

*R. B. Goodyear*

[60.]

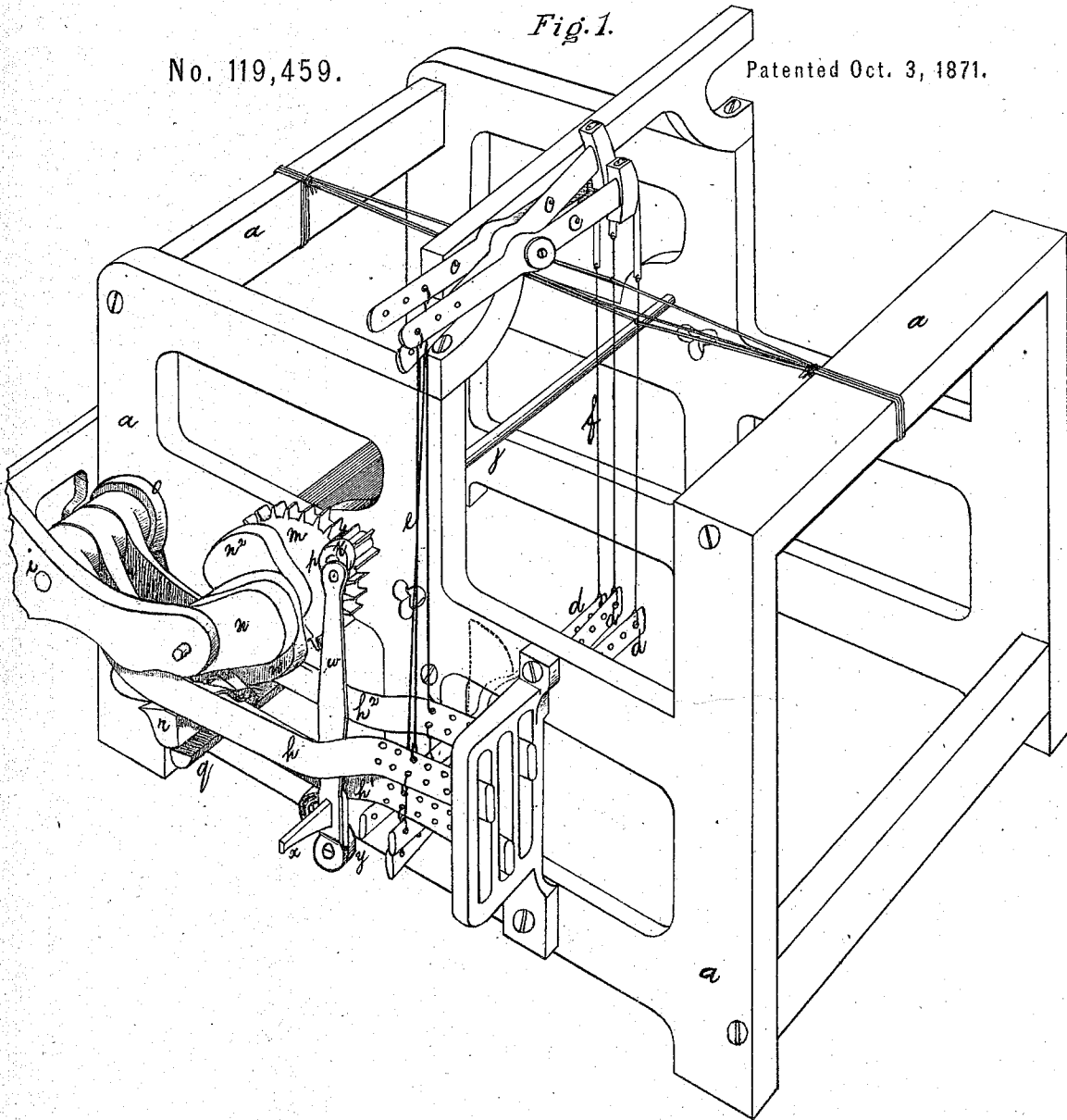
*Treadle Motion for Tappet Looms for Twilling.*

2 Sheets--Sheet 1.

No. 119,459.

*Fig. 1.*

Patented Oct. 3, 1871.



Witnesses. { *Thos. A. Burdett.*  
*Mr. H. Walton.*

*Inventor.*

*Robert B. Goodyear*

*R. B. Goodyear*  
*Treadle Motion for Tappet Looms for Twilling.*

No. 119,459.

Patented Oct. 3, 1871.

Fig. 3.

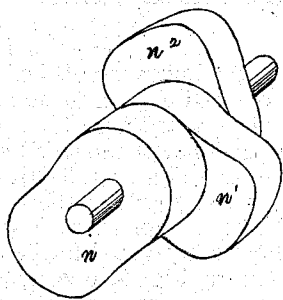


Fig. 2.

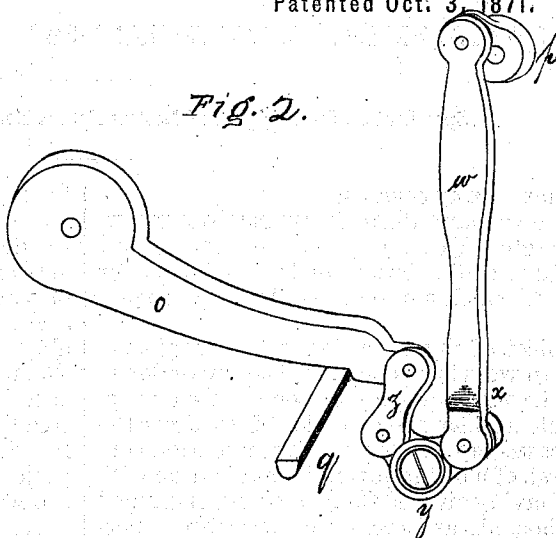


Fig. 5.

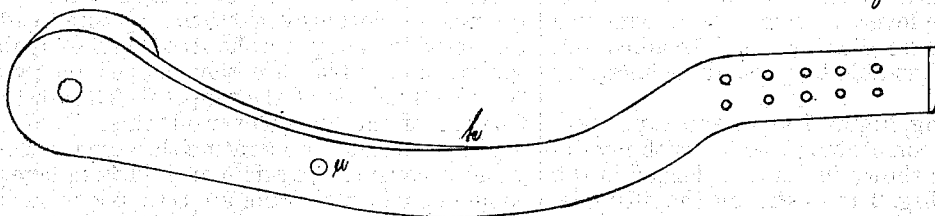
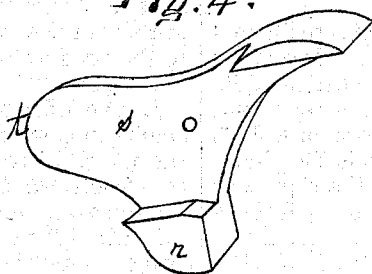


Fig. 4.



Witnesses { *Chas. A. Smith*  
*Wm. H. Walton*

Inventor.

*Robert B. Goodyear*

# UNITED STATES PATENT OFFICE.

ROBERT BURNS GOODYEAR, OF WILMINGTON, DELAWARE.

## IMPROVEMENT IN LOOM-HARNESS-OPERATING MECHANISMS.

Specification forming part of Letters Patent No. 119,459, dated October 3, 1871.

*To all whom it may concern:*

Be it known that I, ROBERT BURNS GOODYEAR, of Wilmington, Delaware, have invented a new and useful Treadle-Motion for Tappet-Looms for Twilling, of which motion the following is a specification:

The object of my invention is the adaptation of looms to weaving goods face-side up or down, as desired, without employing complicated strapping, such as has been employed to draw the heddle-leaves up or down. My invention consists: First, of a lifting-lever, in combination with a treadle having pivoted thereon a trigger-shaped treadle-shoe, all as hereinafter described. Second, of a lifting-lever, in combination with two or more of said treadle-shoes and treadles and certain fixed adjustable tappets, all as hereinafter described.

In the drawing, Figure 1 represents a perspective view of a loom-frame provided with my devices, which are shown in detail, enlarged in the other figures; Fig. 2 representing the lifting-lever; Fig. 3, the adjustable tappets or cams on their shaft; Fig. 4, one of the several similar treadle-shoes; and Fig. 5, one of the several similar treadles employed.

In Fig. 1, *a* is the loom-frame; *c*, pivoted levers for raising the heddles up; *d*, similar levers for drawing the heddles down, the two series of levers being connected by the wires or straps *e* and *f*. *h* *h*<sup>1</sup> *h*<sup>2</sup> are the treadles which work on a shaft or pin, *i*. *j* is the driving-shaft. *k* is the pinion on the driving-shaft *j* gearing into the tappet or cam-wheel *m*. *n* *n*<sup>1</sup> *n*<sup>2</sup> are the tappets. All these parts are of ordinary construction. *o*, Figs. 1 and 2, is the lifting-lever, which is rigidly attached to the shaft *i*. *p*, Figs. 1 and 2, is a crank on the driving-shaft. *w* is the crank-arm which carries the projection *x* for squaring or bringing into even line the treadles *h* *h*<sup>1</sup> *h*<sup>2</sup> when the sheds are closed. The crank-arm *w* is attached by a flexible joint to one arm of the two-arm lever *y*. The other arm of the lever *y* is attached by a short link or

toggle-joint *z* to the lower end of the lifting-lever *o* to give the required motion to this lever. The lifting-lever *o* is provided with the arm *q*, which acts on the projections *r* of the treadle-shoes, one of which projections is shown in Figs. 1 and 4. *s* *s*<sup>1</sup> *s*<sup>2</sup>, Fig. 1, are the treadle-shoes. They are alike, Fig. 4 being a representation of each of them. The shoes are pivoted to the treadles respectively, as at *w*, Fig. 5, one shoe for each treadle, under the tappets, and are each made heavier on one side, as at *t*, Fig. 4, so that the projections *r* are caused by gravity to move in the way of the arm *q* of the lifting-lever.

As the tappets turn they come in contact with the treadle-shoes attached to the opposite treadles respectively, and press the treadle-shoes against the treadles, which are then moved on by the continued motion of the tappets. The lower or free end of the lifting-lever *o* is raised and lowered by the crank *w* operating through the levers *y* and *z*, causing the arm *q* of the lifting-lever to come in contact with the projections *r* on such of the treadle-shoes as the tappets have not pressed out of its way. By increasing or decreasing the number of treadles (each provided with a treadle-shoe) and tappets and correspondingly altering the size of the pinion *k*, the loom can be adapted to the production of various twills.

I claim—

1. The lifting-lever *o*, rigidly attached to the shaft *i*, in combination with the treadle *h* having the movable treadle-shoe *s* pivoted thereon, all constructed and operating in the manner and for the purpose substantially as set forth.

2. The lifting-lever *o*, in combination with the two or more shoes, such as *s* *s*<sup>1</sup> *s*<sup>2</sup>, two or more treadles, such as *h* *h*<sup>1</sup> *h*<sup>2</sup>, and the corresponding tappets or cams, such as *n* *n*<sup>1</sup> *n*<sup>2</sup>, together constituting a treadle-motion for looms, all constructed and operating as set forth.

Witnesses: ROBERT B. GOODYEAR.

THOS. A. BURTT,

M. F. WALTON.

(60)