

A. B. Ely.

Warp-Feeding Mechanism for Loom.

Nº 72379

Patented Dec. 17, 1867

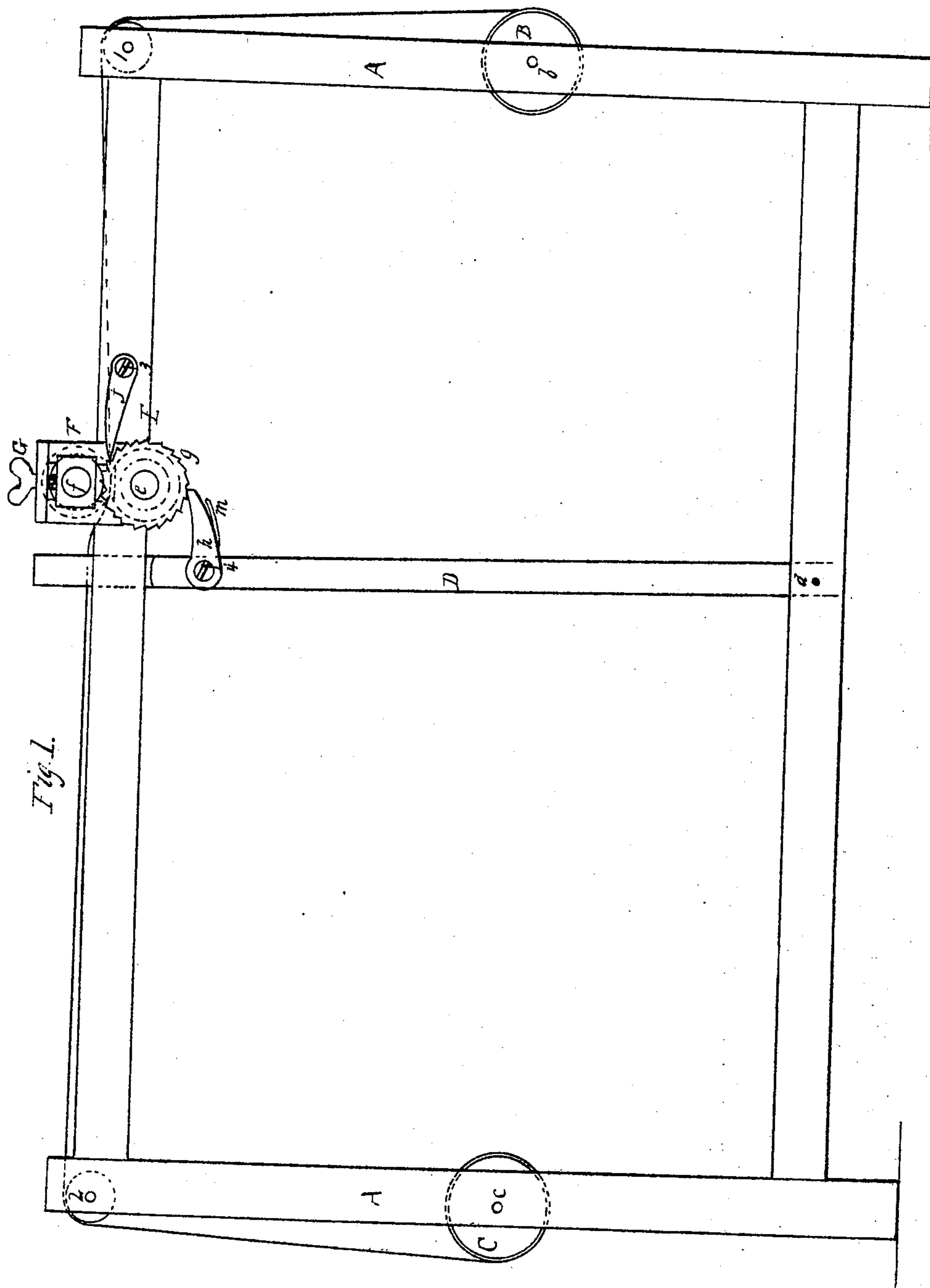


Fig. 1.

WITNESSES:
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ALFRED B. ELY, OF NEWTON, MASSACHUSETTS.

Letters Patent No. 72,379, dated December 17, 1867.

IMPROVEMENT IN WARP-FEEDING MECHANISM FOR LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ALFRED B. ELY, of Newton, in the county of Middlesex, and State of Massachusetts, have invented a new and useful Improvement in the Feed-Rolls of Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which makes part of this specification, and which represents a view in elevation of so much of one side of a loom, to which my improvement is applied, as is necessary to illustrate my invention.

It is the object of my invention to secure a simple effective device for feeding the yarn uniformly by a positive motion, and of holding it firmly at the moment of beating up the filling, and to these ends the improvement herein claimed consists in a novel mode of combining with the loom, feed-rolls actuated directly from the lay, as hereinafter fully described.

In the accompanying drawing, which exemplifies one convenient arrangement of devices for carrying out the objects of my invention, the mechanism is shown as mounted in a suitable frame, A, having a yarn-beam, B, at one end, and a cloth-beam, C, at the other. The yarn passes from the yarn-beam over a roller, 1, to the lay. After being woven, the cloth passes over another roller, 2, to the cloth-beam. The swords D of the lay oscillate on pivots, *d*, on the frame. To regulate the feed of the yarn, I arrange two rollers, E and F, across the frame, parallel with and close to the lay. These rolls I prefer to cover with rubber or gutta percha, as the peculiarly elastic and tenacious character of these materials renders them superior to all others with which I am acquainted, as owing to these characteristics they readily adapt themselves to yarns of varying sizes or different degrees of hardness or roundness, and thus produce a uniform feed. The lower roll E turns in fixed bearings. In order, however, to adjust the pressure as required, the upper roll F is mounted in boxes, *f*, moving vertically in suitable guides, and controlled by set-screws, G. A ratchet-wheel, *g*, is secured upon one end of the under roll E. A detent-pawl, J, turning on a pivot, 3, on the frame, takes into this ratchet, and thus prevents the backward movement of the roller. A dog or pawl, *h*, turns on a pivot, 4, on the lay, and is held in contact with the ratchet-wheel *g* by a spring, *m*; consequently, on each backward movement of the lay, the roll E is rotated, so that its upper side moves toward the lay, while its friction rotates the roll F, so that its under side moves toward the lay, and thus feeds the yarn which passes between the two rolls to the lay with a positive intermittent motion. As the beat of the lay is made when the rolls are at rest, the yarn is held firmly, so as to produce a cloth of uniform texture. The rolls are also free to turn forward in case of any extra strain on the yarn, which prevents its breaking, and the feed takes place on the backward movement of the lay, thus avoiding any strain on the yarn save the friction of the feed-rolls.

I have described only those parts essential to my improvement, which is to be applied to a fully-organized working machine, the details of construction of which are well known, and consequently require no description here.

I am aware that it has been heretofore proposed to use in looms, feed-rolls of rubber worked by gearing. I am also aware that the "let-off" and "take-up" motions of looms have been worked from the lay. I do not, therefore, broadly claim these features; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The feed-rolls E F, arranged as described, and operated directly from the lay, for the purpose set forth.
2. The combination, substantially as described, of the yarn-beam and lay with the rubber feed-rolls actuated directly from the lay, for the purposes set forth.

In testimony whereof, I have hereunto subscribed my name.

ALFRED B. ELY.

Witnesses:

P. HANNAY,
D. E. SOMES.