

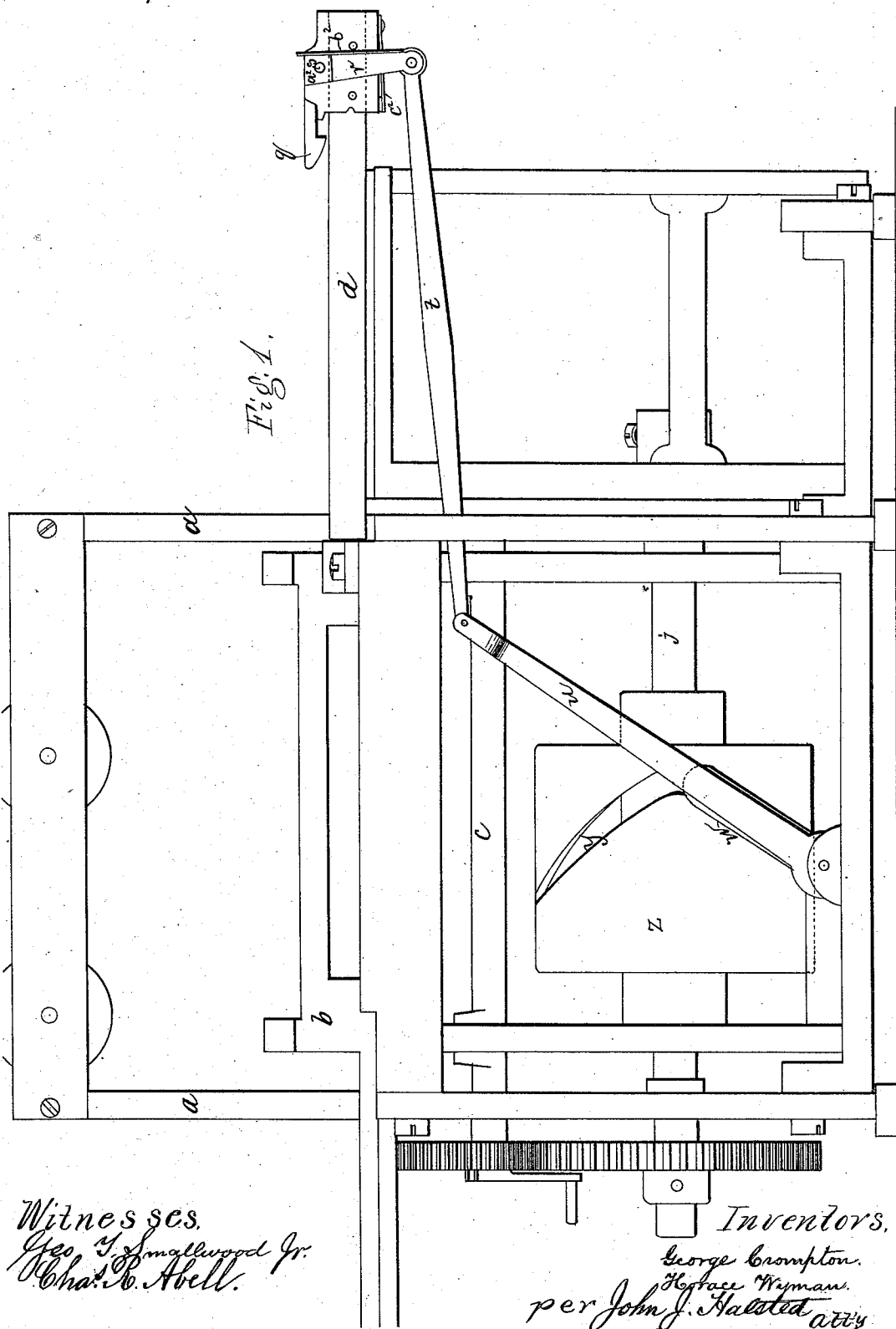
3 Sheets--Sheet 1.

G. CROMPTON & H. WYMAN.

Looms for Weaving Piled-Fabrics.

No. 156,629.

Patented Nov. 10, 1874.



THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

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Fig. 2.

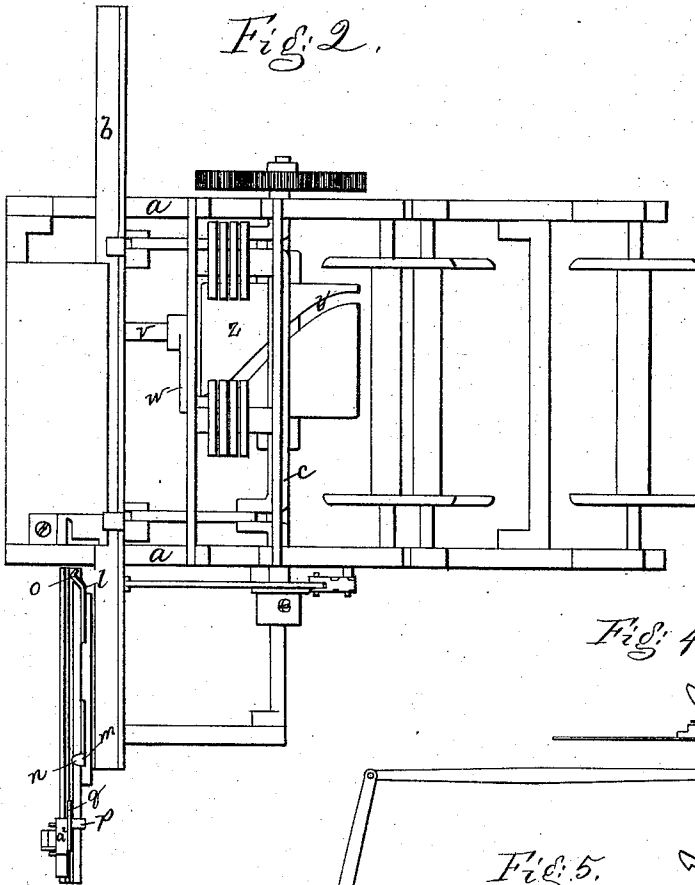


Fig. 4.

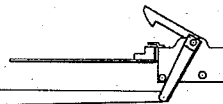


Fig. 5.

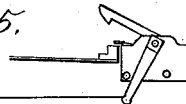


Fig. 6.

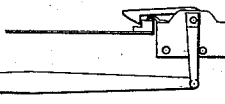


Fig. 8.

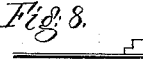


Fig. 7.

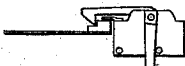


Fig. 10.

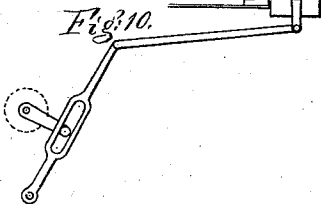
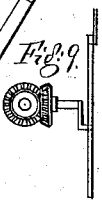


Fig. 9.



Witnesses.

Geo. T. Smallwood, Jr.
Chas. B. Abell.

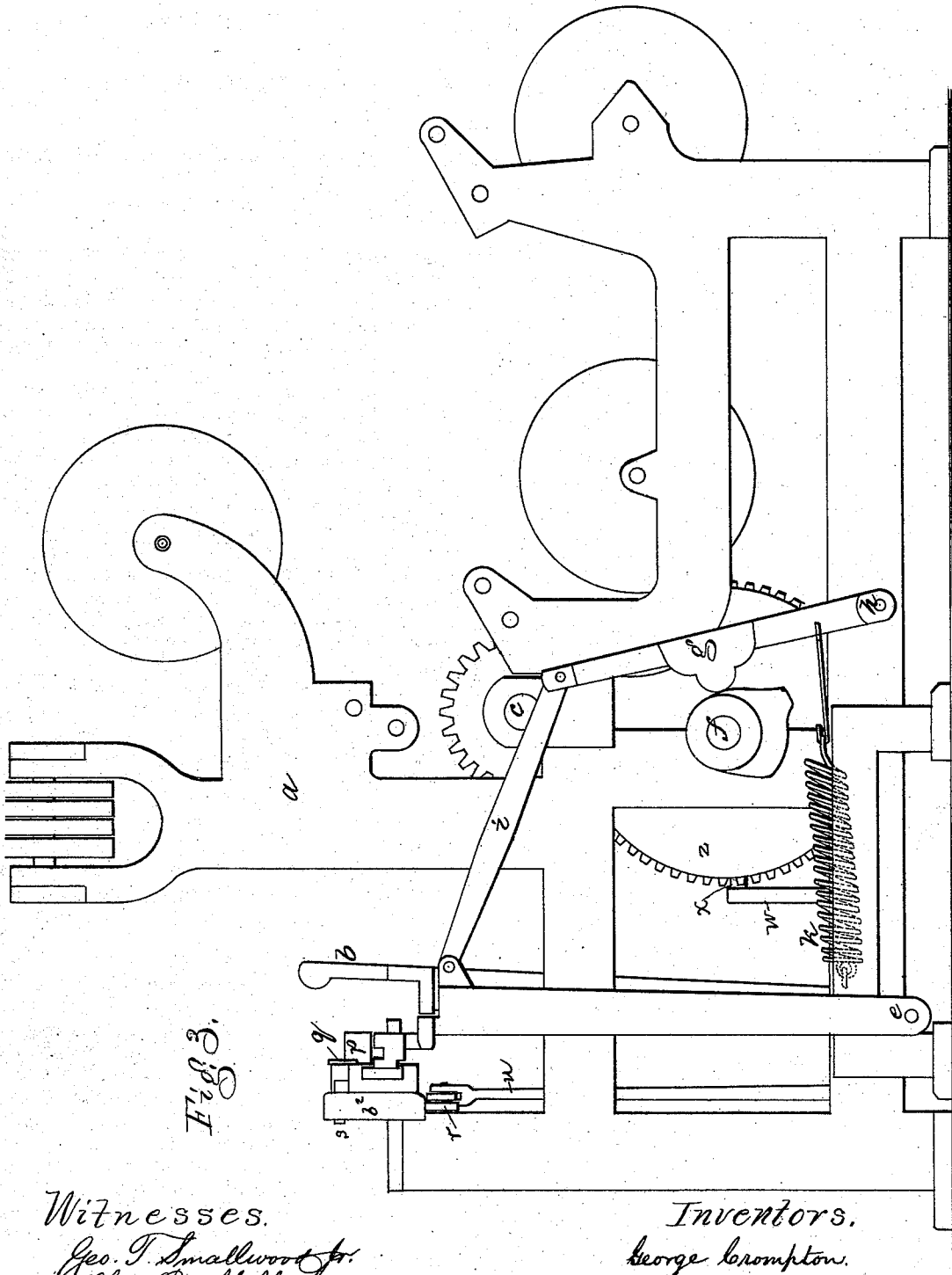
Inventors.

George Crompton.
Horace Wyman.
per John J. Halsted
att'y

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UNITED STATES PATENT OFFICE.

GEORGE CROMPTON AND HORACE WYMAN, OF WORCESTER, MASS.

IMPROVEMENT IN LOOMS FOR WEAVING PILED FABRICS.

Specification forming part of Letters Patent No. **156,629**, dated November 10, 1874; application filed August 29, 1874.

To all whom it may concern:

Be it known that we, GEORGE CROMPTON and HORACE WYMAN, both of the city and county of Worcester, in the State of Massachusetts, have invented an Improvement in Looms; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

The invention relates to an improvement in wire-motions for looms.

In our invention we use, in connection with a pusher for inserting the wires, a hook that withdraws them, and this hook is directly connected with the pusher, so that it is positively operated to engage with, and be disengaged from, the wire-head by the same connector that reciprocates the pusher, the start back of the connector to move the pusher and hook from the shed throwing down the hook, so that it engages with the head of the wire to be withdrawn, and the pressure of the connector in its outward motion keeping the hook down in engagement with the wire-head; the start forward of the connector toward the wire-box, to draw the pusher, throwing up the hook, and disengaging it from the wire-head, which disengagement is insured by the strain of the connector during the insertion of the wire by the pusher, the hook being again dropped into engagement with the head of the wire to be withdrawn by the next outward start of the connector. Our invention consists primarily in thus working the withdrawing-hook, and holding the hook out of contact with a wire-head, except when it is withdrawing a wire. In connection with these movements of the hook, it has movements that bring it from the line of the open shed to the line of the hook to be withdrawn before it descends to engage with the wire, and its engaging, disengaging, and reciprocating movements, in connection with the movements of the pusher, are preferably effected from a cam on a cam-shaft.

The drawing represents a construction embodying our improvements.

Figure 1 shows the loom in front elevation. Fig. 2 is a plan of it. Fig. 3 is an end elevation. Figs. 4, 5, 6, and 7 are details, showing

the relative position of the hook, pusher, and connector at different times. Fig. 8 shows the wire. Figs. 9 and 10 show a modification, in which a slotted lever (similar to what is shown in our patent No. 147,105) is used to actuate the hook.

a denotes the frame; *b*, the lathe, driven from the crank-shaft *c*. *d* denotes the wire-trough, shown as mounted upon the top of a vertical rocking frame, pivoted at *e*, and having vibrating movement imparted to it by a cam, *f*, (acting against a rocker-lever, *g*, pivoted at *h*, and connected to the trough-frame by a link, *i*,) and a spring, *k*, the motion given to the trough being such as to bring it into proper line with the open shed for insertion of the pile-wire, and into line with the first-inserted wire for withdrawal thereof. At one side of the wire-trough, and extending into the groove thereof, are two springs, *l m*, each fastened at one end to the side of the trough, and extending at its opposite end into the wire-groove, the outer spring having a lip, *n*, that extends over the wire in the trough, and the other having a bend, *o*, that presses against the wire, the lip holding the outer part of the wire down until the wire-head passes it, and the other impinges against it until it has entered the shed, both springs combining to keep the wire in place, so that it does not need to be held by the hook as it moves forward toward and into the shed. *p* denotes the pusher that inserts the wires, and *q* the hook that withdraws them. The pusher is connected by an arm, *r*, (jointed at *s* to the pusher,) and a link, *t*, (to which the bottom of the arm *r* is jointed,) to an arm, *u*, extending from a rocker-shaft, *v*, which shaft is journaled in stationary bearings, and carries another arm, *w*, having a pin, *x*, that extends into a peripheral cam-groove, *y*, of a cam-cylinder, *z*, on the shaft *j*, rotation of the shaft reciprocating the link *t*, and thereby imparting the reciprocating movements to the pusher and hook to insert and withdraw the wires. The hook *q* is fixed on one end of the pin *s*, to which the arm *r* is jointed, and the opposite end of the pin has fixed upon it a square collar, *a*², against one side of which a spring, *b*², bears, the spring being attached to the arm *r*, and the spring holding the arm and hook

in relative position normally, but the spring enabling the hook *q* to yield relatively to the arm when vertical pressure is brought to bear upon the free end of the hook.

The lathe-shaft and cam-shaft are shown as geared together, so that a wire is inserted at every other pick, and the positions assumed by the hook are as follows: When the pusher is at the outer end of the trough, and as it starts to insert a wire, the start brings the hook *q* and arm *r* to the position shown in Fig. 4, the pusher being kept stationary by the spring *c*², producing friction on the way, the hook being raised above and entirely out of contact with the wire-head, and the face of the pusher being against the end of the wire-head. The link *t* then moves inward, and the strain upon the arm keeps the hook up, so that the hook, arm, pusher, and wire-head are maintained in the position shown in Fig. 4 until the wire is inserted. While the hook is still in this position, after inserting the wire, the wire-trough, pusher, and hook are thrown back by the cam *f*, bringing the hook opposite the wire to be withdrawn, and directly over the head, the parts being in the position shown in Fig. 5. The link is then started outward, and, by its start, throws the hook down

to the position shown in Fig. 6, the hook engaging with the wire-head. The pusher and hook then move outward, and the hook withdraws the wire into the wire-trough, the parts at the end of their outward movement being in the position shown in Fig. 7, from which they are brought to the position shown in Fig. 4 by the inward start of the link *t* to insert the wire.

Instead of working the link *t* by a cam to change the hook, it may be actuated by a slotted lever and crank, as shown in Fig. 10, the crank being on a shaft worked from a bottom shaft by a bevel-gearing connection, as shown in Fig. 9.

We claim—

1. The arm *r*, hook *q*, and pusher *p*, in combination with the trough *d*, constructed and operating substantially as described.

2. The springs *l* and *m* and trough *d*, when combined and operating substantially as described.

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Witnesses:

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J. B. SYME.