No. 718,742. PATENTED JAN. 20, 1903.

C. W. UMHOLTZ.

COKE OVEN LORRY.

APPLICATION FILED JUNE 16, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

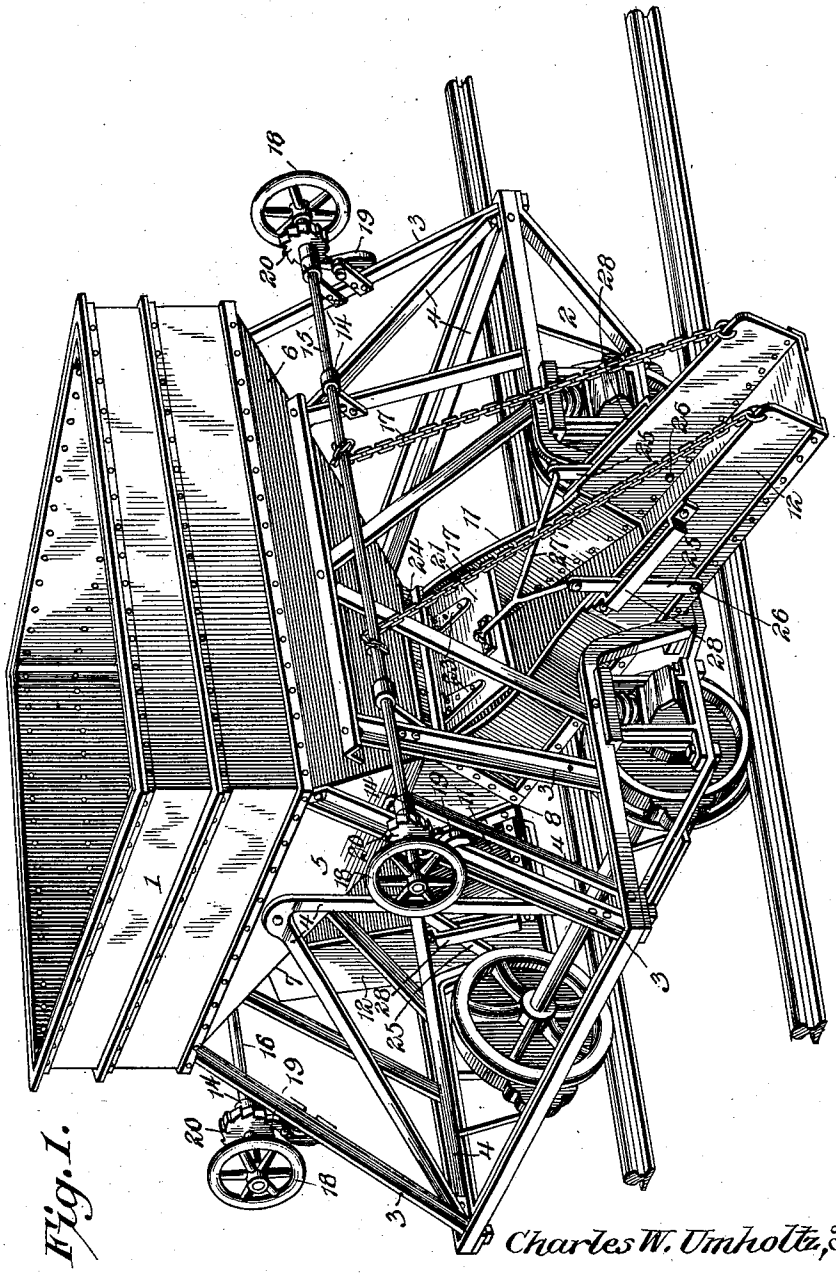


Fig. 1.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

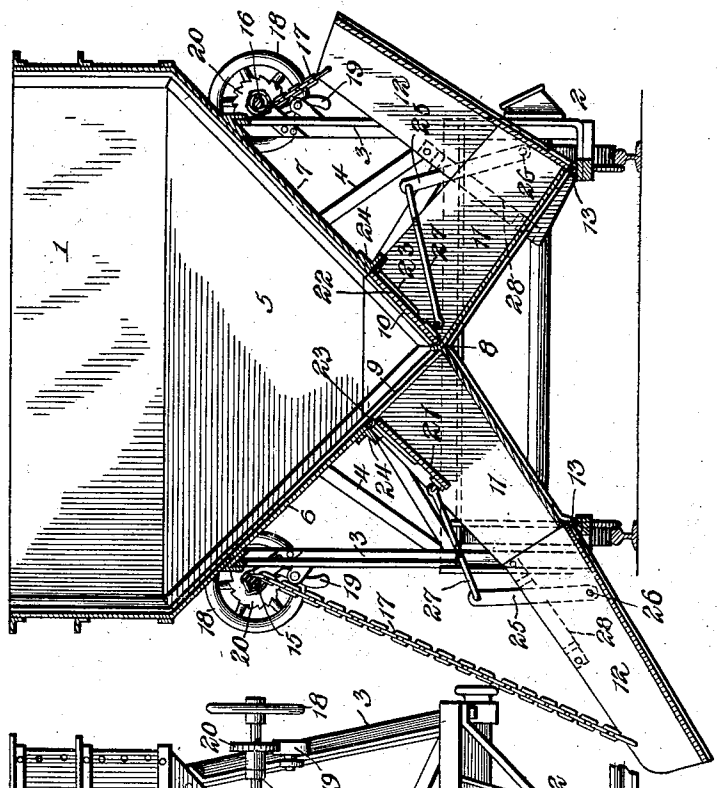
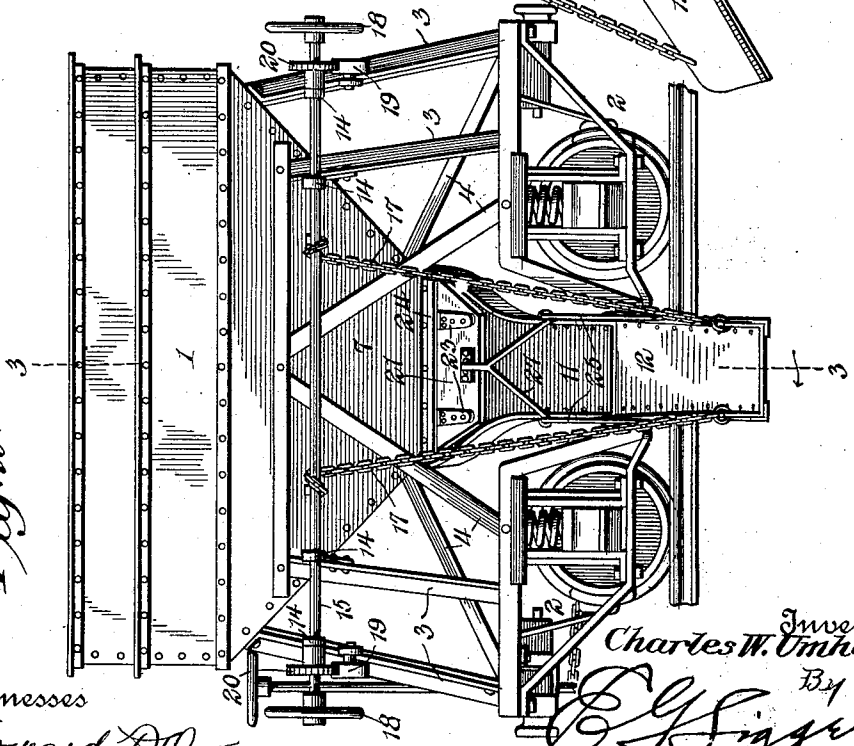


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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COKE-OVEN LORRY.

SPECIFICATION forming part of Letters Patent No. 718,742, dated January 20, 1903.

Application filed June 16, 1902. Serial No. 111,909. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. UMHOLTZ, a citizen of the United States, residing at Bristol, in the county of Washington and State of Virginia, have invented a new and useful Coke-Oven Lorry, of which the following is a specification.

This invention relates to a novel coke-oven lorry designed for the transportation of slack from the mine-tipple to the coke-oven. Dumping-cars of this particular type comprise a wheeled truck, upon which is supported an elevated car-body having a hopper-bottom, from which extend one or more chutes, through which the slack or fine coal is discharged into a coke oven or ovens. These discharge-chutes are each composed of a fixed inner or upper section and an outer or lower movable section usually hinged to the outer end of the fixed chute-section and constituting a continuation thereof during the discharge of the slack. During the loading of the lorry and the travel thereof from the tipple to the oven the outer chute-section is held in a raised position, so that it obstructs the outer end of the fixed chute-section to prevent the escape of slack until the lorry arrives at the oven, at which time the outer movable chute-section is lowered to permit the free passage of the slack to the oven.

While lorries distinguished by the described construction are the present standards of excellence, they possess certain objectionable features, to the elimination of which my attention has been directed. The principal objection is that the slack filling the inner or rigid section of the chute wastes during the transportation of the load, both over the sides of the chute and between the connection with the outer chute-section, unless the latter is tightly fitted, and this in practice is impossible, particularly if the lorry has been in use for any length of time. The result is that a considerable quantity of slack will be distributed along the track and lost during the passage of the lorry from the tipple to the oven. Another objectionable feature is that when a double lorry or one having chutes at opposite sides thereof is unloaded from one side only the slack retained in the chute at the opposite side will be wasted as the lorry is moved back to the tipple for another load. The final objectionable characteristic is the necessity for scraping the slack out of the chutes, in consequence of the insufficient pitch of the latter, a greater pitch being impossible in the present construction, for the reason that the slack would run over the sides of the chute and be lost. Having in mind these objections to the most efficient type of lorry known to the art, the objects of my invention are to prevent the escape of the slack from the hopper of the lorry during the loading thereof and also during transportation of the load to the oven, to effect the automatic delivery of the slack to the chute or chutes from the hopper upon the lowering of the outer chute-section, and to control the escape of slack from the hopper in a manner to permit a greater pitch of the chutes without danger of wasting the slack, thereby permitting the discharge of the entire load without necessity for scraping out the chutes in the usual manner.

To the accomplishment of these objects and others subordinate thereto the preferred embodiment of the invention comprehends the construction and arrangement of parts to be hereinafter fully described, illustrated in the accompanying drawings, and succinctly defined in the appended claims.

In said drawings, Figure 1 is a perspective view of a lorry constructed in accordance with my invention, the chute at one side thereof being closed and the opposite chute being open to permit the escape of the slack to the oven. Fig. 2 is a side elevation of the lorry complete; and Fig. 3 is a transverse sectional view on the line 3 3 of Fig. 2, one chute being closed and the other open, as shown in Fig. 1.

Like numerals of reference are employed to designate corresponding parts throughout the views.

The body 1 of the lorry is constructed of metal and is carried by a wheeled truck 2, above which it is supported in an elevated position by suitable angle-iron uprights 3 and bar-iron cross-braces 4. The specific construction of the body 1 and truck 2, as well as the particular arrangement of the supports and braces 3 and 4, may be varied within wide limits, inasmuch as my present invention is applicable to lorries or other analogous

vehicles, whatever may be their design or general structural arrangement.

The body 1 of the lorry is formed with a hopper-bottom 5, the opposite side walls 6 and 7 of which converge at 8 and are provided with discharge-openings 9 and 10. Slack escaping from the hopper 5 through the openings 9 and 10 is conveyed through oppositely-disposed inclined chutes, each of which comprises a fixed chute-section 11, terminating adjacent to one side of the truck, (see Fig. 3,) and a movable chute-section 12, designed in one position to constitute a continuation of the fixed chute-section 11 and hinged to the latter, as indicated at 13. During the loading of the lorry and its movement from the tipple to the coke-oven the hinged sections 12 of the chutes are designed to occupy elevated positions, as indicated at the right-hand side of Fig. 3, and in order to effect the raising and lowering of these hinged sections suitable operating mechanism is provided at opposite sides of the lorry. This chute-operating mechanism, considered specifically, constitutes no part of my present invention, and its form therefore may be greatly varied according to the desires of the individual manufacturer. By preference, however, I mount in suitable bearings 14 at opposite sides of the hopper 5 a pair of winding-shafts 15 and 16, upon each of which are wound a pair of chains 17, having their lower ends connected to the opposite sides of a movable chute-section adjacent to the outer end thereof. The rotation of the shafts is or may be effected by means of hand-wheels 18, keyed thereon, and they are retained against reverse movement by pivoted dogs 19, engaging ratchet-wheels 20, carried by the shafts. It will be readily understood by those skilled in the art that when the lorry is to be loaded the outer chute-section will be swung up to the position shown at the right of Fig. 3 by rotating the shafts 15 and 16 through the medium of the hand-wheels 18 and that upon the arrival of the loaded lorry at the coke oven or ovens one or both of the swinging chute-sections, as the case may be, will be permitted to drop down to the position shown at the left of Fig. 3 by releasing the dog or dogs 19 from one or both of the ratchet-wheels 20.

It has heretofore been stated that the outer chute-sections are designed ordinarily to prevent the escape of the slack from the lorry during the loading and transportation thereof. It has also been pointed out that a considerable amount of slack is wasted from the fixed chute-section as the lorry is traveling from the tipple to the oven. My invention therefore contemplates the provision of automatically-operated valves or doors 21 and 22 for controlling the escape of the slack from the hopper 5. These doors are hinged by means of stout strap-hinges 23 to angle-iron braces 24, extending across the upper edges of the openings 9 and 10. The doors are of sufficient size to completely close the discharge-openings of the hopper 5 and are operatively connected to the movable chute-sections 12 in a manner to compel the automatic opening of the doors whenever the sections are swung down to constitute continuations of the fixed chute-sections and to compel the closing of said doors when the sections 12 are elevated. Since my invention in its broad aspect contemplates the automatic actuation of these doors or valves without regard to the character of the operating mechanism, any desired form of connection between the doors and the chutes, or, in fact, between the doors and the chute-operating mechanism, might be substituted for the character of connection shown herein. By preference, however, I provide at opposite sides of each movable chute-section a pair of door-operating levers 25, fulcrumed at their lower ends, as indicated at 26, and having their upper ends connected, by means of a forked connecting-rod 27, with the adjacent door of the hopper. These levers are designed to have more or less independent movement in order to accommodate the movement of the chute-section; but such independent movement is limited by elongated keepers 28, carried by the section 12, as best shown in Fig. 1. When the chute-section is elevated, as at the right of Fig. 3, the operating-levers 25 will move to the outer ends of the keepers and then moving bodily with the chute will compel the connected door of the hopper to close, in which position said door will be retained until the chute-section is again dropped. Upon the dropping of the chute-section to permit the discharge of the slack to the coke-oven the levers 25 will seek the inner ends of the keepers 28 and will then move bodily with the chute-section to swing the connected door to its open position, as shown at the left of Fig. 3, and as the position of the door when open will be determined by the length of its connecting-rod 27 it is possible to so regulate the discharge of the slack that any desired pitch of the chute or chutes may be secured without danger of the overrunning of its side walls in the manner heretofore described. It will also be observed that since the doors will prevent the escape of the slack from the hopper to the fixed sections of the discharge-chutes during the loading of the car and its passage from the tipple to the oven all waste of slack will be prevented during such loading and transportation.

It is thought that from the foregoing the construction and operation of my improved coke-oven lorry will be readily understood; but while the illustrated embodiment of the invention is believed at this time to be preferable I wish to be distinctly understood as reserving to myself the right to effect such changes, modifications, and variations of the illustrated structure as may be properly embraced within the scope of the protection prayed.

What I claim is—

1. In a lorry, the combination with a body having a discharge-opening and a movable chute-section, of a door controlling the escape of slack from the body, and means for automatically operating the door when the chute-section is moved.

2. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute extending from the hopper and comprising a movable section, a door controlling the discharge of slack from the hopper, and means for operatively connecting the door with the movable chute-section.

3. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute extending from the hopper and comprising fixed and movable sections, a door controlling the escape of slack through the discharge-opening and operatively connected to the movable chute-section, and means for moving said section.

4. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute extending from said hopper and comprising a vertically-movable section, means for raising and lowering said section, a door controlling the escape of slack through the discharge-opening, and means for automatically opening the door when the movable chute-section is lowered.

5. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute extending from said hopper and comprising a swinging chute-section, means for swinging said section to its operative and inoperative positions, a door controlling the discharge of the slack through the discharge-opening, and means for automatically opening and closing the door when the swinging chute-section is swung to its operative and inoperative positions.

6. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute extending from the hopper and comprising a swinging section, and a swinging door controlling the escape of the slack through the discharge-opening and operatively connected to the swinging chute-section for actuation thereby.

7. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute extending from the hopper and comprising a fixed section and a vertically-swinging section, a swinging door controlling the escape of slack through the discharge-opening, means operatively connecting the door with the swinging chute-section, and means located above the chute for raising and lowering the swinging section thereof.

8. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute extending from the hopper and comprising a fixed section and a vertically-swinging section, a swinging door controlling the discharge of slack through the discharge-opening and connected to the swinging chute-section for actuation thereby, a winding-shaft located above the chute, and a flexible piece connected to the swinging chute-section and to the shaft to be wound upon the latter.

9. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a movable chute-section, a door controlling the escape of slack through the discharge-opening, a door-operating lever having operative connection with the door, and means for moving the lever to automatically operate the door when the chute-section is moved.

10. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a movable chute-section, a door controlling the discharge of slack through the discharge-opening, and a door-operating lever operatively connected to the door and disposed for actuation by the movable chute-section.

11. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute comprising a fixed section and a swinging section, a door controlling the discharge of slack through the opening, a door-operating lever carried by the swinging chute-section, and a rod connecting the lever to the door.

12. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute extending from the hopper and comprising a fixed section and a swinging section, a swinging door controlling the discharge of slack through the opening, door-operating levers mounted upon the swinging chute-section at opposite sides thereof, keepers limiting the movement of said levers, and a forked connecting-rod connecting the door-operating levers with the door.

13. In a lorry, the combination with a body having a hopper-bottom provided with a discharge-opening, of a chute comprising a fixed section and a movable section hinged thereto, a door hinged at its upper edge and controlling the discharge of slack through the opening, door-operating levers operatively connected to the door and hinged chute-section respectively, a winding-shaft located above the chute, and chains connecting the winding-shaft with the outer end of the hinged chute-section.

14. In a lorry, the combination with a body having a hopper-bottom provided with discharge-openings, of chutes extending in opposite directions from said hopper and comprising movable sections, doors controlling the escape of slack through the discharge-openings, and means for automatically operating said doors when the chute-sections are moved.

15. In a lorry, the combination with a body

having a hopper-bottom provided with discharge-openings, of chutes extending in opposite directions from said hopper, each of said chutes comprising a fixed section and a vertically-swinging section, swinging doors controlling the discharge of slack through the discharge-openings, means for raising and lowering the movable chute-sections, and means for operatively connecting each door to a movable chute-section for actuation thereby.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES W. UMHOLTZ.

Witnesses:

ANDREW MCWHITE,

GUY F. HURT.