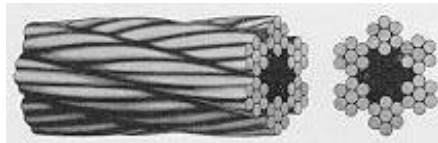


Simple Guide to Wire Rope Splicing



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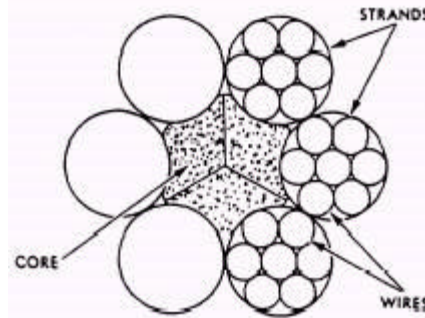
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Splicing

I will discuss the art of the Liverpool splice here, the standard splice used for all marine needs. Tools needed are at least 2 Bulldog grips, 2 pliers (Locking pliers are best.), 1 Merlin's Spike, Top cutters broad edged about 1", 1 Hammer and some copper wire, 1-2mm Ø.

This splice is most commonly used for loops, but just as well two pieces of wire can be spliced together using the same technique. The splice has to be very precise when using thimbles and Bottle-neck-screws.

I'll assume, although I know it makes an ASS out of U and ME, that you are trying to do a loop splice. Right. Start with some steel wire, probably a 6 strand wire and a core (of some rope material or nylon and you cant see it yet.) A cross section should look like this:

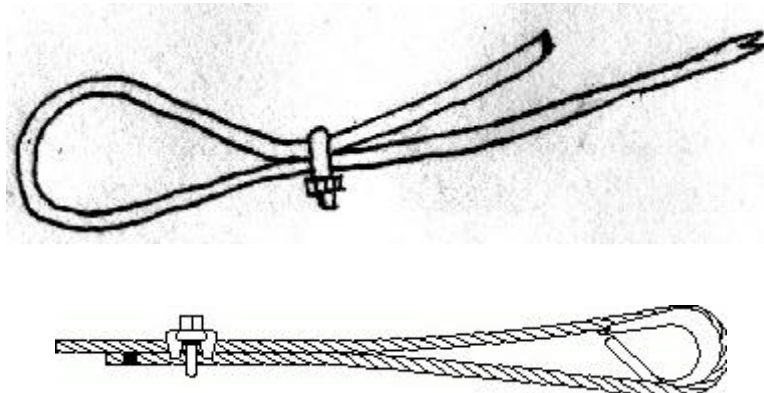


That's the next step; The cut. Your best bet is a clean cut with a side-grinder.

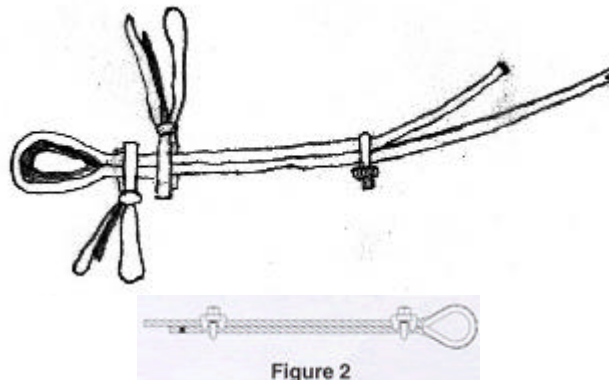
It is of great importance to have a good clean cut. If you are using an Ax, wrap the part of the cable with cello/insulation tape first, to keep it together once the ax hits it. I suggest you do a loop, and leave an end of about 2' for the splicing.

The next part deals with using a thimble, if you are not using one (not advised to beginners or learners) than skip to the next major step; Set-up. For a normal big loop, you can use a piece of rubber or garden hose, to protect the wire, the surface the loop will touch and if you are doing several, the hose will give you the right length in your loop. I advise using a soft wire for beginner's splicing, it will be much easier.

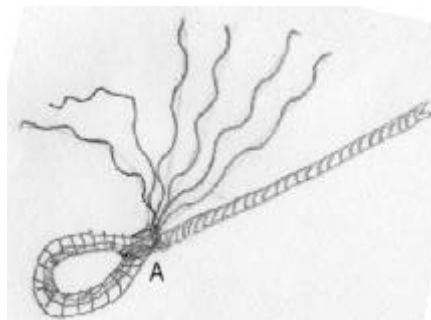
Now do the loop, any size, but as near as possible to your goal (which is to go around the thimble. Keep it at a size where you can hold it.) Secure with a Bulldog Grip or locking pliers. Now it should look like this:



Great! Now use two pliers, ideally Locking pliers, and use them to decrease the size of the loop, step by step, putting one plier in front of the other. Continue this until the loop is small enough to slip the thimble into place, than tighten to the extreme.



The thimble needs to be as tight as possible and stay where it is put. To achieve this, I find it best to use nice thick (1-2mm Ø) copper wire, easily striped from any spare electrical wire. Anything else can be used in its place, don't hesitate to improvise, it's just that copper wire is hard and does not tear and stretch easily.



Start with either side; let's take (a) for now. Secure the wire tight and go right round, in small circles, making the thimble and steel cable one. It has to be tight and secure. Next secure the position where the two steel cables meet up again, after the long trip around the thimble, by adding about 5 windings horizontally, as close to the thimble as possible. Those, in turn, HAVE to be secured from slipping up by a couple of turns through the thimble and over the horizontal turns. Don't make a too big lump, or a lot of precious space will have been lost and the thimble may fall out once the splice is finished. It will do anyway if this is your first splice.

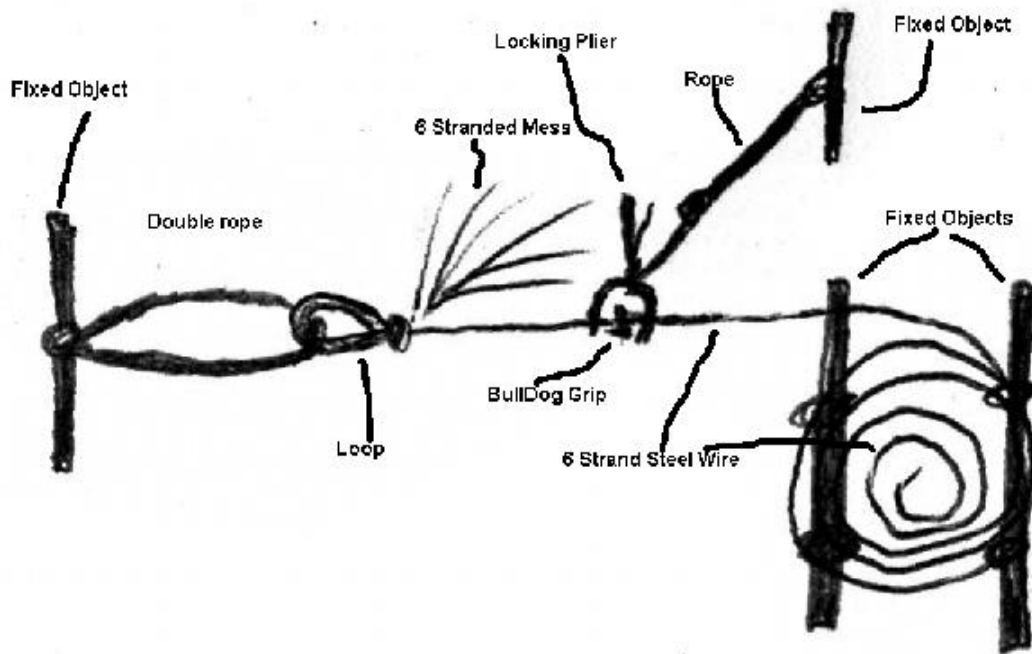
Okay. You have that finished and are nearly ready to start splicing. Like making bread, baking is a small but essential task and the same goes for splicing. Your **set-up** is just as important as the actual splicing, I guarantee that you will not succeed on a decent splice in a decent wire without a proper set-up.

The following will not have to be done with too much perfection if a soft wire is used.

Please let me stress it again at this point, SET-UP IS IMPORTANT.

You'll know that anyway after you've done some test splices :-)

The following diagram shows my set-up, perfected after 25+ splices.



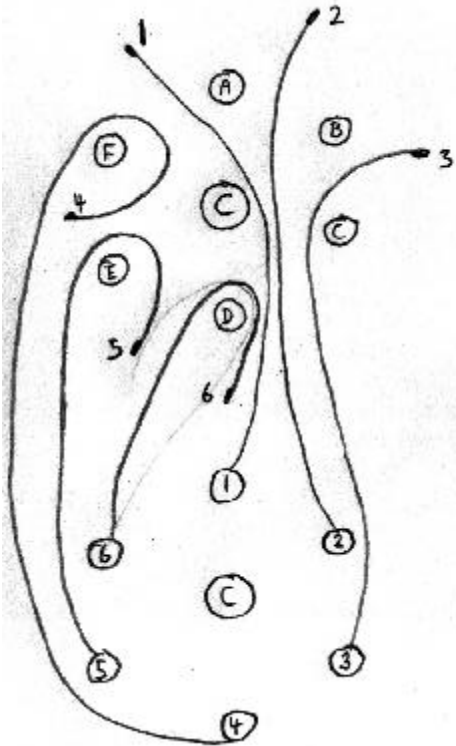
I know, I know, but it looks far more complicated that it actually is (wait till you see the splicing diagram :-)

You will probably have to improvise on this, as the environment you are working in won't be the same. Everything should be really right. The Bulldog grip's is to grip the wire, as it does this far better than the Locking pliers. The Locking plier goes on top to give it a leverage. The double lines purpose is that of you being able to insert a stick and unwind the cable, to some extent, just to make life a hell lot easier (works together with the Bulldog grip.)

Take Caution! I've had that stick going round 20mph and hit me in a place I'm not going to discuss here.

Now take the Bulldog grip holding the end down of and start unwinding your cable end. You will finish with a six stranded mess and a core hanging over the side. It's up to you whether to cut it off or keep it for later use, I've always kept mine to start the serving with. Take your spike and look at the following mind-boggling diagram that will only make sense once you've started splicing.

The whole set-up needs to be tight and everything stretched until it won't go any further.



Note how the splice's first turn is divided into two, 3 together and 3 individual tucks. This is the first tuck for every wire and therefore the locking turn - this is what makes out the Liverpool splice.



To splice - insert the splice between the wires where the one you've selected is to go through. Let's take wire 6, insert the spike between E and D, coming out between D and C to about the middle. Now turn your spike one full turn up the wire, with the lay. Now make wire 6 follow the turn (Splicing a normal soft rope and a steel cable does not differ too much, the only difference is that steel is not as elastic and therefore needs to go up further) up and insert just under the spike, against the spike (pointy end of wire pointing towards pointy end of spike.) Pull down the wire and at the same time turn the spike down as far as both will go. Pull down hard and keep pulling, make one full turn upwards with the spike, pull out and let go of the wire. It's that simple. #6 finished, only 5 to go!

All the spike does is create a gap and help your wire along.

Using this technique you can do the rest of the first tucks. After the first tucks are completed, ALL other tucks are straightforward using ONLY the method described just now, and no half/half splicing turns no more. #2 will be just like #6.

Go along like this until you mess is still six stranded, but shorter (about 4", anything else begins to hurt) and higher up. If you have any problems or have gotten lost somewhere, try finding someone who knows how to splice. Most people who might know how to splice are out of practice these days so be patient.

The method just described to you is the simplest one I know. You could also use a longer end, Splice like described, separate each individual strand (a twelve stranded mess!), cut off the halves. Continue splicing and you will end up with a tapered splice (More attractive but not essential.)

Unhook the whole set-up, remove all thimbles, copper wires, Mould grips and make some more tea, have a smoke. All that remains now is the chopping of the ends, which can be done with side-grinder (skill needed) or using my preferred method of some heavy duty wire cutters (broad edged, about 1") and a hammer.

The wire end simple gets put into the cutter and squeezed. Find a hard surface and hit it into submission, occasionally turning the cable. You can also do this without a hammer if you want the wire cutters to be alive at the end or need to be quiet, but that takes a great deal of time and effort (all depending on the wires of course.) At this point it may still look rather fresh and very creased but a good hand around with the hammer will soon take care of that. (Just imagine it's the thumb of someone you don't particularly like, which helps.) Just knock the splice all over, like blacksmiths do to add their finishing touches

Right, you're finished! Your fingers should be dirty, scratched, hurting and very powerful by now and if their not, obviously something's gone wrong... or you're still in the reading phase...

I know it's an awful waste, but every good splice is not visible. That's due to two reasons: To protect the splice and your fingers.

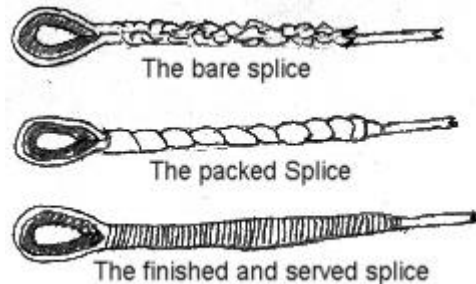
Next, comes the Packing

***“Splice and pack with the lay,
Turn and serve the other way.”***

Packing is basically wrapping the splice in some cloth. I used 1" stripes of an old T-shirt.

Originally, in Liverpool, they used sailcloth. (Or so I'm told)

Insulation tape is just as effective though. I suggest you take the splice as an example and start at the bottom for the packing and the serving.

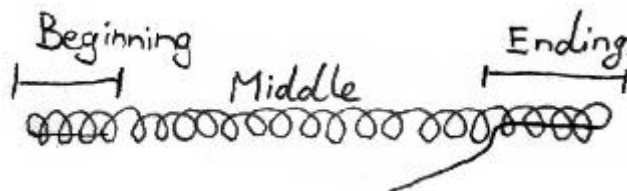


That's packing over with, now to Serving-

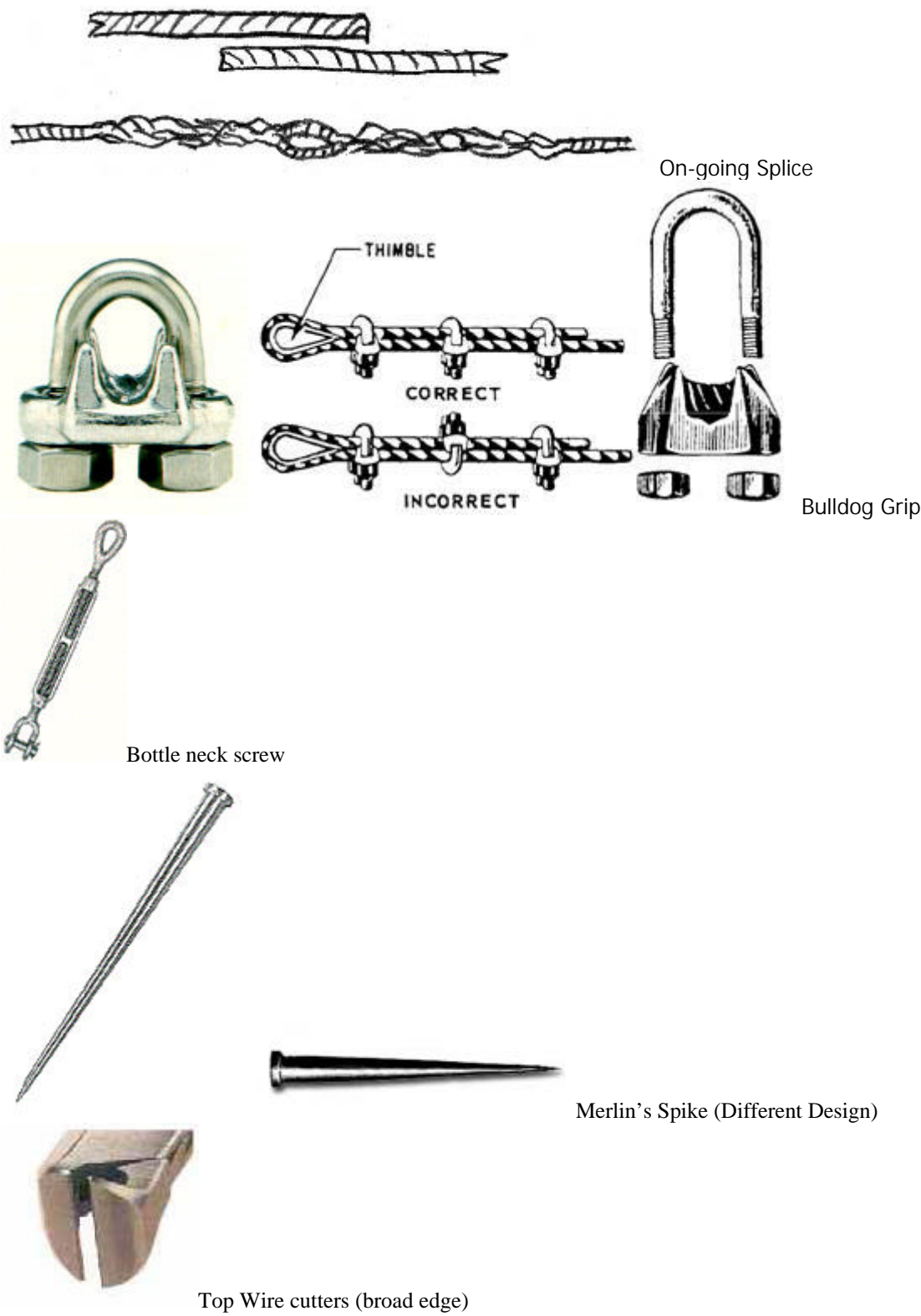
Serving is the outer most layer of the splice and the toughest. I used both (not on the same splice), cotton twine, about 1mmØ and cheap, as well as the even cheaper method of taking rope (nylon is idyllic) to pieces until you are left with a couple of fiber's, they work great but look messy. The serving has to be tight and goes on the whole splice. If all is done well you should not be able to see the splice nor the packing.

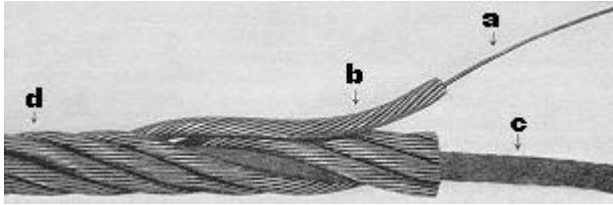
Just fix one end of the serving line on the thimble or the beginning of the splice, and turn up and up and up. Once you have reached the end, go on until you get to clear steel cable and do a normal whipping. Found in every good knot's book.

Make 1 last tight turn and thumb it. Make several more, about 10, loose turns over your forefinger. Remove forefinger and slip the end of the line through the 10 loops towards your thumb. Leave about 2" minimum and releasing your thumb, start to tighten those ten turns, one by one. Thumb last one and pull the end of the line. The absolute end can now be cut off and it looks great.

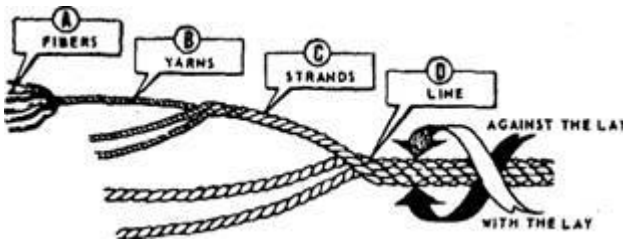


Various Information and Pictures:

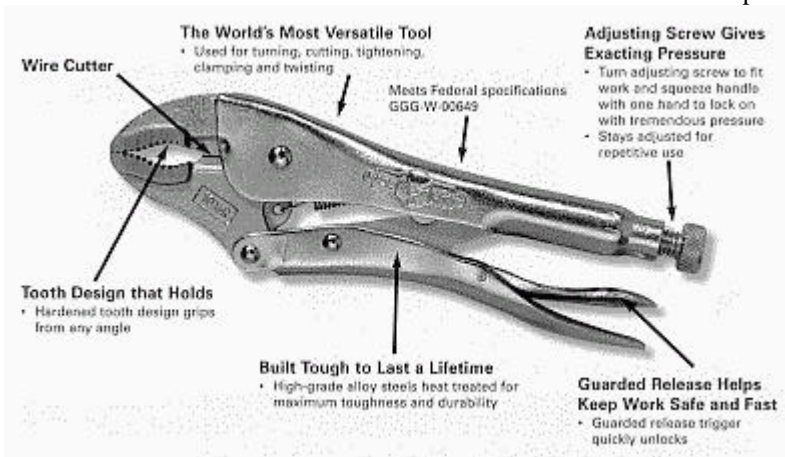




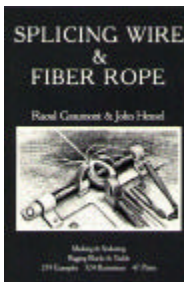
(A) wire (B) strand (C)center core (D) wire rope



Normal Rope makeup



Locking pliers or 'Mould Grips'



Splicing Wire & Fiber Rope by Graumont, R. & J. Hensel



The famous Thimble

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