A. Faulkner.
Weaving Pile Fabric.

No. 6,316. Patented Apr. 17, 1849.

Fig: 2.

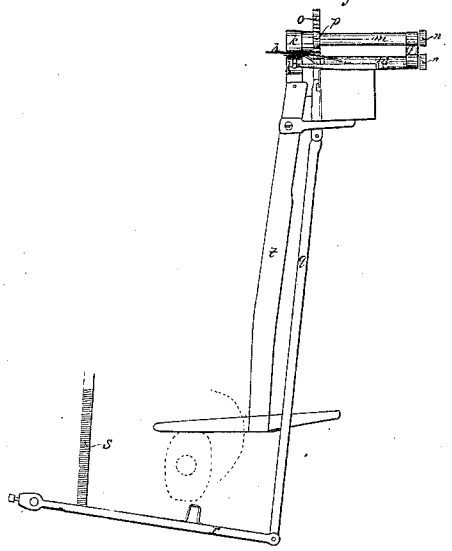


Fig: 3.

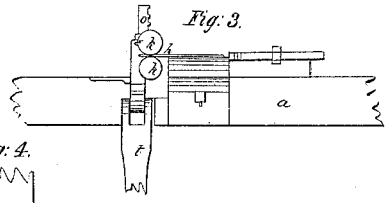


Fig: 4.

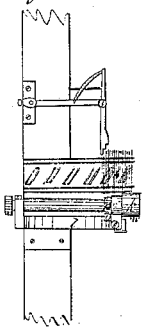


Fig: 5

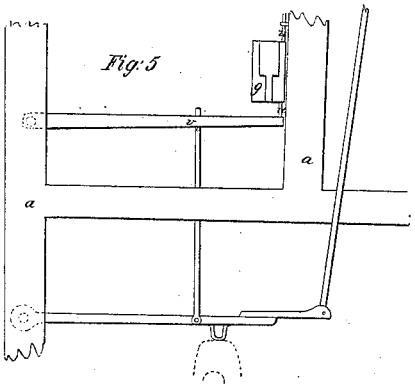
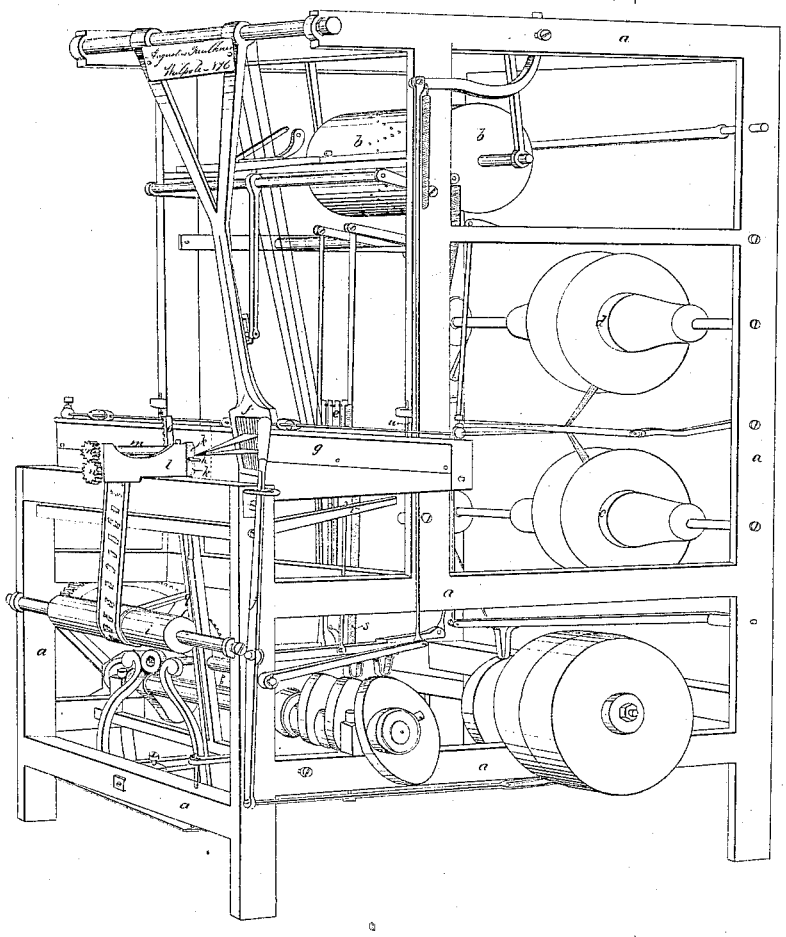


Fig: 1.



UNITED STATES PATENT OFFICE.

AUGUSTUS FAULKNER, OF WALPOLE, NEW HAMPSHIRE.

LOOM FOR WEAVING.

Specification of Letters Patent No. 6,316, dated April 17, 1849.

To all whom it may concern:

Be it known that I, AUGUSTUS FAULKNER, of Walpole, in the county of Cheshire and State of New Hampshire, have invented certain new and useful Improvements in Looms for Weaving Velvets, Figured Fabrics, and for other Purposes, of which the following is a full and exact description, reference being had to the annexed drawings of the same, making part of this specification, in which—

Figure 1 is a perspective view of a loom with my improvements applied thereto. Fig. 2 is a view of the left side of the cylinders or rolls for withdrawing the wires from the raised warp and replacing them in the shed; and of the rack, pinion, cams, levers, connecting rod, and other appendages for operating the same. Fig. 3 is a view of the back end of the rolls, and a section of the web, showing the rolls in the act of withdrawing a wire. Fig. 4 is a top view of the rolls, and so much of the web as is occupied by the wires. Fig. 5 is a sectional view showing the cams, levers, rods, slides and other apparatus for raising and lowering the shuttle box.

The same letters indicate the same parts in all the figures.

The front-end and right-side of the machine are designated upon the drawing, by which it will be understood to what positions the terms "front", "rear", "right" and "left" employed in the description are intended to refer.

In looms for weaving velvets, and such figured fabrics as Brussels carpet, coach lace, &c., upon which the figure is formed by loops of the warp, raised on the surface of the cloth, upon transverse wires, it has long been considered a desideratum to devise some automatic mechanism, at once simple, efficient, and not liable to be easily deranged, by which the figuring wires could with certainty and despatch be withdrawn from the finished part of the figure and carried forward and placed in the shed of the figuring warp to have loops again raised upon them in continuation of the figure. These objects I believe I have attained fully, in my present invention, and besides, I have given to the shuttle box, a vertical reciprocating motion, which brings it alternately on a level with the upper and the under side of the ground or foundation warp, in the proper position for throwing the shuttle, by which one set of heddles is dispensed with, the ground warp can be kept more evenly and tightly stretched, which will as a matter of course, render the decussation more regular, and symmetrical, and the appearance of the cloth smoother and more beautiful. In consequence of this increased evenness of the ground warp, and the unchangeableness of its position, the figuring wires are not so liable to get entangled, while being placed in the shed, nor so readily become deranged afterward, and the warp itself is less abraided, to say nothing of the length of time saved, by having to thread the warp through one set of heddles less, nor the expense of keeping these heddles in repair.

In the accompanying drawings, the frame (*a*), the figuring cylinder (*b*), with its appendages, ground-warp-beam (*c*), and covering warp beam (*d*), the heddles (*e*), the lay (*f*) with its reed, the shuttle box (*g*) with its appendages, (excepting the arrangements for communicating to it the reciprocating vertical motion), the figuring wires (*h*), the cloth beam (*i*), the lever (*j*) for shifting the main belt from the fast to the loose pulley and vice versa, the cog wheels, belts, pulleys, shafts, cams, levers, connecting rods and spring, are in the main constructed and operated in the same manner as the corresponding parts of other looms, I therefore make no pretension to having invented them, and do not deem a particular description of them essential to a proper understanding of the parts which I do claim to have invented. The latter I will now proceed to describe, beginning with the apparatus for withdrawing from the figure and placing in the shed the figuring wires.

I will premise that, a sufficient number of wires are employed to produce by the decussation of the warp, such an amount of friction that the tension of the warp after all the wires have been inserted, will not draw down the series of loops first formed, when the wire beneath them is withdrawn to be carried forward and placed in the shed in continuation of the process. The wires are withdrawn from the figure in the same order in which they are inserted, so that all change their places in regular succession, a number of times directly proportioned to the length of the web. To seize and draw out these wires from the cloth, I have devised the rolls (*k k*) which are mounted in

the sliding frame (*l*) upon the rear end of the shafts (*m m*), the front ends of these shafts being interlocked by cog wheels (*n n*) the upper shaft rests upon fixed bearings at both ends but the lower shaft at its rear end is placed in a slot, that the lower roll may be separated far enough from the upper roll to admit the figuring wires between them, the rolls being pressed together by a spring weight or otherwise with sufficient force to draw out the figuring wires when placed between them, a projection (*w*, Figs. 1, 3, and 4) on the periphery of the upper roll, comes round between the rolls, after proper intervals to separate them to receive and discharge the wires. These rolls are put in motion by the rack (*o*) which takes into the pinion (*p*, Figs. 4 and 2), on the upper shaft (*m*) the rack is jointed to the connecting rod (*q*) whose lower end is jointed to the lever (*r*) which is acted upon by a cam that at suitable intervals depresses it, at the same time depressing the connecting rod, and the rack, and turning the rolls so as to discharge the wire held between them, into the shed. A spring (*s*) suitably arranged raises the lever and the rack as soon as they are received by the cam, which motion of course reverses the action of the rolls, and they will now seize another wire, and withdraw it from the figure, to be carried forward and again placed in the shed by the down stroke of the rack. The rolls are alternately advanced to the proper position to project the wires into the shed, and moved back to withdraw them from the finished figure by the vibrating arm (*t*) jointed to the front end of the reciprocating frame or carriage (*l*) which slides in suitable guides, parallel to the selvedge of the cloth, and on the breast beam of the loom, the arm (*t*) is secured to a rock shaft, which is moved in one direction by a cam acting upon it at suitable intervals, and in the other by a spring.

The shuttle box (*g*) is made in the usual manner, but instead of being stationary, as in looms of the usual construction for such purposes, it is alternately raised and lowered to bring it on a level with the shed formed alternately on the upper and under side of the ground warp. At right angles to the upper and under side of the shuttle box, the rods *u u u u* project, which rods guide and support it, the upper rods passing through eyes made vertically in a bracket projecting from the posts of the frame, while the lower rods rest in sockets in the upper side of the levers (*v*) these supporting levers are raised and lowered by the action of cams, levers and connecting rods, at such intervals as are necessary for bringing the shuttle box into the proper position for throwing the shuttle.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The method substantially as herein described of withdrawing the wires from the raised warp or figuring of the fabric, carrying them forward and replacing them again in the shed, by means of rolls, receiving their different motions from machinery arranged as herein set forth or in any other substantially equivalent manner.

2. I also claim giving to the shuttle box a vertical alternating motion for the purpose of directing the shuttle through the shed alternately above and below the ground warp, when the ground warp remains constantly stretched in the same plane, and the shed is formed simultaneously with the elevation and depression of the shuttle box, by the alternate deflection of the covering warp above and below the ground warp, substantially as herein set forth.

In testimony whereof I have hereunto signed my name in presence of two subscribing witnesses.

AUGUSTUS FAULKNER.

Witnesses:
JOHN L. SMITH,
P. H. WATSON.