TRANSCRIPT

Anatomy of a Loom

Hi there. Welcome. So before we begin with the techniques of weaving, I wanna give you guys a general overview of the different looms that are available. Sort of how they work, how they're similar, how they're different, and they might give you an idea which one you might choose to work with moving forward. So some of you guys might have seen a video that I recently did for YouTube and it was basically getting started, for free, with weaving and the idea is to learn how to weave plain weave with a loom that you create from a piece of cardboard. So, as we've been talking about before, weaving is basically about holding warp yarns under tension and then adding weft yarns in between them and interlacing the warp and the weft in different ways.

Plain weave happens when you're using the maximum number of interlacements. So you're weaving your weft over and under, over and under, every single warped thread. So that's how you produce plain weave. This is basically how we can create it with nothing but a piece of cardboard. If you move from this loom, you can move to a loom like this. So, this is a frame loom and you can use this for tapestry weaving, you can use this for wall hangings, all sorts of things like that. But again, the same idea. You have warp threads held under tension and then you're gonna weave over and under, over and under, all of these warp threads. Depending on which warp threads you pull forward and how you interlace your yarns, you can create all sorts of different patterns with this very loom. You can create twill patterns. You can create diamond patterns. You can add knots in here. You could add fibre. You could do all sorts of things with this.

Now one of the things that is a little bit of a hassle when you're weaving with this kind of a loom is that it's very, very manual. You have to add all of the yarns in between all the warp threads over and under with a needle. Just, it's very, very manual and so one of the tricks that you can do is you can use a pick up stick, like this, and you can go over and under, over and under, every other warp thread here. And then if you hold the stick at the back of the loom when you open it up, you basically create a shed. Basically with this pick up stick, you are raising every other warp thread and making it easy for the weft to go in between those threads. So this is what this pick up stick does. Now if you have to interlace the weft yarn the other way, you still have to do it manually and so, with this kind of loom, you only have this one efficiency is that you can do this. This is the efficiency of this loom.

So now, the frame loom is wonderful for doing tons of different kinds of weaving. You can absolutely do wool hangings and you can do a lot of woven art with this, but it does have this one efficiency and it also has a limitation on how big of a piece you can make. So, the length of your weaving can only be as long as this loom is. Of course, you could make your own loom. You could DIY your own loom and make a much bigger loom. You could make a large loom. You could make a wide loom. You could make whatever size loom you want. However, the loom limits the size of your weaving and so if you don't wanna be bound, necessarily, by this efficiency and only this efficiency and the limitation of the size of your piece, then you might also wanna consider other kinds of looms.

Now with some of the higher end tapestry looms, you can get looms where you have sort of a beam at the top and a beam at the bottom and you can sort of unroll some of your weaving, unroll some of those warp threads and allow for more length in your weaving, but for the most part, it's quite set. It's quite fixed what the size of your weaving is

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gonna be. So now first, what I wanna do is I want to jump ahead to sort of the other spectrum of weaving looms. You have very, very simple looms, which are just frame looms, which have no shafts. They're basically just like this to these floor looms that have multiple harnesses or multiple shafts.

So, what I'm gonna show you here is how this kind of a loom works and how it's very, very similar actually to the frame looms. So this loom here is the Louet Spring loom. This is a 44 inch wide or 110 centimeter wide loom. This one happens to be eight shafts and it also happens to be a countermarch loom and I'll talk a little bit more about what that is in a minute, but for now, just know that this is basically the front of your loom. This is where cloth is being woven.

There is a back beam at the back that holds all of your warp yarn and it holds everything under tension. Now all the threads that are on the loom here have been pre-wound using a warping board or a warping mill, but they've all been pre-wound to be exactly the same length and then, the loom goes through a process called dressing the loom, or beaming the loom, beaming the warp, where all of those same sized warp threads are wound onto the back beam of the loom, wound on under tension in order to make sure that all of these threads are the same tension and they're even and aligned and continue to be the same length throughout the entire process. So, those warp threads are wound onto the back of the beam. They come around the back of the loom and then they come through and are threaded through these heddles.

So what the heddle is, is the heddle is a device that basically holds that warp thread in place. It's kind of like it's a string with a tiny little eye. It's a tiny little opening. It could also be made out of metal. It could be made out of a bunch of different materials, but, for the most part it's a long strip that has a tiny hole in it or a small hole in it where the warp thread goes through and it's this heddle that is then attached to the shafts.

So, the shafts on here on this loom, as you can see, look like this and so, you can see here on this shaft, there's a bunch of heddles threaded and through each one of these heddles, there is a strand or a warp thread coming through and so now the idea is that you can thread those warp threads through different heddles on different shafts and then depending on which shaft you raise, those are the warp yarns that will go up. So, it's exactly the same as this. So, this is basically saying every other warp thread is going to lift up.

We could also do the same with this. So, each one of these shafts is tied in some way to a treadle at the bottom of the loom so when you step on one of the treadles, it will raise up the shafts that it's connected to and a treadle could be attached to just one shaft. A treadle could be attached to two shafts, or three shafts, or four. It's however many you want to tie up in that way. So if I happen to raise, if I happen to press on this one treadle, it's going to raise shafts two, four, six, and eight in this case and then if I step on the other treadle, I'm getting one, three, five and seven are being raised right now.

Now the special thing about a countermarch loom and the reason why I love it so much is that these shafts actually open in opposite directions so when I step on one treadle, it's going to raise two, four, six, and eight, but at the same time, the lower part of these shafts is tied to the treadle as well and so, these shafts, one, three, five, and seven, go down at the same time. So, half of the shafts are going up, half the shafts are going down and that means that the warp threads are under equal tension each time.

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So, it produces a shed that's very nice and wide open and it makes it very, very easy to weave because the shed is nice and open. You have a big space to throw your shuttle and at the same time, warp threads on the top and warp threads on the bottom of your shed are of the same tension and every time you manage your tension and make sure that your tension is nice and even, that's the way to produce more consistent, more even cloths. So this is one of the wonderful things that I love about this particular loom.

Now, the other parts that you'll need to know about your loom are this is the beater and so this is the part where you lay in your weft yarn. So, you open your shed, and then you lay in your weft yarn and then you close this beater against the weft yarn to basically tuck it in place and then you change sheds and then you move it back and then that allows you to complete one pick. So, before, as I was showing people with my little cardboard loom here. Every time I put in a little weft thread, I used my fingers and I kind of just push it down into place or you could use a fork or you could use a little tapestry comb or whatever tool you want to get that yarn down there. This is basically what the beater is doing as well. This is basically just tucking that weft yarn into the right place and keeping it nice and straight and even across the entire width of your fabric.

Now the other part that you need to know about your loom is this metal piece that's here in the beater. This is called your reed. So, the reed is basically a metal frame that has slots in it and so all these little tiny metal bars are equally spaced and they're spaced in regular intervals so there might be a reed... This one happens to be six ends per inch. So, there's six holes per one inch space or you might get one that's eight ends per inch or 10 or 12 or 15 or 20. So, this reed basically determines how close or how far your warp threads are placed next to each other. So, the reed basically determines how close or how far your warp threads are going to be spaced. So if you have one that is six ends per inch, you're going to have six warped threads coming through parallel and you'll have six warp threads coming in one inch. If you're using a reed that is 12 ends per inch, then you'll have 12 in one inch space. Now, this is not to say that if you have a six ends per inch reed that you can't weave something that is 10 ends per inch or if you have an eight ends per inch reed, that you can't space your yarns a little bit differently.

There's all sorts of things that you can do to slay the reed, which is basically to put your warp threads through each slot of the reed. In some cases, you could double up in one slot or you could skip a slot or you could put three in one and two in the other and three in one and two in the other. Something like that or even two and then one, one, one. So there's all sorts of different combinations that you could make in order to adjust or massage the spacing of your warp threads with any particular reed. So, you'll be able to find a reed substitution chart as a PDF that you can download in our resources area.

So, that's basically the anatomy of the loom. The important parts that you need to know. You might also wanna know that this long part of your loom is called the castle. This particular loom has something back here. It's a built in raddle and when we talk about tools and equipment, I'll also talk to you more about raddles and what they are and what they're used for. This is the front apron rod that all of the warp threads are tied to. This is the front bar and then under here, is the cloth beam. So, this is the front beam and this is the cloth beam where the finished cloth gets produced. In the back, there is the back beam or the warp beam and that's where the unwoven warp is resting until

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we need it. So on the side of the loom there's a tension mechanism and so that tension mechanism helps increase or decrease the tension as you need it on your warp and there's also a mechanism here to help advance the loom. So basically, you can release the tension from the back beam, allow those warp threads to come forward, and at the same time I tighten the front beam, or tighten the cloth beam and everything will sort of roll on under here. So, that's basically it for this particular loom.

Okay, so now I wanna turn our attention to this particular loom. This one is a loom made by Schacht Spindle Company and it's called the Baby Wolf loom. This one has a 26 inch wide weaving width and this one happens to also be an eight shaft loom. So you can see each of these shafts is supplied with a whole bunch of heddles. The original heddles on this loom are actually metal, so they're stainless steel back here. So, I recently switched them all to these Texsolv heddles in an effort to try to make the loom a little bit more quiet but otherwise, the original heddles work perfectly well. So, I'll show you those heddles up close so you can see what the difference is between them, but basically you can see that there's a whole bunch of heddles on each one of these shafts and so the idea is that as you're putting warp threads through all the different shafts, this is how you can create different weave structures and different patterns by alternating and choosing which shafts you want to thread.

Same as the previous loom, this one has your front bar. This one is your cloth beam down here, which is where all the cloth is going to be winding on as you're weaving it. The weaving area is here. I'm sorry I don't have a weaving project on here right now.

This again, this one is your beater and this one is the reed. In here, right now, is a 12 dent reed. Similar to the other loom here, this one also has a whole bunch of treadles. So now, this loom is different from the previous loom. This Spring loom, like I said is a countermarch loom, and that means that some of the shafts go up and some of the shafts go down at the same time keeping that warp tension even and equal for every time you open a shed.

With this particular loom, this is a jack loom and the jack loom basically means that when you press on the treadle, some of the shafts will go up, but all of the remaining warp threads will just stay where they are. So, if you can imagine, you have a whole bunch of warp threads under tension and you raise only some of them. The ones that you raise, those are gonna have more tension on them. The ones that are just resting as they were before, those ones are gonna be less tensioned compared to the ones that are being raised and so the situation happens where some of the warp threads will go up and they will be under greater tension and the warp threads that stay there, they tend to look and feel soggy compared to the ones that are being raised and so, sometimes people will say that with a jack loom, it feels kind of like there's a soggy bottom. So your warp threads, the ones that are hangin' out on the bottom, those ones just feel a little bit more soggy, less tensioned. But, it generally doesn't affect your weaving process. It generally doesn't get in the way unless it's really soggy and then your shuttle can get stuck in there and you end up making more weaving mistakes as you're going. So, that's just something to watch out for when you're working with this kind of a loom.

So, you can tie up these looms in all sorts of different ways. In this case, you can tie up one of these treadles and have two of the shafts raised, or you can have alternating shafts. This is two and four being raised. This one is three and four being raised. So, there's all sorts of things that you can do in order to pick and choose which warp threads

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you wanna raise and which ones you wanna keep the way they are and that is what causes all the weave structures and all the different variety of weaving patterns. That's what helps create that. So all of these things are just purely efficiencies. This just makes it much more efficient to raise all of the warp threads that are threaded on shaft number one. Or one and two, or one and two and three, or one and three and so all sorts of things become possible with the variety of tools that are available.

The next one I wanna show you is the rigid heddle. So, I wanted to start with the bigger looms so that you have an idea of all of the moving parts that make weave structures possible. Now, I wanna come back and look at this loom here. This is a rigid heddle loom. This one happens to be the Ashford SampleIt loom. It's a 16 inch wide weaving width. You can get them in multiple widths. You can get them 10 inches. I think there's a 20 inches, 24, 28, they have all sorts of different rigid heddle looms with different weaving widths.

Now, a rigid heddle loom has a lot of parts that are very, very similar to a multi-shaft floor loom. You know, again, the warp threads are being held under tension here. There's a front beam or cloth beam, where all of the cloth that you are weaving, it's all being wound onto the front here. All of your unwoven warp threads are still hangin' out in the back here. They're just resting all wound up onto the back beam here and again, this is your weaving area here. There's a tension crank in the front and a tension crank at the back and then this piece here.

This is called the rigid heddle part and so, like I was showing you in these previous looms, where these are your heddles. These are the heddles where each of the warp threads are going through and those heddles, when they're attached to a particular shaft, when you raise that shaft, those heddles will carry those warp threads up. In this case, this is a rigid heddle and so there are two options. In a rigid heddle, there are slots and there are holes and so, each one of the warp threads is going through a slot of a hole, a slot or a hole.

So, you can see that when the rigid heddle is being held sort of in a neutral position, all of the warp threads are at the same level. If you are to raise up the rigid heddle, it's creating the shaft, the same way we did with the frame loom and it's doing so because the warp threads that are going through the holes, are being lifted up and the remainder of the warp threads are just floating down to the bottom of the slots. Now, if I move it the other way, and I move it down into the down position, then the same warp threads that are being threaded through the holes of the rigid heddle are being pushed down and then the remainder of the warp threads that are in the slots, they float up to the top of the rigid heddle and so this produces basically the same as having two shafts on a floor loom, or on a multi-shaft loom. It's basically having two shafts. You make a shed this way and you make a shed that way and it gives you the opportunity to have a little bit more efficiency than working with this. So again, this one gives you one efficiency. This one gives you two efficiencies and the multi-shaft looms gives you so many more options. It's limitless.

So, as you can see with a rigid heddle, these warp threads are being spaced out and so, the rigid heddle kind of has this combination responsibility. It is the heddle, where it's holding the different yarns in place and raising them or lowering them. So, it's acting like a heddle, but at the same time, it's also acting like a reed, where it's spacing out

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the warp threads to the density that you need them to be. So this rigid heddle happens to be 10 ends per inch, but the one that comes default with this particular loom is seven and a half ends per inch. You can also get one that is 12 ends per inch and one that's 15 ends per inch so all of these things, again, are possible. So this is, again, kind of like a reed, kind of like a heddle. It's very unique in this way.

So one of the things that I wanna remind you about with the rigid heddle loom is that it's not only limited to just having these two shafts and the ability for these two shafts. This particular loom has a heddle block here that can accommodate a second rigid heddle and so you could have another one back here and it could give you, basically, the same options as almost having a four shaft loom because you will have so many more options about which holes and slots you thread in and which heddle you decide to thread in. So, by adding a second rigid heddle on the second side of this heddle block, you can actually create all sorts of different patterns and all sorts of different weave structures. So I don't want you to feel like this is, at all, a limiting tool.

So weaving is obviously very, very individual and the kind of cloth that you want to create will basically determine what kind of a loom or what kind of a tool you'll probably gravitate towards. If you are wanting to weave things that are sort of smaller, portable, more limited in size, this is absolutely a great way to go. You can pop this in a bag or pop this in a box next to the TV and you can work on this in and around your family and all sorts of other activities. This is a wonderful way to incorporate weaving into your life.

Now, if you want something a little bit more with a little bit more length, you wanna weave with something where you have a little bit more length to your project, then something like a rigid heddle loom would be very, very handy to have and it's also something that's very light and portable and not entirely that expensive. And then if you're wanting to move towards something that has a longer length to it, where you can weave longer warps, something like a rigid heddle loom is something that is great to start working with because it gives you more flexibility of working with different kinds of warp yarns and then it also allows you to see more of the interlacements and the colour interactions between your warp and your weft.

So there's lots and lots of fun and wonderful things to explore with a rigid heddle loom and then if you become interested in weaving, projects that are very, very long warps, or very, very fine threads, or things that need to be under extremely consistent tension, then you might start to consider looking at some of the floor looms. They make shawls and scarves and blankets and if you have a very, very sturdy loom that can hold a lot of tension, then you can also weave rugs on those kinds of looms as well. So, there's lots and lots of different reasons why people choose and gravitate towards different looms. Not saying that one loom is better or superior to another. It is really all about personal preference and the only way that you'll get the opportunity to find out where you're leaning is look at what you're inspired by. What kind of things do you want to weave? What kind of fabrics most interest you? And that will help guide you towards the different looms that are available.

So, I hope this little lesson helped you with identifying the different parts of the loom and how these looms are similar and how these looms are different.

In the next video, we're gonna be talking about the different tools that are used in the weaving process.

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