

(1.) * BROCADE. *n. f.* [*brocado*, Span.] A silken stuff, variegated with colours of gold or silver.—I have the conveniency of buying and importing rich *brocades*. *Speſiator*.—

Or ſtain her honour, or her new *brocade*,
Forget her pray'rs, or miſs a maſquerade. *Pope*.

(2.) BROCADE, or BROCADO, a ſtuff of gold, ſilver, or ſilk, raiſed and enriched with the flowers, foliages, and other ornaments, according to the fancy of the merchants or manufacturers. Formerly the word ſignified only a ſtuff, wove all of gold, both in the warp and in the woof, or all
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of silver, or of both mixed together; thence it passed to those of stuffs in which there was silk mixed, to raise and terminate the gold or silver flowers; but at present all stuffs, even those of silk alone, whether they be programs of Tours or of Naples, satins, and even taffeties or lustrings, if they be but adorned and worked with fine flowers or other figures, are called *brocades*.

(3.) **BROCADES, METHODS OF MANUFACTURING.** In manufacturing brocades, the flattened gilt wire is spun on threads of yellow silk approaching as near as may be to the colour of gold itself. The wire, winding off from a bobbin, twists about the thread as it spins round; and, by means of curious machinery, too complex to be described here, a number of threads are thus twisted at once by turning of one wheel. The principal art consists in so regulating the motion, that the several circumvolutions of the flattened wire on each side may just touch one another, and form, as it were, one continued covering. It is said, that at Milan there is made a sort of flattened wire gilt only on one side, which is wound upon the thread so that only the gilt side appears; and that the preparation of this wire is kept a secret, and has been attempted in other places with little success. There is also a gilt copper wire, made in the same manner as the gilt silver. Savary observes, that this kind of wire, called *faux gold*, is prepared chiefly at Nuremberg; and that the edevant ordinances of France required it to be spun, for distinction from the gilt silver, on flaxen or hempen threads. One of our writers takes notice, that the Chinese, instead of flattened gilt wire, use slips of gilt paper, which they both interweave in their stuffs and twist upon silk threads: this practice he inconsiderately proposes as a hint to the British weaver. But, whatever be the beauty of stuffs of this kind of manufacture, it is obvious that they must want durability. The Chinese themselves, according to Du Halde's account, sensible of this imperfection, scarcely use them any otherwise than in tapestries, and such other ornaments as are not intended to be much worn, or exposed to moisture. The Venetians have carried on a large trade to the Levant, in a kind of brocade called *domasquete*, which, though it has only about half the quantity of gold or silver as that made among us, looks far more beautiful. The flattened wire is neither wound close together on the silk threads, nor the threads stuck close in the weaving; yet by passing the stuff betwixt rolls, the disposition and management of which is kept a secret, the tissue or flower is made to appear one entire brilliant plate of gold or silver. The French ministry, judging this manufacture worthy of public attention, engaged the ingenious Mr Vaucanson, to contrive the machinery; a gentleman well known for his curious pieces of mechanism. See § 4.

(4.) **BROCADES, M. VAUCANSON'S INVENTIONS FOR MAKING.** This gentleman, in the memoirs of the academy for 1757, gives an account of his success, and of the establishment of this manufacture at Lyons. The lower roll is made of wood, 32 inches in length and 14 in diameter; the upper one of copper, 36 inches long and 8 in diameter: this last is hollow, and open at one end,

for introducing iron heaters. For making the roll, cylindrical, he has a particular kind of lathes wherein the cutting tool, which the most dexterous hand could not guide in a straight line through such a length as 36 inches, is made to slide, by means of a screw, on two large steel rulers, perfectly straight, and capable of being moved at pleasure, nearer, and always exactly parallel, to the axis of the roll. He first disposed the rolls nearly as in the common flattening mill. In this disposition, ten men were scarcely sufficient for turning them with force enough to extend the gilding duly; and the collars, in which the axes of the rolls turned at each end, wore or galled so fast, that the pressure continually diminished, insomuch that a piece of stuff of ten ells had the gilding sensibly less extended on the last part than on the first. He endeavoured to obviate this inconvenience by screwing the rolls closer and closer in proportion as the stuff passed through, or as the wearing of the collars occasioned more play between them; but this method produced an imperfection in the stuff, every turn of the screw making a sensible bar across it. To lessen the attrition, each end of the axis, instead of a collar, was made to turn between three iron cylinders called *friction wheels*: but even this did not answer fully, for now another source of unequal pressure was discovered. The wooden roll, being compressible, had its diameter sensibly diminished: it likewise lost its roundness, so that the pressure varied in different points of its revolution. On trying different kinds both of European and Indian woods, all the hard ones split, the soft ones warped without splitting, and of more than 20 rolls, there was not one which continued round for 24 hours, even without being worked in the machine. These failures put him upon contriving another method of pressing the rolls together, so that the force should always accommodate itself to whatever inequalities might happen. The axis of the copper roll being made to turn between friction-wheels as before, that of the wooden one is pressed upwards by a lever at each end, furnished with a half collar for receiving the end of the axis. Each lever has the end of its short arm supported on the frame of the machine, and the long arm is drawn upwards by an iron rod communicating with the end of the short arm of another lever placed horizontally: to the long arm of this lever is hung a weight, and the levers are so proportioned, that a weight of 30 lb. presses the rolls together with a force equivalent to 17,536 lb. which was found to be the proper force for the sufficient extension of the gilding. By this contrivance 4 men can turn the rolls with more ease than ten can turn those which are kept together by screws; and the same weight acting uniformly in every part, the pressure continues always equal, though the wooden roll should even become oval, and though the stuff be of unequal thickness. A piece of cloth, of about two ells, is sewed to the beginning and end of the stuff, to keep it out to its width when it enters and parts from the rolls, which could not be done by the hands for fear of burning or bruising them; as it would take too much time to sew these cloths to every small piece of an ell or two, a number of these

these are sewed together. The stuff is rolled upon a cylinder, which is placed behind the machine, and its axis pressed down by springs to keep the stuff tight as it comes off. Four iron bars, made red hot, are introduced into the copper roll, which in half an hour acquires the proper degree of heat, or nearly such a one as is used for the ironing of linen: the wooden roll is then laid in its place, and the machine set to work. If more than 30 ells are to be passed at once, the wooden roll must be changed for another, for it will not bear a long continuance of the heat without danger of splitting: and therefore the manufacturer should be provided with several of these rolls, that when one is removed, another may be ready to supply its room: as soon as taken off from the machine, it should be wrapt in a cloth and laid in a moist place. The principal inconvenience attending the use of this machine, is, that the heat necessary for extending the gilding, though it improves the brightness of white and yellow silks, is injurious to some colours, as crimson and green. A double pressure will not supply the place of heat; and the only method of preventing this injury, of rendering it as light as possible, appeared to be, to pass the stuff through with great celerity.

(5.) BROCADES, SULLIED, METHOD OF CLEANING. Although brocades, by the caprice of fashion, are at present not worn, yet as they may soon become fashionable again, it is proper to show how to clean them. For this purpose neither alkalis nor soap must be used; because the former, while they clean the gold, corrode the silk, and change or discharge its colour; and the latter also alters the shade, and even the species, of certain colours. But spirit of wine may be used without any danger of its injuring either the colour or quality of the subject; and in many cases proves as effectual for restoring the lustre of the gold as the most corrosive detergents. A rich brocade flowered with a variety of colours, after being disagreeably tarnished, had the lustre of the gold perfectly restored by washing it with a soft brush dipt in warm spirit of wine; and some of the colours of the silk which were likewise soiled became at the same time remarkably bright and lively. Spirit of wine seems to be the only material adapted to this intention, and probably the boasted secret of certain artists is no other than this spirit disguised. Dr Lewis says he does not know of any other that is of sufficient activity to discharge the foul matter, without being hurtful to the silk. As to powders, however fine, and however cautiously used, they scratch and wear the gold, which here is only superficial, and of extreme tenuity.