(No Model.)

J. C. POTTER.

EVENING MECHANISM FOR COTTON OPENERS.

No. 420,735. Patented Feb. 4, 1890.

FIG. 1.

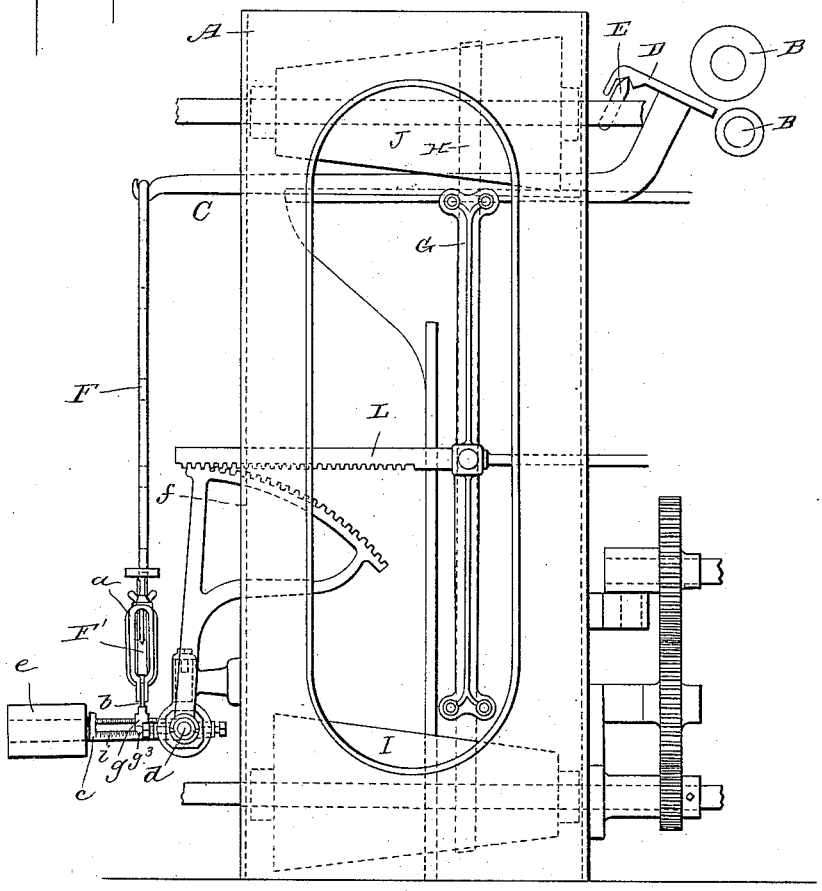


FIG. 2.

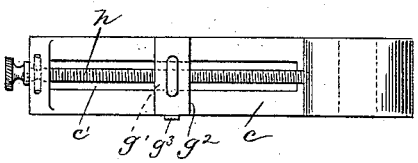
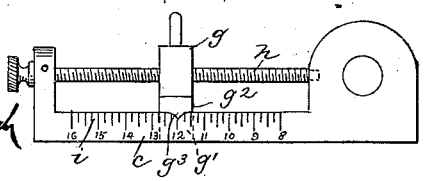


FIG. 3.



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JAMES C. POTTER, OF PAWTUCKET, RHODE ISLAND.

EVENING MECHANISM FOR COTTON-OPENERS.

SPECIFICATION forming part of Letters Patent No. 420,735, dated February 4, 1890.

Application filed January 26, 1889. Serial No. 297,670. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. POTTER, of Pawtucket, in the State of Rhode Island, have invented a certain new and useful Improvement in Evening Mechanism for Cotton-Openers and Similar Machines, of which the following is a specification.

Evening mechanism for machinery for opening and preparing cotton, &c., may in a general way be considered as made up of a combination of four members—viz., first, the evener-plates and arms or levers; second, the scale-lever system; third, the cone-drums, cone-drum belt, and belt-shipper, and, fourth, mechanism through the intermediary of which motion is transmitted from the scale-lever system to the belt-shipper.

My present invention has reference to the last-recited member of the evening mechanism.

In most, if not all, machines of the class to which my improvement relates a number of laps (usually four) are supplied simultaneously to the machine, passing from the feed-apron to the evener-plates and feed-rolls and then to the beater or opener. Laps are of different weights, usually from eight to sixteen ounces to the running yard. Owing to the carelessness or inattention of the operator it not infrequently happens that during the running of the machine one of the laps breaks or is exhausted, in consequence of which fewer laps can be fed than the normal adjustment of the machine calls for. Increase in the weight of the lap means proportional increase in its thickness. Consequently it is manifest that if in a given machine sixteen-ounce laps be substituted, say, for eight-ounce laps, the belt-shipper, when one of the sixteen-ounce laps gives out, will move twice as far as it would move were that lap an eight-ounce lap.

It is my object to provide under similar conditions the same or substantially the same range of movement for the shipper, whatever may be the weight of lap, and it is to this end that my present invention has been devised.

One of the devices which forms part of the motion-transmitting mechanism between the scale-lever system and the belt-shipper is a rock-shaft, to which motion is imparted by means of a sector or other form of lever connected by a strap or some suitable intermediary to the main scale-lever. What I do is to provide for a variation in the leverage, so that the working length of the lever may be varied proportionately to the variations in the movement of the main scale-lever due to operating on laps of varying weights. Suppose, for instance, the machine has been originally adjusted for eight-ounce laps. In this case the lever for operating the rock-shaft has a definite and ascertained working length. If now it be desired to change the adjustment to allow the machine to work on sixteen-ounce laps, then the leverage must be proportionately lengthened, because with laps of this increased weight the main scale-lever will have an increased range of movement, and consequently the working length of the rock-shaft-operating lever—that is to say, the distance between the axis of motion of the said lever and the point at which the power from the scale-levers is applied to it—must be increased, so that this increase in the movement of the main scale-lever will affect the rock-shaft only to the same extent as would a proportionate movement affect it were the parts adjusted for eight-ounce laps.

One convenient way of carrying my invention into practical effect is represented in the accompanying drawings, in which I have represented in side elevation, in—

Figure 1, so much of a cotton-opening machine as is needed to illustrate my invention. Fig. 2 is a plan of the lever and its adjustable nut. Fig. 3 is an enlarged side elevation of the parts last named.

The particular machine shown in the drawings is one in which the scale-lever system is suspended, as fully described in my application for Letters Patent, Serial No. 279,395, filed July 9, 1888, on which Letters Patent No. 399,076 were granted March 5, 1889, and in which the belt-shipper for the cone-drum belt is operated from an oscillatory toothed quadrant through the intermediary of a sliding rack-bar attached to the belt-shipper and at its toothed end resting upon, supported by, and engaging the toothed quadrant, as illustrated and described in my application for

Letters Patent, Serial No. 297,561, filed January 25, 1889, on which Letters Patent No. 411,350 were granted September 17, 1889.

A is the frame of the machine. B B are the feed-rolls. D is one of the evener-plates. C is the evener-arm attached to the plates. E is the knife-edge bar on which the evener-plates are supported. F is the scale-lever system, the levers below being suspended from those next above, and the topmost levers being suspended from the evener-arms, all as described in my aforesaid Letters Patent No. 399,076. These parts are indicated in a large measure diagrammatically and only to such an extent as to show their relation to the part of the evening mechanism in which my improvement resides.

From the main scale-lever (distinguished by the reference-letter F′) motion is communicated to the shipper G, which controls the belt H of the cone-drums I J, this motion being transmitted by means of a rock-shaft *d*, on which is fixed a toothed quadrant *f*, which plays through a slot in the front wall of the cone-drum box and engages the rack-bar L, fixed to the belt-shipper G, all as described in my aforesaid Letters Patent No. 411,350. The rock-shaft *d* has fixed to it a weighted lever *e*, by which the said shaft is normally turned in such a direction that through its connection with the scale-lever system it will tend to keep that system taut and to hold the evener-plates with yielding pressure up against the top feed-roll B.

My present improvement, in the particular form of machine represented in the drawings, is embodied in the device by which the rock-shaft *d* is connected to the main scale-lever F′, and which will now be described.

A link *a* straddles the central portion of the main scale-lever F′, and is connected by a strap *b* to the lever-arm *c*, fixed to the rock-shaft *d*, the parts being so arranged that the point at which the strap connects with the lever can be adjusted to be at a greater or less distance, as desired, from the center or axis of motion of the lever *c*, or of the shaft *d*, to which said lever is radial. It is in this feature that my invention is comprised. The adjustment is provided in the present instance by attaching the strap *b* to a block or nut *g*, which is secured to and capable of longitudinal movement on the lever-arm *c*. The particular manner of arranging the nut may vary. In this instance it is provided with a center guide lug or foot *g′*, which enters and fits in a slot *c′*, formed longitudinally in the lever-arm, and with side bearing-lips g^2, which rest upon the face of the lever-arm on each side of the slot. It (the nut) engages and is supported by an adjusting-screw *h*, swiveled or stepped at each end in bearings in the lever-arm, in which said screw can rotate without longitudinal movement. By rotating the screw the nut can be adjusted to and from the axis of the rock-shaft. For the purpose of facilitating the adjustment there is on the nut *g* a pointer or index g^3, and there is on the lever-arm a graduated scale *i*, over which the index or pointer moves, the scale being marked with the numbers 8 9 10, &c. These numbers indicate the customary weights of laps, and the intermediate divisions of the scale are for fractions of these weights. In order to preserve the same range of movement of the belt-shipper for different weights or thicknesses of laps, the nut *g* must be adjusted farther from the axis of the rock-shaft, so as to increase the working length of the lever as the laps increase in weight, and vice versa. For example, the mechanism in the drawings is represented as adjusted for twelve-ounce laps. If it be desired to operate on, say, fourteen-ounce laps instead of twelve-ounce laps, the nut *g* is adjusted by its screw *h* until the pointer g^3 comes opposite 14 on the scale. Thus the greater extent of movement of the scale-lever system when working on the fourteen-ounce laps is compensated for by increasing the length of leverage, or, in other words, the distance between the axis of the rock-shaft and the point *g* on the lever *c* at which the scale-lever system connects with the lever.

What I claim is—

The combination of the scale-lever system, the rock-shaft *d*, the lever *c*, the block or nut *g*, carried by and adjustable lengthwise on said lever and provided with a pointer to cooperate with a scale *i* on the lever, the means for adjusting said nut, and devices connecting said nut with the main lever of the scale-lever system, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 21st day of January, 1889.

JAMES C. POTTER.

Witnesses:
EWELL A. DICK,
WILL E. AUGHINBAUGH.