(No Model.)

3 Sheets—Sheet 1.

G. CROMPTON, Dec'd.

M. C. CROMPTON, Administratrix.

LOOM.

No. 363,367. Patented May 24, 1887.

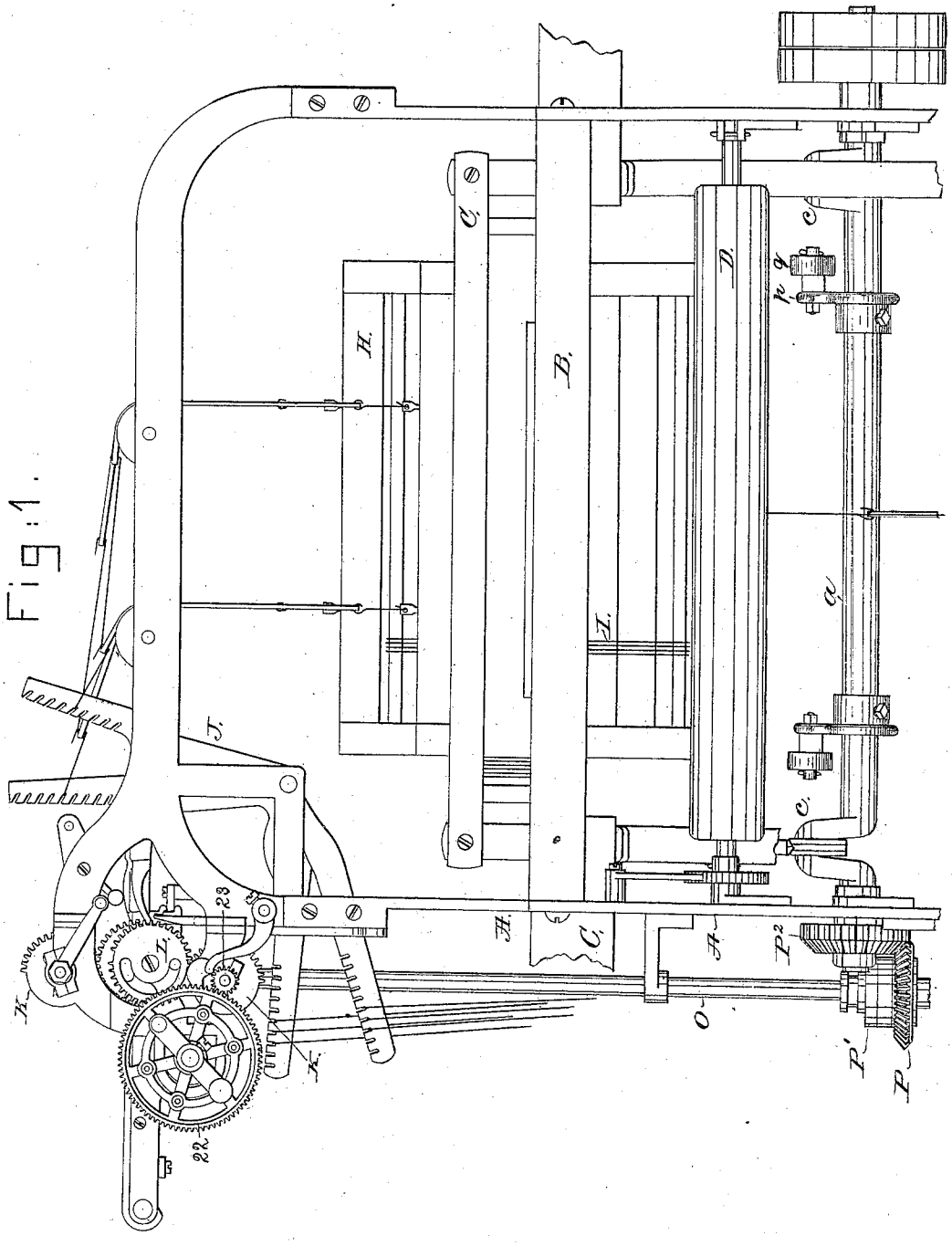

Fig. 1.

Witnesses.

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(No Model.)

3 Sheets—Sheet 2.

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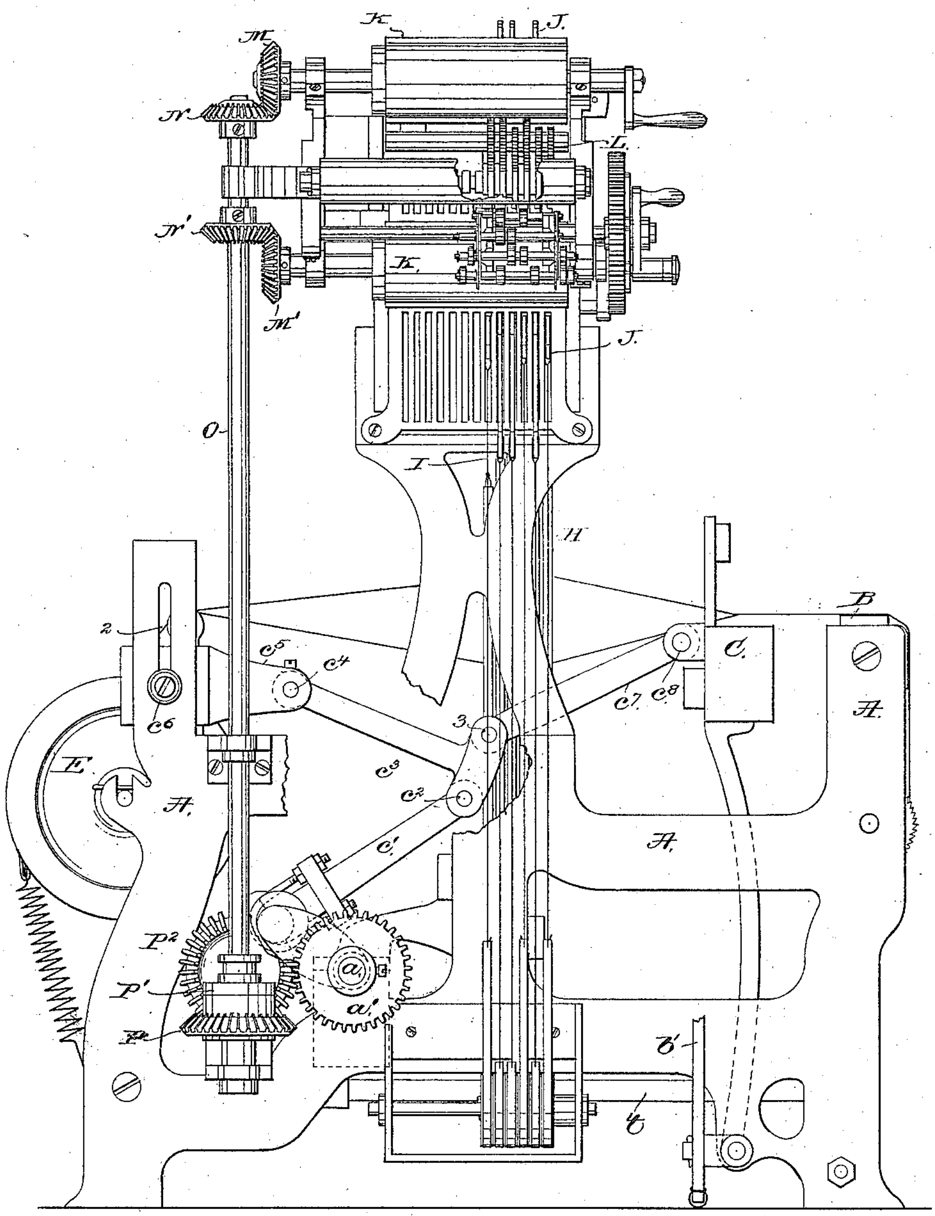
LOOM.

No. 363,367.

Patented May 24, 1887.

Fig: 2.



Witnesses.

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(No Model.) 3 Sheets—Sheet 3.

G. CROMPTON, Dec'd.

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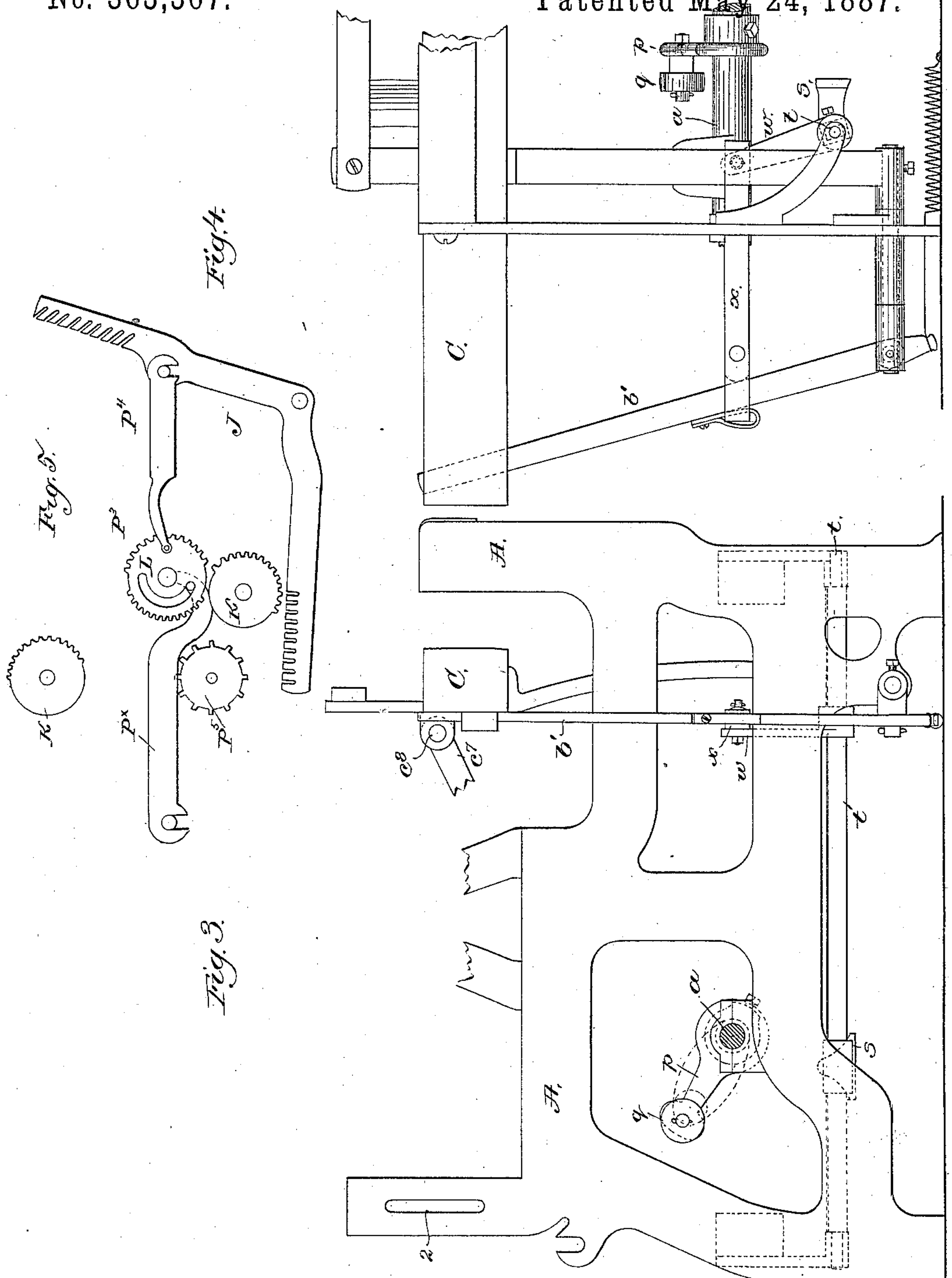
LOOM.

No. 363,367. Patented May 24, 1887.



Witnesses:
Arthur Zipperlen.
John F. C. Preinkert

Inventor:
George Crompton,
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UNITED STATES PATENT OFFICE.

GEORGE CROMPTON, OF WORCESTER, MASSACHUSETTS; MARY C. CROMPTON ADMINISTRATRIX OF SAID GEORGE CROMPTON, DECEASED.

LOOM.

SPECIFICATION forming part of Letters Patent No. 363,367, dated May 24, 1887.

Application filed March 21, 1886. Serial No. 196,357. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CROMPTON, of Worcester, county of Worcester, and State of Massachusetts, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the operation of that class of looms known as the "open-shed," and I have herein shown, and shall describe as of my invention, the shedding-shaft prolonged or extended downward to the lower part of the loom, where it is combined by gearing with and actuated from the picking or cam shaft, thereby insuring more steadiness of motion and more direct connection to the motive power, the said picking-shaft having such rate of speed as to make one rotation at each beat of the lay, and I have, for simplicity, actuated the lay from or by means of the picking or cam shaft, and have given to it an irregular motion, such combination and arrangement of the parts causing greater certainty of the proper movement of the parts in unison, and also simplifying the loom and causing strength and obtaining a steady regular rotary movement to the shafts of the harness-motion having an irregular movement of the lay.

The particular features in which my invention consists will be hereinafter more fully described, and pointed out in the claims at the end of this specification.

Figure 1 is a front elevation of a loom embodying my invention, the lower portion of the loom being broken off to save space on the drawings, the parts broken off being, however, shown sufficiently in Fig. 2. Fig. 2 is a left-hand end view of the loom, the frame-work and the bar partially covering the usual vibrators carrying the toothed gears being broken away. Figs. 3 and 4 are details to show the picking mechanism, all of which, except the arms and rolls, is entirely omitted from Fig. 1, but partially shown in Fig. 2; and Fig. 5 is a detail showing one of the harness-levers, a vibrator, a connector, a toothed crank, the pattern-cylinder, and one of the long gears, said parts not being well shown in the other figures.

In the drawings, A is the loom-frame; B, the breast-beam; C, the lay; D, a take-up roll; E, a let-off beam; H, a harness-frame; I, harnesses; J, angular harness-levers; K K, long gears partially toothed; L, toothed cranks to be oscillated by the said gears; M M′, bevel-gears on the shafts of the gears K; N N′, bevel-gears to engage and rotate the bevel-gears M M′; P^4, connectors; P^3, toothed cranks; $P^\times$, vibrators carrying the toothed cranks; P^5, the pattern-surface; and O, a shedding-shaft, all substantially as common to the class of loom represented in United States Patent No. 134,992, dated January 21, 1873, except that herein the said shedding-shaft is extended downwardly to be driven from the picking or cam shaft *a*.

The bevel-gear P, loose on the lower end of the shedding-shaft O, and forming part of a clutch, the second part, P′, of the clutch made as a disk, having a pin and connected with the said shaft so as to rotate with and also to slide upon it, and the intermediate P^2 are also substantially as in the said patent, except as to their position.

I have provided the picker or cam shaft *a* with a gear, *a′*, which engages and rotates the intermediate P^2, and rotates the shedding-shaft O and the parts actuated by it in the formation of the shed whenever the clutch parts P P′ are engaged, the said shaft O remaining at rest when the parts of the said clutch are disengaged.

The picking-shaft *a* is rotated at twice the speed of the picking-shaft in looms of the class referred to, the speed of rotation of the picking or cam shaft being that commonly given to the crank-shaft, and hence the said picking-shaft has attached to it near each side of the loom but one picking-arm P and roll *q*, instead of two such arms and rolls, as in United States Patent No. 265,659. The rolls *q* strike the shoes *s* on the short shafts *t*, having attached arms *w*, connected by straps *x* with the picker-sticks *b′*, as common in the patent, No. 265,659, referred to, wherein the said arms, rolls, shoes, straps, and picker-sticks are designated by like letters.

The shaft *a* has on it cranks *c*, which receive rods *c′*, pivoted at c^2 to the head of a lever, c^3,

each lever having its fulcrum at c^4 on a stand, c^5, attached to and made adjustable by a screw, c^6, in a slot, 2, of the frame A, the said heads, one at each side of the loom, each having jointed to it at 3 an end of one of the connecting-rods c^7, which are pivoted to the lay at c^8, the said mechanism between the shaft *a* and the lay imparting to the latter an irregular motion, which may be varied by adjusting the stand c^5 vertically.

I have herein shown one form of mechanism for giving an irregular motion to the lay, and have shown one form of mechanism whereby the extent of movement of the lay may be varied or adjusted without other changing than the adjustment of the stand.

I have shown one form of mechanism for giving an irregular motion to the lay; but I do not desire to limit my invention to the exact devices shown, for instead I may employ any other well-known equivalent mechanism common to looms for moving the lay.

In operation the shed-forming mechanism is so moved and timed as to the formation of the shed that the shed is completed, or substantially so, as the lay is moving forward from its back-center, and as the lay beats in the filling the shed is fully open and all the threads are held taut. The shuttle is thrown through the shed as the lay is passing backward and the cranks *c* are on their backward stroke.

The pattern-cylinder shaft has upon it a gear, 22, which is engaged and rotated by a pinion, 23, fast on the end (see Fig. 1) of the lowermost long gear K.

I claim—

1. The vibrators, the toothed cranks thereon, the connectors, the angle-levers J, long gears partially toothed, a pattern-surface, and means to actuate it, all constituting the shed-forming mechanism, the shedding-shaft prolonged to near the bottom of the loom-frame, devices intermediate the shedding-shaft and long gears to operate the latter, the picking-shaft, means to rotate it once for each complete beat of the lay, and intermediate gearing to move the shedding-shaft from the picking-shaft, combined with the picking-sticks, and intermediate mechanism actuated by the picking-shaft to move the picking-sticks but once for each rotation of the picking-shaft, substantially as described.

2. In combination, the harness-frames, long gears partially toothed, as described, and the angular harness-levers, vibrators, toothed cranks carried by the vibrators, connectors between the harness-levers and toothed cranks, pattern mechanism, and means to move it to place the toothed cranks in contact with the long gears, bevel-gears on the shafts of the long gears, upright shedding-shaft O, and bevel-gears thereon to rotate the bevel-gears of the long gears, the said shedding-shaft being extended to near the bottom of the loom-frame and the lower or picking shaft, and connecting-gearing between the said shaft O and the lower or picking shaft of the loom, substantially as described.

3. The vibrators, the toothed cranks thereon, the connectors, the angle-levers J, long gears partially toothed, and pattern surface, and means to actuate it, all constituting the shed-forming mechanism, the shedding-shaft O, prolonged to near the bottom of the loom-frame, the bottom or picking shaft, and connecting-gearing to move the shedding shaft from the picking-shaft, combined with the lay, and means between it and the bottom or picking shaft, *a*, to give the lay a variable or irregular movement, and with means between the shedding-shaft and long gears to rotate the latter, substantially as described.

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

GEO. CROMPTON.

Witnesses:
J. B. SYME,
JUSTIN A. WARE.