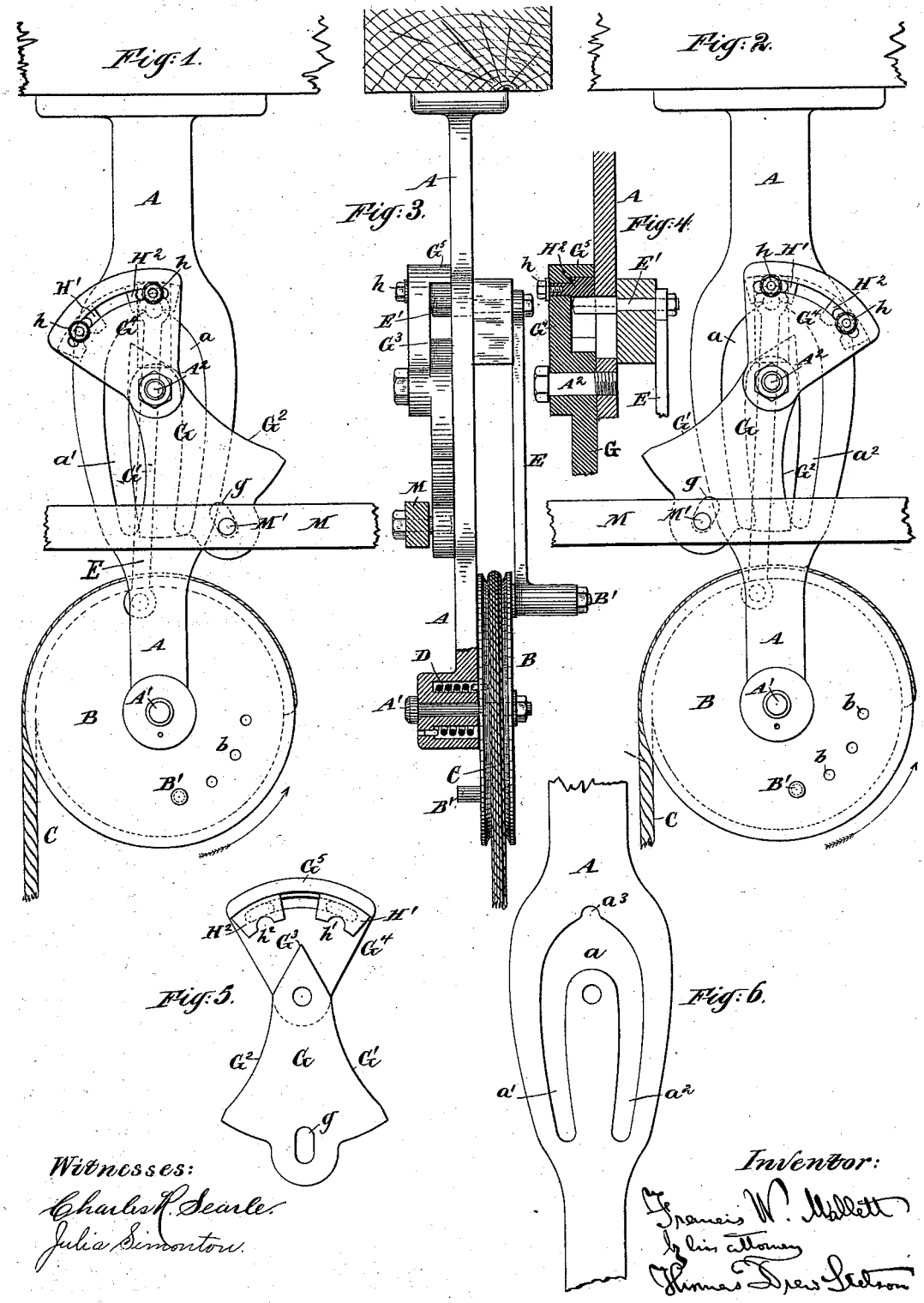
(No Model.)

F. W. MALLETT.

BELT SHIPPER AND LOCK.

No. 402,603. Patented May 7, 1889.



Witnesses:
Charles R. Searle
Julia Simonton.

Inventor:
Francis W. Mallett
by his attorney
Thomas Drew Sexton

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UNITED STATES PATENT OFFICE.

FRANCIS W. MALLETT, OF NEW YORK, N. Y., ASSIGNOR TO DENNIS FRISBIE, OF SAME PLACE.

BELT-SHIPPER AND LOCK.

SPECIFICATION forming part of Letters Patent No. 402,603, dated May 7, 1889.

Application filed January 9, 1889. Serial No. 295,848. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS W. MALLETT, of the city and county of New York, in the State of New York, have invented a certain new and Improved Belt-Shipper and Lock, of which the following is a specification.

My shipper works in the long-approved manner by fingers acting on the belt, the fingers being carried on a horizontal bar supported in fixed bearings and capable of being moved endwise to the proper extent to ship the belt from a fast pulley to a loose pulley alongside and back again, as required. There have been many attempts to produce the required movement of the shipper by pulling on a cord leading to a point inconvenient to the reach of the attendant, and to lock the shipper in either position into which it may be shifted, thus insuring that it shall remain as long as desired without being displaced by any tremulous motion of the machinery or other accidental cause until the cord is again pulled. I have devised improved means of attaining this end.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a front elevation. Fig. 2 is a similar view showing the condition after the belt has been shifted. Fig. 3 is a side view. Fig. 4 is a vertical central section showing a portion. Fig. 5 is a view of the rear face of one of the parts detached. Fig. 6 is a front elevation of the main portion of the bracket with all the parts removed.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is a bracket of cast-iron or other suitable material, firmly bolted upon a cross-timber in the floor above, or upon other convenient support.

B is a wheel having a grooved periphery, and turning freely on a pin, A′, fixed in the casting A. A cord, C, extends nearly or quite around in the groove in the periphery of B, and downward to a point conveniently accessible to the attendant. When the attendant pulls on the cord, he turns the wheel B in the direction indicated by the arrow.

D is a spiral spring inclosed in an annular chamber provided in the casting A, and taking hold by one end of the casting A and by the other end of the wheel B. This spring is adjusted to exert a constant force, tending to turn the wheel in the direction opposite to that indicated by the arrow.

B′ is a crank-pin set in the front face of the wheel B, and receiving one end of a connecting-rod, E. The upper end of this rod carries a stiffly-mounted horizontal pin, E′, which extends through a peculiarly-shaped aperture, *a*, in the bracket A, and protrudes on the other side. This pin is at each partial revolution of the wheel B moved downward and upward, and performs important functions.

The general form of the aperture *a* is that of an elongated horseshoe. The two lower branches will, when necessary, be distinguished by supernumerals *a′* and a^2. There is a notch, a^3, in the extreme upper end of the aperture, in which the upper half of the pin E′ is received at each ascent. So far as yet appears, the pin E′, on being drawn downward, is free to traverse in either branch *a′* or a^2 of the aperture.

On a pin, A^2, fixed in the bracket A, is mounted a swinging or partial-turning piece, G, certain portions of which will be designated, when necessary, by supernumerals, as G′ G^2. In its lower end is a slot, *g*, which receives a pin, M′, set in the shipper-rod M. It will be understood that another point in this shipper-rod carries the fingers which act on the belt, and which fingers may be of any ordinary or suitable construction and perform their usual functions as the shipper M is shifted to the right or left. The turning-piece G carries two wings, G′ G^2, at its lower end and a dividing-point, G^3, a little above the axis or pivot A^2. This latter point as the piece is turned in one direction or the other receives the pin E′ and deflects it to one side or the other.

The upper portion of the turning-piece G extends up forward of the point G^3, as indicated by G^4. This portion is widened above, or fan-shaped, as shown. From its upper edge a rim or lip, G^5, extends backward. Under this rim are two blocks, H′ H^2, each

having a semi-cylindrical groove, h' h^2, across its under face, adapted to match on the pin E′. Each is held in place by bolts extending forward through slots in the part G^4 and by nuts h.

When, with the parts in the position shown in Fig. 1, the attendant pulls the cord C, he turns the wheel B nearly half around in the direction of the arrow. This, through the pin B′ and connection E, depresses the pin E′. This as it descends finds the point G^3 in such position that it is certain to be deflected to the right and to descend in the branch a^2 of the aperture a. In doing so it acts on the wing G^2 and compels the turning-piece G to turn, carrying with it the shipper M, and effecting the required shifting of the position of the belts. (Not represented.) The attendant pulls the cord C with sufficient force to effect this change, and pulls it sufficiently far to bring the pin E′ quite down to the bottom of the branch a^2. This effects the complete shifting of the shipper, and consequently of the belts, which is required. Now, on slackening the cord C the spring D turns the wheel B backward, and the connection E, with its pin E′, rises rapidly and engages both in the notch a^3 in the bracket A and in the corresponding notch, h', in the block H′, which is then presented to it. The shipper is firmly held in this position by the engagement of the pin E′ both with the notch a^3 in the fixed bracket A and with the notch h' in the block H′, rigidly connected to the turning-piece G, which controls the shipper. On again pulling the cord C the attendant causes a repetition of the movements, but with the effect to reverse the position of the part G, and consequently of the shipper, and lock it again in the other extreme position. This shifting is due to the fact that the point G^3 will on this second descent of the pin E′ be presented inclined in the reverse position to that indicated in Fig. 1, and that it will in this position incline the pin E′ to the left, causing it to descend through the arm a' of the aperture a, and thus to act on the wing G′, forcing the lower end of the turning part G to the right instead of to the left, as before. When this movement is completed, the turning part G will be again in the position shown in Fig. 1, and thus have shifted the shipper back to its original position. Now, again slackening the cord C, the pin E′ rises through the branch a' and again engages in the notch a^3, this time engaging in the notch h^2 of the block H^2, which is then presented to it. Now, the shipper will be held firmly for any desired period in this position. When the cord C is again pulled, the shipper is again shifted, as at first, and so on any number of times. If the belting is on the tight pulley, causing the circular saw or other machine (not represented) to be turned, and the attendant wishes to shift it onto the loose pulley, he simply pulls the cord C a sufficiently strong and long pull to hold the pin E′ quite down and then releases it, allowing it to go idly back, and the shipper is thereby shifted to the left, carrying the belt upon the loose pulley. (Not shown.) This throws the machine out of use. When under these conditions the attendant desires to again start the machine, he makes a precisely similar movement, pulling the cord C and again depressing the pin E′ as low as it will go, and this by the descent of the pin E′ in the other branch of the aperture a causes the shipper to be shifted into the opposite direction and again locked. The rising of the pin E′ brings the notch h' or h^2 with which it engages into exact coincidence with the notch a^3 in the bracket. By shifting the position of either block H′ H^2, which may be done by slacking the nut h and shifting the block along in the slot in which it is held and retightening the nut the position in which the turning-piece G will be held may be varied within considerable limits. This is important in varying the position in which the belt is held on the fast and loose pulleys, respectively.

When the blocks H′ H^2 are shifted inward, as above, it is necessary to stop the descent of the pin E′ before it reaches the bottom of the branch a' or a^2. This is effected by shifting the pin B′ into one or the other of the holes b in the wheel B, so that the pin will strike against the bracket A and prevent any further turning of the wheel, and consequently any further descent of the pin E′. When these parts are properly proportioned, their action insures that one of the notches h' h^2 will coincide with the notch a^3. This capacity for varying the extent of the shifting movement adapts the same machine to serve for a wide range of widths of pulleys and belts.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. I can make the turning part G an open-work frame instead of the closed plate shown. I can vary the contour of the aperture a and its branches a' a^2; but it is important that the point G^3 be presented in such position as to be certain to receive the pin E′ in the right position on its descent and incline it properly to the right or the left, while at the same time it shall leave sufficient room to allow the pin E′ to move idly past it without materially disturbing it on its ascent.

Parts of the invention may be used without the whole. I can dispense with the adjustment of the position of the notches of the blocks H′ H^2 and cast them in one with the turning part G. I prefer the whole as shown.

I claim as my invention—

1. In a belt shifting and locking device, the turning-part G, having the wings G′ G^2 and the top blocks H′ H^2, with their notches h' h^2, in combination with the shipper-rod M, bracket A, having the aperture a a' a^2 and the notch a^3, and with the pin E′ and me-

chanical connections, substantially as specified, for moving the latter up and down, all arranged for joint operation, substantially as herein specified.

2. In a belt shifting and locking device, the notched blocks H′ H² and their adjusting means h' h^2, in combination with the turning-piece G G′ G² G³ and shipper-rod M, and with the pin E′ and its operating means, and the bracket A, having the aperture a a' a^2 and the notch a^3, all substantially as herein specified.

In testimony whereof I have hereunto set my hand, at New York city, this 21st day of December, 1888, in the presence of two subscribing witnesses.

FRANCIS W. MALLETT.

Witnesses:
CHARLES R. SEARLE,
H. A. JOHNSTONE.