

C. B. WITHINGTON.
MECHANICAL-MOVEMENT.

No. 170,927.

Patented Dec. 7, 1875.



Fig. 1.

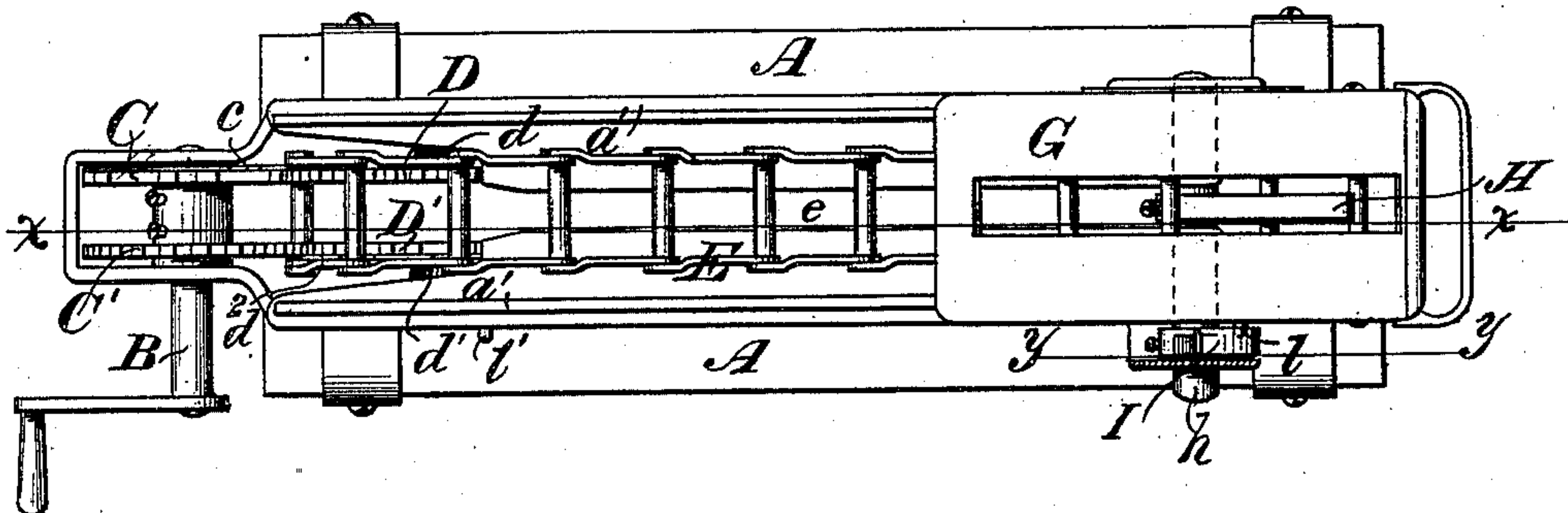
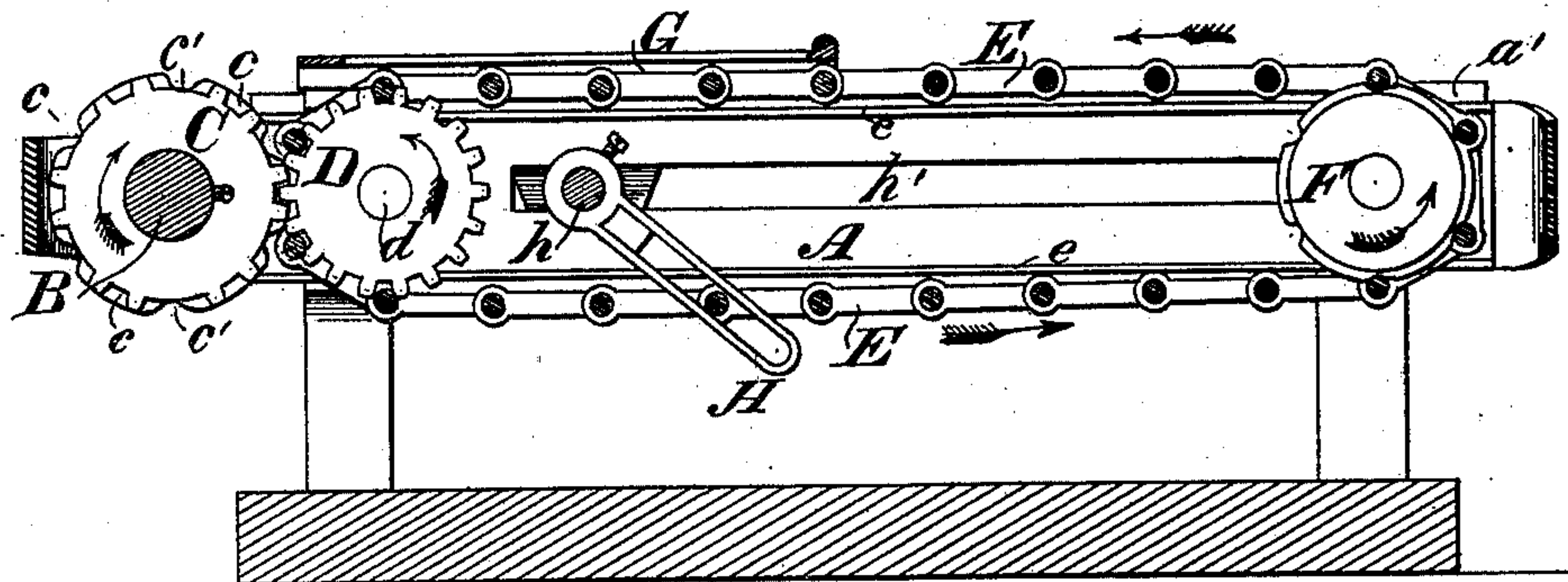


Fig. 2.



WITNESSES
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CHARLES B. WITHINGTON, OF JANESVILLE, WISCONSIN.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **170,927**, dated December 7, 1875; application filed November 22, 1875.

To all whom it may concern:

Be it known that I, CHARLES B. WITHINGTON, of Janesville, Rock county, Wisconsin, have invented a new and Improved Mechanical Movement, of which the following is a specification:

The object of my invention is to convert continuous movement in one direction into an intermittent reciprocating one, which end I attain by combining a chain traversing continuously in one direction over sprocket-wheels; a shaft connected therewith by a link or stirrup, and having an intermittent semi-rotative movement; and a frame upon which the shaft is mounted, reciprocating upon suitable ways.

My invention further consists in a grooved plate or camway on the shaft, operating in connection with stop-pins on the frame, to hold the sliding frame still positively while the shaft is turning.

In the accompanying drawings, Figure 1 represents a plan or top view of my improved apparatus; Fig. 2, a vertical longitudinal section therethrough on the line *x x* of Fig. 1; and Fig. 3 a section on the line *y y* of Fig. 1.

The mechanism is mounted, by preference, in a stout box-frame, A. A driving-shaft, B, driven by a pulley or other well-known means from any suitable prime mover, carries a double sprocket-wheel or two sprocket-wheels, C C', one or both of which may be provided with guard-flanges *c*, in which semicircular notches *c'* are cut, for a purpose hereinafter mentioned. The sprocket-wheels C C' gear into corresponding spur-wheels D D', mounted on independent stud-shafts *d d'*. One or both of these spur-wheels may likewise be provided with notched guard-flanges *d'*, corresponding with those *c* of the sprocket-wheels.

In the drawings I have shown one of these flanges on the sprocket-wheel C, and another on the spur-wheel D', which gears with the wheel C', the wheel D having no flange. The teeth of the wheels C D come opposite the spaces between the teeth of the corresponding wheels C' D', by which construction I am enabled to apply the power to the chain more constantly, and thereby give it a regular motion; but with such an arrangement the bars of the chain hereinafter described would not rest properly between the teeth of the wheels.

This objection I obviate by cutting away a tooth wherever a bar of the chain would come, and forming a notch in the guard-flange at that point in which the bar is held.

A square-linked endless chain, E, runs on the wheels D D', and on a corresponding set of sprocket-wheels, F, at the opposite end of the frame A. A carrying-frame, G, reciprocates on ways *a'* on this frame, and carries a shaft, *h*, to which a slotted link or stirrup, H, is secured. The slotted portion of the link fits on one of the bars of the chain, and traverses with it, drawing the sliding carriage or carrying-frame G along with it. The shaft *h* reciprocates in slots *h'* in this frame, while the link traverses vertical slots *e* therein.

The rotation of the sprocket-wheels C C' imparts a continuous movement in one direction to the chain. In Fig. 1 the sliding carriage is shown as stationary while the link H is turning with the chain between the wheels F, which are, like those D D', mounted on stud-axes, so as to leave a space between them in which the link H moves. To hold the sliding carriage positively still while this turning movement of the slotted link and its shaft *h* takes place, a hub or shell, I, on said shaft is provided with a semicircular groove or camway, (see Fig. 3,) or even a simple flange will answer concentric with the shaft, which semicircular groove or camway works over a stud or stop-pins, *l l'*, at each end of the frame, and thus holds the sliding frame securely as long as the camway and stop-pin are engaged while the shaft is being turned one-half revolution. As soon as the bar of the chain on which the slotted link works has passed up around the sprocket-wheels and begins to drag on the link, the sliding carriage is released by the stop and follows the chain to the other end of the frame, when the link passes down between the wheels D D', and the carriage slides back to its former position, with the link in the position shown in Fig. 2.

It is obvious that mechanism mounted on the sliding carriage G may, in addition to the traversing movement of said carriage, be vibrated or intermittently rotated by cranks and pitmen and link connections from the shaft *h*, which has a semi-rotative movement imparted to it at each end of its traverse.

I have found the mechanism above described useful and effective in connection with automatic grain-binding mechanism invented and used by me. It might, obviously, also be usefully applied to printing or other mechanism to which it is desired to impart an intermittent reciprocation.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of a chain traversing over suitable pulleys, a shaft connected with said chain by a slotted link and a traversing carriage in which said shaft turns, whereby an intermittent reciprocation is imparted to the sliding carriage, and an intermittent semi-rotative movement imparted to the shaft carried by it.

2. The combination, substantially as hereinbefore set forth, of a chain traversing continuously in one direction over suitable pulleys, a shaft connected with said chain by a slotted link, a traversing carriage in which said shaft turns, a camway or semicircular grooved plate on the shaft, and stop-pins on the frame, whereby the carriage is positively held while the shaft is turning.

In testimony whereof I have hereunto subscribed my name.

CHAS. B. WITHINGTON.

Witnesses:

DANIEL W. COBB,
JAMES P. WHEDON.