J. NOBLIT.

HAIR CLOTH LOOM.

No. 31,992. Patented Apr. 9, 1861.

Fig. 1.

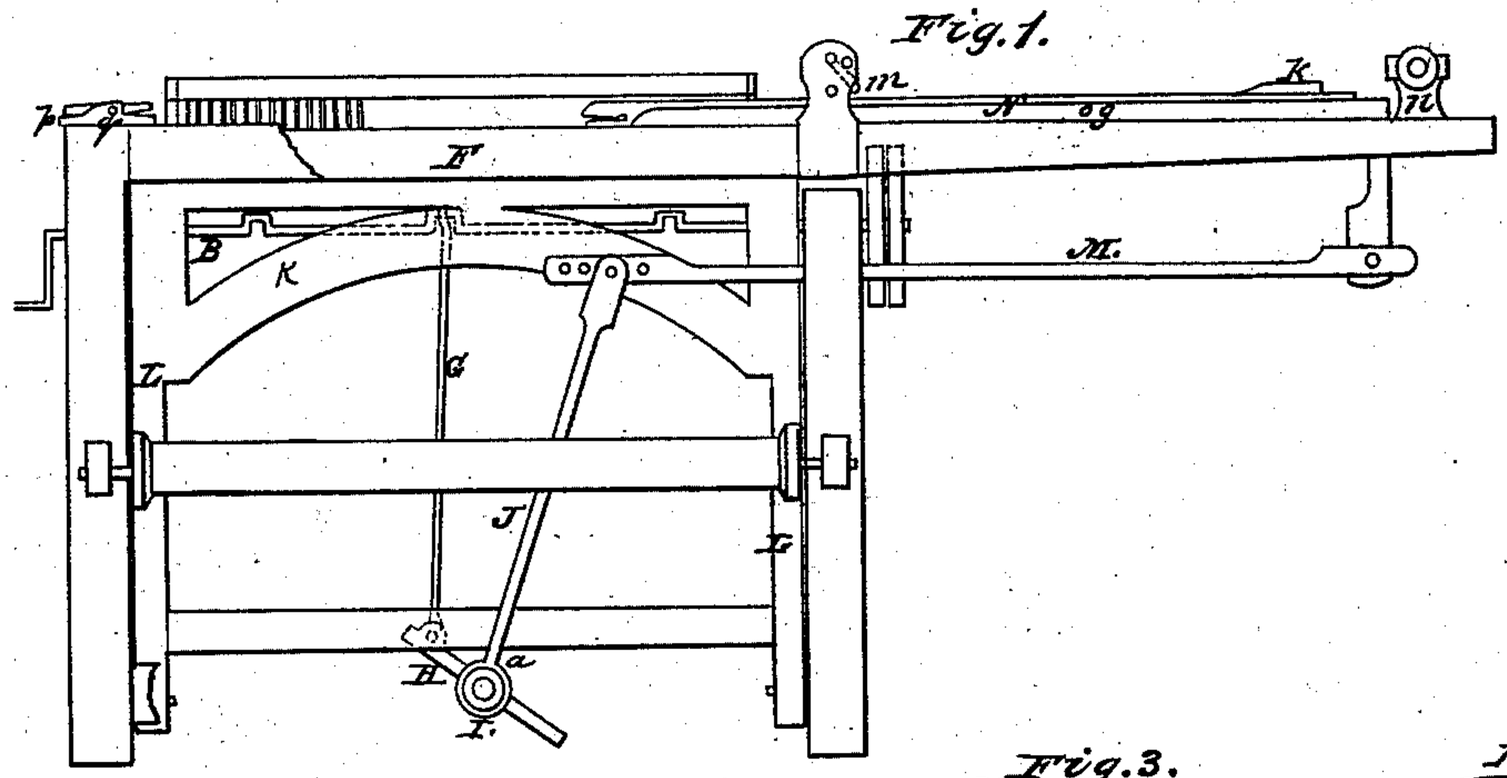


Fig. 3.

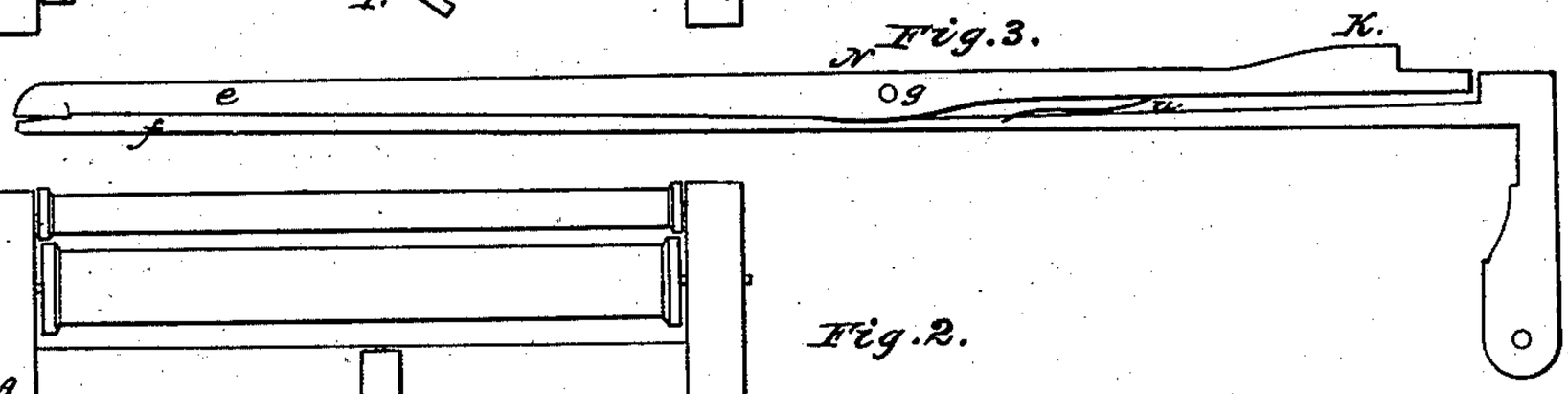
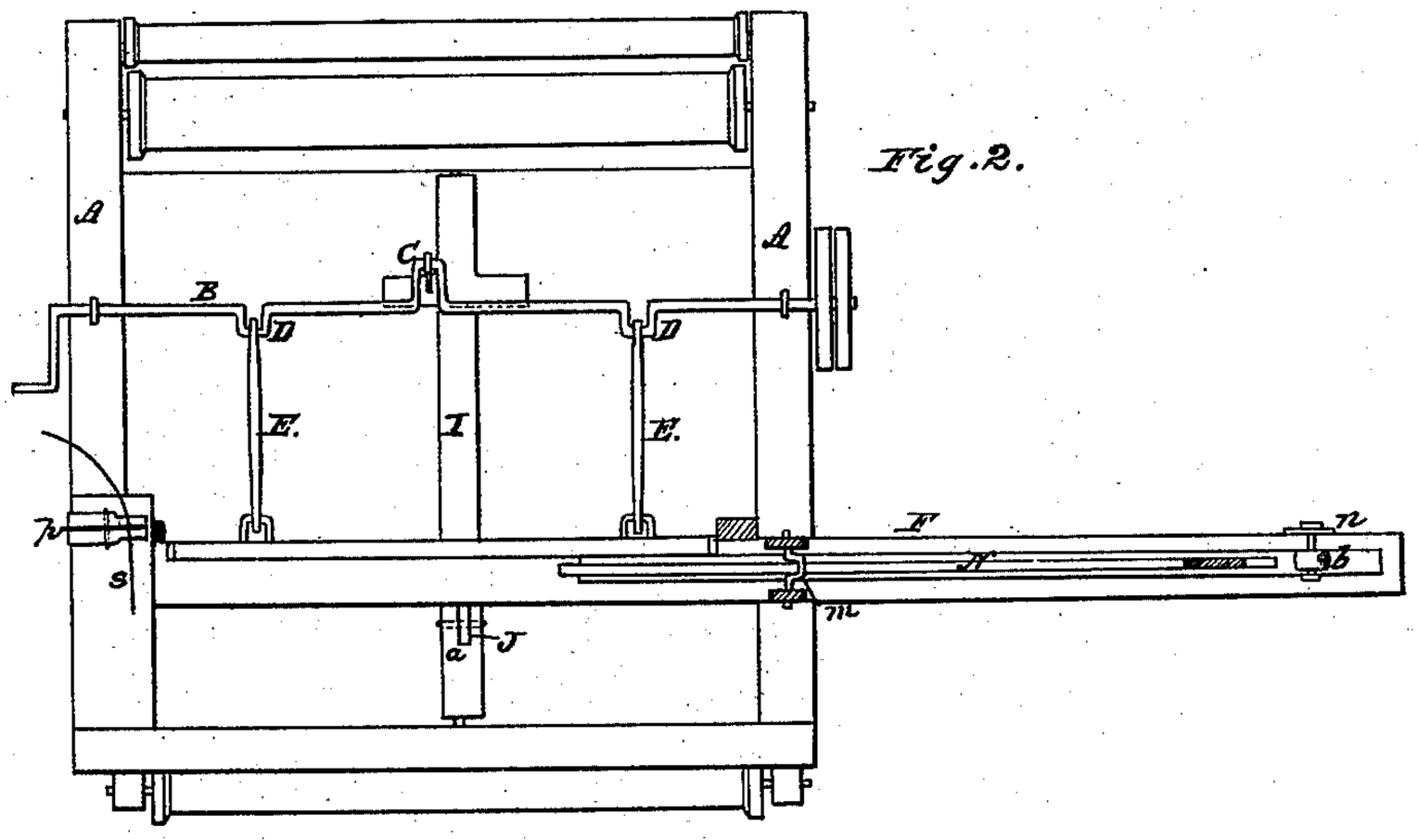


Fig. 2.



UNITED STATES PATENT OFFICE.

JOHN NOBLIT, OF PHILADELPHIA, PENNSYLVANIA.

HAIRCLOTH-LOOM.

Specification of Letters Patent No. 31,992, dated April 9, 1861.

To all whom it may concern:

Be it known that I, JOHN NOBLIT, of the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Power-Looms Adapted to Weaving Haircloth or Similar Fabrics; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

The production of a loom operated by power to accomplish the weaving of a substance like hair, and practically accomplish thereby, what has hitherto been done by a hand loom, has been sought for. One of these attempts is a loom patented in 1853 to Glenhill which failed to accomplish the end in view from radical defects of construction and operation; he has it is true made an advance over the loom of C. B. Harvey, patented in 1837 in substituting a nipper instead of a hooked rod used in that invention but from the mode of action or movement of the jaws of the nipper, the hair was as frequently cut off or broken by the suddenness of the movement as it was carried through the shed and thus the lay beat on empty space more frequently than on the hair it was expected to do. Another practical difficulty he fell into was in attempting to feed by automatic means the hair to the nippers, as a substitute for the server (or person who places the hair for the catch of the nipper) the consequence of which was the loss of hair from being irregularly drawn out by the turning hook and the breakage of delicate hair in the straining of it.

The practice prevailing to this day in weaving hair cloth is the use of the hand loom in which the hair is caught on the end of a hooked rod projected through the open shed and the retreating rod taking the hair with it and depositing it to be beat up with the lay, this is necessarily a slow and wasteful procedure as the hair must be longer than the width of the fabric to insure a good article.

The character of the improvements I have made consist in rendering much more simple the mechanism of the loom, while its efficiency and certainty of action is increased and by the method or means by which the hair is taken up and released in the shed before the beat of the lay, I have obtained a superior fabric without loss of material in the manner adverted to, and have effected a saving of the quantity of hair itself by the regularity of its deposit in the shed and certainty of the lay carrying a hair with it in its beat.

The simplicity I allude to is in the adaptation of a crank-shaft in connection with a rock shaft &c. as hereinafter described, said crank shaft having a double function, that is in having the throw of one part of the crank to operate the lay, while the other part effects the movement of a pair of nippers in a novel and more efficient manner than heretofore.

By my arrangement of feeding from a fixture attached to the framing of the loom I obtain a more certain feed of the hair than in the ordinary hand loom: I do not however pretend to have made a substitute for or a means of dispensing with the personal service of a server, by any automatic means: the attempts to reduce such devices to practice have signally failed, but as before observed I do afford a certain means of securing the feed of hair, by the most simple arrangement, without in the least degree interfering with the motion of the lay.

By making use of a crank I obtain a certain and positive motion to actuate the picker stick or rod giving movement to the nippers.

To enable others skilled in the art to make and use my improvement I would describe it as follows:

The framing of the loom, the rollers, &c., are of the usual construction of power looms: on suitable boxes on the cross framing of the ends A, A, of the loom I place a crank shaft B., the cranks thereof so arranged to each other that the center one viz *c* shall be at or near right angles to those on its side viz D D: E E are rods extending from the cranks to the lay F; and by which it is actuated: G is a rod connecting the center crank *c* with the arm H, of a rock shaft I whose line of direction is at right angles to that of the crank shaft and lay: J, is an upright arm rising from and connected with the rock shaft by a mortise *a* in said shaft: the lower end of J drops in the mortise being secured therein by a bolt passing through it, which allows of a slight motion to accommodate itself to the lay in its movement: the upper end of J has a double fork one of which embraces the edge of an arc K, se-

cured to the uprights L L of the lay frame the other fork of J carries the end of a pitman rod M whose office is to move the nippers N, backward and forward in an easy and smooth manner so highly essential for the work the nipper has to perform: F is the lay, having the race board sufficiently extended to allow of the full play of the nippers thereon, in a groove *b*, formed for retaining the nippers in their play back and forward.

The nippers N may be made of wood or iron of a length proportionate to the width of the loom or cloth to be made therein, the jaws *e*, and *f* are made flat, the upper one alone works and that on a pivot or hinge *g*, connecting it with the lower jaw: they are kept closed by a flat spring *h* placed at the end of the nippers; this keeps the jaws tight except when opened by pressure on the top jaw, and to effect this opening I place on said jaw a projection or inclined plane *k*, which passing under a swing stop *m* (or its equivalent a cam) causes the mouth of the nipper to open in the forward movement and catch the hair presented in the jaws of a fixture hereafter to be described. This plane *k* also causes the release of the hair in the shed by the square end coming in contact with and passing under a roller on a post *n*, secured to the side of the race way; it is by means of this post *n*, that I make a better cloth on the selvage than could be done where the hair has to be drawn from the nippers after the beat of the lay, as it frequently occurs that the hair is carried back by the nippers and drawn out after the beat of the lay.

The fixture in which the hair is placed by an attendant called a server is as follows: *p*. represents a device formed of a light spring secured in a block *q*, attached to the end of the frame of the loom; with the block the spring forms a small jaw for slightly retaining the hair when placed there the tension or pressure of the spring being so slight that an easy withdrawal of the hair is effected by the retreat of the nippers after clasping it in their closed jaws.

s, represents a hair in the above device ready to be taken by the nippers N.

Having described the improvements I have made in looms for weaving hair cloth what I claim is—

Driving the nippers in a hair cloth loom, by means of the rod J. and rock shaft I. when the latter is caused to oscillate by a crank on the same shaft which drives the lay, substantially as described.

JOHN NOBLIT.

Witnesses:
JOHN F. CLARK,
JOHN S. WILLINGSHEAD.