

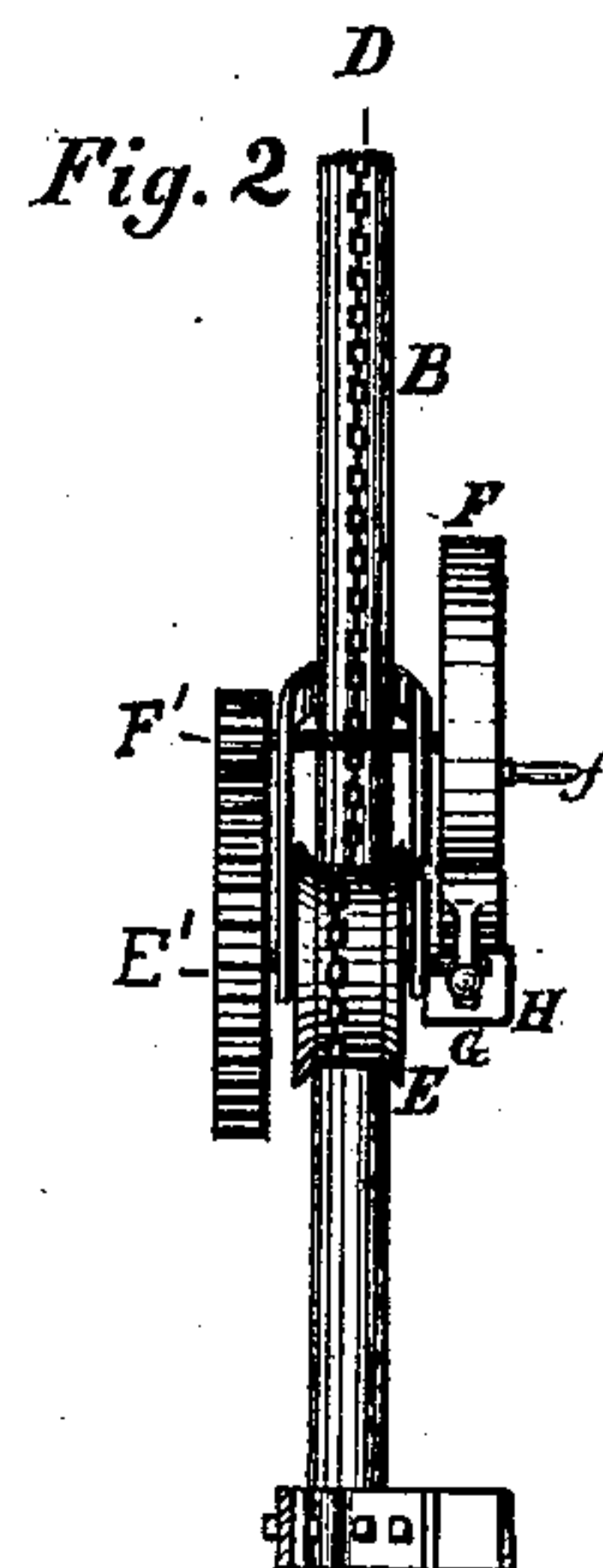
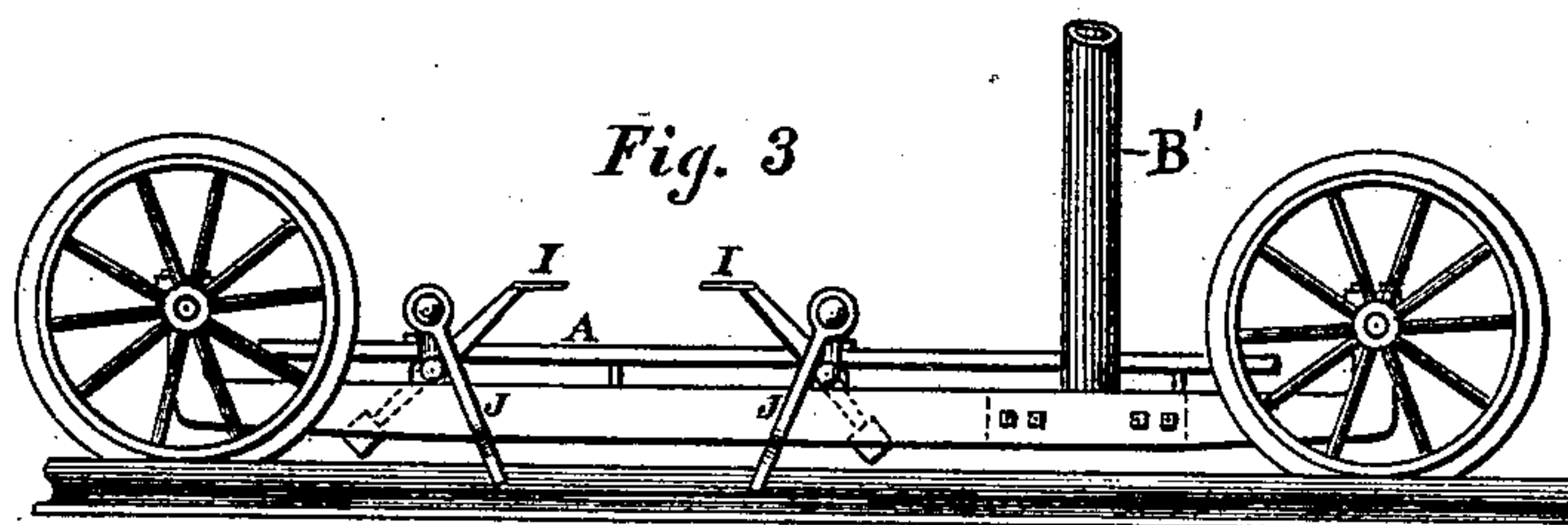
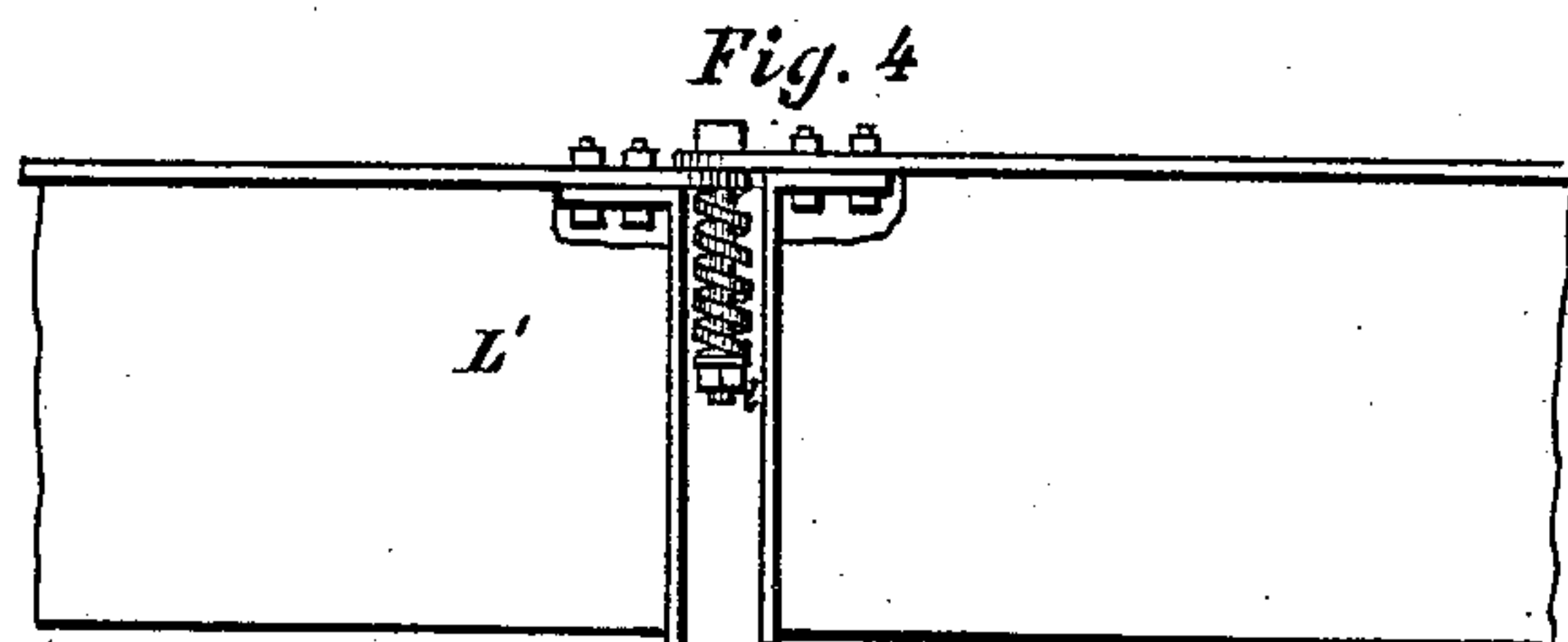
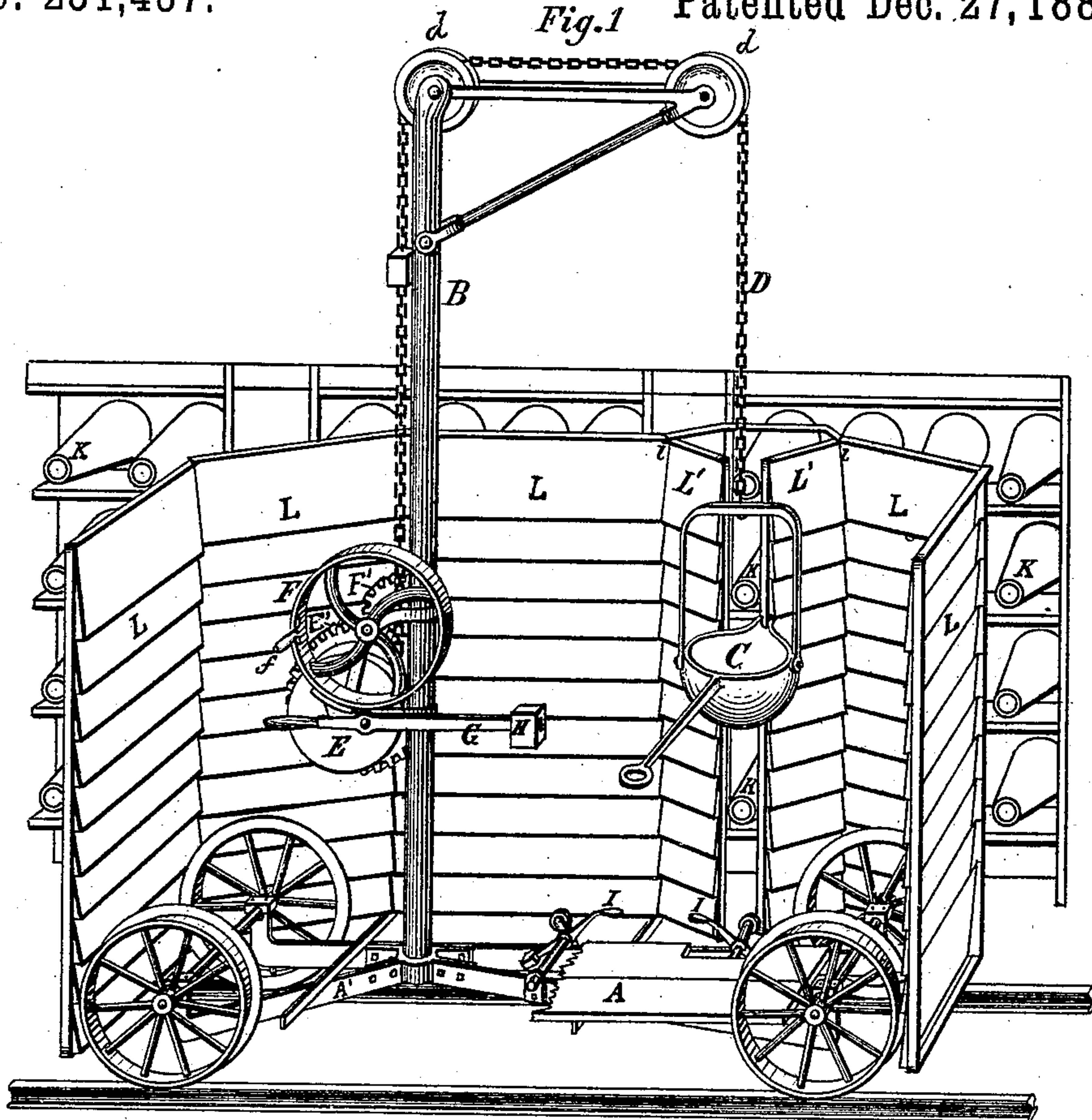
(No Model.)

E. C. HEGELER.

APPARATUS FOR DRAWING ZINC FROM ZINC FURNACES.

No. 251,437.

Patented Dec. 27, 1881.



Witnesses:
Geo. A. Masters
E. E. Snyder

Inventor,
Edward C. Hegeler
By Merriam Whipple
attys.

UNITED STATES PATENT OFFICE.

EDWARD C. HEGELER, OF LA SALLE, ILLINOIS, ASSIGNOR TO THE MAT-
THIESSEN & HEGELER ZINC COMPANY, OF SAME PLACE.

APPARATUS FOR DRAWING ZINC FROM ZINC-FURNACES.

SPECIFICATION forming part of Letters Patent No. 251,437, dated December 27, 1881.

Application filed January 17, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. HEGELER, a citizen of the United States, residing at La Salle, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Apparatus for Drawing Zinc from Zinc Furnaces, of which the following is a specification.

The object of the invention is to secure the perfect and convenient handling of a large zinc-ladle by a single operator in taking the molten zinc from the various retorts of the furnace and pouring it into the pig-molds. Zinc is usually drawn by two persons, one holding the ladle and the other drawing the zinc, or by one person, holding the ladle with one hand and drawing the zinc with the other. To effect the object I arrange a swinging crane upon a carriage which is run along upon a track in front of the furnace, to which crane the ladle is attached by a chain. The movement of the ladle up or down to adapt it to the height of the retorts is effected by the crane and windlass, and its movement laterally or in a horizontal direction to reach the different vertical rows of retorts is effected by the movement of the car upon the track, and the emptying of the ladle, when full, at the place desired is effected by the swinging of the crane. A screen is attached to the side of the carriage next to the furnace to protect the operator and the apparatus from the heat; otherwise it would be impossible for him to endure the heat and the apparatus would become so hot it could not be used to advantage.

The accompanying drawings illustrate the invention, and also show the screens for protecting the operator from the heat of the furnace in connection therewith.

Figure 1 is a perspective of the carriage with the crane, ladle, and screen attached; Fig. 2, the reverse side of the crane; and Fig. 3 shows the reverse side of the car with the means of propelling it back and forth upon the track. Fig. 4 is an enlarged view of a portion of one of the screens and of one of the screen-doors, showing the manner of hinging the doors by a friction-hinge to retain the doors in any position to which they may be opened or closed.

Similar letters of reference refer to similar parts throughout the several views.

A is the car-platform. B is the crane; C, the ladle; D, a chain passing over the arm of the crane and connecting with a windlass, E. The upright shaft of the crane is secured pivotally to the iron frame A', so as to support the weight in the ladle and at the same time allow it to be swung. This is done by an upright rigid shaft secured firmly to the iron frame A' and extending up a considerable distance, so that the shaft B, which is made hollow, as shown at B', Fig. 3, may be slipped over such rigid shaft and be supported and rotated thereon to swing the crane.

F is a crank-wheel; F', a pinion secured upon the shaft of this wheel so as to engage with cog-wheel E', secured to the shaft of the windlass, so that by means of a crank or handle, f, on the crank-wheel rotary motion in either direction may be transmitted through pinion F' and cog-wheel E' to the windlass to wind up or unwind the chain D around or from the windlass, as desired, in raising or lowering the ladle. The chain is carried over the crane-arm by pulleys d. G is a brake operating against said wheel; H, a weight which applies the brake.

I I are treadles; J J, thrust-rods operated by the treadles. These rods stand nearly perpendicular, and when the treadle of either is borne down upon the thrust-rod comes in contact with the track and pushes the car in the direction of its (the rod's) inclination. The treadles are so weighted as to automatically resume their elevated position when released.

K shows the condensers of the retorts of the furnace to which the ladle is to be applied. To the carriage on the side next to the furnace is attached a series of screens, L, to protect the attendant from the heat, and on the line where the ladle passes toward and from the furnace is placed a pair of screen-doors, L', hung on hinges and swung toward the operator, so that when the ladle is passed through the doors are closed behind it, leaving just the necessary space between the doors to operate the zinc-scraper. The screen-door hinges are provided with friction-springs l, (see Fig. 4,) placed within

the hinges, so as to hold the doors at any point to which they may be swung open or closed. When the ladle is filled the doors are opened and it is swung out and the zinc is skimmed and poured into the molds.

The operation is as follows: The operator stands on the platform and by means of handle *f*, first lifting the brake-weight, turns the wheel, which operates the windlass and raises the ladle to a little lower than the mouth of the horizontal row of condensers which he wants to empty. Then he opens the doors *L'* and swings the ladle toward the furnace under the mouth of the condenser and closes the doors behind the ladle, leaving only the narrow aperture between, as before described, then scrapes the zinc from the condenser above the ladle into the same. When done, working the pedal with his foot, he moves the whole apparatus along on the track till the ladle is brought to the next condenser, empties this, and then follows on as far as he deems proper, perhaps raises or lowers the ladle to the next or another horizontal row of condensers until the ladle is filled, when, opening the doors again, he swings the ladle from the furnace and moves the car to the place for skimming and emptying the zinc into the molds.

The carriage to which the crane is attached may be so constructed that its wheels may run on two rails overhead, or one above and one below, in which case the operator may walk upon the ground.

Having thus described my invention, what

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

1. As an improved apparatus for drawing zinc from the condensers of a zinc-furnace, a swinging crane on a truck running upon a guiding-track parallel to the furnace, and provided with a ladle and mechanism for elevating and lowering the ladle and retaining it at any elevation, whereby the ladle may be brought to the various retorts of the zinc-furnace, substantially as described.

2. A swinging crane with a ladle and truck-platform provided with screens *L*, and narrow screen-doors *L'*, to be opened and closed for the ladle to pass in and out, substantially as and for the purpose specified.

3. A truck provided with a swinging crane, with a ladle and mechanism for elevating and lowering the ladle, in combination with mechanism operated by pedals for moving the truck back and forth upon its track, substantially as and for the purpose set forth.

4. A truck having a swinging crane, with a ladle and mechanism for elevating and lowering the ladle, said truck being provided with screens for protecting the operator and apparatus from the heat of the furnace, having an opening for the ladle to pass through, to be operated substantially as specified.

EDWARD C. HEGELER.

Witnesses:

WILLIAM SCHERZER,
ERNST HERRCKE.