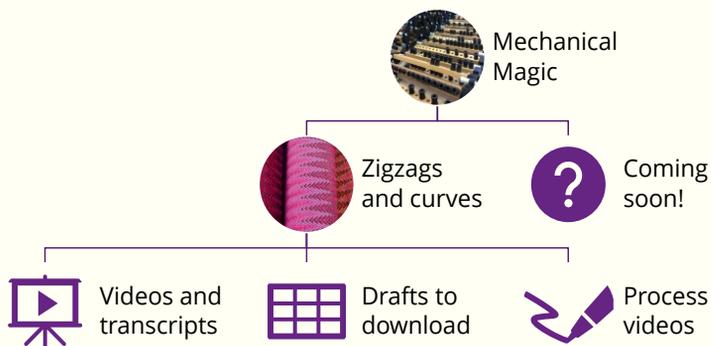


Mechanical Magic

ZIGZAGS AND CURVES WHAT'S IN THE BOX

Before we get started on the topic of zigzags and curves, I want to give you an overview of what's in the box here: what is the purpose of this resource pack and what will you find in it?

What's in the box



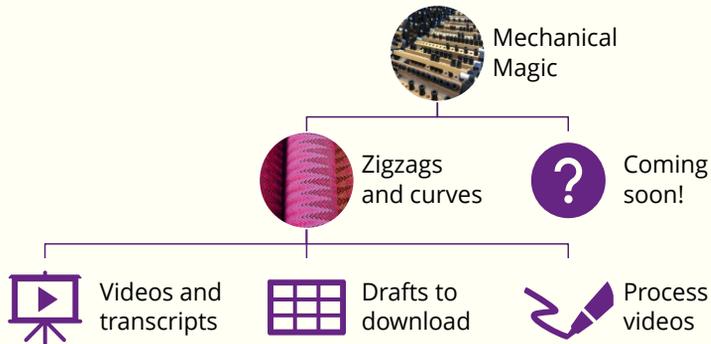
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My aim with this resource pack is to share ideas which work well for weavers using mechanical dobby looms. I feel that our mechanical dobbies often get overlooked, now that their computer-driven brethren are readily available, but the mechanical dobby has some unique attributes and even advantages compared with other types of loom, and if we play to the loom's strengths then we really can create some mechanical magic.

I've organised this pack on zigzags and curves into three sections. The first section, right here, contains the core learning material divided into several short videos. Each video is accompanied by an illustrated transcript, so you can read it instead if you prefer.

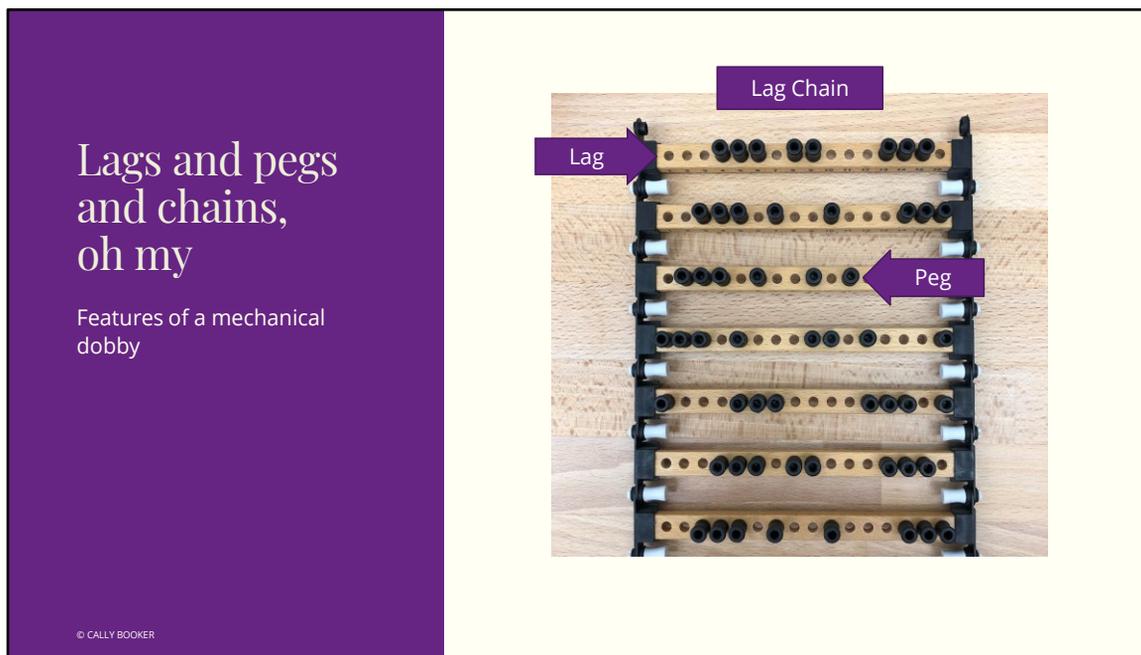
The second section is full of drafts to download. The drafts for eight shafts are presented in two formats: WIFs which you can load into weaving software and PDFs which you can read on screen or print out. Drafts for 12, 16, 24 and 32 shafts are only provided in WIF format. I am aware of the irony of celebrating the mechanical dobby with computer-readable drafts, but the issue is that these files are really too large to present in a PDF of reasonable dimensions. Options for viewing these files are provided in that section too.

What's in the box



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The third and final section contains video demonstrations of some of the design processes I am going to describe. These include pencil and paper processes as well as some specific tasks in Fiberworks which are useful for our purposes. If there is anything you think I should add to this section, I will be glad to hear about it. I want this resource pack to be of practical use to you in making the most of your mechanical dobbie loom.



Lags and pegs and chains, oh my

Features of a mechanical
dobby

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And before we continue, let's take a moment to define what I am talking about when I say mechanical doobby.

According to Allen Fannin in his excellent book *Handloom Weaving Technology*, a mechanical doobby is not a type of loom but a shedding mechanism, which is an important distinction. So although I talk informally about my loom as 'my mechanical doobby' that term is really describing the system of lags, pegs, cords, springs and doobby knife which allows me to control the shafts and make the shed.

Driving the system is the lag chain, a series of horizontal bars – or lags – which are strung together in a sequence. Each lag functions like a mini-treadle. It has a set of holes corresponding to the loom's shafts, and if we want a shaft to be raised at a particular point in the sequence, then we place a peg in the relevant hole in the lag. It's such a pleasingly simple and tactile system, isn't it?

Lags and pegs and chains, oh my

Features of a mechanical
dobby

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- Chain joined in a loop
- May progress forwards or 'in reverse'
- Usually advanced by treadle
- No electronics



When the chain is fed onto the loom, it is joined in a loop and we then have a variety of ways we can use it. At the most basic, we can progress through the lags in a forwards direction, proceeding round and round the cycle of lifts. We can also reverse the direction of the chain and treadle backwards through the lifts. Some looms allow us – or even require us – to intervene by hand and advance the chain without treadling, but most of us will be using a treadle at some stage in the process, whether that's to advance the chain or just to open the shed.

For me, one of the most delightful things about this system is that there are no electronics, so we can happily treadle our way through a power cut. We have a lot of flexibility here too. Chains can be long or short, pegs can be moved around fairly easily – certainly in comparison with re-tying treadles.

Compared with a computer dobbie, we do have to reckon with the physical limit imposed by the number of lags we have available and connect into a chain. But in exchange for that constraint we have the ability to improvise at the loom as freely as if we were using treadles, and the mechanism is very transparent and open. If anything goes wrong we can see it, touch it and fix it.

Speaking of constraints, however, before we move on I want to address the crucial question: how many lags is enough?

How many lags is enough?

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- In *Handloom Weaving Technology* Allen Fannin recommends a minimum of 2,000!
- I get on pretty well with 110 for my 16 shaft loom
- At least twice as many lags as you have shafts
- And don't forget the pegs: double weave is particularly demanding

In *Handloom Weaving Technology*, Allen Fannin recommends a minimum of 2,000 lags! He doesn't like re-pegging for different structures, and assumes you will be operating a production system where you need to store all your pegged up chains ready to use.

Personally, I consider myself fortunate that I have over a hundred lags for my 16-shaft loom, which I got secondhand – the previous owner had splashed out in this respect. I have never needed to use all of them for a single project. For the structures I am going to discuss, a good number of lags would be twice as many as you have shafts. That will allow you to use any of the options I will introduce later on.

And if you are stocking up on lags, don't forget that you will need pegs to go with them. Some structures like double weave can be particularly expensive in pegs, so that's something to bear in mind when you are stocking up.

And now let's get on with making some *Mechanical Magic*.