod engages with the nuts, and the tension guide dowels (M) will steady it.

The wheel (O) is, of course, the most prominent feature of the design and its construction has been simplified to use easy joints and to ensure that the grain of each segment is kept as long as possible so that there as few short-grained pieces as possible.

Your best plan would be to draw out the wheel full-size on a sheet of paper and plot out the positions of the joints and spoke holes. Although the spokes (P), have pins on one end which are glued into the outer rim, their inner ends which enter holes bored in the hub (Q) are left loose.

The method of obtaining the miter angle for these rim joints is shown in Figure 1. It involves drawing a radius to meet the center of the rim width halfway between two spokes, and then drawing a guide line at 90 degrees to the radius; an angle of 45 degrees to this guide line gives you the angle for the miter. The joints themselves are glued and doweled as shown in Figure 8. Once the wheel, spokes, and hub have been assembled and the glued joints have set, the whole thing can be mounted on the lathe faceplate and trued up; you can turn out the channel for the driving belts at the same time.

The two wheel supports (N) are straightforward pieces of turning, and have a ¼ inch by 1¾ slot cut centrally down from the tops (see Figure 5), and in each case a small peg (R) prevents the wheel spindle from jumping out of the slot but at the same time allows for the wheel to be lifted out if required.

Now we come to the complicated part, the assembly which contains the maidens (J), the flyer (T), the bobbin (S), the pulley whorl (U), and the small pulley (W).

Details of the maidens (J) are shown in Figure 5, and turning them should present no problems (note that a ½ inch long by ¼ inch wide slot is cut right through to allow the leather washer (V) to be inserted. Both maidens are glued to the maiden support bar (I) by means of the pins turned on their ends.

The bobbin (S) and the pulley whorl (U) are also comparatively easy to turn; both have a central hole drilled lengthwise, but we shall be discussing this later. Probably the trickiest part is making the flyer (T), which is sawn out of the solid stock with its edges nicely rounded off. The wood used for this should be free of knots and even-grained so that it spins without wobbling. The small pulley (W) can be turned separately and glued on afterwards.

Lastly, the pitman rod (F) needs to be made. It is 17¾ inches long, but this may vary according to the type of driving method you use; it is about ½ inch square at the top end, tapering to 5/16 inch square at the bottom.

Now we come to the arrangement of the metalwork. To transmit rotation to the wheel this design uses a ⅛ inch diameter bent wire as shown in the inset in Figure 5. This wire is held in the slot of the front wheel support (N) by being clamped inside a bent metal bushing which is a flat U-shape.

The set-up shown in Figure 9 can also be used, and essentially consists of a spindle (the diameter is not criti-

(continued on next page)

cal...something around 3/16 inch will do) which rests in the slots in the wheel supports and also passes through the hub; at the driving end it has a metal (brass or steel) quadrant fixed to it. In turn, the quadrant has a small pin protruding from it which fits into a hole in the pitman rod and so transmits the drive from the treadle.

Naturally, the spindle has to be fixed into the hub and could be a drive-fit in its hole with metal bushings on either side of the hub, fastened with epoxy resin adhesive.

The fitting up of the flyer-bobbin-pulley whorl sub-assembly needs careful thought before we go too far. Looking at Figure 7 you can see that the wool is threaded through the hole at the end of the tube through the flyer, then through the hole in the small pulley (W) and on to one of the hooks, finally being knotted around the bobbin shaft.

The bobbin (S) rotates faster than the flyer (T) as its pulley is smaller in diameter than the pulley whorl in the flyer and in fact it has to do so in order to spin properly. So, there are two separate components, namely the flyer (T) with its small pulley (W), plus the pulley whorl (U), which all rotate together, and the bobbin (S) and its shaft plus its pulley, which also rotate together. (see Figure 10).

In our model, therefore, the flyer components were all fixed to a 3/16 inch diameter steel spindle; in addition, at the small pulley (W) end, a ⅜ inch tube (exterior diameter ⅜ inch, interior diameter ¼ inch, length 2 inches) was brazed to the end of the spindle. This spindle/tube assembly is then epoxied to parts T and W. A ¼ inch threading hole was drilled through the wood into, but not right through, the tube.

You will then need to drill a ¼ inch diameter hole lengthwise through the bobbin and its pulley so that they will revolve freely on the 3/16 inch metal spindle. The pulley whorl (part U) must be removed from the spindle in order for the bobbin (S) to be taken out. To make part U easily removable, a small hole is drilled through it and the spindle (see Figure 10). This will allow a brad to be secured in place as shown. Leave the brad head exposed so it can be pulled out when part U needs to be removed.

Now cut the leather washers (Figure 5) and fit them to the maidens; the washer on the pulley whorl end has a 3/16 inch diameter hole drilled through it, and the other a ⅜ inch diameter hole to fit the tube extending out of the small pulley. Being leather, they make a noiseless bearing for the spindle and the tube and they can be bent aside to allow the whole flyer-bobbin-pulley whorl sub-assembly to be removed.

Finally, as has been mentioned, the lacing which connects the pitman rod to the treadle is leather, and the driving belts can well be made of the same material to give an authentic touch.

Thank you for purchasing this *Woodworker's Journal* Classic Project plan.

Woodworker's Journal Classic Projects are scans of much-loved woodworking plans from our library of back issues. Please note that specific products and sources cited in a plan when it originally appeared may no longer be available.

If you experience any problems with this plan, please contact: info@woodworkersjournal.com

or

Attn: Classic Projects
Woodworker's Journal
4365 Willow Drive
Medina, MN 55340

Thank you again for your purchase, and happy woodworking!

Matt Becker
Internet Production Coordinator