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D. ABREY.

BELT SHIFTER.

APPLICATION FILED MAY 22, 1905.

Fig. 1

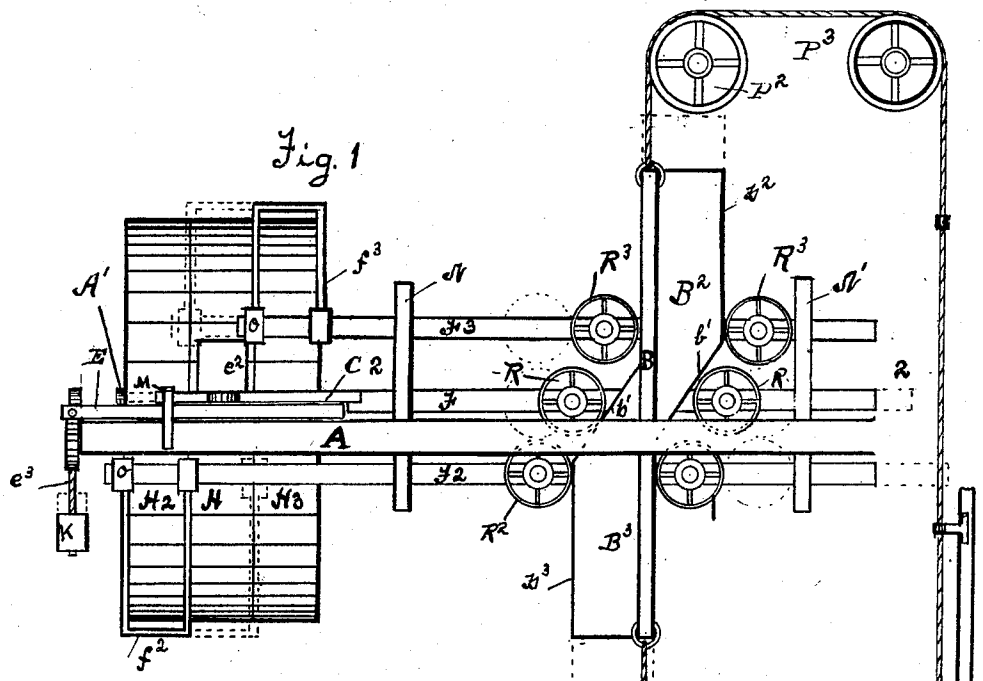
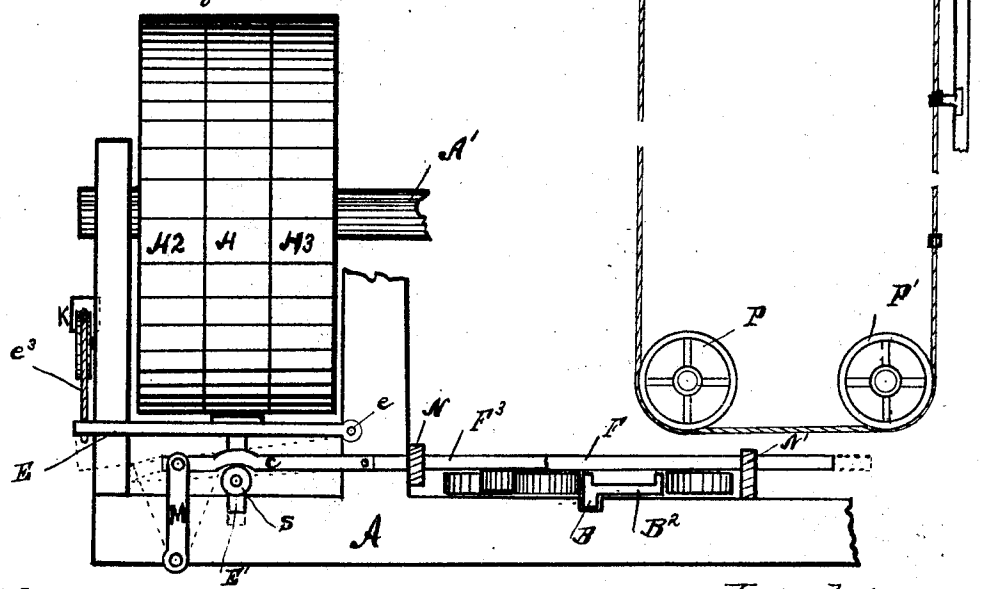


Fig. 2



Witnesses.

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UNITED STATES PATENT OFFICE.

DANIEL ABREY, OF PHILADELPHIA, PENNSYLVANIA.

BELT-SHIFTER.

No. 795,804. Specification of Letters Patent. Patented Aug. 1, 1905.

Application filed May 22, 1905. Serial No. 261,729.

To all whom it may concern:

Be it known that I, DANIEL ABREY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Belt-Shifters, of which the following is a full, clear, and exact specification.

This invention relates to that class of belt-shifters more particularly designed for use in connection with elevators and hoisting machinery.

My invention has for its object to provide a simple, direct, and positive acting belt-shifting mechanism applied to a power-shaft, through the operation of which reverse rotary motion may be transmitted from the power-shaft to the point of use by means of loose pulleys and belts.

My invention will be described in detail, and the novel features set forth in the claims at the end of this specification.

In the accompanying drawings, in which similar letters of reference are used to indicate corresponding parts in the different views, Figure 1 is an elevation showing the power or fixed pulley, the loose pulleys, and the belt-shifting mechanism; and Fig. 2 is a section on the line 2 2 of Fig. 1, showing the pulleys in plan.

A indicates a stout frame having relation with the frame of a steam or other engine imparting constant rotary motion during operation to the shaft A′, which is suitably journaled in the frame A. This shaft A′ is provided at a suitable point with a fixed pulley H and with loose pulleys H^2 and H^3, mounted on each side of said fixed pulley, in practice the loose pulleys H^2 and H^3 carrying one a straight belt and the other a cross-belt, which are trained over the pulley of a distant shaft to be rotated in one direction or the other.

Arranged parallel with the shaft A′ are reciprocating shifting-bars F^2 F^3, each carrying at its end a U-shaped belt guide or shifter f^2 or f^3, respectively, said shifting-bars being slidably seated in guides N N′, secured to or forming part of the frame A.

Intermediate the shifting-bars F^2 and F^3 and mounted to reciprocate in the guides N and N′, parallel with said bars, is a brake-bar F, to the end of which is pivoted a cam-lever *c*, the other end of which is pivoted to a link M, pivoted on the frame A, as shown.

A lever E is fulcrumed on the frame A at *e*, to which is rigidly secured a brake-beam E′, carrying a shoe e^2, adapted to contact with the central or fixed pulley H of shaft A′. The outer or free end of the lever E is connected by a cord or rope e^3 with a weight K, which will be referred to hereinafter. The brake-beam E′ carries an antifriction-pulley *s*, which operates, in conjunction with the cam-faces of the lever *c*, to relieve friction between the lever and brake-beam, as will be readily understood.

Mounted to reciprocate vertically in the frame A is a slide B, to which is rigidly secured a shifting block comprising the parts B^2 and B^3, and connected to the upper and lower ends of the slide B is a rope or cable J, trained over pulleys P, P′, P^2, and P^3, by means of which the shifting block may be changed from one position to another of its three positions. It will be understood that in use in connection with freight or passenger elevators the rope or cable J may pass through the car or cages, as is customary, and that each of the pulleys P, P′, P^2, and P^3 has a fixed position in the structure wherein this device is to be installed.

The shifting-bars and the brake-bar are provided each with two antifriction wheels or rolls R, R^2, and R^3, distanced apart to contact with the opposite surfaces of the shift-block, the latter being formed, as shown, with vertical surfaces b^2 and b^3 and diagonal edges b'.

From the construction shown and described it will be seen that, assuming the shaft A′ and fixed pulley H to be in the position shown, the brake is applied to the fast pulley H, stopping it. The weight K is designed to represent approximately the load the shaft is to move. Upon moving the shift-block upward (considering the position of the parts in the drawings) the brake on the fixed pulley H will first be released by the movement of the brake-bar F, lever *c*, and link M, and as the diagonal edges b' of the shift-block rise between the wheels R^3 the shift-bar F^3 will move the belt from loose pulley H^3 to the fixed pulley H. Of course an opposite movement of the block would have an opposite effect—that is, release the brake and shift the belt through shift-bar F^2 from loose pulley H^2 to fast pulley H.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a fixed or motor pulley, and loose pulleys mounted at each side thereof, all adapted to carry belts, of a belt-

shifting mechanism comprising a shifter-bar for each loose pulley and a bodily-slidable shift-block for operating the shift-bars.

2. The combination with a fixed or motor pulley, and loose pulleys mounted at each side thereof, all adapted to carry belts, of a belt-shifting mechanism comprising a brake for the fast pulley, a brake-bar, a shifter-bar for each loose pulley, and a bodily-slidable shift-block for operating the brake and shift bars.

3. The combination with a fixed or motor pulley, and loose pulleys mounted at each side thereof, all adapted to carry belts, of a belt-shifting mechanism comprising a brake for the fast pulley, a brake-bar, a shifter-bar for each loose pulley, antifriction-rolls on the brake and shifter bars, and a slidable shift-block contacting with said rolls to operate the bars.

4. The combination with a fixed or motor pulley, and loose pulleys mounted at each side thereof, all adapted to carry belts, of a belt-shifting mechanism comprising a brake for the fast pulley, a brake-bar, a lever pivoted thereto controlling the brake, and means to shift the brake-bar and shift a belt from one or the other of the loose pulleys.

5. The combination with a fixed or motor pulley, and loose pulleys mounted at each side thereof, all adapted to carry belts, of a belt-shifting mechanism comprising a brake for the fast pulley, a weighted lever pivoted to the frame carrying a brake-beam, a brake-bar, a cam-lever pivoted thereto controlling the brake-bar, and means to shift the brake-bar and shift the belts from one or the other of the loose pulleys to the fixed pulley, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL ABREY.

Witnesses:
CHAS. E. RIORDAN,
WILLIAM S. ODELL.