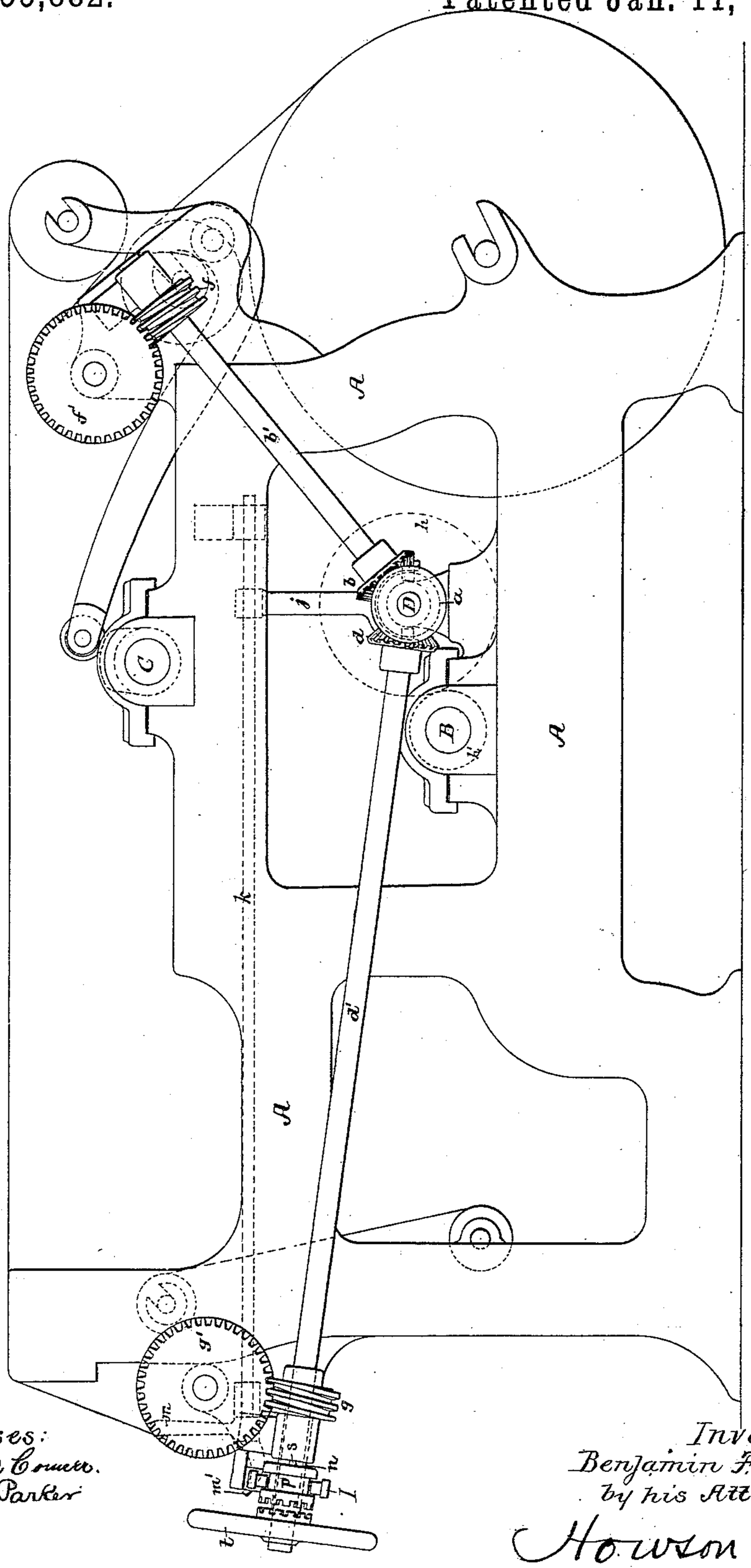
(No Model.) 2 Sheets—Sheet 1.

B. F. MEYER.

LET OFF AND TAKE UP MECHANISM FOR LOOMS.

No. 355,882. Patented Jan. 11, 1887.

FIG. 1.



Witnesses:
William D. Connett.
John E. Parker

Inventor
Benjamin F. Meyer,
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Howson and Sons

(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

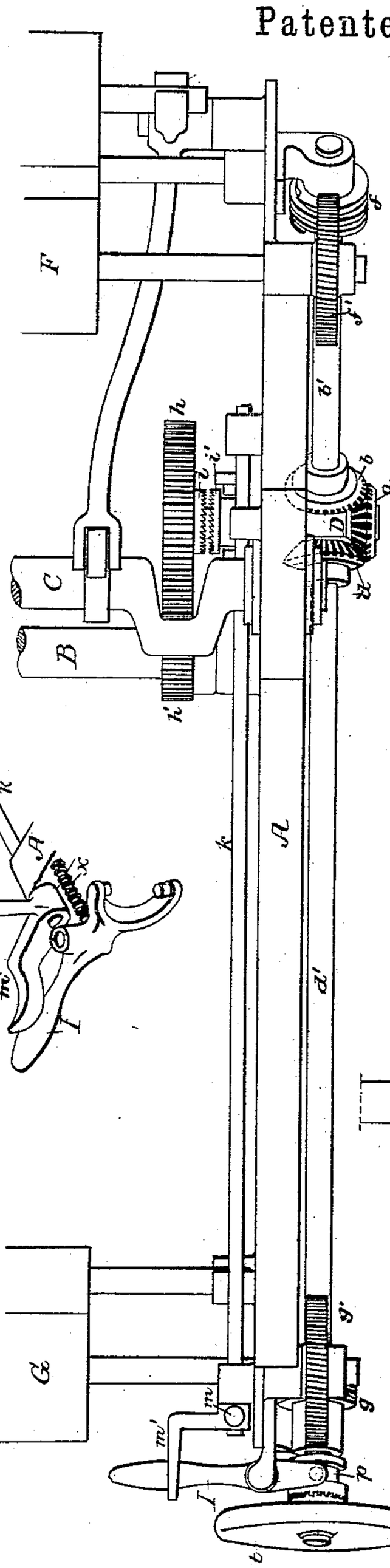


FIG. 3.

FIG. 5.

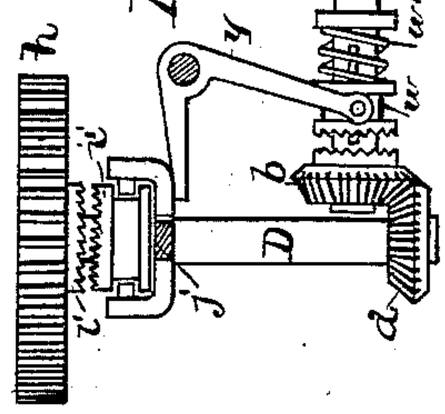
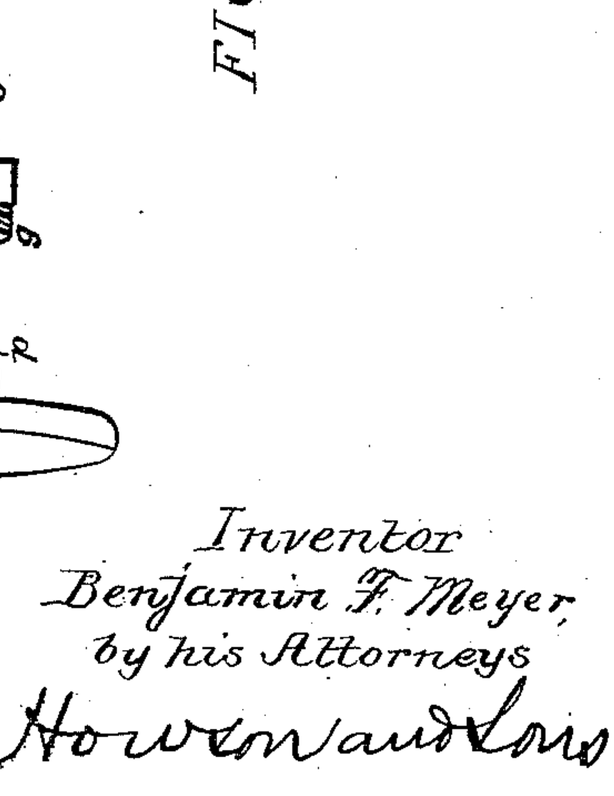


FIG. 4.



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UNITED STATES PATENT OFFICE.

BENJAMIN F. MEYER, OF CAMDEN, NEW JERSEY, ASSIGNOR TO THE M. A. FURBUSH & SON MACHINE COMPANY, OF NEW JERSEY.

LET-OFF AND TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 355,882, dated January 11, 1887.

Application filed March 15, 1886. Serial No. 195,348. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. MEYER, a citizen of the United States, residing in Camden, New Jersey, have invented certain Improvements in Let-Off and Take-Up Mechanisms for Looms, of which the following is a specification.

My invention relates to that class of mechanism in which the take-up and let-off rolls are driven from one of the rotating shafts of the loom, so as to provide a taking up of the fabric uniform with the letting off of the warp-threads, the object of my invention being to render the let-off and take-up independent of each other when such independent operation is desired.

In the accompanying drawings, Figure 1 is a side view of sufficient of a loom to illustrate my invention. Fig. 2 is a plan view of the same. Fig. 3 is a perspective view of part of the device; Fig. 4, an enlarged view, partly in section and partly in elevation, of another part of the device; Fig. 5, a view illustrating a modification.

A represents one of the side frames of the loom; B, the main driving-shaft of the same; C, the crank-shaft, and D the short shaft, adapted to bearings on the side frame, and having a bevel-wheel, *a*, which gears into two bevel-pinions, *b* and *d*, the pinion *b* being carried by a shaft, *b'*, on which is a worm, *f*, gearing into a worm-wheel, *f'*, on the spindle of the let-off roll F, the pinion *d* being carried by a shaft, *d'*, on which is a worm, *g*, gearing into a worm-wheel, *g'*, on the spindle of the take-up roll G.

On the shaft D is a loose spur-wheel, *h*, which gears into a spur-pinion, *h'*, on the shaft B, the hub *i* of this spur-wheel being toothed, so as to form one part of a clutch, the other part, *i'*, of which is a sleeve under control of a forked arm, *j*, carried by a rod, *k*, hung to suitable bearings on the frame A, said rod having at the front end of the loom an operating-handle, *m*.

Ordinarily both of the worms *f* and *g* are secured to their respective shafts, so that both the let-off and take-up rolls are thrown into and out of gear simultaneously by the adjustment of the clutch-sleeve *i'*. It is sometimes advisable, however, to provide for the independent operation of the take-up and let-off rolls—as, for instance, when it is desired to slacken up the warps for the removal of defective picks, or for the purpose of gaining access to parts of the loom beneath the warp-threads. For this purpose I make the worm *g* independent of the shaft *d'* and secure said worm to a sleeve, *n*, carrying a clutch-sleeve, *p*, the latter being free to slide on the sleeve *n*, but being prevented from rotating independently thereof by means of a suitable key or feather, *s*.

The toothed face of the clutch *p* engages with the toothed face of the hub of a hand-wheel, *t*, secured to the outer portion of the shaft *d'*, and said clutch-sleeve *p* is under the control of a lever, I, by manipulating which the clutch can be thrown into or out of engagement with the hub of the wheel.

In order to insure the joint and simultaneous operation of the clutch *p* and the main clutch on the shaft D the lever *m*, whereby said main clutch is operated, has a projecting arm, *m'*, bent as shown in Fig. 3, so that on the operation of the arm *m* to throw the main clutch out of gear the bent arm *m'* will act upon the lever I and cause the clutch *p* to be likewise thrown out of gear, so that the let-off roll can be operated by the hand-wheel *t* through the medium of the shaft *d'* and connecting gearing without affecting the position of the take-up roll.

The two clutches may be thrown into gear again by the manipulation of either the lever I or arm *m*. A spring, *x*, acting upon the lever I, tends to maintain the clutch-sleeve *p* in gear with the toothed hub of the wheel *t*.

The main object of my invention may be attained by throwing the let-off roll out of gear instead of the take-up roll, although the construction shown in the drawings is preferred as the most convenient.

When it is desired to throw the let-off roll out of gear the wheel *b* may be loose and may be connected to or disconnected from the shaft *b'* by a clutch member, *w*, splined on said shaft, so that it must turn therewith, but is free to move longitudinally thereon. This clutch member is held in engagement with the hub of the wheel *b* by means of a spring, *w'*, but is also under control of a lever, *y*, the lat-

ter being pivoted to any available stud on the frame, and having an arm which projects into the path of the forked arm *j*, which operates the main clutch member, *i*. (See Fig. 5.) When said arm *j* is retracted, therefore, so as to disengage the clutch member *i*, there is such a movement of the lever *y* as will effect a corresponding disengagement of the clutch member *w*, and on the reverse movement of the arm *j* the clutch member *w* is projected by reason of the action of the spring *w'* thereupon.

I claim as my invention—

1. The combination of the let-off and take-up rolls of the loom, gearing for operating the same simultaneously from one of the shafts of the loom, a main clutch, whereby said driving-gear may be thrown into and out of action, and a secondary clutch, whereby one of the rolls may be thrown out of gear and rendered independent of the other, all substantially as specified.

2. The combination of the let-off and take-up rolls of the loom, a driving-shaft, transmitting-shafts, and gearing, whereby the let-off and take-up rolls are operated from said driving-shaft, a main clutch, whereby the driving-shaft is thrown into and out of gear with the transmitting-shafts, a secondary clutch, whereby the take-up roll is thrown into or out of gear with its transmitting-shaft, and a hand-wheel, whereby the transmitting-shafts can be operated when the clutches are disconnected, all substantially as specified.

3. The combination of the let-off and take-up rolls of the loom, gearing for operating the same simultaneously from one of the shafts of the loom, a main clutch, whereby said gearing may be connected to or disconnected from said shaft, a secondary clutch, whereby one of the rolls may be thrown out of gear and rendered independent of the other, and mechanism, substantially as described, for simultaneously operating said main and secondary clutches, all substantially as specified.

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

BENJAMIN F. MEYER.

Witnesses:
WILLIAM F. DAVIS,
HARRY SMITH.