

## **Making Rope with a Hand Operated Rope Machine**

### **Chapter 1 - A Quick Description of Rope Making**

Rope machines typically come in three or four strand hook varieties, made of various amounts of wood and metal. Some of the machines are all metal and have gears to rotate the strand hooks several times per rotation of the hand crank. They all perform the same task – twist fibers into strands that get twisted into a rope. A later section discusses several machines from early 1900's. There are several other pieces needed to complete the kit needed to make rope with the acquired rope machine.

The rope machine must be mounted to something stable. Perhaps a farm wagon, table, post or sawhorse. The farmers of the 1900's era made rope whenever and wherever the need arose. The cranking handle must be accessible to whoever is doing the cranking. More on this later.

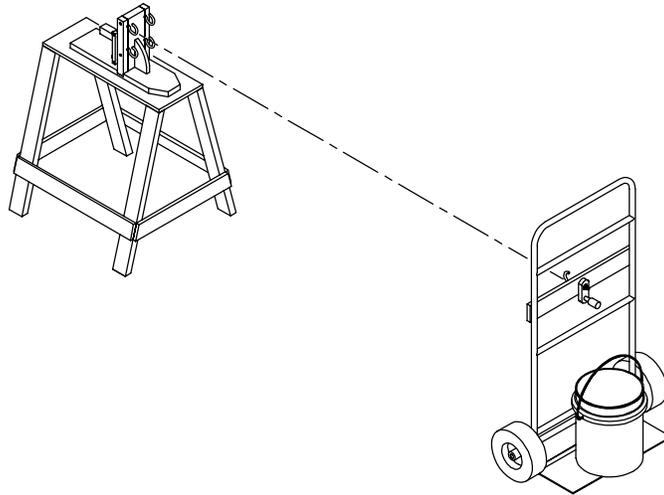
A hook on a movable "something" becomes the other end to complement the machine. Together, the two items form the "loom" for making the rope. This hook has to travel towards the machine during the rope forming process, hence the name "traveler". It is needed for lay-up, or stringing, of the yarn, string or fibrous material being made into rope. Figure 1 depicts a hook mounted onto a crank, mounted onto a hand truck. The hook is positioned about the same height on the hand truck as the center of the rope machine. Other methods of providing the "hook" use a rope on a pulley, connecting the swivel hook to a ballast weight, or a hand held swiveling hook, or even a strand separator tool. These are discussed in a later section.

The bucket shown in Figure 1 holds the ballast necessary to keep the hand truck from tipping over by the pull of the tension in the material laid between it and the machine. A correct amount of tension is needed to hold the strands up for winding. The quantity of ballast also depends on the smoothness of the work surface the hand truck rolls along and the thickness and suspended length of the rope being manufactured. Enough on ballast and variables for the moment.

Yarn or string is strung between each strand hook on the machine and the traveling hook. The material is evenly distributed between the strand hooks being used in making the rope. A four strand hook machine can make a three or four strand rope, while a three strand hook machine can only make a three strand rope. There is a bit of artistry and craftsmanship in laying out the yarn evenly between strands and within each strand. This lay-up process directly affects the quality of the finished rope. A later section is devoted to this subject.

When all the desired material has been applied to the hooks, the end of the yarn is tied to a hook to terminate the lay-up. The strand separator tool, like a strange comb, is placed between the strands to keep them separated and slid down to the traveler end before the winding starts.

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**Figure 1 Rope Making Equipment and Layout**

Now, the rope machine handle is cranked in a direction that has the strand hooks turning counter clockwise, if looking at the machine from the traveler hook. This creates a left hand twist, or lay, in the material of each strand and will make the resulting rope right hand lay. When the strands have become sufficiently twisted, the twist is pushed past the strand separator tool. When the strand twist meets similar strand twist energy from other strands, at the traveler hook, there is a twisting that occurs at the traveler hook. Hence the need for it to rotate, or swivel, while holding the tension of the laid up material.

The separator is pulled toward the rope machine, as the machine is cranked at a slower pace, maintaining the strand rotation twist, while the formation and rotation of the rope, past the separator, removes some of the twist energy.

The cranking continues till the separator reaches the rope machine. Then the rope is secured at each end with a whip knot or wrapped with tape. This prevents the rope from unraveling when removed from the hooks. Then the rope is removable from the hooks. If the lay-up was conducted correctly, the salvage end of the rope, at the traveler end, will have the yarns interlocked and resistant to raveling (won't come apart). Applying tape or a whip knot at this end is still an acceptable practice.

While this book discusses a lot of the knowledge necessary to make rope, the user must still practice making rope, and learn from shortcomings experienced in making rope. There are many variables in the process. Each can affect the quality of the rope being made.

Practice making short ropes, with a lay-up length of four to five feet. Try laying up different materials. Try varying the strand twist amount versus rate of movement of the separator tool. Examine each rope made and make a list of the good, and bad, points about each rope.