

(No Model.)

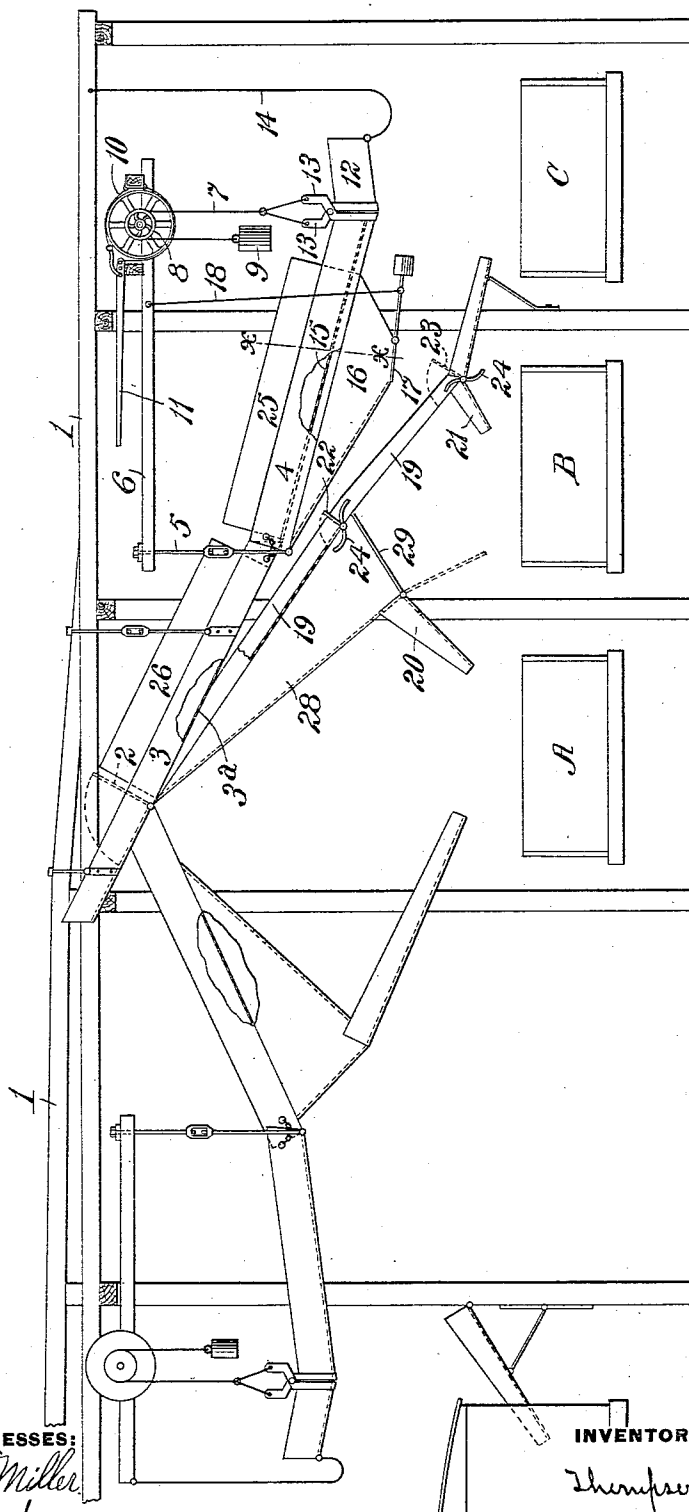
2 Sheets—Sheet 1

T. B. DE ARMIT.
COAL TIPPLE.

No. 555,365.

Patented Feb. 25, 1896.

FIG. 1.



WITNESSES:

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INVENTOR,

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FIG. 2.

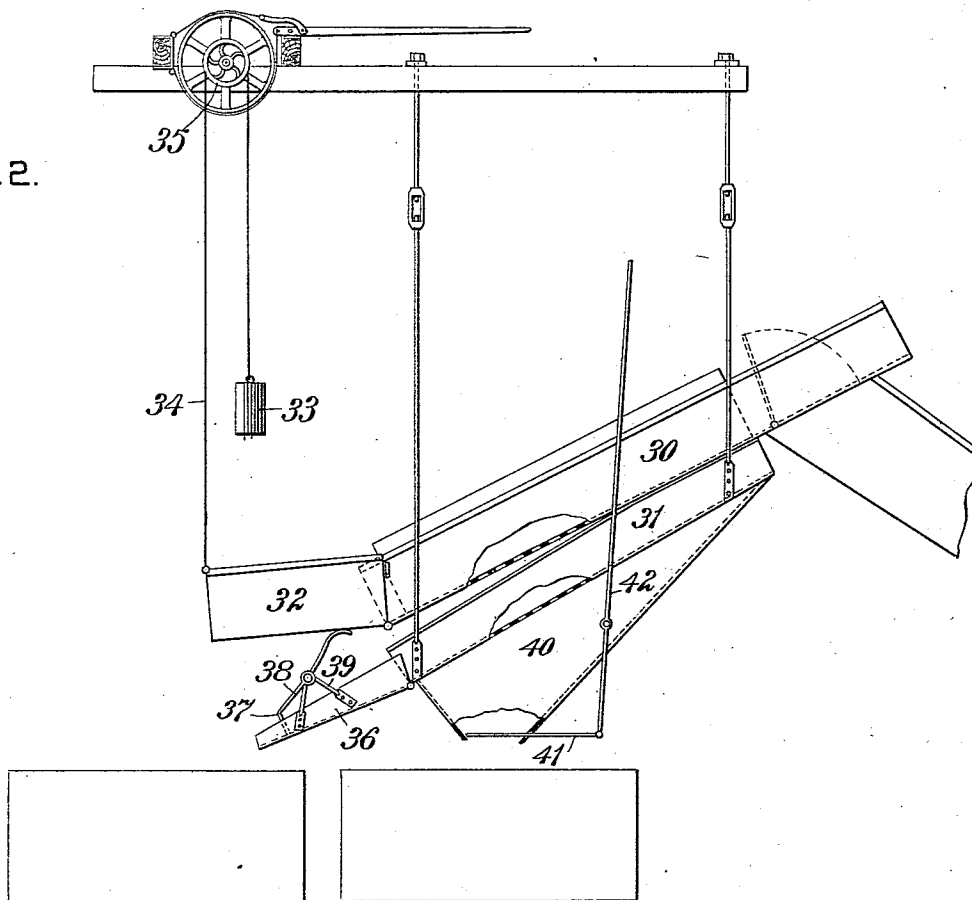
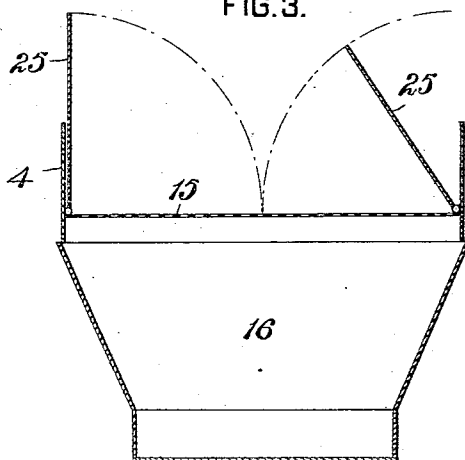


FIG. 3.



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UNITED STATES PATENT OFFICE.

THOMPSON B. DE ARMIT, OF TURTLE CREEK, PENNSYLVANIA.

COAL-TIPPLE.

SPECIFICATION forming part of Letters Patent No. 555,365, dated February 25, 1896.

Application filed November 22, 1895. Serial No. 569,783. (No model.)

To all whom it may concern:

Be it known that I, THOMPSON B. DE ARMIT, a citizen of the United States, residing at Turtle Creek, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Coal-Tipples, of which improvements the following is a specification.

The invention described herein relates to certain improvements in coal-tipples, and has for its object a construction and arrangement whereby a screening of the coal in addition to that usually effected and the weight of coal as screened in accordance with such custom may be easily and quickly obtained.

It is now customary to base the pay of the miner upon the weight of the coal after it has been passed over an inch-and-a-half screen, the miner receiving no pay for the coal passing through such screen. For some purposes it is desired to effect a further cleaning or screening of the coal, and when this is done it is customary to pass the coal over a screen having the desired mesh and then to average the loss of weight. This method is very objectionable as being a constant source of difference between the miner and the operator. By my improvement the double screening and the ascertainment of the weight of the inch-and-a-half screened coal can be effected quickly and accurately.

In general terms the invention consists in the construction and combination substantially as hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a coal-tipple having my improvement applied thereto. Fig. 2 is a similar view illustrating a modification in the arrangement of the screen and chutes; and Fig. 3 is a transverse section of the combined screen and weigh-basket, the plane of section being indicated by the line *x x*, Fig. 1.

In the practice of my invention the tipple is constructed in the usual manner, consisting of a platform 1, supported by a suitable framework a considerable distance above the railroad-tracks for the reception of the cars to be loaded. In the platform is formed an opening through which the coal in the mine-cars is dumped. Immediately below this opening is arranged a movable "dead-plate"

2, as described and shown in Letters Patent No. 424,098, granted to me March 25, 1890, for directing the coal into different chutes in accordance with its quality. One of the chutes is formed by the trough or open-ended box 3, whose bottom is formed by an inch-and-a-half screen 3^a and by the weigh-basket 4, which is suspended at one end by the rod 5 from the scale-frame 6. The opposite end of the weigh-basket is supported by a rope 7, which passes over a drum 8 and has its opposite end attached to a weight 9, whereby the basket is raised to normal position when empty, as hereinafter described. The drum 8 is mounted on the scale-frame 6, and its rotation is controlled by any suitable form or construction of brake mechanism—as, for example, by a flexible band 10, surrounding the drum and adapted to be drawn against the drum by a lever 11, mounted on the scale-frame.

While any suitable or well-known means may be employed for retaining the coal in the basket until its weight has been ascertained, it is preferred to use the construction shown for that purpose. This construction consists of short trough 12, of approximately the same shape and cross-sectional dimensions as the basket, having its outer end closed. The inner end of this trough and the outer end of the basket are attached to arms 13, which have their free ends connected to the supporting-rope 7. The arms are so pivoted together that when the basket and trough are supported by the rope their adjacent ends will be held together, as shown in Fig. 1. To the outer end of the trough is attached one end of a rope 14, having its opposite end secured to a stationary part of the tipple. This rope is of such length as to permit of a short downward movement of the trough and outer end of the basket before any part of the weight of the former will be transferred to the rope 14. As soon as the downward movement of the outer end of the trough is checked by the rope 14, the continued movement of the adjacent ends of the basket and trough will cause the latter to move away from the basket, thereby permitting the coal to run out. As soon as the coal is discharged the weight 9 will lift the basket and trough to normal position.

The bottom of the weigh-basket is made in

form of a screen 15, having a mesh of any desired dimension greater than that of the screen 3^a, as shown in Fig. 3. A hopper 16 is secured to the weigh-basket 4 in such position as to catch all coal that may pass through the screen 15. The discharge-opening of this hopper is normally closed by a weighted door 17, so as to retain the screenings therein until the weight of all the coal which has passed over the screen 3^a can be ascertained. As it is desirable to obtain the weight of coal passing over screen 15, suitable means are employed for opening the door 17, so as to discharge the screenings from the hopper before the weigh-basket is discharged. A convenient means for effecting this preliminary discharge of the hopper consists in connecting the door 17 to the scale-frame by a rope 18, of such length as to shift the door on the first downward movement of the weigh-basket or before the trough 12 is moved by the rope 14.

A chute 19 for catching the coal passing through the screen 3^a and hopper 16 is arranged below the same and is provided with spouts 20 and 21 at suitable intervals to discharge the coal into different cars. In order to direct the coal into the different spouts, the chute is provided with doors 22 and 23, which, when turned down, will close openings in the bottom of the chute in line with the spouts, and when turned up will prevent the passage of coal along the chute beyond the spout into which it is desired to direct the coal. The doors 22 and 23 are provided with operating-handles 24.

In order to render the weigh-basket capable of use when it is not desired to subject the coal to a second screening, plates 25 are so pivoted within the weigh-basket as to be capable of being turned down and completely cover the screen 15, as shown in Fig. 3, thereby adapting the basket for weighing only.

At times it is desirable to load cars at the end of the weigh-basket with run-of-mine coal—i. e., coal which has not been screened. To this end the screen 3^a is also provided with covering-plates 26 mounted in the same manner as the plates 25.

In order to separate the slack and nut coal which pass through the screens 3^a from each other, the bottom of the portion of the chute 19 under the screen 3^a is made in the form of a screen having a three-quarter-inch mesh, and a supplemental chute 28, connecting at its lower end with the spout 20, is arranged under this three-quarter-inch screen.

It will be readily understood by those skilled in the art that by my improvement the separation and distribution of the coal can be effected in a variety of ways. When both covering-plates 25 and 26 are raised, the slack and nut coal will be separated by screen 3^a and the egg-coal by screen 15. The slack and nut coal will drop onto the three-quarter-inch screen in chute 19, the slack passing through said screen into the auxiliary chute and

thence by spout 20 to the slack-car A. If the door 22 be lowered and the door 23 raised, the nut-coal will pass along chute 19 through spout 21 into car B. If the weigh-basket and its hopper be discharged while the door 23 is raised, the contents of the weigh-basket will pass into car C and the contents of the hopper into car B. If the ordinary separation of coal is desired, the covering-plates 25 are shut down, so that coal passing over screen 3^a will run into the basket, from whence it will be dumped into car C. The slack and nut coal will pass through screen 3^a, be separated by the three-quarter-inch screen and distributed, as described, provided the door 22 be lowered and the door 23 raised.

When it is desired to discharge the slack and nut coal into car A, the door 22 is raised, so that the nut-coal will pass down through the spout 20, and mingling with the slack from which it had been separated by the three-quarter-inch screen, drop into car A. When it is desired to pay the miner according to the inch-and-a-half screening of coal, to effect the two-and-a-half screening of the coal and at the same time discharge the slack, nut and egg coal into one car, the covering-plates 25 and 26 are raised, the door 22 is lowered, and the plate 29, forming the lower wall of the supplemental chute 28, is lowered to the position shown in dotted lines. This plate 29 is so pivoted that when dropped it will form a continuation of the inclined bottom of the supplemental chute 28, the short portion 29^a below the pivot closing the spout 20. When the several parts are adjusted as described, all coal passing through the screens will pass into car B, while such as passes over screens 3^a and 15 will be discharged into car C.

It will be observed that for effecting the foregoing separation and distribution it is not necessary to lower the door 22, as whatever coal passes through the opening in chute 19, controlled by said door, will drop into the supplemental chute and thence into car B.

When it is desired to pay the miner in accordance with the inch-and-a-half screening of coal, but to sell it as run-of-mine coal, the slack only being removed, the covering-plates 25 are closed down and the doors 22 and 23 are lowered, so that the nut-coal will pass down chute 19 into car C, into which the weigh-basket is also dumped. The slack can be directed into cars A or B by raising or lowering the pivoted plate 29.

In some cases it is impracticable to build the tipple of such a height as to permit of the arrangement of the weigh-basket at the end of the inch-and-a-half screen. To provide for such contingency the screens 30 and 31 are arranged one above the other, as shown in Fig. 2, and both are suspended from the scale-frame. The screen 30 is provided at its lower end with a trough 32, which is pivotally connected to the screen and has its outer end normally held in such position as to prevent an escape of the coal by a weight 33 attached to

one end of a rope 34, passing over a wheel 35 and connected at its opposite end to the trough. A spout 36 is attached to the lower end of the screen 31, and coal is prevented from escaping therefrom by a plate 37 arranged transversely of the spout and connected to an arm 38, which is pivotally mounted on brackets 39 secured to the sides of the spout. The free end of the arm 38 is arranged so as to be depressed, and thereby raise the plate by the trough 32 when lowered to discharge the coal. A hopper 40, provided with a door or slide 41 adapted to be operated in any suitable manner, as by the lever 42, is secured to the under side of the screen 31.

While for purposes of description certain sizes of screens have been particularly specified, any suitable sizes of screens may be employed.

I claim herein as my invention—

1. A coal-tipple having in combination two screens of different mesh, a weigh-basket arranged to receive the coal passing over the screen having the smaller mesh, and a hopper connected to and arranged below the weigh-basket and adapted to receive the coal passing through the screen having the larger mesh, substantially as set forth.

2. In a coal-tipple, the combination of a screen, a weigh-basket having its bottom formed by a screen and a hopper for receiving the coal passing through the weigh-basket screen and attached to the screen, substantially as set forth.

3. In a coal-tipple, the combination of a movable weigh-basket having its bottom formed by a screen, means for discharging the coal from the basket operative on a downward movement of the basket, a movable weigh-hopper arranged to receive the coal passing through the weigh-basket screen, and means for discharging the coal from the hopper during the downward movement of the

same, and operative prior to the discharge of coal from the weigh-basket, substantially as set forth.

4. In a coal-tipple, the combination of a screen, a weigh-basket having its bottom formed by a screen, a hopper for receiving the coal passing through the weigh-basket screen, a chute extending under the first screen and the hopper, the portion of the chute under the first screen, being provided with a screen of smaller mesh, spouts arranged at different points along the chute, and doors for controlling the passage of coal along the chute and spouts, substantially as set forth.

5. In a coal-tipple, the combination of a screen, a weigh-basket having its bottom formed by a screen, a hopper for receiving the coal passing through the weigh-basket screen, a chute extending along under the first screen and the hopper, the portion of the chute under the first screen being provided with a screen of smaller mesh, spouts arranged at different points along the chute, doors for controlling the passage of coal along the chute and spouts, a supplemental chute arranged under the screen in the first chute and connected to the first spout, and a pivoted plate forming the end wall of the supplemental chute, and adapted to be turned down to form a prolongation thereof, and to close the mouth of the spout, substantially as set forth.

6. In a coal-tipple the combination of scales, a weigh-basket having its bottom formed by a screen, and supported by the scales and a hopper arranged to receive the coal passing through the weigh-basket screen and supported by the scales, substantially as set forth.

In testimony whereof I have hereunto set my hand.

THOMPSON B. DE ARMIT.

Witnesses:

DARWIN S. WOLCOTT,
F. E. GAITHER.