Sheet 1 - 2 Sheets.

P. Joyot, Jr.

Weaving Pile Fabric.

No. 46,433. Patented Feb. 14, 1865.

Fig. 3.

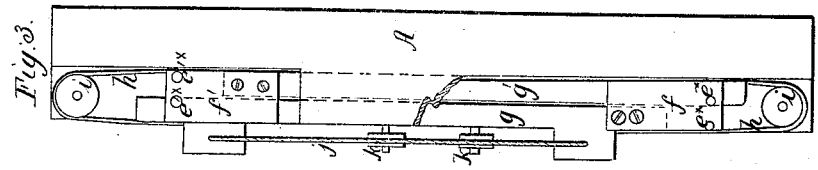


Fig. 2.

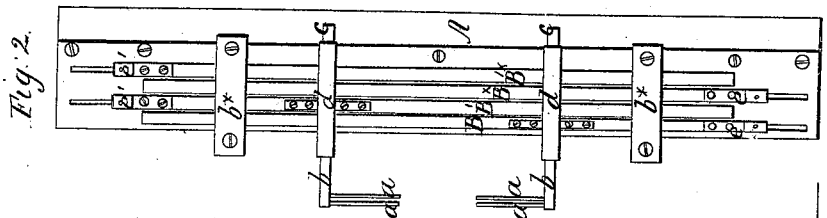
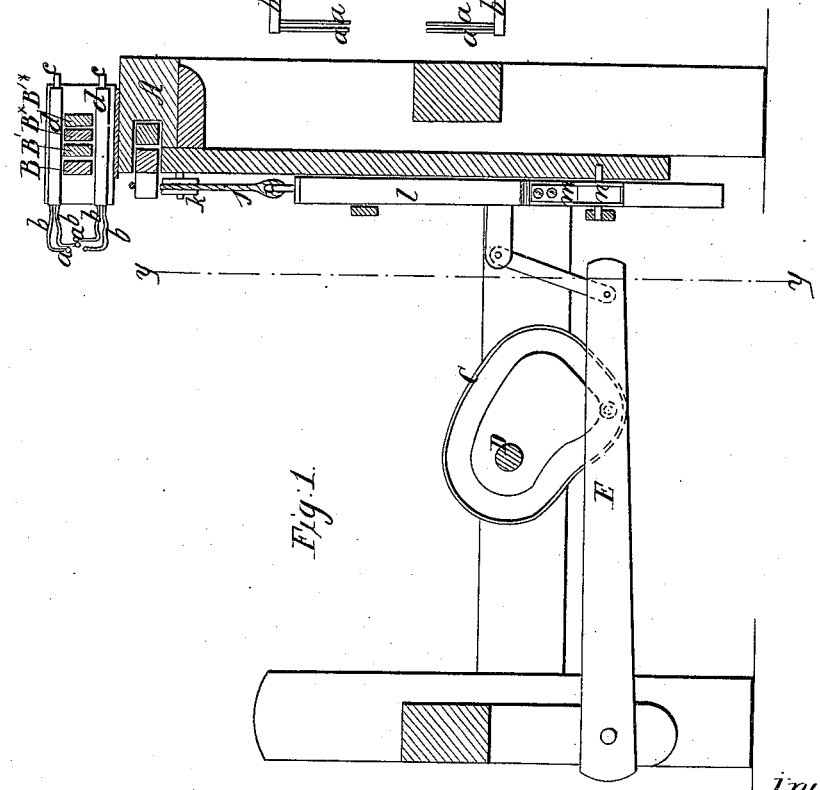


Fig. 1.



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Sheet 2-2 Sheets.

P. Joyot, Jr.
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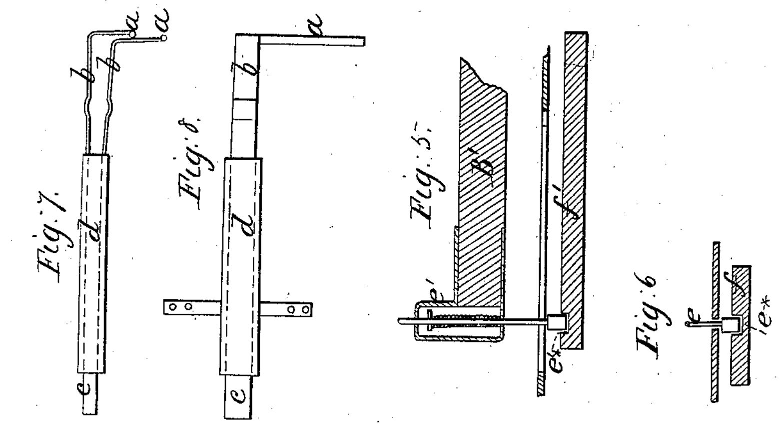

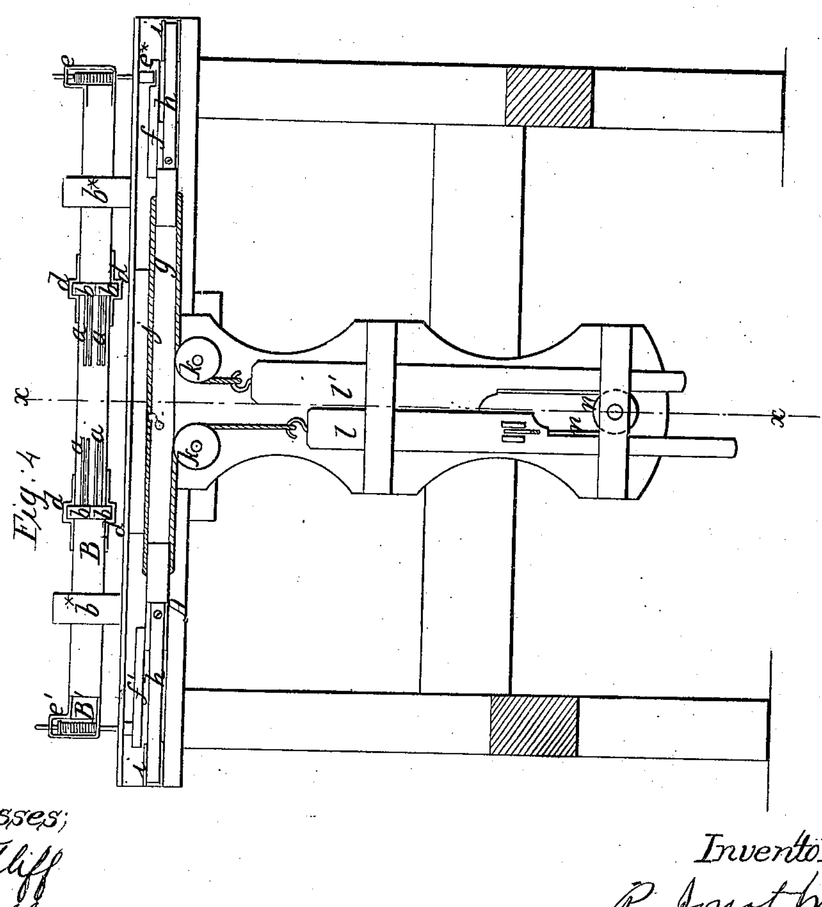

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UNITED STATES PATENT OFFICE.

PIERRE JOYOT, JR., OF PARIS, FRANCE.

IMPROVEMENT IN LOOMS FOR WEAVING DOUBLE-FACED PILE FABRICS.

Specification forming part of Letters Patent No. **46,433**, dated February 14, 1865.

To all whom it may concern:

Be it known that I, PIERRE JOYOT, Jr., of Paris, in the Empire of France, have invented a new and Improved Loom for Weaving Double-Faced Tissue, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this improvement, the line *x x*, Fig. 4, indicating the plane of section. Fig. 2 is a plan or top view of the same. Fig. 3 is a similar view to that shown in the previous figure, the top plate having been removed to expose the working parts. Fig. 4 is a transverse vertical section of the same, taken in the plane indicated by the line *y y*, Fig. 1. Figs. 5 and 6 are sectional views of the coupling device employed to impart motion to the forked pile-wires. Figs. 7 and 8 are detached views of the pile-wires.

Similar letters of reference indicate corresponding parts.

This improvement relates to the manufacture of a double-faced fabric or tissue, consisting of a combination of plain or figured and of velvet parts, the velvet presenting the peculiarity of having a flushing or pile on both faces or sides of the tissue, this pile or flushing being either cut or uncut—viz., forming either an ordinary flushing or a plush or shag. The tissue is more particularly intended to serve for ribbon. For manufacturing the same, any loom suitable for weaving either plain or figured velvet or velvet-ribbon, of whatever width, may be employed, the invention consisting in replacing the wires generally used for forming the pile by forks, one leg, branch, or prong of which serves for the upper and the other for the lower or back pile. The forked pile-wires may be so arranged as to be moved entirely by the loom itself without requiring the aid of the weaver, the mechanical parts being so arranged as to cause the said forks to enter the shed and afterward leave the fabric at the required moment, and thus produce a pile or flushing as well on the top as at the back of the tissue, while the said pile or velvet may be either plain or figured. The pile or flushing may be left uncut or the same may be cut up, either by having the free or farther end of the fork-prongs provided at the top with a cutting part; or the pile of the tissue may be cut after the same is woven by means of shears or any other suitable shaving or shearing apparatus, while the remainder or ground of the tissue may be woven plain, figured, twilled, striped, or according to any other suitable pattern or mounting.

The forked pile-wires are shown detached in Figs. 7 and 8. It will be seen each wire *a* is soldered at right angles to the end of an elastic arm, *b*, by preference made of spring-steel, and the other end of said arm is secured to a guide-piece, *c*, which is allowed to glide in a suitable tube or box, *d*, and thus cause both wires simultaneously to perform their advancing and receding motions. The tubes or boxes *d* are fixed on opposite sides of the ribbon or other material to be woven in the loom to different traversing sliding rules B B* and B′ B′*, which rules glide in brackets *b**, fixed to the breast-bar A. In the drawings four such rules are represented, and the rules B and B′ have the boxes *d* attached to their upper and the rules B* and B′* have them attached to their lower edges. Each of the rules has attached to one of its ends a spring-catch, *e* or *e′*, which, on being depressed at the proper moment, drops into a socket, *e** or *e′**, in a reciprocating plate, *f* or *f′*, thus causing the rule to move in the direction in which the plate moves. The plates *f f′* are secured to the opposite ends of two slides, *g g′*, which work in a suitable recess on the breast-beam A, and to which motion is imparted by connecting them to the opposite ends of belts *h*, passing over pulleys *i*, which rotate freely on studs inserted in the breast-beam A, as clearly shown in Figs. 3 and 4 of the drawings. The slide *g* also connects by a cord or belt, *j*, running over pulleys *k*, with two vertical slides, *l l′*, (see Fig. 4,) the lower ends of which are connected to each other by a belt, *m*, running over a pulley, *n*, and a reciprocating motion is imparted to these slides in opposite directions by a cam, C, on the shaft D, acting on a lever, E, which connects with one of the slides *l*. The motion of the slides *l l′* being transmitted to the slide *g* causes the same to assume a reciprocating motion, and by the action of the belts *h* the slide *g′* moves in a direction opposite the slide *g*.

It is obvious that different mechanism might be employed from that above described, and shown in the drawings, to produce the desired motion of the plates *f f'*; and I do not wish to confine myself, therefore, to the mechanism hereinbefore described, but reserve the right to employ such mechanism as I may deem proper or convenient to effect the desired purpose.

The guide-pieces *c* are connected by suitable mechanism with the lay or batten of the loom, so that the pile-wires are moved toward the batten or driven back into the open shed at suitable intervals. The upper wire of each fork is intended to enter in the upper shed of the pile-warp and the lower wire in the lower shed, the heddles being actuated in such manner as to open simultaneously one pile-warp shed above and one underneath the ground-warp.

By providing the free end of the wires of each fork with a cutting-edge the pile may become cut up at once by the said wires on withdrawing from the fabric. The cutting of the pile, however, may also be obtained after the fabric is woven by shearing or shaving. When employing wires provided with a cutting-edge, instead of one pair of wires two or more should always remain inserted before withdrawing the others. For this purpose, instead of making use of one pair of forks for each piece of fabric in the loom, two or three pairs of forks might be used—each of these forks fixed to their respective slides or traversing rules B B* B' B'*, receiving motion from the loom in any suitable manner. The number of pairs of forks in that case depends, of course, on the mounting made use of—viz., whether more or less picks of weft are thrown in for each wire.

It will be further understood that the invention is applicable to the weaving of ribbon, small ware or coach-lace, velvet, or other similar fabrics, whether made of silk or any other suitable textile material.

I claim as new and desire to secure by Letters Patent—

In the manufacture of a double-faced fabric or tissue, presenting either a cut or non-cut pile-velvet on part or on the entire of both surfaces of the fabric or tissue, the application, instead of the ordinary pile-wires, of double-pronged forks, one prong or wire of which serves for forming the upper and the other prong for forming the lower pile, the said prongs or wires being either provided with a cutting-edge or not, and the forks being moved automatically by the loom, substantially as set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

JOYOT, JR.

Witnesses:

E. SHERMAN GOULD,

DAVID THOS. FULLER.