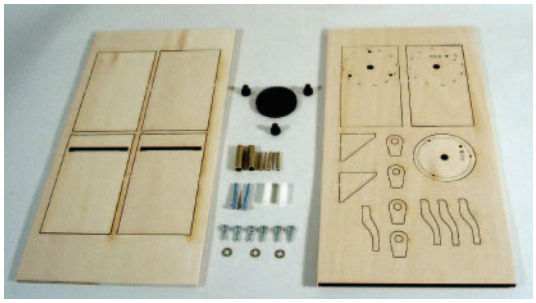
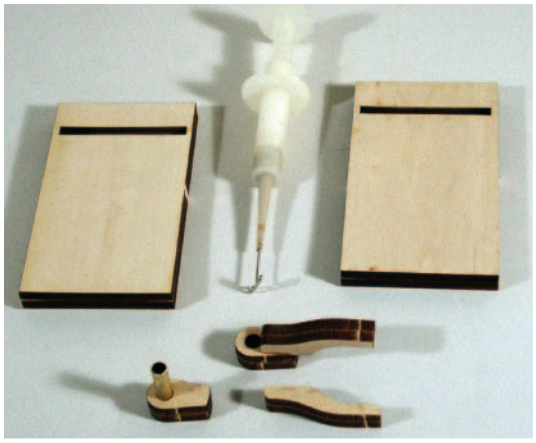
MODEL SHIPWAYS
• QUALITY KITS SINCE 1946 •
HOLLYWOOD, FL

ROPEWALK
SCALE ROPE MAKING TOOL

Instructions
& prototype by
Bob Crane

ASSEMBLY & OPERATING INSTRUCTIONS KIT NO. MS110





MODEL SHIPWAYS ROPEWALK PARTS LIST

ITEM	QUANTITY	DESCRIPTION
Gears		
32 pitch, 10 tooth, 1/8" bore	3	
32 pitch, 48 tooth, 1/4" bore	1	
Brass Tube		
1/8" dia., 3/4" length	3	Axles, 10 tooth gears
1/4" dia., 1" length	1	Axle, 48 tooth gear, stop pin
1/4" dia., 3/4" length	1	Axle, rotating platen
Hardware		
#14 screw eyes	6	
6-32 machine screw, 1" length	2	Crank handle axle
1/4" dia. x 3/4" nylon spacer	2	Crank handle
1/8" id external retainers	6	10 tooth gear retainer (3 extras)
Laser Cut Parts	**All Laser Cut Parts 3/16" Basswood**	
Base Plate	4	Laminate 2 each for 3/8" thick
Geared end upright	1	
Tail end upright	1	
Gussets	2	
Crank arm	4	Laminate 2 each
Crank arm boss	4	Laminate 2 each
Rotating platen (flat plate)	1	

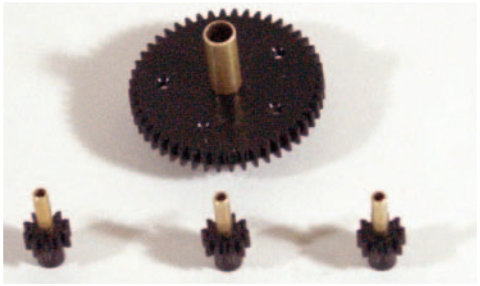
ASSEMBLY INSTRUCTIONS

1. Test fit the uprights in the slots in the bases. A little sanding of the slots may be needed to ensure a good fit. Glue together an unslotted base plate and a slotted base plate to make 2 bases 3/8" thick. We recommend carpenters glue for all wood parts. A few spots of glue will due the job. Flooding the surface of the bass wood with carpenters glue may cause the wood to curl.

2. Glue together 2 each crank arms and 2 crank bosses. Temporarily insert one of the 1/4" brass tubes in the bosses to ensure alignment when gluing.

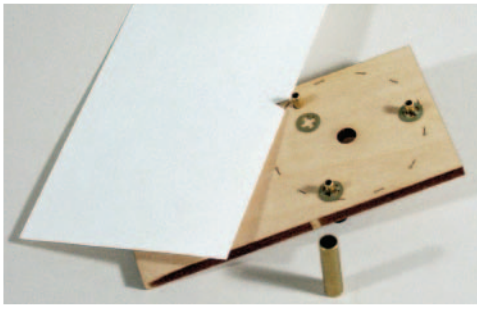
3. Glue the crank arms to the crank bosses as shown to complete the crank arm assemblies.

4. Important Clean any cut off burrs and file or sand a slight bevel on the ends of all brass tubes. These tubes are a light press fit into the gear bores. The bevel will prevent difficulty and ease the pressing operation.



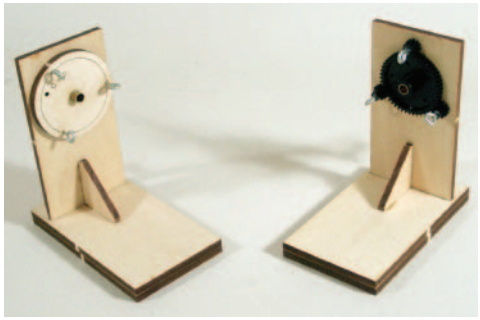
5. On a flat, smooth, hard surface, place the 3 small gears with the geared end up and press the 1/8" brass tubes into the gears. The brass should extend all the way through the gears. Start the tubes by hand, and if necessary place a block of wood on the end of the tube to protect it and tap in with light hammer blows. Repeat for the large gear with a 1/4", 1" length tube. The brass should go all the way through the gear and be flush with the other end.

6. Retaining ring installation. Insert the 3 small gears with axles into their respective holes in the gear end upright. Place the gears down on a hard surface. Cut a notch in a piece of note card stock or business card stock or similar. This is important. Failure to do this may result in a stiff operating gear head due to friction. The card stock is intended to provide some clearance between the retaining ring and the upright.



Place the notched paper around one of the gear shafts. Place a retaining ring centered on top of the tube end. Note that the retaining ring has a convex and a concave side. You want the concave side down on the tube end. Using one of the 1/4" tubes, press the retain-

ing ring down over the gear axle until it meets the card stock. Repeat for all 3 gears. The gears should turn freely. If necessary a piece of scrap wood and a tap with a hammer will facilitate the installation.



7. Assemble the large gear into the gear cluster and you are ready for crank handle installation.

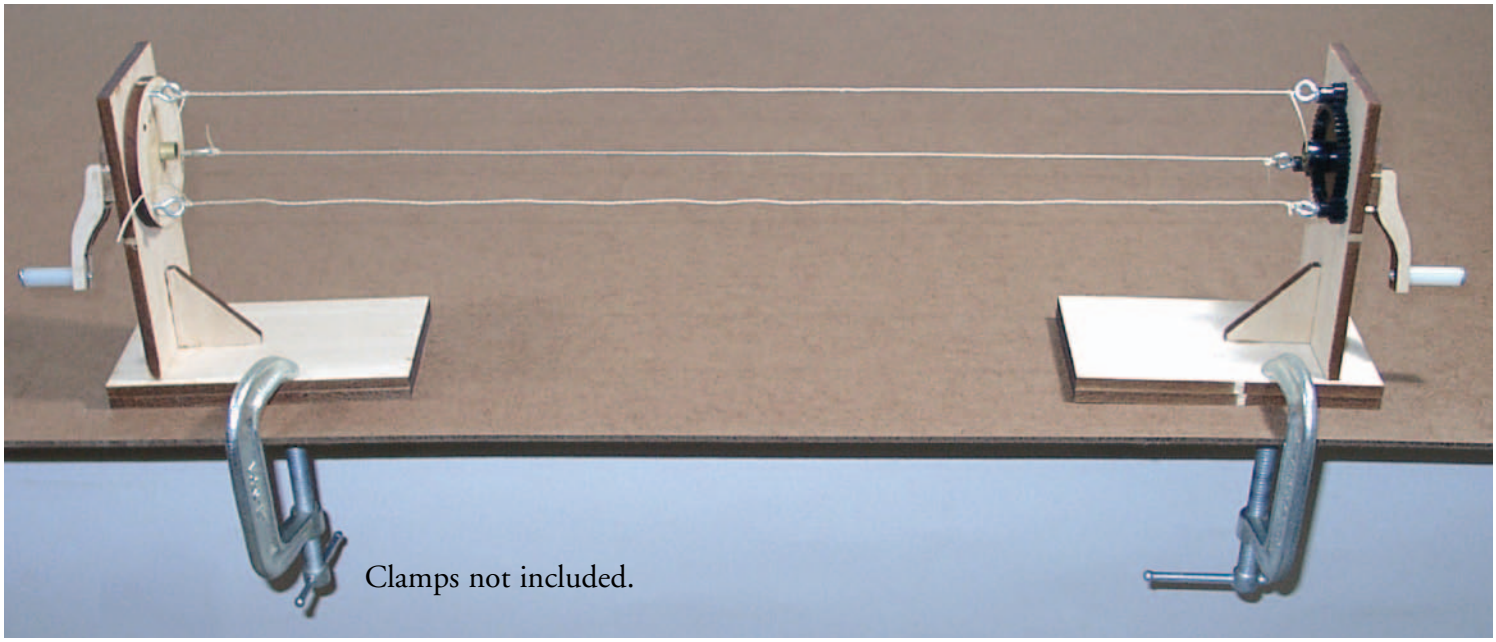
8. With a sharp object press a starting dimple at the ends of the crank are in preparation for drilling. Drill a 1/8" diameter hole through both of the crank arm ends. Assemble the nylon handles with the 6-32 machine screws.

9. Glue one of the crank arms onto the large gear axle. We recommend Super Glue for this step. Push the crank boss onto the axle and spread a little super glue around the brass. The glue will wick into the joint. Be careful not to glue the crank boss to the upright! Apply the glue into the hole, not on the axle.

10. Glue 3 of the screw eyes into the small gear tubes as shown. Glue the gear end upright in the slot of a base along with a gusset. The screw eyes are a standard size. However, differences between manufacturers occur. Test fit your screweyes in the tubes before gluing. They may need a little work with a file in order to fit into the tubes. This completes the gear end assembly.

11. Assemble the tail end by super gluing on the crank and platen as shown. Again, exercise care in gluing, so that the parts rotate freely. Glue the tail end upright in its base slot along with a gusset. Screw in the 3 screweyes into the corresponding holes in the platen. This completes the assembly.

OPERATING INSTRUCTIONS



This ropewalk is simplicity in itself. Unlike ropewalks of the past that incorporated rails, trucks, bobbins and the like, this one has only two parts. The gear head end and the tail end. The difference is obvious. Note that the tail end has a lock pin. The steps in making rope are as follows:

1. Place the gear end and the tail end on a smooth surface, such as a table top, with the gear end to the right (if right handed) and the tail end to the left. Space them about 3 or 4 feet apart or whatever you find comfortable.

2. Clamp the gear head end to the table. It will remain clamped throughout the operation.

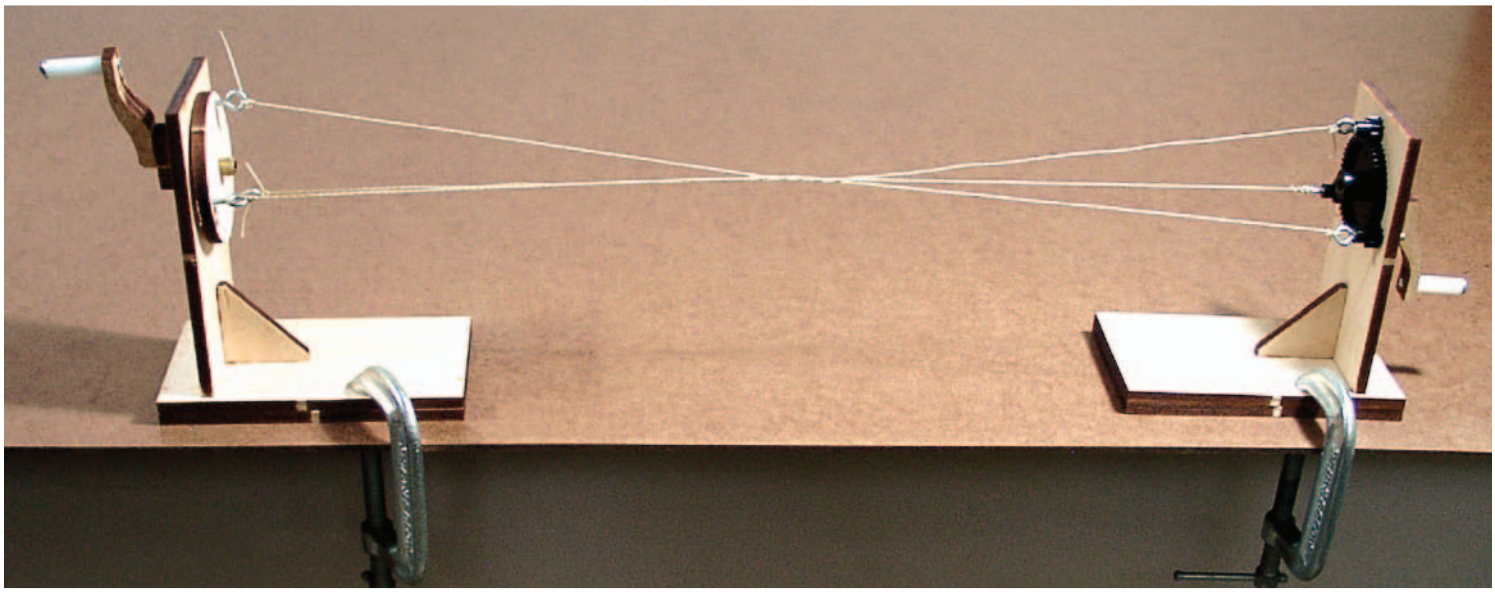
3. Temporarily clamp the tail end to the table and engage the lock pin.

4. Tie 3 individual strands of your selected cordage to the corresponding hooks on the devices. Try to maintain about equal tension in the strands.

5. Unclamp the tail end.

6. Begin cranking the gear head end in a clockwise direction as indicated by the arrow on the crank side of the gear head. With your left hand maintain tension on the strands as the tail end begins to move toward the gear head due to the twisting of the strands. Note: If the strands begin to unravel instead of twisting tighter, you have an opposite hand material and the directions of rotation should be reversed. This is rare.

7. Continue cranking the gear head end as the strands twist tighter and



the tail end moves toward the gear head end. How much twist is enough? There will come a point where the strands will want to kink upon themselves. That's enough twist. Untwist enough turns and hold tension on the strands until they are not kinked. At this point the tail end will have moved approximately 20% of the starting distance between heads.

8. Now, let's make a rope. Unlock the tail end and begin turning the crank in a clockwise direction, indicated by the arrow on the crank side of the tail end. Immediately the strands begin to twist into a rope, beginning at the middle of the span.

9. Continue turning the crank as the rope lays up. Maintain a bit of tension as it does so. When the rope has laid up as tight as you want it, touch the ends with a bit of glue and cut off your new rope. That's it.

Longer lengths are easily achieved but since the tail end will be out of your reach while you're cranking the gear head end, some means of maintaining tension on the strands must be made. This can be done with a helper, or by placing suitable weights on the tail end to provide the appropriate friction to maintain tension while still allowing the tail end to slide toward the gear head as the strands twist up.

Diameters: Experience has shown that the diameter of the finished 3 strand rope will be about 1.8 times the diameter of the individual strands. For example, if you begin with strands of 0.010 inches diameter, the finished 3 strand rope will be approximately 0.018 inches diameter.

It is fun to experiment with different cordages to see what you get. Larger lines for larger scales such as anchor hawsers, tow lines, shrouds and stays can be made by starting with 2 or even 3 strands tied between the hooks.

Glossary

Boss - An enlarged part of a shaft to which another shaft is coupled, or to which a wheel or gear is keyed.

Gusset - Triangular pieces used to reinforce the joint between the uprights and the base plate.

Platen - A flat plate or rolling cylinder.