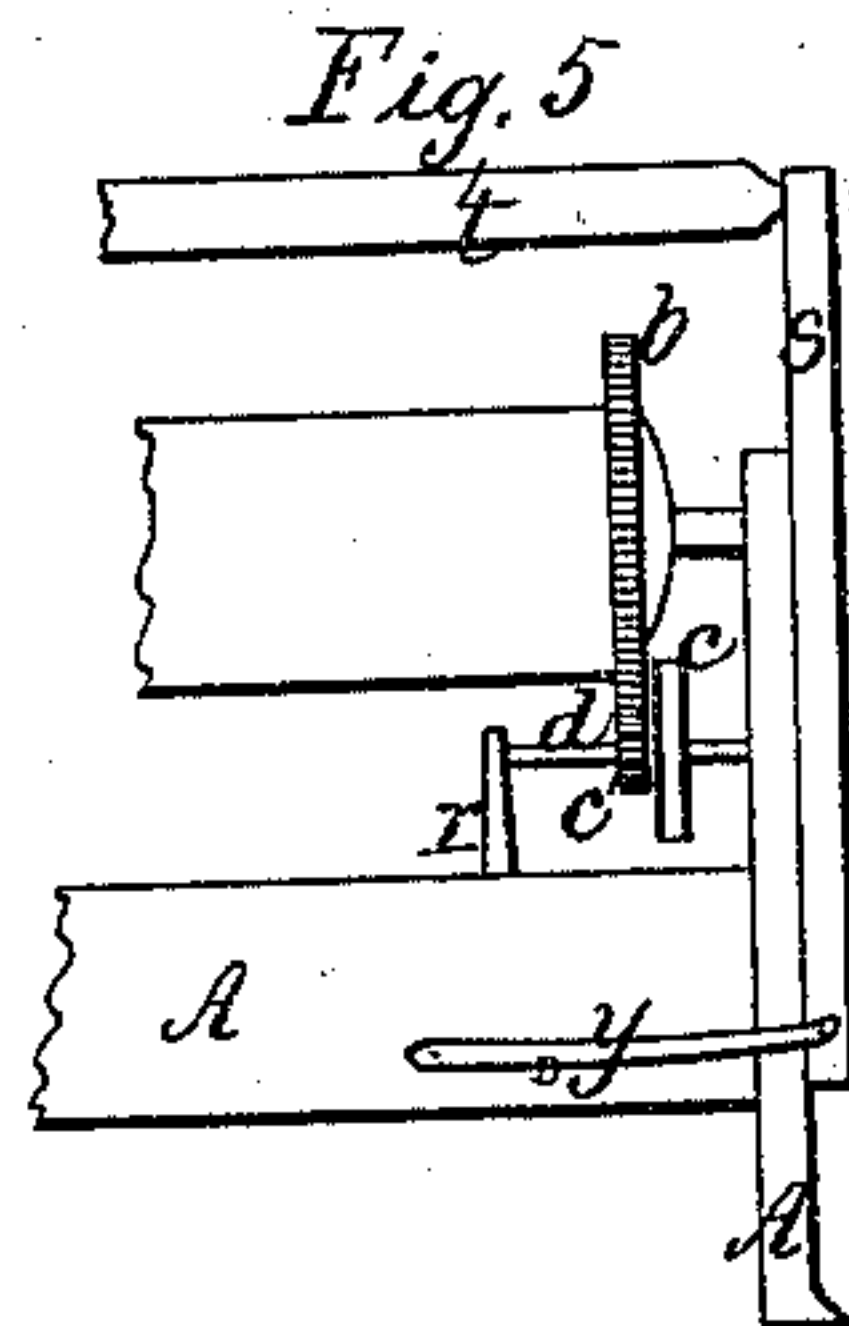
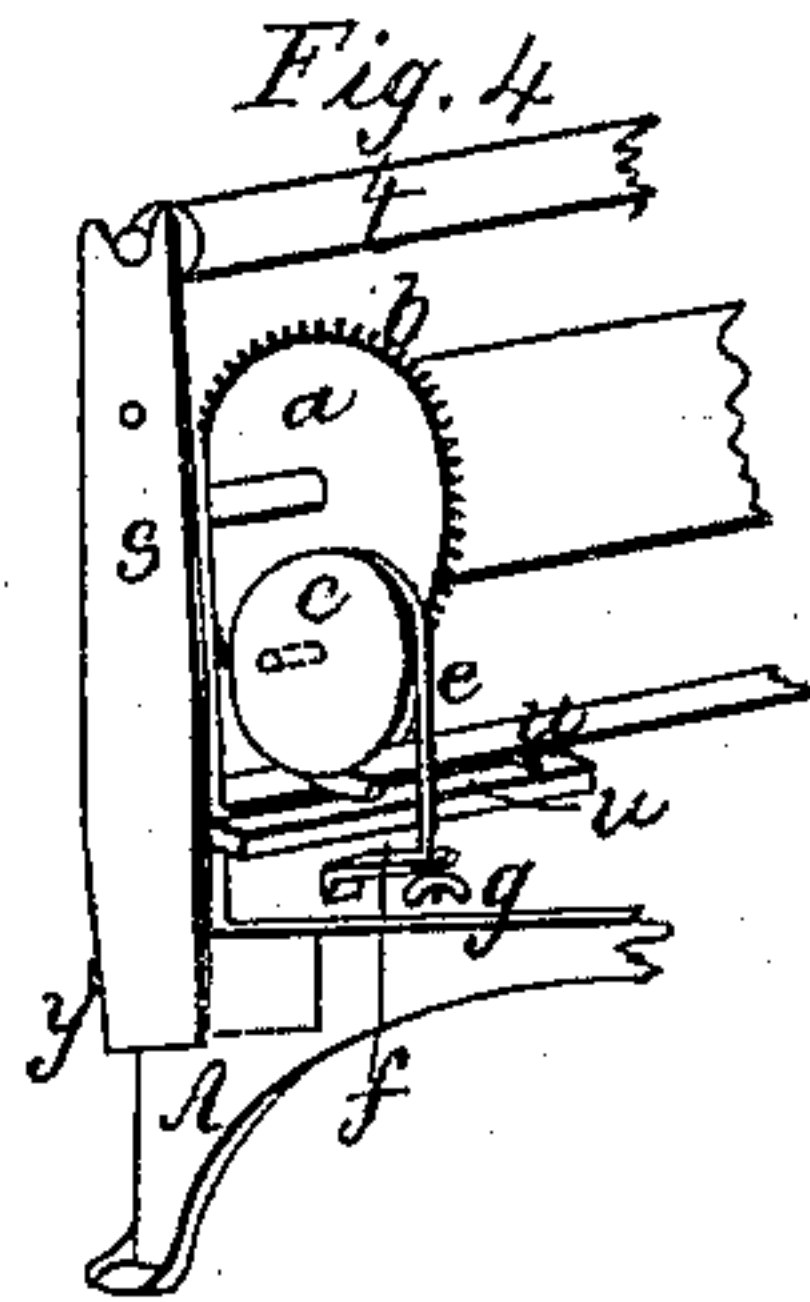
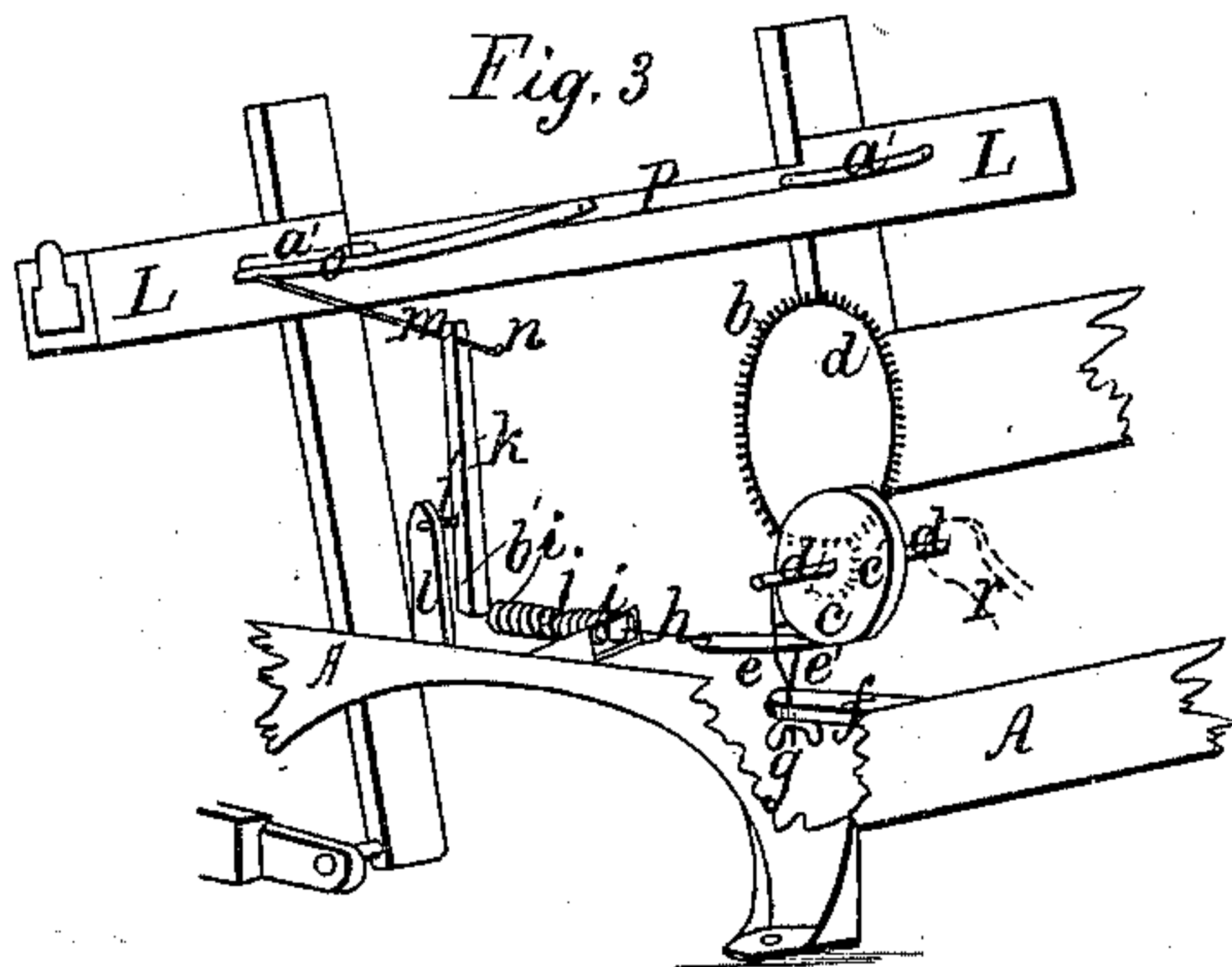
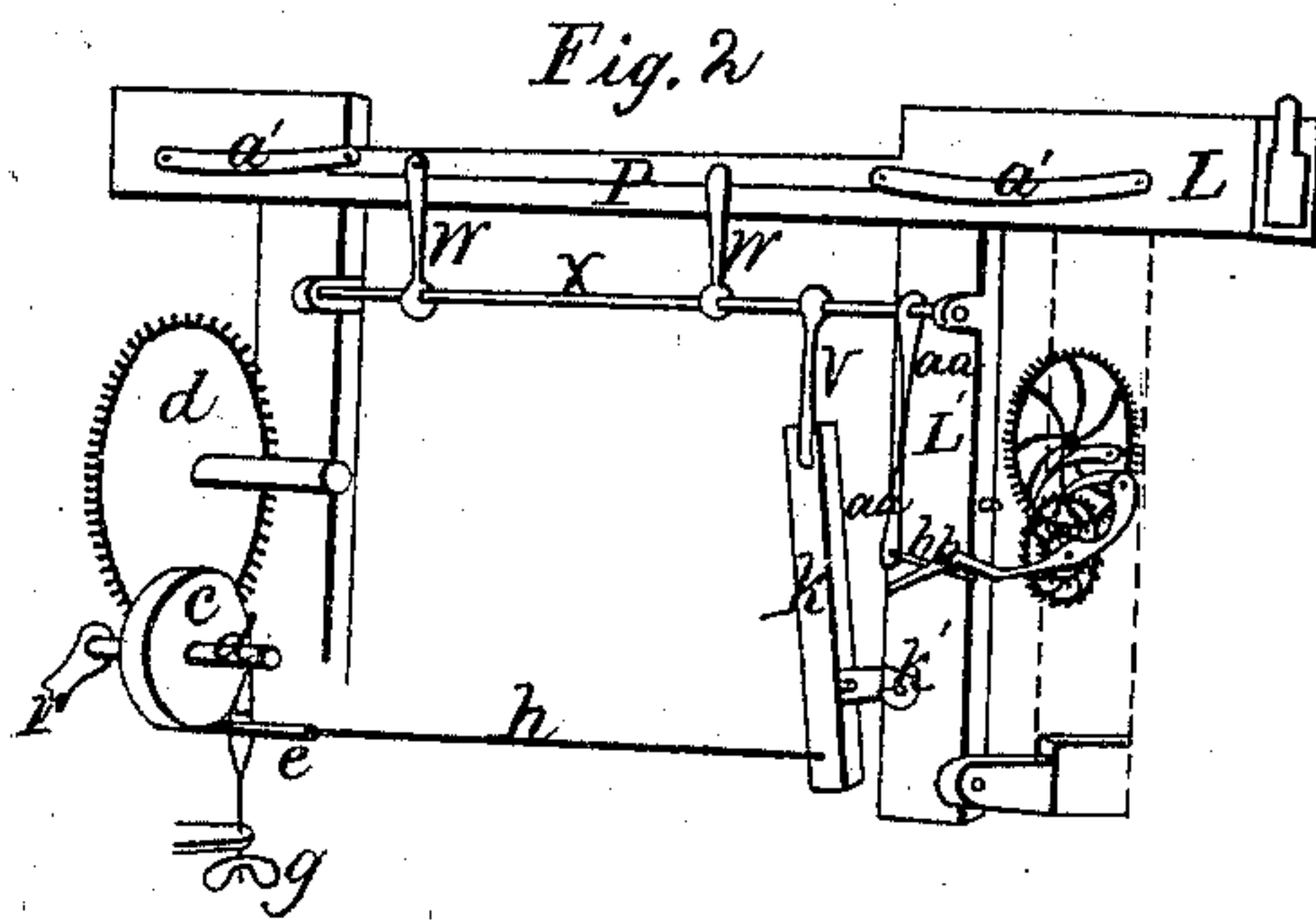
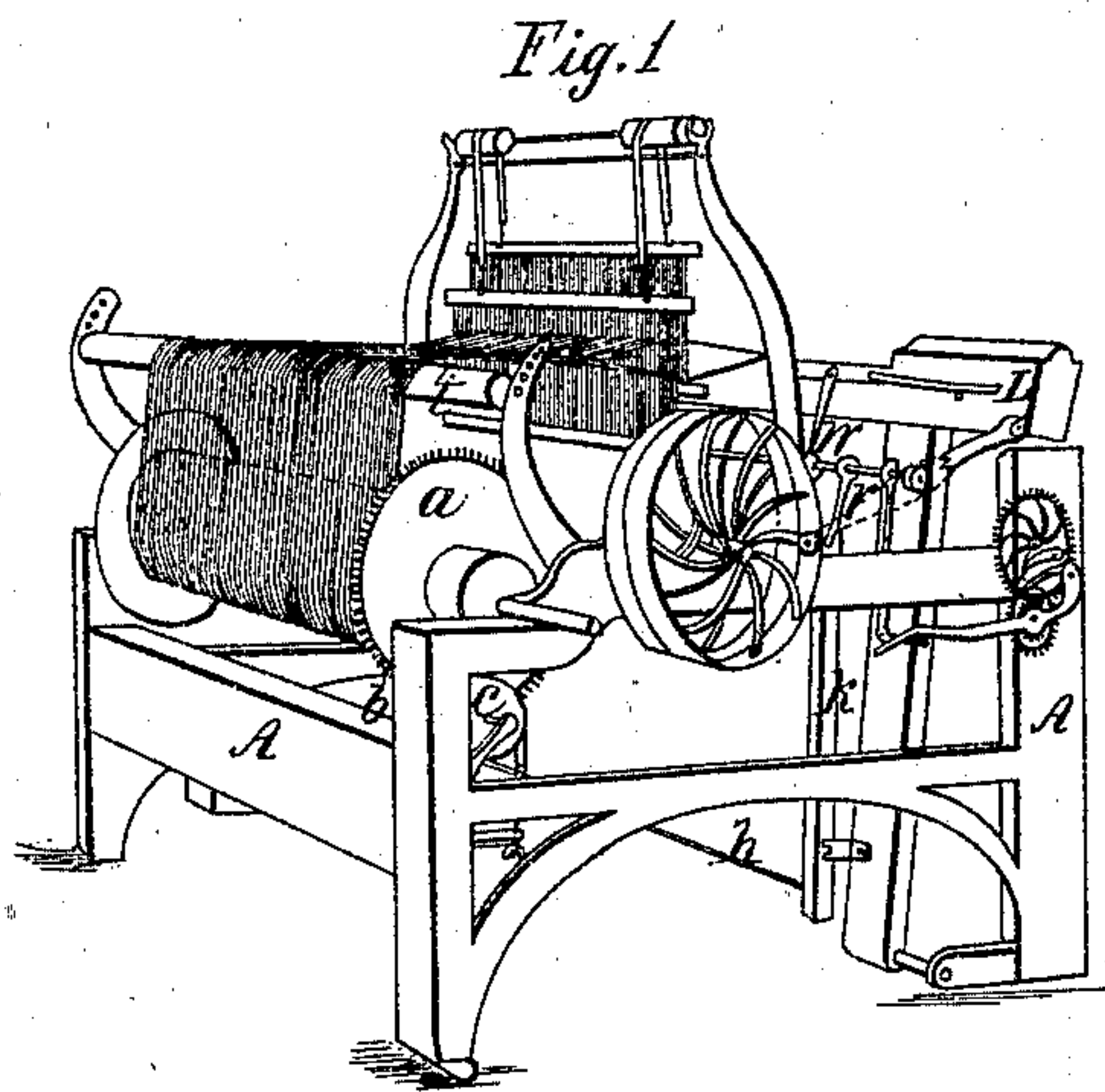


W. H. BRAYTON.  
LET-OFF MOTION.

No. 3,397.

Patented Jan. 6, 1844.



*Witnesses*

James W. Clarke-  
John T. Pitman

*Inventor*  
William H. Brayton



# UNITED STATES PATENT OFFICE.

WM. H. BRAYTON, OF WARREN, RHODE ISLAND.

## WEAVING-LOOM FOR REGULATING THE DELIVERY OF WARP FROM WARP-BEAMS.

Specification of Letters Patent No. 3,397, dated January 6, 1844.

*To all whom it may concern:*

Be it known that I, WILLIAM H. BRAYTON, of Warren, in the county of Bristol, in the State of Rhode Island and Providence Plantations, have invented a new and useful improvement on looms not known or used before my discovery, which consists in a new method of regulating the letting off of the yarn from the yarn-beam, called the "Brayton let-off motion," of which the following, together with the drawings hereto annexed and made part of this specification, is a full and exact description.

*Of the set off motion.*—To one end of the yarn beam as represented in Figures 1, 2, 3, 4 and 5 letter *a* is fitted a tooth wheel *b* which gears into and works with a small pinion *c'* (Fig. 5,) attached to and concentric with a pulley *c* called the friction pulley. The said pulley and pinion work loosely on a shaft *d* supported by suitable stands *r r*. Around the circumference of said pulley is carried once or twice a band or strap *e* called the friction strap. One end of this strap is fastened to a rod *h* of iron or other metal.

The said rod passes through a hole in the bearing plate *f* and is secured and regulated at the other end by a thumb screw *g*. The other end *e* of said friction strap is connected and fastened as represented in Fig. 2—made part of this specification (until otherwise mentioned the references will be made to Fig. 2 only)—by the rod *h* to the lower arm of an upright lever *k* attached to the sword *L'* of the lathe *L* by the bearing *k'* as a fulcrum. The other arm of said lever is jointed to the finger *V* attached to and let down from the shaft *X* which is supported by bearings on the lathe sword *L'* and supports the fingers *w w*. To these fingers *w w* the fighter *P* is attached and kept in its place by screws. The fingers *w w* are equidistant from the middle of the fighter.

The operation of the let off motion is as follows: The fighter, upon the reeds striking the cloth, vibrates about three-sixteenths of an inch, more or less, as the springs *a' a'* one each side the fighter bear less or more upon it. By this vibration the fingers *w w* attached to the fighter cause the shaft *X* to turn a little on its bearings, moving with it the finger *V*. This finger carries forward the upper arm of the lever *k* which moving on its fulcrum *k'*

carries proportionably the lower arm toward the friction pulley *c* pushing before it the rod *h*. By this movement the friction strap *e* is slackened and allows by the decrease or want of friction on the pulley the yarn beam to revolve until the fighter resumes its former position on the lathe, when by the tightening of the strap the motion of the yarn beam is arrested until a new vibration takes place.

The friction pulley may be about 5 or 6 inches in diameter and thick enough for a seven-eighths inch wide friction strap. The groove on its circumference may be about one-fourth of an inch deep. The pulley can be operated without any other resistance to the strap that what is offered it by the material of which the pulley is formed; but I think it better in order to increase the friction to glue on the groove a strip of leather. The pulley is movable on the shaft for the purpose of adjusting it to the different widths of cloth and is held in its place on the shaft by the friction strap.

The friction strap may be formed of any substance sufficient to cause the necessary friction, but I think leather is to be preferred to any other.

The pinion of the friction pulley may vary in size from  $1\frac{1}{2}$  to 3 inches in diameter, according to the quality of the goods made. The thinner the goods, the larger the pinion, the teeth being of the same size. The shaft upon which run the pulley and pinion may be about  $\frac{5}{8}$  of an inch in diameter, and, for a loom calculated for yard wide goods, may be about nine inches long. The rods may be made of any metal of sufficient tenacity and the levers of the same or of wood.

The rate of let off or the quantity of motion given to the yarn beam is regulated for the different kinds of goods by tightening or loosening the friction strap by means of the thumb screw *g*, thin goods requiring the strap to be looser than thick ones.

What I claim as my invention is—

The mode of connecting the yarn beam with the fighter by means of the friction strap and pulley.

The let off motion can be applied to the fighter in another mode and also to the spring whip roll stand, both of which I consider as modifications of the mode already described. It can be applied to the fighter as follows: The end *e* of the fore-



mentioned friction strap is connected and fastened (Fig. 3) to the lower arm of the upright lever *k* by the rod *h*. The rod *h* after passing through said lever *k* is secured  
 5 and terminated by the thumb screw *b'* which serves to regulate the length of said rod. The fulcrum of lever *k* rests on the horizontal bearing *l'* of the upright stand *l* of the frame A. In the upper arm of said  
 10 lever *k* through a hole near its extremity large enough to allow free play, is passed a rod *m* having a knob *n* at one end to prevent that end from going through the hole. The other end of this rod is secured to one  
 15 arm of a horizontal lever O which has its other arm secured to the middle of the fighter P and its fulcrum upon the lathe L. The manner of the operation under this modification is as follows: Upon the vibra-  
 20 tion of the fighter as first described the lever O causes the rod *m* to move the lever *k* by drawing the knob *n* into contact with its upper arm. By the movement of said lever *k* the strap *e* is loosened in the same  
 25 manner as described in No. 1, and with the same effect. As soon as the force of the fighter is expended, the rod *m* is pushed back and the lever *k* is left to resume its former position. The spiral spring J hav-  
 30 ing been by the lever *k* in the loosening movement contracted and forced toward the stand Z is now freed from the propelling power and expands, forcing with rapidity said lever *k* to its place and thus tightens

the strap. It can be applied to the spring 35 whip roll stand in the following manner: The end *e* of the forementioned friction strap is fastened as in Fig. 4, to the horizontal lever *u*, attached at one end by a  
 40 pivot and arm *u'* to the frame A of the loom, and at the other is secured to and moves with the stand S. The mode of operation is as follows: By the vibration of the spring whip roll caused by the action  
 45 of the reed upon the cloth, the lower end of the stand is moved in the opposite direction of that of the upper, and is forced in the direction of and with the spring Y  
 50 until the impulse ceases, and carrying with it the lever *u* loosens the strap *e*, so that the yarn beam is allowed to run until  
 55 stopped by the return of said stand caused by the action of the spring Y upon it. The same result can probably be attained by variations in the sizes and positions of the different parts. The sizes and positions which  
 I have given, I have found by experience to be sufficient for the purpose.

In testimony whereof, I, the said WILLIAM H. BRAYTON, hereto subscribe my name 60 in the presence of the witnesses whose names are hereto subscribed on the seventh day of July, A. D. 1841.

WILLIAM H. BRAYTON.

In presence of—

JAMES M. CLARKE,  
 JOHN T. PITMAN.