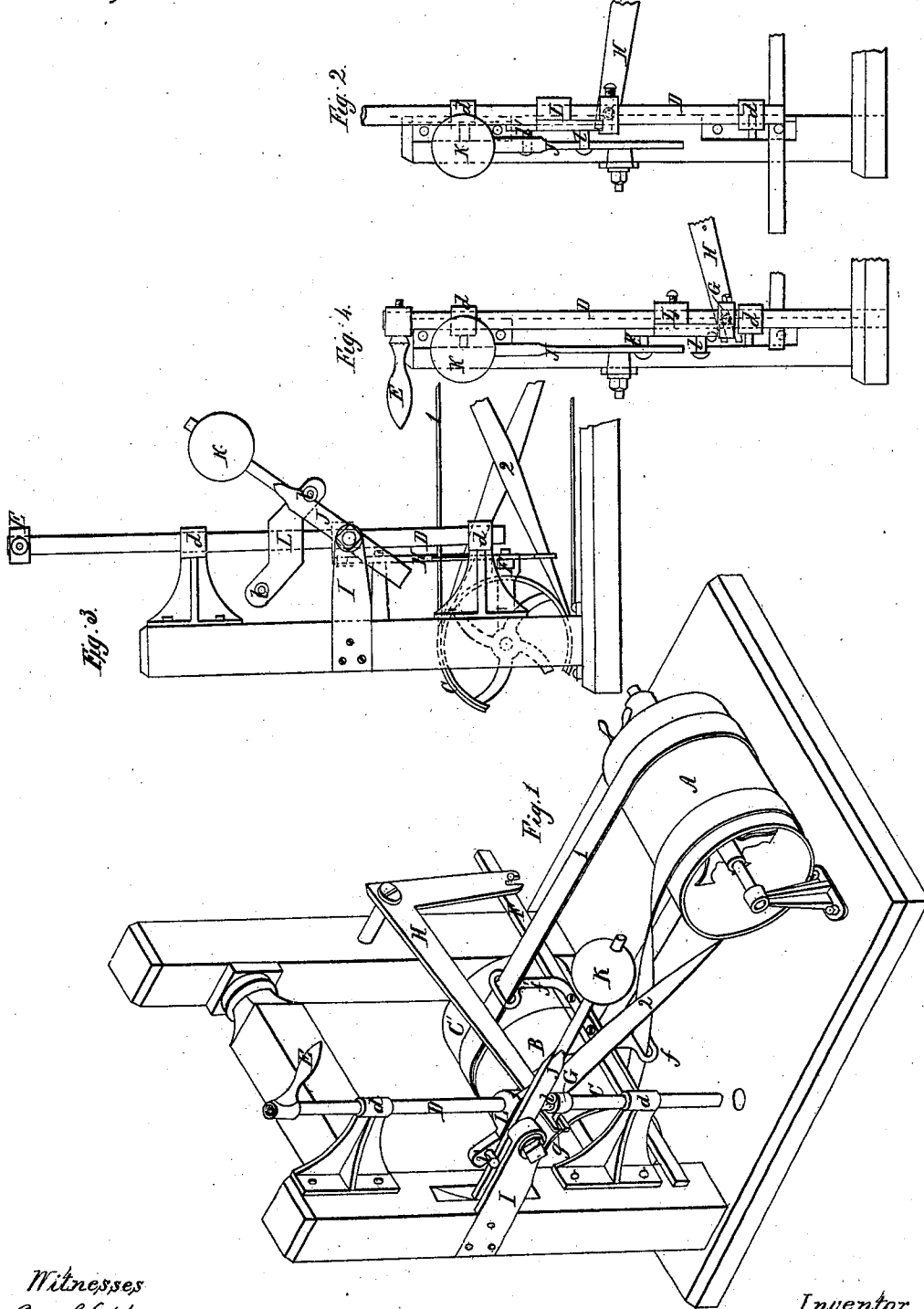


G. Johnson.
Hoisting Mach.

N^o 98,388.

Patented Dec. 28, 1869.



Witnesses
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Letters Patent No. 98,388, dated December 28, 1869; antedated December 17, 1869.

IMPROVED HOISTING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE JOHNSON, of Cincinnati, county of Hamilton, and State of Ohio, have invented a new and useful Improvement in Hoisting-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective, showing my improvement, and the essential parts for shifting the belts.

Figures 2 and 3, elevations, showing the shifting-rod at its highest point.

Figure 4, an elevation, representing the shifting-rod at its lowest point.

Similar letters of reference indicate like parts.

My improvement relates in particular to hoisters, where the platform, coming in contact with a projecting lever on the shifting-rod, operates the shifter, and thereby throws the belt off the tight pulley automatically. But it has an additional advantage when the rod is operated by hand, in which case it is not always known when the belts are shifted clear.

In all hoisters, where two belts are used, one of which being a cross-belt, driving a series of tight and loose pulleys, it is found difficult to throw the belts fully from the one to the other; and in case only a portion of the belt is on the tight pulley, it has not sufficient traction to revolve the same, the belt is thereby heated, and greatly worn, and placed under unequal strain, causing it soon to give way, which increases probabilities of accidents, entailing a loss of time, and expense.

The object of my improvement is to provide hoisters, with a cross-head firmly attached to the shifting-rod, or which may be attached directly to the shifter, or other part connected therewith, the cross-head having projections at each end, to receive a lever, having its fulcrum in line with the shifting-rod, and a weight to its long arm, adjustable by a bolt.

By this device, whether the cross-head is lowered or raised, it elevates the weighted lever, and when the shifting-rod is started toward its middle position, the weight falls with sufficient force to throw the belts entirely on the loose pulleys.

The construction of a hoister, to which my improvement is applicable, may be as follows:

A, in fig. 1, is the driving-drum, carrying the straight belt 1 and cross-belt 2 over the tight pulley B and loose pulleys C C.

D is the shifting-rod, sliding in boxes *d d*, and extends from the bottom to the top of the building.

At convenient intervals are placed handles E, by which the rod D is operated.

F is the shifter, carrying the two arms *ff'*.

A collar, G, is screwed to the shifting-rod D by

bolt *g*, which engages with one arm of lever H, while its other arm operates the shifter F.

In construction, my improvement is as follows:

At any convenient part of the shifting-rod D is bolted the arm I, to any fixed part of the building.

A lever, J, swings on the arm I, the poles of its fulcrum passing through the shifting-rod D.

An adjustable weight, K, is bolted to the long arm of lever J.

L is a cross-head, bolted to the shifting-rod D, its two arms being set at an angle, but parallel to each other.

l and *l'* are bolts or projections, with or without friction-rollers, which engage with lever J, it pressing downward on projection *l*, and pressing upward on projection *l'*.

The operation of my improvement becomes obvious.

When the shifting-rod becomes elevated, from the position seen in fig. 1 to that seen in fig. 3, the weight on lever J offers less resistance as it rises, until it has reached nearly perpendicular to its fulcrum; this upward motion having been given the lever by projection *l*, on cross-head L. By this movement the belt 1 is thrown on the tight pulley B, whereby the platform is caused to descend.

When it is desired to stop the downward motion of the platform, handle E is depressed, whereby the weight is also started, which continues its downward motion automatically, until intercepted by projection *l'*, which is the position in which the belts are clear from the tight pulley, and entirely on the loose pulleys C and C'.

When the platform is to be raised, the handle E is depressed still further, when the other projection *l* raises the weighted lever J to an equal elevation, as before, as seen in fig. 4; the decrease of resistance being as in the former operation. In this position of the shifting-rod, the platform is ascending, owing to the cross-belt 2 having been thrown on the tight pulley B, reversing its motion.

When it is desired to bring the platform to rest, the handle E is elevated, which, starting the weight downward, by the projection *l*, relieving the lever J, it continues its downward motion automatically, until intercepted by the projection *l*.

It will be observed that with my improvement it is not necessary to adjust the shifting-rod to the exact position where it will throw the belts entirely off or on the pulleys, as the weighted lever, in all cases, holds the rod at the extreme upper or lower point, or, having been started from either of them, by hand, or by the platform coming in contact with the projection on the shifting-rod, the lever continues its motion automatically, and stops just midway between these two points.

Having thus described the construction and operation of my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The cross-head L, attached to the shifting-rod D, or other equivalent parts, having projections *l* and *l'*, substantially as and for the purpose described.
2. The lever J, so attached as to allow the poles of its fulcrum to pass through the shifting-rod D, and

having an adjustable weight, K, as and for the purpose specified.

3. The combination, with the shifting-rod D, or other equivalent parts, of the cross-head L, projections *l l'*, lever J, and adjustable weight K, all operating together, as and for the purpose herein set forth.

Witnesses:

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GEORGE JOHNSON.