

XXIV. *Specification of the Patent granted to Mr. ROBERT MILLER, Calico-Printer, at Milton Print-field, in the County of Dumbarton, Scotland; for a Method of weaving all Kinds of Linen, Cotton, Woollen, and Worsted Cloths, by Means of Looms wrought by Water, and which may be wrought by Steam-Engines, Horses, or any other Power; the Weaving being done at much less Expence, and much more expeditiously, than it is done at present by Weavers; and the Cloth so weaved being of a more regular Texture, and superior to what can be wrought by Hand.*

Dated June 26, 1796.

WITH TWO PLATES.

TO all to whom these presents shall come, &c.
Now KNOW YE, that the said Robert Miller, in
pursuance of, and compliance with, the said pro-
vise,

vifo, in the faid letters patent contained, and the purport and true intent and meaning thereof, and of his Majefty's faid moft gracious intentions, doth by this instrument in writing, under his hand and feal duly executed, particularly describe and afcertain the nature of his faid new-invented weaving-loom, and the manner in which the weaving is to be performed, according to the plan or drawing thereof hereunto annexed, in manner and form following; that is to fay, Fig. 1. (Plate VIII.) represents a fide-view of the loom, AA, BB, CC, DD, being the frame. *a* is an axis (which we fhall call the fpindle) acrofs the frame. On this axis is a fheeve *b*, two inches thick, having a groove round it, two inches deep, and half an inch wide. The bottom of this groove is circular, except in one part, *c*, where it is filled up to the top; a lever *d* refts on the bottom of this groove, and is lifted up by it, when the elevation *c* comes round to the fituation represented in the figure. By this motion, the lever *d* acts on the ratchet-wheel *e*, by the catch *t*, and draws it forward one tooth, each revolution of the fheeve. This ratchet-wheel is in
an

an iron frame *g g*, which also properly carries the two catches *t* and *u*, which are connected with it at *v*. The catch *u* holds the ratchet-wheel in its position, while the lever *d*, and the catch *t*, are moved by the groove *c* in the sheeve. On the arbor of the ratchet is a small pinion *b*, working in the wheel *f*; this wheel is fixed on the end of the roller *e*, of Fig. 3. On the side of the sheeve *b* is fixed a wiper *k*, which lifts the treadle *l*. This treadle turns on its joints in the sheeve *E*, which is fixed to the side of the frame *A* and *D*; it is kept preffing on the bottom of the groove in the sheeve, by a spring *m*, fixed to the frame side *A*, and having a slender rod *n*, from its extremity, joining it with the treadle at *l*. From the point of the treadle there goes a belt *o*, which passes over the pulley *p*, which is seen edgeways in this figure, and is joined to the top of the fly-pin *q*, of Fig. 2. At the end of the frame *A* is the short post *F*; on this rests the yarn-beam *j*, having a sheeve *r*, over which passes a cord, having a weight *s* suspended to it. The other end of this cord is fastened to the spring *v*; the weight causes the yarn-beam to

stretch the web from the ratchet-wheel *e*, with its catch *u*; and the spring *v* allows the rope to slide on the sheeve, as the ratchet is drawn round during the working.

Fig. 2. (Plate VIII.) is a front view of the loom. *aa* is the spindle which carries the sheeve *b*, and the wipers *d* and *d*, which move the treadles *w, w*, of Fig. 1. These use the treadles of the headles, with which they are connected, by cords from the shafts of the headles *s, s*. From the upper shaft there go two leathern belts *f, f*, to the roller *y*, furnished each with a buckle, for tightening them at pleasure. The two wipers *c, c*, on the shaft *a*, which serve for taking back the lay, have the two treadles *x, x*, in Fig. 3, with a belt from each, passing over the roller *b 2* of Fig. 1. and fixed to the sword of the lay. From the swords of the lay forward is fixed a belt to each end of the roller *i*; from this roller there goes a cord to the spring *j*, which serves for taking forward the lay, which is hinged on the rocking-tree *t*. The star-wheel *b*, of Fig. 3, and the sheeve *b*, of Fig. 1, are fixed to the opposite ends of the spindle *a*, without the frame; and
both

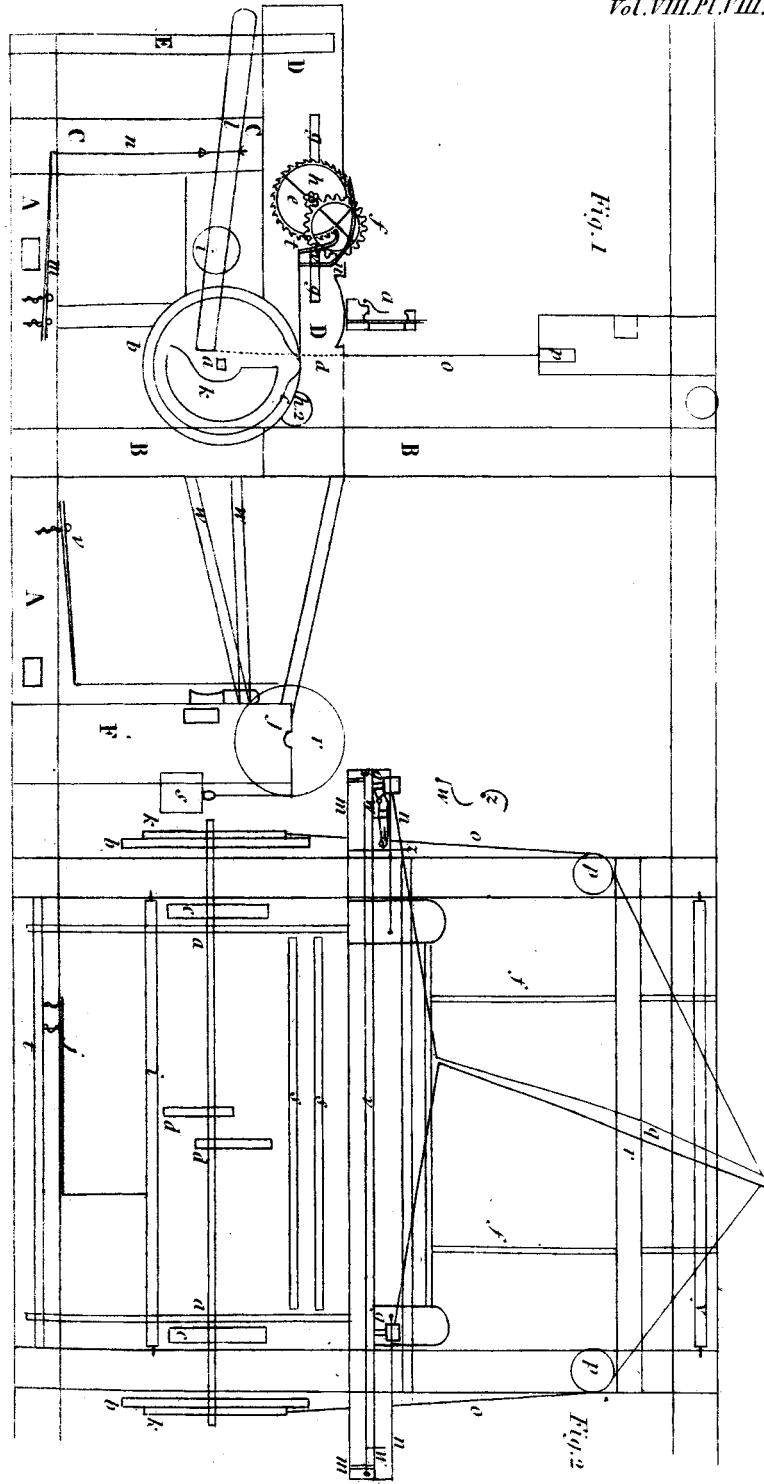
both the wheel and sheave have a wiper *k* fixed to them, for moving the treadles. In order to drive the shuttle, the belts *o, o*, go from the points of the treadles, over the pullies *p, p*, to the top of the fly-pin *q*; this turns on a pin-joint, in a rail *r*, which goes across the loom. From its lower end there go two small cords to the shuttle drivers *g, g*, which slide on the iron rods *n, n*. A long iron rod *v* goes across the lay, and is hung on two centres at the ends. In this rod *v* are fixed two small crooked wires *w, w*, which are more distinctly marked in the little figure *w* above, which represents a section of the lay. The dot at the lower end of the wire *w*, in this figure, is the section of the rod *v*. The shuttle passes between these wires and the lay, every shot, and lifts them up, causing the rod *v* to turn round a little. But, if the shuttle should not pass these wires, nor lift them, it would be drawn home by the lay, and destroy the web. To prevent this, there is fixed on one end of the rod *v*, a stout crooked wire *z*, having a broad or flat head, which naturally rests on a plate of iron, marked and fixed to the back of the lay.

This

This plate has a slit in its middle, about an inch deep. In this slit rests the rod *a* 2, of Fig. 3, on which is a short stud, which is caught by the wire *z*, when the wire *w* is not lifted back by the passing shuttle. This will stop the lay from coming home, and will set off the loom.

Fig. 3. (Plate IX.) is another side-view of the loom, opposite to Fig. 1. On the spindle *a* is the star-wheel *b*, on the outside of the loom-frame, on the arms of which wheel is fixed the wiper *k*, as the similar wiper is fixed to the sleeves on the other end of the spindle. The wipers, which drive the shuttles, are fixed on opposite squares of the spindle, and work alternately. Below the star-wheel is a pinion *c*, which is on a round spindle, turned by the water-wheel, by means of a wheel on this spindle. In a wheel on this spindle are two studs, on which the pinion *c* slides off and on, as the loom is set off and on by the lever *d*. At the farther end of this lever is the weight *s*, hanging by a cord which passes over a pulley *t*, fixed at the outer end of the spring-catch on which the lever *d* rests; and thus

the loom is drawn in at the upper end of the lever *d*: but, when the shuttle does not lift the wire *z*, it catches on the stud on the rod *a 2*, which is connected with the spring-catch, and the lever *d* flies off, with the weight *s*, and the loom stops working. On the head of the post *F* is the yarn-beam. The rollers *e* and *f* are cylinders, pressed together by a screw-lever, and take away the cloth between them at a proper rate. In the roller *f* is a groove for a band, for driving the roller *g*, on which the cloth winds itself as it is wrought. Wherever springs are mentioned to be used in the above description, weights may be used in their stead, and to the same effect, and more especially upon the treadle of Fig. 1, for driving the shuttle; and it is put in practice by the said Robert Miller, Patentee. In witness whereof, &c.



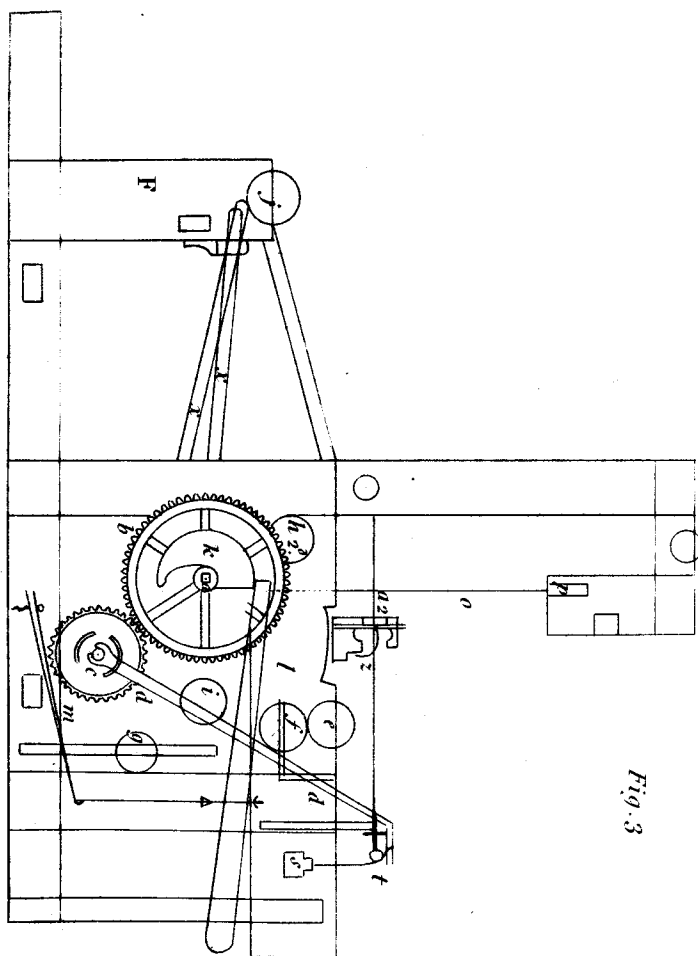


Fig. 3