

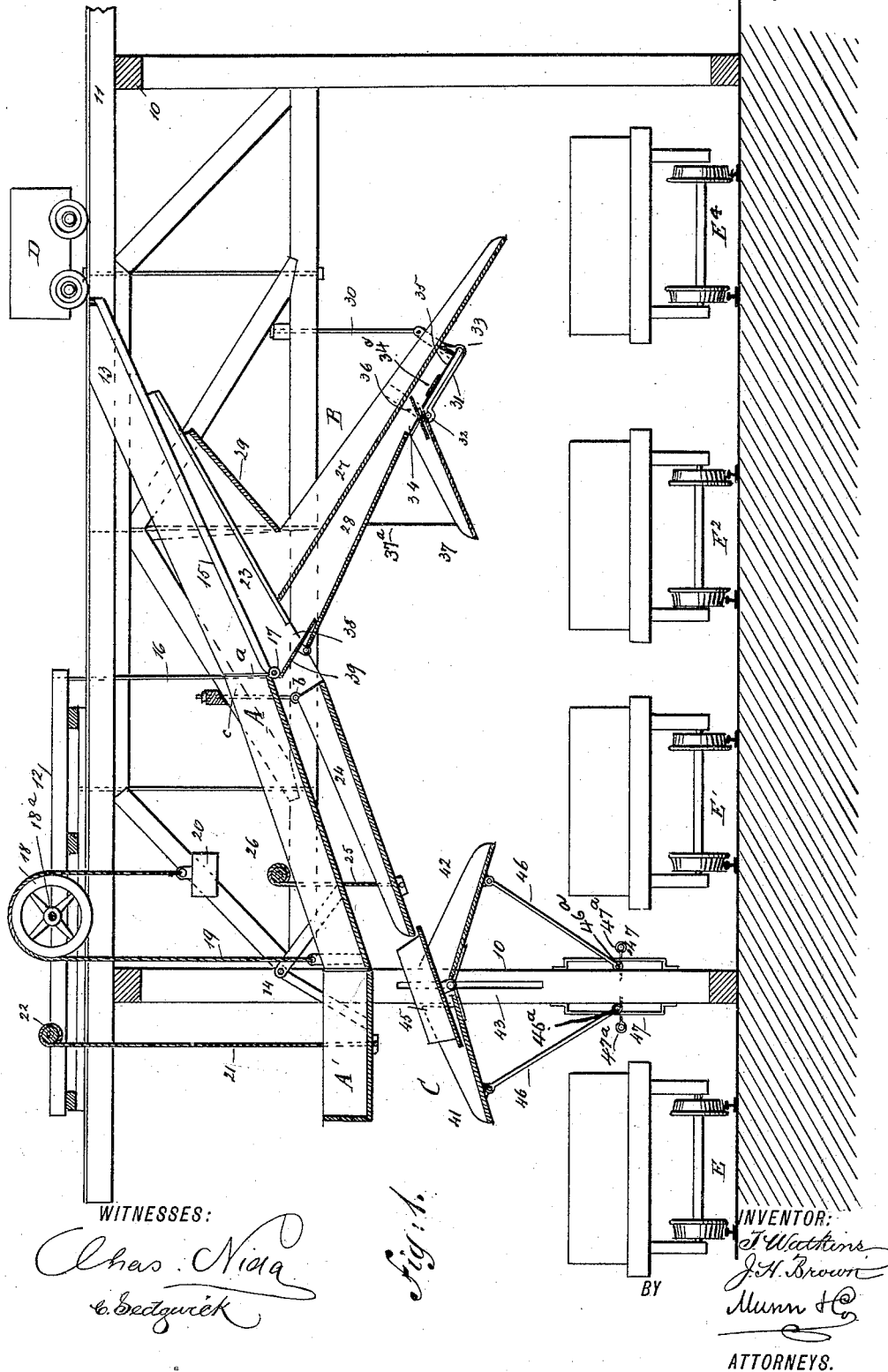
(No Model.)

4 Sheets—Sheet 1.

T. WATKINS & J. H. BROWN.
COAL TIPPLE.

No. 417,891.

Patented Dec. 24, 1889.



(No Model.)

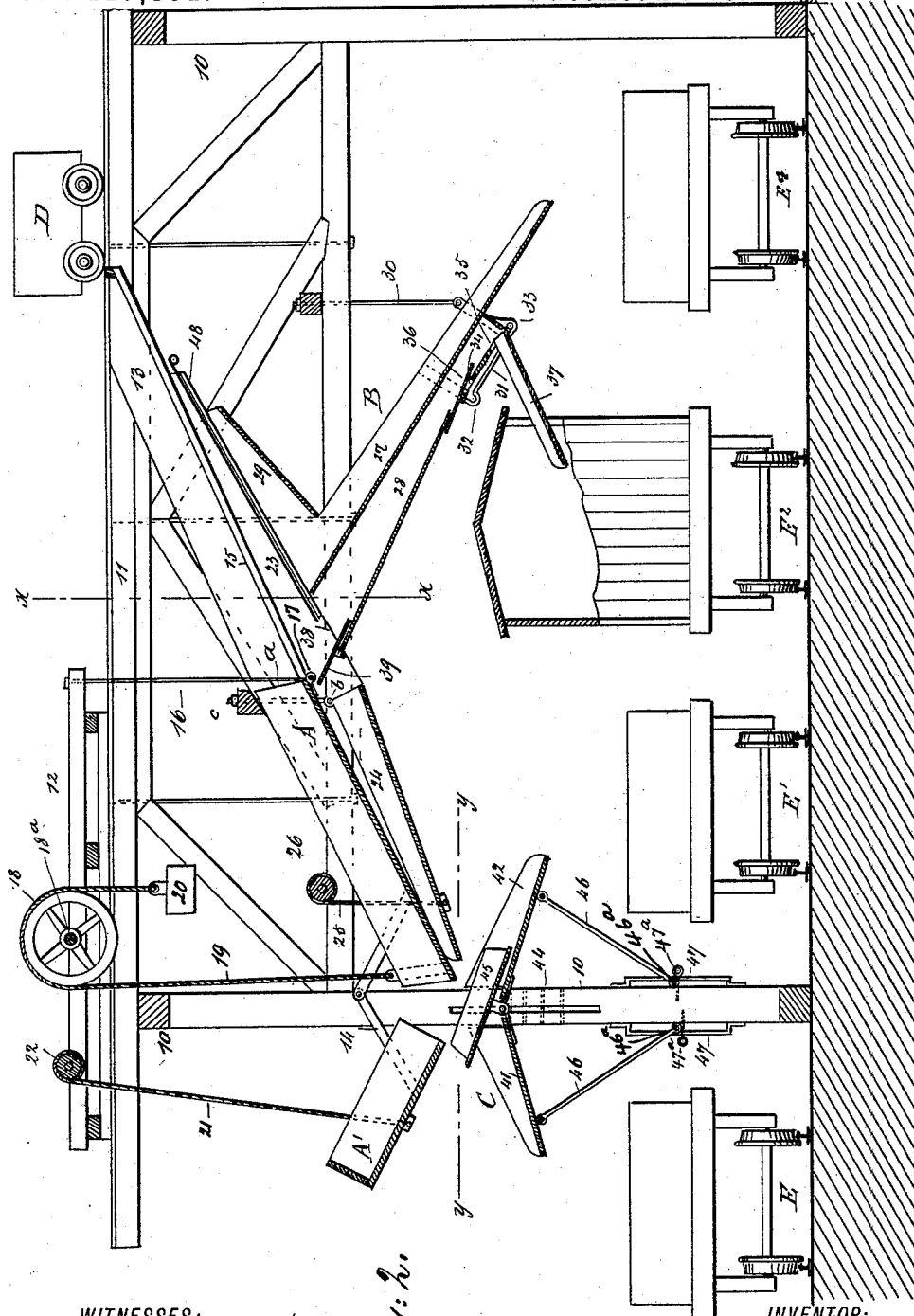
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Patented Dec. 24, 1889.



WITNESSES:

Chas. Vida
Robert G. Wick

Fig. 2.

INVENTOR:

T. Watkins
J. H. Brown
Munn & Co.

ATTORNEYS.

(No Model.)

4 Sheets—Sheet 3.

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Fig. 3.

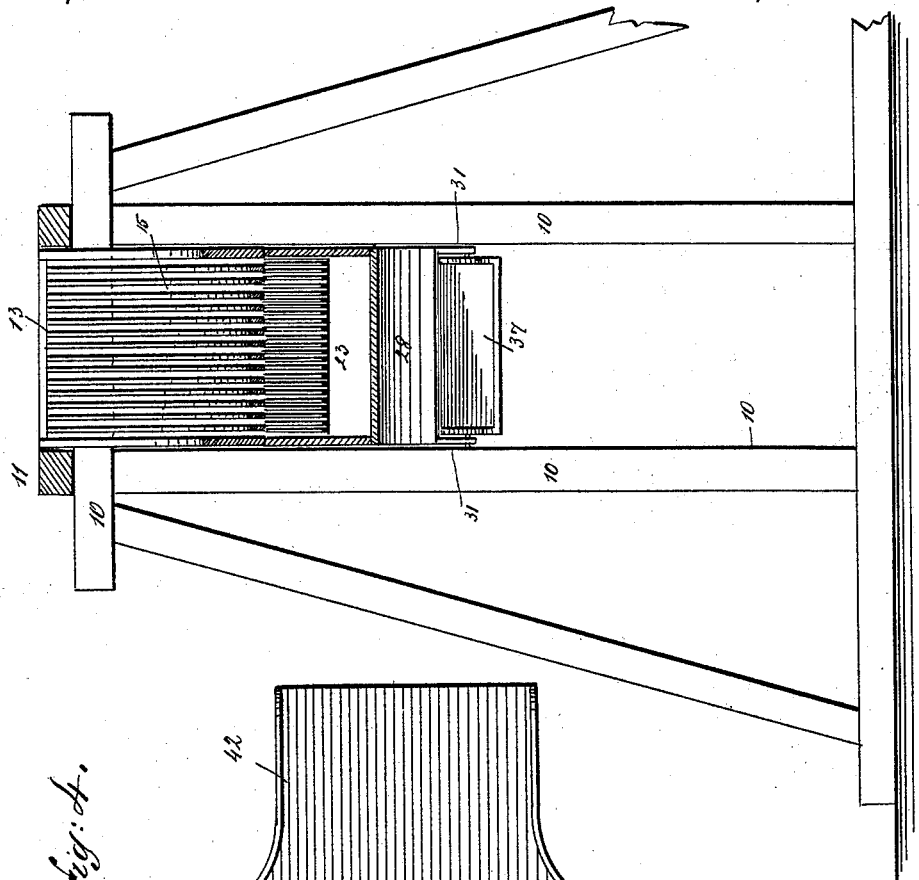
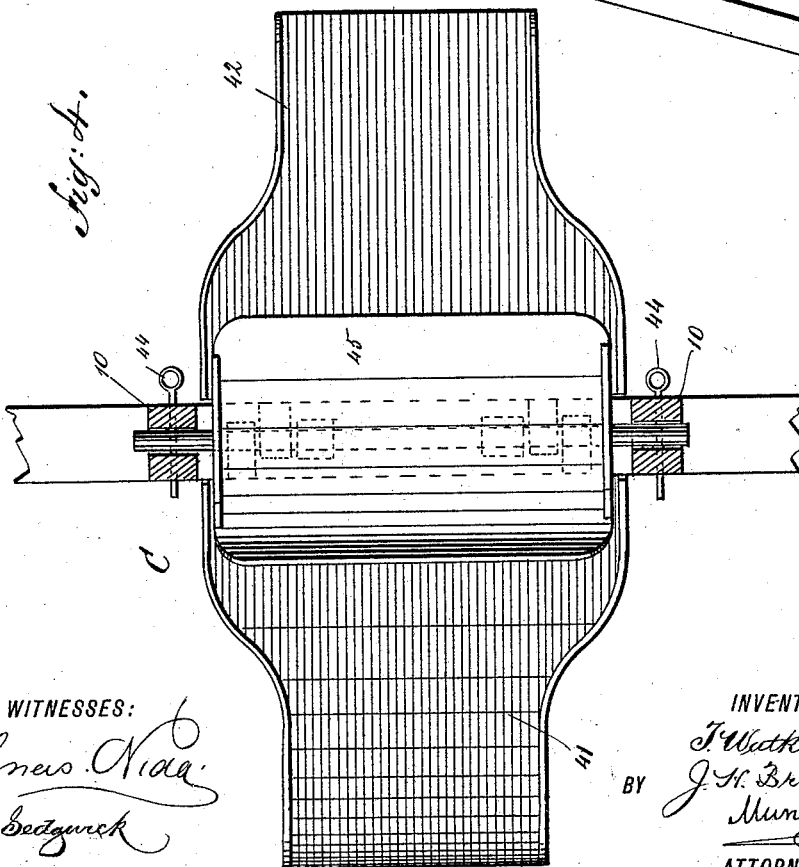


Fig. 4.



WITNESSES:

Chas. Nida
C. Bodgwick

INVENTOR:

T. Watkins
J. H. Brown
BY *Munn & Co.*
ATTORNEYS.

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Fig. 6.

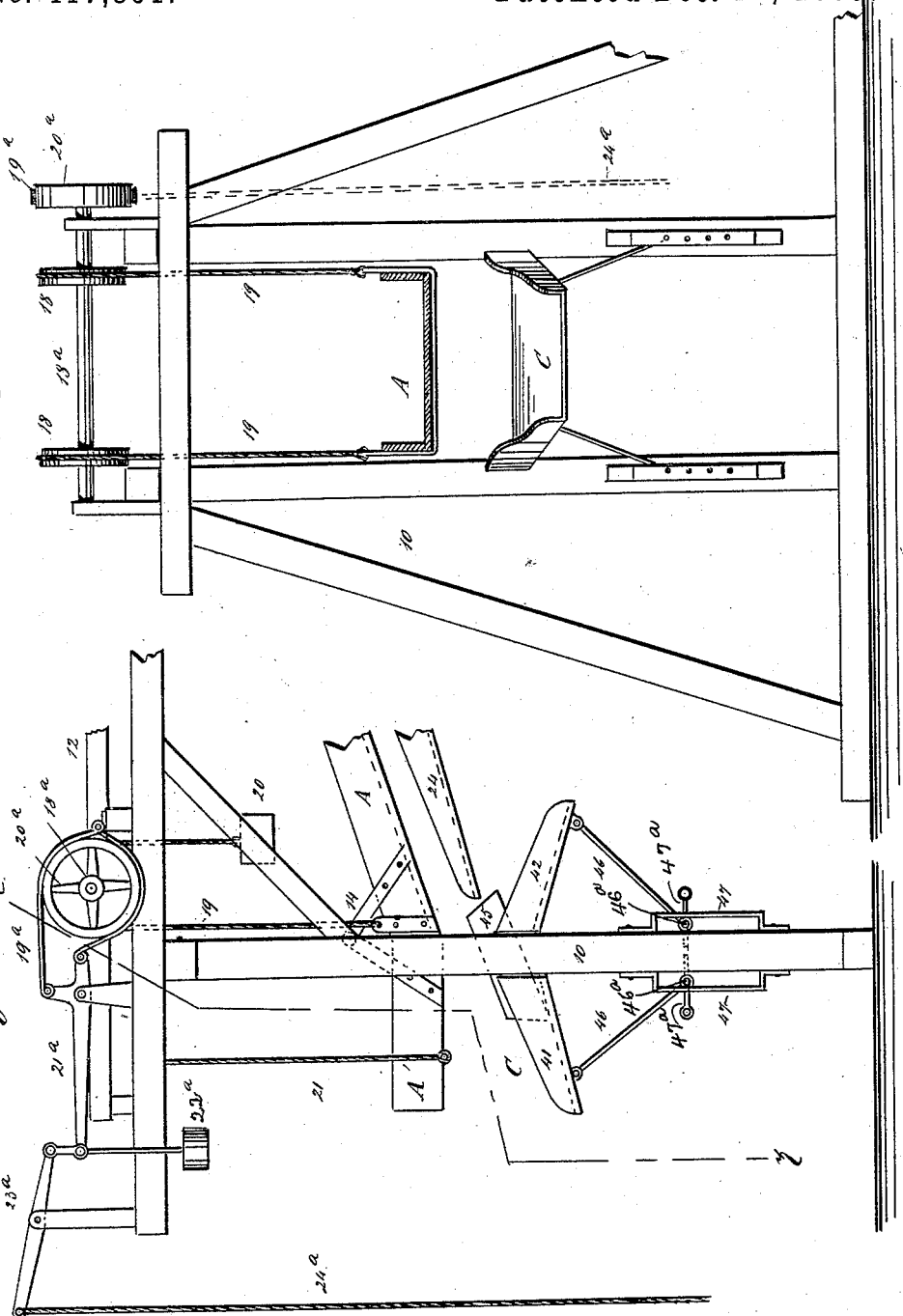


Fig. 5.

WITNESSES:

Chas. Nida
C. Bedgwick

INVENTOR:

T. Watkins
J. H. Brown

BY

Munn & Co.
ATTORNEYS

UNITED STATES PATENT OFFICE.

THOMAS WATKINS AND JAMES H. BROWN, OF COAL BLUFF, PENNSYLVANIA.

COAL-TIPPLE.

SPECIFICATION forming part of Letters Patent No. 417,891, dated December 24, 1889.

Application filed October 10, 1889. Serial No. 326,549. (No model.)

To all whom it may concern:

Be it known that we, THOMAS WATKINS and JAMES H. BROWN, both of Coal Bluff, in the county of Washington and State of Pennsylvania, have invented a new and useful Improvement in Coal-Tipples, of which the following is a full, clear, and exact description.

Our invention relates to an improved coal-tipple, especially adapted for loading coal into railway-cars, and has for its object to simplify the construction of such devices and provide a means whereby clear coal, three-quarter coal, or the run of the mine may be loaded in cars standing upon two contiguous tracks; or clean coal and nut-coal or mixed nut-coal and slack may be loaded at the same time in cars standing upon different tracks; and, further, wherein two tracks may be employed, over which chutes for the delivery of clear coal, three-quarter coal, or nut-coal may be extended, thus affording ample switch room; and also wherein, simultaneously, clear coal, nut-coal, and slack may be loaded into three different cars.

Another object of the invention is to provide a means whereby the clear coal in every instance may be weighed and the delivery-chutes manipulated to load either open or box cars.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical section through the device, illustrating the chutes in position to weigh the clean coal and deliver the nut-coal and slag. Fig. 2 is a similar section illustrating the chute containing the clear coal in position for dumping, the slag-chute closed, and the nut-coal chute in position to deliver mixed nut-coal and slag. Fig. 3 is a vertical transverse section on line *xx* of Fig. 2. Fig. 4 is a horizontal section on line *yy* of Fig. 2. Fig. 5 is a partial side view of the tipple, and Fig. 6 is a partly-sectional end view of the same.

In carrying out the invention a suitable frame 10 is constructed, consisting of horizontal stringers and uprights, upon which stringers the tracks 11 are placed, the said frame being braced in any suitable or approved manner.

Upon one end of the frame a scale 12, of any well-known pattern, is located, and from a certain point at the top of the frame, between the track or tracks, the upper end of a chute 13 is located, which chute is carried diagonally downward and outward beyond one end of the frame, as best illustrated in Figs. 1 and 2. This chute is preferably constructed in two sections—namely, a main section A and an auxiliary section A'—the auxiliary section being normally horizontally located and connected with the lower end of the main section A by a hinge 14, consisting of two straps, bars, or rods pivotally connected at one end, one of which rods is attached to the side of the main section and the other to the side of the auxiliary section, the attachment being made in such manner that the pivoted bars, rods, or straps present, essentially, the form of a triangle, as best shown in Fig. 1. One such hinge is located at each side of the several sections.

The bottom of the main section A of the chute 13 from its upper end to a point at or near its center consists of a series of bars or a grating 15, forming a screen, and the remaining portion of the bottom of said section is solid, as is likewise the bottom of the auxiliary section A', which latter section is inclosed at its outer extremity. The main section A of the chute at the lower end of the barred or screen bottom is attached to the scale 12 and supported therefrom by means of links 16, attached at their upper ends to the scale and having their lower ends connected by a cross-bar 17, which cross-bar forms the pintle of the hinge connecting the two portions of the chute, as hereinafter described. On the sides of the scale are drums 18, carried by a shaft 18^a, extending across the scale-frame, and ropes or chains 19, or their equivalent, are secured at one end to the lower end of the main section A of the chute, which ropes or chains pass over the drums and are provided at the opposite end

with attached counterpoise-weights 20, which weights balance the weight of the chute 13. The auxiliary section A' of the chute 13 is connected by ropes or chains 21 with a windlass 22, located upon the scale, which ropes or chains are wound around said windlass, and by the manipulation of this windlass the pitch or grade of section A' and chute 13 can be changed, as the case may require, to receive the coal without breaking, and this windlass, after the right pitch is obtained, is made fast, when it becomes the support that holds section A' at the outer end. The drums 18 are held from turning by a brake-band 19^a, encircling a friction-wheel 20^a on the shaft 18^a, which brake-band is connected with a lever 21^a, from the outer end of which depends a weight 22^a of sufficient gravity to hold the parts A A' of the chute in their normal closed position. The outer end of the lever 21^a is also connected with a releasing-lever 23^a, from the outer end of which a rope 24^a extends down between the tracks E E', so that the person loading cars can, by pulling on this rope, relieve the brake, when the weight of the coal will carry down chute 13 and section A' on the hinges 14 and cause an opening to be made between the same large enough to run the coal out, after which the chute 13 and section A' will be closed by the counterbalance-weight, as shown in Sheet 1.

Beneath the barred or screen sub-section of the chute 13 a second chute 23 is located firmly attached to the frame, which chute is also provided with a barred or screen bottom, the openings therein being smaller than the openings in the equivalent surface of the chute 13 above it. To the lower end of this fixed chute 23 a section 24 is hinged, the hinge-connection being at the upper edge at *b* and the lower end of the chute being supported from the frame 10 by rods *c*, which section 24 extends downward and outward essentially parallel with and beneath the lower sub-section of the main section A of the upper chute 13. The attached hinged section 24 of the lower chute 23 is capable of being elevated when necessary, which operation is accomplished by attaching the lower end of the said hinged section, by a rope or chain 25, with the windlass 26, journaled in a suitable section of the frame 10.

At a right angle to the fixed chute 23 a double chute B is located, which double chute, contacting with the bottom of the said chute 23, is carried diagonally downward in a direction opposite to the direction of the chute 13. This double chute B is divided by a central partition into an upper compartment 27 and a lower compartment 28, the lower compartment being a box compartment and shorter than the upper compartment, which is provided with an open upper face. The upper compartment 27 at its upper end is also provided with an upward box-like extension 29, which extension is located immedi-

ately beneath the bars of the chute 23, being attached to the sides of said chute and also near its upper extremity.

The double chute B is braced by means of a rod 30 attached thereto near its lower end, the said rod being secured at the upper end to the frame 10 in any suitable or approved manner.

Beneath the bottom of the lower compartment 28 of the chute B, at its lower extremity, parallel yokes 31 are attached, one being located near each side, the said yokes being provided with a depression 32 at the upper end, and with a socket-extension 33 at the lower end.

In the bottom of the compartment 28 of the chute B, at its lower end, two openings 34 and 35 are produced, separated by an essentially narrow horizontal board 34^a, one of these openings being located at the extremity of the compartment over the yokes 31, and the other at the upper end of the yokes and partially over the same. The upper opening 34 may be closed, when desired, by means of a fly 36, pivoted in the bottom of the compartment, as shown in Fig. 2.

An auxiliary off-take spout or chute 37 is used in connection with the compartment 28 of the double chute B, which spout or chute is provided with a spindle attached to its back at or near the upper end, the said spindle being adapted to travel in the yokes 31. When the spindle is in the upper depression 32 of the yokes, the spout 37 is located immediately beneath the upper opening 34 of the compartment 28, as shown in Fig. 1, and the fly 36 is opened to lie in contact with the bottom of the spout and essentially contact with the upper wall of the compartment, whereby any material passing out of the compartment is guided into the spout. The spout or chute 37 extends forward and downward at an angle to the bottom of the compartment 28, and is supported in such position by a rope or chain 37^a, attached to the bottom of the double chute B, which rope or chain is readily detachable from the spout. The delivery end of the upper compartment 27 of the said double chute extends downward and rearward. If the spout 37 is located too high when placed in the upper depression 32 of the yokes, it may be carried downward until its spindle is seated in the socket 33 of the yoke, as shown in Fig. 2, in which event the fly 36 is carried to an essentially horizontal position, closing the upper opening 34 of the compartment 28, and the material in said compartment finds an exit through the lower opening 35.

Near the bottom of the chute 23 an opening 38 is made, which establishes communication between the said chute and the compartment 28 of the double chute B. This opening 38 is capable of being closed by a fly 39, and when closed any material sifted through the bars or mesh of the chute 13 passes into the chute 23, and from thence to

its hinged extension 24. When the opening 38 is uncovered, the fly occupies a transverse position across the chute 23, and the material entering said chute from the upper main chute 13 passes through said opening into the compartment 28 of the double chute B.

Between the front uprights of the frame 10 a duplex delivery-trough C is adjustably mounted, which trough is illustrated in detail in Fig. 4. The trough is hinged at its center, whereby two sections 41 and 42 are obtained, adapted to extend downward beyond the front and rear sides of the said uprights. The trough C is mounted in the uprights by passing the pintle of the trough through a perpendicular slot 43, formed in each upright, as shown in Figs. 1 and 2, and the trough is held at the desired altitude by means of pins 44, passed through the uprights, upon which pins the pintle of the trough is supported, as best shown in Fig. 4.

Upon the pintle of the trough a tilting table 45 is hinged, capable of conveying any material deposited thereon to either the trough-section 41 or 42, as may be desired. Each trough-section has hinged or pivoted to its under side brace-rods 46, the said brace-rods of each section being connected by a cross-bar 46^a, which cross-bar passes through perpendicular brackets 47, secured to the front and rear sides of the uprights of the frame 10, and these bars are supported by pins 47^a, passing through the uprights in similar manner to the pintle of the trough. Thus as the trough is moved vertically upon the uprights the connecting-bars of the trough-braces likewise move in their brackets, and by means of the adjustable brace-rods any desired inclination may be imparted to the trough-sections.

In practice a track E is laid upon the ground in front of the forward uprights of the frame 10, a second track E' being laid at the other side of the said track, and beneath the spout 37 another track E² is laid, a fourth track E⁴ being so laid that the cars traveling thereon may receive the material delivered from the upper compartment 27 of the double chute B.

In operation the load from the mine-car D is at all times dumped into the upper or main chute 13. If it is desired to load a car with clean coal and another car with mixed nut-coal and slack, the car to be loaded with clean coal may be placed upon either the track E or E', the car intended to receive the combined nut-coal and slag being placed upon the track E². The fly 39 of the chute 23 is turned crosswise of the said chute, and the spout 37 is adjusted to deliver the contents of the compartment 28 of the double chute B to the car upon the track E². As the coal passes down the main chute 13 the nut-coal and slack pass through the bars or screens thereon into the chute 23 and compartment 28 of the double chute B, and from thence through the spout 37 to the car, while the

clean coal passes downward into the lower sub-section of the main section A of the chute 13 and into the attached section A' of the said chute. The weight of the clean coal having been taken from the bottom of the scale 12, the clean coal may be dumped into the car upon the track E or E', according to the direction in which the tilting table is inclined, in Fig. 2 the table being so inclined as to deliver the coal to the car upon the track E', and in Fig. 1 to the car upon the track E. The brake-band 19^a is manipulated to allow the sections A and A' of the chute 13 to separate, thereby creating an opening between the attached section A' and A of the said chute, permitting the coal to drop down upon the tilting table and be conveyed to the car. When all the clean coal has run off from the chute 13, the said chute is restored to its normal position by the weights 20. To load three-quarter coal, a car is placed upon the track E⁴ and one upon the track E or E'; or a car may be placed upon both of the latter tracks. The fly 39 of the chute 23 in this case is brought to a horizontal position, thereby connecting the extension 24 with the said chute. The coal being dumped into the chute 13, the clean coal passes down through the lower portion thereof, as heretofore described, and is there held and weighed. The nut-coal passes down into the chute 23, and from thence into its extension 24, being delivered therefrom to the tilting table and to the car in front of the forward uprights of the frame—for instance, as shown in Fig. 1. The slack passes down through the bars of the chute 23 into the compartment 27 of the double chute B, and from thence into the car upon the track E⁴. All the nut-coal having been delivered to the cars and the clean coal weighed, the drums 18 are released and the clean coal spilled upon the tilting table and delivered from thence to the car containing the nut-coal. When the next mine-car is brought to deliver its load and cars are placed upon both the tracks E and E', a second load of three-quarter coal may be delivered to the car at the rear of the forward uprights of the frame by inclining the tilting table, as shown in Fig. 2, the same operation being repeated. Thus it will be observed that in loading clean coal and three-quarter coal cars upon each side of the forward uprights of the frame may be loaded alternately. The same is true when the run of the mine is to be loaded. In this latter event a metal slide 48 is made to cover the bars or meshes of the chute 23, as shown in Fig. 2, thus preventing any of the coal passing into the compartment 27, and the fly 39 is brought to a horizontal position, establishing communication between the chute 23 and its extension 24. Thus, instead of nut-coal being delivered first to the car when the material is dumped into the chute 13, the combined nut-coal and slag are loaded and next the weighed clean coal. In the event that a box-car is to be loaded with nut-coal from the

compartment 28 of the double chute B the spout 37 is dropped to a perpendicular position while the car is brought in front of the chute, the pivot-pin of the said chute being permitted to rest in the socket cavity of the yoke 31, as shown in Fig. 2, and when the car is in position the spout is elevated and held in its elevated position by its chain or rope support. When an open car is to be filled, the spout is preferably carried upward to the depression 32 in the yokes, as shown in Fig. 1. In loading a box-car at the duplex chute C the section of the chute extending over the track upon which the car is to be placed is dropped downward until the car is in position and then hoisted upward. The hinged section 24 of the chute 23 is likewise elevated by means of a windlass 26.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a coal-tipple, a chute comprising a screen-section, a receiving-section pivoted thereto, and an auxiliary section connected with the receiving-section and capable of being spaced therefrom, substantially as shown and described.

2. In a coal-tipple, a chute comprising a screen-section, a receiving-section pivoted thereto, and an auxiliary receiving-section connected with the main receiving-section by an angled hinge-joint, whereby the auxiliary section may be spaced from the main section and remain connected therewith, substantially as specified.

3. In a coal-tipple, a chute comprising a screen-section, a receiving-section pivoted thereto, an auxiliary section connected with the screen-section by an angled hinge-joint, and means, substantially as shown and described, for creating a space between the auxiliary section and the main section, as and for the purpose specified.

4. In a coal-tipple, a chute comprising a screen-section, a receiving-section pivoted thereto, an auxiliary section connected with the screen-section by an angled hinge, and means, substantially as described, for regulating the pitch of the chute, and means for retaining the auxiliary section in contact with the screen-section, substantially as and for the purposes specified.

5. In a coal-tipple, the combination, with a scale, of a coal-chute comprising a screen-section, a receiving-section, and an auxiliary section hinged to the receiving-section and capable of being spaced therefrom, and a counterpoise-connection between the chute and the scale, substantially as shown and described.

6. In a coal-tipple, a duplex chute comprising two horizontal sections and a tilting receiving-table fulcrumed over the joint of the sections, substantially as and for the purpose specified.

7. In a coal-tipple, a duplex chute comprising two sections centrally hinged and inclined

in opposite directions, and a tilting receiving-table fulcrumed upon the hinge-connection of the sections and capable of inclination in the direction of either section, substantially as described.

8. In a coal-tipple, the combination, with the uprights of the frame, of a duplex chute comprising two sections centrally hinged and vertically adjustable in said uprights, a tilting table fulcrumed at the hinged connection of the sections and located over the same, and brace-bars pivoted to the sections and adjustably secured to the uprights, substantially as specified.

9. In a coal-tipple, the combination, with a coal-chute comprising a screen-section, a receiving-section, and an auxiliary receiving-section connected with the main receiving-section and capable of being spaced therefrom, of a vertically-adjustable duplex chute located beneath the screening and receiving chute, consisting of two hinged sections extending in opposite directions, and a tilting table located above the hinged joint, substantially as and for the purpose specified.

10. The combination, with the delivery-chute of a coal-tipple provided with two or more openings in its bottom, of a delivery-spout capable of adjustment to either opening, and a fly adapted to open or to close one of the openings, substantially as and for the purpose specified.

11. In a coal-tipple, the combination, with a scale, a main chute supported from said scale, comprising a main section subdivided into a screening and receiving section, and an auxiliary receiving-section hinged to the receiving sub-section and capable of being spaced therefrom, and a second chute arranged below the said main chute essentially parallel therewith, divided into two sections—namely, a screen-section having an opening in its bottom below the screen portion and a fly controlling said opening, and a vertically-adjustable receiving-section hinged to the screen-section—of a vertically-adjustable duplex chute comprising two centrally-hinged delivery-troughs inclined in opposite directions, and a tilting table fulcrumed over the joint of said troughs, a double chute divided into two compartments, one compartment having connection with the screen portion of the lower chute and the other compartment with the fly-controlled opening in said chute, the said lower compartment of the double chute being provided with two or more openings, one of which is controlled by the fly, and an adjustable delivery-spout capable of registry with either of the said openings in the said lower compartment, substantially as and for the purpose specified.

THOMAS WATKINS.
JAMES H. BROWN.

Witnesses:

GEO. A. FIFE,
GEO. T. LINN.