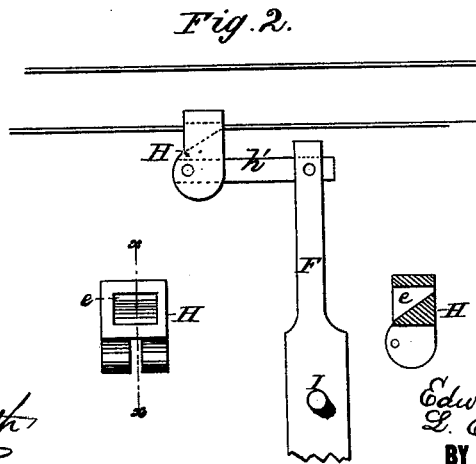
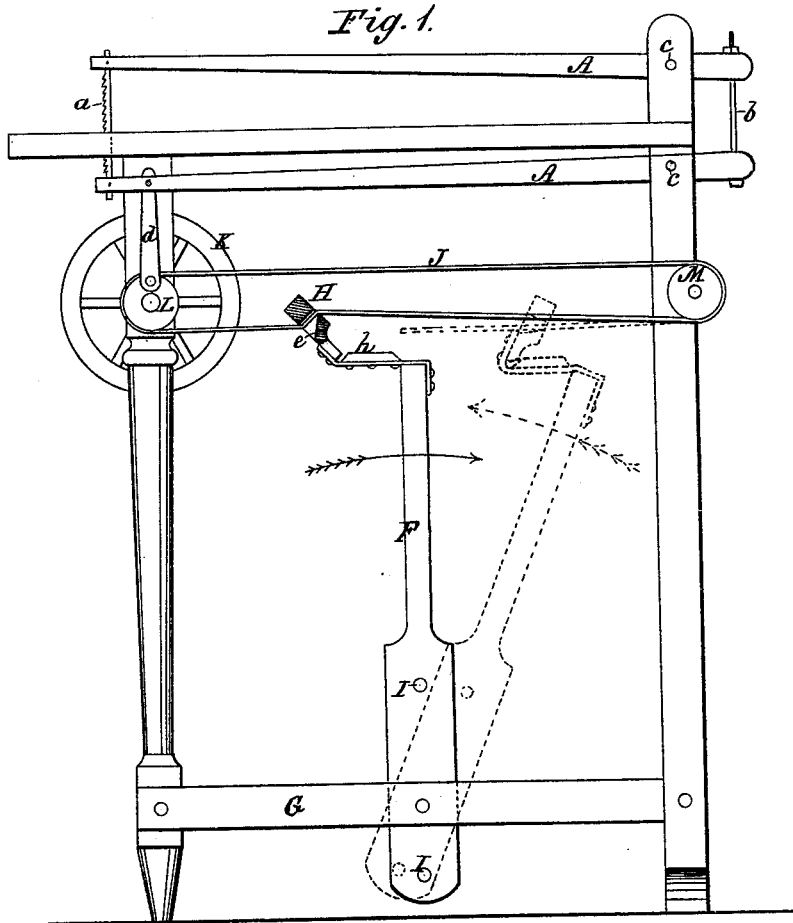


E. LONG & L. E. LYON.

DEVICE FOR CONVERTING MOTION.

No. 190,601

Patented May 8, 1877.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EDWIN LONG AND LOUIS E. LYON, OF IOWA CITY, IOWA.

## IMPROVEMENT IN DEVICES FOR CONVERTING MOTION.

Specification forming part of Letters Patent No. **190,601**, dated May 8, 1877; application filed April 3, 1877.

*To all whom it may concern :*

Be it known that we, EDWIN LONG and LOUIS E. LYON, of Iowa City, in the county of Johnson and State of Iowa, have invented a new and Improved Device for Converting Motion; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a side view of the devices applied to a scroll-saw. Fig. 2 is a side view of a modification of the devices, with detail views of the snatch-blocks.

The invention relates to an improved device for converting a reciprocating into a rotary motion, and is more particularly applicable to treadles for driving light-running machinery, in which a number of revolutions for the fly-wheel are desired for each movement of the treadle.

The improvement consists in a snatch-block loosely connected with a reciprocating lever or bar, and having a hole or throat through the same, through which one side of a band passes, which band is stretched about a driving and a tension pulley, and which snatch-block has such shape of opening or throat as to seize the band when moved in one direction, and to release the band when moved in the other, back to its former position preparatory to taking a new hold, as hereinafter more fully described.

In the drawing the device is shown applied to a scroll-saw, in which A A are the spring-arms which strain the saw-blade *a* from the action of the screw-rod *b*, the said arms being pivoted at *c* to the frame-work, and connected with a wrist-pin or crank of the pulley L by means of a pitman, *d*, through which a rapid reciprocating motion is imparted to the saw, which motion is made steady and uniform by the balance or fly wheel K. Around the driving-pulley L, and about a second tension-pulley, M, is arranged an endless flexible belt, J, upon which the devices operate to effect the rapid rotation of the fly-wheel and pulley, and for producing a number of revolutions for each movement of the treadle. These devices consist of a snatch-block, H, having a tapering throat or opening, *e*, through the same, through which

throat one side of the band passes. This block is loosely connected with the upper end of a bar or lever, F, which latter is pivoted to the frame-piece G, and is provided with treadle-pins I L.

In working the devices, the operator sits to the left of the machine, with his feet resting upon the treadle-pins I. Now, by thrusting his upper foot forward, the lever F is deflected, and the snatch-block H is made to assume the position shown, in which the sharp edges of the tapering throat are made to clutch and carry the belt, thus revolving the pulley L. After the limit of the stroke has been reached, and the desired number of revolutions given to the fly-wheel, the other foot of the operator is pressed forward, which, resting upon the treadle-pin below the pivot, serves to restore the snatch-block to its former position to take a new hold upon the band; and, in moving back to take this position, the snatch-block turns upon its hinge or joint, as shown in dotted lines, in which position its edges do not bind with the belt, but move smoothly along the same.

In connecting the snatch-block to the upper end of the bar, a leather or flexible hinge, with a block, *h*, may be used; or the snatch-block may be pivoted to a link, *h'*, which, in turn, is pivoted to the bar F, as in Fig. 2, in which latter case the device may be entirely constructed of wood or metal.

We are aware of the fact that it is not new to employ a block sliding upon a rod between the sides of the belt, and arranged to operate in connection with a lever which alternately grasps the opposite sides of the belt between the said block and parts of the lever, to produce the same effect sought by us. We therefore disclaim such arrangement, and confine our invention to the construction shown and described, in which the snatch-block is not arranged to slide upon a rod, and does not require the assistance of a lever or other device to clutch the belt, but in which the seizing of the belt is due to the peculiar shape of throat in the snatch-block, and the arrangement of the latter with two pivots or bending-points outside of the belt, which permit the necessary turn of the block to alternately grasp and release the belt. This arrangement, it will be

seen, is simpler, less liable to get out of order, and has been shown by practice to be reliable in action.

Having thus described our invention, what we claim as new is—

1. The snatch-block H, having throat *e*, and connected with its driving bar or lever, through two pivots or bending-points outside the belt, so as to be reciprocated and turned, as described, in combination with the belt passing through said throat, as and for the purpose described.

2. The combination, with the belt, of the

snatch-block H, provided with a simple throat or perforation, and arranged to turn in its reciprocation so as to gripe the belt when moved in one direction, and to be free from the same when moved in the opposite direction, substantially as and for the purpose described.

EDWIN LONG.  
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Witnesses:

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