

L. Ferguson. Weaving Pile Fabric.

N^o 81,487.

Patented Aug. 25, 1868.

Fig: 1.

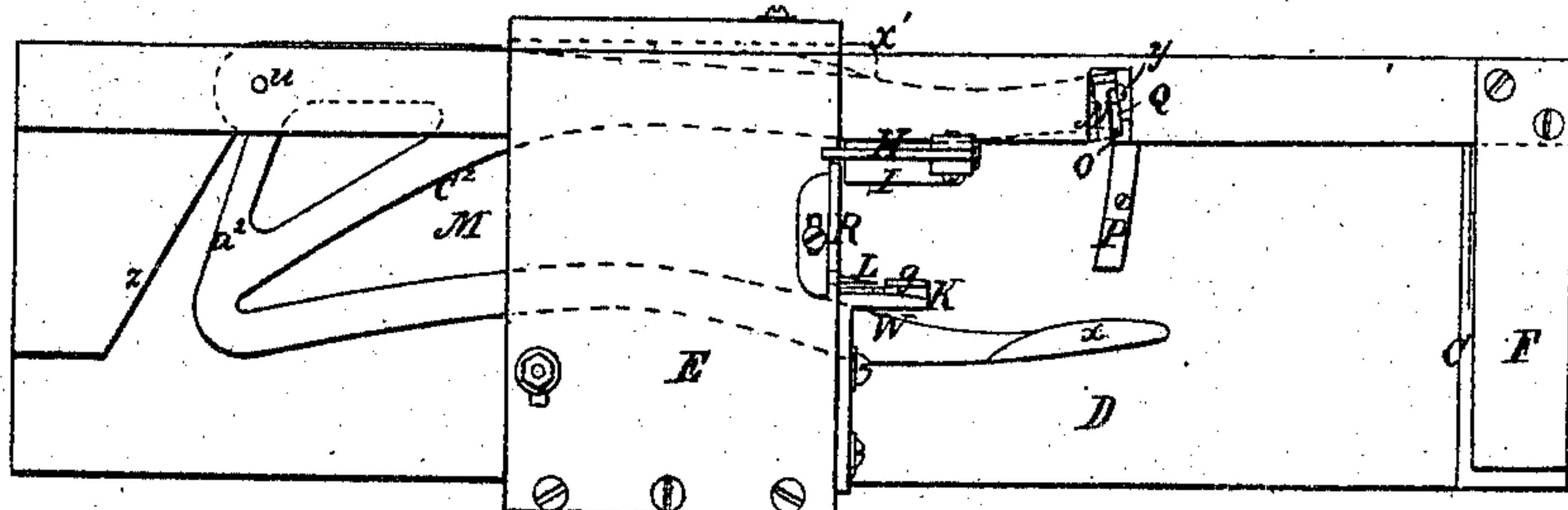


Fig: 2.

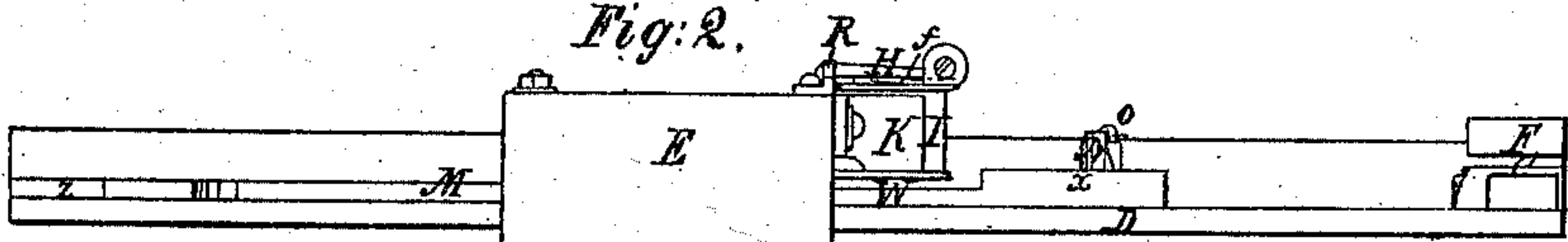


Fig: 3.

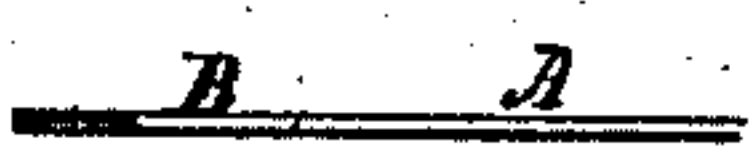


Fig: 9.

Fig: 8.

Fig: 4.



Fig: 5.

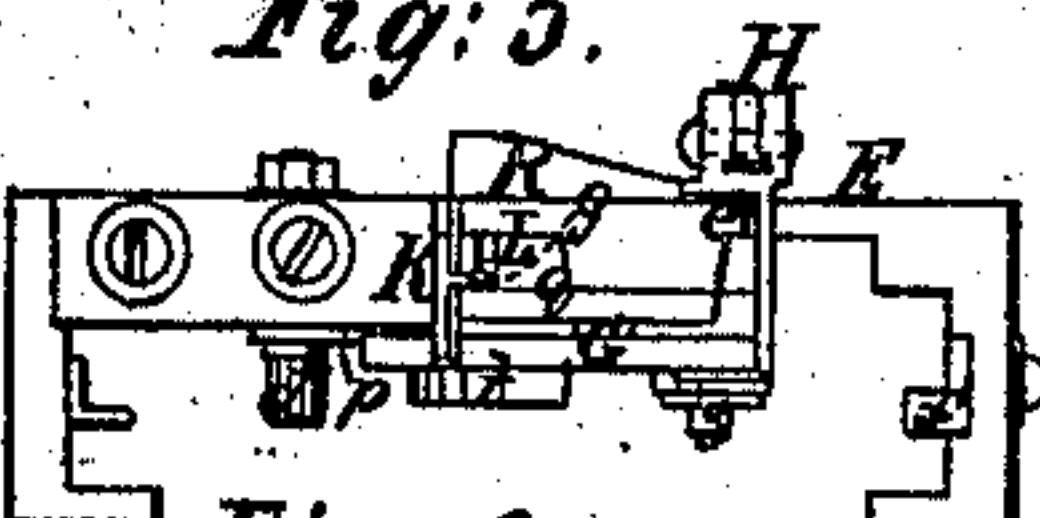


Fig: 7.

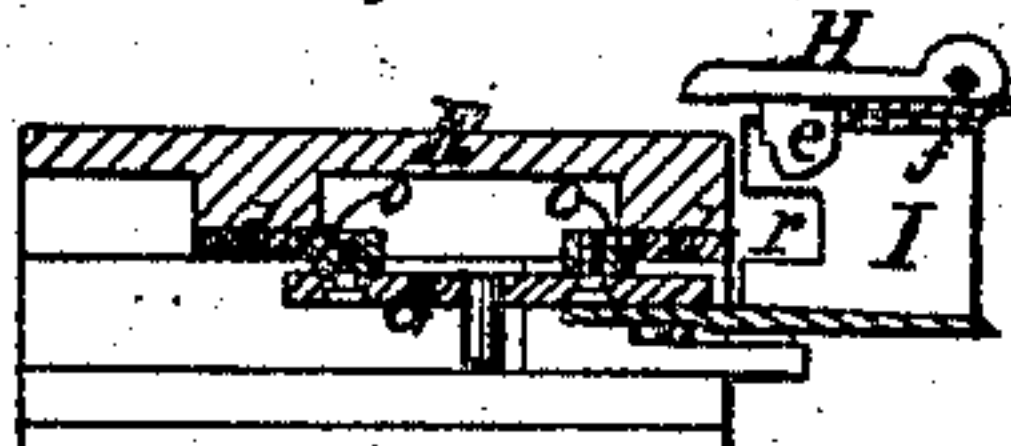


Fig: 10.

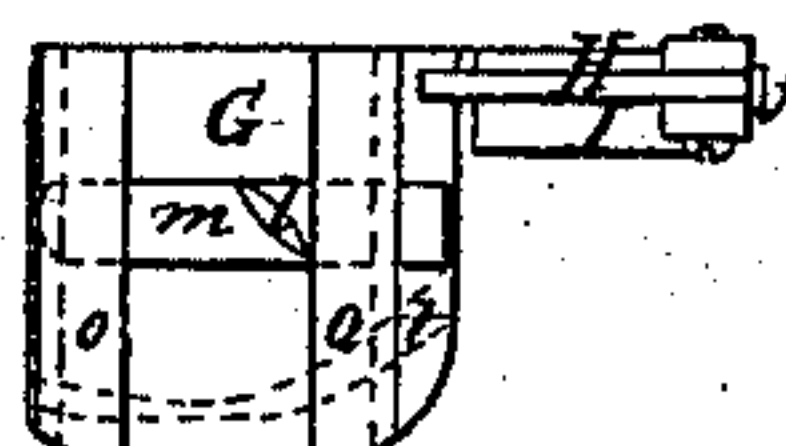


Fig: 6.

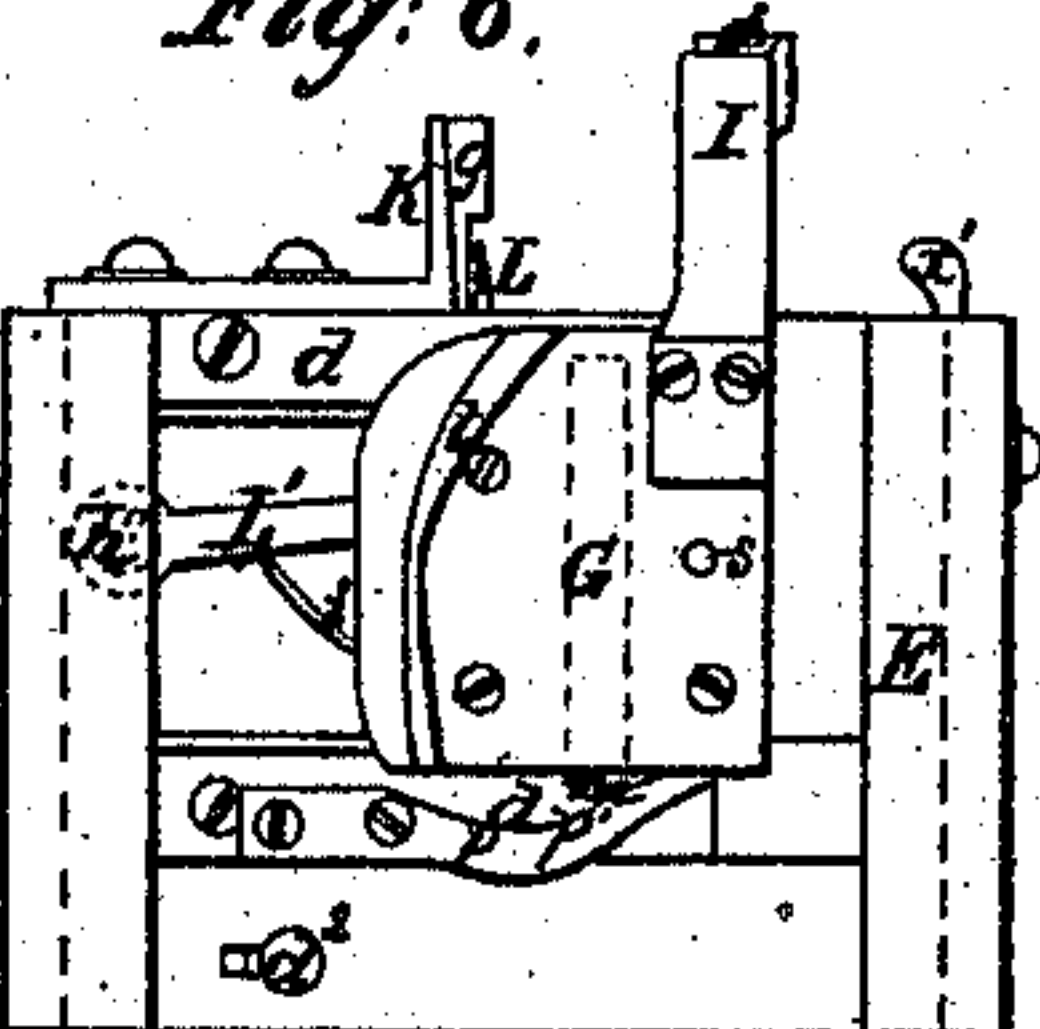


Fig: 11.

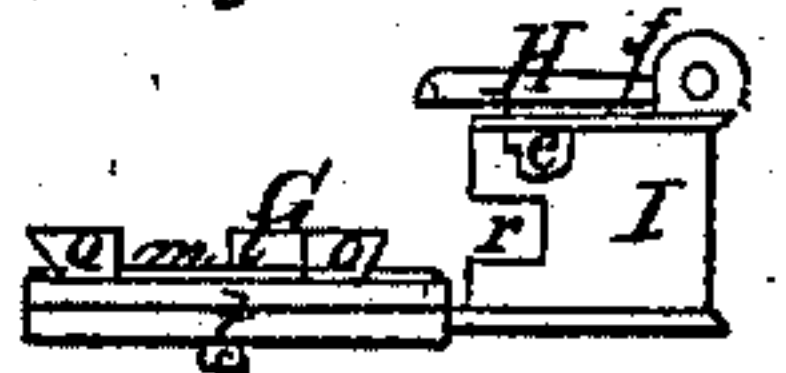


Fig: 12.



Fig: 15. Fig: 16.

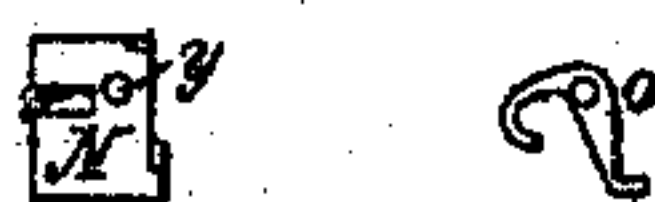


Fig: 13.

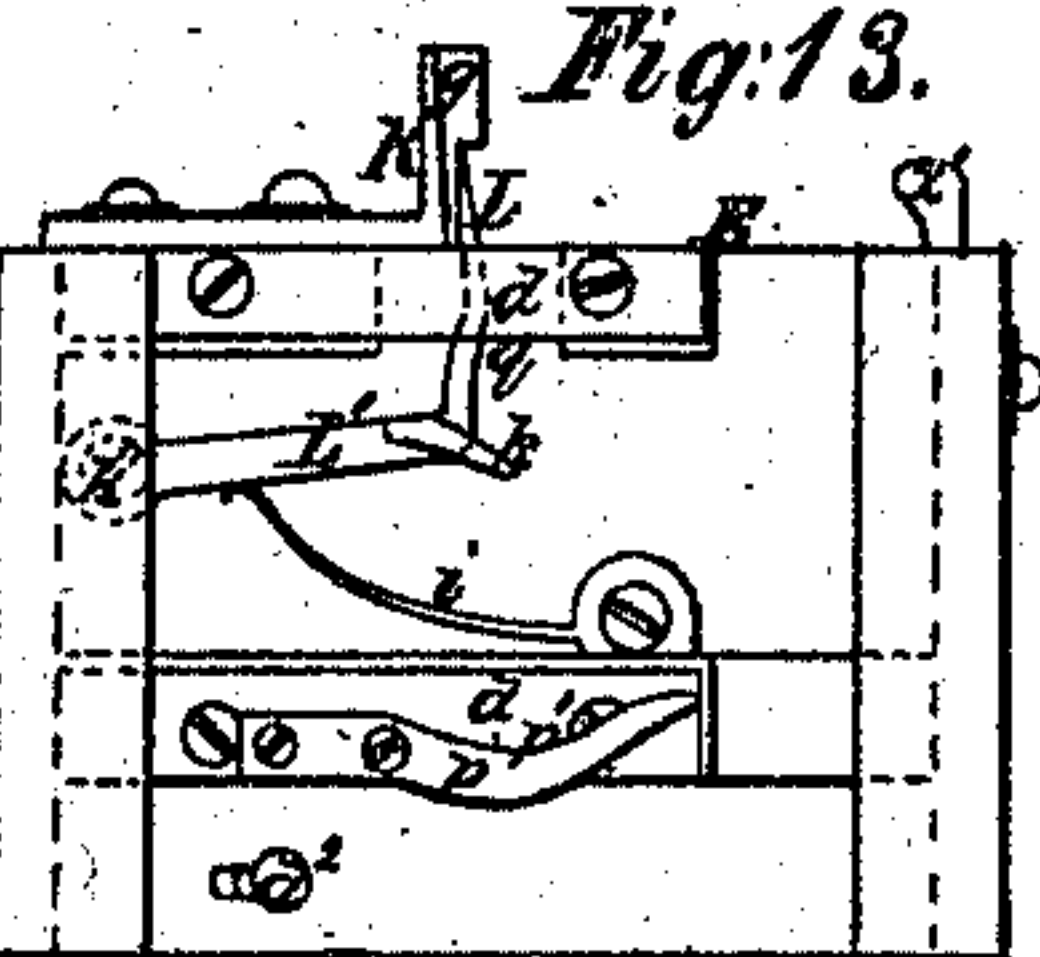
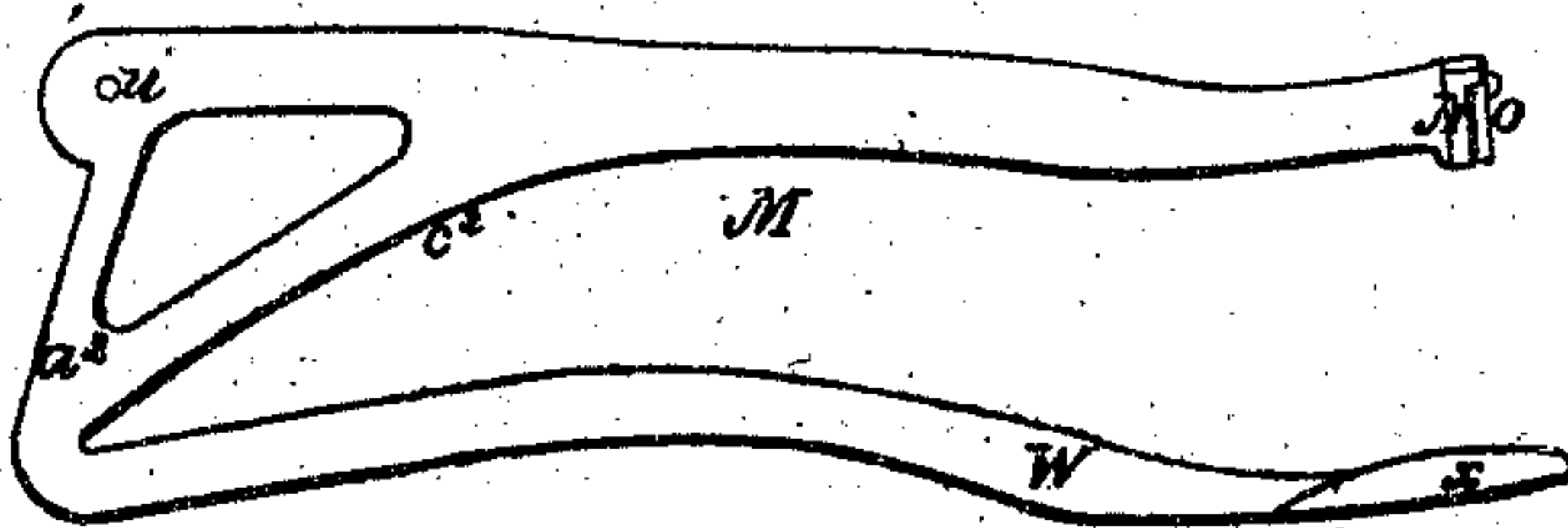


Fig: 17.



Fig: 14.



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LEVI FERGUSON, OF LOWELL, MASSACHUSETTS.

Letters Patent No. 81,487, dated August 25, 1868.

IMPROVEMENT IN LOOM FOR WEAVING PILE-FABRICS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME:

Be it known that I, LEVI FERGUSON, of Lowell, in the county of Middlesex, and State of Massachusetts, have made a new and useful Invention having Reference to Looms for Weaving Pile-Fabrics; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view.

Figure 2, an inner side elevation of the mechanism embracing my invention.

Such other figures as may be necessary to a complete delineation of the parts of such mechanism as are essential to my invention will be hereinafter referred to and described.

The purpose of the said mechanism is to draw from a series of wires, each of them in succession, and move it laterally, and next forward, into the space between the decussated warps of a loom, the same being in order that such wire may be woven with the weft into the warps, so as to form pile-loops in the fabric, in a manner well understood.

In the drawings—

Figure 3 is a top view, and

Figure 4 a side elevation of one of the wires, and the heel-piece thereof.

The wire is shown at A as projecting from a heel-plate, B. This heel-plate has a slot, *a*, extending into it from its rear edge, at about the middle of the plate. It also has a notch, *b*, in its upper edge, the part *c*, immediately below such notch, being made somewhat thinner than the rest of the plate.

The series of wires so formed is to rest on the upper surface of a supporter or abutment, C, arranged at the end of a bed-plate, D, on which a carriage, E, is placed, it being so applied to the plate as to be capable of being moved rectilinearly thereon, both toward and from the abutment C, and a cap-bar, F, arranged over and parallel to the said abutment.

The said carriage and the auxiliary carriage or wire-transferrer, are shown in front end view in Figure 5, in under side view in Figure 6, and in transverse section in Figure 7, the latter figure being made to represent an inner side view of the catch-hook and the steadying-box, to be hereinafter described.

The auxiliary carriage or wire-transferrer is shown at G as applied to parallel ways or guides *d d*, fixed to or projecting from the under side of the main or withdrawing-carriage E. The steadying-box I, fixed to and projecting from the auxiliary carriage, in manner as represented, is open at its front or rear ends and inner side, and has a catch-hook, H, hinged to it. This catch-hook, formed as shown in the side views of it, (see figs. 7 and 8, and in rear end view in Figure 9,) has a lip, *e*, projecting down from the outer side of it, such lip being to lap on the outer side of a heel-plate, B, when in the box, and against the inner vertical surface of the said box. When a heel-plate is in the box, and held therein by the catch-hook H, the lip holds the heel-plate from tipping or falling out of the box. The catch-hook has a spring, *f*, applied to it and the box, such spring being to force the catch-hook downward.

There extends from the front of the carriage E a heel-plate abutment, K, which has a rib, *g*, projecting from its inner face, the whole being as represented. This rib is to enter a slot, *a*, of the heel-plate, when such plate is carried by the carriage G and its steadying-box I up to the abutment K. The rib, with the slot, serves to support the heel-plate when against the abutment.

A steadying-finger, L, operates with the abutment K and its rib *g*, it being arranged with respect to them in manner as represented. It projects from an arm or lever, L', which is pivoted to the carriage, as shown at *h*. A spring, *i*, fastened to the carriage, bears against the arm L', so as to force the finger L toward the abutment K. The arm L' has a projection or cam, *k*, extending down from it, to operate with another projection or cam, *l*, extended from a slide, *m*, arranged on the carriage G, in manner as shown in Figure 10, which is a top view of the said carriage G, its steadying-box, and lever-catch. Figure 11 is an elevation thereof. Figure 12 is a top view of the slide *m* and the cam *l*, and Figure 13 is an under side view of the carriage E.

The slide *m* slides freely through the dove-tailed ribs *o o*, by which the carriage G is guided and supported on the ways *d d*. Furthermore, there is a cam-plate, *p*, fixed on one of the said ways *d*.

While the carriage G is in the act of being moved, so as to carry the box I toward the abutment K, the cam *l* will be carried in contact with the cam *k*, and will move the lever L', so as to cause the finger L to be drawn back within the passage *q* or carriage E, the same being so as to enable a heel-plate, when held in the steadying-box I, to pass by the finger during a movement of the carriage G, so as to carry the steadying-box toward the abutment. Immediately after the heel-plate may have reached the abutment, the cam *l* will have passed the cam *k*, so as to allow the spring *i* to move the lever L' in a manner to force the finger L through a notch, *r*, of the box I, and against the heel-plate, so as to hold it in contact with the abutment K, and on the rib *g* thereof. During the return or next movement of the carriage G, the cam *l* will be moved against the cam *k*, so as to move the cam *l* and the slide *m* endwise, and enable the cam *l* to pass by the cam *k*. After the cam *l* may thus have passed the cam *k*, the end of the slide *m* will be forced against the cam *p'* of the plate *p*. This will throw the cam *l* back to a position to again act on the cam *k*.

The carriage E is to have mechanism applied to it for imparting to it proper reciprocating rectilinear movements, during which the auxiliary carriage or wire-transferrer G will also be moved laterally, back and forth, for the purpose of transferring a wire, or moving the heel of it, laterally. While being so moved, the wire itself is also held between its point and heel, and is guided while being moved in toward the cloth.

The devices or mechanism for accomplishing all this, I will now proceed to describe.

There projects down from the carriage G a stud, *s*, and a cam, *t*, they being formed as shown in figs. 5, 6, 10, and 11.

Underneath the two carriages, and on the bed-plate, is a lever, M, formed as represented, and particularly as shown in Figure 14, which is a top view of it. It turns on a fulcrum, at *u*, and has an auxiliary arm, *w*, which is formed in manner as represented, there being a cam, *x*, projected up from the arm *w*. There also projects from the carriage E a cam, *x'*, (see fig. 13.) The lever M, at its front end, which is shown in Figure 15, is provided with a standard or plate, N, which is notched, as shown at *v*. Against this hook is a tripping-hook or catch, O, formed as shown in Figure 16. The said tripping-catch turns on a pin or stud, *y*, projecting from the plate N, and operates with or is operated by a short rail, P, and an abutment, Q, arranged on the bed-plate, in manner as shown in fig. 1, and also in Figure 17, which is a cross-section of the bed-plate, showing the rail and the abutment.

The purpose of the lever M and its auxiliaries, N O P Q, is for supporting and transferring the wire, the tripping-catch being to hold it in the notch *v* during its movements.

On the top of the carriage E, and near the abutment K, is an inclined plane or cam, R, the purpose of which is to raise the catch-lever H, at the proper time, in order to release its catch from the heel-piece, in order that, when the carriage E may retreat, it may not draw the wire back with it. An abutment, *z*, raised on the base-plate, serves as a stop for the heel or shorter arm, *a'*, of the lever M to bring up against, in order to stop the lever when it may reach the limit of its outward motion.

The operation of the mechanism hereinbefore described may be thus explained:

The carriage E, being advanced, seizes a wire by its heel-piece, and next retreats and draws the wire from the pack. During the retreat of the carriage, the stud *s*, with the part *c'* (see fig. 14) of the lever M, by acting against it, causes the simultaneous movement of the lever and the carriage G sideways, so as to move the wire sideways. As the lever moves, it seizes the wire in the opening *v*, and the tripping-hook passes over and holds the wire in the opening. The catch H will, in the mean time, be forced up the inclined plane R.

Next, the carriage E will be advanced, and, during such advance, will force the wire forward between the warps. The advance of the carriage E will carry a stud, *d'*, (projecting from the carriage E,) against the outer edge of the arm *w*. This will move the said arm and the lever M laterally, and when the cam *t* passes along and against the cam *x*, the carriage G will be moved back into a position for seizure of the heel-plate of the next or succeeding wire. The tripping-hook O of the end of the lever M will be moved by the rail P, so as to release the wire, and, by having its tail-carrier against the abutment Q, the said hook will be set ready to take upon a wire.

I do not claim a carriage and pincers or jaws, to withdraw the wire; nor do I claim, in combination therewith, a lever or device for transferring or moving laterally a wire while being, or after having been, withdrawn from a pack.

What I claim as my invention in the above-described machine, is as follows:

I claim the combination of the steadying-box I with the lever-catch H, and the auxiliary carriage or wire-transferrer G, provided with mechanism for operating it, substantially as described.

Also, the combination of the steadying-finger L (provided with mechanism for operating it as described) with the withdrawing-carriage E, its abutment K, and the transferrer G.

Also, the combination of the withdrawing-carriage E, the heel-plate transferrer G, the lever M, and its notched plate N, such being for supporting and transferring the wire, in manner as specified.

Also, the combination of the auxiliary arm *w* and its cam *x* with the lever M, the studs *s* and *d'*, the carriage E, and the transferrer G, arranged to operate as specified.

Also, the combination of the tripping-catch O, its operative rail P, and abutment Q, with the lever M and its notched plate N.

Also, the arrangement and combination of the cam or inclined plane R with the withdrawing-carriage E, the transferrer G, and the lever-catch H, to operate as specified.

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