(No Model.)

N. BARNEY.

MEANS FOR OPERATING DOORS OF DUMPING CARS.

No. 515,853. Patented Mar. 6, 1894.

Fig. 3.

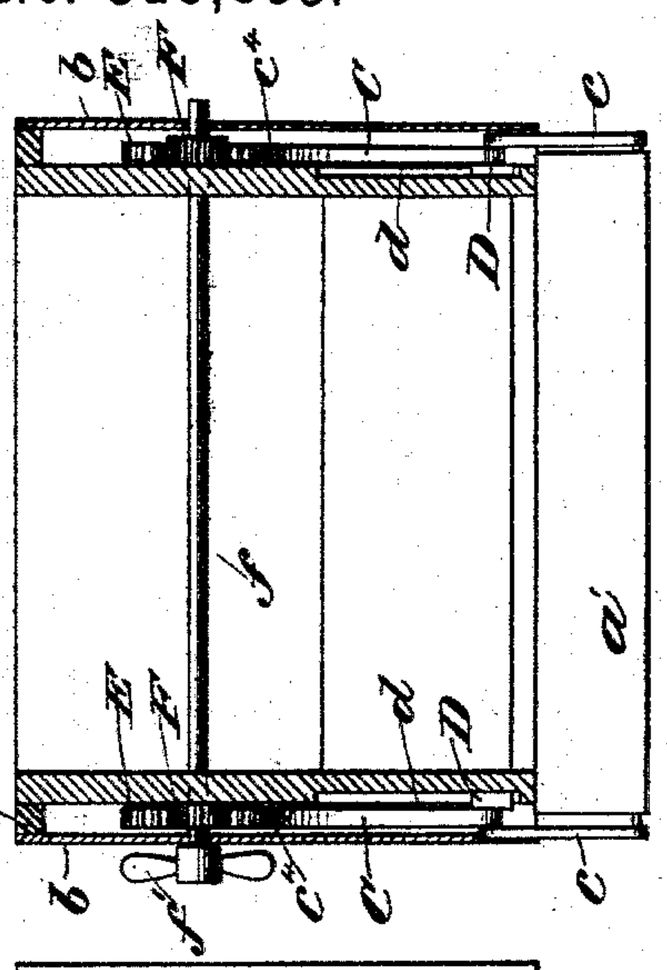


Fig. 1.

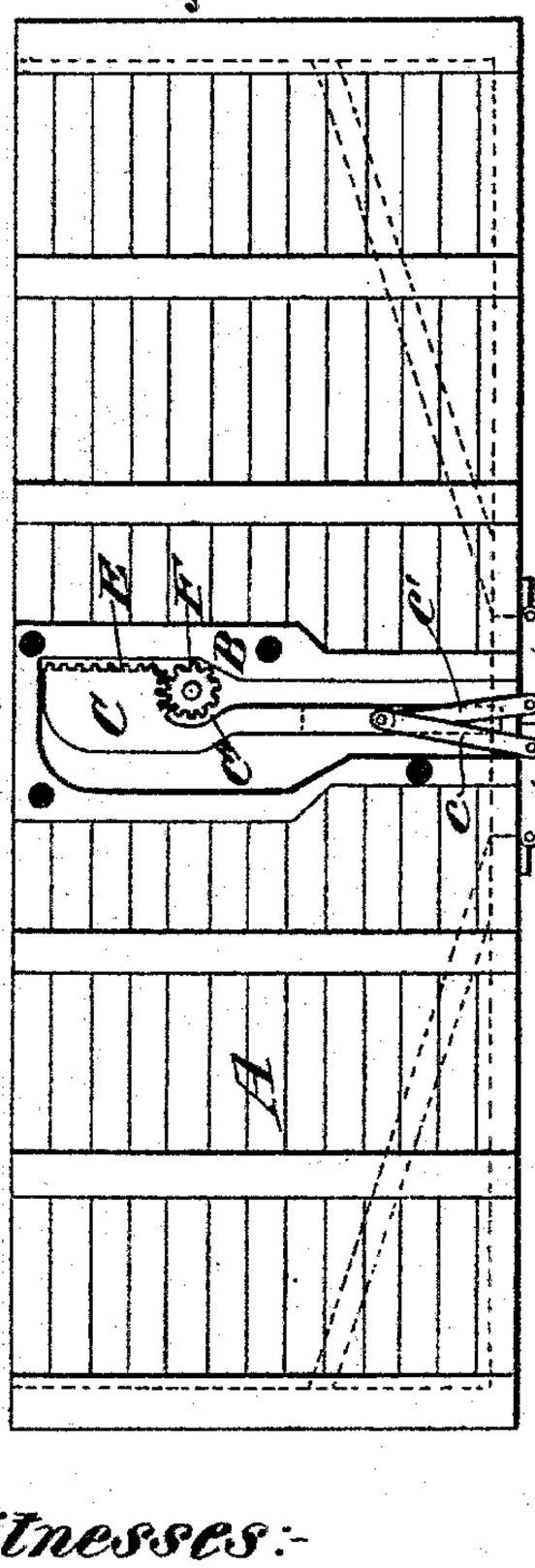
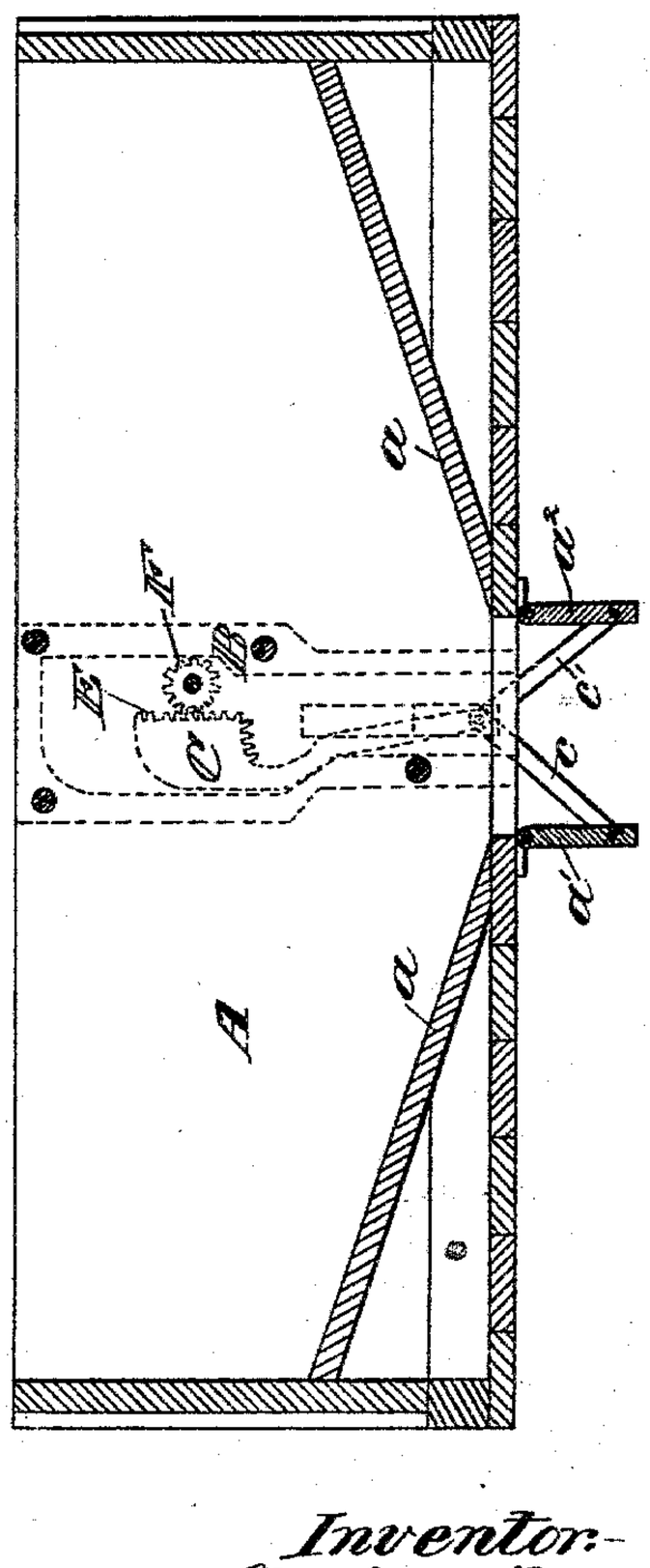


Fig. 2.



Witnesses:-
George Barry.
Robert Broomhead

Inventor:-
Nathan Barney
by attorneys
Brown & Seward

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

NATHAN BARNEY, OF BROOKLYN, NEW YORK.

MEANS FOR OPERATING DOORS OF DUMPING-CARS.

SPECIFICATION forming part of Letters Patent No. 515,853, dated March 6, 1894.

Application filed June 17, 1893. Serial No. 477,889. (No model.)

To all whom it may concern:

Be it known that I, NATHAN BARNEY, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Means for Opening, Closing, and Locking Doors, of which the following is a specification.

My invention consists of an improved means for opening, closing and locking doors, the object being to provide very simple means whereby doors may be unlocked and opened or closed and locked by a single movement of an operating handle.

I have shown my invention in the accompanying drawings as applied to the trap doors of a car for containing material in gross, such as coal for instance. The car shown in the present instance is one of the class known as the gondola type, the bottom of the car being inclined from the ends downwardly toward the center where the trap doors for discharging the contents of the car are located, so that when the doors are opened, the contents of the car passes out of its own accord through the opening thus formed in the bottom.

A practical embodiment of my invention is represented in the accompanying drawings in which—

Figure 1 is a side view of the body of a car, the trap doors being shown as closed and locked, and the plate for covering the means for operating the said doors being removed. Fig. 2 is a longitudinal vertical section through the car body, the trap doors and their operating mechanism being shown in their open or released position, and Fig. 3 is a transverse vertical section, the means for operating the doors being shown in full lines and in released position and the trap doors as open.

Proceeding to describe the drawings, A designates the car body and it is provided with a bottom a which slopes downwardly and inwardly from the ends toward the center where trap doors a', a^2 are hinged to open in opposite directions. Boxes are formed on opposite sides of the car for the reception of the means for operating the said doors, preferably by securing a casing to each side of the car which consists of a piece B, which forms the sides therefor and a plate or cover b. The casing is open at its bottom for the passage therethrough of the links which connect the free ends of the trap doors to the operating bar. An operating bar C is located within the casing so as to move up and down therein. To the lower end of the bar C are attached two links c, c' which are secured to the free ends of the trap doors a', a^2. In the present instance I secure the links c, c' to the doors by means of straps c^2, c^3 which straps are secured along the side edges of the doors and are secured to the links at their outer ends.

The operating bar C is guided in its upward and downward movement within the casing by means of a block D which is secured to the lower end of the bar and slides along in a vertical groove d in the side of the car, the said groove d extending from the bottom of the casing partway up therein.

An angular rack bar E extends from the top of the operating bar C downwardly along one edge of the bar a short distance and then inwardly at a sharp angle along the upper wall of a recess c^4 formed in the side of the bar. The angle of the rack bar E is sufficiently sharp to cause the weight upon the operating bar C to bear directly upon the axis of the operating rack pinion when the said pinion engages the teeth along the top of the recess c^4. This rack bar E may be firmly secured to the bar C or, as I prefer, the rack bar may be integral with the said bar C.

A pinion F is located within the casing and engages the rack bar E for the purpose of raising and locking the bar C or unlocking and lowering the said bar.

Each of the pinions F on both sides of the car are preferably locked to rotate with a single axle rod f which extends across the car. An operating handle f' is secured to one end of the rod f outside the casing and the turning of the handle rotates both of the pinions simultaneously.

In operation, supposing the trap doors of the car to be open and it is desired to close and lock them. When the trap doors are open, the pinions F engage with the vertical parts of the rack bars E. The handle f' is turned, thereby rotating the pinions F which engage the rack bars E and raising the operating bars C, the blocks D thereon sliding upwardly in the grooves d. This upward movement of the bar C draws the doors together by means of the links and closes the opening in the bottom

of the car. To lock the doors, the pinions are further rotated, causing them to engage the teeth on the portion of the rack which extends inwardly along the upper wall of the recess c^4 and drawing the bar C sidewise until the weight of the doors bears directly or nearly so upon the axis of the pinion. As thus locked, the greater the pressure upon the doors, the stronger the lock will become. It will then be seen that the operating bar C has first an upward movement to close the doors and then a lateral swinging movement to lock them. To unlock and open the doors, the pinions F are rotated in the opposite direction by the handle f' causing the bar C to first swing back out of its locked position and then downwardly until the doors are wide apart. The casing surrounding the operating parts protects them thoroughly from dust and dirt and allows them to work freely and positively at all times. The edges of the bars C opposite the rack bars slide along upon the sides B when they are raised and lowered, thereby holding said rack bars in engagement with the pinions E.

By the device above described, I am enabled to do entirely away with bolts and fastenings independent of raising and lowering means and at the same time make a very effective and simple means for raising, lowering and locking the doors.

It is obvious that slight changes might be resorted to in the construction and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the construction herein set forth, but

What I claim is—

1. The combination with a swinging door, an operating bar provided with an angular rack and having a longitudinal and lateral swinging movement, and means for connecting the bar to the door, of a rotary pinion engaged with the angular rack for moving the said bar longitudinally and laterally, for closing and locking the door, substantially as set forth.

2. In combination, a car having swinging doors therein, an operating bar provided with an angular rack and having a longitudinal and lateral swinging movement, links connecting the doors to the bar, a guide for directing the longitudinal movement of the bar, and a rotary pinion engaging said angular rack for moving the bar longitudinally to close the doors and laterally to lock them, substantially as set forth.

NATHAN BARNEY.

Witnesses:

FREDK. HAYNES,

ROBERT BACON SEWARD.