No. 842,439. PATENTED JAN. 29, 1907.

W. R. WILSON.

COAL MINE TIPPLE AND SCREEN PLANT.

APPLICATION FILED JUNE 23, 1905.

2 SHEETS—SHEET 1.

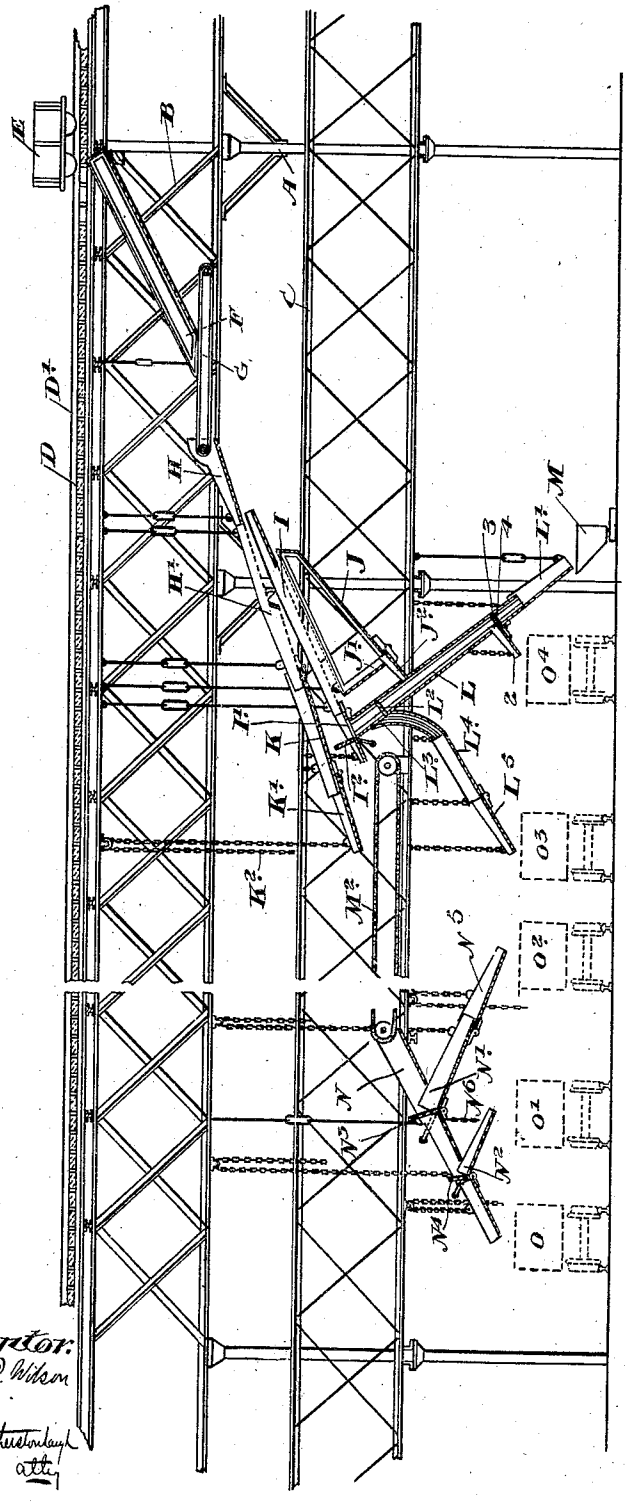


Fig. 1.

Witnesses.
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THE NORRIS PETERS CO., WASHINGTON, D. C.

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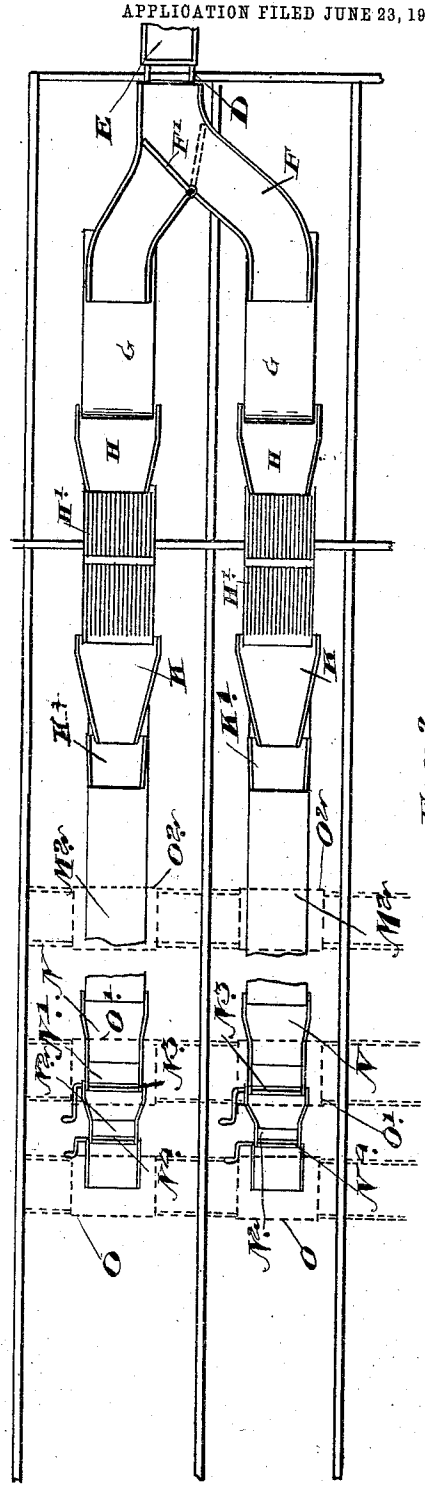


Fig 2.

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UNITED STATES PATENT OFFICE.

WILLIAM RITSON WILSON, OF TORONTO, ONTARIO, CANADA.

COAL-MINE TIPPLE AND SCREEN PLANT.

No. 842,439. Specification of Letters Patent. Patented Jan. 29, 1907.

Application filed June 23, 1905. Serial No. 266,691.

To all whom it may concern:

Be it known that I, WILLIAM RITSON WILSON, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Coal-Mine Tipple and Screen Plants, of which the following is the specification.

My invention relates to improvements in coal-mine tipple and screen plants; and the object of the invention is to devise a plant of this class particularly adaptable for the preparing of bituminous coal for the general market and for coke-making by which the coal may be screened and graded and deposited in the cars expeditiously and with a minimum amount of labor; and it consists, essentially, of a suitable trestle-work and arrangement of chutes, endless belts, and screens operatively connected and supported in the trestle-work, as hereinafter more particularly explained.

Figure 1 is a sectional elevation showing my improved plant, the trestle-work being intermediately broken away. Fig. 2 is a plan view comprising portion of the width of the plant.

In the drawings like letters of reference indicate corresponding parts in each figure.

A are the supporting-pillars of the trestle-work, and B the upper trestle, and C the lower trestles, suitably supported on the pillars.

D are the sleepers of the upper track, and D′ the rails.

E is the dump-car.

F is a primary chute.

G is an endless belt the rollers of which are supported in suitable bearings on the trestles. The endless belt G extends outwardly beyond the end of the chute F into a chute H, which terminates in a step-screen H′.

Beneath the screen H′ is located the screen I, underneath which is located the chute J, terminating in a spout J′, having a gate J^2 at the bottom. The screen H′ is of a coarser mesh than the screen I, the screen H being designed to prevent lump-coal from passing through and the screen I being designed to prevent nut-coal passing through. It will thus be seen that the screen H forms a conveyer for the lump-coal and the screen I for the nut-coal and the chute J for the slack. The chute and screens hereinbefore referred to are supported by suitable hangers, which it is not necessary here to describe.

K is an extension-chute suitably supported and arranged substantially on a line with the screen H′, and K′ is an extension-chute pivotally connected to the end of the chute K, the outer end of the chute K′ being adjustably supported by a chain K^2, connected to the end of the chute and extending over a suitable pulley.

The solid end of the screen I is provided with an opening I′, having a suitable gate I^2 hinged at the lower side thereof.

L is a chute leading downwardly from the opening I′ and provided with an extension L′, which leads into a crusher M, having a belt M′ located underneath the same and passing off at right angles. The chute L extends substantially at right angles to the screen I and is provided with a gate L^2 and an opening L^3 above the gate, through which opening extends a supplemental chute L^4, provided with a hinged end L^5. The ends of the chute L and the supplemental chute L^4 are suitably supported.

M^2 is an endless belt leading from a point below the chute K′ and screen I to the chute N. The chute N is provided with openings N′ and N^2, which are normally closed by the gates N^3 and N^4. The chute N is suitably supported and has the supplemental chutes N^5 and N^6 leading from the openings N′ and N^2, respectively. The ends of the chutes are provided with hinged extensions, as indicated.

O is a car designed to be located underneath the end of the chute N.

O′ is a car designed to be located underneath the supplemental chute N^6.

O^2 is a car designed to be located underneath the supplemental chute N^5, and O^3 is a car underneath the chute L^4, and O^4 is a car underneath the supplemental chute 2, extending from a lower opening 3 in the chute L.

The cars are located on tracks extending crosswise underneath the trestles and are designed to be utilized as I shall presently explain.

4 is a gate designed to close the opening 3 when it is desired to discharge all the slack into the crusher M, and which is thrown back when it is desired to discharge the slack into the car O^4, as will hereinafter appear. The gate 4 is shown closed.

The coal from the dump-car is deposited onto the chute F, and thence it is carried by the endless apron G to the chute H. The apron G is suitably driven and serves to distribute the coal evenly onto the chute H. The coal is separated by the screens H′ and I, the

lump-coal passing down over the chutes K and K′ onto the endless apron M^2. The nut-coal or small coal passes down the screen I. When the gate J^3 is opened, the slack coal or siftings from the nut-coal will pass down on the upper side of the chute L into the crusher M. I have shown in the drawings the gate I^2 of the screen I open, so that the nut-coal will pass downwardly through the openings I′ and L^3 down the chute L^4 into the car O^3. Should more slack coal be required for coking than what is deposited into the crusher M, the gate may be thrown so as to close the opening L^3, whereupon the nut-coal will pass down the chute L into the crusher. It will now be seen that the nut-coal will be deposited in the car O^4; but should it be desired to mix the lump and nut coal the gate I^2 would be thrown back so as to cover the opening I′, when both the nut-coal and lump-coal will be deposited on the belt or apron M^2. The coal is carried by the belt M^2 to the chute, which, if both gates are down, as shown in full lines in the drawings, the coal will be precipitated into the car O. Should the car O become full, the gate N^4 may be thrown up and the coal then passed into the car O′ by the supplemental chute N^6. Upon the car O′ being filled the gate N^3 may be thrown up, and the coal will then be precipitated into the car O^2. By such a chute N as described I am enabled to very quickly discharge all the coal into one car to the other without loss of time, which would be the case if only one car and a single chute were provided.

In Fig. 2 it will be noted that the chute F is Y-shaped in form and is provided with a gate F′, whereby the coal from the dump-car may be directed either into one or two sets of chutes and screens, which are longitudinally arranged, as shown in this figure and in Fig. 1.

By such an arrangement of screens and chutes as I have described it will be understood by those familiar with the manipulation of coal the advantages accruing both in time and labor from the use of my invention.

What I claim as my invention is—

1. The combination with the main chute designed to receive the coal from the dump-car, of two endless aprons suitably driven and located one beneath the aforesaid chute and the other below and ahead of it as to the direction of the course of the coal, a supplemental chute located at the discharge end of the upper apron and screens located one above the other at the discharge end of the supplemental chute, a chute extending from the lower end of the upper screen down to the lower apron, said chute and screen carrying the lump-coal, and a lower screen designed to carry the nut-coal and provided with a plurality of chutes beneath the same, whereby divergent directions are given to the coal passing through such screens as specified.

2. The combination with the main chute designed to receive the coal from the dump-car, of two endless aprons suitably driven and located one beneath the aforesaid chute and the other below and ahead of it as to the direction of the course of the coal, a supplemental chute located at the discharge end of the upper apron and screens located one above the other at the discharge end of the supplemental chute, a chute extending from the lower end of the upper screen to the lower apron, said chute and screen carrying the lump-coal, and a lower screen designed to carry the nut-coal and provided with a plurality of chutes beneath the same, whereby divergent directions are given to the coal passing through such screens and a chute located at the discharge end of the lower apron.

WILLIAM RITSON WILSON.

Witnesses:
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G. R. BROWN.