

## RAINBOW MAKING.

It is a great idea—too large to be arrived at but by degrees—that the fleeces of sheep can clothe nations of men. The fleece of a sheep, when pulled and spread out, looks much larger than while covering the mutton; but still it is with a sort of despair that we think of the quantity required, and of the dressing and preparation necessary, for clothing fifteen million of men in one country, and double the number in another (to say nothing of the women), and of the number of countries, each containing its millions, which are incessantly demanding the fleeces of sheep to clothe their inhabitants. We remember the hill-sides of our own mountainous districts; and the wide grassy plains of Saxony; and the boundless table lands of Thibet, and the valleys of Cashmere, all speckled over with flocks: we think of the Australian sheep-walks, where there are flocks of such unmanageable size, that the whole sheep is boiled down for tallow: we think of Prince Esterhazy's reply to the question of an English nobleman, when shown vast flocks, and asked how his sheep in Hungary would compare in number with these,—that his shepherds outnumbered the Englishman's sheep; we think of these things, and by degrees begin to understand how wool enough may be produced

to furnish the broadcloths and flannels of the world. But the most strong and agile imagination is confounded when the material of silk is considered in the same way. Compare a caterpillar with a sheep; compare the cocoon of a silkworm (the achievement of its life) with the annual fleece of a sheep; and the supply of silk for the looms of Europe, Asia, and America, seems a mere miracle. The marvel is the greater, not the less, when one is in a silk-growing region, attending to the facts and appearances, than when trying to conceive of them at home. In Lombardy, we travel, from day to day, during the whole month of May, between rows of mulberry trees, where the peasants are busy providing food for the worms; a man in the tree stripping off the leaves, and two women below with sacks, to carry home the foliage. We see what tons of leaves per mile must be thus gathered daily for weeks together; we go into houses in every village to inspect the worms; we mount to the flat roofs of the dwellings, and find in each countless multitudes of the worms; we pass on, from country to country, till we mount to the hamlets, perched on the rocky shelves of the Lebanon; and we find everywhere the insect secreting its gum, or spinning it forth as silk; we remember that the same process is going forward in the heart of our Indian Peninsula, and throughout China: we look at the broad belt round the globe where the little worm is forming its cocoons; and still we find it impossible to imagine how enough silk is produced to supply the wants of the world, from the brocade of the Asiatic potentate to the wedding ribbon of the English dairy-maid. Nowhere is the speculation more difficult than in a dye-house at Coventry.

Probably there was as much wonder excited by the same thought, when King Henry VIII. wore the first pair of silk stockings brought to England from Spain; and when Francis I. looked after the mulberry trees in France, and fixed some silk weavers at Lyons; and when our Queen Mary passed a law forbidding servant-maids to wear ribbon on bonnets; and when monarch after monarch passed acts to teach how silk should be boiled, and whence it should be brought, and who should, and who should not, wear it when wrought; but the perplexity and amazement of king, lords, and commons could hardly, at any time, have exceeded that of the humblest visitor of to-day in any dye-house at Coventry. We know something of the fact of this astonishment; for we have been noting the wonders that are to be found on the premises of Messrs. Leavesley and Hands at Coventry.

On entering, we see, ranged along the counters, half round the room, bundles of glossy silk, of the most brilliant colours. Blues, rose-colours, greens, lilacs, make a rainbow of the place. It is only two days since this silk was brought in in a very dif-

ferent condition. The throwster (to throw, means to twist or twine), after spinning the raw silk, imported from Italy, Turkey, Bengal, and China, into thread fit for the loom, sent it here in bundles, gummy, harsh, dingy; except, indeed, the Italian, which looks, till washed, like fragments of Jason's fleece. If bundles, and regiments of bundles, like these, come into one dye-house every few days, to be prepared for the weaving of ribbons alone, and for the ribbon-weaving of a single town, it is overwhelming to think of the amount of production required for the broad silk-weaving of England, of Europe, of the world. Of the silk dyed at Coventry, about eighty per cent. is used for the ribbon-weaving of the city and neighbourhood; and the quantity averages six tons and a half weekly. Of the remaining twenty per cent., half is used for the manufacture of fringes; and the other half goes to Macclesfield, Congleton, and Derby.

The harsh gummy silk that comes in from the throwing mills is boiled, wrung out, and boiled again. If it wants bleaching, there is a sort of open oven of a house; a vault in the yard, where it is "sulphured." The heat, and the sensation in the throat, inform us in a moment where we have got to. When the hanks come forth from this process, every thread is separated from its neighbour, and the whole bundle is soft, dry, and glossy. Then follows the dyeing. To make the silk receive the colours, it is dipped in a mordant, in some diluted acid, or solution of metal, which enables the colour to bite into the fibre. To make pinks of all shades, the silk is dipped in diluted tartaric acid for the mordant, and then in a decoction of safflower for the hue. To make plum-colour or puce, indigo is the dye, with a cochineal. To make black, nitrate of iron first; then a washing follows; and then a dipping in logwood dye, mixed with soap and water. For a white, pure enough for ribbons, the silk has to pass through the three primary colours, yellow, red, and blue. The dipping, wringing, splashing, stirring, boiling, drying, go on vigorously, from end to end of the large premises, as may be supposed, when the fact is mentioned that the daily consumption of water amounts to one hundred thousand gallons. A reservoir, in the middle of the yard, formerly supplied the water; but it proved insufficient, or uncertain; and now it is about to be filled up, and an Artesian well is opened to the depth of one hundred and ninety-five feet. The dyeing sheds are paved with pebbles or bricks, crossed with gutters, and variegated with gay puddles. Stout brick-built coppers are stationed round the place. Above each copper are cocks, which let in hot and cold water from the pipes that travel round the walls of the sheds. There are wooden troughs for the dye; and to these troughs the water is conveyed by spouts. The silk hangs down into the dye from poles, smoothly turned and uniform, which are laid across the troughs by

the dozen or more at once. These staves are procured from Derby. They cost from six shillings to twenty-four shillings per dozen, and constitute an independent subsidiary manufacture. The silk hanks being suspended from these poles, two men, standing on either side the trough, take up two poles, souse, and shake, and plunge the silk, and turn that which had been uppermost under the surface of the liquor, and pass on to the next two. When done enough, the silk is wrung out and pressed, and taken to the drying-house. The heat in that large chamber is about one hundred degrees. On entering it, everybody begins to cough. The place is lofty and large. The staves, which are laid across beams, to contain the suspended silk, make little moveable ceilings here and there. This chamber contains five or six hundred-weights of silk at once. Our minds glance once more towards the spinning insects on hearing this; and we ask again, how much of their produce may be woven into fabrics in Coventry alone? We think we must have made a mistake in setting down the weekly average at six tons and a half. But there was no mistake. It is really so.

While speaking of weight, we heard something which reminded us of King Charles I.'s opinions about some practices which were going forward before our eyes. It appears, that the silk which comes to the dye-house is heavy with gum, to the amount of one-fourth of its weight. This gum must be boiled out before the silk can be dyed. But the manufacturers of cheap goods require that the material shall not be so light as this process would leave it. It is dipped in well-sugared water, which adds about eight per cent. to its weight. Many tons of sugar per year are used as (what the proprietor called) "the silk-dyer's devil's dust." It was this very practice which excited the wrath of our pious King Charles, in all his horror of double-dealing. A proclamation of his, of the date of 1630, declares his fears of the consequences of "a deceitful handling" of the material, by adding to its weight in dyeing, and ordains that the whole shall be done as soft as possible; that no black shall be used but Spanish black, "and that the gum shall be fair boiled off before dyeing." He found, in time, that he had meddled with a matter that he did not understand, and had gone too far. Some of the fabrics of his day required to be made of "hard silk;" and he took back his orders in 1638, having become, as he said, "better-informed."

From trough to trough we go, breathing steam, and stepping into puddles, or reeking rivulets rippling over the stones of the pavement; but we are tempted on, like children, by the charm of the brilliant colours that flash upon the sight whichever way we turn. What a lilac this is! Is it possible that such a hue can stand? It could not stand even the drying, but for the alkali into which it is

dipped. It is dyed in orchil first, and then made bluer, and somewhat more secure, by being soured in a well-soaped alkaline mixture.—That is a good red brown. It is from Brazil wood, with alum for its mordant.—This is a brilliant blue;—indigo, of course? Yes, sulphate of indigo, with tartaric acid.—Here are two yellows: how is that? One is much better than the other; moreover, it makes a better green; moreover, it wears immeasurably better.—But what is it? The inferior one is the old-fashioned turmeric, with tartaric acid. And the improved yellow?—O! we perceive. It is a secret of the establishment, and we are not to ask questions about it. But among all these men employed here, are there none accessible to a bribe from a rival in the art? There is no saying; for the men cannot be tempted. They do not know, any more than ourselves, what this mysterious yellow is. But why does it not supersede the old-fashioned turmeric?—It will, no doubt; and it is gaining rapidly upon it; but it takes time to establish improvements. The improvement in greens, however, is fast recommending the new yellow.—This deep amber is a fine colour. We find it is called California, which has a modern sound in it.—This Napoleon blue (not Louis Napoleon's) is a rich colour. It gives a good deal of trouble. There is actually a precipitation of metal, of tin, upon every fibre, to make it receive the dye; and then it has to be washed; and then dipped again, before it can take a darker shade; and afterwards washed again, over and over, till it is dark enough; when it is finally soured in water which has fuller's earth in it, to make it soft enough for working and wear.—What is doing with that dirty-white bundle? It is silk of a thoroughly bad colour. Whether it is the fault of the worm, or of the worm's food, or what, there is no saying—that is the manufacturer's affair. He sent it here. It is now to be sulphured, and dipped in a very faint shade of indigo, curdled over with soap. This will improve it, but not make it equal to a purer white silk. Next, the wet hanks have to be squeezed in the Archimedean press, and then hung up in that large, hot drying-room.

One serious matter remains unintelligible to us. Plaid ribbons—that is, all sorts of checked ribbons—have been in fashion so long now, that we have had time to speculate (which we have often done) on how they can possibly be made. About the colours of the warp (the long way of the ribbon) we are clear enough. But how, in the weft, do the colours duly return, so as to make the stripes, and therefore the checks, recur at equal distances? We are now shown how this was done formerly, and how it is done now. Formerly, the hanks were tied very tightly, at equal distances, and the alternate spaces closely wrapped round with paper, or wound round with packthread. This took up a great deal of time. We were shown a much better plan.

A shallow box is made, so as to hold within it the halves of several skeins of silk; these halves being curiously twisted, so as to alternate with the other halves when the hanks are shaken back into their right position for winding. One half being within the box, and the other hanging out, the lid is bolted down so tight that the dye cannot creep into the box; and the out-hanging silk is dipped. So much can be done at once, that the saving of time is very great, and, judging by the prodigious array of plaid ribbons that we saw in the looms afterwards, the value of the invention is no trifle. The name of this novelty is the Clouding Box.

We see a bundle of cotton. What has cotton to do here? It is from Nottingham—very fine and well twisted. It is a pretty pink, and it costs one shilling and sixpence per pound to dye. But what is it for?—Ah! that is the question! It is to mix in with silk, to make a cheap ribbon. Another pinch of devil's dust!

There is a calendering process employed in the final preparation of the dried silk, by which, we believe, its gloss is improved; but it was not in operation at the time of our visit. We saw, and watched with great curiosity, a still later process—more pretty to witness than easy to achieve—the making up of the hanks. This is actually the most difficult thing the men have to learn in the whole business. Of course, therefore, it is no matter for description. The twist, the insertion of the arm, the jerk, the drawing of the mysterious knot, may be looked at for hours and days, without the spectator having the least idea how the thing is done. We went from workman to workman—from him who was making up the blue, to him who was making up the red—we saw one of the proprietors make up several hanks at the speed of twenty in four minutes and a half, and we are no more likely to be able to do it, than if we had never entered a dye-house. Peeping Tom might spy for very long before he would be much the wiser: when done, the effect is beautiful. The snaky coils of the polished silk throw off the light like fragments of mirrors.

Another mysterious process is the marking of the silk which belongs to each manufacturer. The hanks and bundles are tied with cotton string; and this string is knotted with knots at this end, at that end, in the middle, in ties at the sides, with knots numbering from one to fifteen, twenty, or whatever number may be necessary; and the manufacturer's particular system of knots is posted in the books with his name, the quantity of silk sent in, the dye required, and all other particulars.

We were amused to find that there is a particular twist and a particular dye for the fringe of brown parasols. It is desired that there should be a claret tint on this fringe, when seen against the light; and here, ac-

cordingly, we find the claret tint. The silk is somewhat dull, from being hard twisted; it is to be made more lustrous by stretching, and we accompany it to the stretching machine. There it is suspended on a barrel and moveable pin; by a man's weight applied to a wheel, the pin is drawn down, the hank stretches, and comes out two or more inches longer than it went in, and looking perceptibly brighter. A hank of bad silk snaps under this strain; a twist that will stand it is improved by it.

Looking into a little apartment, as we return through the yard, we find a man engaged in work which the daintiest lady might long to take out of his hands. He is making pattern-cards and books. He arranges the shades of all sorts of charming colours, named after a hundred pretty flowers, fruits, and other natural productions,—his lemons, lavenders, corn flowers, jonquils, cherries, fawns, pearls, and so forth; takes a pinch of each floss, knots it in the middle, spreads it at the ends, pastes down these ends, and, when he has a row complete, covers the pasted part with slips of paper, so numbered as that each number stands opposite its own shade of colour. A pattern-book is as good as a rainbow for the pocket. This looks like woman's work; but there are no women here. The men will not allow it. Women cannot be kept out of the ribbon-weaving; but in the dye-house they must not set foot, though the work, or the chief part of it, is far from laborious, and requires a good eye and tact, more than qualities less feminine. We found many apprentices in the works, receiving nearly half the amount of wages of their qualified elders. The men earn from ten shillings to thirty shillings a-week, according to their qualifications. Nearly half of the whole number earn about fifteen shillings a-week at the present time.

And, now, we are impatient to follow these pretty silk bundles to the factory, and see the weaving. It is strange to see, on our way to so thoroughly modern an establishment, such tokens of antiquity, or reminders of antiquity, as we have to pass. We pass under St. Michael's Church, and look up, amazed, to the beauty and loftiness of its tower and spire;—the spire tapering off at a height of three hundred and twenty feet. The crumbling nature of the stone gives a richness and beauty to the edifice, which we would hardly part with for such clear outlines as those of the restored Trinity Church, close at hand. And then, at an angle of the market-place, there is Tom, peeping past the corner,—looking out of his window, through his spectacles, with a stealthy air, which, however ridiculous, makes one thrill, as with a whiff of the breeze which stirred the Lady Godiva's hair, on that memorable day, so long ago. It is strange, after this, to see the factory chimney, straight, tall, and handsome, in its way, with its in-laying of coloured bricks, towering before us,

to about the height of a hundred and thirty feet. No place has proved itself more unwilling than Coventry to admit such innovations. No place has made a more desperate resistance to the introduction of steam power. No place has more perseveringly struggled for protection, with groans, menaces, and supplications. Up to a late period, the Coventry weavers believed themselves safe from the inroads of steam power. A Macclesfield manufacturer said, only twenty years ago, before a Committee of the House of Commons, that he despaired of ever applying power-looms to silk. This was because so much time was employed in handling and trimming the silk, that the steam power must be largely wasted. So thought the weavers, in the days when the silk was given out in hanks or bobbins, and woven at home, or, when the work was done by handloom weavers in the factory—called the loom-shop. The day was at hand, however, when that should be done of which the Macclesfield gentleman despaired. A small factory was set up in Coventry by way of experiment, in the use of steam power, in 1831. It was burned down during a quarrel about wages,—nobody knows how or by whom. The weavers declared it was not their doing; but their enmity to steam power was strong enough to restrain the employers from the use of it. It was not till everybody saw that Coventry was losing its manufacture,—parting with it to places which made ribbons by steam,—that the manufacturers felt themselves able to do what must be done, if they were to save their trade. The state of things now is very significant. About seventy houses in Coventry make ribbons and trimmings, (fringes and the like). Of these, four make fringes and trimmings, and no ribbons; and six or eight make both. Say that fifty-eight houses make ribbons alone. It is believed that three-fourths of the ribbons are made by no more than twenty houses out of these fifty-eight. There are now thirty steam power-loom factories in Coventry, producing about seven thousand pieces of ribbons in the week, and employing about three thousand persons. It seems not to be ascertained how large a proportion of the population are employed in the ribbon manufacture: but the increase is great since the year 1838, when the number was about eight thousand, without reckoning the outlying places, which would add about three thousand to the number. The total population of the city was found, last March, to amount to nearly thirty-seven thousand. So, if we reckon the numbers employed in connexion with the throwing-mills and dye-houses, we shall see what an ascendancy the ribbon manufacture has in Coventry.

At the factory we are entering, the preparatory processes are going forward at the top and the bottom of the building. In the yard is the boiler fire, which sets the engine to work; and, from the same yard, we enter workshops, where the machinery is made and

repaired. The ponderous work of the men at the forge and anvils contrasts curiously with the delicacy of the fabric which is to be produced by the agency of these masses of iron and steel. Passing up a step-ladder, we find ourselves in a long room, where turners are at work, making the wooden apparatus required, piercing the "compass boards," for the threads to pass through, and displaying to us many ingenious forms of polished wood. While the apparatus is thus preparing below, the material of the manufacture is getting arranged, four stories over-head. There, under a skylight, women and girls are winding the silk from the hanks, upon the spools, for the shuttles. Here we see, again, the clouded silk, which is to make plaid ribbons, and the bright hues which delighted our eyes at the dyeing-house. This is easy work,—many of the women sitting at their reels; and the air is pure and cool. The great shaft from the engine, passing through the midst of the building, carries off the dust, and affords excellent ventilation. Besides this, the whole edifice is crowned by an observatory, with windows all round; and no complete ceilings shut off the air between this chamber and the rooms of two stories below. In clear weather, there is a fine view from this pinnacle, extending from the house, gardens, and orchard of the Messrs. Hamerton below, over the spires of Coventry, to a wide range of country beyond.

Descending from the long room, where the winding is going on, we find ourselves in an apartment which it does one good to be in. It is furnished with long narrow tables, and benches, put there for the sake of the work-people, who may like to have their tea at the factory, in peace and quiet. They can have hot water, and make themselves comfortable here. Against the door hangs a list of books, read, or to be read, by the people: and a very good list it is. Prints, from Raffaele's Bible, plainly framed, are on the walls. In the middle of the room, on, and beside, a table, are four men and boys, preparing the "strapping" of a Jacquard loom for work. The cords, so called, are woven at Shrewsbury. We next enter a room where a young man is engaged in the magical work of "reading in from the draught." The draught is the pattern of the intended ribbon, drawn and painted upon diced paper,—like the patterns for carpets that we saw at Kendal, but a good deal larger, though the article to be produced here is so much smaller. The young man sits, as at a loom. Before him hangs the mass of cords he is to tie into pattern, close before his face, like the curtain of a cabinet piano. Upreared before his eyes is his pattern, supported by a slip of wood. He brings the line he has to "read in" to the edge of this wood, and then, with nimble fingers, separates the cords, by threes, by sevens, by fives, by twelves, according to the pattern, and threads through them the string which is to tie them apart. The skill and speed with which he feels out his cords,

while his eyes are fixed on his pattern, appear very remarkable: but when we come to consider, it is not so complicated—a process as playing at sight on the piano. The reader has to deal thus with one chapter, or series, or movement, of his pattern. A *da capo* ensues: in other words, the Jacquard cards are tied together, to begin again; and there is a revolution of the cards, and a repetition of the pattern, till the piece of ribbon is finished. In the same apartment is the press in which the Jacquard cards are prepared;—just in the way which may be seen wherever silk or earpet weaving, with Jacquard looms, goes forward.

All the preparations having been seen,—the making of the machinery, the filling of the spools, the drawing and "reading in" of the pattern, and the tying of the cords or strapping, we have to see the great process of all,—the actual weaving. We certainly had no idea how fine a spectacle it might be. Floor above floor is occupied with a long room in each, where the looms are set as close as they can work, on either hand, leaving only a narrow passage between. It may seem an odd thing to say; but there is a kind of architectural grandeur in these long lofty rooms, where the transverse cords of the looms and their shafts and beams are so uniform, as to produce the impression that symmetry, on a large scale, always gives. Looking down upon the details, there is plenty of beauty. The light glances upon the glossy coloured silks, depending, like a veil, from the backs of the looms, where women and girls are busy piercing the imperfect threads with nimble fingers. There seems to be plenty for one person to do; for there are thirteen broad ribbons, or a greater number of narrow ones, woven at once, in a single loom; yet it may sometimes be seen that one person can attend the fronts, and another the backs of two looms. In the front we see the thirteen ribbons getting made. Usually, they are of the same pattern, in different colours. The shuttles, with their gay little spools, fly to and fro, and the pattern grows, as of its own will. Below is a barrel, on which the woven ribbon is wound. Slowly revolving, it winds off the fabric as it is finished, leaving the shuttles above room to ply their work.

The variety of ribbons is very great, though in this factory we saw no gauzes, nor, at the time of our visit, any of the extremely rich ribbons which made such a show at the Exhibition. Some had an elegant and complicated pattern, and were woven with two shuttles (called the double-batten weaving) which came forward alternately, as the details of the rich flower or leaf required the one or the other. There were satin ribbons, in weaving which only one thread in eight is taken up,—the gloss being given by the silk loop which covers the other seven. On entering, we saw some narrow scarlet satin ribbons, woven for the Queen. Wondering what Her

Majesty could want with ribbon of such a colour and quality, we were set at ease by finding that it was not for ladies, but horses. It was to dress the heads of the royal horses. There were bride-like, white-figured ribbons, and narrow finsey black ones, fit for the wear of the poor widow who strives to get together some mourning for Sundays. There were checked ribbons, of all colours and all sizes in the check. There were stripes of all varieties of width and hue. There were dined ribbons, and speckled, and frosted. There were edges which may introduce a beautiful harmony of colouring:—as primrose with a lilac edge;—green with a purple edge; rose-colour and brown; puce and amber; and so on. The loops of pearl or shell edges are given by the silk being passed round horse-hairs, which are drawn out when the thing is done. There are belts,—double ribbons,—which have other material than silk in them; and there are a good many which are plain at one edge, and ornamented at the other. These are for trimming dresses. One reason why there are so few gauzes, is that the French beat us there. They grow the kind of silk that is best for that fabric: and labour is cheap with them; so that any work in which labour bears a large proportion to the material, is particularly suitable for them.

We have spent so much time among the looms, that it is growing dusk in their shadows, though still light enough in the counting-house for us to look over the pattern-book, and admire a great many patterns, most, till we see more. Young women are weighing ribbons in large scales; and a man is measuring off some pieces, by reeling. He cuts off remnants, which he casts into a basket, where they look so pretty that, lest we should be conscious of any shop-lifting propensities, we turn away. There is a glare now through the window which separates us from the noisy weaving room. The gas is lighted, and we step in again, just to see the effect. It is really very fine. The flare of the separate jets is lost behind the screens of silken threads, which veil the backs of the looms, while the yellow light touches the beams, and gushes up to the high ceiling in a thousand caprices. Surely the ribbon manufacture is one of the prettiest that we have to show.

If the Coventry people were asked whether their chief manufacture was in a flourishing state, the most opposite answers would probably be given by different parties equally concerned. Some exult, and some complain, at this present time. As far as we can make out, the state of things is this. From the low price of provisions, multitudes have something more to spare from their weekly wages than formerly, for the purchase of finery: and the demand for cheap ribbons has increased wonderfully. As always happens when any manufacture is prosperous, the operatives engage their whole families in it. We may see the father weaving; his wife, on the verge of her

confinement, winding in another room, or, perhaps, standing behind a loom, piecing the whole day long. The little girls fill the spools; the boys are weaving somewhere else. The consequences of this devotion of whole households to one business, are as bad here as among the Nottingham lace-makers, or the Leicester hosiers. Not only is there the misery before them of the whole family being adrift at once, when bad times come, but they are doing their utmost to bring on those bad times. Great as is the demand, the production has, thus far, much exceeded it. The soundest capitalists may be heard complaining that theirs is a losing trade. Less substantial capitalists have been obliged to get rid of some of their stock at any price they could obtain; and those ribbons, sold at a loss, intercept the sales of the fair-dealing manufacturer. This cannot go on. Prosperous as the working-classes of Coventry have been, for a considerable time, a season of adversity must be within ken, if the capitalists find the trade a bad one for them. We find the case strongly stated, and supported by facts, in a tract on the Census of Coventry, which has lately been published there. It might save a repetition of the misery which the Coventry people brought upon themselves formerly—by their tenacity about protective duties, and their opposition to steam power—if they would, before it is too late, ponder the facts of their case, and strive, every man in his way, to yield respect to the natural demand for the great commodity of his city; and to take care that the men of Coventry shall be fit for something else than weaving ribbons.