

(No Model.)

3 Sheets—Sheet 1.

D. CARLIN.

# Device for Operating Coke Oven Lorries or Tramway Cars.

**No. 238,646.**

**Patented March 8, 1881.**

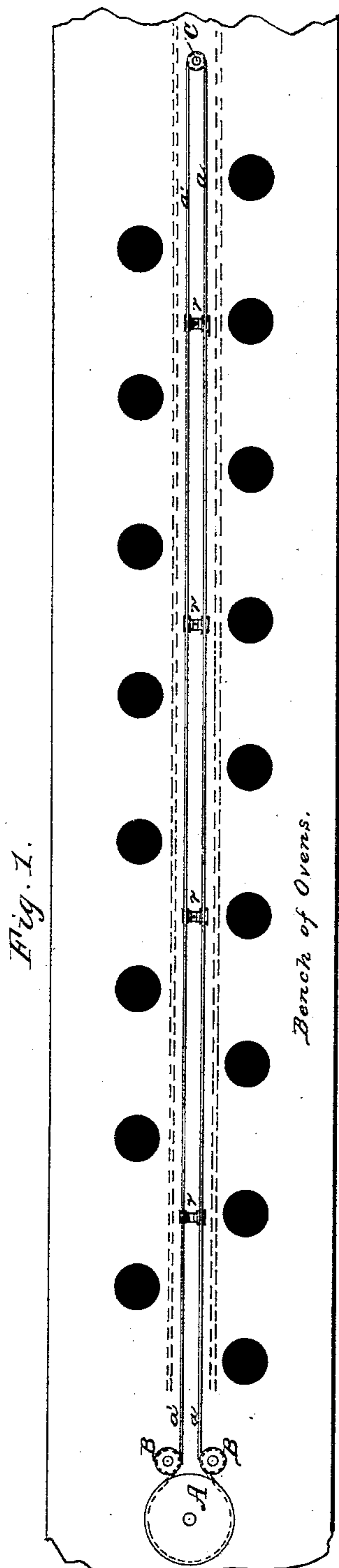


Fig. 1.

*Bench of Overs.*

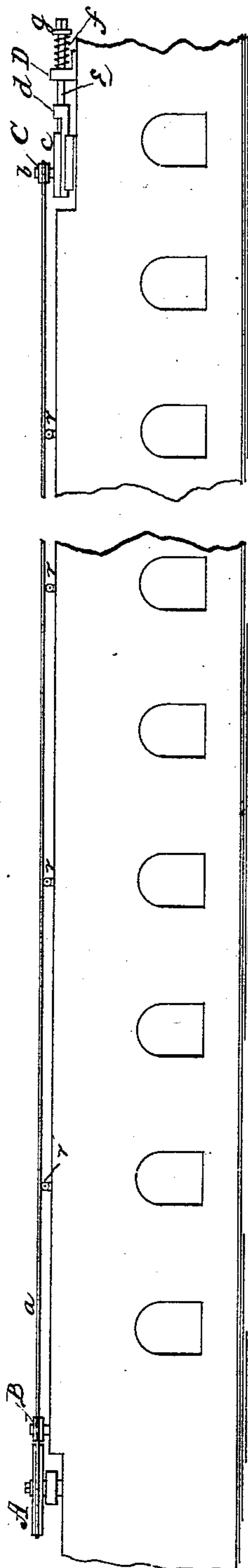


Fig. 2.

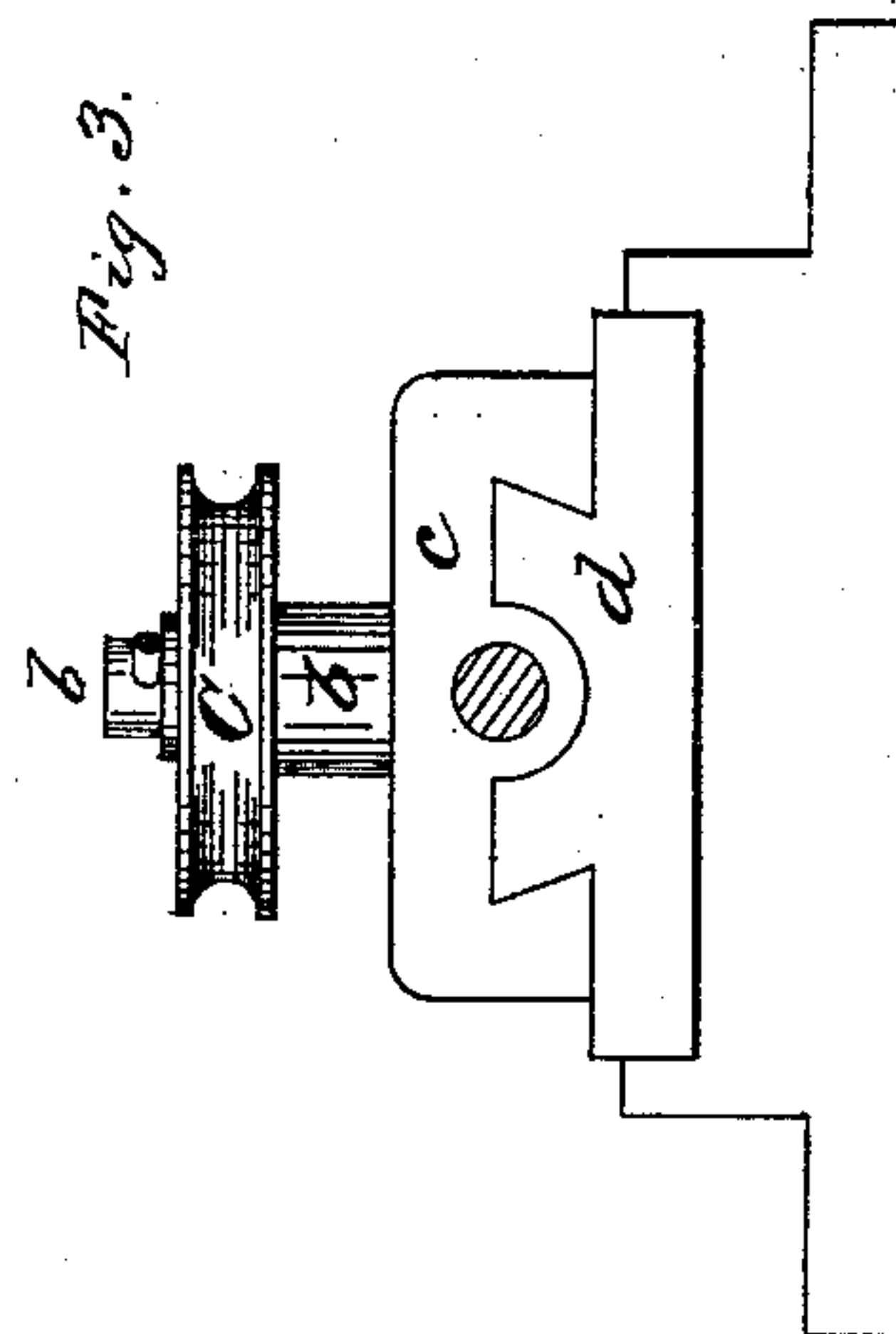


Fig. 3.

Witnesses.

F. A. Falck  
John M. Patterson

David Carlin  
Inventor

by Connelley Post & Sigsbee.  
Attorneys.

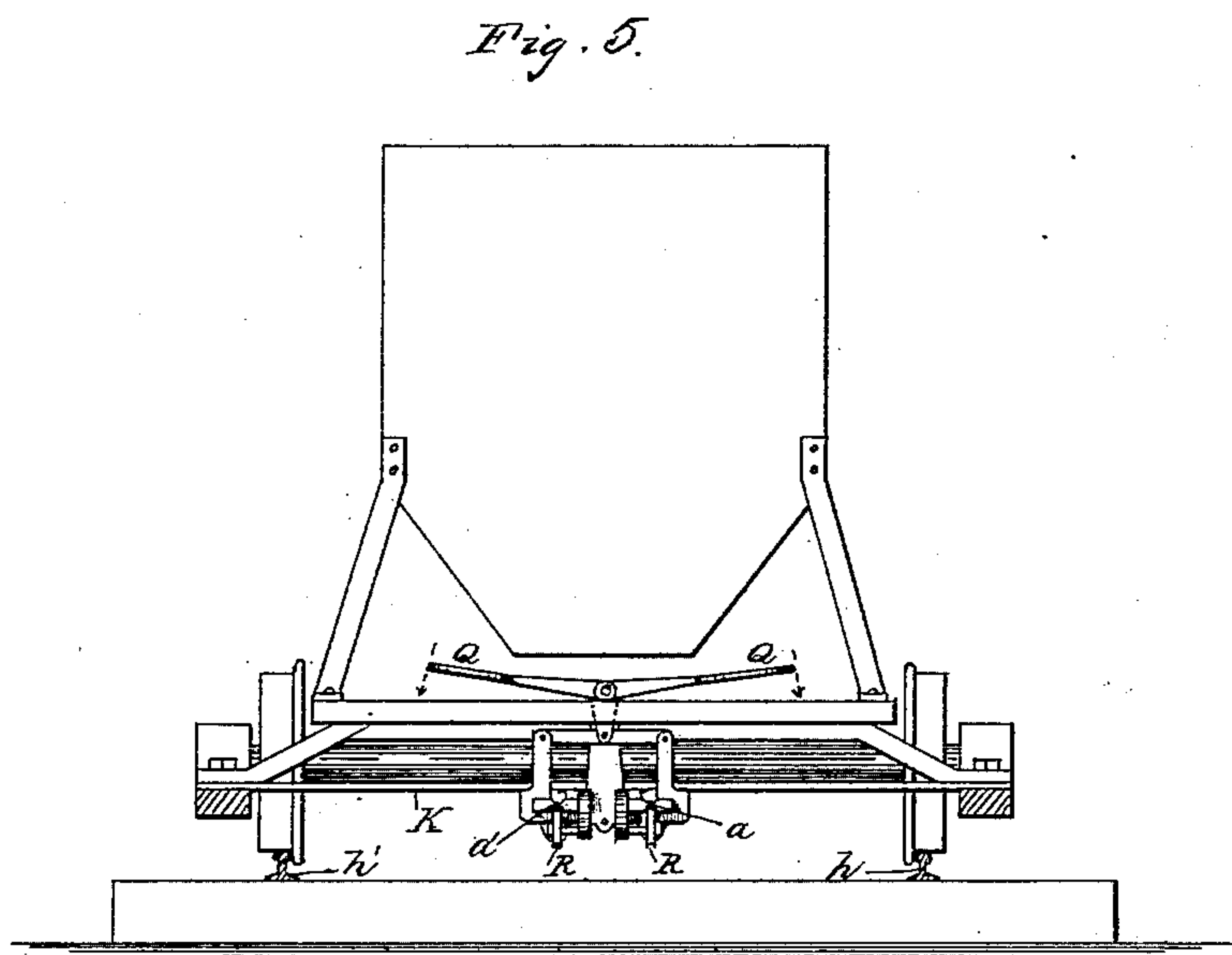
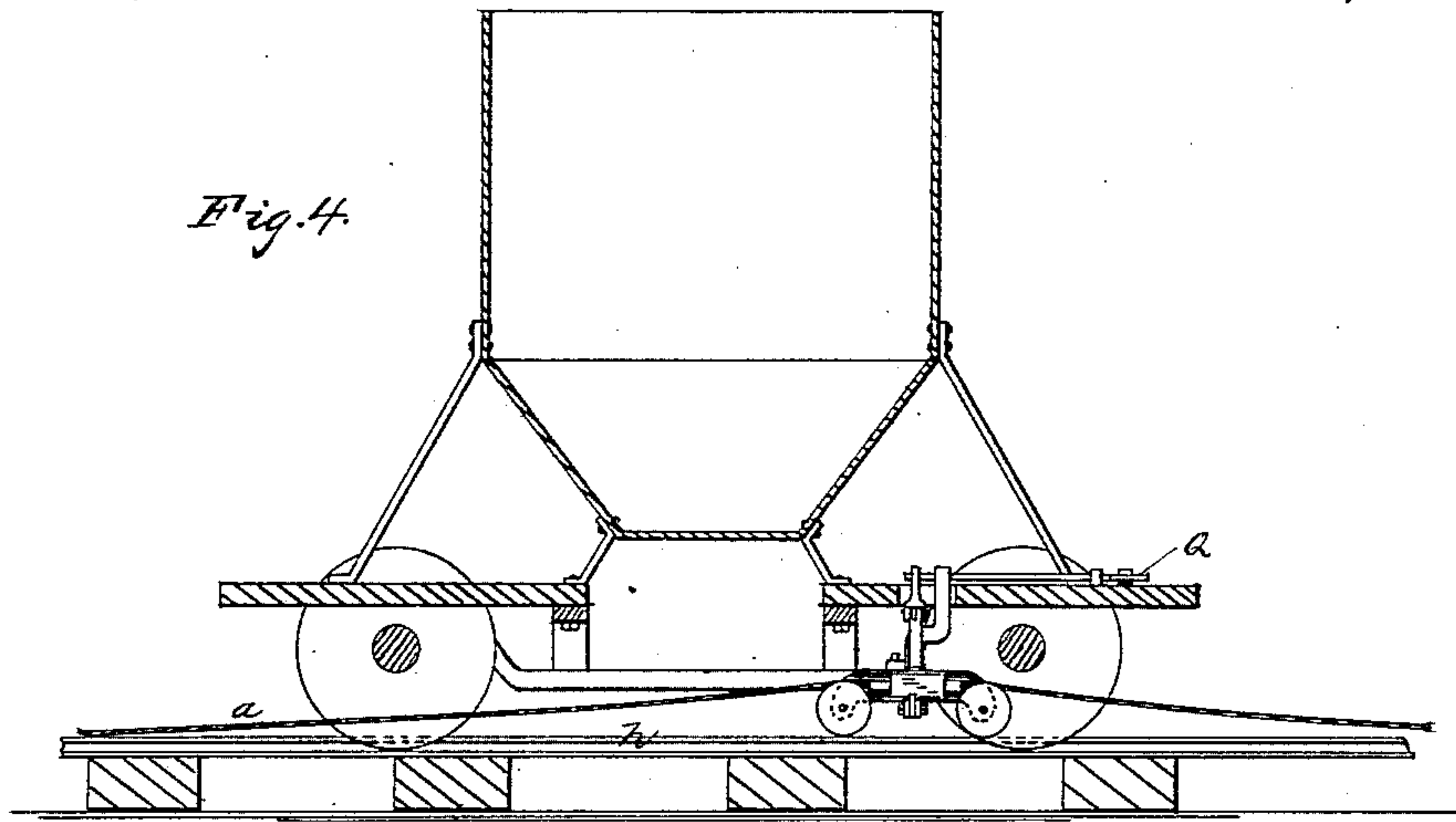
(No Model.)

3 Sheets—Sheet 2.

D. CARLIN.  
Device for Operating Coke Oven Lorries or Tramway  
Cars.

No. 238,646.

Patented March 8, 1881.



Witnesses

*A. C. Colver*  
*John M. Patterson*

*David Carlin*  
Inventor

*by Connolly, Frost & Wright*  
Attorneys.

(No Model.)

3 Sheets—Sheet 3.

D. CARLIN.  
Device for Operating Coke Oven Lorries or Tramway  
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No. 238,646.

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Fig. 6.

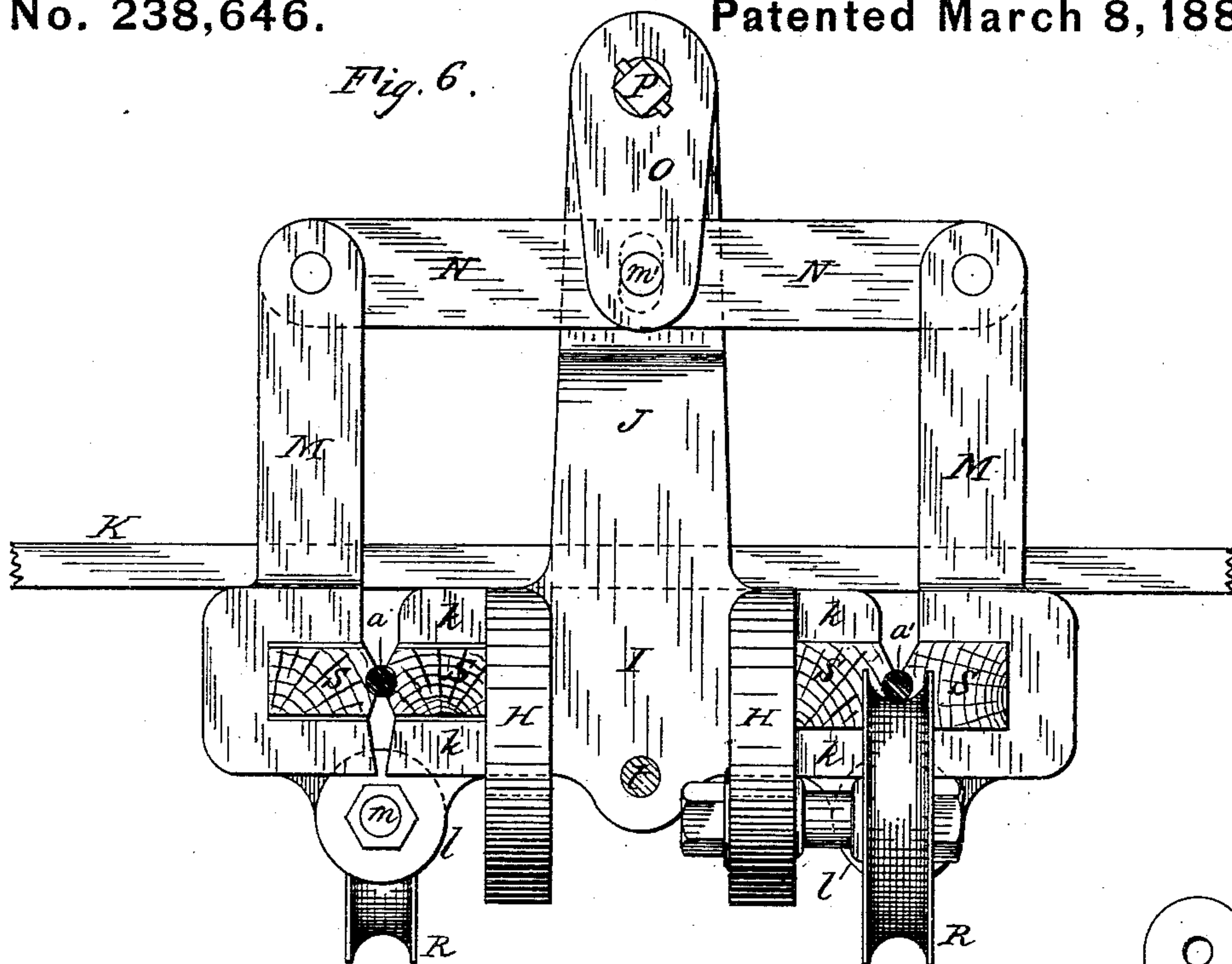


Fig. 7.

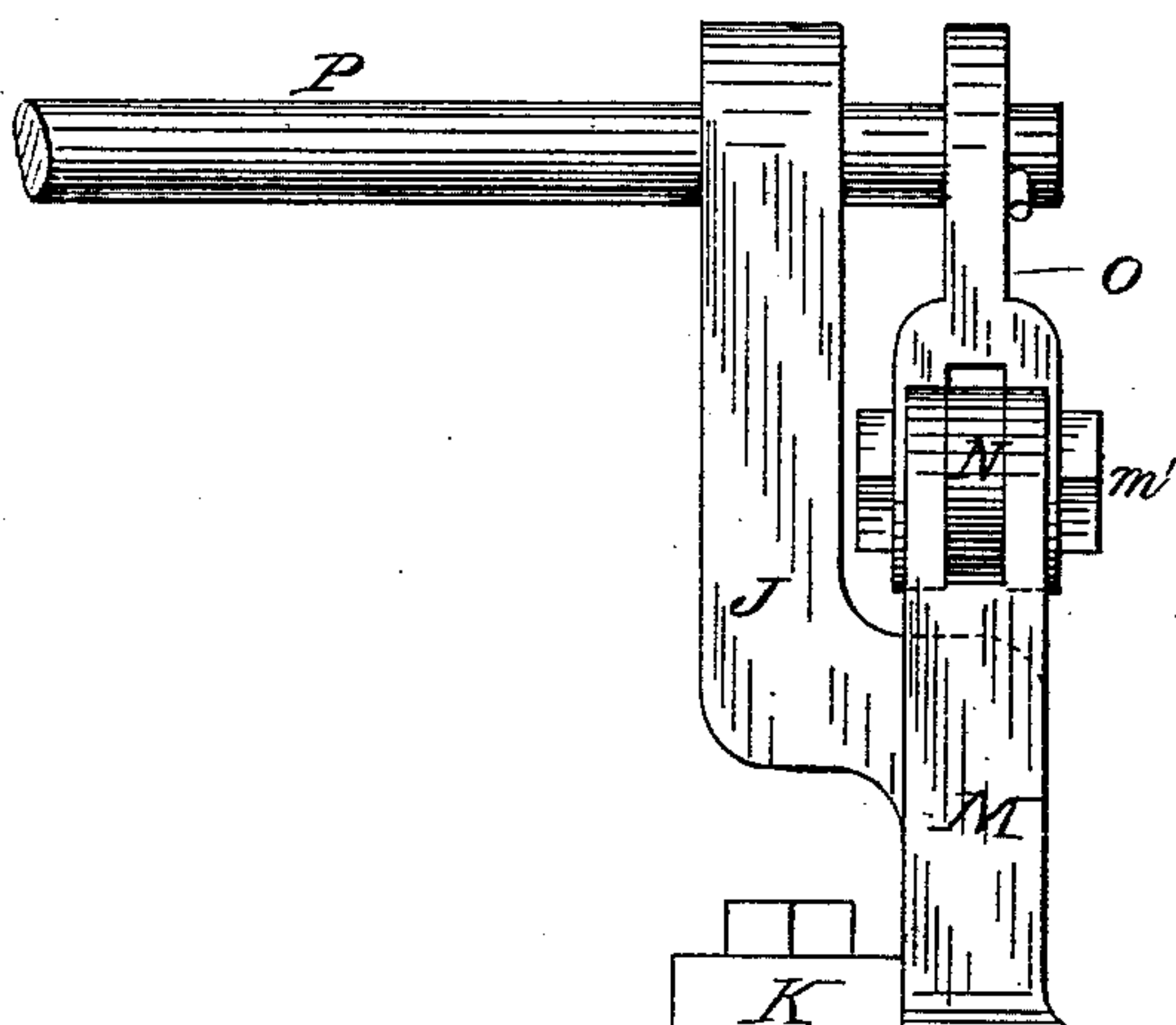
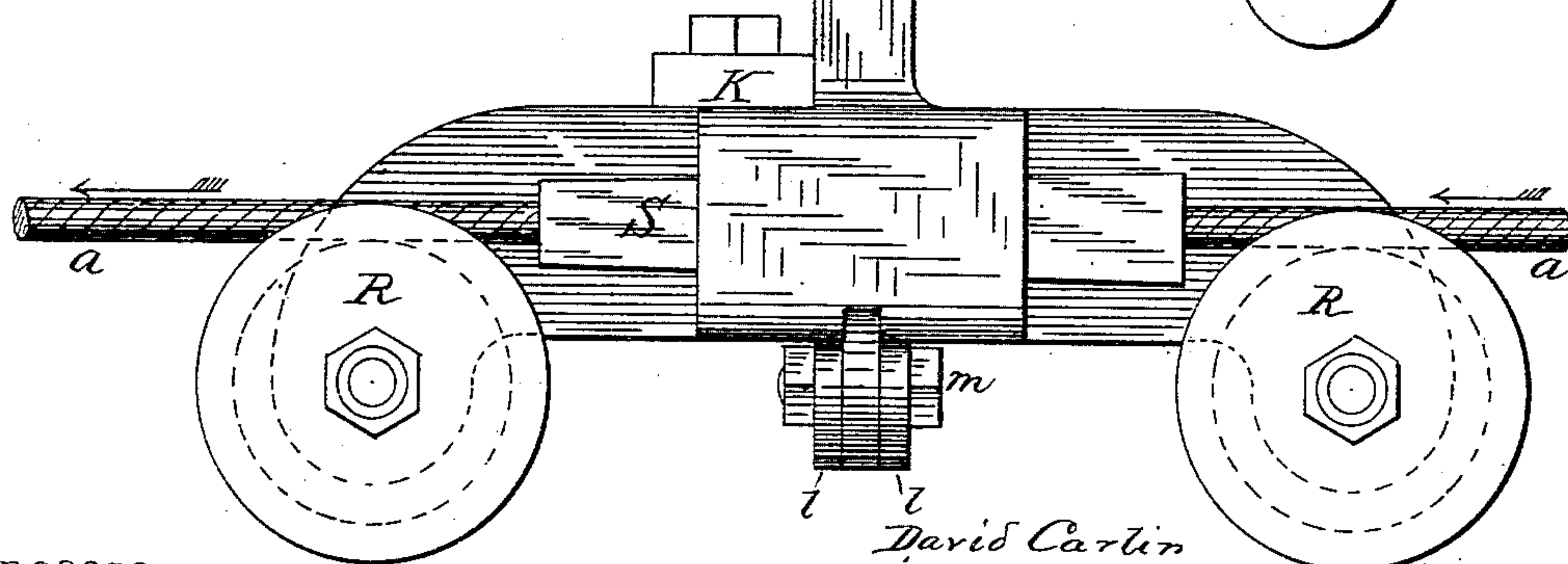
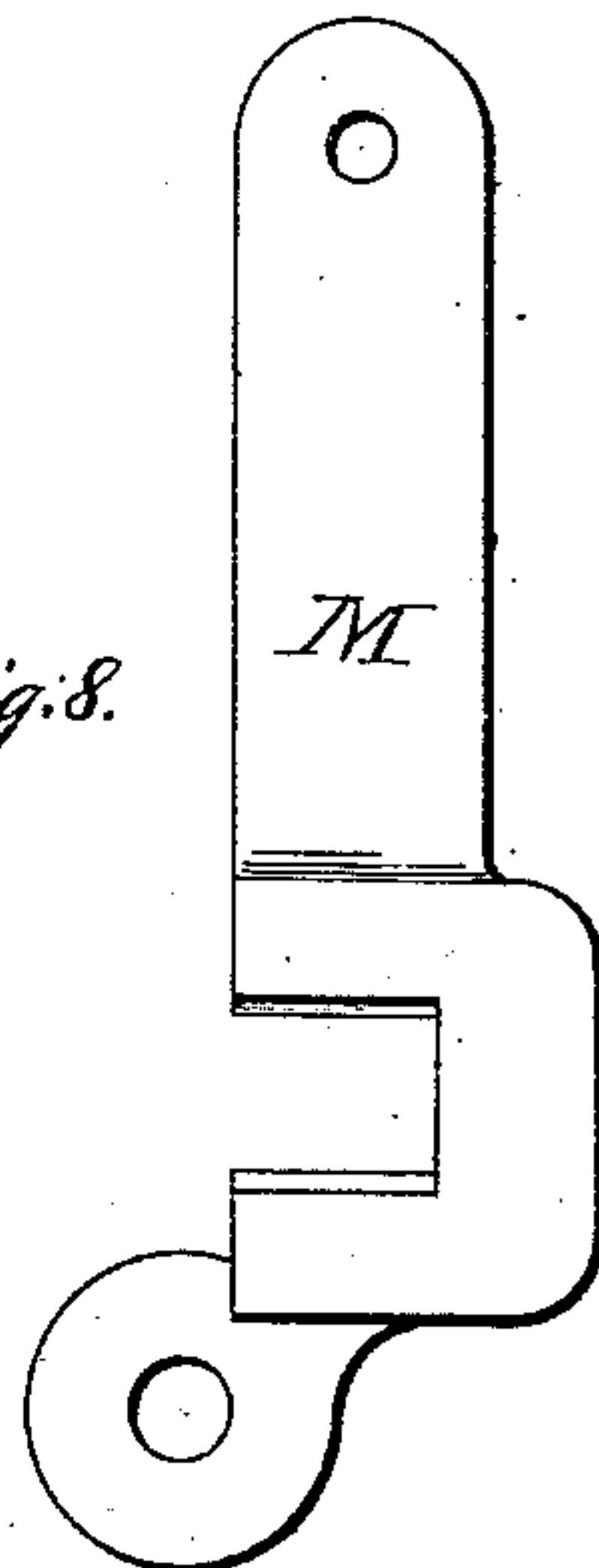


Fig. 8.



Witnesses.

F. A. Packer.  
John M. Patterson

David Carlin

Inventor

by Cammely Dyer & Wright  
Attorneys.



# UNITED STATES PATENT OFFICE.

DAVID CARLIN, OF ALLEGHENY, PENNSYLVANIA.

DEVICE FOR OPERATING COKE-OVEN LORRIES OR TRAMWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 238,646, dated March 8, 1881.

Application filed August 11, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID CARLIN, of the city and county of Allegheny, in the State of Pennsylvania, have invented certain new and useful Improvements in Means of and Devices for Operating Coke-Oven Lorries and Tramway-Cars; and I declare the following to be a full, clear, and exact description of the same.

This invention relates to the provision of mechanical means for operating what is commonly known as a "lorrie"—that is, the car or wagon which is used for charging coke-ovens. The present system of coking coal, as now generally practiced in the bituminous regions, calls for a number of ovens in a single or double row having the tops leveled. At present these ovens are charged from a hopper-bottomed car or lorrie, which is moved along on rails to one side of the charging-holes in the crown of the oven, the motive power being a horse or mule; but the system is objectionable and expensive on account of the loss of live stock. The animals cannot withstand the intense heat to which they are exposed while tramping back and forth above these glowing and smoking furnaces, and they soon become useless. My object is to substitute mechanical power for these animals.

The invention consists in the construction, combination, and arrangement of devices, substantially as hereinafter fully described and claimed.

In the drawings, Figure 1 is a plan view; and Fig. 2, a front elevation, showing my arrangement of the endless rope and tension devices.

A is a large grooved wheel, moving constantly in one direction from a suitable source of power. The rope *a*, preferably of wire, passes almost wholly around this and out over two grooved sheaves, B B, whose adjacent peripheries determine the distance apart of the up and down sections of rope. I prefer this to be about one foot. The relative location of a number of ovens in double series is shown in Fig. 1. The rope *a* passes over a number of rollers, *r*, to prevent abrasion by contact with the surface of the bench of ovens. Wheel A is set beyond the outer or extreme oven of the series, and the rope *a* passes along the whole series of ovens, as shown, to a point beyond the other extreme, where it passes

around a horizontal grooved wheel, C, set on a vertical shaft or boss, *b*, as shown in enlarged view by Fig. 3. Shaft *b* stands on a sliding dovetailed beam, *c*, placed in the direction of the ropeway, and is moved forward and backward in a similarly-dovetailed frame, *d*, by the screw *e*. Screw *e* passes through an iron head-block, D, firmly secured in the masonry of the ovens, and is held by a heavy coiled spring, *f*, resting against head-block D and a shoulder or collar, *g*, on the screw *e*. Screw *e* may have a crank or a wrench-head for convenient operation. In this manner I secure any desired tension on the rope by operating the screw *e*, and the expansion of the wire rope from the heat is taken up by the coiled spring *f*, as can be readily understood.

Fig. 4 illustrates a vertical longitudinal section of a car or lorrie with my clutching device attached, showing the relative position of the rails and my endless rope, *a a'* being the respective sections of the rope, and *h h'* the rails. Fig. 5 is a vertical transverse section of the same. Fig. 6 is an enlarged end view of the clutching devices, one of the front sheaves being removed. Fig. 7 is a side elevation of the clutching device.

The frame consists of two parallel side pieces, H, having the cross-piece I, from which rises the standard J. Sides H have the lugs *k* cast on them on the outside, the inner faces of the lugs inclining to a wedge shape; but the wedge form is reversed relatively as to opposite sides of the frame. The frame I usually attach to the lorrie by bolting it to a cross-bar, K, which is suitably attached to the truck of the lorrie. Frame H has also cast on its sides the dependent lugs *l*, one on each side.

Hinged or pivoted to the lug *l* on each side of the frames, by a bolt, *m*, is a peculiarly-shaped lever, M, (shown separately in Fig. 8,) having a recess similar to the space between the lugs *k*, previously described. Levers M extend up above the frame of the lorrie, and their tops are pivoted to the respective ends of a cross-bar, N, which has a vertical slot at its middle point. A crank, O, is keyed or fastened to a rod, P, which passes through the standard J, and a pin, *m'*, on crank O passes through said slot, so that the oscillation of the crank will always move both levers M in the same direction. Rod P is oscillated by



means of the treadle Q, or may be operated by a hand-wheel or lever.

Frame H at the ends curves downwardly, and at each corner carries a sheave, R, as shown, of usually about six inches diameter. The rope *a a'* passes over the sheaves R, two on each side. Into the recesses formed by the lugs *k* on frame H and the recesses on levers M, I drive wedges S, of hard wood or other suitable material, the wedges being so disposed relatively to the direction of motion of the rope that when the lever on one side is operated to clamp the wedges onto the rope between them the friction of the rope will always tend to drive the wedges more tightly home.

The whole device can, if desired, be braced by the stay-rod *t*, as shown.

Thus constructed, the operation is as follows: The rope *a a'* moving in a constant direction, the lorrie is placed upon the tracks and the rope *a a'* lifted into the sheaves R and between the wedges S or shoes on the respective sides. To move the lorrie the workman has but to depress one of the treadles or turn the handle in one or the other direction. This causes one of the levers M to bind its wedge or shoe S against the moving rope, thus forming a clutch. The car at once takes movement from the rope, and can be stopped by simply letting go of the clutching devices, or more quickly by clutching on the other side.

By proper use of the clutch the lorrie or car may be quickly brought to the spot required to discharge the contents into any particular oven.

Instead of the coiled spring *f* to take up expansion of the rope, a chain and weight may be used; but I prefer the spring.

While I have described what I consider the simplest and best way of practicing my invention, I do not limit myself to the precise mechanical details above set forth, as many of them may be modified without essentially departing from the spirit of my invention.

I claim as my invention—

1. The combination of the frame H, sheaves R, pivoted levers M, and wedges or shoes S, substantially as set forth.

2. A friction-clutch for endless ropes, consisting of two wedges arranged in suitable seats and longitudinally of the rope, and having the large ends of the wedges placed toward the incoming rope, said wedges being provided with devices for closing them upon the rope, whereby every closure of the same tends to tighten the wedges in their seats.

3. The combination of the frame H, having lugs *k*, sheaves R, levers M, and wedges S on opposite sides of said frame and set in opposite directions, substantially as described.

4. The combination of rope *a a'*, sheave C, beam *c*, frame *d*, screw *e*, head-block D, spring *f*, and collar *g*, substantially as specified.

In testimony whereof I have hereto set my hand.

DAVID CARLIN.

Witnesses:

T. J. MCTIGHE,

T. J. PATTERSON.