(No Model.)

J. G. TOMLINSON.

DUMPING CAR.

No. 420,175. Patented Jan. 28, 1890.

FIG. 1.

FIG. 2.

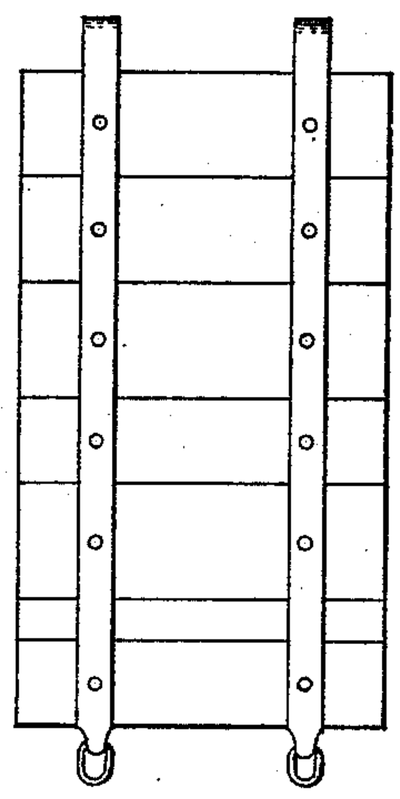


FIG. 3.

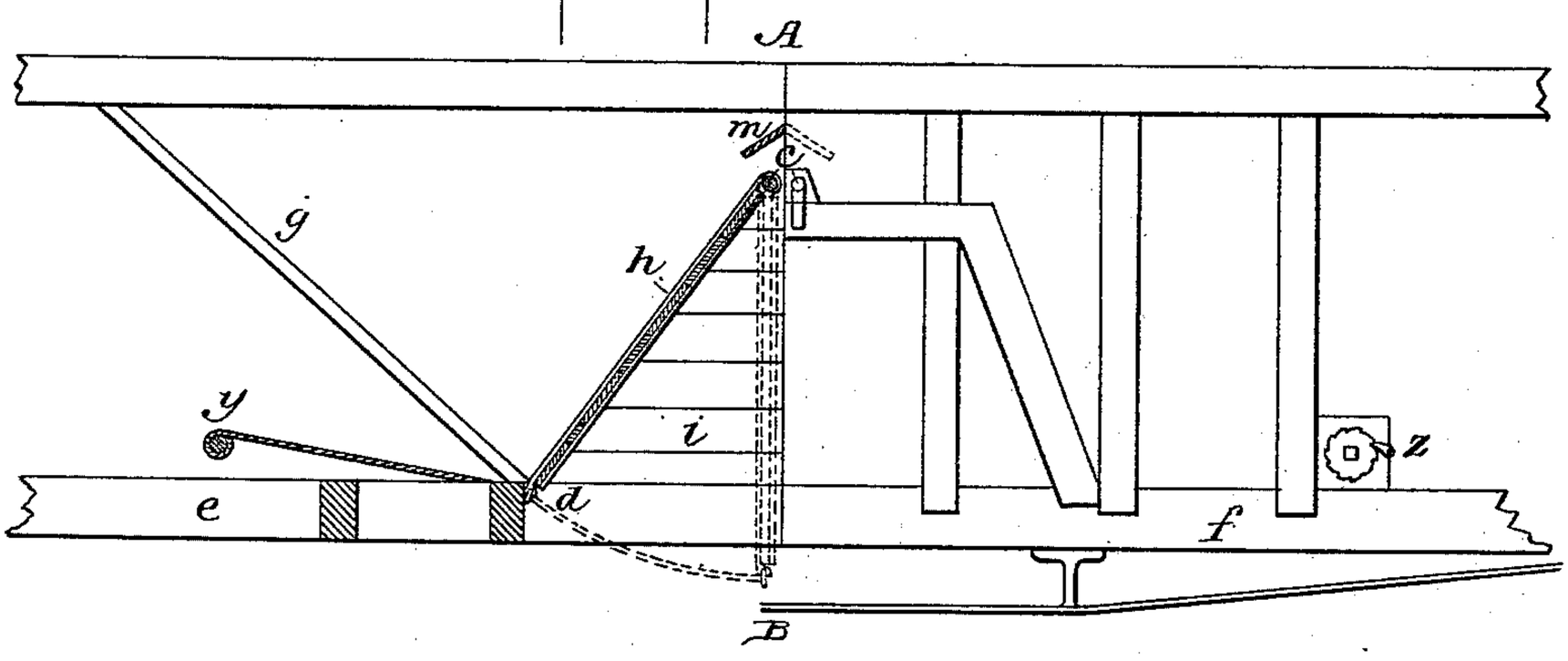
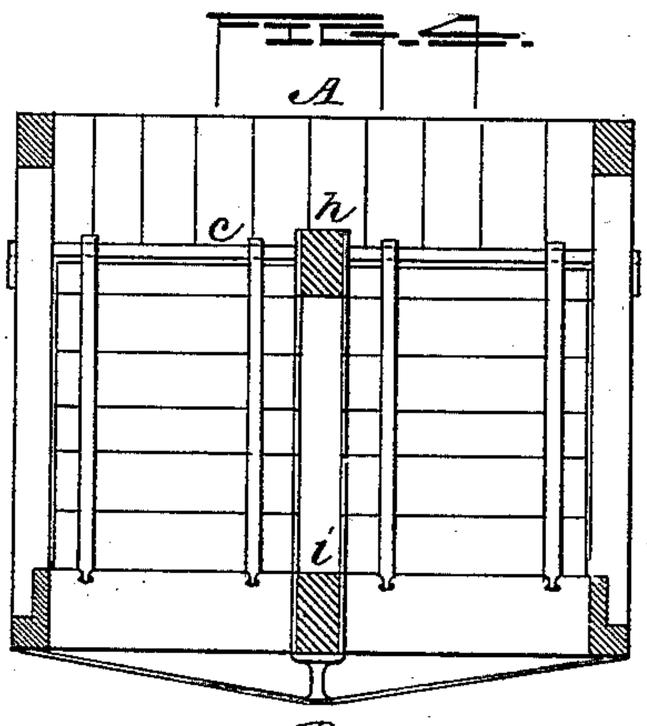


FIG. 4.



WITNESSES

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JAMES G. TOMLINSON, OF BIRMINGHAM, ALABAMA.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 420,175, dated January 28, 1890.

Application filed January 19, 1889. Serial No. 296,947. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. TOMLINSON, a subject of the Queen of Great Britain and Ireland, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented a new and useful Improvement in Cars for Carrying and Dumping Coal, Ore, Coke, Ballast, Stone, and any other Similar Material, of which the following is a specification.

My invention relates to improvements in cars, and especially in railway or tram cars, used and intended to be used in the transportation, carrying, and dumping of coal, ore, coke, ballast, stone, and any other similar material; and the objects of my improvement are to provide doors in a car for such purpose which, by reason of their special position, construction, hanging and fastening, and operation, shall be strong, durable, easy to repair and renew, simple and economical in construction and operation, secure, not subject to breakage itself or in any of its attachments and connections, and in all its parts and connections susceptible of thorough inspection at all times, and shall render the car stronger, cheaper in construction, safer, and less subject to derailment in transit, whether loaded or empty, and easier to unload than any car now in use for a similar purpose. I attain these objects by the means and mechanism illustrated in the accompanying drawings, wherein—

Figure 1 is a vertical section of the door, showing its construction and indicating at the top the method of hanging it and at the bottom of the figure the method of attaching the fastening-chains. Fig. 2 is a front view of the door, also showing its construction and the method of hanging it and attaching the fastening-chains. Fig. 3 (to the left of the vertical line A B therein) is a half longitudinal section indicating the fixed portion of the floor of the car, showing the door both when closed and fastened and (by the dotted lines) when open, showing, also, the rod or shaft on which the door is hung or hinged, the method of hanging the door therefrom, of attaching the fastening or lifting chains, and of closing and opening the door thereby, and also showing the shaft on and around which the fastening or lifting chains are wound. Fig. 3 (to the right of the vertical line A B therein) is a half side view of the car, showing the means of supporting and bracing at its ends the hanging rod and the method of turning and securing the lifting-shaft. Fig. 4 is a transverse section of the car, showing the door in position, its division down the center, the central division running longitudinally between the gate-sills in the center of the car, extending upward and forming the same angle as may be formed by the doors when closed, and forming a support to the center of the hanging rod, showing the hanging rod, its supports and attachments, and the method of hanging the door and of attaching the fastening or lifting chains.

Similar letters refer to similar parts throughout the several views.

The fixed portions of the floor of the car, as in all cars for similar purposes, slope downward from each end of the car toward its center, as indicated at *g* in Fig. 3. Across the center of the car, over the top of its sides, or at any point above the side sills in the vertical center line of the car, pass two rods or shafts side by side, termed the "hanging" rods. These rods are supported at each end by strong bracing on the side of the car, and both are supported at their center by the bracing used also to divide the doors. Both ends of each rod are turned over the side of the car, so as to brace each side outwardly and prevent it from spreading. The hanging rods and their supports are shown by *c* in Figs. 3 and 4. The central bracing is shown at *h i* in Figs. 3 and 4. By this method the hanging rods are free from contact with the weight of the load, although in transportation of comparatively-light freight—such as coke—a portion of the load may be placed over the rods. In such case, and also during the loading the car with any sort of freight for which it is intended, the hanging rods can be adequately protected against wear and tear and possible damage, due to the impact of the load, by employing the device shown at *m* in Fig. 3, which device I do not, however, claim as my invention. The hanging rods can be made heavy enough and can be sufficiently supported and braced to sustain any strength and weight requisite. Upon

their height above the sills and the corresponding length of the doors depends the capacity of the car. They may be placed at any point above the sills, even across the top of the sides of the car, and consequently the capacity of the car is limited, practically, only by the height it may be deemed safe or expedient to give the sides of the car, any tendency of the sides to spread being obviated by the turning over of the ends of the hanging rods. By reason of their construction and position the hanging rods do not interfere with nor weaken the frame-work proper of the car. They can be readily removed and replaced and inspected. In themselves they increase the stability of the sides of the car.

From each hanging rod depends a door, whose length is such that when closed its lower rim fits squarely against the end of the fixed portion of the floor of the car, and when open and discharging the load it shall swing to a vertical position clear of the track and trucks. Each door is divided on the longitudinal center line of the car, and the two divisions or halves are separated by the same bracing that serves to support at their center the hanging rods. Each half-door is framed of two or three thicknesses of timber laid crosswise, screwed together, and securely bolted to two flat iron straps that run from top to bottom of the door, and are formed at the top to hook over and hinge upon the hanging rod, and are furnished at the lower end with an eye of proper strength to receive the link to which the lifting-chain is attached. The lower edge of the door is protected and its durability increased by a heavy rim of sheet-iron. Each half-door is independent of its fellow, and is operated by its own lifting-chains. The doors are placed wholly inside of and detached from the sides of the car and side or outer sills thereof.

The construction of the door or half-door, the hook or hinge at the upper end of the flat iron straps and the eye and link at the lower end thereof, and the sheet-iron rim on the lower edge of the half-door is shown by Figs. 1 and 2.

The manner of hanging the door is shown at C in Fig. 3, and is further illustrated by Fig. 4. In Fig. 4 are shown a door in position and the central dividing bracing *h i*. The position of the door when closed is shown by C *d* in Fig. 3, and its position when open by the dotted vertical lines in Fig. 3. Fig. 4 shows the door in position and its detachment from the sides and side sills of the car. By this method the construction of the door is simple, strong, and durable. Its attachments to the hanging rod can be made as strong and secure as need be, are free from damaging contact with the load, and always susceptible of inspection. The division of each door gives an increase of strength and durability and permits them to be made heavier and stronger than otherwise practicable, and leaves room for the efficient central bracing of the hanging rods. There are no parts of the door liable to work loose or to fall out by reason of jars in transit. Both lifting-chains on a half-door must break before the load can escape in transit. Should both chains break in transit, the door will swing clear of the track and trucks and free from interference with the load, whereby danger of derailment is reduced to a minimum. For the same reasons the maximum of ease in dumping is possible of attainment.

Every part of the door is easy of access and easy to disconnect for repairs, it being simply required to split the links at the bottom of the half-door, raise the half-door off the hanging rod, and hang a new door, while, should the timber alone need repairing, it is only necessary to unbolt the iron straps, unscrew and remove the worn or broken timber, insert a new piece, and bolt up the door.

The position and construction of the doors independent of the frame-work of the car render it possible to truss both the gate-sills and side sills, and thereby greatly to increase the strength and durability of the car.

At or nearly over the trucks, underneath the fixed portion of the car-floor, at each end of the car, away from the center of and running across the car from side to side, is a heavy rod or shaft, termed a "lifting-shaft." Attached to each lifting-shaft, so as to be wound or unwound around it by turning the same, are the lifting-chains, running back from a door and underneath the body of the car. By turning the lifting-shaft the lifting-chains are either tightened or slackened, and the door thereby opened or closed. The lifting-shaft is turned by a lever applied at one end thereof on the outside of the car. When the car is loaded, the chains are held taut in position and the door kept closed by the ratchet and dog. The lifting-chains run back from the door to the lifting-shaft free from contact with the load, except when dumping, and from interference with the wheels, trucks, or frame-work of the car at all times.

The position of the lifting-shaft is shown at *y* and *z* in Fig. 3.

The position of the lifting-chains when the door is closed is shown by *y d* in Fig. 3, and when open by curved dotted lines in Fig. 3.

The manner of turning the lifting-shaft and of adjusting the chains and of fastening and operating the doors is shown by Z in Fig. 3. By this method the lifting-shafts are placed away from the center of the car, and are consequently always free from contact with the load, are easy of access and open to inspection at all times, can be sufficiently braced at the ends to give the strength needed to resist the strain of the chains, and do not interfere with the frame-work proper of the car.

The complete removal of the lifting-gear from the interior of the car leaves the same free for the reception of the load, reduces the wear and tear of the chains and shaft, by re-

ducing friction gives additional ease in dumping, and leaves the gear free for inspection at all times. The lifting-gear may be of the maximum strength required. The entire lifting-gear is simple in construction, easy and effective in operation, strong, secure, and subject to close and thorough inspection.

The entire mechanism is simple, strong, durable, effective, easily operated, and so placed and operated as to leave the interior of the car wholly free to receive and carry the load. Its independence of the frame-work of the car makes easy the removal, renewal, or repair of any part, and permits special strengthening of the frame-work of the car in any portion where deemed advisable. In particular the position of the doors inside of the side sills permits both the strength and capacity of the car to be greatly increased by trussing both gate-sills and both side sills.

I claim as my invention, in a car for the transportation and carrying and dumping of coal, ore, coke, ballast, stone, and any other similar material—

1. A dumping-car provided with two rods *c*, extending across the car from side to side near the top thereof and on the middle vertical line of the car and turned over on their ends on the outside of the car to strengthen the sides thereof, and a brace supporting said rods at their center, substantially as described.

2. A dumping-car provided with the brace at its middle extending toward the top of the car, the two hanging rods *c*, extending across the car at its middle and supported on the brace at their center, and doors hinged upon the rods and adapted to swing on each side of the brace, substantially as described.

3. The combination, in a dumping-car, of the fixed sloping floors *g*, the brace located along the middle of the car at its center between the ends of the floors, the rods *c*, extending across the car and supported at their center by the brace, and the double doors hinged upon the rods and closing against the lower ends of the floors on each side of the brace, substantially as described.

4. A door for a dumping-car, composed of two thicknesses of planking laid crosswise and secured together and provided with two parallel straps of metal extending lengthwise of the door and projecting beyond it at each end, the upper ends of the straps being formed into open hooks to serve as hinges, and the lower ends being formed into eyes for the attachment of the chains or other operating devices, substantially as set forth.

5. A combination, with a car having the sloping floors *g*, of the transverse lifting-shafts located over the trucks beneath said floors, the hanging rods *c*, extending across the car at its middle and near the top thereof, the brace located between the ends of the floors and supporting said rods, the doors hung upon the rods on each side of the brace and shutting against the ends of the floors, and the chains attached to the lower edges of the doors and passing beneath the floors *g* to the lifting-shafts, substantially as described.

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Witnesses:
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