

(No Model.)

T. PEAT.

Belt Shifting Mechanism.

No. 234,802.

Patented Nov. 23, 1880.

Fig. 1

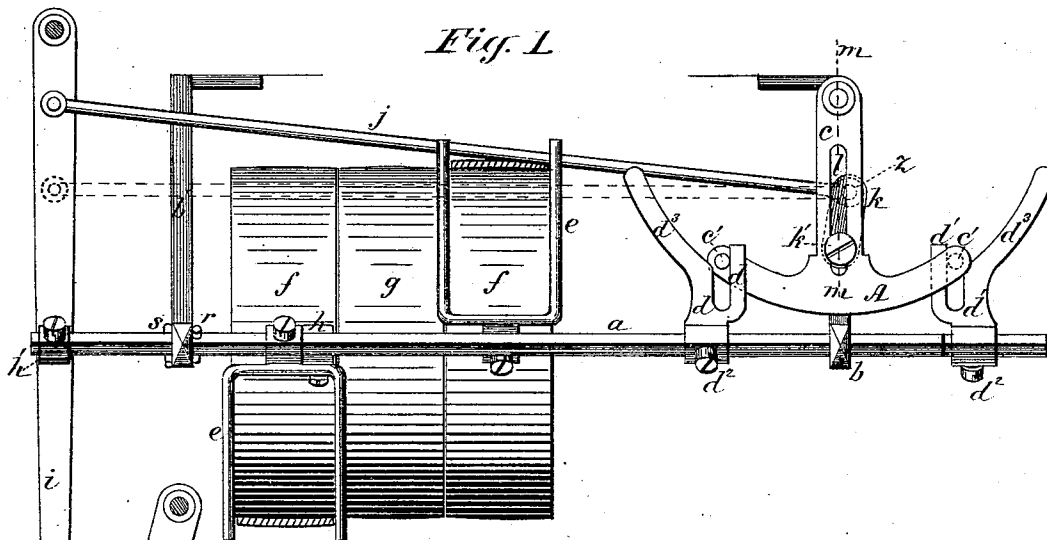


Fig. 2

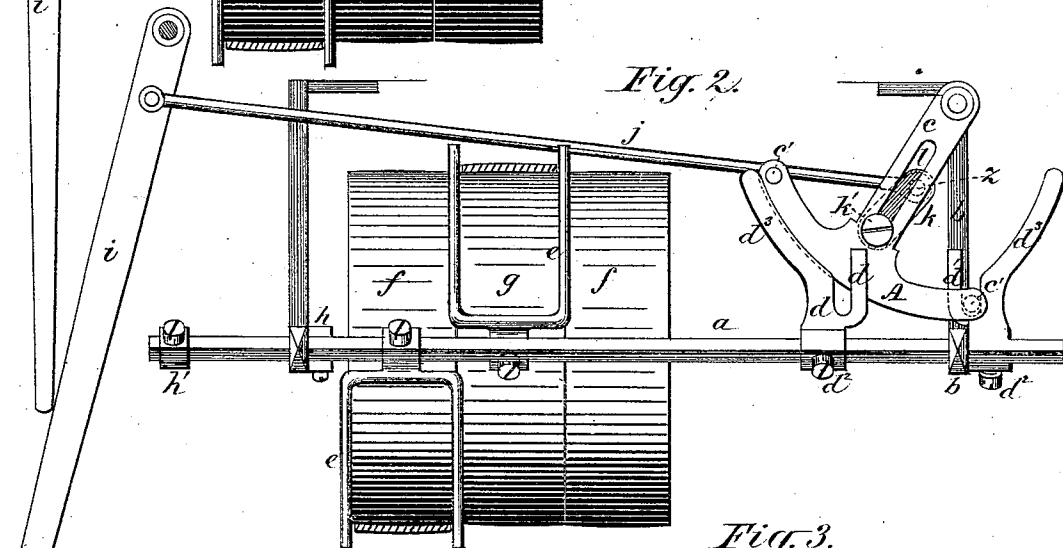
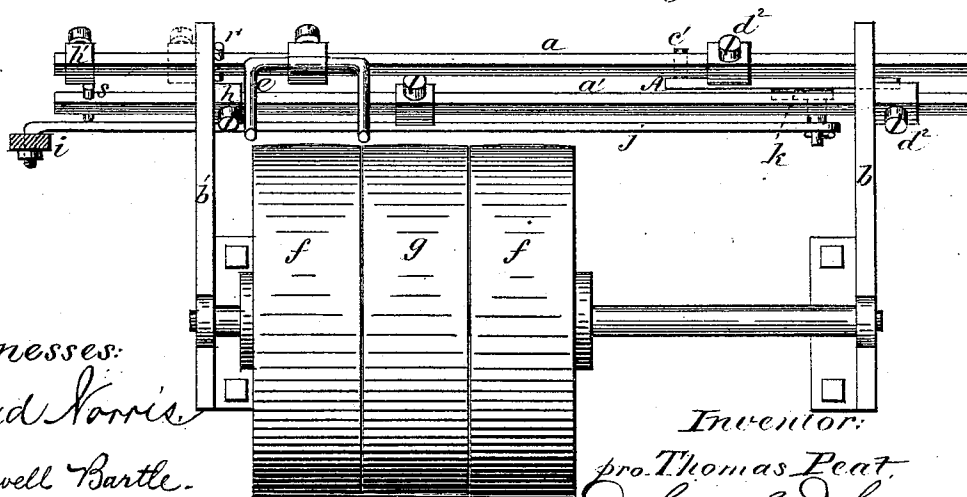


Fig. 3



Witnesses:

Floyd Norris

Howell Bartle.

Inventor:

pro. Thomas Peat,
Johnson & Johnson, Attys

UNITED STATES PATENT OFFICE.

THOMAS PEAT, OF YOUNGSTOWN, OHIO, ASSIGNOR OF ONE-HALF TO
JOSEPHUS C. BRENNEMAN, OF SAME PLACE.

BELT-SHIFTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 234,802, dated November 23, 1880.

Application filed October 13, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS PEAT, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented new and useful Improvements in Belt-Shifting Mechanism, of which the following is a specification.

My invention relates to improvements in mechanism for shifting belts wherein an open and a crossed belt are used for obtaining a motion of the driving-pulley in either direction by a single shifting hand-lever, and in which one belt may be shifted without moving or interfering with the other belt.

The objects of the invention are to improve the construction of the shipper mechanism, whereby the movements of the belt-guides can be regulated to suit different widths of belts.

Two belt-guides are used with separate parallel slides, and a pivoted vibrating segment engages, by means of pins at each end of the arc, with adjustable catches on the corresponding ends of the slides, while the hand-lever is arranged at the other end of the slides, and is adjustably connected to said segment in such manner that the relation of the connecting-rod with the pivoted arm of the segment will always give an easy movement to the hand-lever when its connecting-rod is out of parallel with the slide-bars. Adjustable collars on the slide-bars serve, in connection with one of the hangers by which they are supported, to regulate and determine the movements of the slides to suit narrower belts and pulleys, and by means of these adjustable collars either of said slide-bars may be locked to its hangers so that it cannot be moved, while the other can be moved its full distance, and thus adapt the shifter for a single as well as two driving-belts.

Referring to the accompanying drawings, Figure 1 represents an elevation of the shifting mechanism as applied to the ceiling of the shop and adjusted with both belts upon the loose pulleys; Fig. 2, a similar view, showing the parts in the positions they occupy when one of the belts is shifted upon the driving-pulley, and Fig. 3 an under-side view of the same.

The shipper bars or slides *a a'*, I prefer to

make of metal, square in cross-section, and they are mounted in hangers *b b'*, parallel to each other, quite near together and to the pulleys. They are sufficiently longer than the width of the nest of pulleys to allow of their connection beyond one end of the pulleys with a vibrating segment, *A*, by which they are operated. The segment is pivoted to the ceiling or to hangers by an arm, *c*, and carries at each end of its arc a pin, *c' c'*, standing out horizontally from opposite sides thereof, so as to operate within the slots of catches *d d'*, secured in vertical positions upon the slides on opposite sides of the hanger *b*, the segment for this purpose occupying a position between the catches and vertically over the space between the slides, which are operated thereby independently of each other. The catches have angular eyes, by which they are adjustably secured by screws *d² d²*, so that they can be set to suit the full throw of the hand-lever for wide pulleys. Each catch has a segmental extension, *d³ d³*, at one side of its slot, by which it is always kept in proper relation to the segment-pin.

The belt-guides *e e* are secured upon the slides in position to shift the belts from the loose pulleys *f f* onto the fast pulley *g*, and vice versa, as may be required. For narrower pulleys and belts the throw of the slides is regulated by stop-collars *h h'*, one upon each bar and arranged thereon on opposite sides of the hanger *b'*, in relation to which one or both collars can be adjusted, as may be desired, nearer to the hanger.

The operating hand-lever *i* is arranged at the ends of the slides opposite to those connecting with the vibrating segment, to the arm *c* of which it is connected by a rod, *j*, at a point between the segment and its pivot, by a crank, *k*, secured within a slot, *l*, in said arm *c* by set-screw *k'*, so that said crank can be adjusted nearer to or farther from the segment-pivot to regulate and determine the extent of the movement of the hand-lever. The adjustment of the crank nearest the pivot will require much less movement of the hand-lever to move the slides a certain distance than would be required to move them the same distance by the adjustment of the crank in the

slot farthest from said pivot, and this is important in some cases where a long sweep of the hand-lever would be inconvenient; but the crank has also an adjustment in the arc of a circle upon its set-screw *k'*, for a purpose that will be presently stated.

The hand-lever is pivoted to the ceiling, and generally at a point much higher than the pivot of the segment, and in such case the connecting-rod, being attached to the lever near its pivot, would be oblique to the slides and out of a right-angled relation to the segment-arm, as shown in Fig. 1, which would cause the hand-lever to work harder than if its relation were at right angles to said arm, as shown by dotted lines. For this purpose the crank is adjusted out of line with said arm, so that the action of the connecting-rod will be at right angles to a line drawn from the pivot of the segment-arm, and thus give a better and freer movement to the segment. In the position of the segment and crank shown in Fig. 1 it will be seen that should the hand-lever be pushed to one extreme the pivot *z* of the crank would operate the same distance on one side of the line *m m* as it would if pushed to the other extreme, and thus the crank gives the advantage of a right-angled relation of the rod and segment, whether said rod occupy a position parallel with the slides or oblique thereto, and for this purpose the crank can be turned to either side out of line with the segment-arm or in line with it, as occasion may require, and when adjusted it is clamped secure by the set-screw.

In the adjustment of the catches and the width of the pulleys shown the stops *h h'* are not necessary; but for narrower belts and pulleys they take the place of the catches in limiting the throw of the slides or shipper-bars. The guides are made to suit the width of the belts.

The device can be used as well on a counter-shaft attached to the floor, in which case the positions of the parts would be reversed.

In the throw of the slide-bar *a* to carry the guide *e* and its belt from the loose to the fast pulley, the inside catch, *d*, or the outside collar, *h'*, will act as a stop to limit such movement; but in reversing this throw to put the belt back on the loose pulley, a pin, *r*, on said slide-bar, acting against the inner side of the hanger *b'*, serves as a stop to limit such movement. In like manner the throw of the slide-bar *a'* is limited in both directions by the outside catch, *d'*, the inside collar, *h*, and the pin *s*, the latter acting against the outside of the hanger *b'*. The collars therefore only act to limit the throw of the slides to shift the belts from the loose to the fast pulley. The arrangement of the catches on opposite sides of the hanger *b* gives the important advantage of forming stops to limit the movement of the slide-bars, as shown in Figs. 1 and 2, while in Fig. 3 the stop *h'* is shown by dotted lines in its adjustment upon the slide-bar *a* and in

relation to the pin *s* to lock said bar to the hanger *b'*, so that it cannot be moved.

I claim—

1. In a belt-shifter, the combination of two parallel slides or shipper-bars, *a a'*, provided with slotted catches *d d'* and belt-guides *e e*, substantially as described, with the vibrating segment provided with pins *c' c'* at each end of the arc, operating in said catches, and a hand-lever, *i*, connected with the arm *c* of said segment at a point between the arc of the segment and the pivot upon which it vibrates, substantially as and for the purpose set forth.

2. The combination, in a belt-shifter, of the parallel slides or shipper-bars *a a'*, provided with slotted catches *d d'* and belt-guides *e e*, and the vibrating segment having pins *c' c'*, operating in said catches, with the adjustable stops *h h'*, arranged on said slide-bars in relation to one of the hangers, *b'*, thereof, substantially as and for the purpose set forth.

3. In a belt-shifter, the combination of the parallel slides or shipper-bars *a a'*, provided with the slotted catches *d d'* and belt-guides *e e*, and the slotted vibrating segment having pins *c' c'*, operating in said catches, with the hand-lever *i*, its connecting-rod *j*, and the adjustable crank-connection *k* of said rod with the slotted arm *c* of said vibrating segment, substantially as and for the purpose described.

4. The combination, in a belt-shifter, of the vibrating segment provided with pins *c' c'* at each end of the arc, and the parallel belt-guide, slides, or shipper-bars *a a'*, provided with slotted catches *d d'*, operated by said segment-pins, with the hanger *b* for said slides, said catches being arranged thereon on opposite sides of said hanger, substantially as and for the purpose set forth.

5. The combination, in a belt-shifter, of the parallel slides or shipper-bars *a a'*, the slotted catches *d d'* thereon, and the vibrating segment-pins *c' c'*, operating in said catches, substantially as set forth, the said slides being provided with the adjustable and fixed stops *h h' r s*, acting on opposite sides of the hanger *b'*, substantially as and for the purpose set forth.

6. The belt-shifter herein described, consisting of the parallel slides or shipper-bars *a a'*, provided with the slotted catches *d d'*, the belt-guides *e e*, the slide-bar supports *b b'*, and the adjustable and fixed stops *h h' r s*, the slotted vibrating segment provided with the pins *c' c'*, the hand-lever *i*, adjustably connected with the arm *c* of said segment by the rod *j*, and the crank *k*, all constructed and adapted for operation as a single or double belt shifter, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS PEAT.

Witnesses:

W. N. ASHBAUGH,
THOS. C. GILCHRIST.