Assembling your Syren Rope Rocket

US Patent # 5232168-28

Materials List…

Eye Screws – 11

Large gear – 1

Small Gears – 4

1/8” diameter brass tubes – 4

1/4” bore Shaft Hubs – 2

6-32 set screws – 8

Bearings - 2

1/8” bore tube collars – 4

¼-20 Machine Screws 1” long – 2

#2 Phillips Insert Bit – 1

Large ¼” Bore washer – 4

Finish nail - 1

Small ¼” Bore washers – 2

Small 1/8” Bore washers – 8

Laser cut parts – Cherry

Introduction…

All of the scale model rope available from Syren is made by hand on the ropewalk you see pictured above. Now you can make your own scale model rope using the same Syren Rope Rocket. There is an art to making rope but it truly isn’t rocket science. With a little practice, you will soon be making scale model rope just like we do. Assemble your ropewalk and then watch the video lessons provided on the Syren Website.

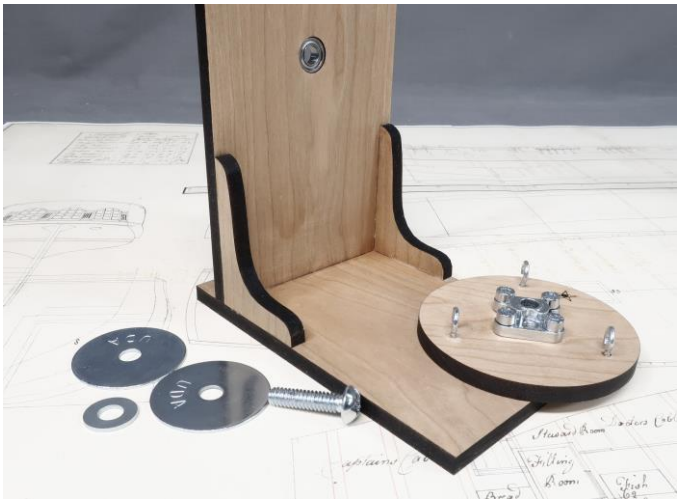
Step One – Assemble the laser cut wood parts for the head stock and tail stock of the ropewalk. It is pretty straight forward. Just examine the photos below and make sure the laser etched side of each upright is facing the correct way. This is very important. Use yellow carpenters glue. Depending on your preferences you can also remove the laser char from the edges of the laser cut parts before you assemble them.

Sand the surfaces well and apply several coats of wipe on poly or other protective finish. To complete step one, take the two laser cut discs and insert the screw eyes into the laser cut pilot holes.

One will get 3 eyes inserted and the other will get 4. Do not place one in the hole surrounded by a star. That is reserved for the finish nail or even a toothpick which will be used as the “stop” for your ropewalk.

Note in that same photo above how each eye should be opened up after you insert them into the holes. Open

the eyes just a little bit. Maybe just 1/32". This will make it easier to tie off your string when you start making rope.



For extra security, use some CA on each screw eye before you insert them into each hole. There will be quite a bit of tension on these ropes when you make them, especially with the larger ropes. You don't want them pulling free at the worst possible times!!!

Step two - the tail stock…

On the tail stock (above), the one with fewer holes, place one of the round ball bearings into the bore hole on the wooden back. It should fit snug. Then have the other hardware pictured above at the ready. Two large washers and one small ¼" washer, one ¼-20 machine screw and one of the aluminum hubs. In addition you will also need 4 of the small hex screws.

Insert the large machine screw into the center hole with the ball bearing. But also first slip on one large washer and the smaller washer as shown below.

Turning your attention to the inside of the tail stock, place the remaining large washer over the machine screw. See below.

To finish up the tail stock, you can now add the disc with those three open eye screws. Slide it onto the screw. You will be tightening the allen screw on the side of the hub tightly to secure it. The four screws in the face of the hub are only there as a way to register the hub onto the disc as it spins. So remember not to have the disc so tight against the washer that it wont spin. In fact, take care to ensure that it sins freely and easily after tightening that screw on the side of the hub. The set screw should actually crush the threads in the

larger machine screw to really secure the hub and disc. You absolutely don't want it flying off while you lay up your rope. That completes the tail stock. See below.

Step three…the head stock

The head stock will use all the gears and to assemble that you will need to set up the four small gears with some open eye screws first. As you can see below, the small lengths of brass tube provided need to be inserted

into each gear. Make sure you put the tube in the correct end of the gear. They will be so tight that it is impossible to remove if you screw up and insert it into the wrong end. You will need to gently hammer the tubes into the bore of each gear. Place the gear on a flat surface with the narrow end facing down on the table top. The gently tap the brass tube into the bore of the larger gear side.

Then you will need to insert the open eye screws into the bore (actually the brass tube). See above. Now sometimes the eye screws will screw into the brass tubes rather easily. But if the wont screw into the tubes easily you will need to file down the diameter of each of the threaded screws just a hair to make that happen. Its not a big deal actually. But either way, you will need to secure the eyes into the brass tubes with some glue. Preferably a two part epoxy. It really need to be secure and the eye screws shouldn't spin within the brass tubes at all when the glue dries.

Now you could just use some CA glue. That will actually work as well if you use a lot of it. Put it in the brass tube first…then screw in the eye. Then add more CA around outside perimeter. Wait for it to thoroughly dry before moving to the next step. If you have CA accelerator go ahead and use it.

On the next page you will see a photo that shows the ball bearing in position. This is just like on the tail stock. Press it into the center hole. Then insert 3 of the 4 small gear assemblies as shown.

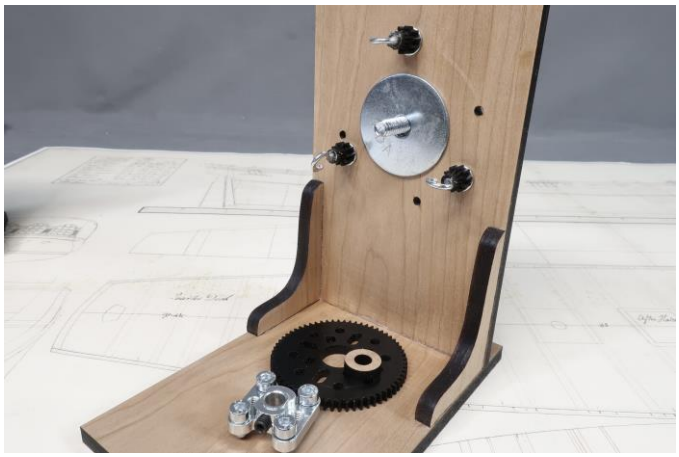
They should be inserted into the holes WITHOUT stars etched around them. The four holes with the etched stars are reserved for when you want to change the configuration to a four-stranded rope. But we are initially setting up the machine for making 3 stranded rope.

The gears slide in from the inside or the non-etched side. But you must slide a small washer between the gear and the head stock first. Also shown in the first photo on the next page.

Lets turn our attention to the etched side of the head stock. Insert another small washer over each tube and then use the small tube clamps to secure each gear assembly. But once again, don't make these too tight at all. Make sure that the small gear will turn freely. Tighten the set screws on the tube clamps to secure them. See below.

Next, use one large washer and a smaller ¼" washer while slipping the remaining machine screw through the bearing hole. Do this from the etched side of the head stock. See the photo on the top of the next column.

On the inside of the head stock, place the remaining large washer onto the machine screw. See photo below.



Also have the large gear at the ready along with the wooden washer/spacer. You can have the aluminum hub ready as well with the four set screws installed.

The last photo on the previous page shows the large gear in position. Note how the wooden spacer washer is pressed into the bore of the gear and inserted onto the machine screw. You may want to orient the small gears first so the open eye screws all face the same way. This isn't needed but can make tying the thread onto the hooks easier.

Lastly, place the hub in position so the four registration screws sit into the four holes on the gear. Tighten the set screw on the side of the hub. Just as before…not too tight. You want this gear to spin freely. That cant be emphasized enough.

This completes your ROPE ROCKET assembly. Important note before you use the ropewalk for the first time. There is a breaking in period for the machine. It is essential that you lubricate all moving parts before using the machine. I usually spray the gears and hubs with WD-40 before each use. Just a little!!! And wipe off any excess. This should absolutely be done before the first use. But also do it before each use especially if the machine sits unused for an extended period of time.

Four Stranded rope…

Your Syren Rope Rocket can make both 3 and 4 strand rope. With just a quick change of the disc and smaller gears you can change from 3 strand to 4 strand. But for now, your machine is set up with the disc and gears to make 3 stranded rope.

You are now ready to make some rope!!!

You will need to have a few things handy to make rope.

You will need some large clamps to secure the head stock and tail stock to the edge of a table…..or two tables depending on how long you want your rope to be.

You will need a sharp #11 blade in your hobby knife.

You will need some WD-40 lubricant.

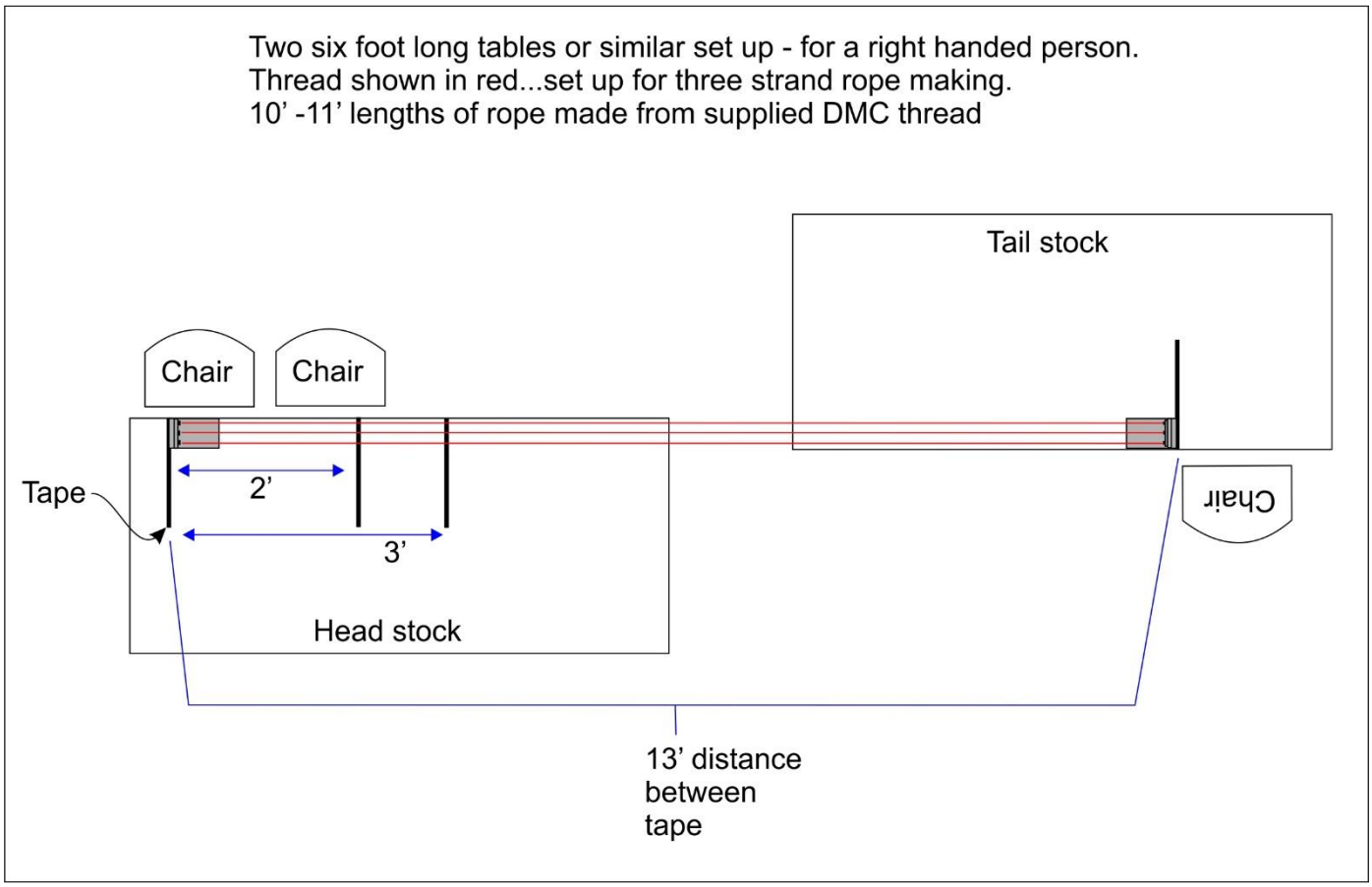
You will need the #2 driver bit supplied with the ropewalk.

Finally, you will need a cordless rechargeable hand drill. I use a driver/drill by Hitachi. They are very small and light-weight while having a high RPM limit. My Hitachi driver/Drill can turn at 2400 RPM. It is also reversible and has a variable speed.

Hitachi 18DS 18-Volt Lithium Ion 1/4-in Cordless Variable Speed Impact Driver.

Because all of our rope is 20-22 feet long, I actually have two of these. I keep one at each end of the ropewalk as I am laying up the rope. It's just easier this way and after forgetting to carry it down to the other end after initially twisting the thread strands, I just keep one at each end all of the time.

I have made two video lessons to show you how to use your Rope Rocket to make some great looking rope. The lessons are designed to make rope half the usual length. I don't know how much space you have in your shop to make rope so I designed these two lessons so you can make ten foot lengths of rope. You can basically make rope any length however. I actually



used the Rope Rocket to make a 43' length of four strand rope. It was tricky and on a nice spring afternoon I took the ropewalk out into the backyard where I had enough space to try this. That was the last time I attempted to make such a long length.

I am perfectly happy to make 20' or even 30' lengths of rope and you can do the same. But for our lessons, ten foot lengths are a great start.

I have been making rope this way for years on my Rope Rocket. I can comfortably make a 20 foot length of rope in about 8 minutes.

With a little practice I am sure you can too.

I have created a diagram with the initial set up to match the video tutorials. I use two six foot tables. The diagram shows the set up you will need to follow the video lessons you can watch on the Syren website. This set up will make 10 – 11' lengths of rope using any thread. I recommend using Gutterman polyester threads to learn with. You should experiment with different weights and colors to find what works best for you. What follows is a recipe of sorts for how to make rope using polyester thread. It's a great place to start. You can also use cotton or linen threads but it is increasingly difficult to find it without too much fizz and lumps on it.

Chuck Passaro's Recipe Using MARA For Rope Sizes He Offers

I do want to encourage everyone to take up the skill of making their own rope. Hopefully I will have more ropewalks in stock soon. I am biased but believe the type of manual ropewalk like I offer is the best and quickest way to make it. But whatever ropewalk you choose, I want to try and make it easier for folks.

Since I have been making rope available for a few customers on a custom basis using Mara for several years now, I would like to share the recipe for making the various sizes I offer this material in to my clients. Now the sizes you end up with may vary a bit depending on your technique and how tightly or loosely you lay up the rope. But as you can see from above, a tightly laid up rope is much more realistic. So when using MARA try and give more twists to the initial strands than you think. And then you will be able to twist those strands together more tightly in the opposite direction to make better looking rope.

So here is my recipe using MARA for the sizes I offer.

TPS - threads per strand.
S - Number of strands ....or hooks on the ropewalk.

.008 rope.....mara 120.....1 TPS x 3S very tightly laid up
.012 rope.....mara 100.....1 TPS x 3S very tightly laid up
.018 rope.....mara 100.....1 TPS x 4S
.025 rope.....mara 70.....1 TPS x 4S
.035 rope.....mara 30.....1 TPS x 4S
.045 rope.....mara 30.....2 TPS x 3S
.055 rope.....mara 30.....2 TPS x 4S
.065 rope.....mara 30.....3 TPS x 4S
.080 rope.....mara 30.....4 TPS x 4S

.095 rope.....mara 30.....5 TPS x 4S

Your results may vary as I said. BUT after you lay up your rope, make sure you tie a knot on each end. Poly wants to unravel. Remember Morope!!! It's crazy. Then get yourself a toaster oven....or use a real oven. Wind your rope around a metal sheave or pulley. I have these!!!! Garage door pulleys. They work fantastic.

Then place these in your toaster oven at 350 degrees for no more than 5 minutes. If you approach 400 degrees you will make a mess. The poly will melt. After much trial and error this is the best temperature.....also, no longer than 5 minutes because it will also change the way the rope looks and feels. Let it cool off on a rack. Now you can cut the ends with a sharp blade without any worry that it will unravel. This recipe and process makes perfect rope out of 100% polyester like Guterman MARA.

The best place to buy it in the USA....is Waywak

https://www.wawak.com/Thread/Thread-By-Brand/Gutermann/

Gutermann also makes other sizes, like MARA 50. A great size for making rope. But this must be bought from the MFG in large amounts. I have a bunch of this and it changes the recipe above. But the regular stuff you guys can get from Waywak use the recipe I have given.

Hope this helps.....start making your own rope. It's rewarding and FUN!!!!!! Until you have to make 1000 feet per day for seven days every week.

Chuck Passaro
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