Button sling netted pouch tutorial

The following is a tutorial for making a netted pouch out of Dyneema thread as part of a Dyneema shepherd's sling. This model of sling was used by IronGoober on the 24th and 25th of August 2024 to reach ranges of 395 and 420 m, using concrete and lead glandes (concrete (395 m): https://www.youtube.com/watch?v=E-psMUeL9pg, lead (420 m): https://www.youtube.com/watch?v=sV1r8AaQIHQ).

Figure 1: Slings owned by Irongoober

Disclaimer

I would like to preface this tutorial with a few disclaimers.

This design is inspired by Mathias' design from the old slinging.org website (Link: https://slinging.org/26.html) with a number of my own changes and improvements. This was also designed in collaboration with IronGoober, as he specified the dimensions and provided the incentive to adapt the design for long range. IronGoober's input regarding some aspects of the design was also invaluable in developing the final product.

This will be quite an exhaustive and detailed tutorial, providing many details and hacks I used to make the pouch. This is not intended as a strict set of rules to follow, but more as a list of ideas and observations anyone can use and adapt in any way to their own netted pouches, or even to other types of slings. I would absolutely love to see as many netted slings inspired by my design as possible online.

Intro

The slings incorporating these netted pouches were all made out of 8-stranded (8 ply) UHMWPE fishing thread (Dyneema), either in 0,75 mm, or 1,2 mm thickness. The thickness of the string can be changed according to your preference. Keep in mind I have not tried string thinner

than 0,75 m, and do not know how it would perform. I would also not make the slings from 4-stranded (4 ply) thread, as I believe it affects the braid tightness.

The retention cords coming into the pouch were simple 7-strand braids, and the release cords coming out were the same 7-strand braids. The braids can have fewer strands for most of their length, but the pouch based on my design cannot have fewer than 7 strands (meaning you can add or subtract strands on either side of the pouch but cannot make the pouch itself out of fewer than 7 strands). Out of the 7 strands, 6 are used up by the two 3-stranded braids on either side of the pouch (the "frame") and the 7th is worked back and forth in the middle to make the netting.

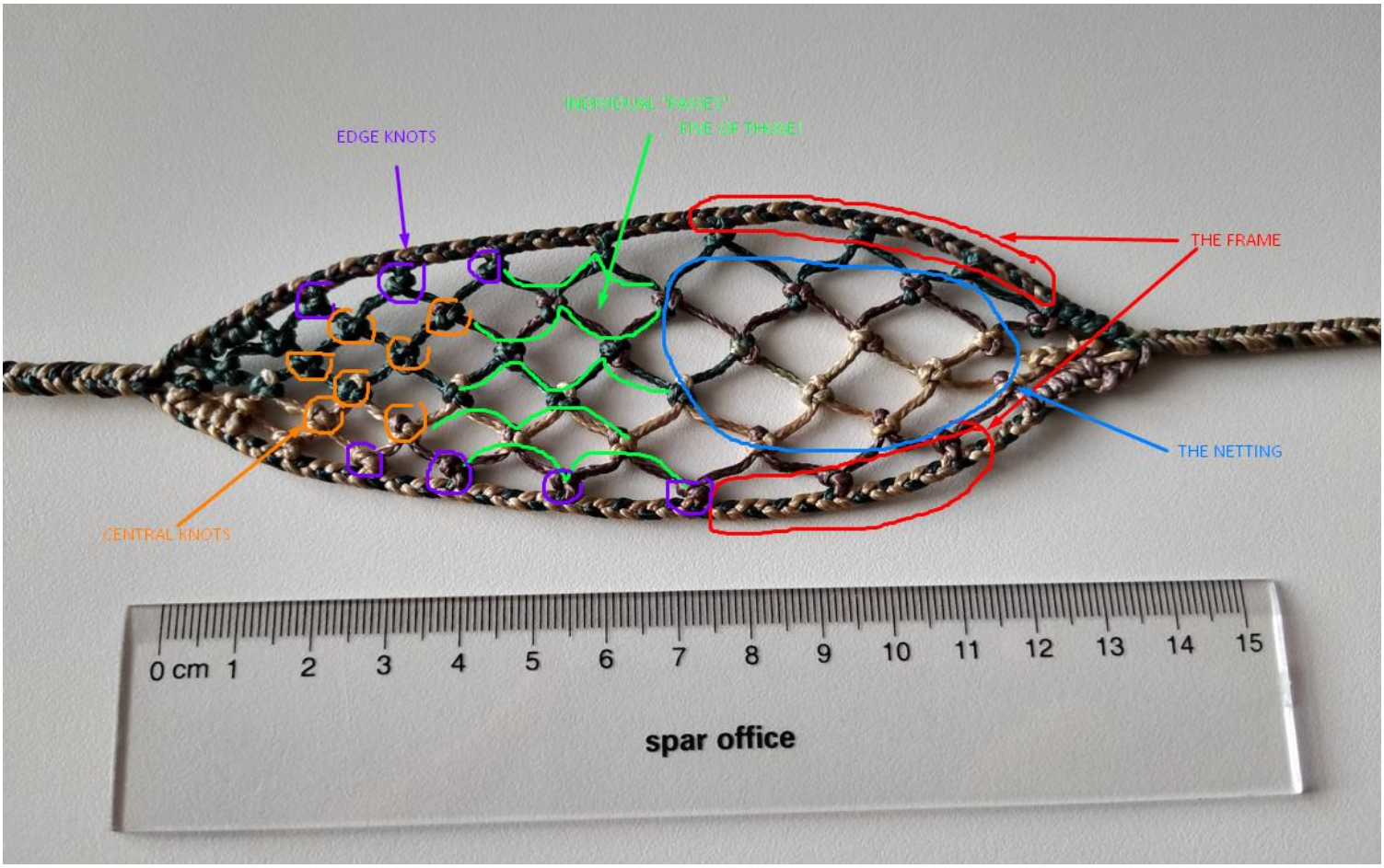

Figure 2: Anatomy of a netted pouch

The frame

After you have braided the 7-stranded retention cord for the desired length, set aside two sets of 3 strands to make the frame of the pouch. Tightly braid each set of strands in a simple 3-stranded braid. These should be braided very tightly to provide adequate stiffness against the tug of the netting in the middle. The netting will be tied to individual strands, and if the braid isn't tight enough, the netting will pull those strands out of the braid, loosen itself and cause extra wear against the projectile.

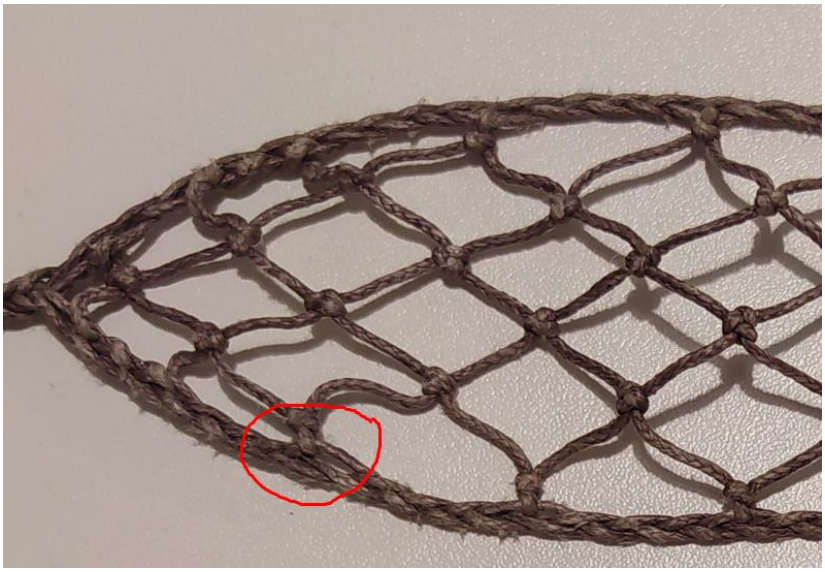

Figure 3: Loose strand pulled out by the netting

Braid the two braids of the frame for quite longer than is required for your desired length of pouch – this will ensure that the braid is tight enough along the part you will be working with, can safely be pinched off further down to not get in the way, and can simply be unbraided once you are done. Once braided, pinch the ends of the frame braids with clothespins or clips, or simply tie them off to prevent unbraiding as you weave the pouch.

The Netting

The netting is made of a single working strand (the remaining 7th strand), worked along the frame braids back and forth to create the net in the middle. The number of passes must be an odd number, because the final pass has to end at the distal (release) end of the pouch to allow for the strand to be incorporated into the release cord. This guide assumes you will be making 5 passes; 3 passes and 7 passes are theoretically possible, but would require a significantly more complicated construction, and are not covered in this tutorial.

In my design, the netting on the distal (release) side of the pouch is weaved significantly tighter than on the proximal (retention) side. This is a deliberate choice on my end to prevent the netting from loosening up at the distal (release) end and "cupping", which can cause the pouch to wrap around the projectile and snag upon release. Notice the asymmetry between the tightness of the proximal (retention) and distal (release) side of the netting in the pouches in this tutorial.

The netting is constructed out of two identical mirrored lateral sides, netted one by one, with a single pass connecting them in the middle in a zigzag "zipper" pattern. In order for this final pass to neatly zigzag between the sides, one of the sides has to be "staggered" or "offset" by half a step to make the peaks of one side align with the troughs of the other side. This is achieved by simply including an additional spacing section at the start of the third pass, as per the instructions below.

The knot used in the netting construction is called the "Sheet bend", "Weaver's knot" or "Weaver's hitch". I did not invest any significant amount of time in researching the knot. The guide I used for the knot is the exact same one from Matthias' tutorial.

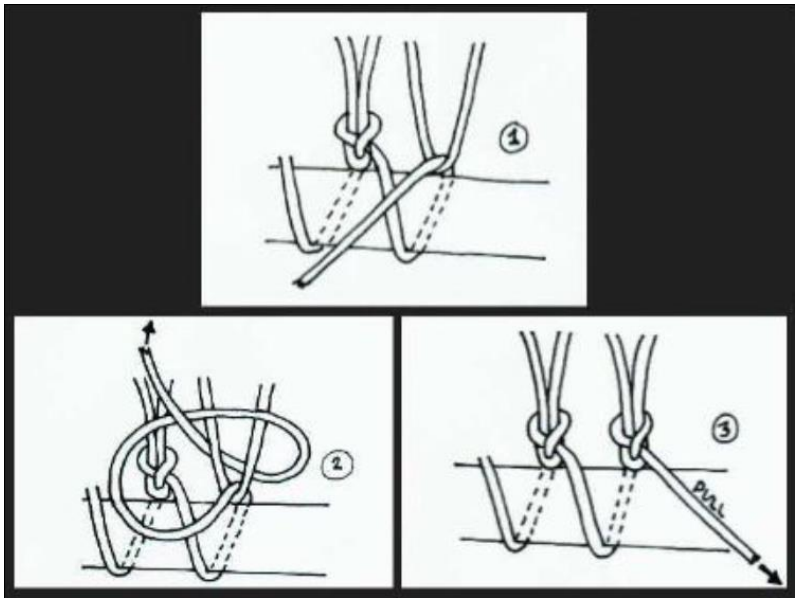

Figure 4: Sheet bend knot (From Matthias' tutorial)

Please keep in mind that there is a "correct" and "incorrect" way to tighten this knot. Due to the tightness of the braiding in the frame, it is impossible to tighten the "edge" knots (i.e. the knots tied to the braided frame) correctly. The "correct" way to tighten the knot invariably pulls and incorporates some of the strand it's being tied to into itself, which is not possible if the knot is tied onto a single, tight strand of a braid. However, if the framing braid is braided tight enough, and if all of the central knots are tightened "correctly", this shouldn't affect the construction of the pouch at all. The two ways of tightening produce visibly different knots. The "correct" way produces a "trefoil" shape, while the "incorrect" way has a single loop holding onto the previous strand.

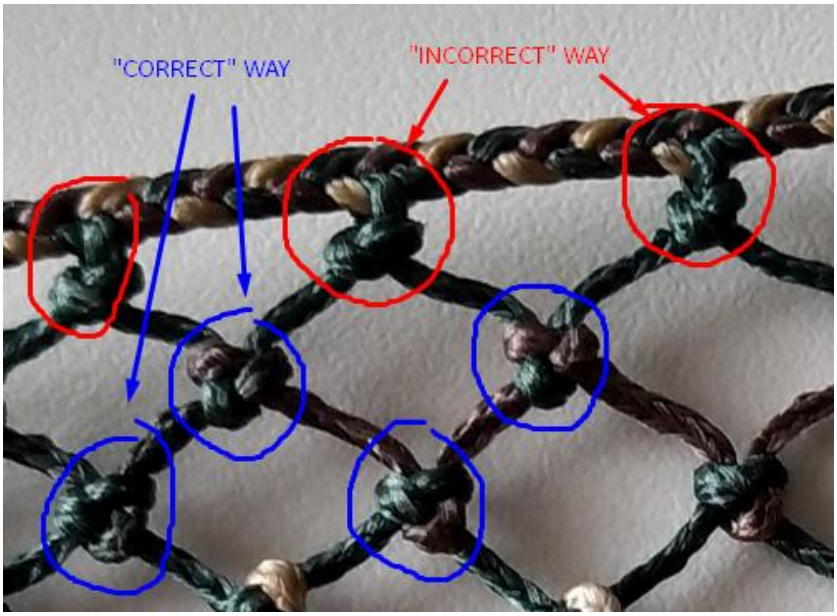

Figure 5: Two shapes of knots

I would advise you to use a pair of precise and strong tweezers to tighten the knots. It will be almost impossible to get the length of the loops right on the first try and you will definitely have to adjust the knots as you tie them.

To start the netting, spread the two framing braids and isolate one of them. We will use the working (7^{th}) strand in the retention cord to weave the first pass on the chosen frame braid.

First pass:

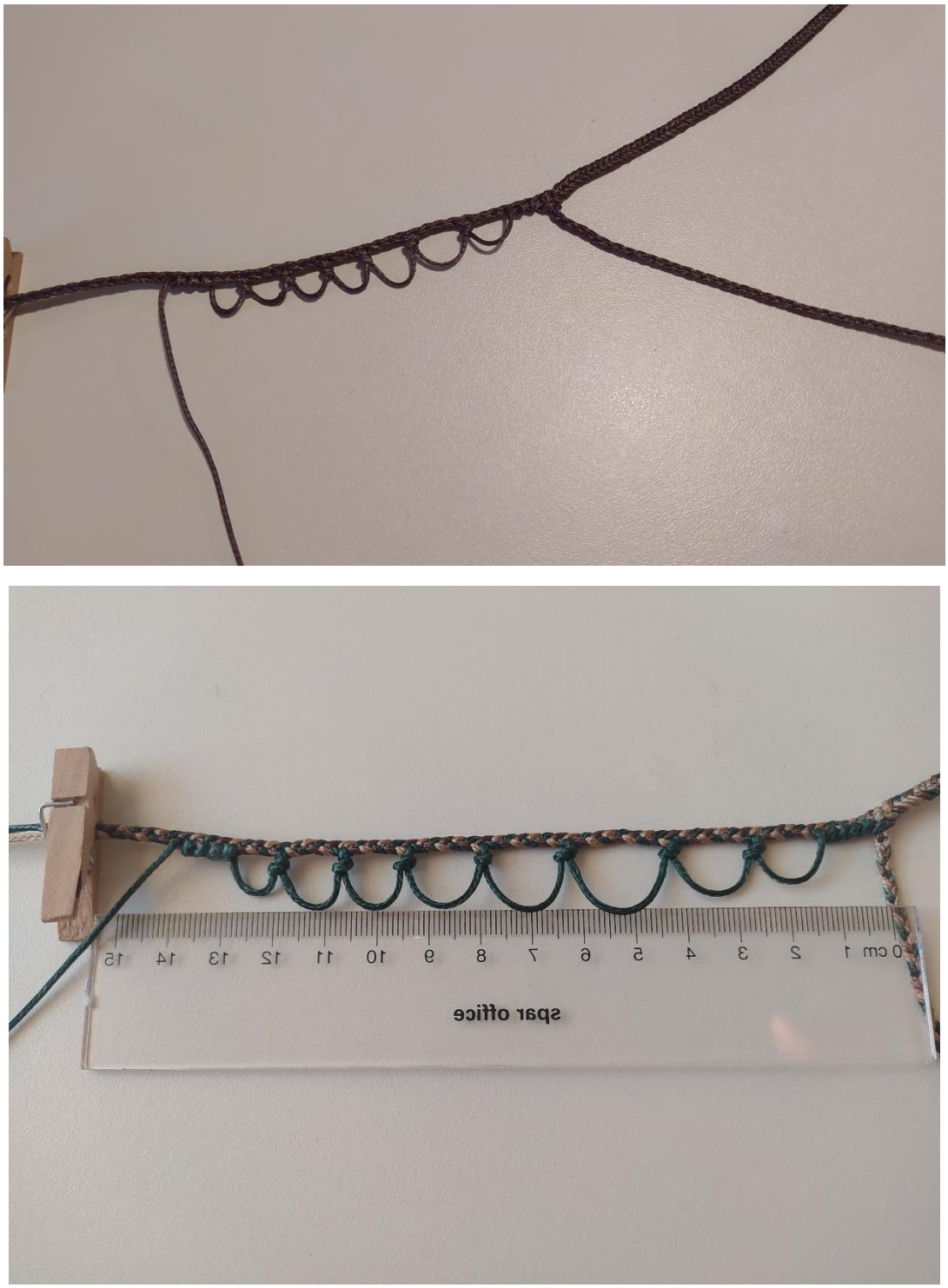

Figure 6: First pass

The first pass has to be distanced from the proximal and distal ends of the pouch to make room for a single loop of the second pass at both ends. This is important to allow the passes to be neatly connected by the final pass. I do this by feeding the working strand through a few strands (braid passes) of the framing braid, in sequence, forming a spiral pattern, before making the netting loops. I do this at both ends of the pouch.

Here I would advise you to use a pointed implement to open up the strands (braid passes) of the braid to be able to feed the working strand through them. I used the corkscrew on a Swiss Army Knife, but you can use any similar tool, as long as it doesn't cut the string and as long as it opens the

loops sufficiently wide. Personally, opening the braids to feed the working strand through is the most annoying part of the process, and I have poked myself and cursed under my breath many a time for every pouch.

Using the pointed implement, open up a hole in the braid at the start of the pouch and feed your working strand through (back-to-front). Do this for a few exposed braid passes (I use 4-5 in my example).

Figure 7:Detail of the distancing spirals.

After making the first distancing section, you can start forming the main loops of the netting. Notice that the sizes of the loops are not consistent. This is to make the distal (release) end of the pouch tighter to prevent the pouch from cupping. The simplest way to do this is to keep the loops semicircular and just count off different numbers of framing-braid strands between the netting loops. Please see below:

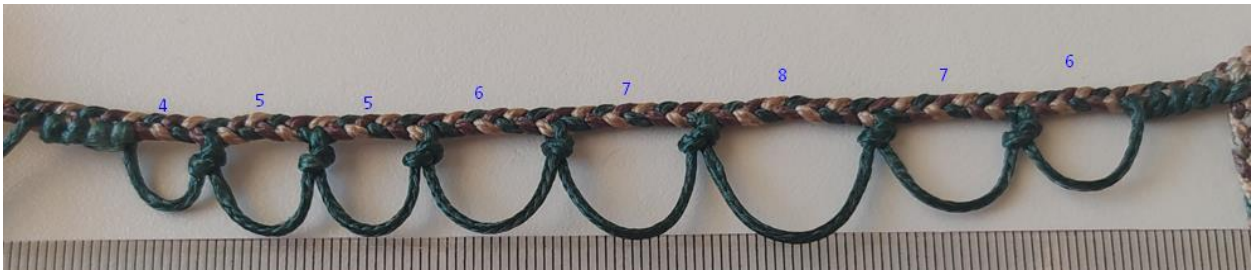

Figure 8: Number of braid "strands" between the knots.

Make the loops and tie the knots at the places where you have opened up the framing braid. Keep in mind that you have to use the "incorrect" way of tightening the knots here.

When you are finished with the number of loops you want or need, make another distancing section on the distal (release) side of the pouch, just like the one on the proximal (retention) side, then proceed with the second pass.

Pro tip: Once you are done with the first pass, take a good picture with your phone, then edit the picture in your phone and mirror it horizontally. The second pass "overwrites" the first one, and when you start the first pass on the other side, you will not have a good reference for making the dimensions the same. You can use your mirrored picture as a good reference here.

Second pass:

Figure 9: Second pass.

Double back with your working strand and start tying sheet bend knots onto the tops of the loops of the previous pass. The first and last knots should be tied closer to the proximal and distal edges (respectively) of the previous loop (see image below), because the pouch will turn inwards here and the netting should follow the bend. I would also keep the outer most loops short, these will end up in the very corners of the sling, and should be tight. Keep in mind that these are "correctly" tied sheet bend knots (meaning all of the knots in this pass should look like a "trefoil" in the end).

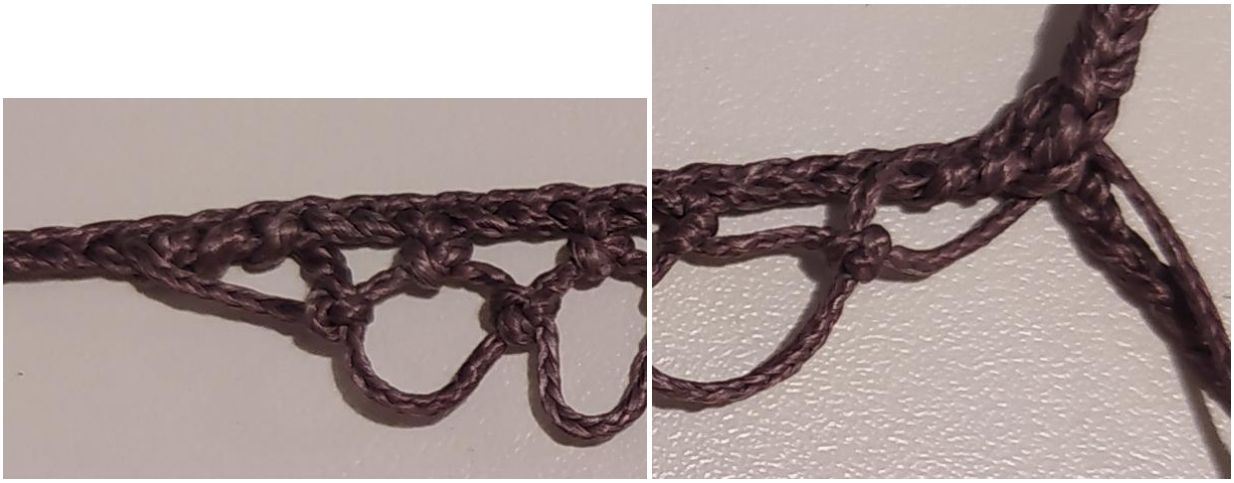

Figure 10: Details of the second pass.

When you finish the pass and return to the retention cord with the working strand, thread the working strand through the braid at the split in the retention cord (use your pointed tool to open up a passage). Try to keep it neat and hidden and try to have it exit on the outside of the other framing braid (see second image above). You will now start making the third pass on the other side.

Third pass:

Figure 11: Third pass (notice mistake in number of loops)

The third pass is netted on the other, up-till-now untouched framing braid. Leave the first framing braid aside for now.

In order for the final pass to neatly zigzag between the two sides, you will need to “offset” this side by half a step to make the peaks of one side align with the troughs of the other side in the middle of the pouch. This is achieved by simply including an additional spacing section at the start of the third pass. To make this spacing section, simply feed the working strand through the framing braid for a few braid passes (3-4 should be enough) on the outside of the braid (see image below), then switch back to the same loops on the inside as with the first pass.

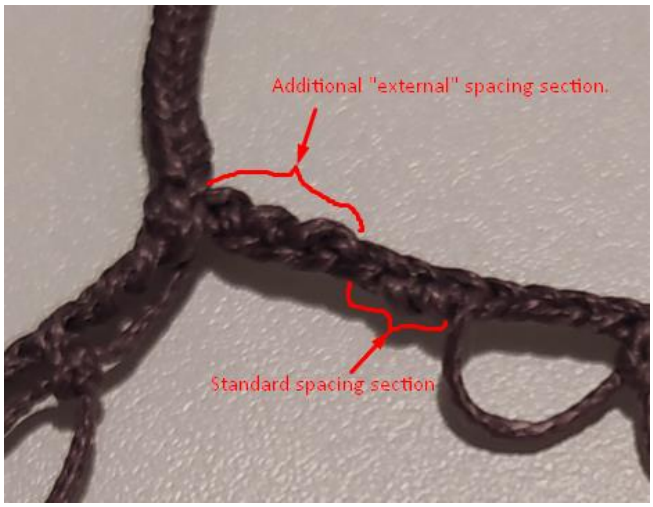

Figure 12:Additional spacing

Make the distal distancing section identical to the distancing section of the first pass.

Fourth pass:

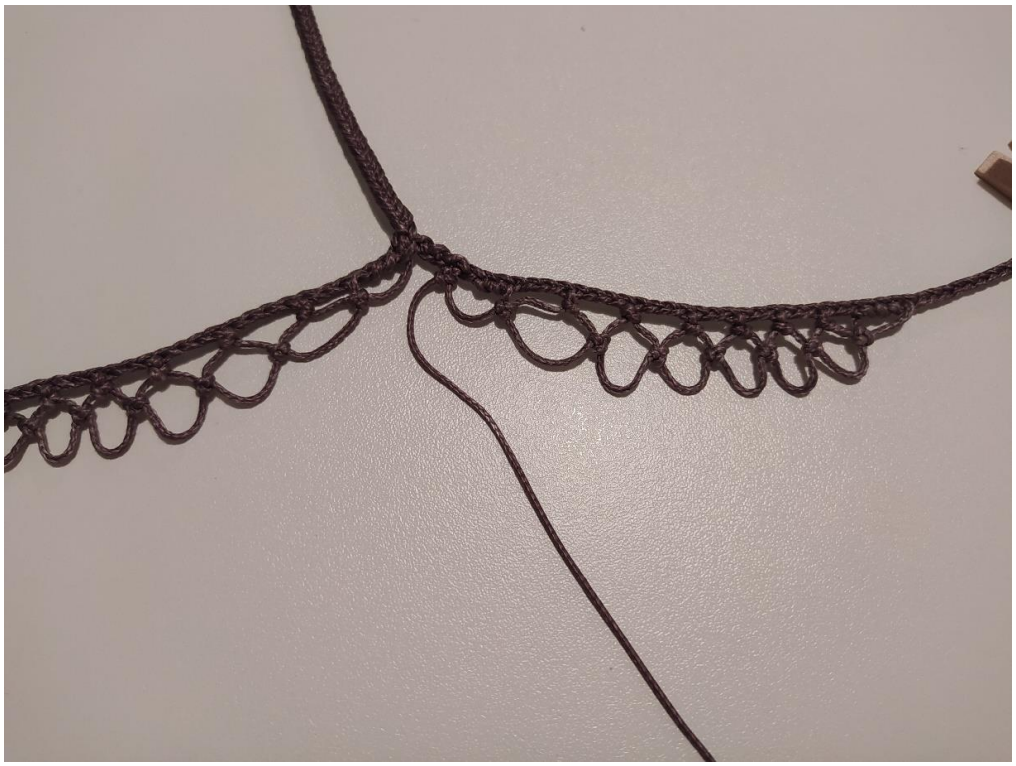

Figure 13: Fourth pass.

Make the fourth pass identical to the second pass on the previous side. Keep the loop sizes symmetrical. After the last sheet bend knot, pass the working strand through the framing braid (opening up a passage with your pointed tool), then through the split in the retention cord (open up a passage with your tool) to feed back into the center (the crotch, if you may) of the split in the retention cord. The working strand should now exit at the center (crotch, if you may) and you can start with the final netting pass.

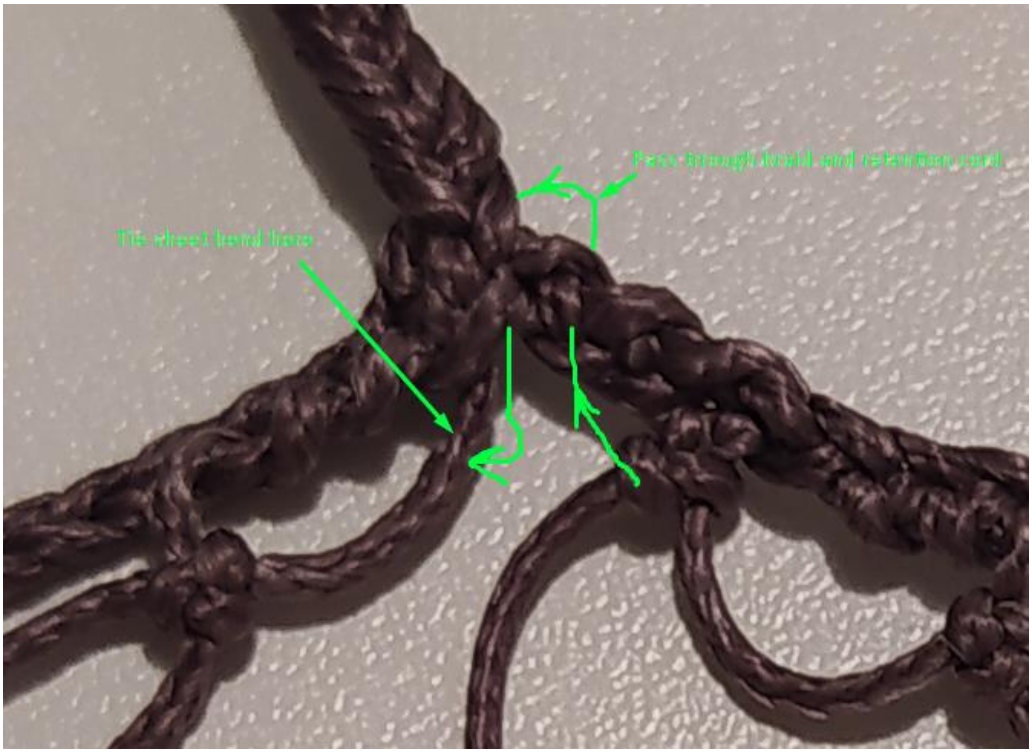

Figure 14: Detail of the end of the fourth pass.

Fifth pass;

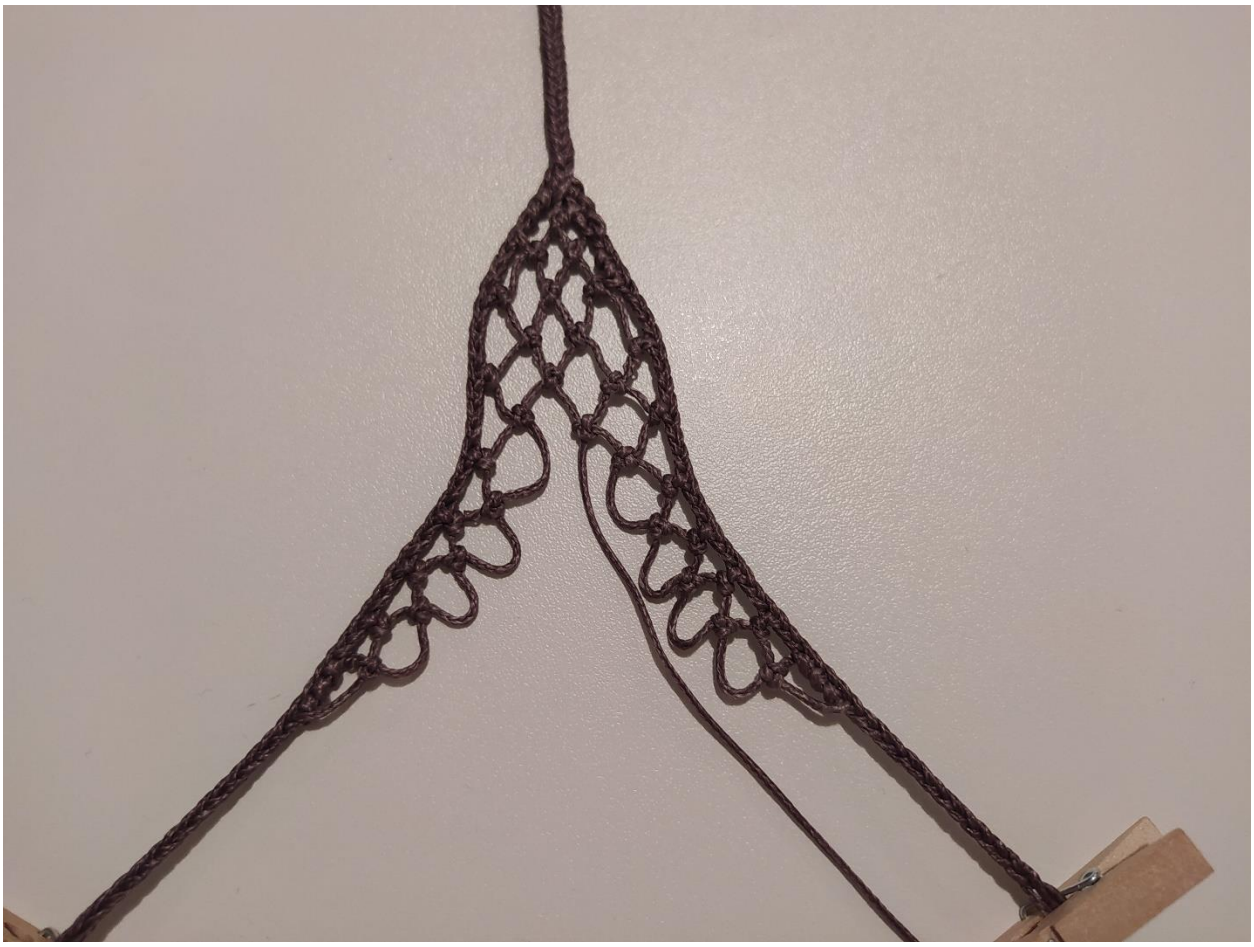

Figure 15: Fifth (final) pass.

I think this is the best moment in making the pouch. If you've made things symmetrical and tight, the pouch should just magically start forming on it's own.

The last pass zigzags between the two sides, connecting them in the middle. The sides should be slightly offset to allow the peaks of previous passes to align with the troughs on the other side. Keep the distances between the knots short and try to keep all of the loops and "diamonds" of the netting consistent. Please use the tweezers extensively here; you can adjust the sizes and fix some of the inconsistencies of the previous passes in this last pass if you put in a bit of extra effort.

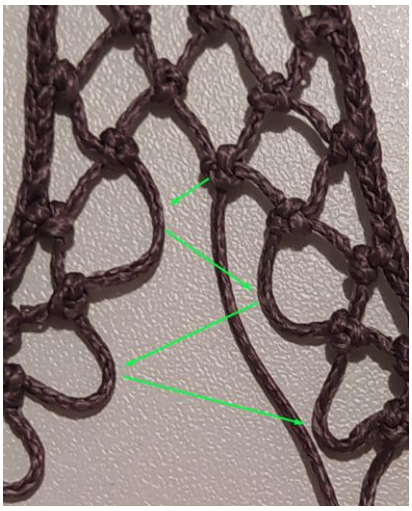

Figure 16:Detail of the final pass.

The last sheet bend of the final pass should be on the second side you worked on (the right side in this example). Tie it, then pass the working strand (like in the spiral, spacing sections above) through a strand in the braid on the opposite, first side you worked on (the left side in this example), opening a hole in the braid and passing it through.

You can unbraid the extra length of framing braids now. Try to keep the framing braids tight when you unbraid close to the distal netting loops and passes.

Now gather the 7 strands (3 per side per braid, and 7th for the netting) back into one braid, and start braiding the release cord. Try to keep things really tight at the connection point to prevent a kink in the sling. The pouch is somewhat rigid, and the release strand is very rigid, and a weak point here can cause an ugly kink when you bend the sling later (Has happened to me before).

Figure 17:Examples of finished slings.

And that's it. The pouch is finished. Keep in mind that the sheet bend knots do not look the same on both sides and will abrade differently depending on which side of the pouch you use to hold the projectile.

I hope this tutorial has been helpful in making your first netted pouch sling. Please feel free to adapt it to any needs you might have, or just use any part of it as inspiration for your own experiments in making slings.

Kind regards,

Rhonan Tennenbrook