

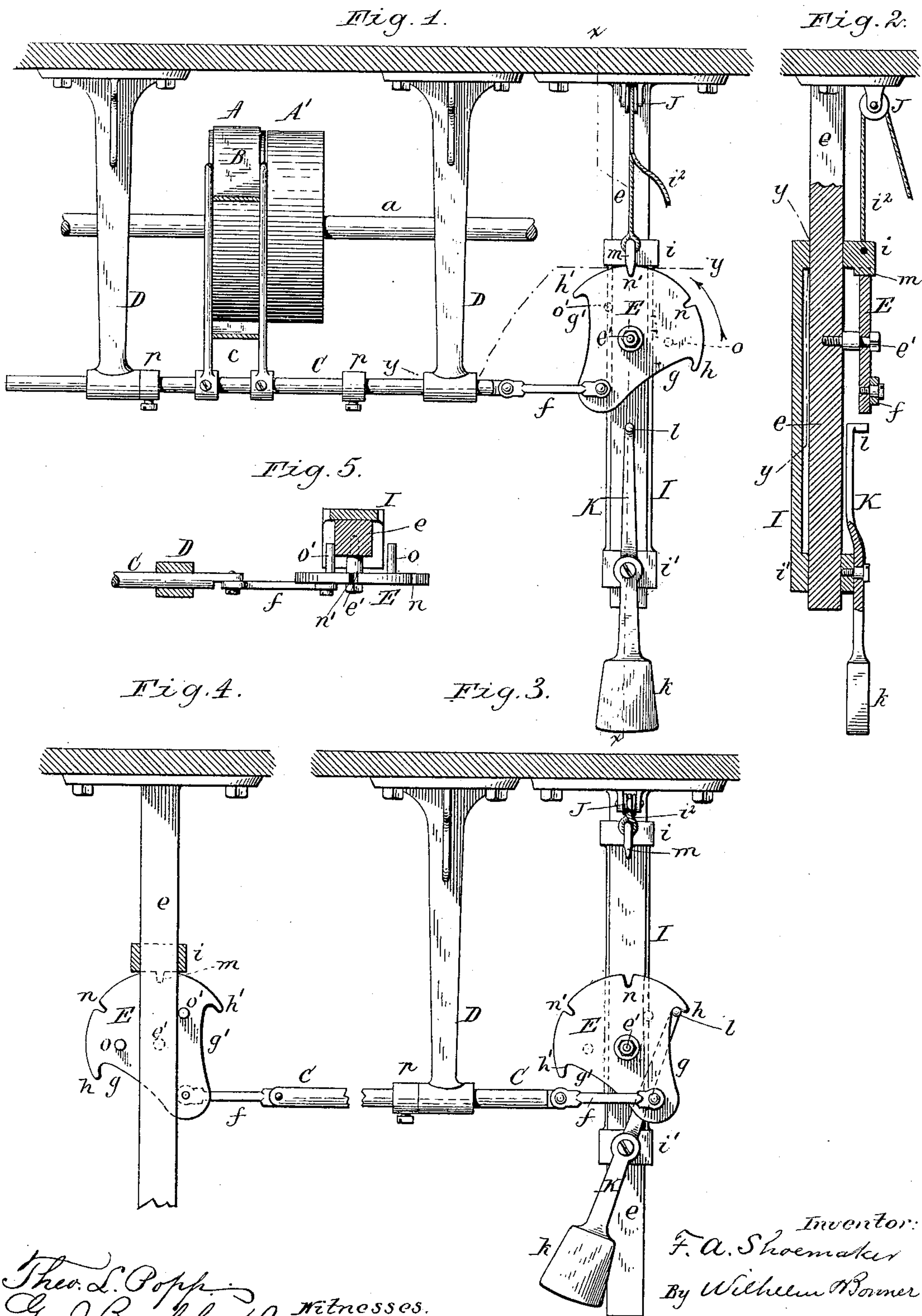
(No Model.)

F. A. SHOEMAKER.

BELT SHIFTER.

No. 371,480.

Patented Oct. 11, 1887.



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UNITED STATES PATENT OFFICE.

FRANK A. SHOEMAKER, OF BUFFALO, NEW YORK.

BELT-SHIFTER.

SPECIFICATION forming part of Letters Patent No. 371,480, dated October 11, 1887.

Application filed July 1, 1887. Serial No. 243,059. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. SHOEMAKER, of the city of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Belt-Shifters, of which the following is a specification.

This invention relates to an improvement in belt-shifters, and has for its object to construct a simple device of this kind, whereby the belt can be readily and conveniently shifted and secured in position, and in which the operative parts are arranged overhead, where they are not liable to be accidentally displaced or to interfere with the free movements of the workmen.

My invention consists of the improvement, which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a front elevation of my improved belt-shifter. Fig. 2 represents a vertical cross-section in line *x x*, Fig. 1, partly in elevation. Fig. 3 is a fragmentary front elevation of the shifter, showing the parts in a position opposite to that shown in Fig. 1. Fig. 4 is a vertical section in line *y y*, Fig. 2. Fig. 5 is a horizontal section in line *y y*, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A A' represent a tight and a loose pulley mounted side by side upon a horizontal shaft, *a*, and B is the belt applied to said pulleys.

C represents the horizontal shifter-bar, which is supported by depending bearings or hangers D, secured to the ceiling or other support; and *e* is the shifter-fork, secured to the bar C and bearing against opposite edges of the belt in a well-known manner.

E represents a shifting-plate which is pivoted to the front side of a vertical supporting-bar, *e*, by a pin or stud, *e'*, and connected at its lower end to the shifter-bar C by a connecting-rod, *f*, so that by swinging the plate E on its pivot the shifter-bar will be moved longitudinally to shift the belt from one pulley to the other. The plate E is provided with cams or inclines *g g'*, which extend upwardly from the lower end of the plate to a point about in line with the pivot *e'*.

h h' represent stops or projections formed on the plate E at the upper ends of the inclines *g g'*.

I represents an upright frame or movable support which slides upon the vertical supporting bar or rod *e*, and is provided at its upper and lower ends with lugs or ears *i i'*, formed with square openings, through which the vertical bar *e* passes.

i² represents a rope or cord attached to the upper end of the support I and passing over a pulley, J, arranged above the support I, the lower end of the rope terminating within convenient reach of the operator, so that the support can be raised and lowered on the bar *e* by means of said cord.

K represents a shifting dog or pawl pivoted to the lower ears of the movable support I, and provided at its lower end with a weight, *k*, which retains the pawl in a vertical position. The pawl K is provided at its upper end with a forwardly-projecting pin or stud, *l*, which is adapted to bear against either of the cams or inclines *g g'*.

m represents a projection formed on the upper end of the support I and adapted to engage in one of two notches or recesses, *n n'*, formed in the upper portion of the plate E, which is curved concentric with the pivot of said plate. The latter is provided on its rear side with pins or stops *o o'*, which strike against opposite sides of the supporting-bar *e* and limit the swinging movement of the plate E. The stops *o o'* arrest the movement of the plate E and shifting-bar at the extreme of either movement.

If preferred, the stops *o o'* on the plate E may be omitted, and the shifter-rod C may be provided with collars *p*, which strike against the inner sides of the hangers D and limit the movement of the shifter-bar, as represented in Fig. 1.

Assuming that the parts are in the position represented in Fig. 1, upon raising the support I by means of the rope *i²* the horizontal pin *l* of the pawl K rides up on the incline *g* and strikes the stop *h* at the upper end of said incline. The continued upward movement of the support I causes the pawl K to swing on the plate E on its pivot in the direction of the arrow in Fig. 1 until the plate reaches the position represented in Fig. 3, thereby moving the shifter-bar C to the position represented in Fig. 3 and shifting the belt B from the pulley A to the pulley A'. When the belt has been shifted, the

support I is allowed to descend and rest upon the upper end of the plate E, in which position of the support the projection *m* enters the notch *n* and secures the plate and the parts connected therewith in this position. When the support I is in its lowest position, as represented in Fig. 1, the pawl clears the plate E. The upper portion of the pawl K is bent inwardly, as shown in Fig. 2, so as to enable the same to pass behind the plate E when the support I is raised. The incline or cam *g'* of the plate E now stands above the pawl K, and upon raising the support I the pin *l* of the pawl engages against the incline *g'* and stop *h'* and causes the plate to swing into the position represented in Fig. 1, thereby moving the bar C in the opposite direction and shifting the belt back upon the pulley A.

I claim as my invention—

1. The combination, with a shifter-bar, of a shifting-plate connected therewith, and a shifting-pawl attached to a movable support, whereby the shifting-plate is moved in opposite directions, substantially as set forth.
2. The combination, with a shifter-bar, of a shifting-plate connected therewith, a shifting-pawl attached to a movable support, whereby the shifting-plate is moved in opposite directions, and a projection formed on the movable support and engaging with the shifting-plate,

whereby the shifting-plate is held in position, substantially as set forth.

3. The combination, with a shifter-bar, of a shifting-plate connected therewith and provided with locking-notches, a movable support provided with a projection and adapted to engage in either of said notches, and a shifting-pawl attached to said movable support, substantially as set forth.

4. The combination, with the shifter-bar C and the movable support I, of a pivoted plate, E, connected with the shifter-bar C and provided with inclines *g g'* and stops *h h'*, and shifting-pawl K, pivoted to the support I below the plate E and adapted to engage against the stops *h h'*, substantially as set forth.

5. The combination, with the shifter-bar C and the movable support I, provided with a projection, *m*, of a pivoted plate, E, connected with the shifter-bar C and provided with inclines *g g'*, stops *h h'*, and notches or recesses *n n'*, formed in the upper end of the plate E, in which the projection *m* engages, and a shifting-pawl, K, pivoted to the lower end of the movable support I, substantially as set forth.

Witness my hand this 10th day of May, 1887.

FRANK A. SHOEMAKER.

Witnesses:

CARL F. GEYER,
FRED. C. GEYER.