

Gilman & Berry. Spinning Mach.

N^o 4,3846.

Patented Aug. 10, 1864.

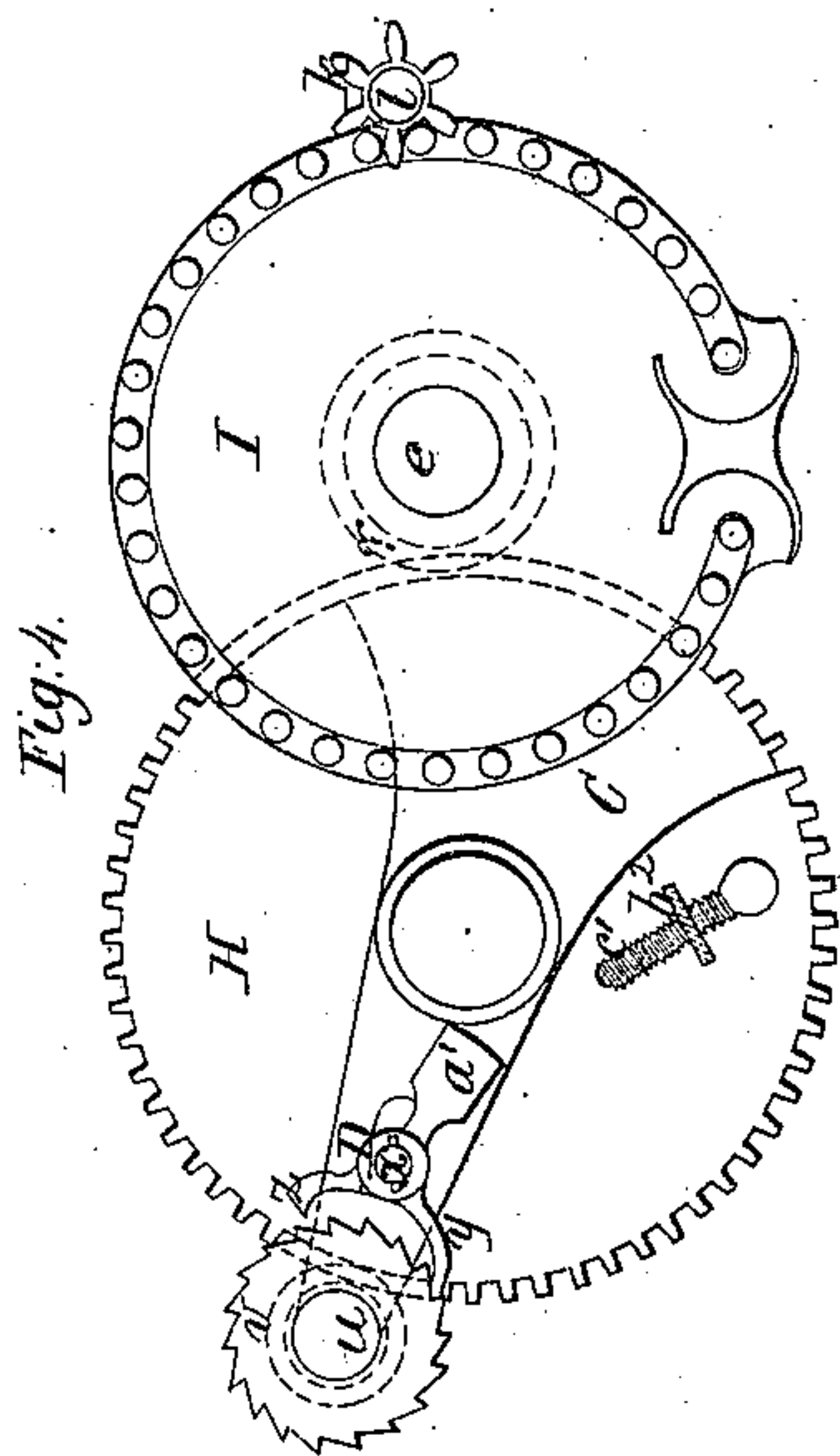
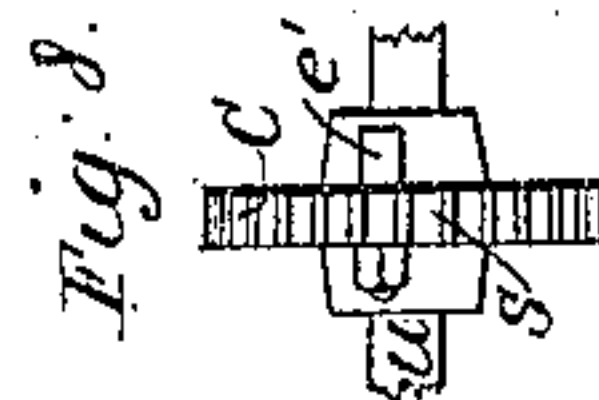
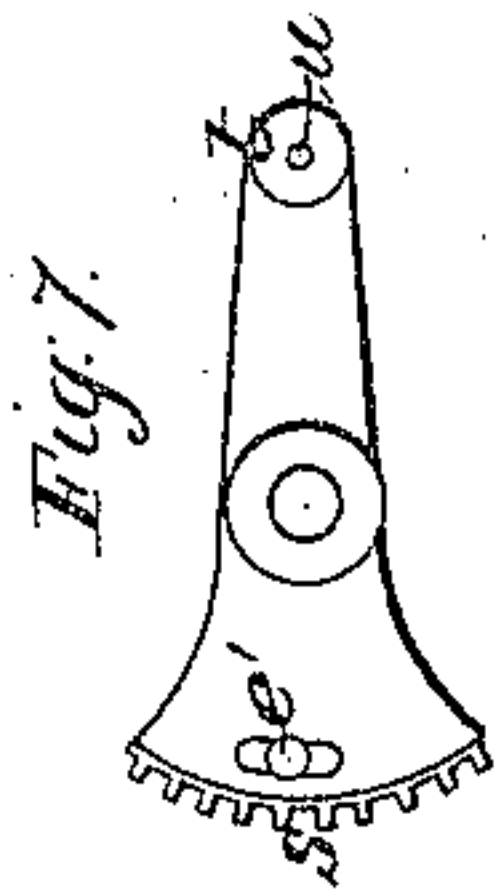
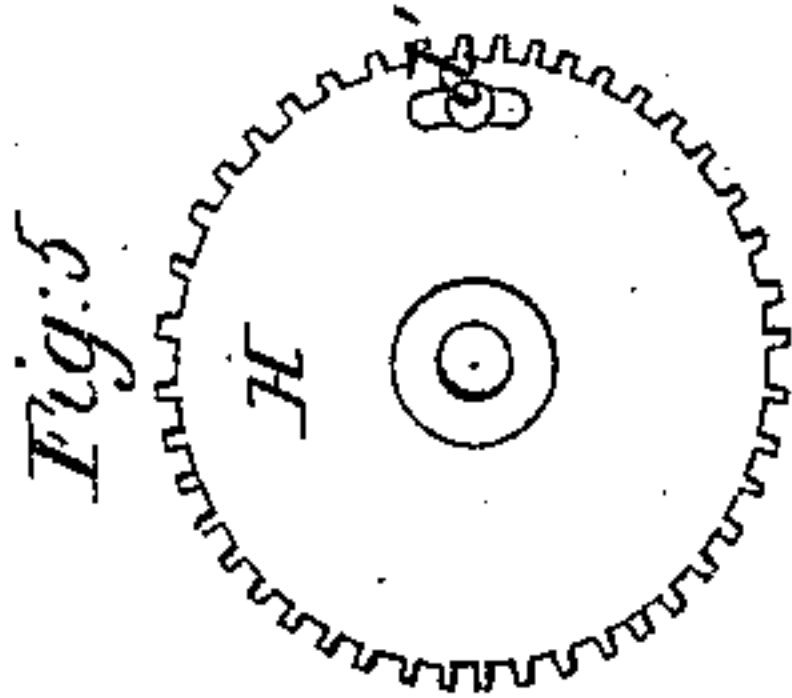
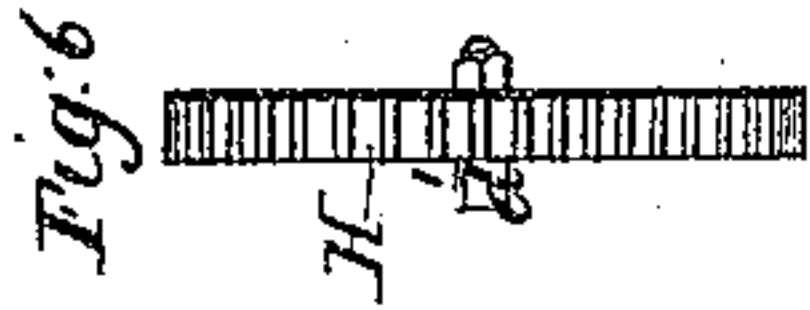


Fig. 3

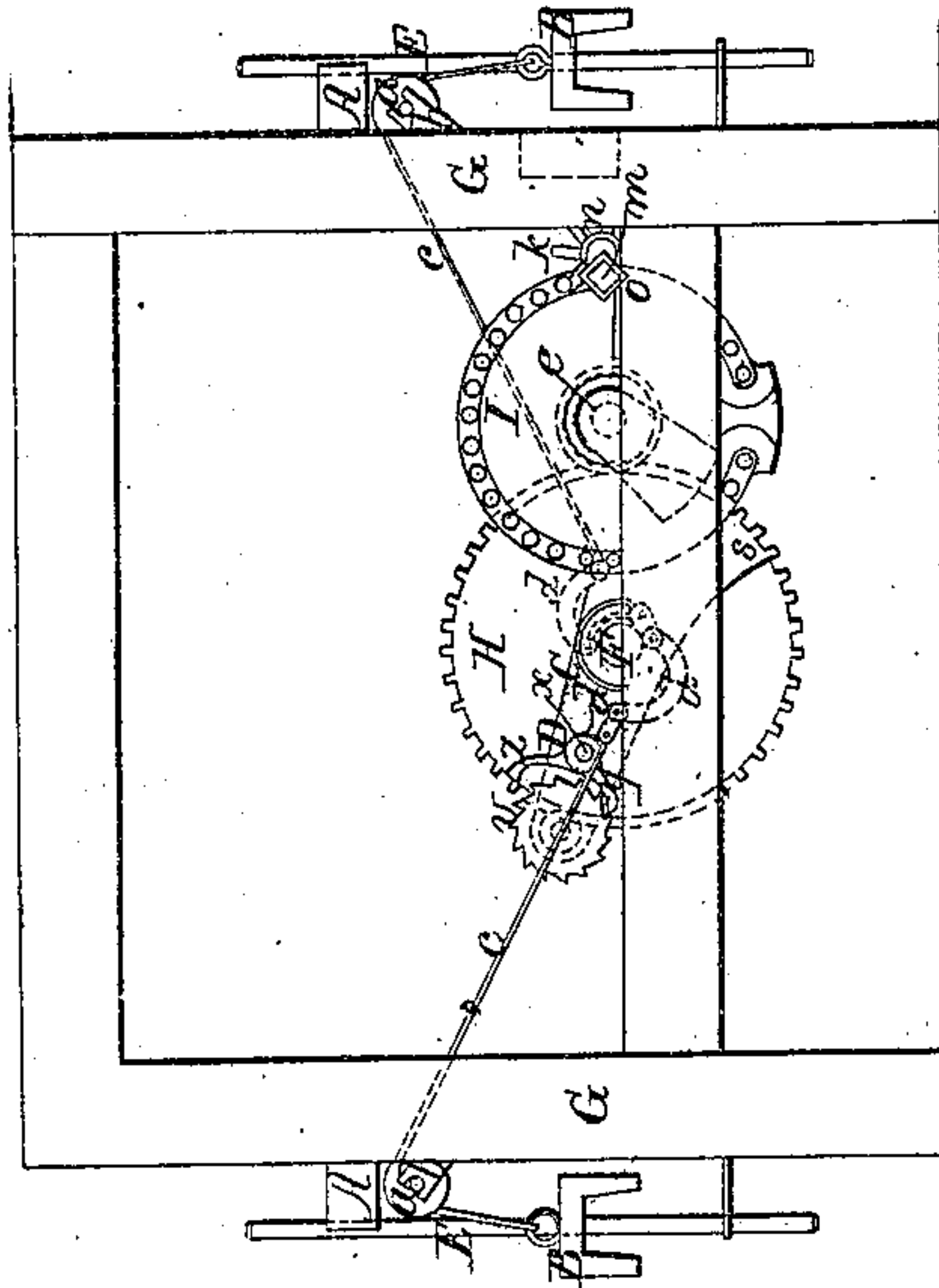


Fig. 1

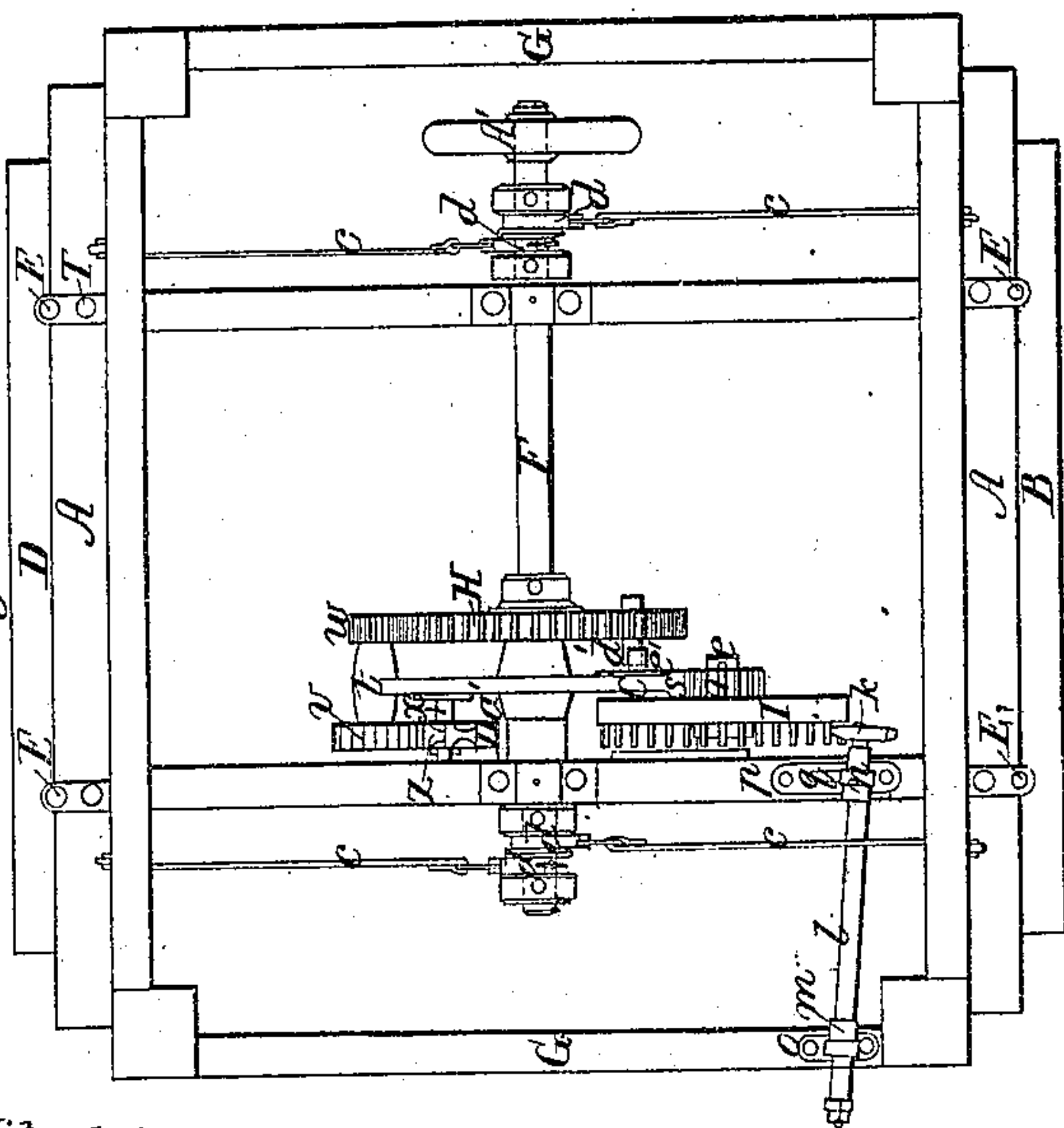
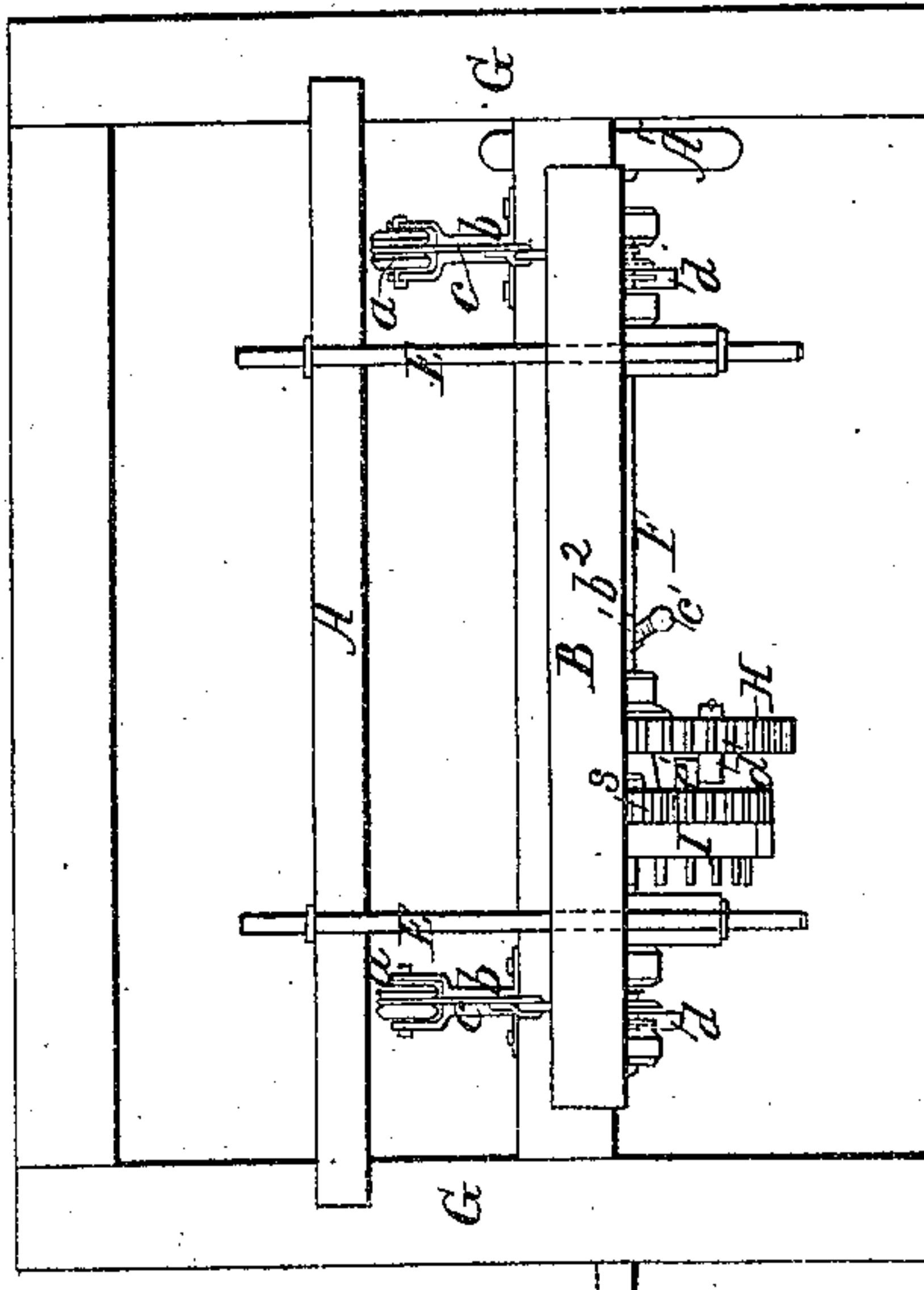


Fig. 2



Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT H. GILMAN AND JAMES S. BERRY, OF BIDDEFORD, MAINE.

IMPROVEMENT IN SPINNING-MACHINES.

Specification forming part of Letters Patent No. 43,846, dated August 16, 1864.

To all whom it may concern:

Be it known that we, ALBERT H. GILMAN and JAMES S. BERRY, of Biddeford, in the county of York and State of Maine, have invented a new and useful Improvement in Throstle-Spinning Mechanism; and we do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2, a front side elevation, and Fig. 3 an end view, of the frame and parts of a throstle-spinning machine with our improvements applied thereto. Fig. 4 is an end view of our invention and the mechanism with which it is directly connected.

Our improvement has reference to that mechanism of a throstle-spinning machine by which the vertical movements of the spindles are produced and regulated in order that the yarns, while being spun, may be wound in a proper manner on their several bobbins.

Our improvement also has special reference to the invention for which Letters Patent No. 9,283 were granted on the 28th day of September, A. D. 1852, to Charles H. Hunt, and is a new or improved "let off" or escapement mechanism to be used in connection with a reciprocating mangle wheel and the gear of the shaft with which the curved links or "goose-necks" employed in operating the spindle-rails are applied.

In the said drawings we have not represented any spindles or fliers or their equivalents, but have exhibited the spindle-rails as used in ordinary throstle-frames, it being understood that when in use each of the rails is to support a series of spindles to work in the usual manner with a series of fliers.

In Figs. 1, 2, and 3 of the drawings, A A denote the stationary flier-rails; B B, the spindle-rails, and E E the guide-rods of the said spindle-rails. Each of the rails B B is suspended from two sheaves, *a a*, upheld by arms *b b*, by means of two chains or cords, *c c*, which pass partially around the sheaves and thence forward toward and are respectively fastened to two curved links or goose-necks, *d d*, which are connected to the main shaft F of the frame G, such shaft being arranged as shown in the drawings. These curved links or goose-necks are applied to the shaft F and are intended for the same purpose as those described and represented in the

said patent of the said Hunt. The shaft, like its counterpart in the said Hunt's machinery, has a large gear, H, fixed on it concentrically. We also employ, as does the said Hunt, a mangle-wheel, I, which we support on a stationary journal, *e*, arranged as shown in the drawings. This mangle-wheel, formed in side view, as shown in Fig. 4, has a pinion, *k*, for operating it, the said pinion being fixed on a vibratory shaft, *l*, supported by two bearings, *m n*. The first of these bearings—viz., *m*—should be so applied to its supporting-rail *o* as to be capable of being turned a little horizontally. The other bearing—viz., *n*—is so adapted to its rail *p* as to be capable of being moved in directions longitudinal thereof—that is to say, it is inserted in a slot, *q*, within which it can slide from end to end of the slot. On rotating the shaft *l* the pinion *k* will impart to the mangle-wheel a reciprocating rotary motion—that is to say, the mangle-wheel will be caused to make very nearly an entire revolution in one direction, after which it will revolve a like distance in the opposite direction.

Affixed to the side of the mangle-wheel, and so as to turn with it on the journal *e*, is a pinion, *r*, which engages with the curved rack *s* of one arm of a sectoral lever, *c*, which has the shaft F for a fulcrum, the shaft going through the lever. The other arm of the lever C is properly formed with a bearing, *t*, for the support of a short shaft, *u*, which has a ratchet or escapement wheel, *v*, at one end, and a pinion, *w*, fixed on its other end. The pinion *w* engages with the large gear H, hereinbefore mentioned.

An escapement or rocker lever D, formed as shown in the drawings, is supported by and so as to be capable of freely turning on a fulcrum, *x*, extended from the lever C. This escapement lever D has two pallets or arms, *y z*, which operate with the teeth of the wheel *v*. The third arm, *a'*, of the lever D is weighted or heavier than the pallets and operates to press one of them—viz., the unhooked pallet *y*—close up to the periphery of the ratchet.

Through an arm, *b'*, projecting from the rail *p*, a screw or tripper, *c'*, is screwed and so that its point may be in the path of movement of the tail or arm *a'* of the escapement-lever D.

For revolving the shaft *l* there may be a

pulley fixed on its outer end, such pulley to receive rotary motion from a belt duly put in movement.

An adjustable stop, d' , projects from that face of the gear H which is next to the sectoral lever C, there being a similar stop, e' , projecting from the latter, the same being as shown in Figs. 5 and 6, and 7 and 8, Fig. 5 being a side view, and Fig. 6 an edge view, of the gear H, while Fig. 7 is an inner side view, and Fig. 8 is an edge view, of the sectoral lever.

By the reciprocating rotary motions of the mangle-wheel corresponding reciprocating vibratory motions will be imparted to the sectoral lever C. While the pallet y of the escapement-lever may be in engagement with the escapement-wheel or ratchet v , the shaft u will be prevented from being revolved. Consequently the sectoral lever, by pressing the pinion w against one of the teeth of the gear H, will cause the shaft F to revolve, the arc of its revolution being coincident with that of the sectoral lever, with the exception that, in consequence of the tail a' of the escapement-lever D being carried in contact with the tripper c' , such escapement-lever will be so turned as not only to force its arm y out of action with the escapement-wheel, but the hooked arm z into action with it. In the interval between these movements of the two arms y and z the escapement-wheel will be free to revolve, and will do so until stopped by the arm z . The weight of the spindle-rails acting on the shaft F, through the cords $c c$ and the goose-necks $d d$, tends to revolve the shaft and allow the spindle-rails to descend; but while the pallet y may be in engagement with the escapement-wheel the spindle-rails will not be checked from descending through the action of gravity, operating independently of the mechanism by which the shaft F is revolved for the purpose of raising the spindle-rails.

In the process of laying or winding the yarn on each bobbin the shaft F is not only to have imparted to it a regular reciprocating rotary motion, such as will raise and lower the spindle-rails, but at the termination of each elevation or raising of the spindle-rails the shaft F is to be "let off" or turned a little, so as to unwind the goose-necks from it, in order to allow each of the spindle-rails to drop a short distance to effect the building up of the yarn on the bobbin. Thus the machinery for regulating the movements of the spindle-rails not only causes these movements to be such as to lay the yarn on the spool or bobbin in regular layers, but causes the rails to be

dropped a little distance prior to each wind or winding of the yarn, in order that each wind may rise a little higher on the bobbin than did the preceding wind.

The stops $d' e'$ serve to enable the sectoral lever to be brought into its proper position relatively to the rest of the mechanism preparatory to the laying of the yarn on the bobbin. By taking hold of a wheel, A' , fixed on one end of the shaft F, and turning it, the said shaft may be revolved, so as not only to wind the goose-necks and their connections up thereon and raise the spindle-rails up to their highest positions, but bring the two studs $d' e'$ into contact and thereby adjust the let-off mechanism for operation.

Our invention is positive in its action, and not attended with what mechanics term "backlash." It is simple, easily kept in order, and can be readily repaired when defective.

We do not claim a combination composed of an escapement mechanism and a reciprocating rotary mangle-wheel, the same being used in a spinning machine, and for automatically operating its spindle-rail in such manner as not only to impart to it the necessary movements for effecting each wind or layer of yarn on the bobbin, but those by which each successive layer is caused to rise a little above that immediately preceding it, as a combination of this nature is found described in the said patent of the said Hunt; but

We claim as our invention or improvement—

1. The combination applied to the reciprocating mangle-wheel I and the gear H of the shaft F, the same consisting of the pinion r , the sectoral gear lever C, the escapement-wheel v , its shaft u and pinion w , and the tripper c' , the whole being arranged and so as to operate substantially in manner as hereinbefore described.

2. The arrangement of the sectoral lever C with respect to the main shaft F and the gear H thereof, substantially in manner as specified.

3. The combination of the studs or stops $d' e'$ with the sectoral lever C and gear H, the mangle-wheel I, the shaft F, the pinion r , the wheel v , the shaft u , pinion w , the tripper c' , the spindle-rail and its connections with the shaft F, the purpose of such stops being as hereinbefore described.

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Witnesses:

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