J. Green. Appr: for Hoisting and Conveying Coal &c.

Sheet 1. 2. Sheets.

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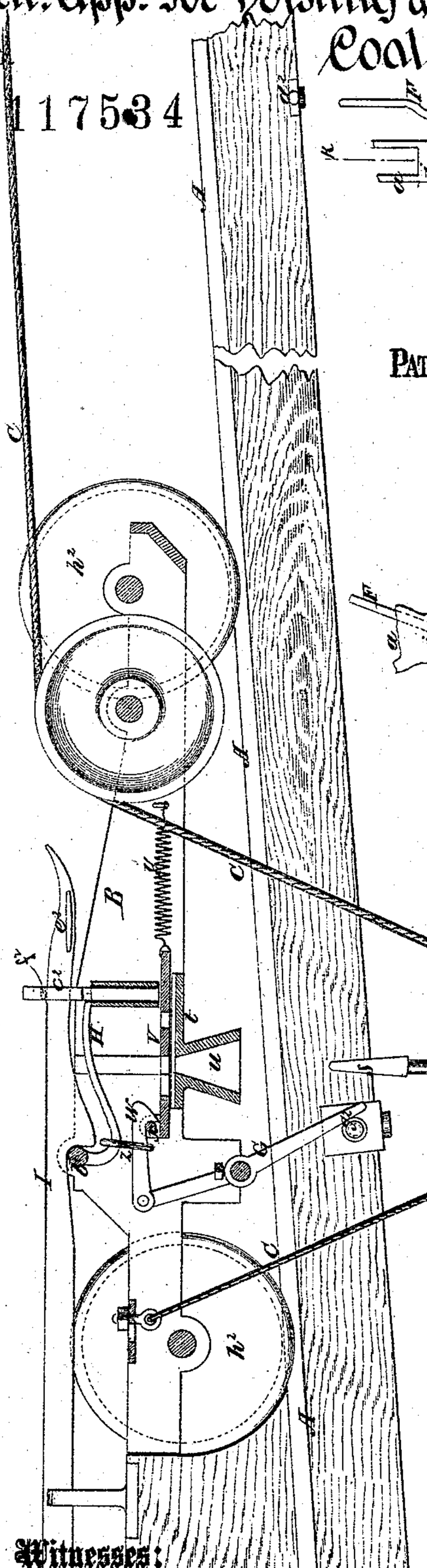

Fig. 1.

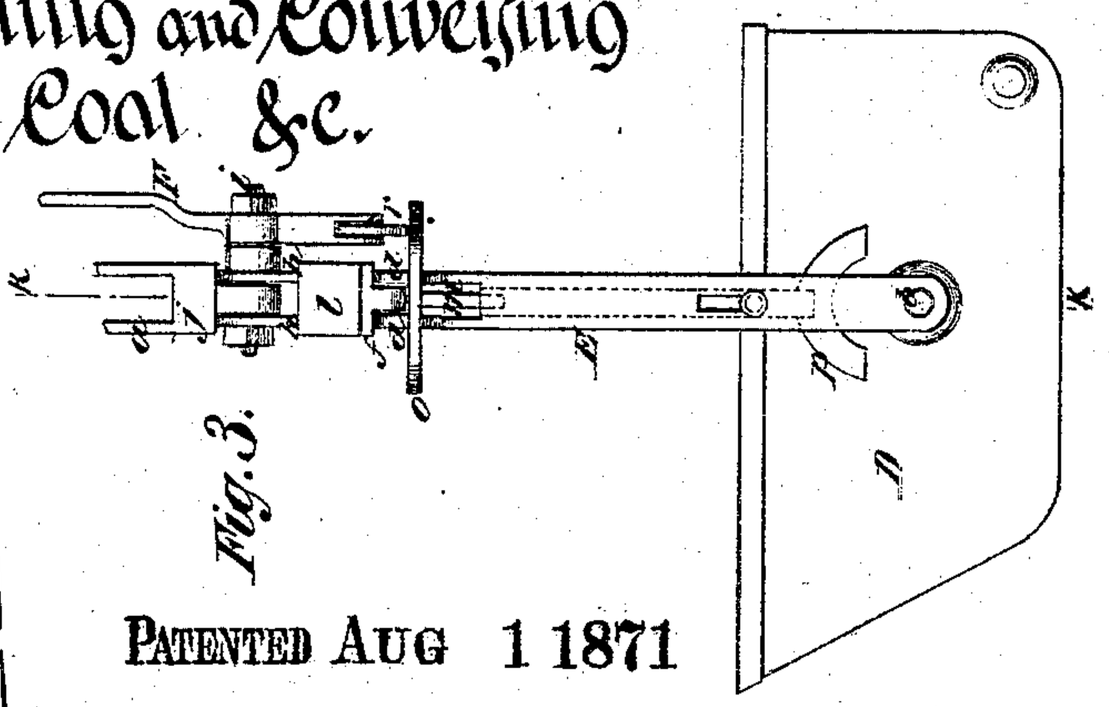

Fig. 3.

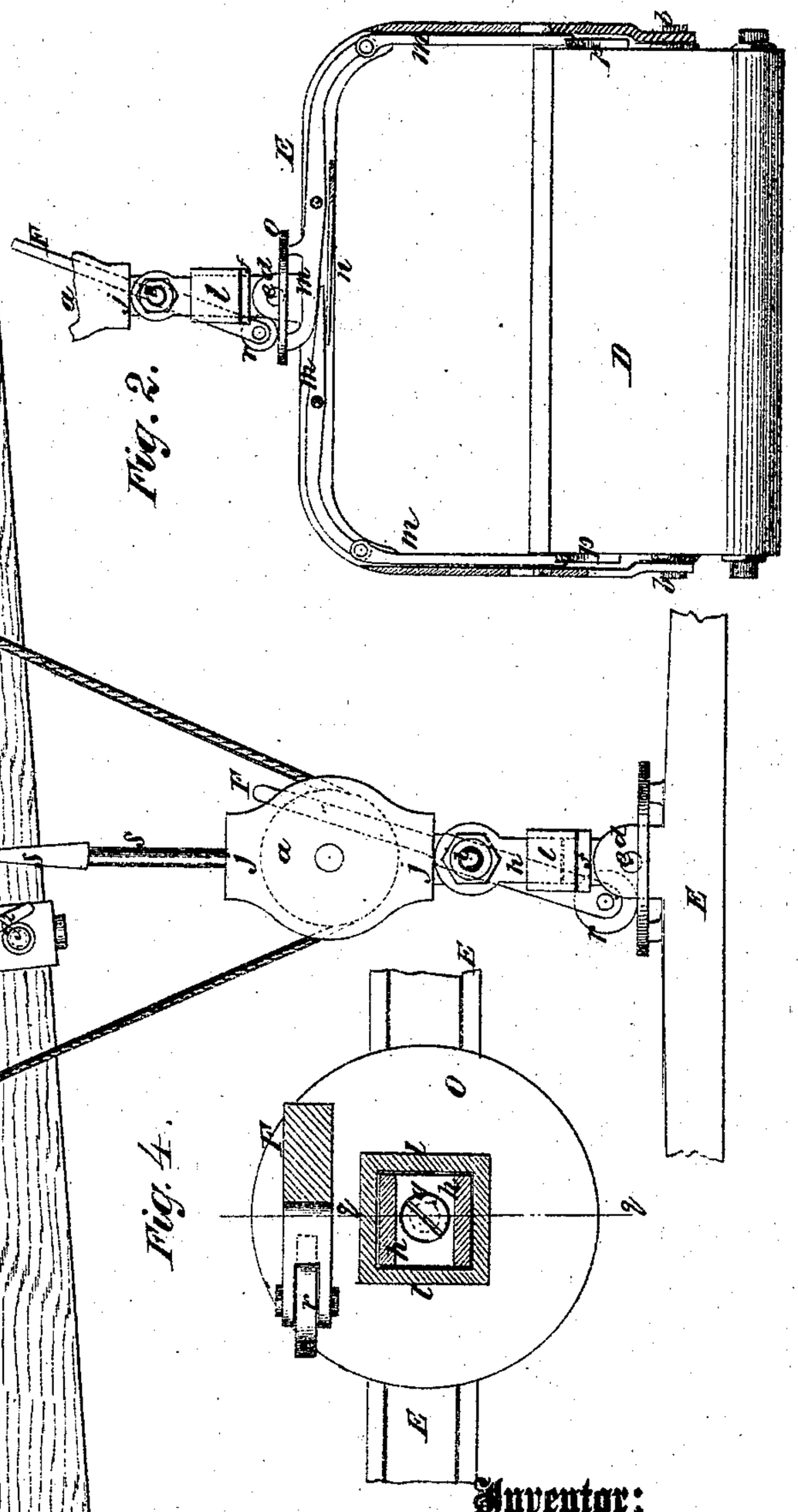

Fig. 2.

Fig. 4.

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Witnesses:

Gustave Dieterich

C. L. Topliff

Inventor:

J. Green.

PER Munn & Co

Attorneys.

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Sheet 2. 2 Shts.

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Fig. 7.

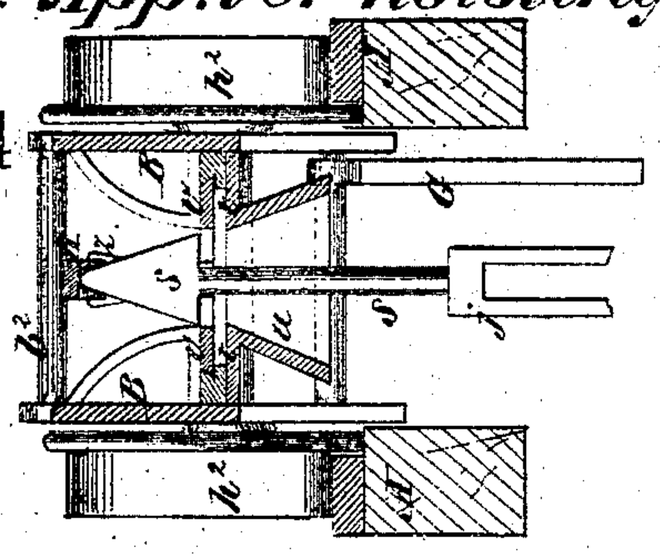


Fig. 8.

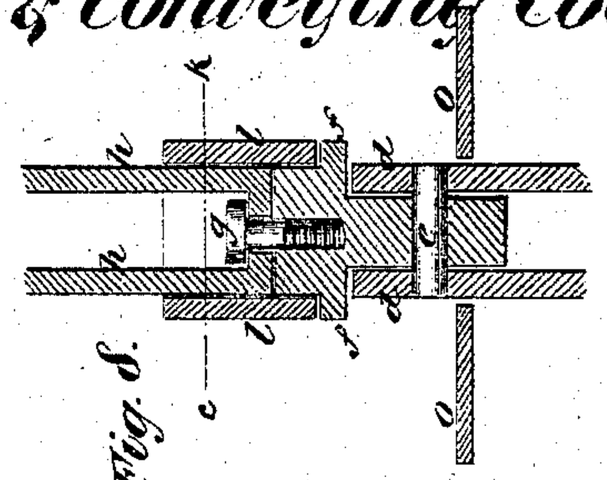


Fig. 5.

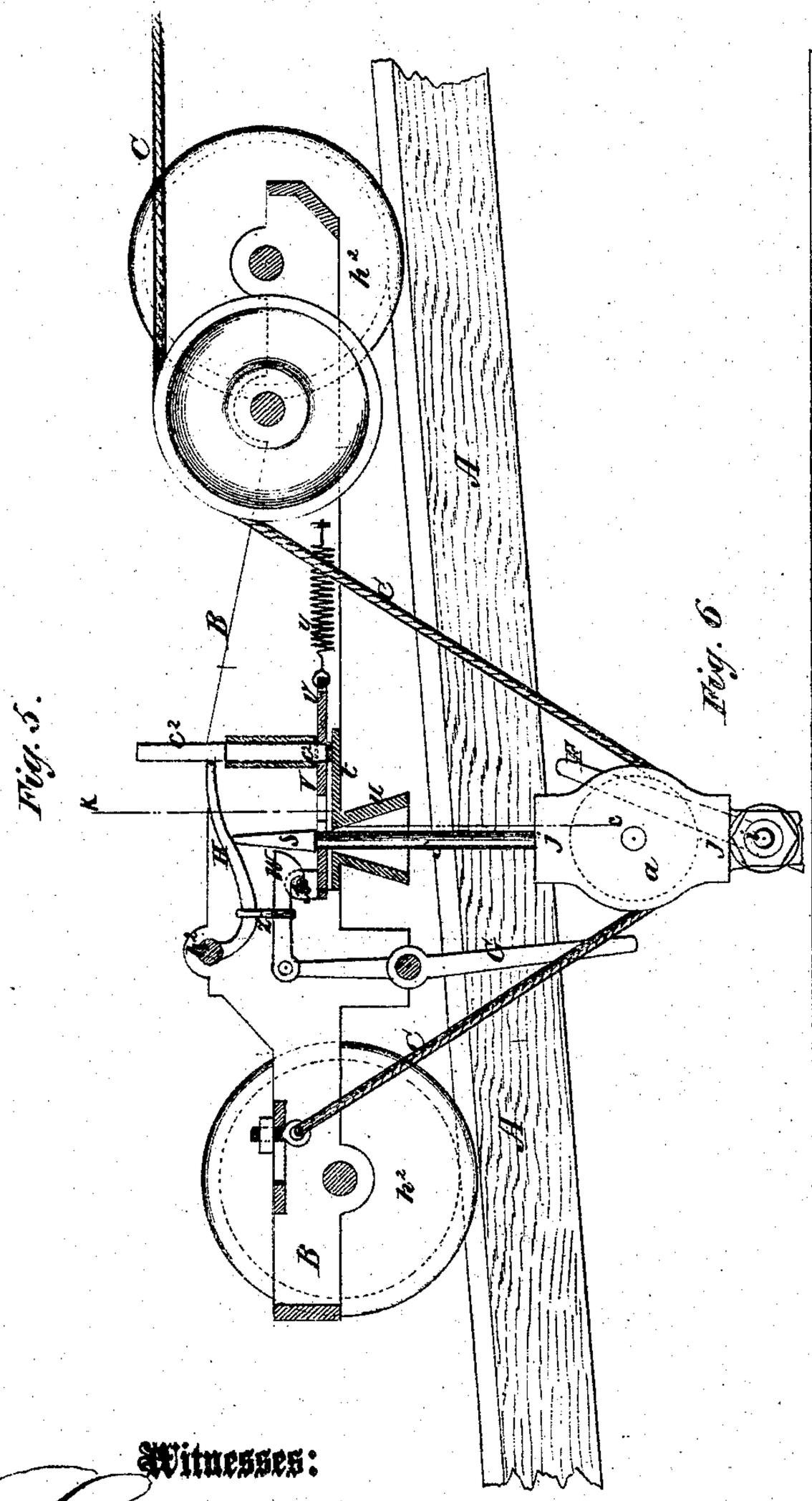
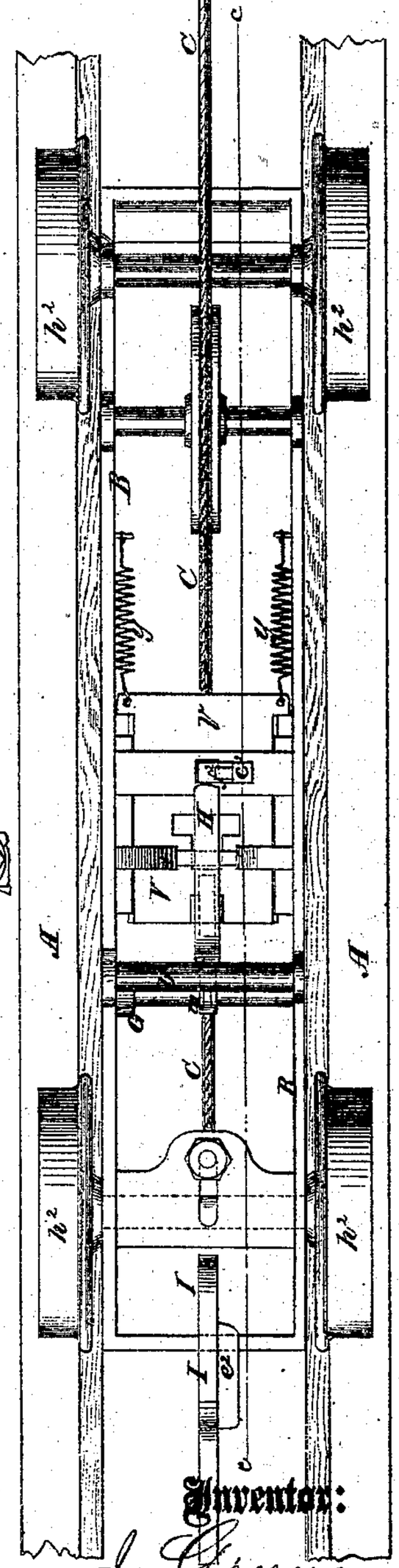


Fig. 6



Witnesses:

Gustave Dieterich

C. L. Crosby

Inventor:

J. Green.

Per Munn & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH GREEN, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND GEORGE STANCLIFF, OF SAME PLACE.

IMPROVEMENT IN COAL-HOISTERS AND CONVEYERS.

Specification forming part of Letters Patent No. 117,534, dated August 1, 1871.

To all whom it may concern:

Be it known that I, JOSEPH GREEN, of the city, county, and State of New York, have invented a new and Improved Apparatus for Hoisting and Conveying Coal, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my improved hoisting apparatus, showing the track, truck, and dumping-bucket, the line *c c*, Fig. 6, indicating the plane of section. Fig. 2 is a side view, partly in section, of the dumping-bucket, the line *k k*, Fig. 3, indicating the plane of section. Fig. 3 is an end view of the bucket. Fig. 4 is a detail horizontal section, on an enlarged scale, of the bucket-swivel, the line *c k*, Fig. 8, indicating the plane of section. Fig. 5 is a longitudinal vertical section of the entire hoisting apparatus on the same plane as Fig. 1, but showing the parts in different position. Fig. 6 is a plan or top view of the same. Fig. 7 is a vertical transverse section of the same on the line *k c*, Fig. 5. Fig. 8 is a detail vertical section of the bucket-swivel, the line *q q*, Fig. 4, indicating the plane of section.

Similar letters of reference indicate corresponding parts.

My invention consists in certain improvements upon hoisting and conveying devices, which will be hereinafter fully described and subsequently pointed out in the claim.

A in the drawing represents the track on which the truck B is supported. The truck is of suitable shape and size and has four wheels, h^2 h^2, which are flanged and rest on the track near the inner edge of the same. C is the rope or chain for operating the entire apparatus. It has one end secured to the back of the truck, passes under a block, *a*, from which the bucket D is suspended over a pulley at the front of the truck, thence along the track to the windlass whereon it is wound and unwound, as may be required. The rope may, however, be secured directly to the bucket and not to the rear end of the truck. The bucket D is provided with a bail, E, which is pivoted at the ends by pins *b b*. In the middle the bail has projecting ears *d*, which are, by a transverse pin, *e*, pivoted to a short rod, *f*, suspended by a vertical swivel, *g*, from a strap, *h*. By a longitudinal bolt, *i*, the strap is connected with the frame or casing *j* of the tackle-block *a*. The upper part of the rod *f* and the lower of the strap *h* are made prismatic, of equal cross-section, as in Fig. 4, so that a sleeve, *l*, can be slipped over both to lock them together into one rigid shank. Whenever the sleeve, however, is raised to be clear of the rod *f* the bucket can, on the swivel *g*, be turned horizontally and relocked in another position. The bucket can thus be turned so that it may be dumped on the bolt *i* to either side. The bail E of the bucket is provided with a pair of pivoted, single or jointed, bolts, *m m*, which extend to the middle of the bail, where their upper ends are, by a spring, *n*, held up against a plate, *o*, placed around the ears *d*, as shown. Their lower ends lock into notched plates *p* which are affixed to the ends of the bucket. By the bolt *i* is also held to the strap *h* a lever, F, having a roller, *r*, at its lower end. When this lever is swung into an upright position it bears with the roller *r* upon the plate *o*, and forces it down upon the upper ends of the bolts *m*, thereby raising their lower ends out of the notches and causing the bucket to dump on the pivots *b*. A spear-point, *s*, is secured to a rod projecting vertically upward from the casing *j* of the tackle-block *a*. The truck B carries a transverse plate, *t*, from which an inverted funnel, *u*, open at both ends, is suspended. Above the plate *t* is a movable plate, *v*, with a T-shaped slot through it. A hook, *w*, pivoted to a weighted lever, G, catches over a projecting pin, *x*, of said plate *v*, and holds it in such position as to have the large part of the T-slot over the opening of the funnel *u*. Springs *y* connected with the front end of the plate *v* tend to draw it forward, but the hook *w* prevents it. (See Fig. 1.) When, by pulling the rope C, the bucket is elevated, the spear-head *s* enters the large end of the funnel, and is drawn through the aperture of the plate *v*, and finally strikes a lever, H, which is, by a strap *z*, connected with the hook *w*, elevates said lever, and thereby swings the hook *w* clear of the pin *x*. The plate *v* is thereby released so that it is drawn forward by the springs *y*, which carry the narrow part of the opening in *v* over the funnel and around the shank of *s*. The bucket is thus locked to the truck, as the spear-head is wider than the narrow slot, and consequently supported

on the plate v, as shown in Fig. 5. While the bucket was lowered the truck was locked to the track by a hook-shaped lever, I, pivoted to a projection, a^2, of the track, and hooked over a pin, b^2, of the truck, as in Fig. 1. The lever H, when swung up, as aforesaid, is raised against the lever I and lifts it clear of the pin b^2, so as to release the truck as soon as the bucket is locked to it. A vertical bolt, c^2, held in the truck drops into an aperture of the plate v as quick as the same is drawn forward by the springs y, and locks it, so that it cannot accidentally be moved back to drop the bucket at the improper time or place. The further pulling of the rope C will now draw the truck and bucket forward until the lever F strikes a pin, d^2, fixed to the track, and is thereby swung into a vertical position to dump the bucket, as aforesaid. The track should be inclined, so that the truck holding the empty bucket may roll back to the starting-point after dumping, or otherwise the truck is drawn back. When near the starting-point a lip, e^2, on the lever I enters beneath a projecting lug, f^2, of the bolt c^2, and lifts the same out of the plate v. The lower part of the lever G then strikes a fixed pin, g^2, of the track, and is swung so as to carry the hook w back, said hook moving the plate v with it till the large part of the T-slot arrives above the funnel and causes the bucket to descend for refilling. The hook I at the same time locks the truck in position for receiving the bucket, as above stated. The hook w when lifted clear of the pin x by the ascending spear-head would remain behind said pin, and therefore not in the position for dragging the plate v back, were it not connected with the weighted lever G, which, as soon as the moving truck carries it clear of the pin g^2, swings itself plumb, and thereby brings the hook ahead over the pin x, see Fig. 5, ready for hauling the plate v back so soon as the pin g^2 is struck.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the spear-head s, funnel-plate t u, slotted movable plate v having pin x, springs y, pivoted hook w, weighted lever G, lever H, and strap z, all constructed and arranged as and for the purpose described.

2. The hook w connected with the weighted lever G and operating so as to draw and hold the plate v back, as set forth.

3. The bolt c^2 having lug f^2, combined with lever I having lip e^2 to unlock the plate v at the time specified.

4. The bucket swiveled to the strap h, and provided with the locking-sleeve l, to be dumped in either direction, as specified.

JOSEPH GREEN.

Witnesses:
GEORGE W. MABEE,
T. B. MOSHER.