

(No Model.)

J. ELDER.  
COAL CHUTE INDICATOR.

No. 401,140.

Patented Apr. 9, 1889.

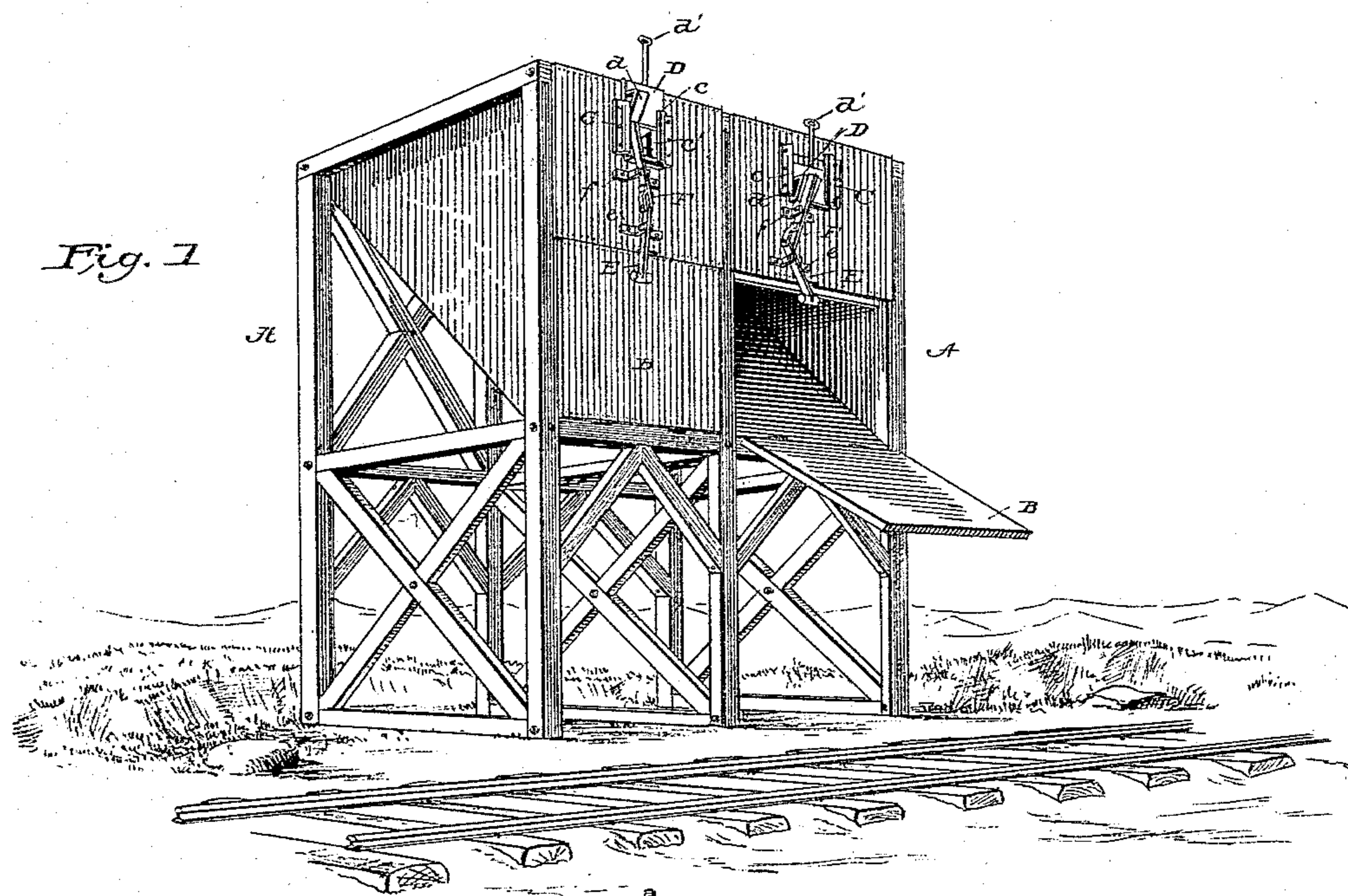
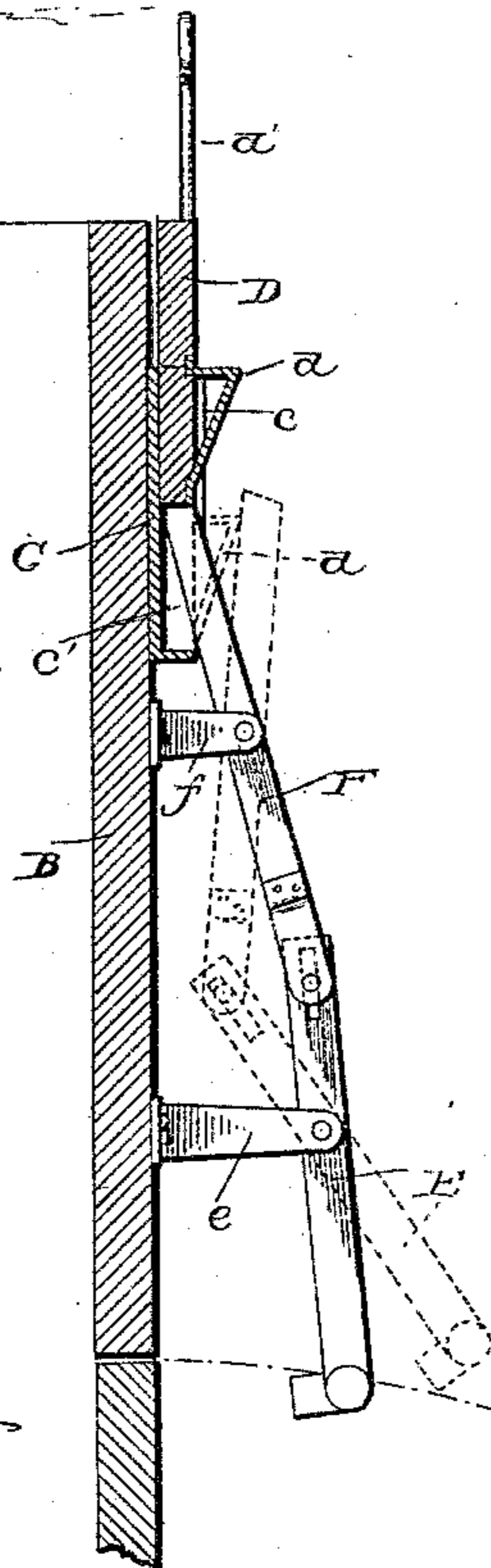


Fig. 2.



Witnesses.

*N. M. Mortimer*

*A. A. Kennedy*

Inventor,

*Joseph Elder*  
*By Phil. T. Dodge*

Attorney.

# UNITED STATES PATENT OFFICE.

JOSEPH ELDER, OF PEORIA, ILLINOIS.

## COAL-CHUTE INDICATOR.

SPECIFICATION forming part of Letters Patent No. 401,140, dated April 9, 1889.

Application filed January 9, 1889. Serial No. 295,856. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH ELDER, of Peoria, in the county of Peoria and State of Illinois, have invented certain Improvements in Coal-Chute Indicators, of which the following is a specification.

At the present day it is the common practice to locate in line at the side of a railway a series of chutes or bins for coaling the locomotives, each bin being provided with an outwardly-opening door so arranged that when the tender is brought opposite the door it may be opened by the engineer or other attendant to deliver the contents of the chute.

In practice it is desirable that the engineer should be informed in advance whether the respective chutes are filled or empty, and as to the amount of coal which it contains.

My invention relates to an indicator which, being adjusted by hand, shows the quantity of coal contained in the chute, and which is automatically actuated by the opening of the door in such manner as to indicate that the chute is empty, the indicator remaining in this condition notwithstanding the closing of the door until it is again adjusted by hand.

In the accompanying drawings, Figure 1 represents my indicators applied to two adjacent chutes, one of which is open and the other closed. Fig. 2 is a sectional elevation showing in dotted and in full lines, respectively, the two positions of the indicator.

In the drawings, A A represent ordinary chutes or bins, each having an inclined floor, and a door, B, hinged at the lower edge, so that when turned downward and outward it will permit the contents of the chute to fall outward thereover. These parts may be constructed in the ordinary manner, and are not claimed as of my invention.

In applying my indicator I mount on the front of the chute, above the door, a suitable frame, C, having at its edges vertical flanges c, which receive and guide the edges of a gravity plate or shutter, D. The lower part of the supporting-frame is provided with or suitably adapted to receive a numeral, c', or other character or signal, to indicate the quantity of coal contained in the chute. When the shutter D is lifted, this figure is exposed to view. When the shutter is dropped, it covers

the figure and indicates that the chute is empty. For the purpose of sustaining the shutter in its upper position and of automatically releasing it when the door is opened, I provide a lever, E, and pivot the same midway of its length to suitable supports, e, on the front of the chute, its lower end, which is weighted, standing normally in such position that it will be acted upon by the opening door. The upper end of this lever I joint to the lower end of a second lever, F, which is pivoted midway of its length to suitable supports, f, on the front of the chute, its upper end being in suitable position to engage beneath the lower end of the shutter D when the latter is raised. When the shutter D is raised, the weighted end of the lever E acts to throw the upper end of lever F beneath the shutter. At this time the lower end of lever E stands in the path of the door, as shown at the left hand in Fig. 1 and in full lines in Fig. 2, the number being exposed, so that the engineer is informed that the chute is filled and of the quantity therein. When the door is open, it throws the lower end of the lever E outward, causing the upper end of the lever F to disengage the shutter, which, descending, covers the indicating-number. In order to hold the lever E back out of the path of the door that the latter may be closed the shutter is provided with an inclined rib, d, which, descending behind lever F, holds its upper end outward, as shown by dotted lines in Fig. 2. The shutter is provided with a handle, d', or otherwise formed so that it may be readily lifted by the attendant of the chute after the latter is refilled, the lifting of the shutter being followed by the restoration of the levers to their normal position, so that they will be again actuated when the bar is opened.

The essence of my invention resides in the combination of an indicator or signal, the vertically-movable shutter, and the detaining devices for said shutter adapted to be operated by the door, and it is manifest that the details may be varied to a considerable extent without essentially changing the mode of operation.

Having thus described my invention, what I claim is—

1. In combination with the coal-chute hav-

ing an outwardly-opening door, an indicator comprising a stationary signal, a gravitating shutter to cover the same, and trip devices, substantially as shown, arranged at one end  
5 in the path of the ordinary door and acting at the opposite end to sustain the door.

2. In combination with the coal-chute having the outwardly-opening door, the indicator-frame C, the gravitating shutter D, provided  
10 with the incline *d*, and the connected levers E F, arranged the former in position to be

acted upon by the opening door and the latter in position to engage the shutter.

In testimony whereof I hereunto set my hand this 21st day of December, 1888, in the  
15 presence of attesting witnesses.

JOSEPH ELDER.

Witnesses:

GEO. T. PAGE,

V. E. PAGE,

N. E. WORTHINGTON.