

(No Model.)

C. W. BALDWIN.
HOISTING DEVICE.

No. 277,403.

Patented May 8, 1883.

Fig 1.

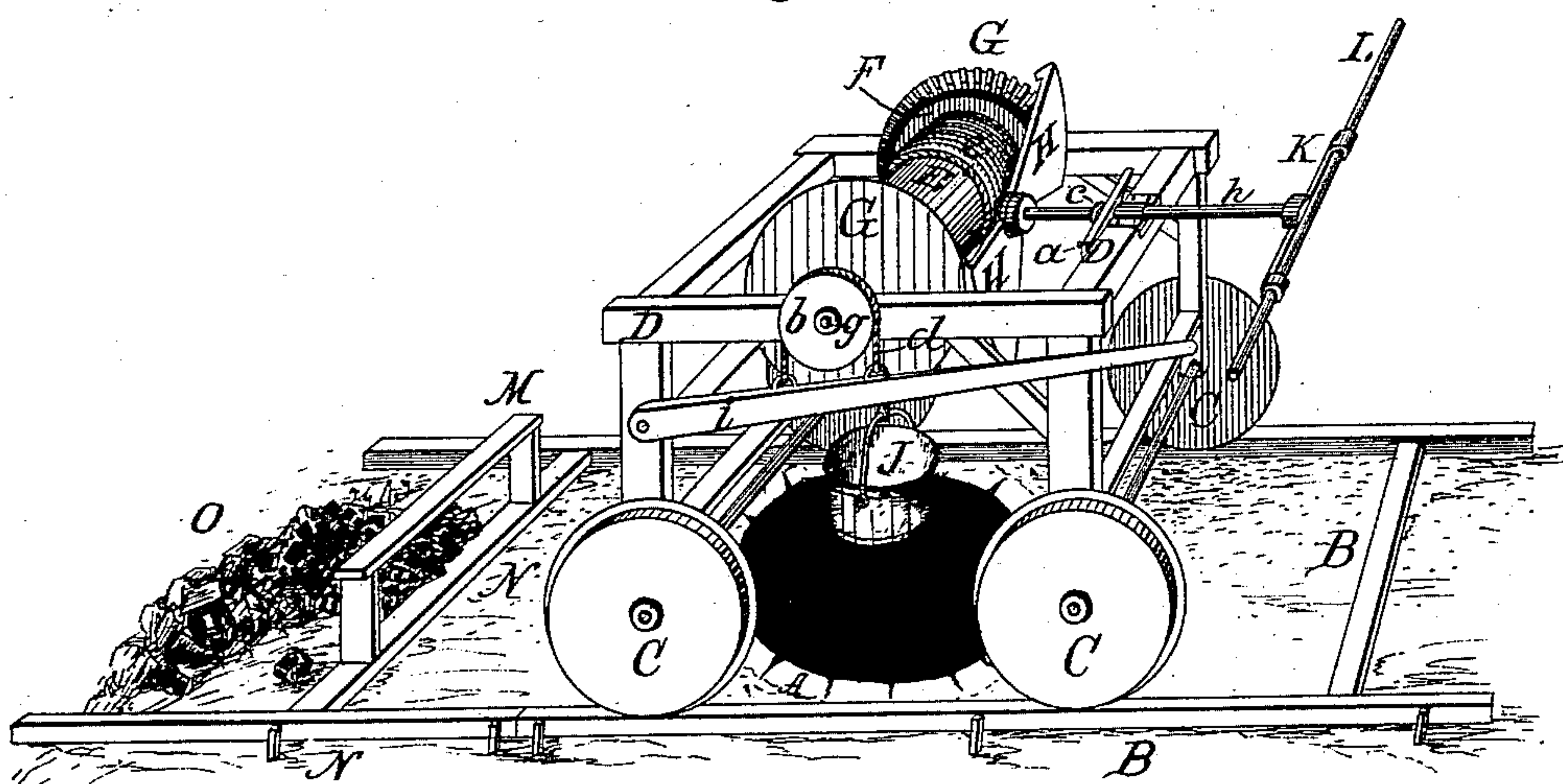
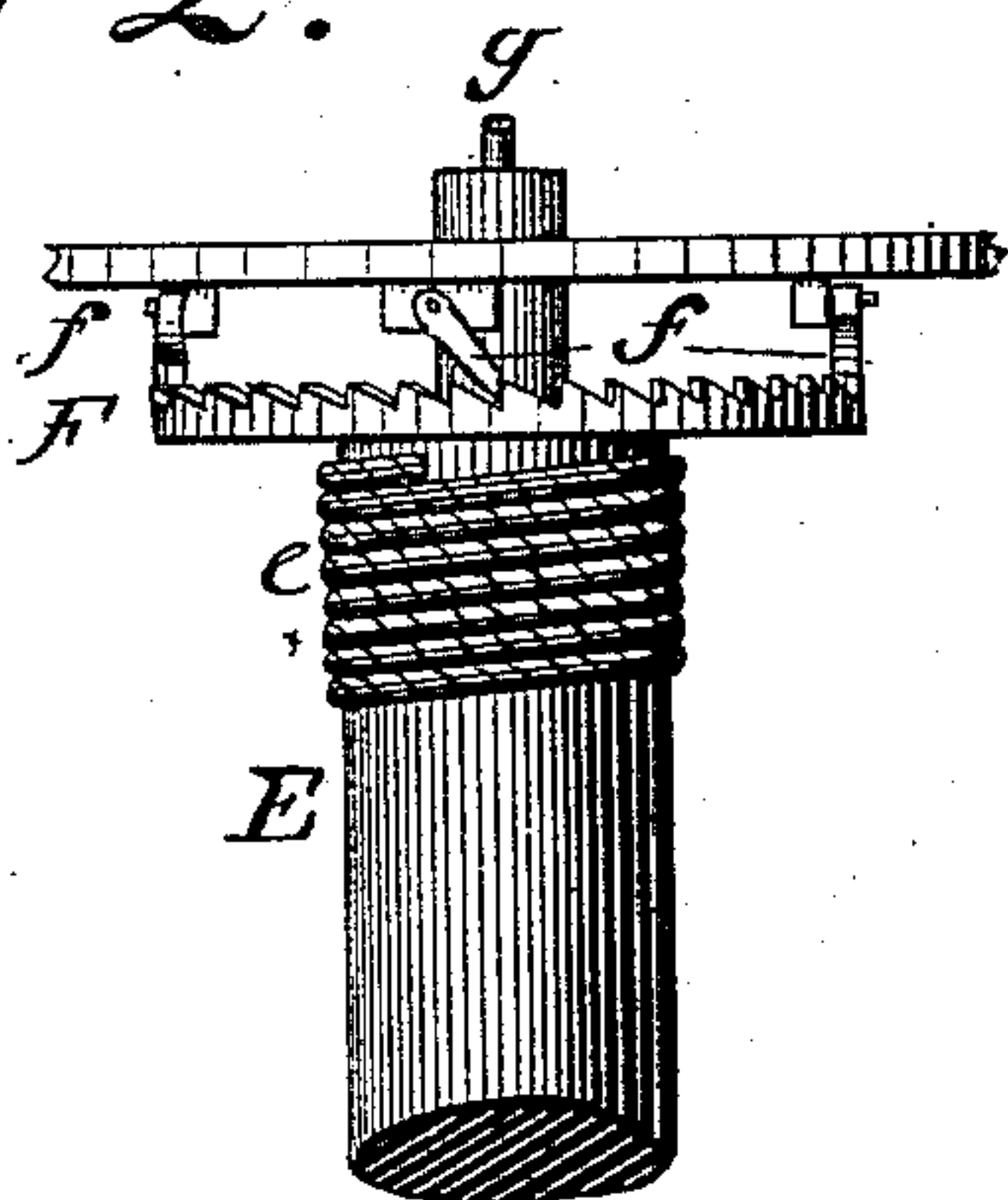


Fig 2.



WITNESSES:

H. B. Brown
W. X. Stevens,

INVENTOR:

C. W. Baldwin

BY

ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES W. BALDWIN, OF DENVER, COLORADO, ASSIGNOR TO E. F. ALLEN,
OF SAME PLACE.

HOISTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 277,403, dated May 8, 1883.

Application filed September 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. BALDWIN, of Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Improvement in Elevators for Coal, Ore, &c., of which the following is a specification.

My invention relates to improvements in elevators for coal, ore, &c., in which a winding-drum is used to elevate coal from a vertical shaft by means of bucket and rope or chain by hand-power; and the objects of my improvements are, first, to provide means whereby a reciprocating lever motion communicates intermittent rotary motion to the winding-drum in one direction; second, to afford facilities for permitting the drum to unwind freely to lower the bucket into the shaft, and to control the descent of the bucket with a brake operating indirectly upon the drum; and, third, to provide means for dumping the coal from the bucket at the point desired.

To this end my invention consists in the construction and combination of parts hereinafter fully described and set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my invention in position to begin work. Fig. 2 is a detail plan view, showing the connection between the drum and driving-gear, a part of the gear being broken away for that purpose.

A represents the vertical shaft leading to the mine.

B is a track framed of light timbers to be moved in any direction about the shaft, and fixed for use by stakes driven beside it into the ground. C C are wheels to run upon said track, supporting my elevator-frame D, the axles of the wheels being journaled in posts of the frame.

E is the drum upon which the rope *e* is wound, carrying the bucket J.

At each end of drum E is a ratchet-wheel, F, secured to the drum, which receives motion from the beveled-gear wheel G by means of one or more pawls or ratchets, *f*, to revolve only one way, for the purpose of winding up the rope *e*. The gear-wheels G are free to revolve either way upon the shaft *g*. Each ratchet may be provided with a spring to keep it in engagement with the teeth of wheel F,

so that the drum E can never revolve backward without carrying both gear-wheels G with it.

H is a gear consisting of two opposite arms, provided at their extremities with circular arcs or segments of gear-teeth to mesh into the two gear-wheels G at once. A vertical oscillating movement of the segment H imparts a similar oscillating motion to wheels G, and they in turn communicate this oscillating motion intermittently to drum E by means of the pawls *f* and ratchet-wheel F; but the teeth of both wheels F facing the same way, when one wheel, G, is driving the drum forward the pawls of the other wheel G are dragging backward over the teeth, and when the one revolves backward the other imparts forward motion to said drum in a similar manner. Thus the oscillating motion of segments H produces rotary motion in one direction of drum E. Segments H are one piece secured upon shaft *h* to oscillate therewith. Shaft *h* is journaled in a bearing on frame D, and is operated by hand-levers L passing through the cross-head K, rigidly fixed thereto.

b is a grooved edged brake-wheel secured upon the shaft *g* of drum E.

d is the brake, made of rawhide, tough leather, or some similar flexible material, hung in the groove in the rim of wheel *b* and secured at both ends to a hand brake-lever, *i*, which is in turn pivoted to frame D; or one end of the brake *d* may be fastened to said lever *i* and other end fixed to the frame D; or the lever *i* may ride directly in the groove. The office of this brake is to retard the descent of the bucket J when the drum E is set free to revolve backward. To set the drum free, the teeth of segments H must be disengaged from the teeth of wheels G by drawing shaft *h* longitudinally away from drum E. To do this the hand-lever *a*, which is pivoted at one end to frame D, is raised at the other end to take it from between the collar *c* on the shaft and the shaft-bearing. Then the drum is free to revolve, and the descent of the bucket must be controlled by the brake *b d i*. The section of track N next the dump O is provided with a cross-rail or trip-bar, M.

When a bucket of coal is raised from the shaft it is suspended by merely stopping the

movement of lever L, for the gears G will strain alike on opposite ends of gear H and form a dead-lock. Then the frame D is rolled along the track until the lower end of bucket J is held
5 back by bar M and the bucket is tipped and emptied forward over the bar. The frame is then returned to the shaft and the operation repeated. The loads are thus quickly disposed of without the assistance of any other machinery. The brake, being hung in a groove
10 in the brake-wheel, cannot hop out and endanger life, as a brake applied to a flat wheel does. The duplicated wheels, pawls, and ratchets at opposite ends of the drum, when in connection
15 with segments H, are firmly locked, so that the load cannot draw the drum backward in any position of the lever L, whether the same be moving or stationary, and, disengaging segments H from wheels G, leaves the bucket free
20 to descend, controlled by the brake.

What I claim as my invention, and wish to secure by Letters Patent, is—

1. The combination, with the drum E, provided with ratchet-wheels F and the gear-
25 wheels G and pawls f, carrying the same, of the double segmental gear H, secured upon shaft h, which shaft is journaled in a bearing in the frame D, to oscillate on its axis and to slide endwise, and the lever a, pivoted to the frame
30 to swing between the collar c on the shaft and the bearing, as and for the purpose specified.

2. The segment H, secured upon its shaft h,

said shaft being adapted to oscillate and slide longitudinally in its bearing, and provided with a fixed collar, c, in combination with a
35 lever, a, pivoted to frame D, to swing between said collar and the bearing of the shaft, to serve as a shoulder to keep said segment engaged, as specified.

3. The combination, with a winding-drum, 40 rope, bucket, means for operating the same to draw coal from a vertical shaft or mine, and a frame in which the axle of said drum is journaled, of wheels upon said frame and a track
45 for the wheels to run on, whereby the elevator which lifts the coal from the mine may convey the same to the dump, substantially as specified.

4. The combination, with the coal elevator and conveyer described, of the adjustable section of track N, provided with the trip-bar M, 50 arranged to engage the lower portion of the bucket J as it is carried along the track by the elevator, whereby the bucket is tipped to empty the coal upon the dump O, substantially as
55 specified.

The above specification of my invention signed by me in the presence of two subscribing witnesses.

CHARLES W. BALDWIN.

Witnesses:

W. M. CATO,

JAMES W. KENNEDY.