

A. Faulkner. Loom.

Sheet 1-2 Sheets.

N^o 6813.

Patented Oct. 23, 1849.

Fig. 1.

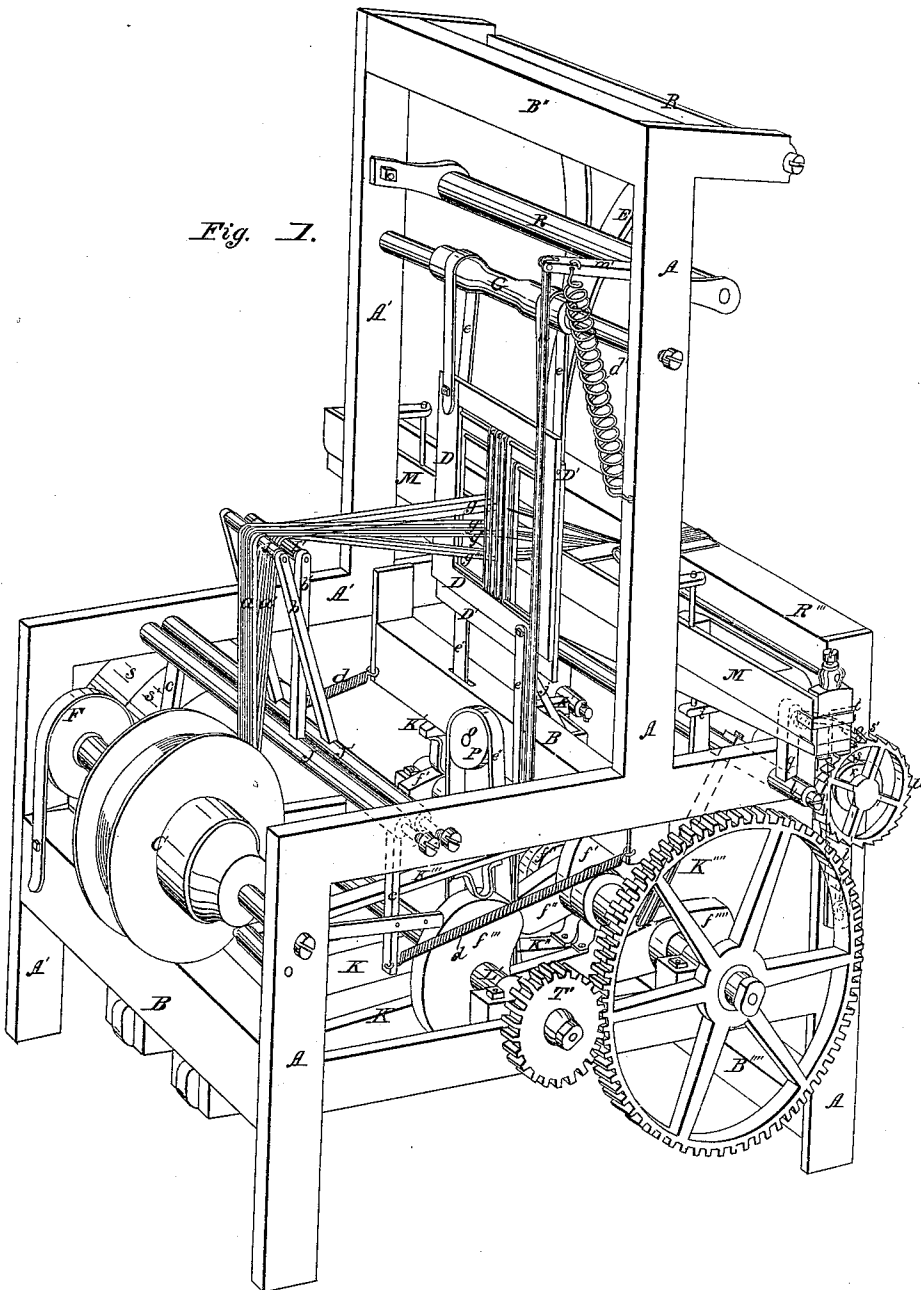
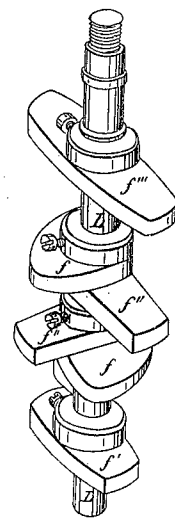


Fig. 2.



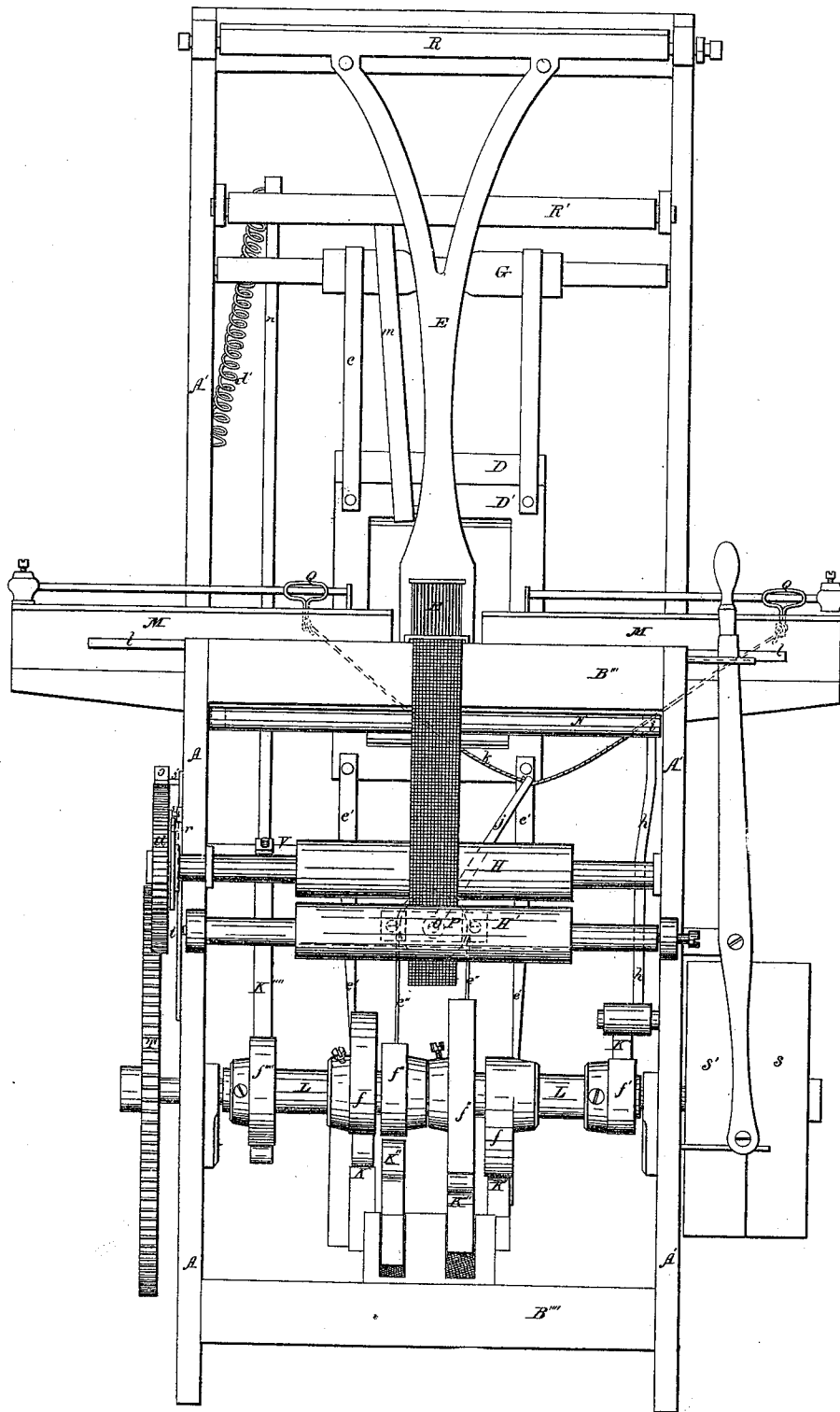
A Faulkner
Loan.

Sheet 2-2 Sheets.

N^o 6,813.

Patented Oct. 23, 1849.

Fig. 3.



UNITED STATES PATENT OFFICE.

AUGUSTUS FAULKNER, OF WALPOLE, NEW HAMPSHIRE.

LOOM.

Specification of Letters Patent No. 6,813, dated October 23, 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 Power-Looms for Weaving Cylindrical Webs, but particularly applicable to the manufacture of cylindrical lamp-wicks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a perspective view of my improved loom complete, Fig. 2 a view of the main cam shaft, and Fig. 3 an elevation of the back of the loom.

The nature of my improvements consists, first, in a particular arrangement and movement of the heddles by which two separate sheds are produced through one of which the shuttle carries the weft in moving from left to right and through the other in moving from right to left, the shuttle always moving in the same direction through the same shed, thus forming a continuous tubular web; second, in the attachment of spring or weighted whip rolls or rods by which the slack of the warp is taken up, and, third, in the arrangement for drawing the cloth through the loom with unequal velocity, so as to render its texture alternately closer and more open in different portions of its length.

In the drawing A A' represent the side framing of the loom united by suitable cross ties B, B', B'', B''', B''''; C is the yarn or warp roll; D D', the heddle frames; E the lay, and H H' the cloth rolls.

The warp is wound upon the yarn roll C in two equal layers *a*, *a'*, evenly spread over the breadth of the roll, which has its motion suitably retarded by the lay E, thence each portion passes over its corresponding whip rolls I, I'; each of these is attached by radius bars, *b*, *b'*, to the oscillating shafts J J' which have each an arm *c* depending from them, to whose lower extremities springs *d* are attached which acting on the whip rolls I, I', take up the slack of the warp caused by the alternations of the heddles. The yarn passes from the whip rolls to the heddles; these last are arranged in two frames D D' connected with each other by straps *e* passing over the roller G, the heddle frames are also connected by

straps *e'* with the treadles K, to which an alternating motion is given by cams *f*, attached to the shaft L of the loom. Each heddle has two eyes and the warp is divided into four equal portions *g*, *g'*, *g''*, *g'''*.

The yarns *g*, *g''* pass through the eyes of the heddles in the frame D; and the yarns *g'*, *g'''* through those in the frame D'. The upper yarns of each set of heddles combine to form the upper shed, and the lower yarns of each set, the lower shed. The yarns of that portion of the warp which passes over the whip roll I' are divided to pass through the upper eyes of the heddles D and the lower eyes of the heddles D', while that portion which passes over the whip roll I is divided to pass through the lower eyes of the heddles D and the upper eyes of the heddles D'. By turning the shaft L around, the cams *f* acting on the treadles K alternate the heddle frames D, D', and the relative positions of the yarns of each shed are reversed, the lower yarns taking the place of the upper ones and the upper of the lower ones. If now a shuttle be thrown through the upper shed and returned through the lower one, and the operation be continued it is plain that a double web will be produced, the upper and lower portions being united at their edges; to accomplish this, the shuttle boxes M are alternately raised and lowered by the action of a cam *f'* acting on the extremity of a lever K' which is connected by the rod *h* with an arm *i* projecting from one extremity of an oscillating shaft N at the back of the loom; the opposite extremity of this shaft is also furnished with a projecting arm *i'* parallel with and of the same length as the first (*i*) and the shuttle race and boxes M are supported on the extremities of these two arms; the revolving cam *f'* acting through the lever K' rod *h* and arms *i* *i'* raises and lowers the shuttle boxes, and is of such shape that there shall be two dead motions while the shuttle is passing alternately through the upper and lower sheds. The shuttle is thrown by a picker staff *j* projecting upward from an oscillating shaft O. This shaft has a pulley wheel P, mounted upon it to which a strap *e''* is secured; the extremities of this strap passing down the opposite sides of the pulley are attached to the alternating treadles K'', to which motion is given by cams *f''* mounted upon the shaft L.

The picker staff *j* is connected with the drivers *Q*, by cords *k* which are sufficiently long to avoid interference with the rising and falling of the shuttle boxes, and the shock of the shuttle against the opposite driver is prevented by springs *l*, which destroy its velocity in the shuttle boxes. After each passage of the shuttle the weft is driven up by the lay *E*, this contains the reed *E'* and depends from an oscillating shaft *R*, the lay is driven by an arm *m* depending from a second oscillating shaft *R'*, an arm *m'* projects from the shaft and is connected by a rod *n* with a lever *K'''* to which a vibrating motion is given by the cam on the shaft *L'*. This cam acting through the lever *K'''* rod *n* and arms *m, m'* raises the lay from the weft; the return motion or driving is effected by the spring *d'* acting on the arm *m'*. The shaft *L'* has a loose (*S*) and fast (*S'*) pulley attached to one of its extremities, to which the driving power transmitted to the loom through a belt is applied; this shaft *L'* gives motion to the main cam shaft *L* by wheels *T', T*, mounted upon the respective shafts. The cloth is drawn through the loom by two rolls *H, H'* between which it is passed. One of these rolls (*H*) has a ratchet wheel *U* mounted upon its axis in whose teeth the pawl *o* catches; this pawl is hinged to the projecting extremity of an upright arm *p* to which a vibratory motion is given by the cam *f''''* acting on an arm *K''''* depending from the shaft *V*, from which the upright arm *q* projects. By the forward vibration of this arm *q* the pawl is drawn toward the center of the shaft *V* and slides over the inclined faces of the ratchet wheel *W* without moving the roll; by the return stroke of the arm the pawl *o* is projected from the shaft and catching against the radial faces of the teeth of the ratchet wheel, turns the roll *H*. The lower roll is moved by the friction of the cloth passing between it and the upper. By the action of these rolls the finished web is drawn through the loom in one continuous sheet until the warp on the yarn roll is expended.

In weaving lamp wick it is desirable that

the end of the wick which is received on the wick holder should be of firmer and closer texture than the remainder. This is accomplished in my loom by making the circumference of the cloth rolls *H, H'* equal to the length of a single wick, and lessening their speed while that portion of the web is woven which is to be secured to the wick holder, while the speed of the other members of the loom is not changed. This retardation in the motion of the roll is effected by raising the pawl *o* so high that it can only propel the ratchet wheel forward the space of one tooth at each vibration, while during the wearing of the remainder of the wick the pawl is lowered and moves the wheel the space of two teeth. To raise and lower the pawl at suitable intervals, I attach a cam wheel *r* to the roll shaft *H* this cam acts upon a pin *s* attached to a slide *t* on the frame of the loom; a second pin projects from the slide beneath the pawl, as the cam wheel revolves the slide *t* is alternately elevated and depressed, and by it the pawl *o* is raised and lowered at proper intervals depending upon the form of the cam wheel *r* thus producing a corresponding closeness or openness in the web.

Having thus described the construction and operation of my loom for weaving tubular webs what I claim therein as new and desire to secure by Letters Patent is—

1. Straining the several divisions of the warp from the same yarn beam, equally, by passing the adjacent yarns of the respective sheds over the same whip roll, the extreme yarns being passed over a second whip roll, substantially as herein described.

2. I likewise claim varying the closeness of the texture of the web by varying the speed of the rolls (*H, H'*) by which it is drawn through the loom, by devices substantially such as herein set forth.

In testimony whereof I have hereunto signed my name this 14th day of May 1849.

AUGUSTUS FAULKNER.

Witnesses:

WM. D. WASHINGTON,
P. H. WATSON.