

G. CROMPTON.
LOOM.

No. 184,592.

Patented Nov. 21, 1876.

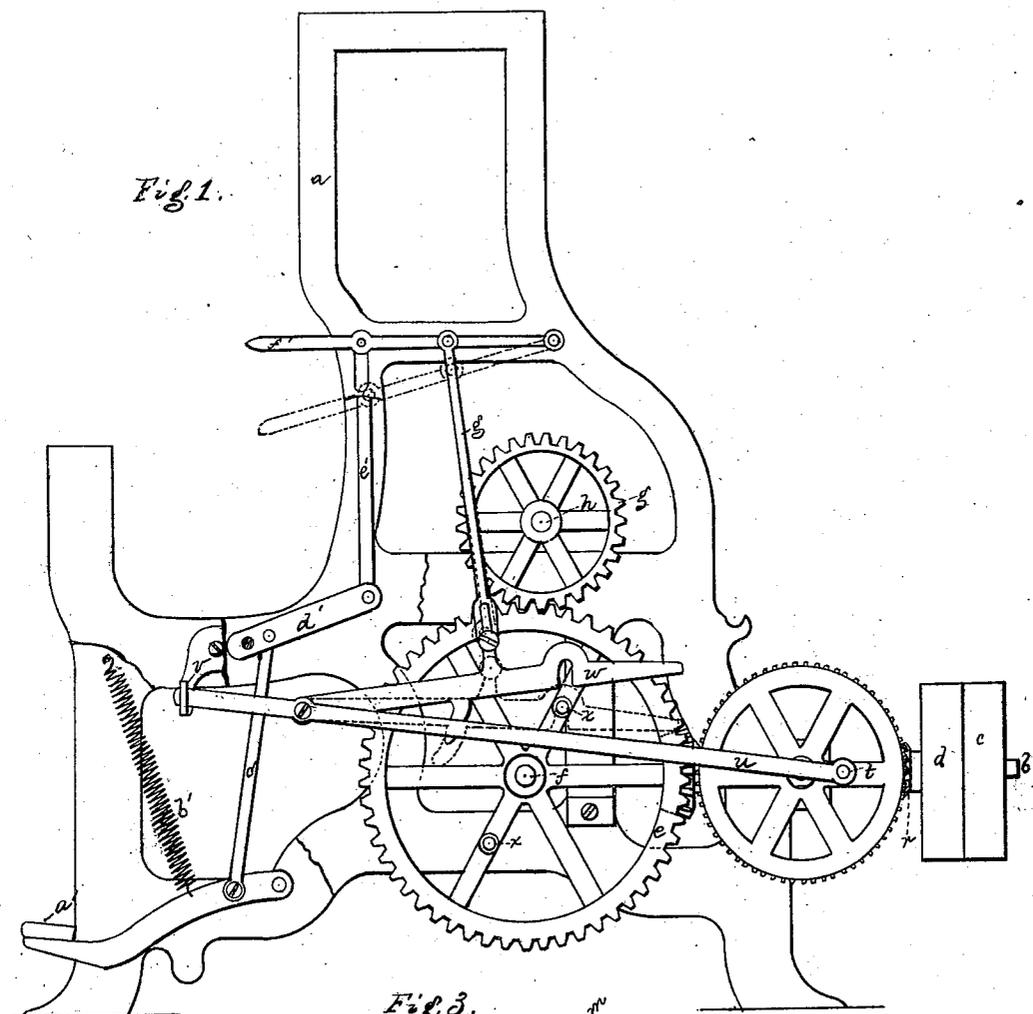


Fig. 1.

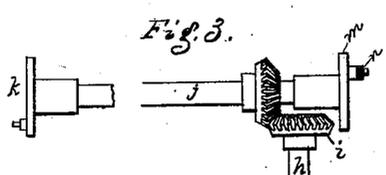
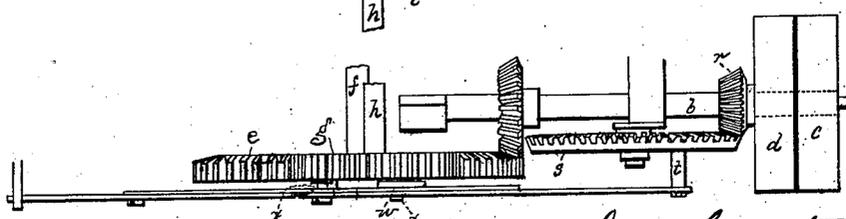


Fig. 3.



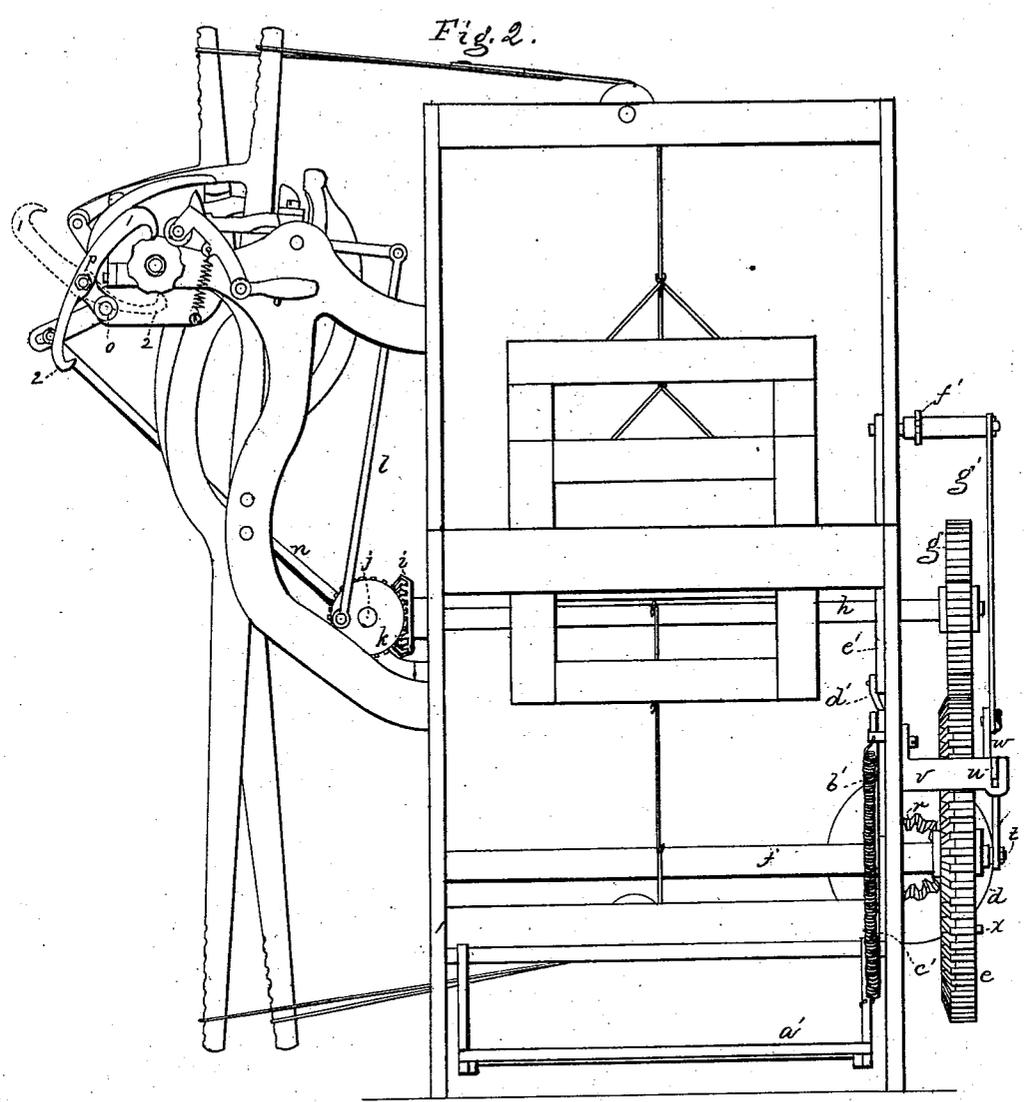
Witnesses
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W. J. Pratt,

Inventor *George Crompton*
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UNITED STATES PATENT OFFICE.

GEORGE CROMPTON, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. 184,592, dated November 21, 1876; application filed June 30, 1876.

To all whom it may concern:

Be it known that I, GEORGE CROMPTON, of the city and county of Worcester, in the State of Massachusetts, have invented an Improvement in Looms, of which the following is a specification:

This invention has reference to looms; and has for its object to operate or to reverse the shedding or harness mechanism and its pattern-surface, to correct mispicks or other imperfections of weaving, or to find the true shed.

The shedding mechanism and pattern shown in this embodiment of the invention are of the class shown in United States Patent No. 77,361, heretofore granted to me; but it is understood that the shedding mechanism may be of any of the forms common to my other inventions, wherein the shedding devices and pattern-surface derive motion in unison from a common shaft moved by the crank-shaft during the regular operation of the loom.

Another application already filed in the United States Patent Office shows a short hand-operated shaft, adapted to turn the shedding-shaft and form sheds, and the crank-shaft, connected with it positively instead of by a clutch, is rotated only half a turn, but not far enough to cause the picker-motion to operate or the reed to fully beat up; and, besides this hand-shaft, the loom is supplied with a double pawl, which is reversed when the pattern is to be reversed. The pawl in such case is like the pawl in this case, and I do not claim it; nor do I claim the actuating devices for the pawl.

The object of this invention is to operate or to reverse the shedding and its pattern mechanism by power operating through the loose pulley, and in doing this the crank-shaft has imparted to it an alternate partial rotation, first in one and then in the other direction, just sufficient to cause it to oscillate its connected shedding-shaft far enough to form sheds, and with these parts I use a double pawl, which may be changed as to its position so as to move the pattern-cylinder in either direction.

Figure 1 represents an end view of a loom provided with my improvement, part of the frame being broken away. Fig. 2 is a front view thereof. Fig. 3 is a detail, showing the shedding-shaft and each end of the crank-

shaft, and the wheels at the opposite end of the loom.

The frame *a* supports the working parts of the loom in the usual way. The first motion-shaft *b*, provided with a fast and a loose pulley, *c d*, has a pinion to engage the toothed wheel *e* on the cam-shaft *f*, and the wheel *e* engages a toothed wheel, *g*, on the lay or crank-shaft *h*, provided with a bevel-gear, *i*, that engages a second bevel-wheel on the shedding-shaft *j*, provided with a crank, *k*, connected by link *l* with the mechanism that operates the lifter and depresser, and the shaft is also provided with a crank, *m*, connected by link *n* with an arm of a rock-shaft, *o*, to which is attached the double pawl *p*, provided with hooks 1 2, each adapted to engage its own ratchet-wheel on the shaft of the pattern-surface, the teeth of such ratchets pointing in opposite directions.

During the regular operations of the loom the driving-belt is on the fast pulley *c*, and the hook 1 of the pawl engages its ratchet on the pattern-cylinder shaft; but when the loom is to be reversed or to be actuated to find a true shed, the pawl *p* is turned so as to bring the hook 2 into engagement with its ratchet on the pattern-cylinder shaft, and the movement of the rock-shaft then operates the cylinder in a direction opposite that derived from the hook 1.

To reverse the motions of the loom, or to operate it to find a true shed, I move the shedding-shaft from the crank-shaft, rotating it but partially backward and forward in opposite directions, just enough to move the shedding-shaft to form sheds, but not to move the crank-shaft far enough to beat up the filling or to actuate the picking mechanism, both these last-mentioned results requiring the crank-shaft to rotate completely.

To move the crank-shaft in this way from a continuously-rotating loose pulley, upon which the belt is shifted by an ordinary shipper, I provide the loose pulley with a pinion, *r*, that engages teeth of a wheel, *s*, provided with a crank-pin, *t*, that is connected with a sliding link, *u*, guided, in this instance, at its outer end by a guide, *v*. This link carries a hook or engaging device, *w*, adapted to engage pins *x x*, or other proper projections on wheel *e*,

and when so engaged the link, reciprocated by the wheel *s*, moved by the loose pulley, imparts to the wheel *e* and shaft *f* an oscillating or rotary reciprocating movement through a small arc, and just sufficient to move the crank-shaft part of a rotation, preferably less than a half-rotation, and back again.

A treadle, *a'*, pivoted to the loom-frame, and held up by a spring, *b'*, has a link, *c'*, connected with a lever, *d'*, and at the end of the lever is a link, *e'*, connected with a second lever, *f'*, preferably a hand-lever, provided with a slotted link, *g'*, connected with the engaging device *w*.

During the ordinary operations of the loom the engaging device is held up away from the pins or studs of wheel *e*; but it may be depressed into engagement therewith by means of either the hand-lever *f'* or the treadle *a'*. If engaged during the time that the belt is on the fast pulley, the loom will be stopped entirely. If engaged when the belt is on the loose pulley, then the shafts will all be rocked backward and forward.

In Fig. 1 the hook or engaging device is shown in its two positions. The full lines show the position when the loom works in the usual manner, and the dotted lines when the hook is engaged to operate or to reverse the shedding and pattern surface alone by oscillating the crank-shaft.

I claim—

1. The combination, with the connected shedding and crank shafts and pattern-surface and

double pawl, of a rotating loose pulley, a reciprocating link, and an engaging device to move the crank and shedding shafts backward and forward to operate the shedding mechanism and pattern-surface to find the true shed, substantially as described.

2. The rotating loose pulley and its connected pinion, and the toothed wheel and crank-pin, in combination with a reciprocating link and hook or engaging device and toothed wheel *e*, to reciprocate the wheel *e*, substantially as described.

3. The reciprocating link and engaging device, in combination with mechanism adapted to place the engaging device into or out of action to oscillate wheel *e*, substantially as described.

4. In a loom provided with a connected crank and shedding shaft and shedding mechanism, a fast and loose pulley and pattern-surface and double pawl, and a link and engaging device, the treadle, and its connections, all combined substantially as described, to engage or disengage the engaging device, to operate the shedding mechanism and its pattern-surface, for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. CROMPTON.

Witnesses:

J. A. WARE,
J. B. SYME.