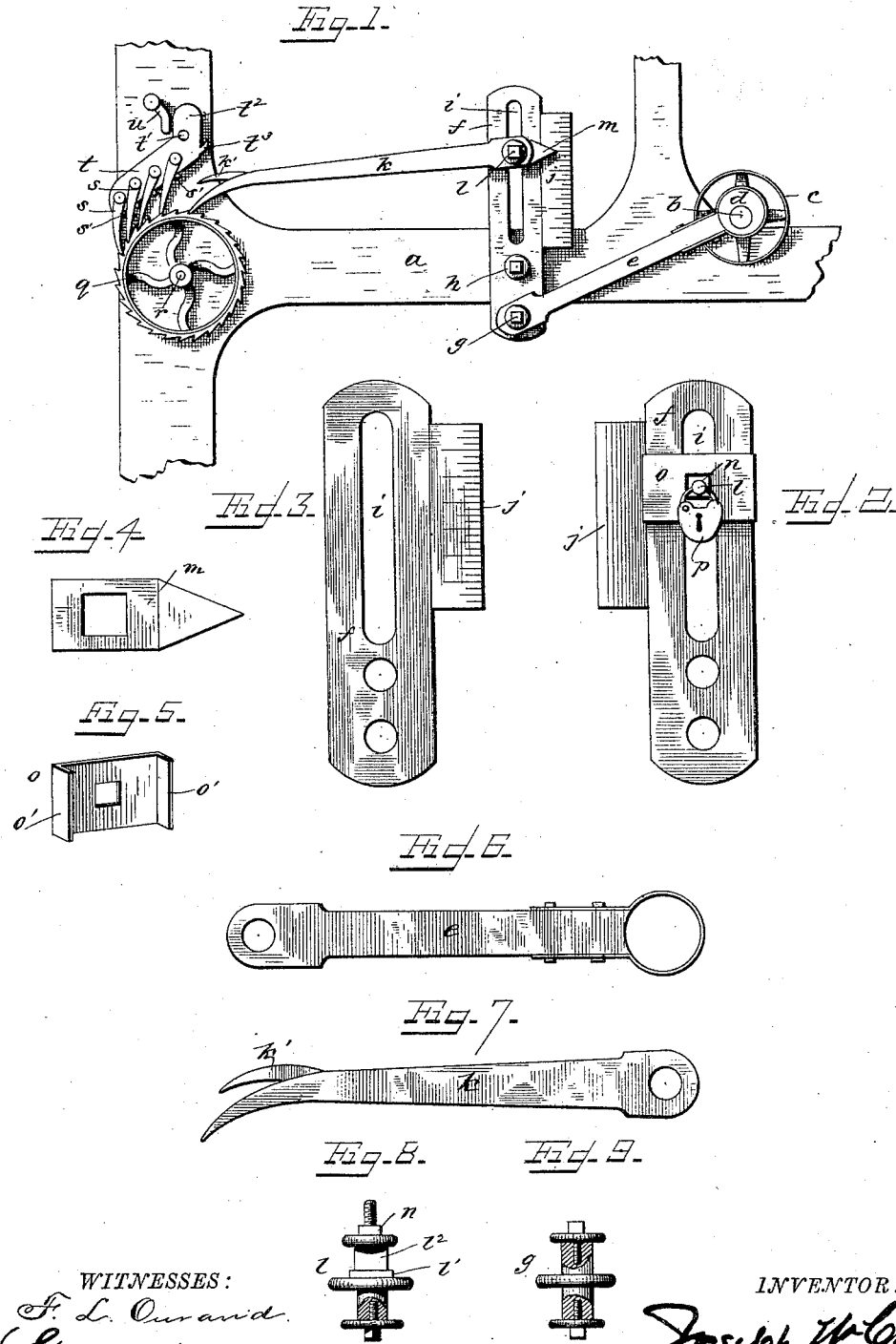


(No Model.)

J. W. CHENEY.
MECHANICAL MOVEMENT.

No. 302,709.

Patented July 29, 1884.



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UNITED STATES PATENT OFFICE.

JOSEPH W. CHENEY, OF PALMER, MASSACHUSETTS.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 302,709, dated July 29, 1884.

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To all whom it may concern:

Be it known that I, JOSEPH W. CHENEY, a citizen of the United States, residing at Palmer, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to mechanism for converting continuous rotary motion through oscillating devices into a step-by-step rotary motion, and for arresting such step-by-step rotation, and for governing the extent of such step-by-step motion.

In that class of machinery in which the product is made of a quality which may be varied it is essential that each product be uniform throughout itself. In the case of a loom, for example, the cloth must be made so many—no more, no less—threads to the inch in order to get a uniform texture or fabric. This is ordinarily governed by the “take-up” mechanism, so-called, and so with any other machinery where the product is obtained in continuous lengths, and when fed through the machine automatically the making or feeding thereof must be uniform. Now, my invention herein is designed to afford certainty in these particulars; and the invention consists in interposing, between the driving-shaft and the receiving or equivalent device, an oscillating lever the effective throw of which may be varied at pleasure, to give a desired travel to the said receiving device to insure uniformity in the product, all and severally, as hereinafter particularly set forth and claimed.

In the drawings referred to, in the several figures of which like parts are similarly designated, Figure 1 is a side elevation of so much of a piece of machinery as is sufficient to illustrate my invention. Fig. 2 is a plan view of the rear of the oscillating lever; Fig. 3, a plan of the face of the same. Fig. 4 is a plan of the pointer; Fig. 5, a perspective view of the locking-plate; Fig. 6, a plan of the pitman; Fig. 7, a plan of the pawl; and Figs. 8 and 9, detail elevations, partly in section, of the connecting-bolts for the pitman and pawl with the oscillating lever.

The letter *a* designates part of the framing

of a machine on which is mounted the main shaft *b*, which may be provided with a fly-wheel, *c*. This shaft also carries the eccentric *d*, to which is strapped or otherwise connected the pitman *e*. The mode of connection of the pitman with the shaft may be by a crank, a wrist-pin on a disk, or other known means for transmitting to the pitman a reciprocating movement. The pitman is jointed to the lower end of a plate, *f*, by a pin, *g*, substantially such as indicated in Fig. 9, so that each may turn on the pin or the pin turn in each. The plate *f* is pivoted to the frame *a* by bolt *h*, so as to freely rock thereon by the reciprocation of the pitman, and it stands up from the frame in the vertical plane of the side thereof, and is slotted longitudinally at *i*, and provided along the length of its slot with a scale or indicator, *j*, which may be graduated for inches or other standards of measurement, according to the work to be done.

k is a pawl secured at any desired point upon the scale or indicator in the slot of plate *f* by means of a pinch-bolt, *l*, for details of which see Fig. 8. The plate *f* is substantially a lever with its fulcrum at *h*, its power at *g*, and its weight at *l*, and the effective long arm of the lever may be varied in accordance with the work to be done by changing the position of the pawl *k* in the slot *i*. The pointer *m* is carried by the bolt *l*, and extends over the face of the scale *j*. The pawl *k* turns on a round portion of the bolt *l*, and a squared portion, *l'*, receives and holds the pointer *m*, while the squared portion *l'* fits in the slot *i*, so as not to turn therein. The parts being arranged as described, the bolt and pointer are fixed immovably, pinched or clamped to the plate *f* by a binding-nut, *n*, on a screw-thread on the end of the bolt, and this nut is then locked or sealed against being run off by a guard, *o*, having a square or angular hole fitting a corresponding portion of the binding-nut *n*, side flanges, *o'*, engaging the sides of the plate *f*, and a seal or padlock, *p*, engaging a hole in the bolt. Now, when the pawl is thus locked or sealed in a given position, it must and can do only uniform work, moving at each stroke the same distance, and this can be varied only by an authorized person; hence if an operator of a machine be paid by the measure of pro-

duct, and should desire to increase the quantity of product at the expense of quality, he is precluded by the seal, for he would have to encounter certain detection if he tampered with the seal or lock in order to change the throw of the pawl. For example, in weaving cloth or other fabric, the loom will be set so many picks to the inch, and the pawl operating the take-up (in this instance pawl *k*) will be locked to throw accordingly. To increase the length of product by putting in fewer picks to the inch might be easily accomplished by changing the throw of the pawl, and the operator would score a credit for so much product of a given quality, whereas in fact it is, in part, at least, of a different quality. This is rendered impossible without detection, by my device. The pawl *k* engages a ratchet-wheel, *g*, on the end of a receiving device—say a take-up roll-shaft, *r*—to which it imparts an intermittent but progressive rotating motion, each advance being the distance equal to the length of the number of teeth the pawl's throw will forward at each stroke. The ratchet is restrained from reversing by the series of dogs *s*, pivoted to the carrier *t*, which is pivoted at *t'* to the frame, and has a tail, *t''*, to be engaged by an arm, *u*, on a rock-shaft which is actuated by the breaking of any part of the machinery or product, an equivalent for which in a loom would be a stop-motion to turn the carrier on its pivot and raise the dogs, so that the movement of the ratchet by the pawl would be ineffectual. The carrier, however, has a projecting hook, *v*, which is engaged by the hook *k'* on the pawl in this event, and which stops the pawl short of the ratchet as soon as a break occurs. *s' s'* are pins—one behind each of the dogs *s*—to keep such dogs in position till they drop.

If the lever-plate *f* (which may be conveniently termed the "oscillating lever," and is so herein referred to) and its appurtenances be applied to a loom in place of the usual change-gears, the variation in picks may be extended far more than is possible with gears, and at a much-reduced cost.

Any known equivalent for the ratchet and pawl may be employed in place of these parts, and a diagonal slot may be used instead of a longitudinal slot in the lever *f* with advantage in some cases.

What I claim is—

1. The combination, with the main driving-shaft and the shaft or roll *r*, of the interposed oscillating lever and a pawl-and-ratchet mechanism, substantially as and for the purpose described.

2. The combination of a main rotating shaft, a pitman reciprocated thereby, and a device to receive a step-by-step motion of variable extent at different operations, with an intermediate lever oscillated or vibrated by said pitman and shaft, and a pawl attached to said lever and variable as to its point of attachment, to vary the effective length of the lever, substantially as described.

3. The combination of the lever *f*, means to oscillate it, the shaft *r* and its ratchet, and the pawl *k* and means to lock or seal it to the lever, substantially as and for the purpose described.

4. The oscillating lever, its indicator, the attached pawl and pointer, and means, substantially as set forth, to fix said pawl to said lever, to determine or detect any tampering with the mechanism, as specified.

5. The combination, with the ratchet-wheel *g* and pawl to operate it, of the dogs *s* and their pivoted carrier, and the hooks *k'* and *t''*, substantially as set forth.

6. The combination, with the ratchet-wheel *g*, pawl to operate it, dogs *s*, and the pivoted carrier for said dogs, of the rock-arm *u*, to operate substantially as set forth.

7. The combination, with the longitudinally-slotted lever *f* and means to oscillate it, of a pawl pivoted to said lever, and a guard and seal or lock to secure the pawl's pivot at a given point in said slot, substantially as described.

8. The combination, with a slotted lever and means to oscillate it, and means to connect said lever with moving parts, of a seal or locking device to secure the connecting means at a given point in said slotted lever, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH W. CHENEY.

Witnesses:

GEO. C. BUELL,
J. I. MILLIKEN.