

M. C. Burleigh,

Let Off for Loom.

No. 106,543.

Patented Aug 23. 1870.

Fig. 1.

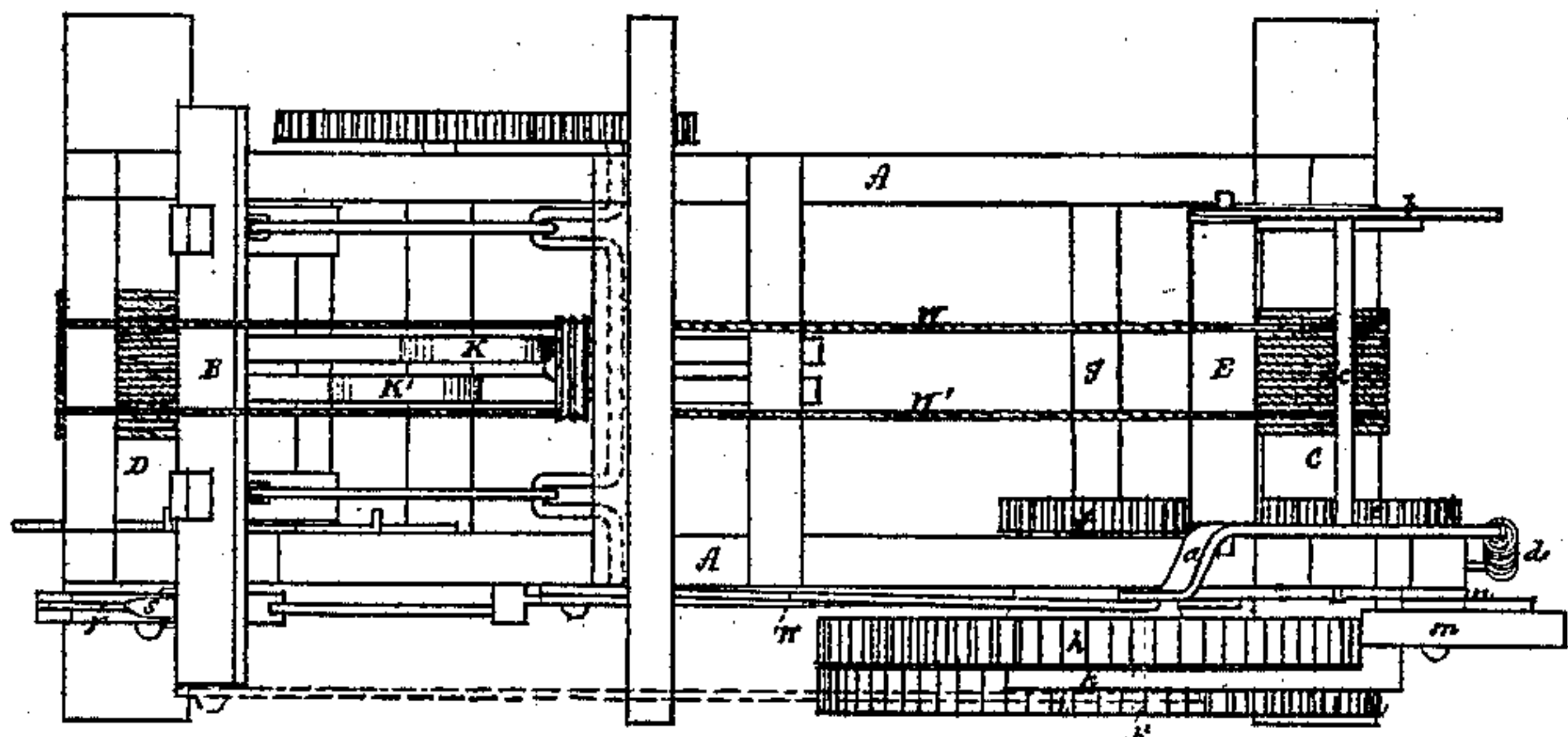


Fig. 2.

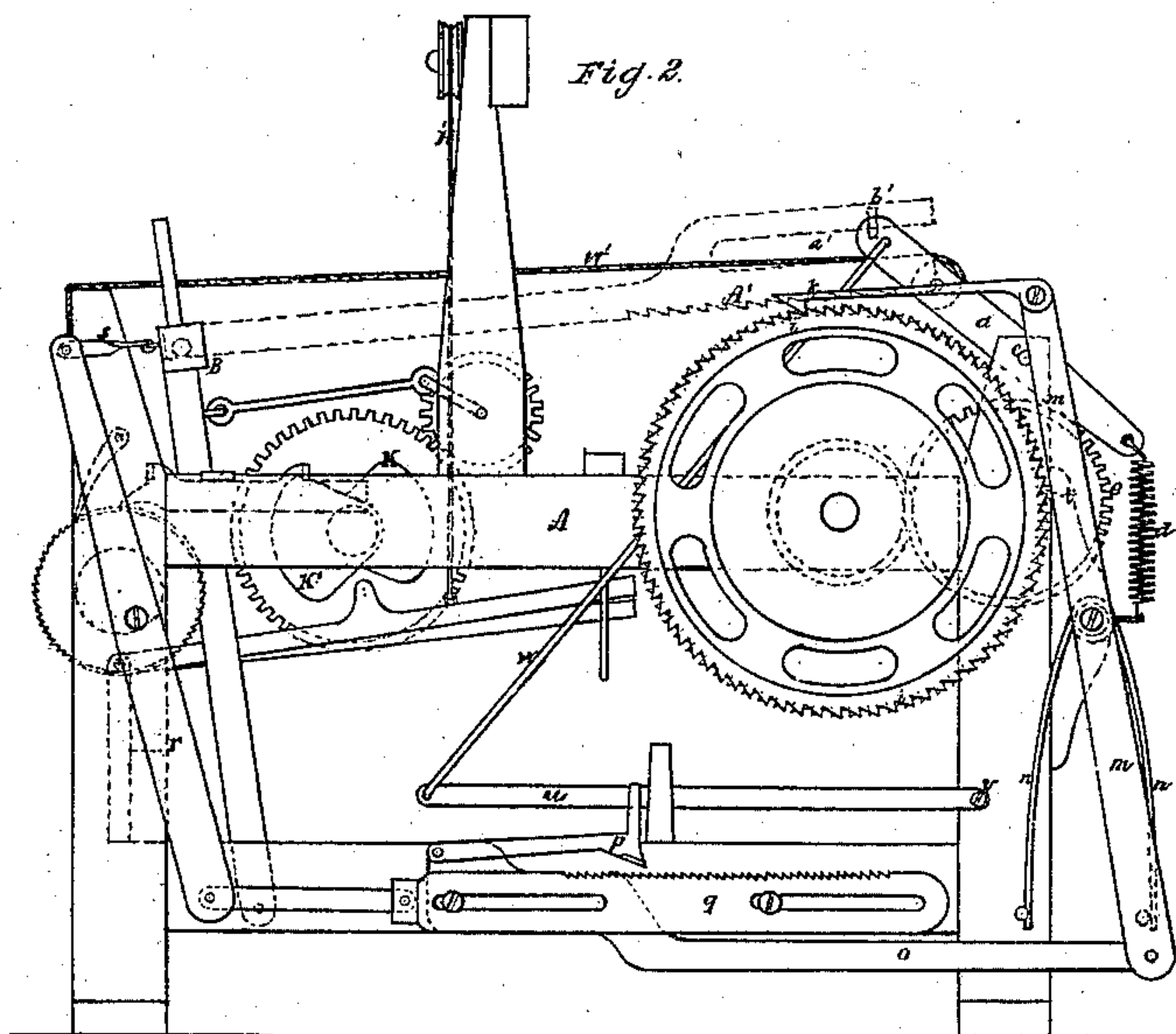
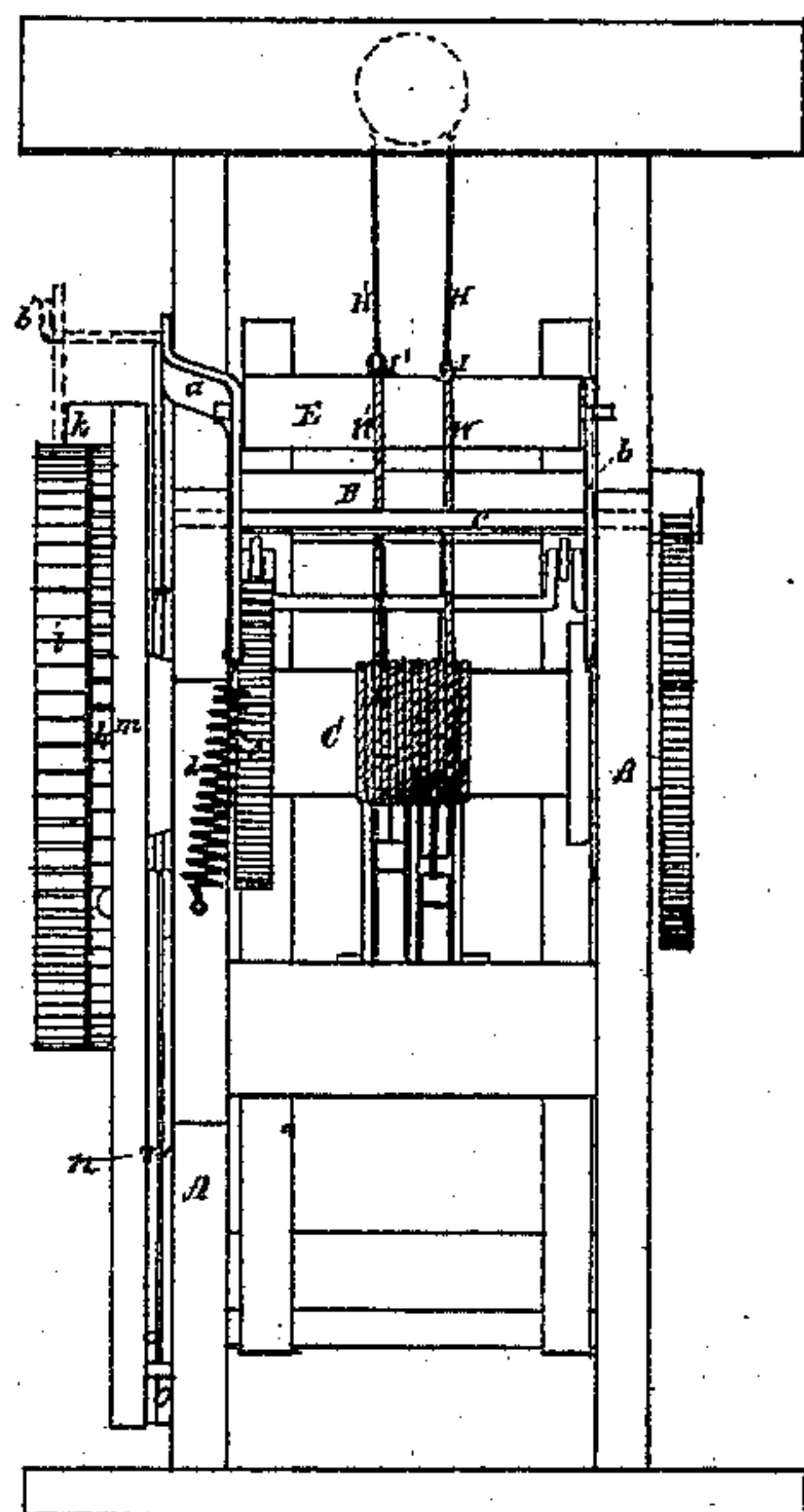


Fig. 3.



Witnesses,
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MICAJAH C. BURLEIGH, OF SOMERSWORTH, NEW HAMPSHIRE.

Letters Patent No. 106,543, dated August 23, 1870.

IMPROVEMENT IN LET-OFF MECHANISM FOR LOOMS.

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, MICAJAH C. BURLEIGH, of Somersworth, of the county of Strafford, of the State of New Hampshire, have made a new and useful invention, having reference to Looms for Weaving Cloth; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawing.

In carrying out my invention I combine, with a whip-roll and a warp-delivery mechanism applied thereto or to the loom, a mechanism, as hereinafter described, to operate to so control the action of the warp-delivery mechanism as to cause it to operate and deliver warp only during the formation of the "shed" of the warps, or while such is formed.

At any time while the auxiliary mechanism is in operation, it will cease to operate as soon as a sufficiency of warp may have been delivered to admit of the whip-roll returning to its normal or rearmost position.

This auxiliary mechanism may be viewed as a governor to yarn-delivery mechanism.

Of the drawing above mentioned

Figure 1 denotes a top view;

Figure 2, a side elevation; and

Figure 3, a rear-end view of a loom-frame and its warp-delivery mechanism, with my invention applied thereto.

In such drawing—

A denotes the said frame.

B, the lay.

C, the warp-beam.

D, the cloth-beam, and

E, the whip-roll or roller, the latter being supported by a lever, *a*, and an arm, *b*, extending from a shaft, *c*, constituting the fulcrum of the lever, and arranged in the upper part of the loom-frame.

A spring, *d*, affixed to the lower arm of the lever *a* and to the loom-frame, serves to return the whip-roll to its rearmost or normal position.

The warps are shown at W W' and the harnesses at H H', the harness-heddles at I I', and their tappets at K K'.

The warp-delivery mechanism, exclusive of the said spring, consists of a gear, *e*, a pinion, *f*, a shaft, *g*, two ratchets, *h i*, a draw-pawl, *k*, a lever, *m*, a spring, *n*, a slider, *o*, a catch-pawl, *p*, a rack, *q*, and a lever, *r*, the latter being connected with the lay by means of a link or connecting-rod, *s*, the whole being as shown and represented in the drawing.

The lever *r* may be connected with any other suitable part of the loom which will impart to it its proper motions.

The gear *e* is fixed on the shaft of the warp-beam or roller C. The pinion *f* engages with the gear *e*.

The two ratchets are fixed on the shaft *g*, the outer one being to operate with and be operated by the draw pawl *k*, which is pivoted to the upper arm of the lever *m*, which carries a tooth, *t*, to operate with the ratchet *h*, in order to arrest the rotary motion of it and its shaft when the lay is in the act of beating a filling-thread against the woven cloth.

The slider *o* is pivoted to the lower arm of the lever *m*, whose spring *n* serves to move the lever in a manner to cause it to advance the draw-pawl *k* on its ratchet when it may be necessary so to do.

The toothed rack *q* is pivoted to the lower end of the lever *r*, and is arranged alongside of the slider *o*, having the catch-pawl *p* pivoted to it.

This catch-pawl is suspended from or hooks upon an arm, *u*, arranged over it, such arm, at its rear end, being pivoted to the frame A, as shown at *v*. At its front end the arm *u* is jointed to the lower rod of an oblique rod, *w*, which, at its upper end, is jointed to the upper arm of the lever that supports the whip-roll.

While the shed is being formed, the strain on the warps will cause the whip-roller to be drawn forward, and when any such movement of it takes place, the arm *u* will be lowered, and, if depressed far enough, the catch-pawl *p* will be thrown into engagement with the rack *q*, in which case the said rack, while being drawn forward by the lever *r*, will be caused to draw the slider *o* forward, whereby the lever *m* and the draw-pawl *k* will be put in action, so as to cause the draw-pawl to turn its ratchet, thereby effecting a rotary motion of the warp-beam, in a direction for it to let off or deliver warp.

As the shed may close, the slackening of the warps will admit of the falling back of the whip-roller, which, in that case, will lift the arm *u*, so as to raise the catch-pawl out of engagement with the rack.

From the above it will be seen that I have added to the yarn or warp-delivery mechanism, as hereinbefore explained, and to the whip-roller, supported as described, an auxiliary mechanism, consisting of the arm *u* and the rod *w*, which, by means of the whip-roller, so controls or governs the action of warp-delivery mechanism as to cause it to deliver warps only while the shed is being formed, or while it is complete, the delivery varying as the tension of the warp may require.

At any time, when working, the parts become disengaged when enough of yarn or warp is let off to admit of the return of the whip-roll to its normal position.

Another method of carrying out my invention would be to dispense with the mechanism, hereinbefore described, for actuating the draw-pawl ratchet, and thereby putting in movement its shaft and the gears for connecting such shaft with the warp-beam, and substituting for such mechanism, so dispensed with,

a catch-rack, pivoted to the lay or other proper movable part of the loom, and suspended from the lever or supporting-arm of the whip-roll, the whole being so that, during a retreat of the lay or opening of the shed, the catch-rack, provided it be lowered into engagement with the ratchet, shall revolve such ratchet so as to effect instantly a delivery of the warp, the lowering of the ratchet being effected by the depression of the whip-roller, owing to the strain of the warp.

On falling back of the whip-roller, the catch-rack would be elevated out of engagement with the ratchet.

A mechanism, as last described, is shown in the drawing by dotted lines, the catch or catch-rack being represented at *A'*, slotted as shown at *a'*, and supported by a stud or pin, *b'*, extended from the lever of the whip-roller.

There are well-known mechanical equivalents for the whip-roller, many of which are described in the specifications of various patents heretofore granted in let-off mechanisms for looms.

My invention is applicable to most any one, if not to every one, of such "let-offs" or warp-delivery mechanisms, and, therefore, I do not confine it to a roller alone, as it is equally applicable to a bar, when used in the place of the roller, and for a like purpose.

I claim—

In combination with the whip-roll and the mechanism for effecting delivery of the warp, as described, the catch *p*, and its ratchet or rack *q*, the lever *r*, connected with the lay, the reciprocating rack *q*, and the pawl *p* and slider *o*, connected with the pawl for actuating the ratchet-wheel, in combination with the whip-roller and its connections, for actuating the pawl *p*, as and for the purpose described.

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Witnesses:

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