An *Interpretive* Build of the Mordaunt utilising the supplied kit

4th. Rate English Vessel

Launched in 1681

Scale 1:60

Rigging - 08

My interpretive build is based on the supplied drawings, the kit material – and an amount of extra material.

This work only illustrates how this ship might be built.The level of complexity chosen is up to the individual

This resource information was based on the original text supplied by Euromodel and then expanded in detail as the actual ship was constructed by the author, Peter Coward. Neither the author or Euromodel have any commercial interest in this manual and it is published on the Euromodel web site in good faith for other persons who may wish to build this ship. Euromodel does not accept any responsibility for the contents that follow.

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Illustrations

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Chapter 1: INTRODUCTION TO RIGGING

Rigging Systems

Rigging a ship is primarily a method of securing and tensioning all the spars (masts, yards, booms, gaffs and sprits) through a system of ***standing (fixed) rigging*** which includes *stays, backstays & shrouds.*

The rigging also includes a system of ***running (moveable) rigging*** to alter tension amongst the spars, raise and lower the yards and booms, furl and unfurl the sails, alter the positioning of sails and to generally control/restrict the movement of the large expanses of sail.

Many builders do not entertain the inclusion of sails even though Euromodel includes the material. This then reduces a large amount of the running rigging needed and makes for a far more simple process.

Plan Sheet Information

If the builder is serious about his/her task – and most are – then it is worth the time to investigate books on rigging such as …

The Masting and Rigging of English Ships of War 1625 – 1860 by James Lee (1984).

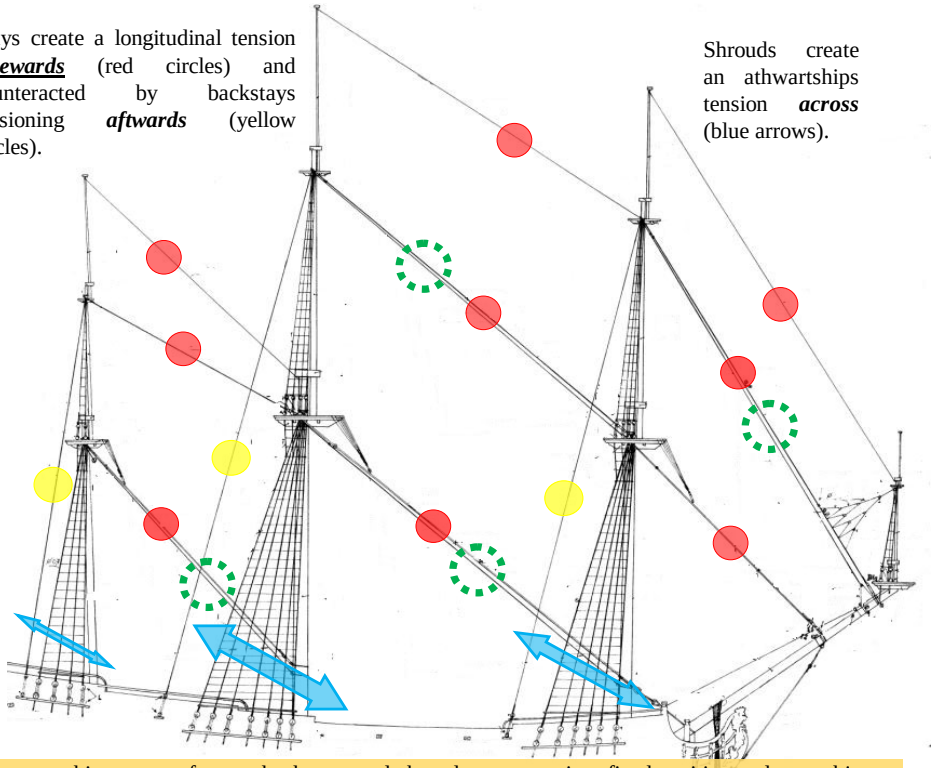
Even with the accurate drawings provided, this type of work by its very nature is complicated and dare I say painful. It is my belief that no matter how good the drawings are, reference to historically accurate texts and drawings is essential to provide a more open mind to what will be done.

In building this ship, I had to constantly force myself to make comparisons between the original drawings and what I read in other references. *That* is what ship-building is all about. Another useful text is … ***Historic Ship Models*** by Wolfram zu Mondfeld (1989).

This introduction simply highlights a few specific areas of the standing rigging.

Stays create a longitudinal tension ***forewards*** (red circles) and counteracted by backstays tensioning ***aftwards*** (yellow circles).

Shrouds create an athwartships tension ***across*** (blue arrows).



Because this system of stays, backstays and shroud ropes was in a fixed position and not subject to general handling by the seamen, it was covered in tar to preserve it. The ropes in most models will reflect this by being black or dark brown.

Figure 1: Stays, Backstays & Shrouds

Up until about 1810, the major stays were rigged a *staysail stay* underneath allowing stay sails t raised or lowered through the action of hauling l So, in reality, there were three ropes to be seen fully rigged ship.

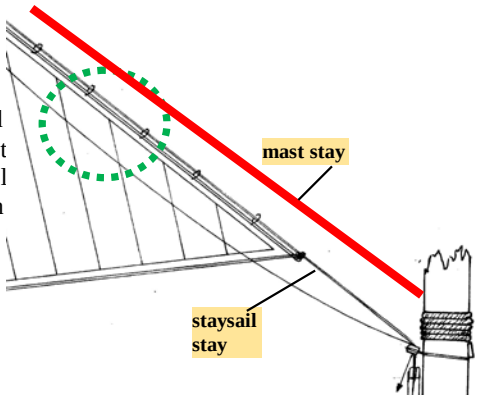


Figure 2: Staysail Stay & Haul Rope

General Rigging Sequence

Some of the following points may not be applicable to this particular ship.

Step 1:	Completion of Main, Foremast, Mizzen & Bowsprit Mast with crosstrees & tops
Step 2:	Masts (especially Bowsprit) fitted with any required blocks.
Step 3:	Bowsprit standing rigging (excluding stays & preventer stays) completed.
Step 4:	Install the two lower masts in position.
Step 5:	Fix the lower deadeyes and chain plates in position.
Step 6:	Attach remaining mast sections.
Step 6:	Attach shrouds and ratlines.
Step 7:	Rig fore & main stays.
Step 8:	Rig all spars and attach.
Step 9:	Rig backstays.
Step 10:	Brush diluted glue over all knots.

BOWSPRIT

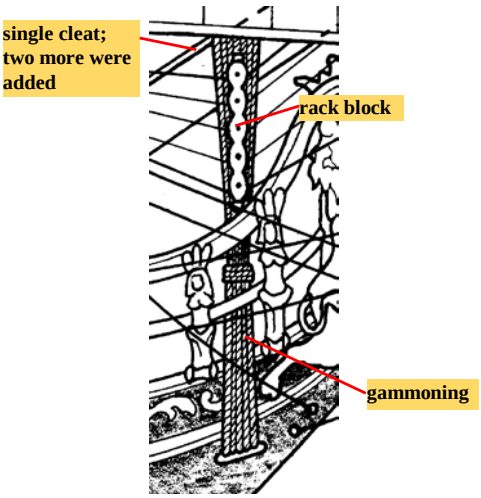


Figure 3: Gammoning

Gammoning

Rope lashing was used to strongly secure adjacent parts together. Fig. 3 shows the use of gammoning to secure the bowsprit to the ship. About ten turns of gammoning were employed, keeping the bowsprit turns forward and the turns through the lower hole aftwards. This creates a cross-over/ twist in the centre of the gammoning which is frapped with the same number of turns.

A special block – the gammon lashing or rack – was seized to the gammoning; this block had of the running rigging reeved through it.

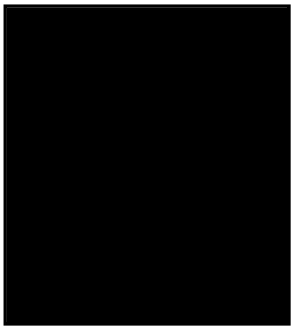


Figure 4: Lash Block

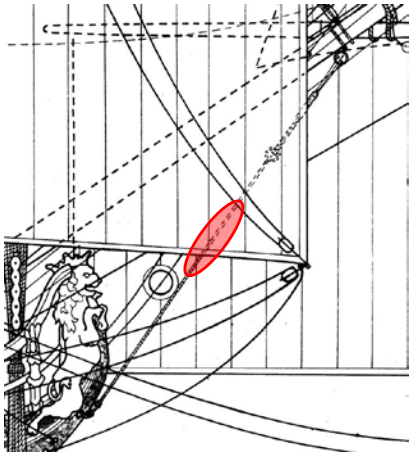


Figure 5: Bobstay

Bobstays

To withstand the upward force on the bowsprit exerted by the stays and masts in general, ropes under tension were usually employed on the sides of, and beneath, the mast.

Bobstays were introduced on large ships from 1685 (Lee, 1984) and followed by *shrouds* in 1720 (Mondfeld, Both were fairly similar in appearance. By that reckoning, then, it was a bobstay that was used underneath the bowsprit on the Mordaunt.

Sprit Topmast Backstays

These backstays were lashed to the bowsprit top and connected through a 'pendant' to the fore lower mast stay.

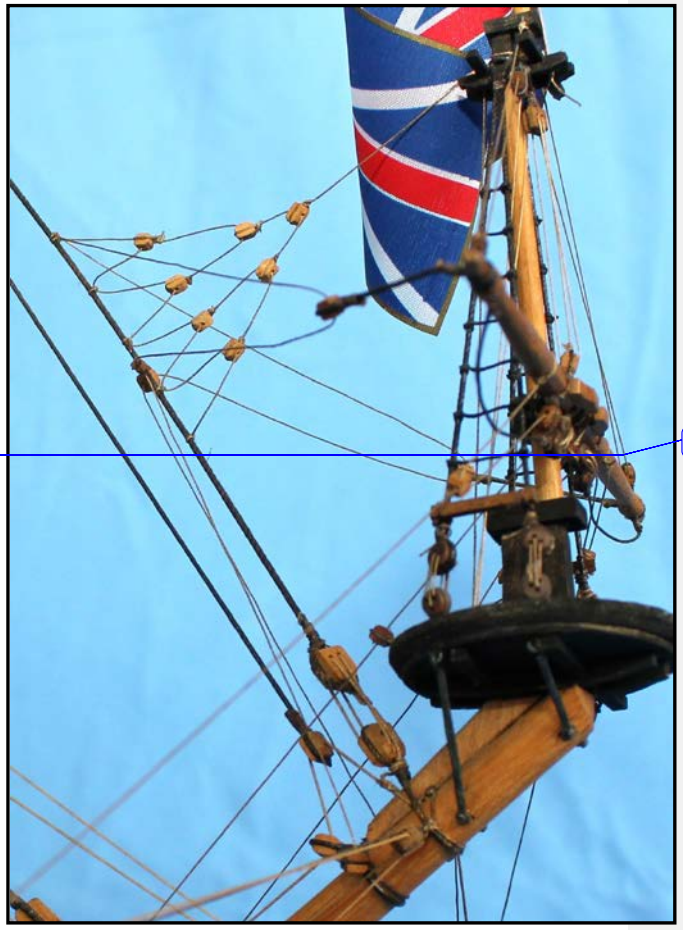


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Figure 6: Sprit Topmast Backstay & Pendant

SHROUDS

Rope Sequencing

Shroud ropes when viewed as a group either side of a mast create a strong supporting tension athwartships. Their fixing ('wrapping') around the mast is carried out in a specific sequence that ***begins at the fore end*** of the rope group ***on the starboard side***. The sequence is explained in more detail below.

Each pair of shroud ropes (i.e. one rope doubled over) was wrapped around the mast and then 'seized' down to the deadeyes anchored on the hull just below the channels. This was then carried out for the port side and the sequence alternated until the required number of shroud ropes were added. If there were an odd number of ropes, then the first rope added was a single rope added to each side to begin with (rope 2 in Fig. 7 below).

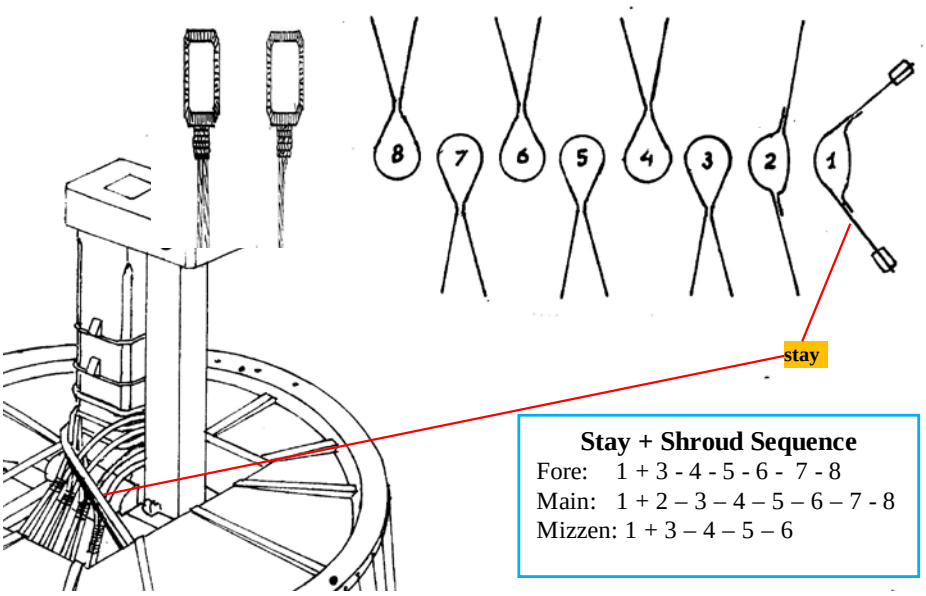

Figure 7: Stay and Shroud Sequence

Sufficient length must be left to allow for the ropes to wrap around the upper deadeyes and the short lengths seized.

Alignment of Lower Deadeyes & Chain Plates

This is a general discussion more applicable to some ships than others but the main ideas are there.

It is critical to establish the correct positioning of the lower dead eyes that will be fixed into the channels since they will not be evenly apart. The shroud ropes that are now fixed in place around the are used to establish the foremost and aftermost shroud positions (red lines) – Fig. 78. Other shroud positions in between these (blue lines) then be determined by lines of best fit between gunports, etc (Fig. 9 below). The extensions of all these lines can be marked in pencil on hull and used to determine the positions for the lower deadeyes and chain plates.

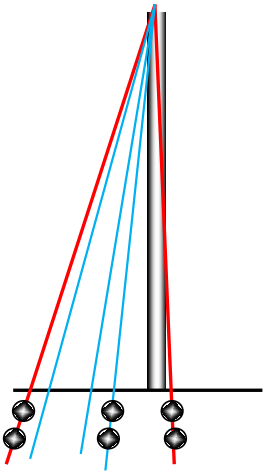

Figure 8: Positioning of Lower Deadeyes & Chain Plates

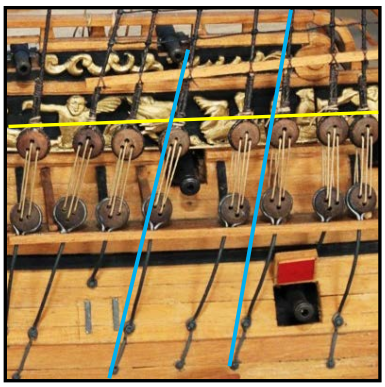

Figure 9: Alignment Through the Channels

The ***lower deadeyes and plates can now be fixed in position*** (see text below)

Fig. 9 illustrates the difficulty in producing the theoretically correct alignment. The blue lines tell the story. The photo is not of my work and I will see how mine turns out before too critical!

Note also the need for a correct alignment for the upper deadeye level (yellow line).

Deadeyes & Chain Plates

The lower deadeyes are held by ‘chain plates’ that pass through the channels and fixed onto the hull beneath.

Figure 10: Fixing the Shrouds

Fixing the Upper Deadeye Position & Shroud Rope Lengths

A jig can be used to create the correct shroud rope length AND the upper deadeye 'horizontal' alignment. With permission, I have reproduced an edited version (***not for the FW but the same principles apply***) from the Model Ship World Forum written by Gene Bodnar. Thanks Gene.

"A balsawood jig is made for each side and firmly clamped onto the channel and its location marked at either end so it can be repositioned exactly at a later time.

Each shroud tackle is then pulled taut to the centre of the lower deadeye, and its 'run' marked on the balsa block to the point where it intersects the lower deadeye. Also mark a line which indicates the uppermost height of the upper deadeyes – refer to Fig. 11.

Figure 11: Shroud Jig 2 (not FW)

Where this upper deadeye line intersects the tackle lines – and without worrying about orientation at this point) - the deadeyes are each fixed in position with a couple of brass plank nails that are easily pushed into the balsa wood.

Each of the shroud ropes/tackle is then pulled taut around each deadeye. Using tweezers, arrange rope so the wrap-round occurs at the top and in line with the upper deadeye line. Seal the ropes with drop of instant glue – without applying glue to the deadeye!! Make sure this process is repeated alternately from port-starboard-port etc.

Now orientate the deadeye correctly. Each line should tie up with the same tension with the deadeyes being at the same level (well, almost).

Seizing the Shroud Rope

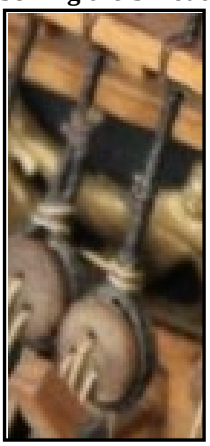

Figure 12: Short End of Shroud Rope

Background discussion …

The shroud rope is secured with two or three seizings. ***Historically there were three seizings:***

1. an '**eye seizing'** nearest the deadeye,
2. a '**middle seizing'**, and
3. an '**end seizing'** near the short end of the shroud rope.

The short end …
… should always be ***forward on the port side*** and ***aft on the starboard side***.

Fig. 12 was taken from the starboard side of another model where both forward and positions on the deadeye are evident for the short end. A case of how exacting you to be

All short ends must be finished to the same length but at this stage leave excess length.

Initially, ***complete the eye seizing*** to fully secure the wrap-around. Many will choose to leave this till later but I wanted to be sure about securing that rope.

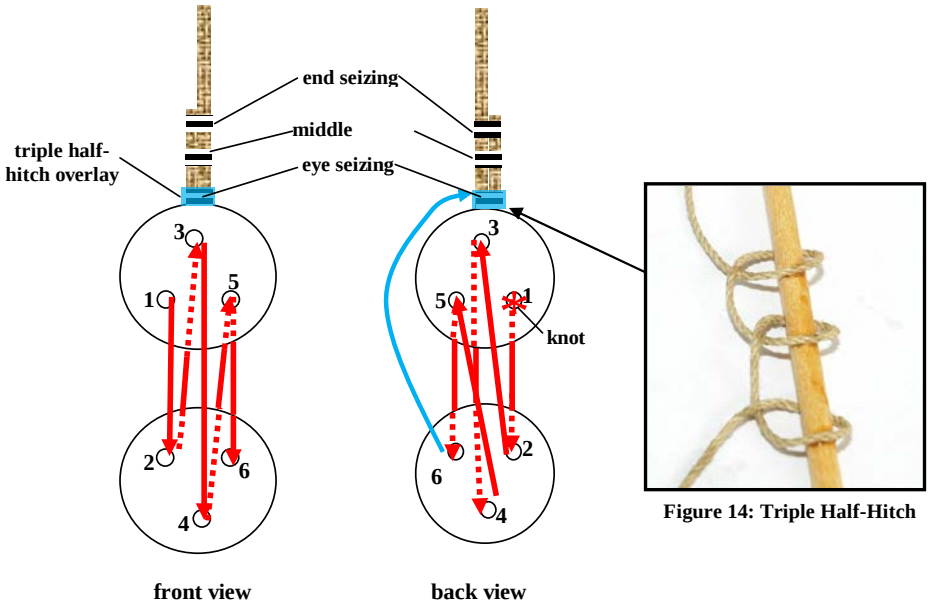

Figure 13: Order of Deadeye Rigging

Figure 14: Triple Half-Hitch

Deadeye Rigging

You should now find that rigging the deadeyes once they are mounted is a very straightforward task. Add a sticky label to each rope with a number to identify which is which. Fig. 13 illustrates the sequence normally involved in rigging the deadeye. Until that is completed, ignore the seizings included in the figure.

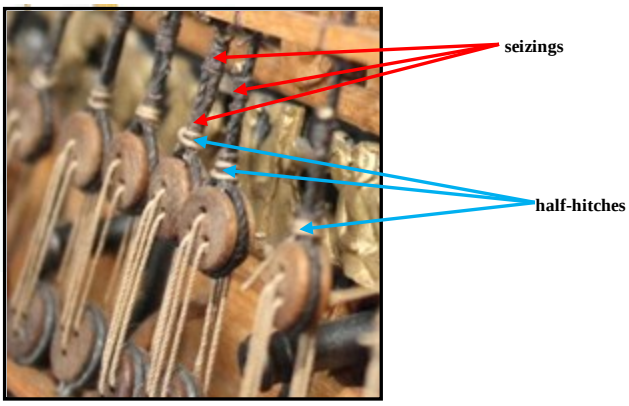

Figure 15: Seizings and Half-Hitches

With deadeyes rigged and tensioned, the ***jig was modified by adding a height to it equal to the length of the short wrap-aound rope*** which will be seized to the shroud above the deadeye. This extra height gives a gauge to determine the length of that short rope – which will according to the angle of each shroud rope."

Seizing Completion

In Fig. 13, the lanyard (blue line) is shown extending from the rear of the bottom deadeye and forming a triple half-hitch over the eye seizing at the base of the shroud rope. Fig. 15 shows an attempt at creating a knot/ hitch of some sorts which I suspect is not the hitch described above but again this illustrates the variance possible in any build.

Over the lower seizing, there was usually at least a triple half-hitch (blue lines) – refer to Fig. 15. This photograph appears not to have a *triple* but perhaps a *double* half-hitch.

Once all deadeyes are rigged and tensioned, the jig is placed back in its original position and some brass nails used to secure the upper deadeyes to the jig by pushing them through the threaded holes. You may need thin brass pins for this.

The deadeyes are now held in a fixed positions and the task of seizing the shroud ropes above the deadeye should be relatively straightforward.

rope f
deade

Ratline Rigging

Figure 17: Photographic View of Ratlines

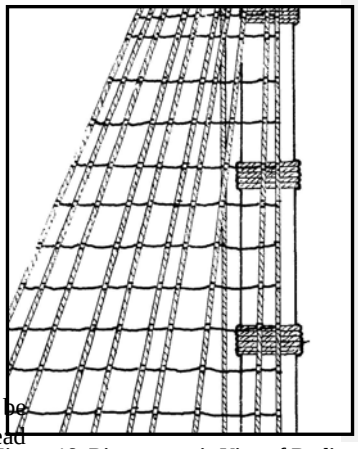

Figure 16: Diagrammatic View of Ratlines

Irregularity

Figs. 16 & 17 illustrate the fact that the shroud ropes will never be uniformly spaced due to both the angle over which the ropes are spread and the fact that the deadeye anchorage points will depend on the positioning of such things as gunports.

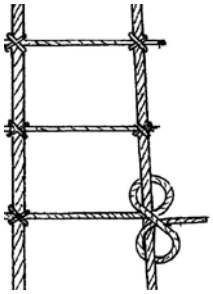

Figure 18: Seizing Ratlines

Regularity

The spaces between successive rows of ratlines should be uniform and that is easily attained using a white card marked with black lines held behind the shroud ropes.

Rigging

Ratlines were spaced 13 – 15 inches apart which translates to ***4.5 – 6.35 mm.*** in model.

Historically … the method of fixing to the shroud ropes was usually with a ***clove hitch (double half-hitch)*** except that an ***eye was spliced into each end*** and then seized to the fore and aft ropes of the shroud group.

The method of fixing ratlines to the shroud ropes has already been discussed.

CROWSFEET

"Introduced in the middle of the seventeenth and comprised a rope spliced round the strop of the euphroe block, its other end reeving through the centre hole in the rim of the top from above, up through the next hole to port, through the upper of the euphroe block, up through the inner hole in the top and so on until the end finally came out of the outer hole on the starboard side of the There it was hitched to the under part of of the previous lead through the top." (Lees, 1984, 44)

This was a slight deviation from the drawing where the reeving is shown as edge reeving rather than above and below. Given the fragile nature of the round top, drilling holes through the

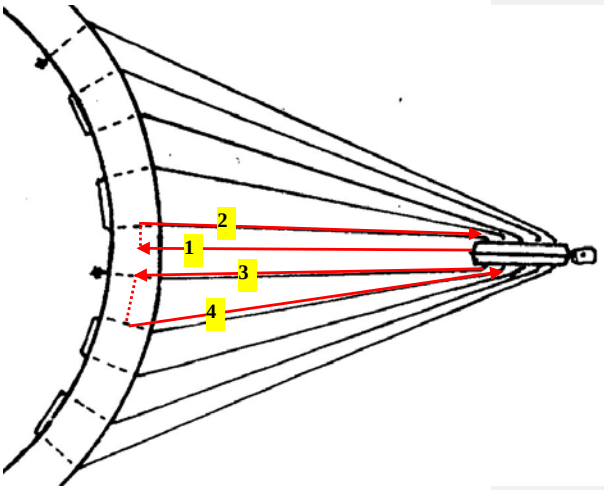

Figure 19: Modified Crows Feet (as per Lees, 1984)

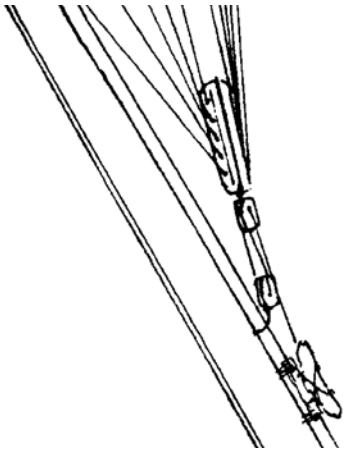

Figure 20: Euphroe Tackle

Euphroe Tackle
Two blocks – one stropped to the euphroe block and other seized to the stay.

The standing part of the fall was made fast to the upper block, whilst the running part, after reeving through blocks was hitched tio the stay below. In this case, the hitching is made via a cleat.