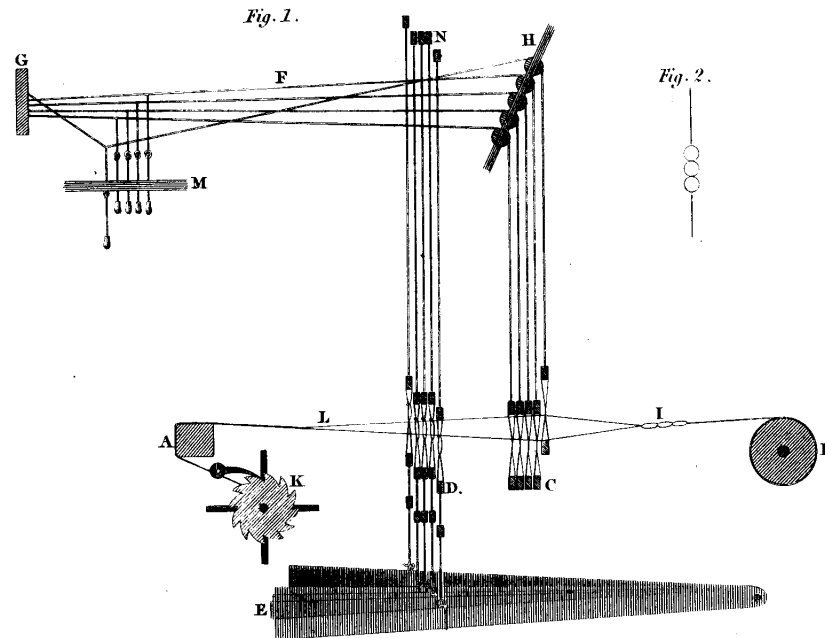


DIAPER LOOM.



DIAPER is a name given to a particular species of cloth, used chiefly for table linen. It is known by the French by the name of *toile fourré*, and is ornamented with the most extensive figures of any kind of tweeled cloth, excepting damask. The mounting of a loom for working diaper is, in principle, much the same as a draw-loom, but the figures being less extensive, the mounting is more simple, and

and is wrought entirely by the weaver, without the aid of any other person. As tweeled cloths, of any number of leaves, are only interwoven at those intervals when one of the leaves is raised, the woof above, and the warp below, is kept floating, or flushed, until the interfection takes place. Of consequence, the floating yarn above appears across the fabric, and that below longitudinally. This property of tweeled cloths is applied to form the ornamental figures of all kinds of tweeled goods, merely by reversing the floating yarn when necessary. In the simpler patterns, this is effected by a few additional leaves of treddles; but when the range of pattern becomes too great to render this convenient, an apparatus, called a *back harness*, is employed, and the cloth woven with this mounting is called diaper. Diapers are generally five-leaf tweel, that is to say, every thread of warp floats under four threads of woof, and is raised, and, of course, interwoven with the fifth. This is done either successively, forming diagonals at 45° upon the cloth, or by intervals of two threads, which is called the broken tweel. The latter is generally, if not universally, adopted in the manufacture of diaper. The reason of preferring the broken to the regular tweel, where ornaments are to be formed, is very obvious. The whole depending upon reversed flushing to give the appearance of the figures, and the regular flushing that of the ground, the appearance of oblique or diagonal lines through either would destroy much of the effect, and materially injure the beauty of the fabric. The broken tweel, on the contrary, restores to the tweeled cloth a great similarity of appearance to plain or alternately interwoven fabrics, and, at the same time, preserves the facility of producing ornaments by reversing the flushing. The simplest kinds of reversed tweels will be found in the articles *DIMITRY* and *DORNOCK*. The diaper mounting is represented by *Figs. 1 and 2. Plate VIII. Miscellany.*

Fig. 1, is the profile section of the mounting of a loom for diaper, viewed from the right side. A is the breast beam before which the weaver sits when weaving. After passing over this beam, the cloth is wound upon the cloth beam below, and kept fast by the ratchet-wheel K, which is secured by a catch, fixed to one of the side rails, or knees of the loom, as in plain weaving. The frame-work is not represented in the figure, because it would prevent the view of those parts of the mounting which are peculiar to diaper, and differs in nothing from that of a loom for plain cloth of equal breadth and strength of fabric. B is the yarn beam, and I the rods between which the threads of warp pass. At L is represented the point where the warp is interwoven with the woof to form the cloth. The lay and shuttle are not represented for the reason already given. The parts, in which the diaper mounting differs from that of most other looms, are at D and C. The former of these represents the treddles, in number five, worked by five treddles below at E, the front leaf being raised, the back leaf sunk, and the three intermediate leaves stationary. At C is the back harness moved, when necessary, by the weaver's hand, by pulling one of the cords above through the board M, perforated with holes, in each of which is a notch, to secure a knot upon the cord, when pulled down to raise the leaf.

In the figure the back leaf is raised, and all the others stationary. The motion is communicated by means of the cords attached to the leaves of the harness, which passing over the pulleys in the box or case H, are made fast to a piece of wood G, fixed to one side of the loom, or to the wall of the shop, as most convenient. The front treddles at D are connected by cords above to the top levers N, and the motion continued to the treddles by long and short marches, as

in other looms mounted for ornamental weaving. As diaper fabrics are always of strong coarse yarn, the eyes of the harness leaves are made of iron or copper, and are called nails; one of these is represented by *fig. 2*. The eyes of the front leaves are made of a length rather more than the whole depth of the shed to be formed. When a diaper loom is mounted, the effect of the harness is as follows: Let the tweel, which by reversing forms the figure, be one of five leaves. In this case five threads of warp are drawn through every mail of the harness, and one of these threads through every leaf of the front-mounting. According to each change of pattern, the number of back harness leaves is to be arranged. All those which are raised will then form the figure, and those which remain stationary, the ground. This is effected by the weaver pulling the cords which pass through the board G, until the number of leaves required be raised. He then presses down his treddles in succession, until a change is required. As the eyes in front are as long as the depth of the shed, those threads which pass through the mails which are raised will be sunk by the top of the eye, and the threads which are sunk by the harness, will be raised by the treddles. But as only one leaf of treddles is raised, one sunk, and three stationary, only one thread in every five will be affected by the front mounting, for the long eye of the treddle which rises will have no effect upon that part of the warp which has been already raised by the harness, and the leaf which sinks will have as little upon those which are already down. In the raised mails forming the pattern, therefore, four threads will always be above the woof, and one below; in the sunk mails for the ground, the exact converse takes place. The two crossed lines between the harness and front treddles will shew the effect produced. The pattern is thus produced entirely by the harness, and the remaining part of the operation is exactly the same as common tweeling.

In mounting diaper looms, the mails of the harness must be tied so low as to allow the warp to touch the race upon which the shuttle runs, that its motion may not be interrupted. When the webs are broad, it is also found convenient to use two sets of top levers, one set being at each side of the loom, in order to keep the leaves of treddles level, and to facilitate the weaver's power of treading, which in that, as in all heavy work, requires to be firmly done. The horizontal plan of the diaper mounting will be found in *fig. 8*; and the explanation of that figure in the article *DRAUGHT and Cording*.