

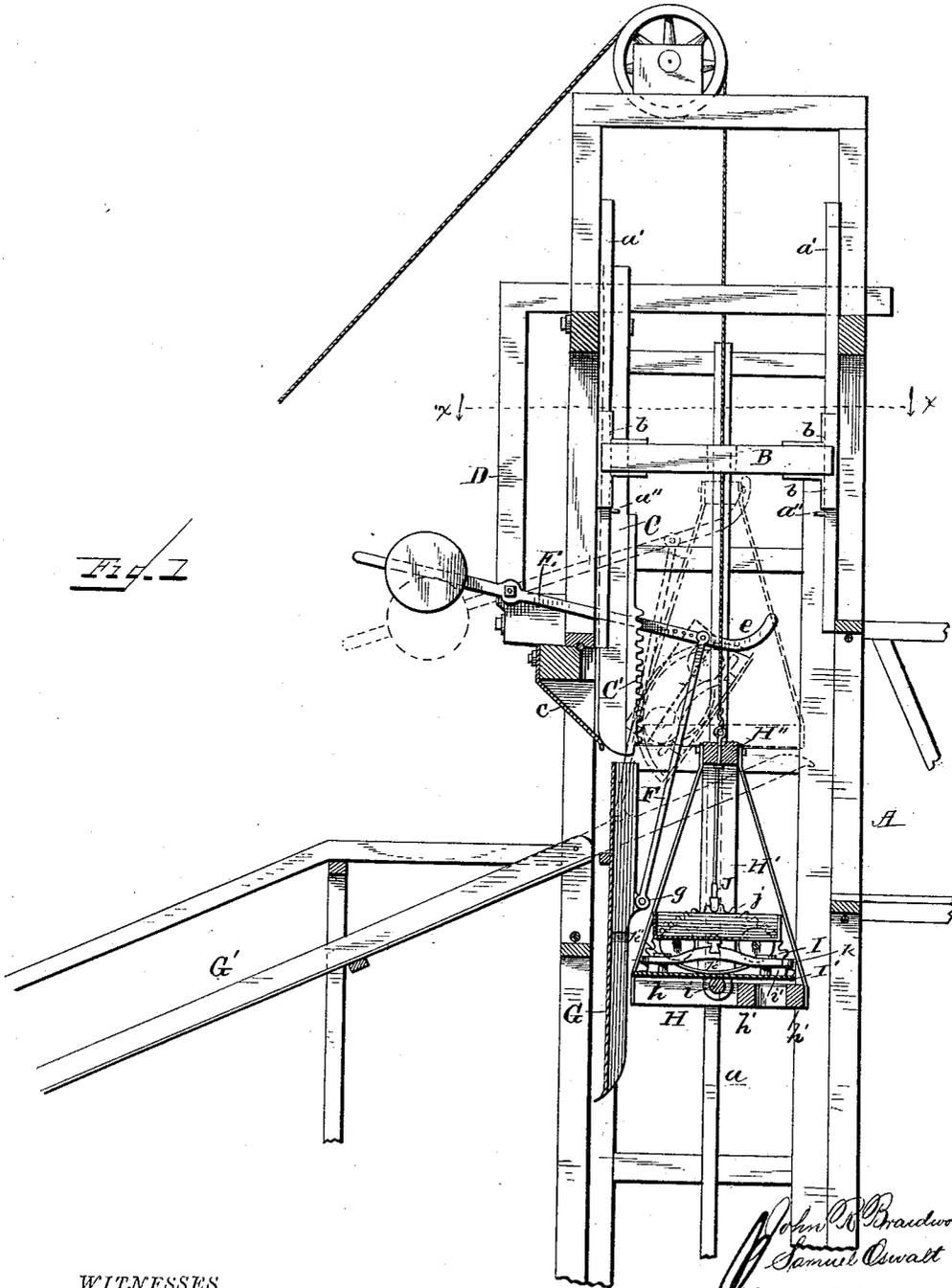
(No Model.)

3 Sheets—Sheet 1.

J. R. BRAIDWOOD & S. OSWALT.
SHAFT AND ELEVATOR FOR MINES.

No. 337,734.

Patented Mar. 9, 1886.



WITNESSES
F. L. Curand

E. Johnson

John R. Braidwood
Samuel Oswalt
INVENTORS
[Signature]
Attorney

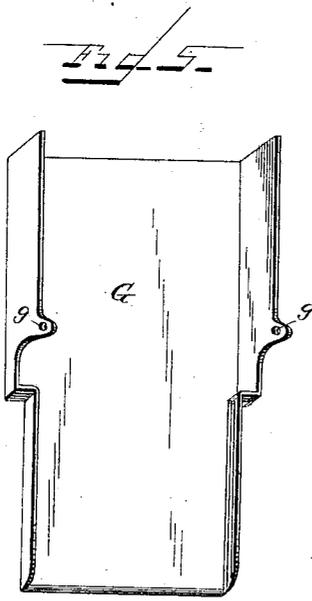
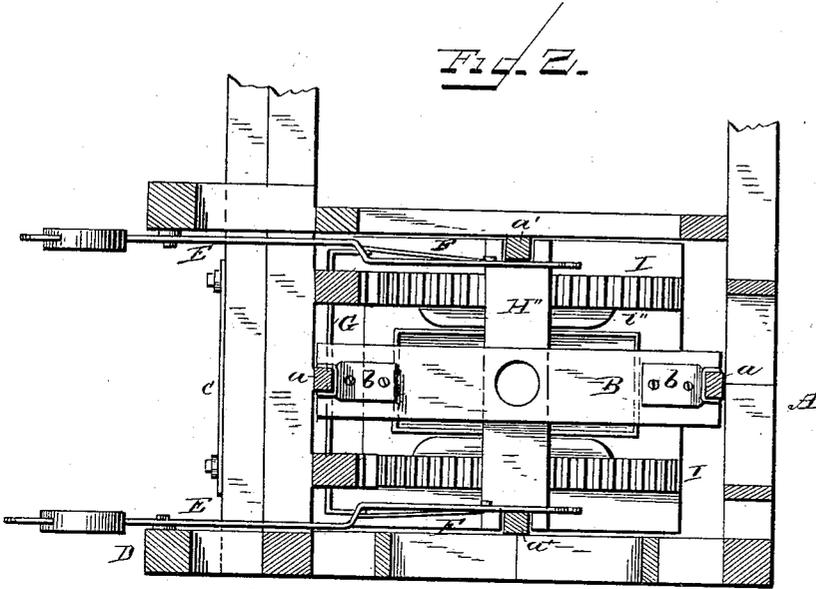
(No Model.)

3 Sheets—Sheet 2.

J. R. BRAIDWOOD & S. OSWALT.
SHAFT AND ELEVATOR FOR MINES.

No. 337,734.

Patented Mar. 9, 1886.



WITNESSES
H. L. Ourand
E. M. Johnson

John R. Braidwood
Samuel Oswalt

INVENTORS

 Attorney

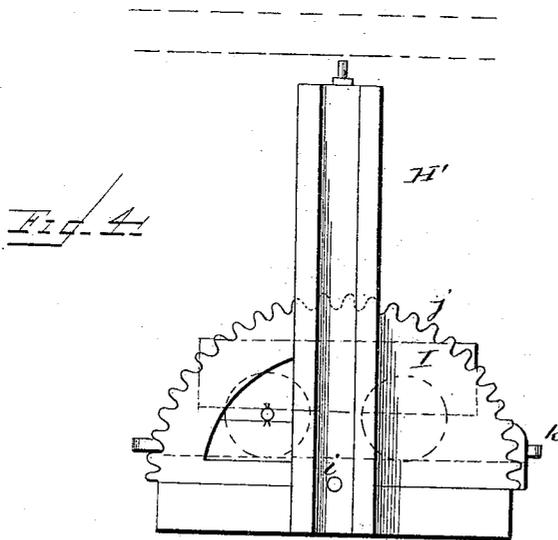
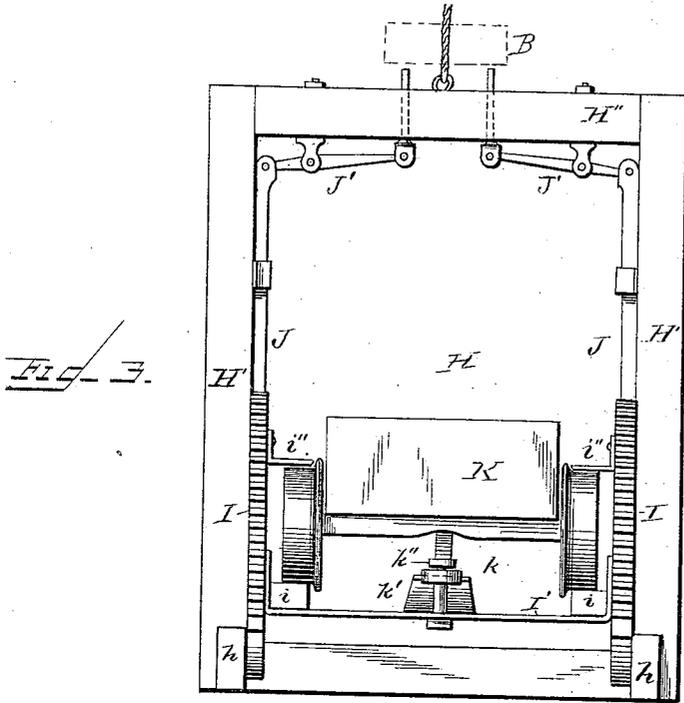
(No Model.)

3 Sheets—Sheet 3.

J. R. BRAIDWOOD & S. OSWALT.
SHAFT AND ELEVATOR FOR MINES.

No. 337,734.

Patented Mar. 9, 1886.



WITNESSES
F. L. Curran
E. Johnson

John R. Braidwood
Samuel Oswalt.
INVENTOR
[Signature]
Attorney

UNITED STATES PATENT OFFICE.

JOHN R. BRAIDWOOD AND SAMUEL OSWALT, OF PITTSBURG, KANSAS.

SHAFT AND ELEVATOR FOR MINES.

SPECIFICATION forming part of Letters Patent No. 337,734, dated March 9, 1886.

Application filed December 31, 1885. Serial No. 187,233. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. BRAIDWOOD and SAMUEL OSWALT, citizens of the United States of America, residing at Pittsburg, in the county of Crawford and State of Kansas, have invented certain new and useful Improvements in Shafts and Elevators for Mines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Our invention relates to certain new and useful improvements in elevators for coal and other similar mines, the object of the same being to provide a means whereby the elevator which carries the car, when it reaches a certain point in the shaft, will automatically raise a chute and dump or tilt the car, which is secured upon the elevator so that the coal or other material may fall upon the chute, and in its downward movement thereon will be sifted or screened; and to this end my invention consists in the construction and combination of the parts, as will be hereinafter fully set forth, and specifically pointed out in the claims.

In the accompanying drawings, which illustrate our invention, Figure 1 is a side view, partly in section, showing in full lines the elevator and chute in their normal position, while the dotted lines represent the chute raised, and a car which is carried by the elevator turned so as to dump its contents upon the chute. Fig. 2 is a transverse sectional view taken through the lines *x x* of Fig. 1. Fig. 3 is a front view or elevation of the elevator. Fig. 4 is a side view of Fig. 3, and Fig. 5 is a detail perspective view of the chute.

A refers to the shaft, which is made up of suitable vertical beams, which are rigidly connected to each other by bolts and cross-beams in the usual manner, and said shaft preferably has two compartments, in which different elevators may be raised and lowered. Each of the shafts is provided with vertical guide-bars *a*, which extend nearly to the top of said shaft. Said shafts are also provided on opposite sides with guide-bars *a'*, upon which slide a heavy cross-bar, B, said guide-bars *a'* hav-

ing projecting therefrom stops or pins *a''*, which prevent a downward movement of the bar B thereon.

Rigidly attached near the upper end of the shaft A, and adjacent to the sides thereof, are vertical bars C, the lower ends of which are formed into rack-bars C', and the beams to which these rack-bars are attached carry at their lower ends a screen or bent metal plate, *c*, which is rigidly secured to a cross-beam located adjacent thereto, said cross-beam being attached to the frame of the shaft. The front side of the shaft, at a suitable distance above the chute proper, is provided with an extended frame-work, D, near the outer and lower ends of which are pivoted arms E, said arms carrying at their outer ends adjustable weights, while the opposite ends extend inwardly and are suitably bent or formed so as to pass between the beams which support the rack-bars C' and the outer vertical beams of the shaft. The inner ends of these pivoted bars E are bent upwardly, as shown at *e*, for the purpose as will be hereinafter set forth, and adjacent to their inner ends the pivoted bars E are provided with perforations, through which pass bolts for connecting thereto arms F, the opposite ends of said arms being pivotally attached to projecting ears *g*, which are formed on the upturned edges of the chute G. The chute G is pivotally attached to the shaft A, beneath the rack-bars C', so that when the elevator-frame contacts with the ends of the arms E said pivoted chute G will be raised so as to extend across the shaft at an inclination, as shown in the dotted lines in Fig. 1.

G' refers to an inclined chute, which is attached at its upper end to the shaft, and is provided with a suitable sieve-bottom, so that the coal or other material which is dumped thereon will, during its downward movement, become sifted or screened, the débris or waste falling through said sieve.

H refers to the elevator, which is provided with grooved side pieces H', which fit over the guide-bars *a* of the shaft, and are connected to each other at their upper ends by cross-bar H'', at the center portion of which is attached the elevating-rope, which elevating-rope passes through a central perforation in the sliding bar B, and from this passes over a block, which is journaled on the upper por-

tion of the shaft, from whence it is carried to suitable operating mechanism. The bottom of the elevator has suitable side pieces *h*, which are connected to each other at one side of the center by beams *h'*, and through the center portion of the lower ends of the recessed side pieces *H'* extends a transverse shaft, *i*, upon which are rigidly secured the segmental side pieces *I*, said side pieces having attached thereto a bottom, *I'*, and rails *i'*, above which rails are located angular bars *i''*, which will lie over the wheels of the car, so as to prevent an upward movement of said car. The segmental side pieces *I* are provided with teeth *j*, with which engage the lower ends of the sliding bars *J*, which are attached to the inner sides of the vertical beams *H'* of the elevator, and the upper beam, *H''*, of the elevator is provided with pivoted bars *J'*, which are connected to the sliding bars *J* at one end, the opposite ends having upwardly extending portions connected thereto, which will, when the elevator is raised, contact with the sliding cross-bar, so as to depress the ends of the levers, and thus elevate the sliding bars *J*, so that they will be out of engagement with the teeth *j* of the segments *I*. The bars *J* are operated in their downward movement by gravity, and normally hold the platform or bottom *I'* of the elevator in a horizontal position. The bottom or platform *I'* of the elevator has centrally attached thereto a bar, *k*, with end extending pieces, and a curved central portion, which is recessed centrally, so as to engage with a block or catch which is located upon the center of the bar *k*. This bar *k* is held against the block or catch on the car by the spring *k'*, which is located under the bar *k*, and the upward movement of the bar is prevented by headed pins or bolts *k''*, which pass through the bar *k*, and are secured to the platform *I*. The bar *k* inclines from its ends to its center, so that when a car is pushed or moved upon the tracks or bars *i* the block thereon will depress the bar *k*, and will permit the car to move upon its track until it reaches the center of the platform, when the catch will engage with the bottom of the car and prevent further movement thereof.

The body of the car may be of ordinary construction.

The sliding cross-bar *B*, hereinbefore referred to, which slides upon the vertical guide-bars *a'*, is recessed at its ends, and provided with angular metal plates *b*, which extend above and beneath the same, as shown, said plates preventing a tilting movement of said bar, which might otherwise occur and cause the same to jam upon its guide-bars. The platform *G* has its sides upturned, while its inner end is somewhat reduced, so as to allow the same to play freely between the guide-bars of the elevator-shaft, and the inner end of the same is curved, so that the bottom of the elevator when it is in its downward movement, after being relieved of its load, will cause a gradual downward movement of the same at

the start. The bars *F*, which connect the pivoted chute with the weighted pivoted bars *E*, are adjustable thereon, so that the wear of the parts and the adjustment of the inclined chute will be provided for.

The cars *K* are adapted and intended to be moved from the rails in a mine upon the tracks on the bottom of the elevator, and after they have been brought to the surface and dumped they are lowered, and can be readily removed therefrom by simply depressing one end of the bar *k*, which retains the same in position. A vertical movement of the cars is prevented by the angular bars *i''*.

If desirable, the shaft may be provided with a frame-work for supporting tracks which will join the same at right angles, so that the car may be removed therefrom without tilting, this addition being desirable when it is desired to remove debris from the mine without sifting the same; or the shaft may be provided with rack-bars opposite to those hereinbefore described, which can be thrown in and out of gear so as to dump the car in an opposite direction, so that the contents thereof will be dumped upon a chute provided therefor.

The operation of my invention as illustrated in the accompanying drawings is as follows: After the car has been loaded in the mine and rolled upon the elevator and secured thereon, as previously described, the elevator is hoisted, the parts being in the position as shown in Fig. 1 of the drawings, and as the elevator is raised the upper cross-bar of the frame comes in contact with the ends of the pivoted arms *C*, elevating said arms and raising the pivoted chute *G*, said pivoted chute being raised under the elevator as soon as the elevator has been raised sufficiently to contact with the rack-bar *C'*. The upper cross-beam of the same contacts with the sliding bar *B*, which engages with the pivoted levers, thus releasing the sliding bars *J* from the toothed segment. As the elevator is further raised, said segments are turned, so as to dump the contents of the car upon the shaft. After the car is dumped the elevator is lowered, and the segments turn, so as to cause the platform attached thereto to assume a horizontal position. Immediately after this platform has assumed its horizontal position the bar *H* leaves the sliding bar *B*, thus allowing the vertical sliding catches to engage with the toothed segments, so as to hold the platform firm upon the elevator frame, and as the elevator-frame is further dropped the ends of the arms are depressed, and the pivoted section of the chute assumes the vertical position in the shaft.

We claim—

1. An elevator for mines or analogous purposes, provided with rack-bars and a movable transverse bar which engage with fixtures attached to the elevator-frame, by means of which the platform of the elevator will be released and tilted, substantially as shown, and for the purpose set forth.

2. In combination with a shaft, *A*, provided

with guide-strips for an elevator and guide-strips for a sliding bar, and rack-bars secured thereto, an elevator having a movable platform which is pivotally attached to the elevator-frame, sliding bars for retaining the pivoted frame in a horizontal position, and means for disengaging said sliding bars by contacting with the movable cross-piece, substantially as shown, and for the purpose set forth.

3. In an elevator for mines, a shaft having secured thereto near its upper end a pivoted portion of a chute, said chute being connected to arms which project within the shaft, an elevator adapted to contact with the inwardly-projecting arms, so as to raise the chute, substantially as shown, and for the purpose set forth.

4. In an elevator for mines, constructed substantially as shown, a chute pivoted to the same and connected by rods to pivoted bars which extend within the shaft, said shaft being provided above the chute with rack-bars and a sliding transverse bar, in combination with the vertical moving elevator carrying a pivoted platform having segmental side pieces which engage with rack-bars, and sliding bars for holding the platform in a horizontal position, said sliding bars being operated by contacting with a movable transverse bar secured within the shaft, substantially as shown, and for the purpose set forth.

5. In combination with a shaft having a movable cross-bar, rigid vertical rack-bars located beneath the same, and a pivoted chute

which is connected by bars to pivoted arms which project within the shaft, an elevator provided with a pivoted car-carrying frame with segmental teeth, side pieces which engage with the rack-bars, sliding locking-bars with pivoted levers, and members which project above the upper frame of the elevator, so that when they contact with a sliding bar within the shaft the locking-bars will be released, and simultaneously therewith the segments will engage with the rack-bars, so as to dump the platform, and the chute will be raised and inclined under the elevator, substantially as shown, and for the purpose set forth.

6. In a device for elevating and screening coal and other minerals, a vertical shaft having attached thereto an inclined chute with screens, as described, and a pivoted chute-section adapted to remain normally in a vertical position, in combination with an elevator having a pivoted platform attached thereto, and means, as described, whereby when the elevator is raised the platform will be released and tilted, and the pivoted section of the chute will be brought into position under the elevator to receive the material carried by the platform, substantially as shown, and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JNO. R. BRAIDWOOD.
SAMUEL OSWALT.

Witnesses:

EDWARD VAN GUNDY,
JANET BRAIDWOOD.