(No Model.)

W. G. VERNON.

BELT SHIFTER.

No. 313,035. Patented Feb. 24, 1885.

Fig. 1.

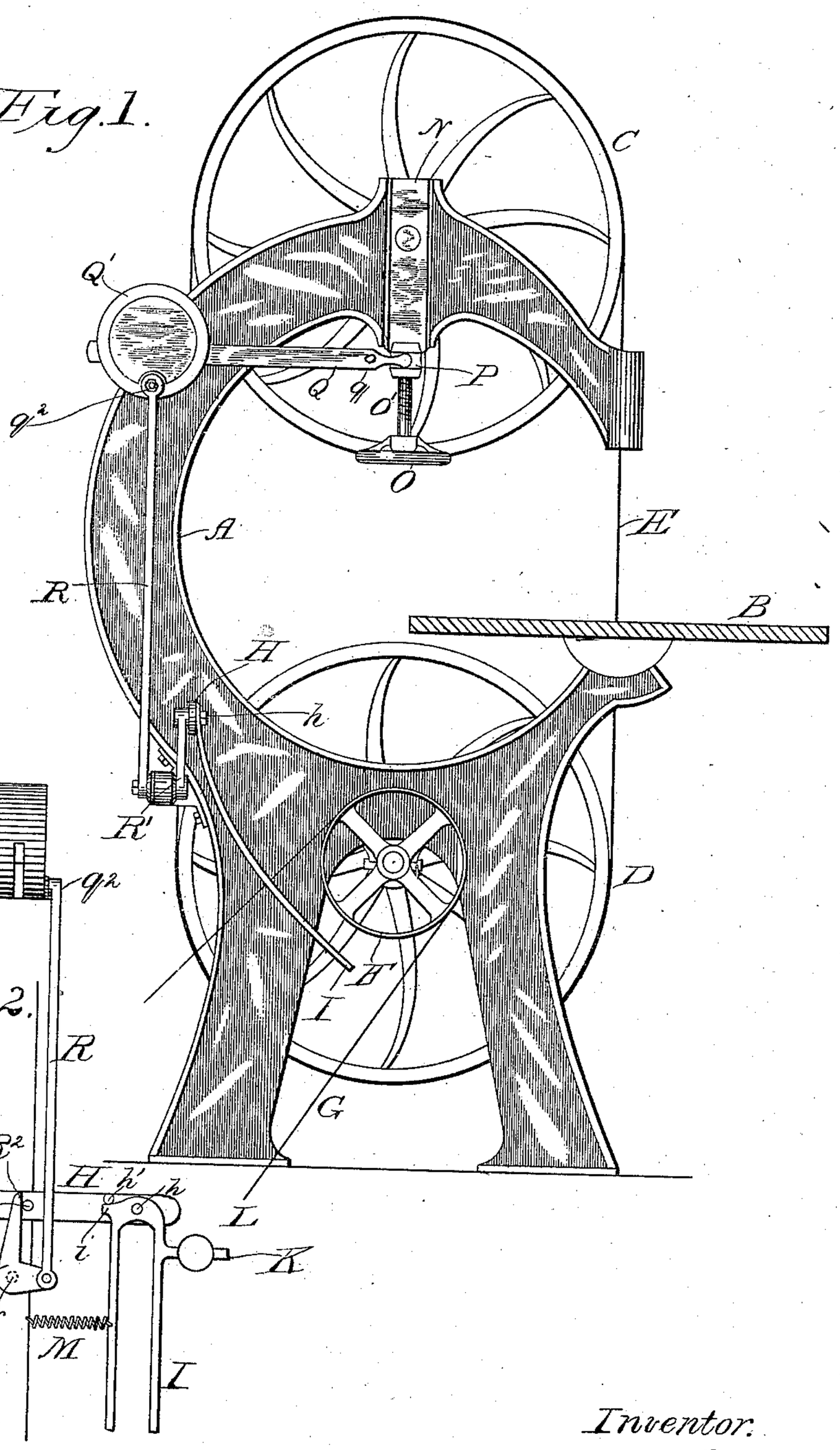

Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM G. VERNON, OF PHILADELPHIA, PENNSYLVANIA.

BELT-SHIFTER.

SPECIFICATION forming part of Letters Patent No. 313,035, dated February 24, 1885.

Application filed August 8, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. VERNON, 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; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

My invention has relation to band-saws, and has for its object the provision of means for shifting the belt through which motion is communicated to the saw in such manner as to avoid breaking the saw.

A further object of my invention is to provide means for the automatic shifting of the belt if the saw should break while running.

My invention consists in the provision of means, comprising a novel construction and combination of parts adapted to form a belt-shifter, whereby the belt of a band-saw machine will be shifted from the loose to the tight pulley with an easy and regular movement, thereby gradually applying the power and avoiding any sudden strain to the saw-blade.

My invention still further consists in the provision of means for automatically shifting the belt if for any reason the saw-blade should break or in any other way loose its tension, and thereby avoiding sudden and injurious strain of the saw-blade.

Referring to the accompanying drawings, Figure 1 is a side view of a band-saw having my improvements attached thereto, and Fig. 2 a detail showing the device detached from the band-saw.

A designates the frame of the machine, which may be of the usual or any desired form, and is provided with the table B.

C designates the upper and D the lower wheel upon which the band-saw E runs. A pulley-wheel, F, is set fast upon the shaft of wheel D, and carries a belt, G, by means of which motion is communicated to the saw. A loose pulley (not shown) is also journaled on said shaft alongside of pulley F.

H represents the arm of the belt-shifting device, having the fork I, secured to its end. The arms of said fork embrace the belt G, and said fork is pivoted upon the arm H at *h*, and a toe, *i*, on the fork, by coming in contact with a pin, *h'*, on the arm H, limits the movement of the fork in one direction. Upon the opposite side of the fork I is a horizontally-projecting arm, K, upon which is placed a sliding weight, L, the object of said weight being to cause the fork to assume a vertical position. A spring, M, may be used in connection with or in place of weight L, if desired. The upper band-wheel, C, is journaled in a block, N, which slides in a recess in frame A. A hand-wheel, O, attached to a screw, O', that screws through a nut, P, serves to force the block upwardly and regulate the tension of the saw. The nut P is supported upon the end of a lever, Q, whose forked ends embrace the nut, and the said lever is pivoted at *q* to the frame A, and is provided with a sliding weight, Q', which serves to counterbalance the weight of the band-wheel, the saw, and the sliding block.

R designates a depending lever, which is attached at its upper end to weight Q' at q^2 and at its lower end to an L-shaped lever, R', pivoted at *r* to the frame of the machine, its upper end, R^2, contacting with a pin, *s*, upon shifting-lever H.

The operation of the invention is as follows: When it is desired to shift the belt from the loose to the tight pulley, it is only necessary to pull the shifting-lever H. This movement draws the top of the fork I over the tight pulley, the lower end of the fork and the belt being caused to follow more slowly by the weight on said fork until the fork has again assumed a vertical position and the belt is fully shifted. When the belt is shifted back to the loose pulley, the fork remains in a vertical position by reason of the toe *i* being in contact with pin *h'*.

It will be noted that the belt is shifted by the gravity of weight upon the fork, and will always be shifted gradually from the loose to the tight pulley, thereby avoiding any sudden strain upon the saw.

The device for automatically shifting the belt from the tight to the loose pulley is only brought into play if the saw should break or slip off the band-wheels, in which case the weight Q' will drop and cause the belt to be shifted to the loose pulley through the medium of levers R and R'.

What I claim as my invention is as follows:

1. In a belt-shifting device, the combination, with the shifting-lever, of a depending weighted fork pivoted thereto and adapted to shift the belt by its gravity when the shifting-lever is reciprocated.

2. The combination, with a band-saw, of an automatic belt-shifter adapted and designed to be brought into play by the abnormal upward movement of one of the band-wheels, substantially as described.

3. The combination, in a belt-shifter, of a pivoted weighted fork adapted to shift the belt gradually to one side by the gravity of said fork and to shift said belt positively in the other direction, substantially as described.

4. The combination, with sliding block N, supporting-lever Q, and weight Q′, of depending lever R, lever R′, shifting-lever H, and fork I, all constructed and arranged substantially as described.

5. The combination, with reciprocating lever H, with stop *h*′, of weighted fork I, pivoted to said lever and provided with the toe *i*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of June, 1884.

WILLIAM G. VERNON.

Witnesses:
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