

Sling Making by Twining and Weaving over Sticks

T. E. Gartmann
TGartmann@gmx.ch

December 15, 2019

Abstract

A textile technique suited to reproduce several prehistoric slings is explored. The technique is based on twining or weaving over sticks and subsequent replacement of the sticks with a thread. Different variations of the technique are shown.



1 Introduction and Background

In this article, a method to reproduce several different slings is explored. The intention is not to reproduce one specific sling in detail, but to explore the different possibilities and capabilities of the technique. The primary focus is on slings from the pharaonic period in Egypt. These are: a pair of slings from the tomb of Tutankhamun (Cairo Museum No. 61572 and 61573, Burton Photo. No. P1324, Carter handlist 585y) [1]; a sling excavated by W. M. Flinders Petrie in Lahun, dated to 800 B.C. (22nd dynasty), currently in the Petrie Museum (UC6921) [2, 3] and previously analysed by E. M. Burgess [4]; and a second sling from Lahun, also excavated by W. M. Flinders Petrie, dated to 1900 B.C. (12th dynasty) and on display in Manchester Museum (Acc. No. 103) [5, 6, 7]. As a secondary result, it was found that the technique is also a possible avenue to reproduce the "Cortailod" sling (undated, Lake Neuchâtel, Switzerland) [8]. A detailed comparison with the different slings is omitted within this article.

2 Stick Weaving in Sling Making

Stick weaving can be described by weaving or twining over several sticks. The sticks are replaced in a second step with one or multiple threads, thus forming the textile. It is noted here, that similar or virtually identical textile structures can be produced with a broad range of different techniques, such as different variations of twining with or without frame support (see e.g. [4, 9] or [10], respectively) or ply-split braiding. Without having witnessed the manufacturing process, it is not possible to unambiguously determine if a sling was made by stick weaving or some other method [11]. To the authors knowledge, there are two contemporary types of slings made utilizing stick weaving. One are Tibetan slings (see e.g. [12] and references therein), the other from Saudi Arabia (see Figures 1.14 and 1.15 in [13]). The technique, as explored in this article, can reproduce the Saudia Arabian slings. For reproducing the Tibetan slings, a variation of the technique not shown in this article is required (see [12]).

3 Instructions

These instructions show the sling making process divided into different steps. In each step, possible variations of the process are shown. As many different variations are explored, pictures from the making of several different slings are alternately used. Mixing and matching of the different shown variations for each step is easily possible. It is recommended to read all steps first and to select a variation for each step. For most steps, no string lengths are recommended as the string length required for each variation can vary considerably depending on the string and stick thickness.

3.1 Preparing the Material



Figure 1: Tools required are a pair of scissors, a knife, any kind of string/thread (1 mm diameter hemp or linen string works well, 60 m are more than sufficient), and wooden sticks (e.g. barbecue skewers). The wooden sticks should ideally have about 2-3 times the diameter of the string. Of course, the mixing of different string thicknesses and colors is also possible and can give nice effects. Optionally required is a needle with a large eye (not shown).

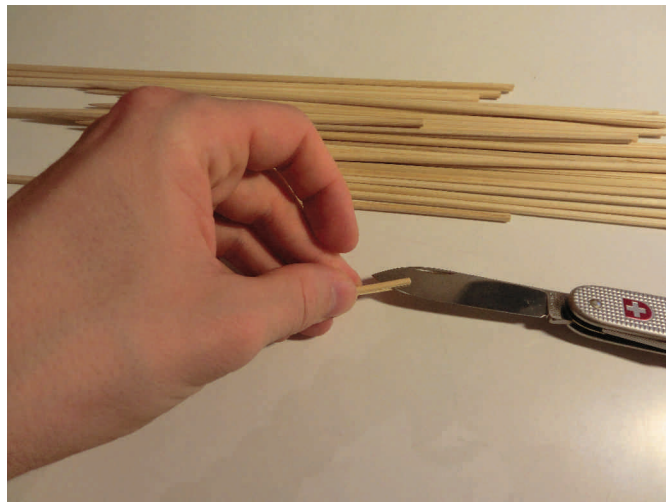


Figure 2: Optional: Split one end of each stick with a knife to a depth of about 2 cm. This slit will be used to clamp the needle or the string at a later point.

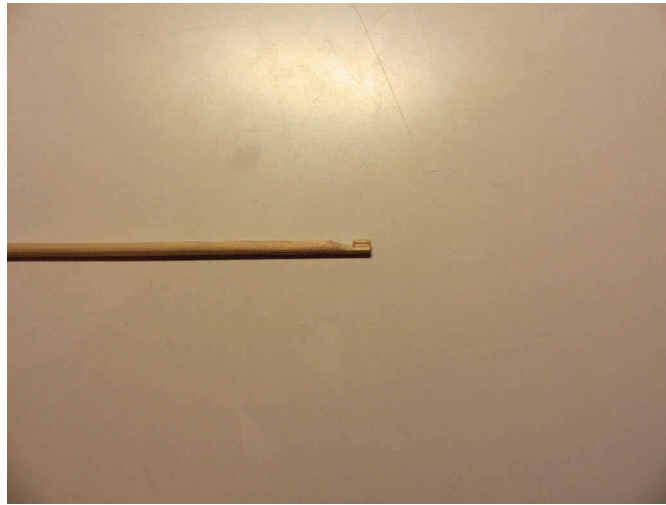


Figure 3: Variation of the option: A hook can be cut into the stick. This replaces splitting the sticks. With this method, later steps can become quite tricky. Therefore, it is not recommended.

3.2 Securing the Sticks

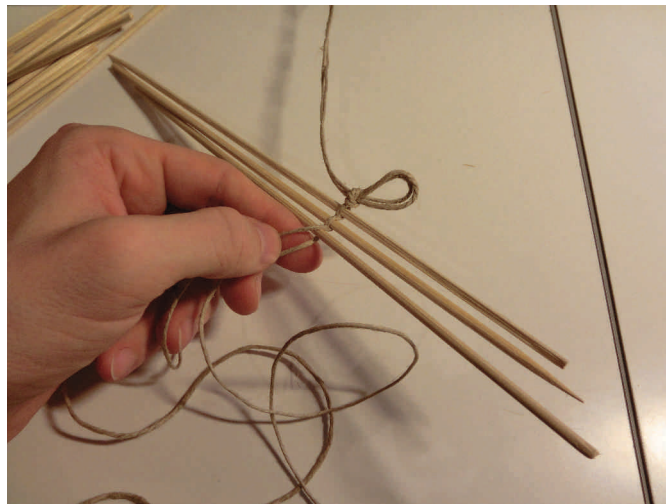


Figure 4: The sticks are secured by twining over them. It helps to work near a surface to keep the sticks in position. Alternate placing the slitted end of the stick on the left and the right. Start the twining in the middle of the cut strings and make sure that there is enough string to make retention and release cord. 2 m on each side of the sticks is generous.

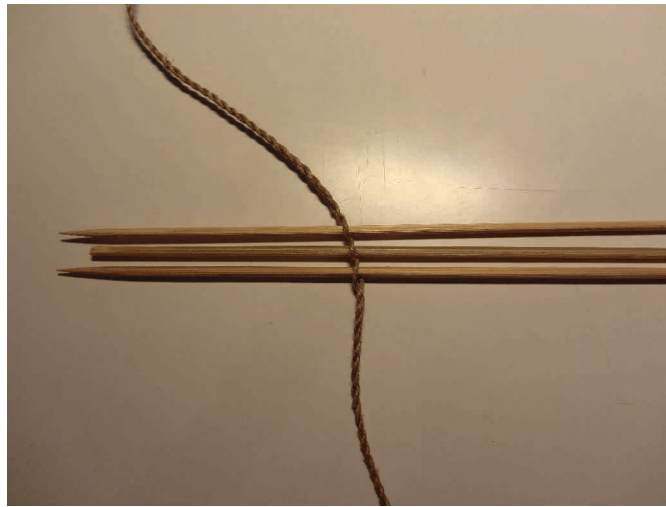


Figure 5: Variation: Pierce an already twined string with the sticks, i.e. split the plies.

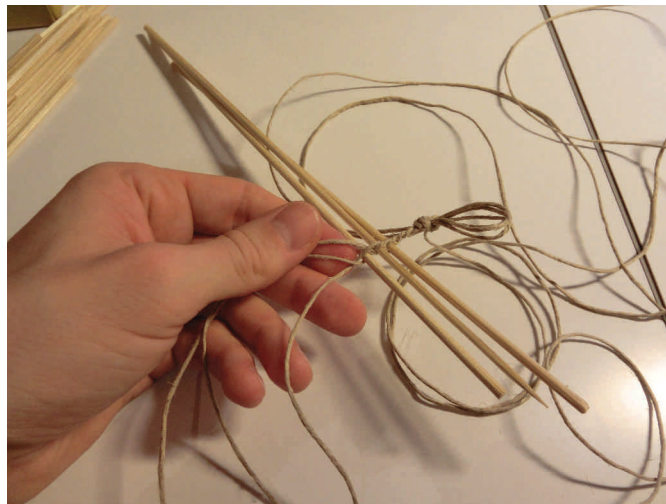


Figure 6: Variation: Use any kind of other braid to secure the sticks. Here, a 3 strand plait is used. This results in "braided twining" [11]. Different braids are possible, depending on the desired effect.



Figure 7: Use as many sticks as required to achieve the desired pouch length. Here, 25 sticks are used over a distance of about 13 cm. Secure the strings on both sides with a slip knot, a clamp or similar.

3.3 Beginning the Twining

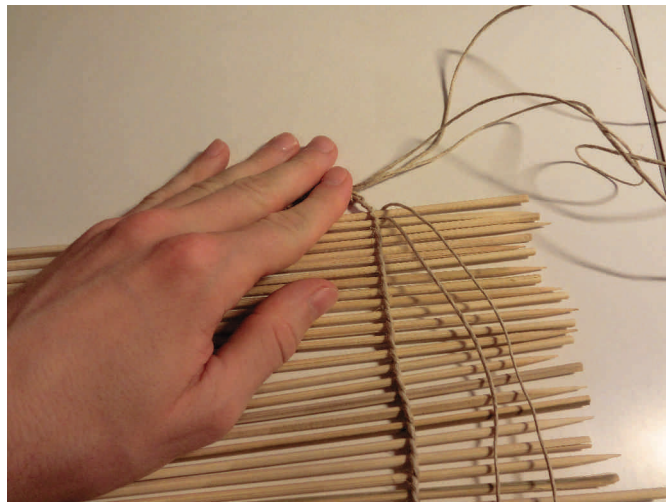


Figure 8: Cut a long length of string. Fold in half and put it over the first stick.

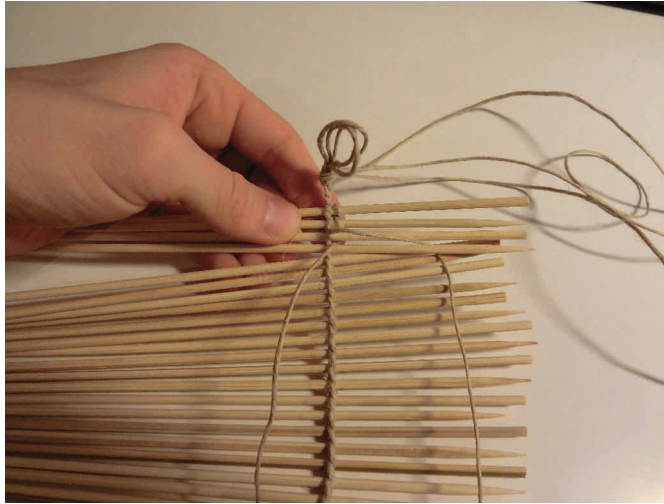


Figure 9: Start twining. Using the opposite twist than for securing the sticks can give a bit of additional stability.



Figure 10: Variation: Start with two strings knotted together. This can reduce the amount of wasted string.

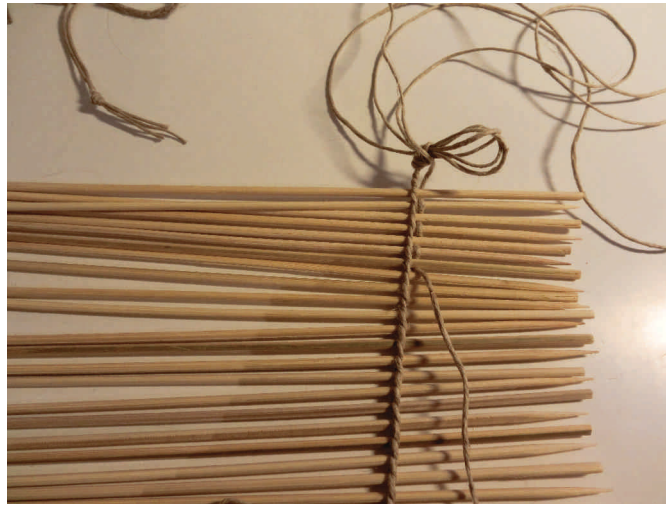


Figure 11: Variation: Instead of twining, a plain weave can be used.

3.4 Make the First Half of the Pouch



Figure 12: Twine until the last stick is reached. Turn around and start a new row.

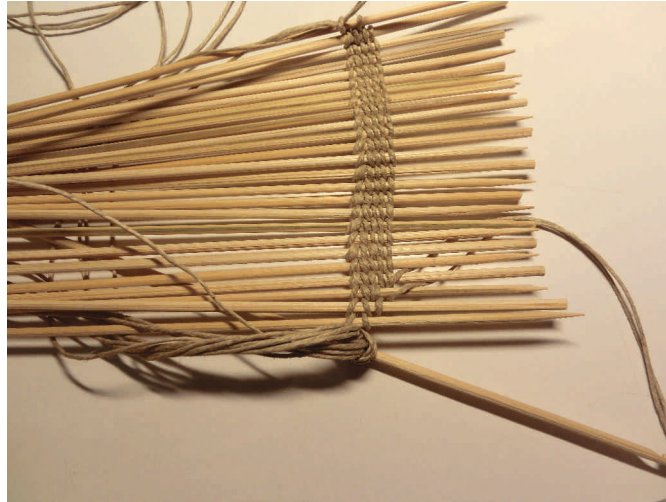


Figure 13: In each row, skip one more stick on each end. The twining gets narrower. Work advice: It might be convenient to flip the whole piece when starting a new row, i.e. always twining from top to bottom.



Figure 14: Variation: A different method to start a new row. Other variations are also possible.

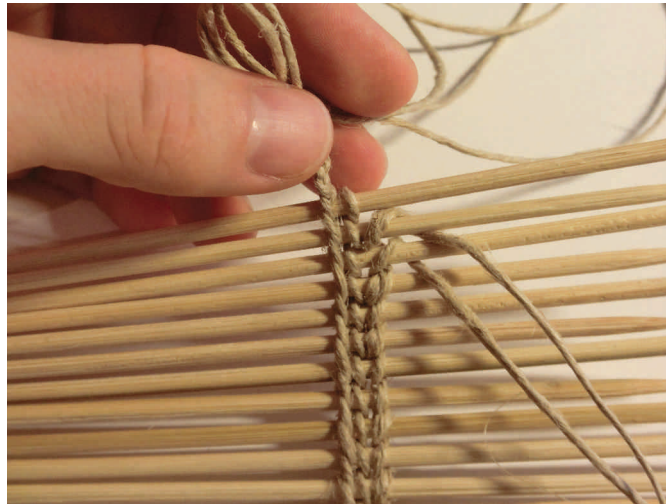


Figure 15: Variation: Invert twining direction from S to Z and vice versa in each row.

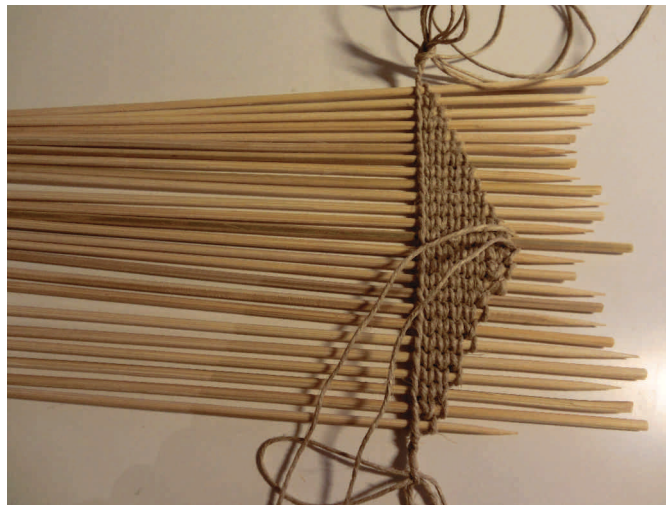


Figure 16: Variation: Skip two or more sticks when beginning a new row. This is useful when the twining direction is changed as the textile is bulkier. It is also useful when the string used for twining is thick compared to the sticks. However, with thin string or thread it might be useful to make several rows before skipping one more stick. The number of skipped sticks per twined row together with thread and stick diameter will determine the shape of the pouch.

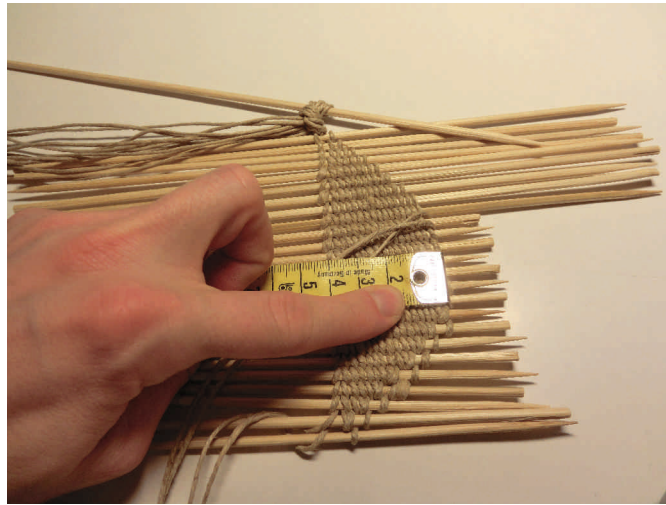


Figure 17: Continue until a bit more than half of the desired pouch width is reached. The textile will be slightly compressed in a later step. It is not necessary to continue twining until only two sticks are left.

3.5 Making the Second Half of the Pouch: Variation 1

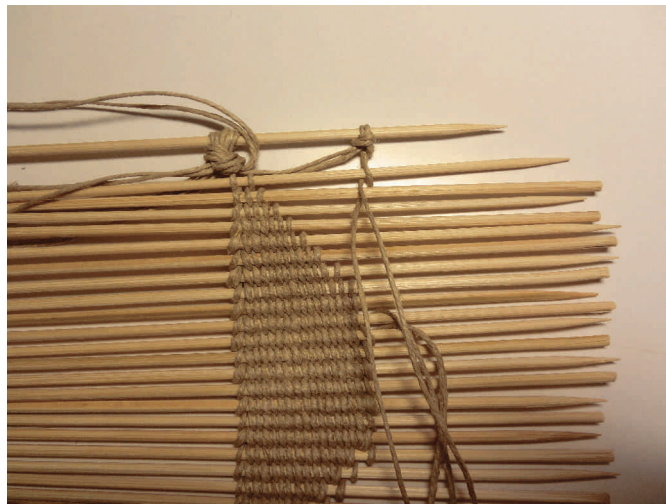


Figure 18: Twine two new strings over all sticks. Make sure that the ends are long enough to form retention and release cord. When a 3 strand plait was used previously, also use a 3 strand plait here.

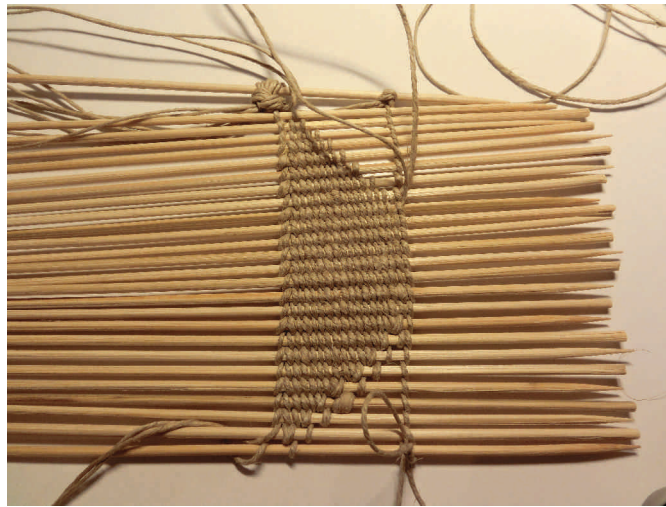


Figure 19: Pull the string used for making the pouch to the other side.



Figure 20: And continue twining, this time by skipping less sticks with each row until the desired width is reached.

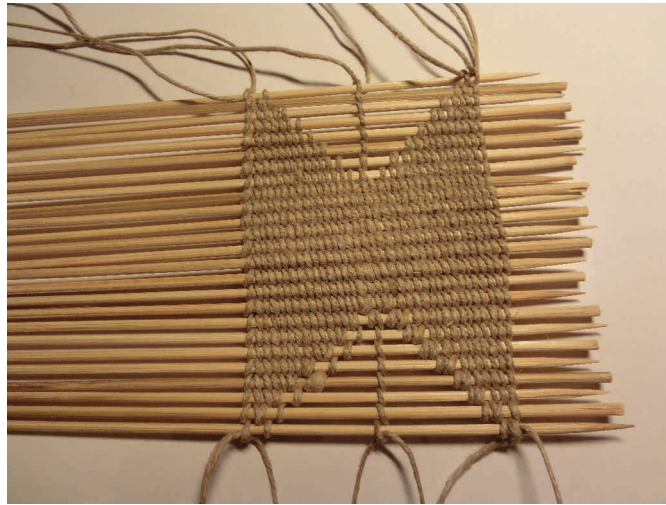


Figure 21: Twine another pair of strings over all sticks. The freshly added strings should have the same length as the ones used in Figures 5 and 18, i.e. enough to make a retention and release cord. Again, a braid can be used instead of a twining.

3.6 Making the Second Half of the Pouch: Variation 2

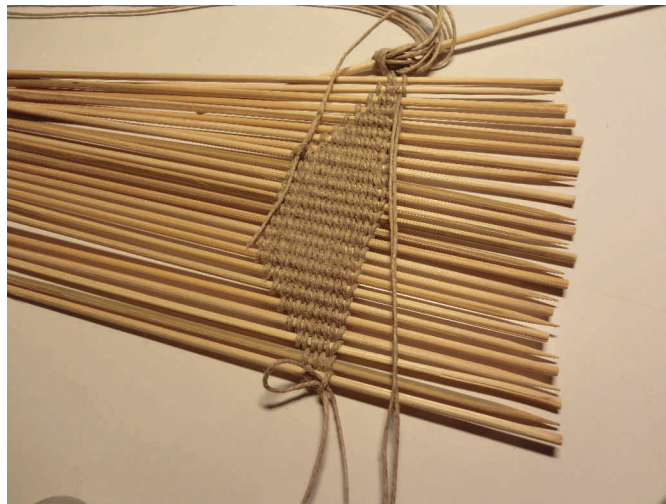


Figure 22: Secure the strings with a knot and flip the piece over. The strings can also be left unsecured and later on hidden in the finished sling.

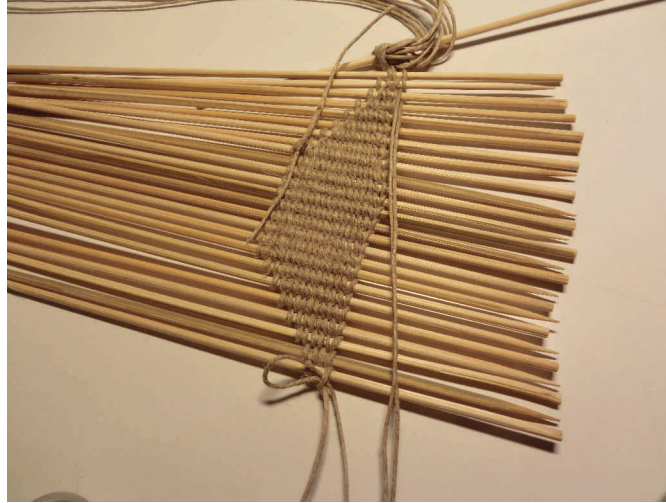


Figure 23: Add another piece of string and start twining.



Figure 24: Complete the other half.

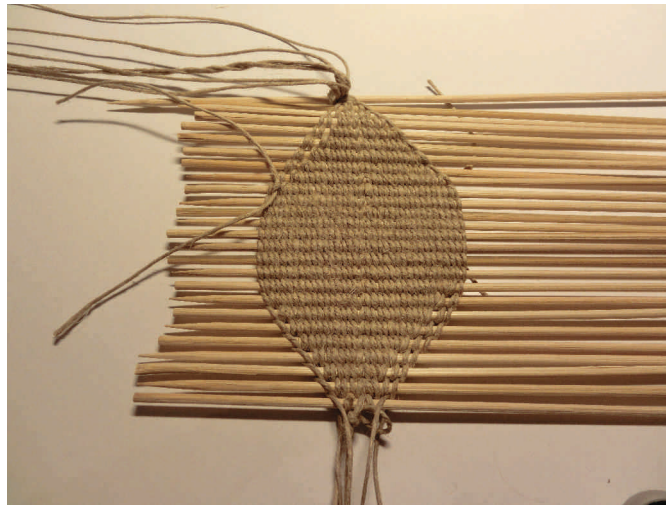


Figure 25: Add twined borders on each side. The added strings should be long enough to make retention and release cord.



Figure 26: Variation: The borders can also be braided instead of twined.



Figure 27: Variation: Of course, it is also possible to make the twined parts first, then insert the edges and the middle strings, before completing the second half.

3.7 Replacing the Sticks

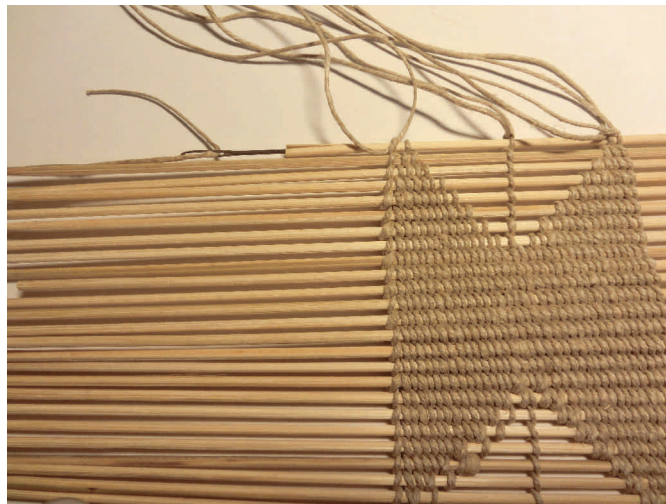


Figure 28: Cut a long piece of string and thread it through the needle. Insert the needle into the split of the stick and carefully pull the stick and needle through.



Figure 29: Variation: Instead of using a needle, directly clamp the string into the split.

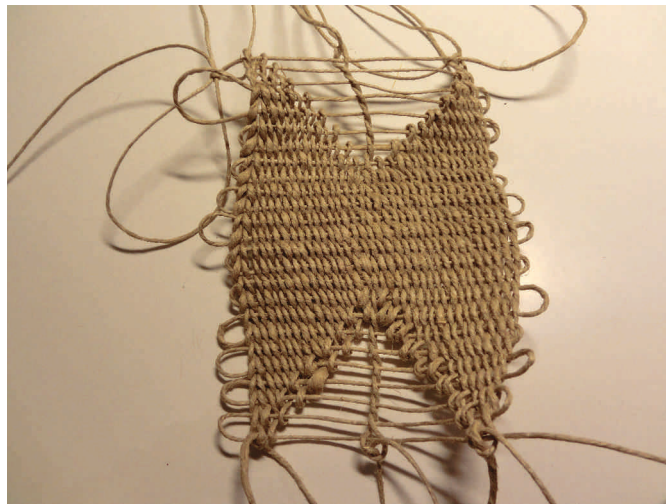


Figure 30: Continue until all sticks are replaced with string.

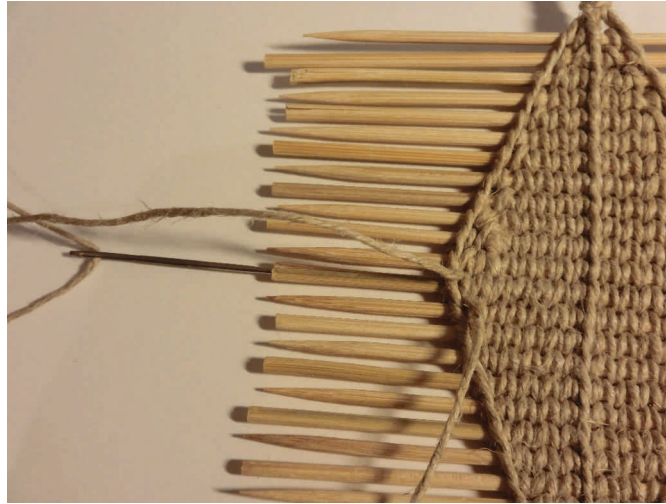


Figure 31: Variation: Instead of using a new string, reuse the string previously used for twining the pouch.



Figure 32: Variation: Instead of using only one string to replace the sticks, insert a second counterpropagating string after removing the sticks.

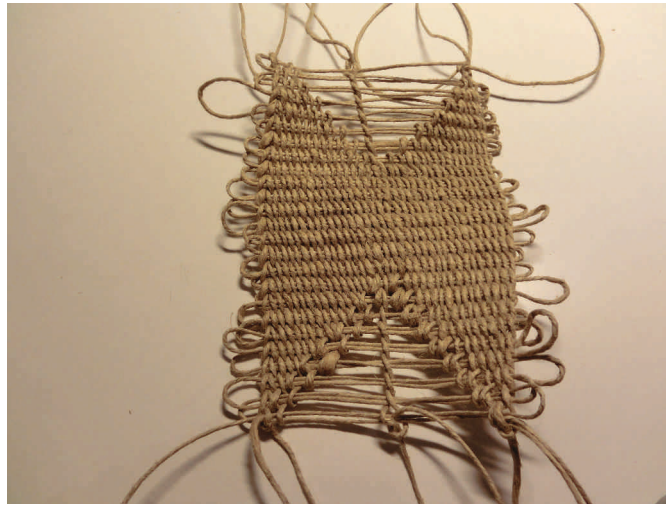


Figure 33: Variation: Sling with all sticks replaced with counterpropagating strings (compare with Figure 30).

3.8 Tightening



Figure 34: Tighten the inserted threads to slightly compress the twined pouch. Adjust the tension to your liking. Start tightening either at the end, as shown here, or in the middle if the string replacement variation from Figure 31 was used.



Figure 35: The same pouch after tightening.

3.9 Finishing the sling



Figure 36: If any short threads should remain in the twined pouch, secure them with a knot, and cut the ends short. If desired, hide the ends by pulling them along the inserted thread into the fabric.

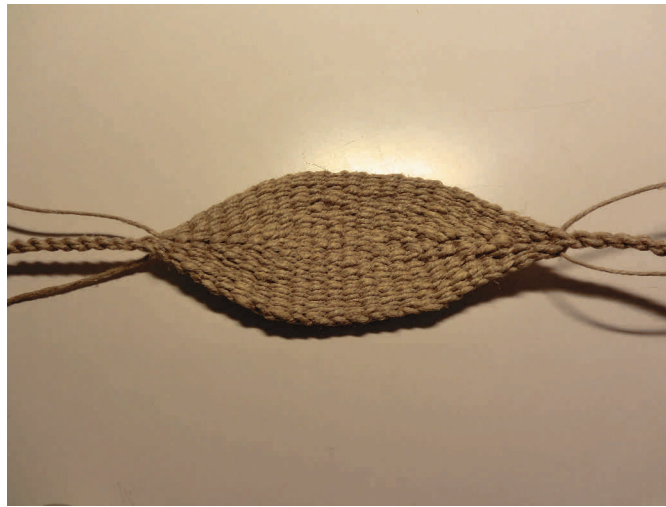


Figure 37: Make the retention and release cord. Here, these are made by twisting the strings used in the two borders and the center into a rope.



Figure 38: Remaining strings at each end of the pouch can be used for protective wrappings.



Figure 39: Variation: Instead of a making a rope, braids are also possible. Here, a 8 strand square braid with core was used.



Figure 40: Variation: Instead of making the release and retention cord with the strings from the center line and the borders, they can also be made with the thread used for replacing the sticks. In this case, use thicker string to replace the sticks.



Figure 41: Make a loop on the retention cord and a knot in the release cord at an appropriate length.

3.10 Remarks



Figure 42: Adjusting stick thickness or string thickness can change the appearance and density of the textile significantly. The same applies to inverting/not inverting the twining direction in each row (see upper right sample).

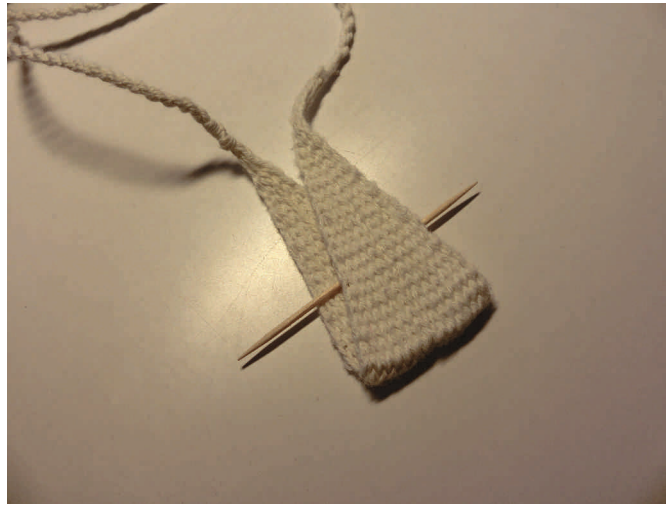


Figure 43: Comparatively fine pieces are also possible. Here, toothpicks with a diameter of ~ 1.5 mm were used as sticks.

4 Concluding Remarks

To the authors knowledge, this is one of the faster approaches to reproduce these slings. A simple, crude sling using thick string and sticks can be made within one hour by a skilled braider. If a more intricate sling is desired, the process will take more time. Most of the examples shown here were made in about 3 hours by the author. Also, the technique requires only simple tools. Even a needle is, although convenient, in principle not necessary. As shown, the technique offers many possibilities for experimentation, regarding both reconstructing slings as well as design of new slings. The variations shown here are by no means an exhaustive list. For example, color effects or pattern weaving by alternating twining direction were not explored at all.

Readers of this article are welcome to send a picture of their work or their comments to: TGartmann@gmx.ch

5 Supplementary material

A version of this article with high resolution photographs is available upon personal request.

References

- [1] <http://www.griffith.ox.ac.uk/gri/carter/585y.html> (accessed 29.10.2017).
- [2] Flinders Petrie, William Matthew, *Tools and Weapons*, London: British School of Archeology in Egypt (1917).
- [3] <http://www.ucl.ac.uk/museums-static/digitalegypt/textil/other.html> and http://www.ucl.ac.uk/museums-static/ave/detail/details/index_no_login.php?objectid=UC_6921_&accesscheck=%2Fmuseums-static%2Fave%2Fdetail%2Fdetails%2Findex.php (accessed 29.10.2017).
- [4] Burgess, E. Martin, *An ancient Egyptian sling reconstructed*, J. Arms and Armour Society, **2**(10), 226-230 (1958).
- [5] Flinders Petrie, William Matthew, *Kahun, Gurob and Hawara*, London: Kegan Paul International (1890).
- [6] <http://harbour.man.ac.uk/mmcustom/Display.php?irn=320846&QueryPage=%2Fmmcustom%2FEgyptQuery.php> (accessed 29.10.2017).
- [7] Gartmann, Thomas E., *The Kahun/el-Lahun sling: Analysis and Pointers for Reconstruction Approaches* <http://slinging.org/forum/YaBB.pl?num=1515612008> (accessed 4.12.2019)
- [8] Keller, Ferdinand, *Pfahlbauten, fünfter Bericht*. Zürich: In Commission bei S. Höhr : Druck von David Bürkli, 1863.
- [9] Gartmann, Thomas E., *Making Egyptian slings: A "No-tools" approach* <http://slinging.org/forum/YaBB.pl?num=1505851909/0> (accessed 29.10.2017).
- [10] Potter, Timothy J., *Tutankhamun Sling Tutorial* <http://www.seekyee.com/Slings/howtos/tut1.htm> and <http://www.seekyee.com/Slings/howtos/tut2.htm> (accessed 29.10.2017).
- [11] Seiler-Baldinger, Annemarie, *Systematik der Textilen Techniken*, Basler Beiträge zur Ethnologie **32**, Basel: Ethnologisches Seminar der Universität und Museum für Völkerkunde (1991), ISBN 3-85977-185-X.
- [12] Graf, Josepha, *Ur-do: Steine schleudern* in: Begegnung – Spur – Karte : das ethnografische Erbe von Heinrich Harrer und Peter Aufschnaiter, Stuttgart, Zürich: Arnoldsche Art Publishers, Völkerkundemuseum der Universität Zürich (2018)
- [13] Owen, Rodrick and Newhous Flynn, Terry, *Sling Braiding Traditions and Techniques: From Peru, Bolivia, and Around the World* Atglen: Schiffer Publishing, Ltd. (2017)