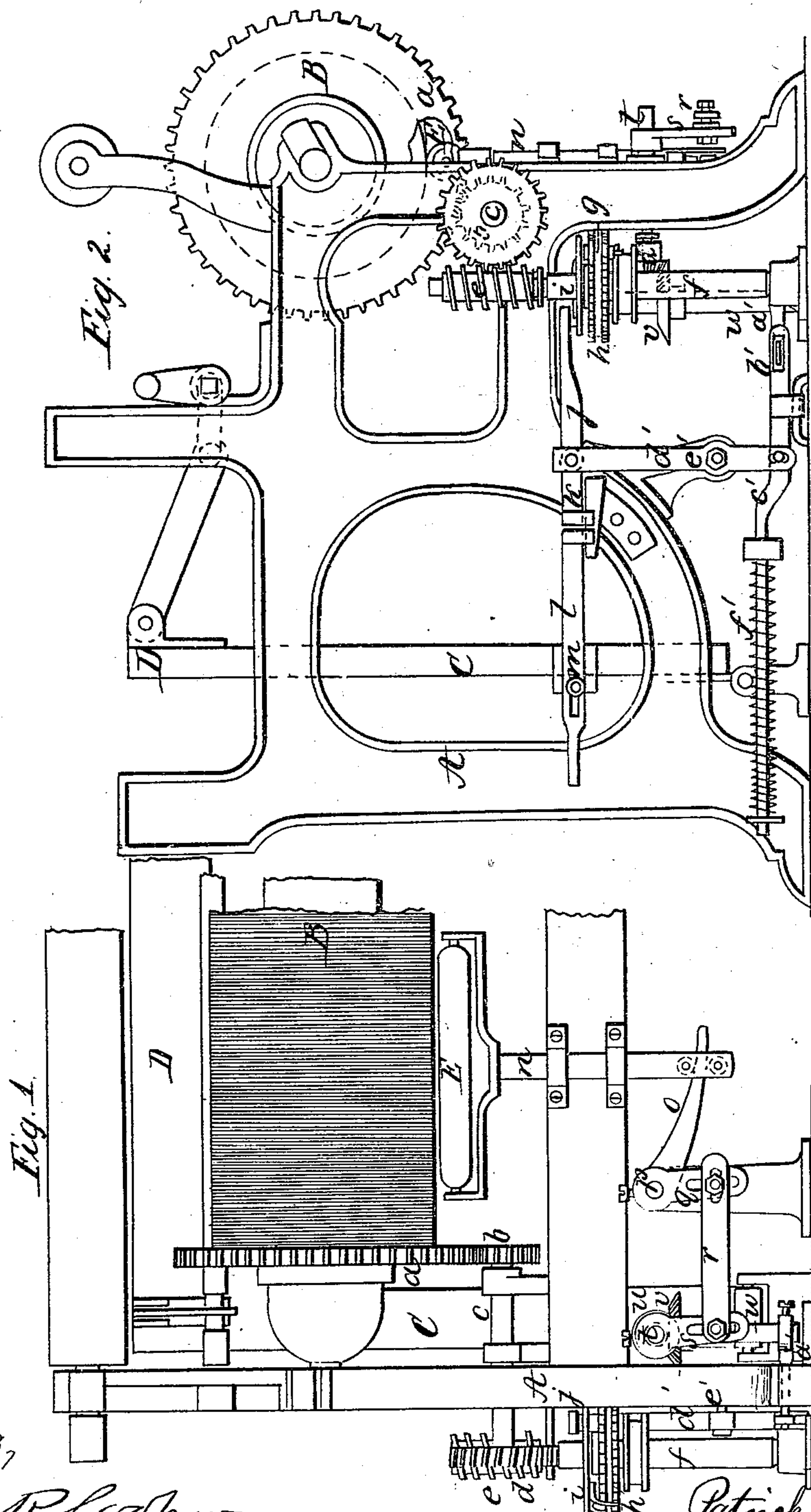


P. McGee.

Let-Off Motion.

N^o 82,625.

Patented Sept. 29, 1868.



Witnesses,

John R. Cooper,
J. D. Beecher.

Inventor,

Patrick McGee

J. H. M. M. Wright
Attorney

United States Patent Office.

PATRICK McGEE, OF NORTH PROVIDENCE, RHODE ISLAND.

Letters Patent No. 82,625, dated September 29, 1868.

IMPROVEMENT IN LET-OFF MECHANISM FOR LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, PATRICK McGEE, of North Providence, in the county of Providence, and State of Rhode Island, have invented a new and improved Let-Off Motion for Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, forming part of this specification, in which—

Figure 1 represents a rear view of a loom provided with my let-off motion.

Figure 2 is an end view of the same.

Similar letters refer to like parts in both figures.

The object of my invention is to apply to a loom suitable mechanism for the purpose of letting off the yarn from the yarn-beam, at a uniform speed, from first to last end of the warp, the speed of the yarn-beam being increased in the ratio of the decrease of the yarn on the beam.

A represents the frame of a loom, which frame may be made of cast iron or any other suitable material, and in the proper form to support the working parts of the loom. This frame forms the bearings for the gudgeons of the whip-roll and yarn-beam, B, from which the warp is passed through the loom in the ordinary manner.

On one end of this yarn-beam is mounted a cog-wheel, *a*, which gears in a pinion, *b*, which latter is secured to one end of a shaft, *c*, the opposite or outer end of which shaft *c* carries a worm-wheel, *d*, which gears into a worm, *e*, mounted on a vertical spindle, *f*, (shown more clearly in fig. 2.) The vertical spindle *f* receives an intermittent rotary motion by means of one or more pawls, *g*, and one or more ratchet-wheels, *h*, said pawl or pawls being secured to the outer end of a lever, *i*, which turns loosely on the vertical shaft *f*. From this lever *i* there extends a rod, *j*, the further end of which forms what I term "an adjustable abutment," R.

This abutment is opposite the end of a pusher-bar, *l*, which connects, by means of an arm, *m*, with the sword C of the batten or lay D. As the batten D receives its customary vibrating motion, the pusher-bar *l* strikes the abutment R, and by these means the lever *i* is turned, and the pawls, one or more, transfer this motion to the vertical shaft *f*, whence it is transmitted, by the worm *e*, worm-wheel *d*, pinion *b*, and cog-wheel *a*, to the yarn-beam, causing said beam to revolve, and to give out the requisite quantity of warp.

I will here remark that the pusher-bar *l* may be so arranged that when the weft or filling-thread gives out or breaks, said bar will be raised to such a position that it will clear the abutment, and stop the letting off of the warp until the weft is properly adjusted.

It is obvious that, if the abutment R, after having been struck by the pusher-bar, is returned always to the same place, the yarn-beam will be turned the same number of degrees for every stroke of the batten, and as the quantity of yarn on said beam, and consequently the diameter from which the warp is given out, decreases, the quantity of warp given out for each pick will gradually decrease, and a fabric of unequal texture will be the result.

This difficulty I have overcome by changing the position of the abutment R automatically, according to the varying diameter of the yarn-beam.

This I effect by a pad, E, which bears against the circumference of the warp on the yarn-beam, and which connects with the abutment R, as will be presently explained. In the drawing, the pad E is made in the form of a roller, which has its bearings in the upper forked end of a vertical rod, *n*. This rod slides freely up and down in suitable loops or boxes attached to one of the "traverses" in the frame A, and its lower end is supported by an arm, *o*, which extends from a rock-shaft, *p*. On this rock-shaft is secured a second arm, *q*, which connects by a rod, *r*, with an arm, *s*, secured on a rock-shaft, *t*. This rock-shaft *t* connects, by toothed segments *u v*, with a vertical shaft, *w*, from which extends a toe, *a'*, which bears against a shoulder, *b'*, on a rod, *c'*. This rod is situated at the end of the frame A, (see fig. 2,) and it is connected to a lever, *d'*, which has its fulcrum on a stud, *e'*, secured in the frame A, and the upper end of which lever *d'* is pivoted to the rod *j*, the end of which rod *j* forms the abutment R. A spring, *f'*, drives the rod *c'* against the toe *a'*, and the abutment R is permitted to advance towards the end of the pusher-bar, as far as the toe *a'* will allow. As the quantity

of warp on the yarn-beam diminishes, the pad E rises, and the toe a' recedes, thus allowing the abutment R to advance towards the pusher-bar, and by these means the motion imparted to the yarn-beam is increased, in proportion as its diameter decreases, and the amount of warp is given out uniformly throughout.

It is obvious that, by changing the cog-wheels and toothed segments, the amount of motion transferred from the pad to the abutment, and from the abutment to the yarn-beam, can be adjusted to suit circumstances.

And, furthermore, by changing the position of the rod r on the arm q , (with or without a change of pinion b ,) or by changing the position of the arm m on the sword C, or by changing one, both, or all, any kind of cloth, from the lightest to the heaviest, may be woven.

I will here remark that motion might be given to the pusher l from the crank-shaft, by means of an eccentric or cam, or by a double cam on the wiper-shaft of the loom, and achieve the desired result.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with the pad E and yarn-beam B, of the toe a' , spring-bar c' , lever d' , abutment R, and pusher-bar l , receiving motion from the sword or any other portion of the loom, and acting through the abutment R on the let-off motion, in such manner that the letting off of the warp will be regulated according to the variable diameter of the beam, substantially as herein specified.

PATRICK MCGEE.

Witnesses:

STEPHEN MURRAY,
MAURICE O'DONOVAN.