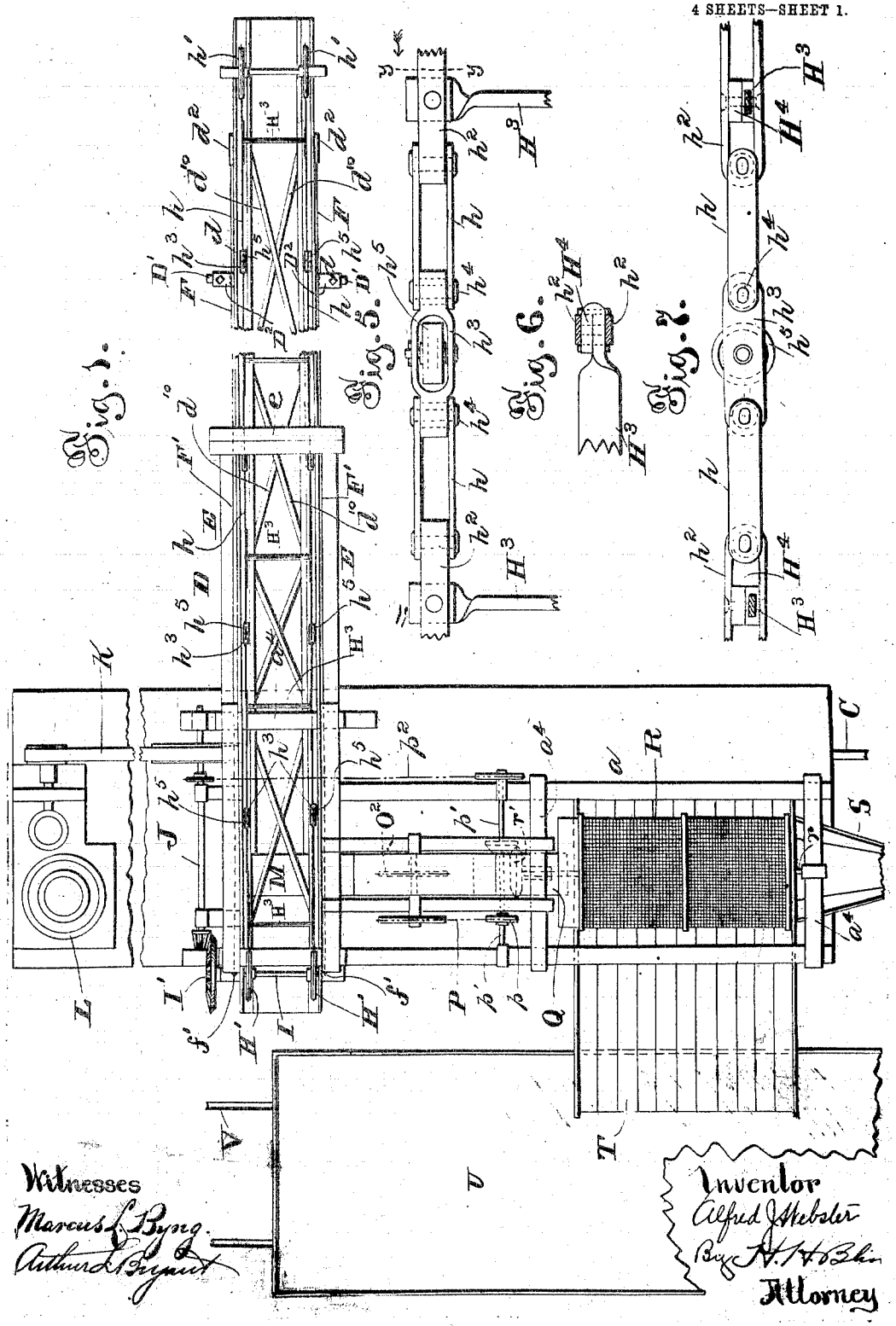
No. 811,189. PATENTED JAN. 30, 1906.

A. J. WEBSTER.

CONVEYING AND ELEVATING APPARATUS.

APPLICATION FILED NOV. 30, 1897.

4 SHEETS—SHEET 1.



No. 811,189. A. J. WEBSTER. PATENTED JAN. 30, 1906.

CONVEYING AND ELEVATING APPARATUS.

APPLICATION FILED NOV. 30, 1897. 4 SHEETS—SHEET 2.

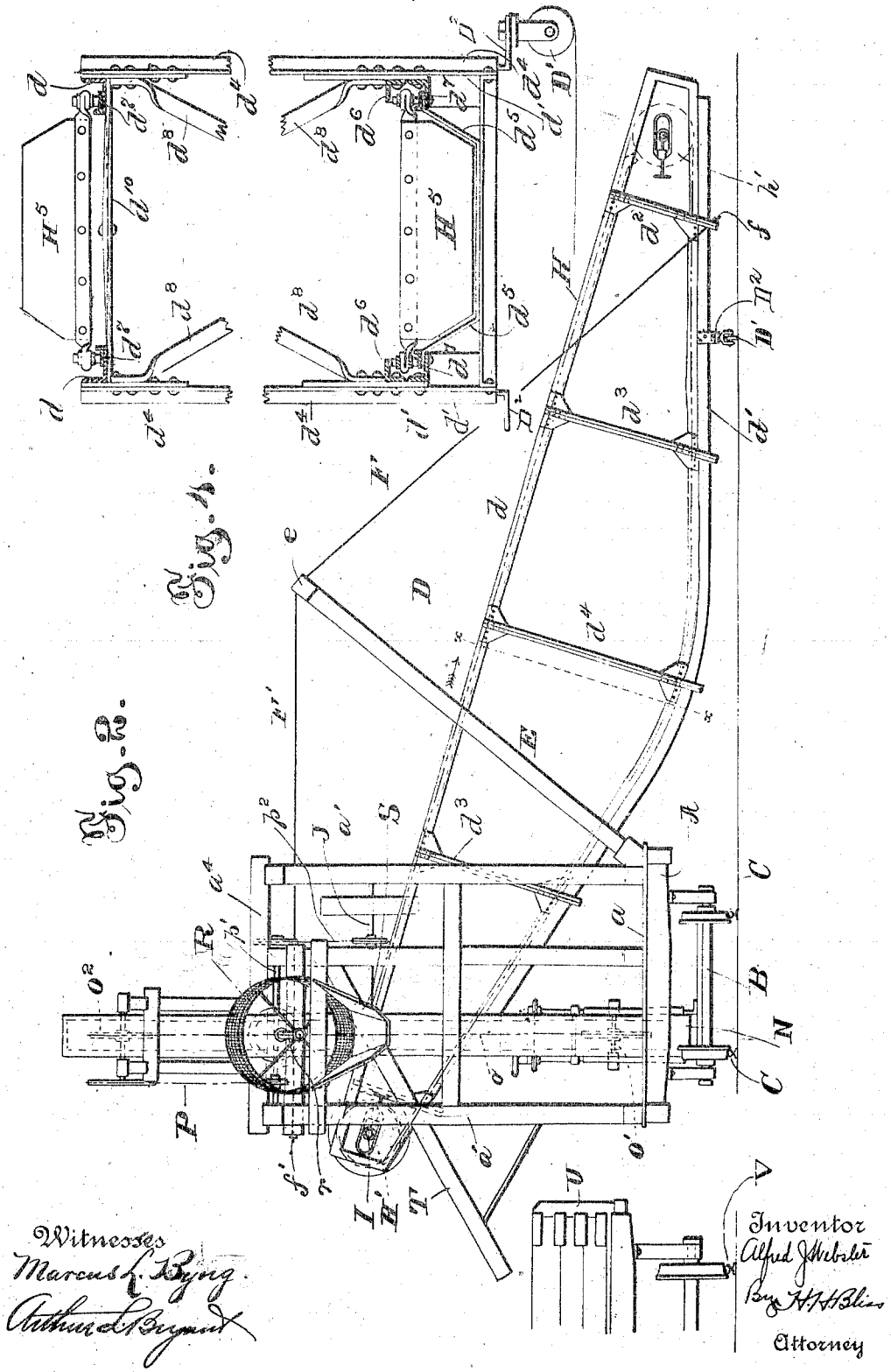


Fig. 4.

Fig. 2.

Witnesses
Marcus L. Byng.
Arthur L. Byng

Inventor
Alfred J. Webster
By H. H. Bliss
Attorney

No. 811,189. PATENTED JAN. 30, 1906.

A. J. WEBSTER.

CONVEYING AND ELEVATING APPARATUS.

APPLICATION FILED NOV. 30, 1897.

4 SHEETS—SHEET 3.

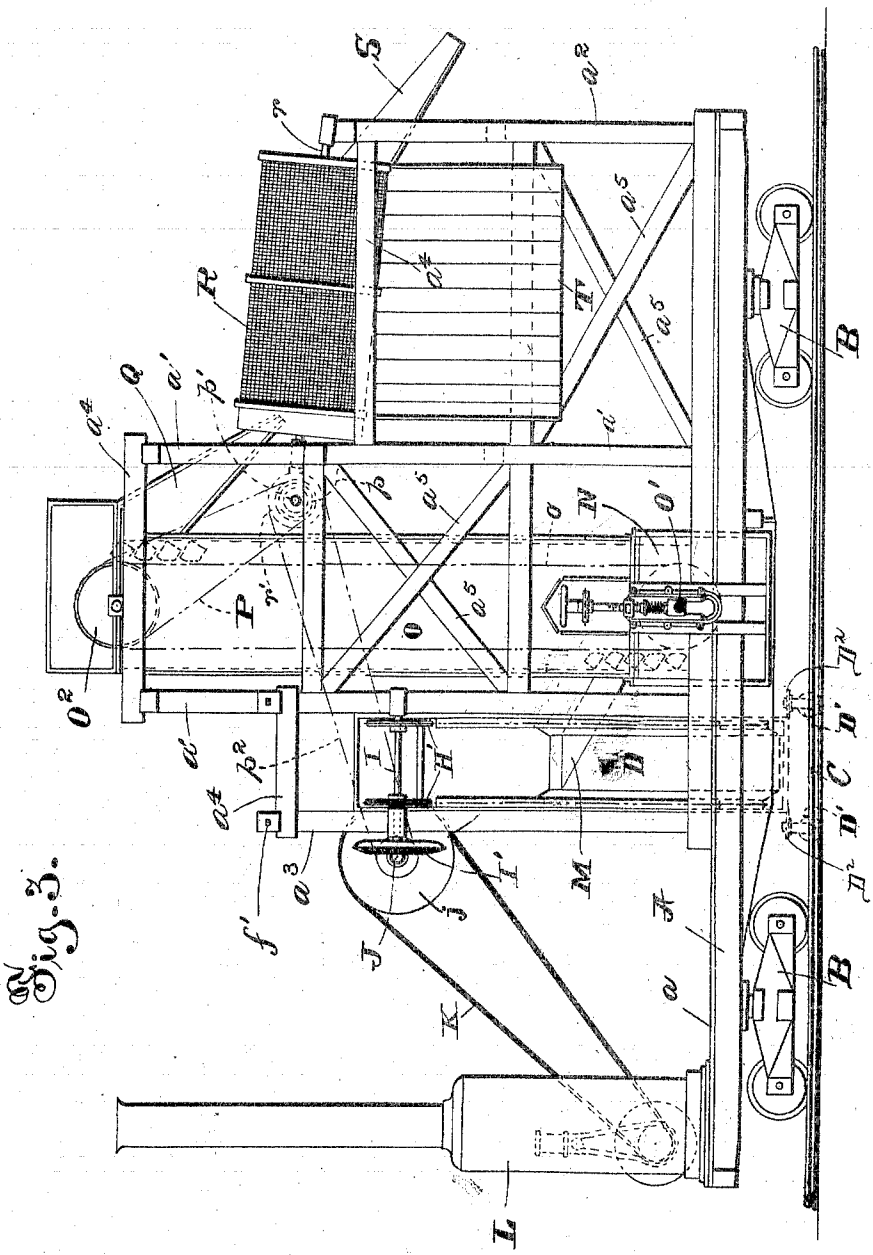


Fig. 3.

Witnesses
Marcus L. Byng.
Arthur L. Byng.

Inventor
Alfred J. Webster
By N. W. W. Bliss
Attorney

No. 811,189. PATENTED JAN. 30, 1906.

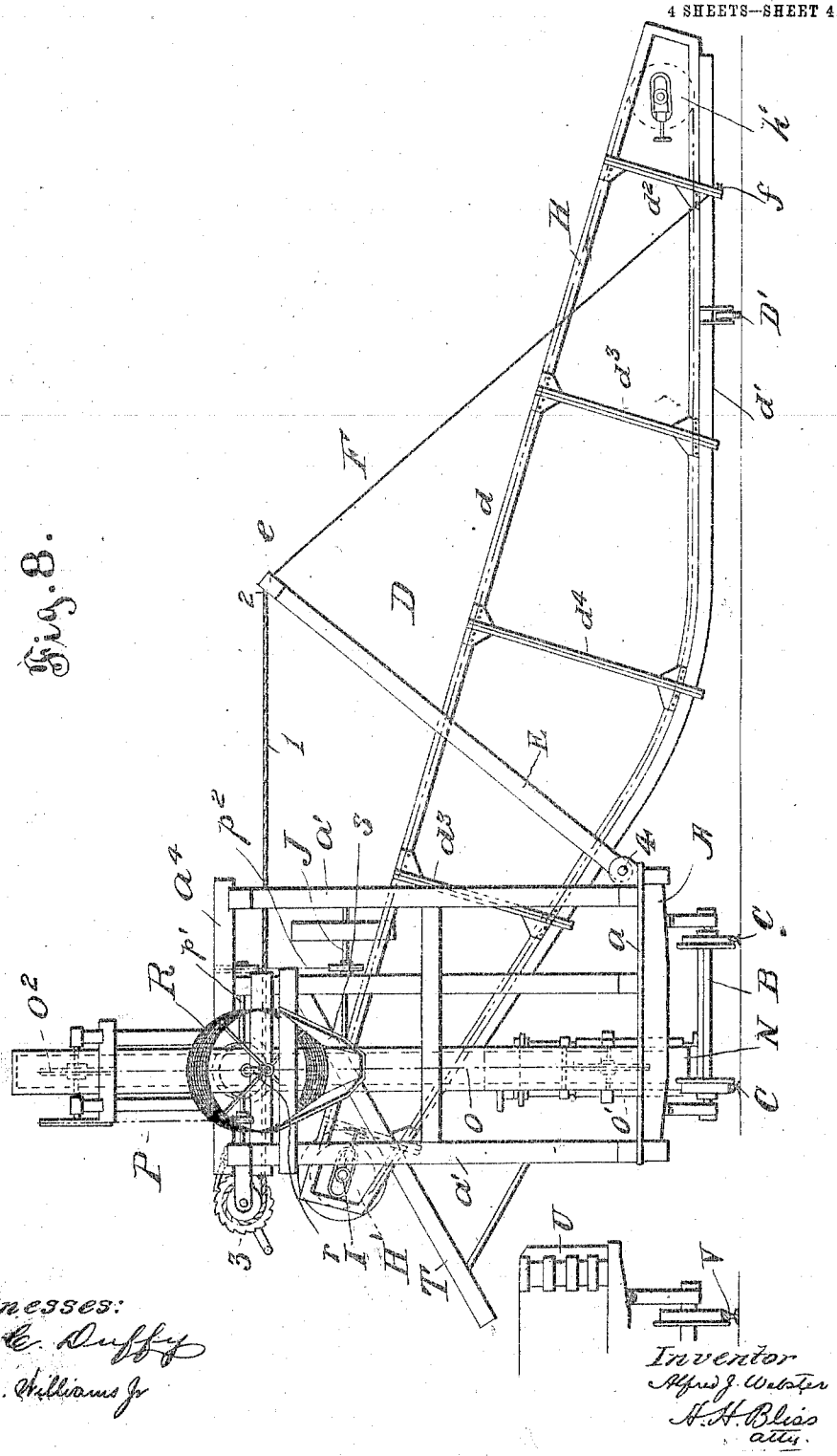
A. J. WEBSTER.

CONVEYING AND ELEVATING APPARATUS.

APPLICATION FILED NOV. 30, 1897.

4 SHEETS—SHEET 4.

Fig. 8.



Witnesses:
E. C. Duffy
H. C. Williams Jr

Inventor
Alfred J. Webster
H. H. Bliss
atty.

UNITED STATES PATENT OFFICE.

ALFRED J. WEBSTER, OF COLUMBUS, OHIO, ASSIGNOR TO JOSEPH A JEFFREY, OF COLUMBUS, OHIO.

CONVEYING AND ELEVATING APPARATUS.

No. 811,189. Specification of Letters Patent. Patented Jan. 30, 1906.

Application filed November 30, 1897. Serial No. 660,276.

To all whom it may concern:

Be it known that I, ALFRED J. WEBSTER, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Conveying and Elevating Apparatus; and I do 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 the characters of reference marked thereon, which form a part of this specification.

Figure 1 is a plan view of a mechanism embodying my improvements. Fig. 2 is an end elevation. Fig. 3 is a front side elevation. Fig. 4 is a sectional view on the line x x of Fig. 2. Fig. 5 is a top plan view of one of the conveyer-chains. Fig. 6 is a sectional view on the line y y of Fig. 5. Fig. 7 is a side elevation of the chain in Fig. 5. Fig. 8 is an end view showing a means for adjusting the conveyer mechanism up and down.

In the drawings, A indicates a movable frame having a platform a, longer uprignts a', and shorter uprights a^2 a^3. The uprights are joined together by girths, as at a^4, and cross-pieces, as at a^5. The platform and frame thus provided are mounted upon trucks B B, which may be of the nature of those used with ordinary railway-cars and adapted to travel upon a track, as at C. As the mechanism herein presented is intended for use in conveying, elevating, and subdividing the mass forming what are known as "culm-piles," that are gradually accumulated in the immediate neighborhood of coal-mines and which in many instances have now become very large, this track C is movably arranged with such a pile.

D indicates as a whole the peculiarly-constructed frame for supporting the carrier or conveyer. It is formed with supporting and guiding bars d at the top and with bars d' for the same purpose at the bottom, the bars d being adapted to support the upper "run" of the conveyer or carrier and those at d' the lower run. Brace bars or struts d^2 d^3 d^4 are interposed between the top part of this frame and the lower part, these gradually lengthening from the ends of the elevator-frame toward the center. Consequently the parts at d' are bowed at the center. This provides for giving the conveyer ample support not only along the upper run, where it is taut or stretched, but also along the lower run, where it is apt to sag considerably. This enables me to advantageously provide a horizontal or approximately horizontal situation for the conveyer-trough, which receives the material as it is being loaded by shovels. The elevator-frame D extends from the front side of the car-frame A across it to the other side and then to a point considerably behind or inside, as shown in end view in Fig. 2. To support this inwardly-projecting part, I combine truss-braces E with the frame A, these extending from the platform a upward and inward on inclined lines to points near the plane of the top frame A.

F F′ designate rods or bars which support the inner end of the conveyer, the rods F extending from the lower braces d^2, as at f, to the bar e, connecting the aforesaid truss-braces E, and the rods F′ connecting said cross-bar e with the main frame, their ends being indicated at f'. If desired, cables may be substituted for said rods F F′, the lower ends being connected to the brace-bars d^2 and the upper ends extending over the cross-bar e and connected with suitable winding apparatus mounted on the main frame, and with such a construction the truss-braces E may be hinged at their lower ends, so that the inner projecting end of the conveyer may be adjusted vertically. I have illustrated one means for this purpose in Fig. 8, wherein 1 indicates such cables connected with the conveyer, as at 2, through the medium of the bar e and rods F and also connected with a winding apparatus or windlass 3 on the main frame. In this construction the truss-braces E are hinged at 4 to the platform or main frame.

The conveyer-supporting frame D is also provided with caster-wheels D′, which in the embodiment of the invention herein illustrated are carried by angle-irons or brackets D^2, riveted to the lower bars d'.

The conveyer H is formed, preferably, of two parallel chains, each constructed in the manner illustrated in Figs. 5, 6, and 7—that is, each chain is made up of a series of links h h^2 h^3. In each link h^3 is mounted a roller h^5, and to each of the links h^2 is connected a scraper-supporting bar H^3. The links h are composed of two parallel bars connected with

the links h^2 h^3 by pintles h^4. The bars H^3 are preferably bent at their ends, as at H^4, to extend between the bars of the links h^2 and are securely riveted in place. To said bars are connected the scrapers H^5. The braces d^2 d^3 d^4 on opposite sides of the conveyer are connected by inclined braces or tie-rods d^8. The wheels or rollers h^5 of the chains travel along guides d^7, secured to the bars d d', and guard-rails d^6 are arranged along the lower run of the conveyer, as shown in Fig. 4. The lower frame-bars d' support a trough-like receptacle d^5, along which the scrapers H^5 force the material in a manner to be hereinafter described. The conveyer-chains engage with driving-sprockets H', and at the inner ends pass around idler-wheels h'. The wheels H' are mounted on a shaft I, which is driven by the bevel-gearing I' from the shaft J, which is provided with a wheel j, driven by belt K, the latter being actuated by the engine at L, which is rigidly mounted on the platform a. The material carried upward by the conveyer H is delivered to a chute M, which guides it to a boot at N.

O is an elevator supported by the longer pair of the uprights a', its chain or chains o passing around the boot-shaft O' and the head wheel or wheels O^2, the latter receiving power through the chain-gearing P, driven from a sprocket-wheel p on a shaft p', which is connected by a chain p^2 to the aforesaid shaft J.

The material that is carried up from the boot N by the elevator is delivered to the chute Q, which carries it to the interior of the coal-screen R. This is mounted on a shaft r and is driven by the bevel-gearing at r', receiving power from the aforesaid shaft p'. The screen R may be of any suitable construction adapted to remove the slate and other undesirable foreign bodies from the mass of material and deliver them as tailings to the refuse-chute S. The coal of a valuable nature which passes through the meshes of the screen is received by the chute T, which delivers it to the car U on the main railway-track V.

As before stated, the principal purpose of the present invention is the reclaiming of the valuable material in the form of "culm" and "slack," which has accumulated in vast quantities in mining regions. A number of mechanisms have been proposed for this purpose, but none have been successful, so far as I am aware, in meeting the requisites imposed. These waste piles are mixtures of fine coal, slate in pieces large and small, and clay, harder or softer.

The manner of operating the present mechanism is as follows: The temporary track C is laid suitably close to the base or skirt of a pile of culm or slack. The operatives load upon the conveyer H that portion of the material which manifestly possesses value, that which is obviously worthless being thrown aside. The conveyer-trough from the center to the outer end, it will be seen, is horizontal or approximately horizontal, so that a large number of operatives can stand by the side thereof and rapidly load it, it being conveniently accessible for their shovels and offering an elongated receptacle superior in this respect to a receptacle of the nature of a "boot." The valuable material is carried up by the elevator, delivered to the boot N, and from there elevated to the screen R. The screen holds back the slate and other refuse, but permits the coal of such grades as "buckwheat," "pea," and slack to pass to the chute T and from there to the receiving-car. As the operation proceeds the car is advanced along the base or skirt of the pile, I having found it to be practical to remove a cut of about twenty feet in width. After such a cut has been effected the track C is moved nearer to the face of the pile and the movable elevator and cleaning mechanism are again caused to traverse its face while being loaded.

While I have described an organized mechanism particularly designed for operating upon and treating the material constituting culm-piles, it is evident that it is well adapted for other uses and that the conveyer mechanism may deliver to other separating mechanism than a screen or to other devices than a separating mechanism, or, indeed, may deliver directly upon the car A or to one side thereof without the intervention of any separating mechanism. By providing the outward-extending and substantially horizontal portion of the conveyer with a support that is independent of the main frame or truck by which it is carried the supporting rods or bars F and F' are greatly relieved, and it becomes practical, particularly when the apparatus is constructed as shown in Fig. 8, to adjust the outer end of the elevator relative to its supporting-frame A. This is often desired—as, for instance, when the surface of the ground over which the conveyer extends is different topographically from that over which the supporting-frame A moves.

What I claim is—

1. The herein-described traveling conveyer mechanism, having the main upwardly-projecting frame, mounted upon track-wheels, the conveyer-frame connected to the main frame, extending across it, and to points inside of the portable frame, and having a horizontally-arranged loading-receptacle or conveyer-trough, the truss-frame which engages with and bears upon the main frame, and is connected to the inner end of the conveyer-frame, a conveyer mechanism operating in said trough, and means for delivering material from the conveyer, substantially as set forth.

2. The combination of a support mounted upon trucks, a conveyer mounted on the said

support and extending laterally beyond one side thereof, the lower run of said conveyer comprising a trough, flights operating in the said trough, a stationary chute extending from the side of the movable support opposite to that beyond which the conveyer extends, another chute arranged to deliver material beyond one end of the movable support, and means for delivering the material carried by the conveyer to the said chutes, substantially as set forth.

3. In a conveyer, the combination of the supporting-frame having the upper, straight, side bars, the lower bowed side bars, transverse braces connecting the said upper bars, similar braces connecting the lower bars, and vertically-extending braces connecting the upper and lower bars, guide-rails carried by said frame and extending parallel with the upper and lower bars thereof, a trough-like receptacle, d^5, supported by and curved longitudinally to conform to the lower portion of said supporting-frame, endless chains passing around guiding and driving wheels adjacent to the ends of the supporting-frame, and provided at intermediate points of their length with rollers adapted to travel along the aforesaid guide-rails, and scraper-flights connected to said chains and shaped to conform to the cross-sectional form of the trough, d^5, through which they travel on the lower "run" of the conveyer, substantially as set forth.

4. In a conveyer, the combination of two parallel chains each formed of wheel-supporting links, h^3, strap-links, h^2, and connecting links, h, formed by parallel bars pivotally connected at their ends to the aforesaid links, h^3, h^2, bars, H^3, extending transversely across the space between the said chains, the ends of each of said transverse bars being bent upon the body thereof and secured between the top and bottom bars of opposite strap-links, h^2, and flights, H^5, secured to said bars, H^3, a trough wherein said flights operate, and means for supporting said trough, substantially as set forth.

5. In an apparatus for the purpose specified, the combination of a truck, a conveyer extending laterally beyond one side thereof and having a horizontally-arranged trough or receptacle for receiving the load from shovels, two independent chutes for delivering material at different points, an elevator for taking the material from the conveyer, means for directing the material from the elevator to the said chutes, and an engine on the truck arranged to operate both the conveyer and the elevator, substantially as set forth.

6. In an apparatus for the purpose described, the combination of a truck, a conveyer having its frame extending laterally beyond one side of the truck and having its lower run arranged substantially horizontal, whereby the said run can be directly loaded, a truss-frame for supporting the said conveyer mounted upon the truck, wheels or rollers carried by and adapted to assist in supporting the conveyer-frame, means for delivering the material at different points, means for directing the material from the conveyer to the said delivering means, and an engine on the truck arranged to operate the conveyer, substantially as set forth.

7. In an apparatus for conveying material from a culm-pile, the combination of a movable support adapted to travel parallel to one face or edge of the pile, a conveyer extending out beyond one side of the truck and at substantially right angles thereto, having a substantially horizontal loading portion, ground wheels or rollers carried by the conveyer-frame near its outer end, and means for delivering the material carried by the conveyer, substantially as set forth.

8. The combination of a supporting-frame, the conveyer-frame projecting laterally therefrom, the conveyer thereon having a lower run and an upper run, the lower run having a trough the outer portion of which is approximately horizontal, and the inner end portion of which is inclined, said outer end portion constituting an elongated receptacle for the load, and means on the frame for actuating the conveyer, substantially as described.

9. The combination of the supporting-frame, having the guideways at its upper side and curved or bowed guideways at its bottom, endless chains mounted on wheels supported in said frame and extending along said guideways, a trough arranged between the lower curved guideways, and scrapers or flights connected with the chains and traveling in said trough, substantially as set forth.

10. The combination of the main frame, the conveyer-frame mounted on and projecting beyond the side of the main frame, the conveyer-chains on suitable sprockets, the scraper-flights secured to said chains, the conveyer-trough carried by said projecting frame, and having a substantially horizontal portion near its outer end for initially receiving the load, and also receiving the conveyer-flights on the chain, and having an inclined part near the inner end, substantially as set forth.

11. In a conveyer, the combination of a frame, formed of the parallel, straight, upper side bars, the lower longitudinally curved or bowed, side bars, and the connecting-bars joining said top and bottom side bars, a pair of endless chains extending along suitable guides on the inner faces of said top and bottom side bars, a trough or receptacle connecting the lower, curved side bars, and scraping-flights attached to the chains and adapted to travel through said trough, substantially as set forth.

12. The combination of a supporting-

frame, a conveyer-frame projecting laterally therefrom, a conveyer therein having a lower run and an upper run, the lower run having a trough approximately horizontal near its outer end and inclined at its inner end, said outer portion constituting an elongated receptacle for the load, means on the frame for actuating the conveyer, and means for adjusting said outer end of the conveyer up and down, substantially as set forth.

13. In a conveyer apparatus the combination of a frame, an endless conveyer supported thereby and extending out to one side thereof, such outward-extending portion having a relatively long and substantially horizontal loading portion, means for adjusting the outwardly-extending portion of the conveyer up and down and supports under the loading portion of the conveyer, substantially as set forth.

14. The combination of a main frame, an endless conveyer supported at one end by such frame and extending out beyond one side thereof, the said outward-extending portion of the conveyer having a relatively long and substantially horizontal loading portion, and the end that is connected to the main frame being inclined, and the outer end of the conveyer being free to be adjusted vertically, and a support supplemental to the main frame for the outer end of the conveyer, substantially as set forth.

15. The combination of a main frame, a conveyer supported therein and extending laterally to one side thereof, supports independent of the main frame arranged below the outer portion of the conveyer, and a cable extending from the main frame to the outer portion of the conveyer, and means for adjusting the cable, substantially as set forth.

16. In a conveyer, the combination of a pair of parallel chains comprising links h^2 which are formed of a bar or strap of metal shaped into an endless loop whereby are formed upper and lower bars, the cross-bars H^3 the ends of which are bent upon themselves to form heads that are arranged to fit closely between the said upper and lower bars of the opposite links, means for uniting the said links and cross-bars, and flights carried by the said cross-bars, substantially as set forth.

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

ALFRED J. WEBSTER.

Witnesses:
A. D. SHAW,
F. E. COLTON.