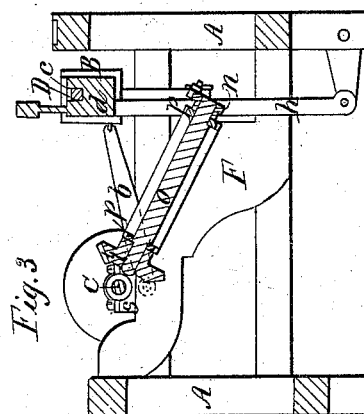
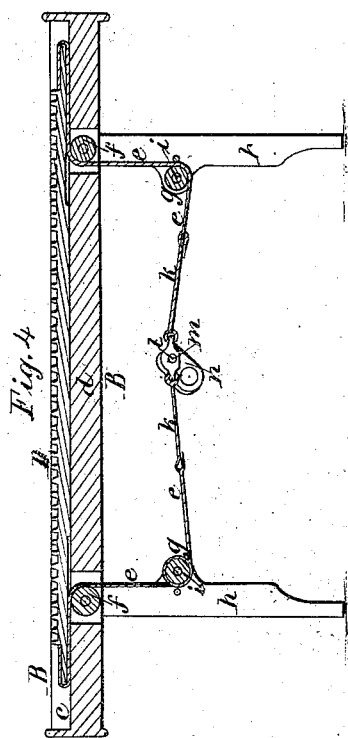
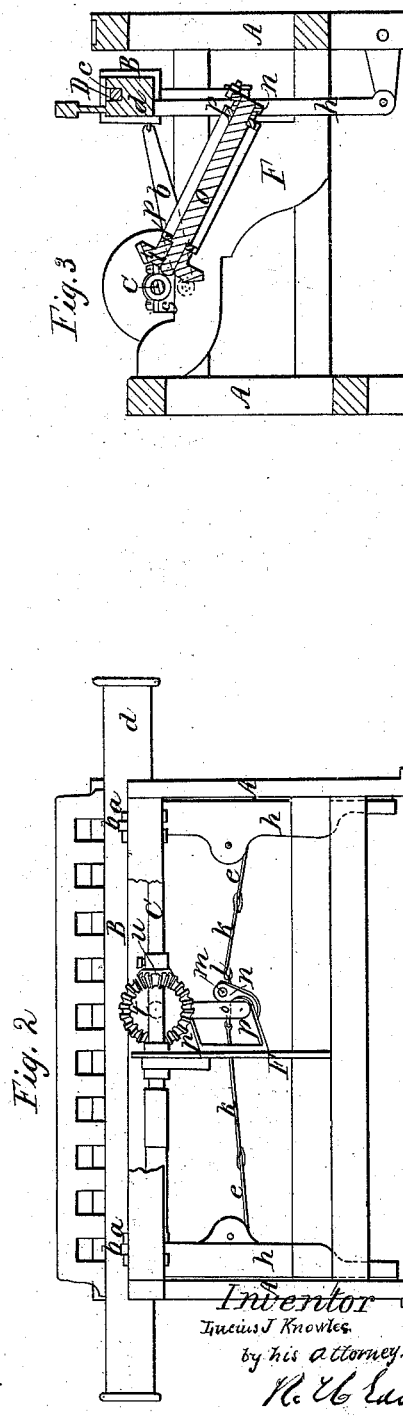
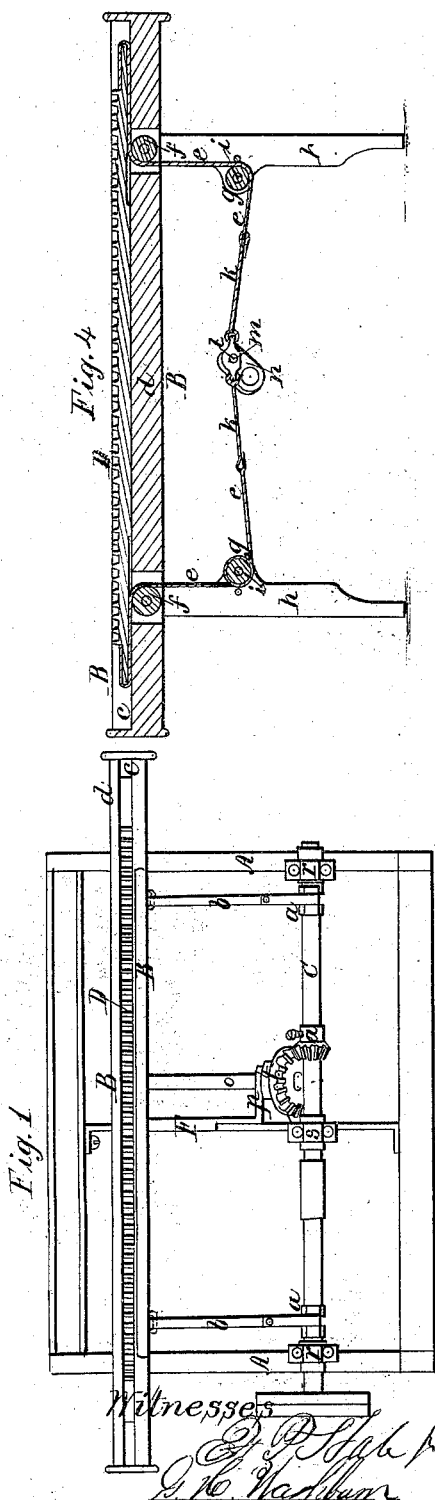


L.J. Knowles.
Narrow Ware.

N^o 54,742.

Patented May 15, 1866.



UNITED STATES PATENT OFFICE.

LUCIUS J. KNOWLES, OF WARREN, MASSACHUSETTS.

IMPROVEMENT IN LOOMS FOR WEAVING TAPES, RIBBONS, &c.

Specification forming part of Letters Patent No. 54,742, dated May 15, 1866.

To all whom it may concern:

Be it known that I, LUCIUS J. KNOWLES, of Warren, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Looms for Weaving Tapes, Bands, or other Articles of Like Character; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view of my invention as applied to the lay-rack of a loom. Fig. 2 is a front elevation of it, and Fig. 3 a transverse section of it. Fig. 4 is a longitudinal section of the lay.

My said invention is a new or improved mechanism for operating the lay-rack, through the agency of which motion is communicated to the various shuttles of a tape or ribbon loom.

In the drawings, A denotes the frame of such a loom; B, its lay, and C its cranked shaft for actuating the lay, such shaft being provided with two bell-cranks, *a a*, connected with the lay in the ordinary manner by pitmen or connecting-rods *b b*.

The lay-rack is shown at D as arranged within a groove, *c*, made in the race-beam *d* of the lay. Two leather or other proper straps, *e e*, are attached to the rack near its two opposite ends. Each of these straps passes along underneath the rack a short distance to and partly around one of two guide-pulleys or wheels, *f f*, arranged on the race-beam *d* in manner as exhibited in Fig. 4. From the said wheel the strap descends and passes underneath and against one of another pair of guide-wheels, *g g*, arranged on journals *i i*, projecting from the swords *h h* of the lay. The two straps are next connected by rods *k k* with a link, *l*, through the handle of which the pin *m* of a crank, *n*, is inserted. The said crank projects from the lower end of an inclined shaft, *o*, suitably supported in bearings *p p*, extending from an inclined brace or bar, *F*, going from the back lower girt to the front upper girt of the lower frame. The cranked shaft is represented as supported in three boxes, *r s r*, the middle one, *s*, of such boxes being upheld by the inclined brace *F*.

A bevel-gear, *t*, fixed on the upper end of the shaft *o*, engages with a beveled pinion, *u*, fixed on the cranked shaft. This latter shaft having while the loom is in operation a constant rotary motion, will impart such a movement to the inclined shaft, whose crank while revolving will so move the link *l* as to cause it to alternately pull on the straps *e e*, and produce reciprocating longitudinal movements of the lay-rack.

This lay-rack is an old and well-known device for aiding in effecting the necessary movements of the several shuttles of a tape-loom. By the employment of the crank with the straps and their guide-rollers, arranged with the lay and its rack as specified, I am enabled to gain a peculiarly easy action of the rack, one free from sudden stoppages or arrests of motion, in which the momentum of the rack would be likely to be productive of deleterious effects to the mechanism.

By my improved mechanism the rack is held firmly or under control at any part of its movement.

Having thus described my said mechanism for operating the lay-rack of a tape-loom or a loom for weaving narrow fabrics, what I claim as of my invention is as follows:

1. A combination composed not only of the straps *e e* and their guide-wheels, as applied to the lay and its rack, substantially as described, but of the crank *n*, the shaft *o*, and the bevel-gears *t u*, or their mechanical equivalent or equivalents, operated by the cranked shaft of the lay.

2. The straps *e e* and the guide-wheels *f f g g*, arranged and combined together and with the lay and the rack, substantially in manner or so as to be operated by a crank or its equivalent, as specified.

3. The arrangement of the shaft *o* and its crank *n* and gear *t* with the crank-shaft C and its pinion *u*, and the straps *e e*, applied to the lay and its rack, substantially as specified.

LUCIUS J. KNOWLES,

Witnesses:

R. H. EDDY,
F. P. HALE, Jr.