2 Sheets—Sheet 1.

R. HUDSON.

Freight-Car.

No. 208,393. Patented Sept. 24, 1878.

Fig. 1.

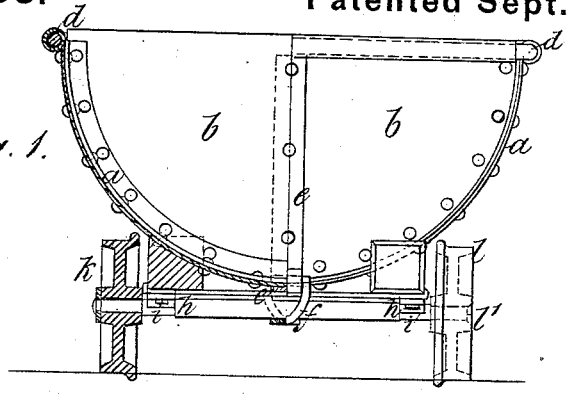


Fig. 2.

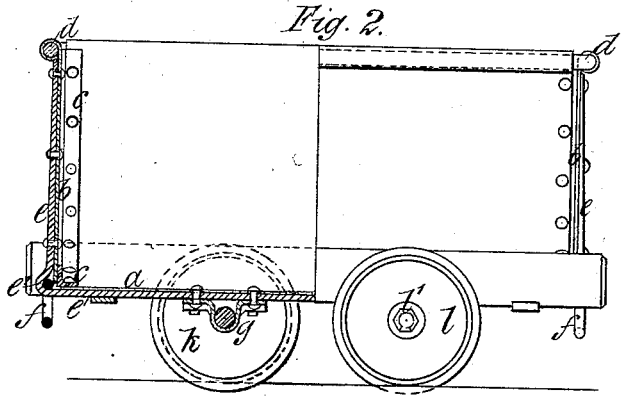


Fig. 4.

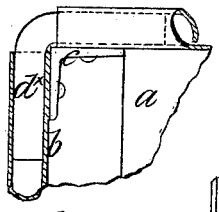


Fig. 5.

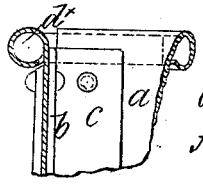
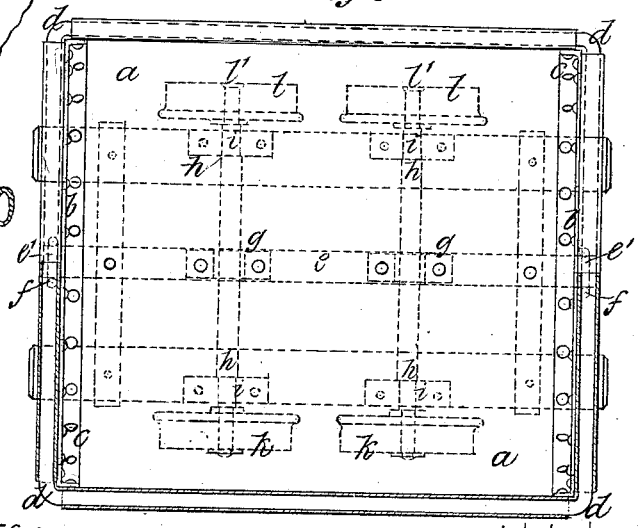


Fig. 3.



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2 Sheets—Sheet 2.

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Freight-Car.

No. 208,393. Patented Sept. 24, 1878.

Fig. 6.

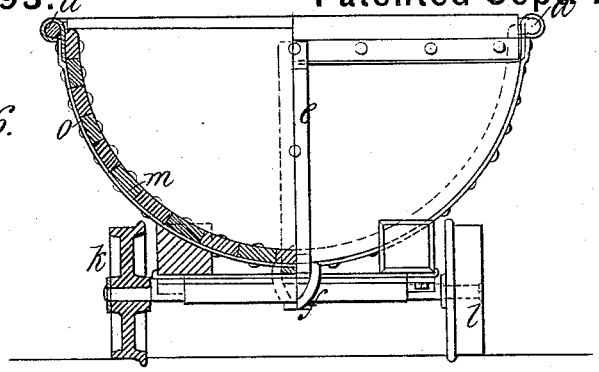


Fig. 7.

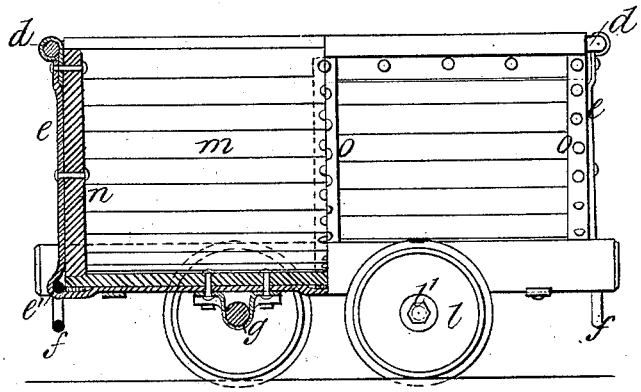
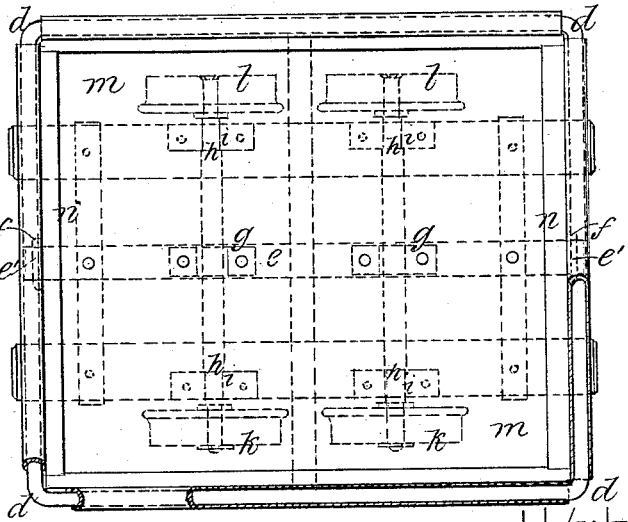


Fig. 8.



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UNITED STATES PATENT OFFICE.

ROBERT HUDSON, OF GILDERSOME, GREAT BRITAIN.

IMPROVEMENT IN FREIGHT-CARS.

Specification forming part of Letters Patent No. **208,393**, dated September 24, 1878; application filed June 4, 1878; patented in England, July 28, 1875, and January 4, 1877.

To all whom it may concern:

Be it known that I, ROBERT HUDSON, of Gildersome, in the county of York, Kingdom of Great Britain and Ireland, engineer and iron-founder, have invented new and useful Improvements in Wagons, of which the following is a specification:

This invention relates to wagons for carrying coals, clay, sand, ores, or other materials.

I make the wagon-body of sheet metal—as steel, iron, zinc, or other suitable metal—as follows: To form the bottom and sides I bend the sheet metal round, and rivet it to pieces of angle or bar iron of a semicircular, oval, or other required shape. The end plates are then attached. I place a hoop of suitable section around the top edges of the side and end plates, and secure it thereto by the edges of the said plates being bent partially or completely over and around the said hoop, thus forming a projecting rim, which adds considerable strength, and at the same time renders the edge or rim much more pleasant and convenient to handle than those made in the ordinary way.

In some cases, instead of carrying the hoop all round, portions may be dispensed with, leaving the angular lengths of hoop at the corners of the wagon only.

When preferred, the angle-irons may be dispensed with by flanging the plates and riveting them together after being bent to the required form.

The draw-bar is made to pass under the body of the wagon and up each end to the top hoop. By this arrangement any strain on the end plates is transmitted to the draw-bar.

One wheel on each axle is loose and the other fast, so that one wheel can revolve while the other is stationary, thus facilitating the turning of wagons or running them round curves.

In conjunction with the axle-neck bearings I arrange a cap under the center of each axle, which cap is secured to the body of the wagon. I thus dispense with the neck-caps, and leave the necks accessible for lubrication.

In order that others skilled in the art may be enabled to make and use my invention, I will now proceed to describe the same more in detail with reference to the accompanying sheets of drawings, forming part of this specification.

Figure 1 is a view, half in cross-section and half in end elevation, of one of my improved wagons. Fig. 2 is a view of the same, half in longitudinal section and half in side elevation. Fig. 3 is a plan.

Similar letters of reference indicate corresponding parts in these several figures.

a is the plate forming the bottom and sides. *b* are end plates; *c*, angle-irons, forming the joints; *d*, hoop, over and around which the top edges of the side and end plates are bent, as shown in Figs. 1, 2, and 3; or, in lieu of carrying the hoop all round, portions of hoops may be used at the corners only, as shown at $d^{\times}$ in Figs. 4 and 5, the edges of the side and end plates being bent over all the same, so as to form a hollow rim. *e* is the draw-bar, passing under the body of the wagon and up both ends, as shown. *e' e'* are recesses or bends therein to receive the drag-links. *g* is the central cap, arranged at or about the center of length of the axle, and operating to keep the axle-necks *h* against their bearings *i*. *k k* are the loose wheels, one on each axle. *l l* are the fixed wheels, one on each axle. These wheels are cast each with a countersink, of a hexagon shape, on one side, as shown at *l'* in Figs. 1, 2, and 3, into which countersinks the ends of the axles are riveted, thus preventing the wheel from turning round independently of the axle.

The wagon-body may be formed partly of wood and partly of metal, as shown on Sheet 2 of the drawings, Figs. 6, 7, and 8, which are views corresponding respectively to Figs. 1, 2, and 3.

The body of the wagon is formed of wood lags *m*, shouldered down to fit against the wood ends *n*, as shown. The lags are kept in their place by curved bars *o*, running round the outside, and through which the lags are riveted, bolted, or screwed.

This invention has been set forth in British patents granted to me, No. 2,677 of 1875 and No. 50 of 1877.

I claim as my invention—

1. In combination with the wagon-body, the draw-bar *e*, constructed to pass under said body and up both ends, and formed with recesses or

bends e' e', as described and shown, for the purpose specified.

2. The wagon-body provided with the draw-bar e, passing under said body and up both ends, in combination with the central cap g, attached to the draw-bar and bearings, as herein specified.

3. The combination of the sheet-metal wagon-body, draw-bar e, bearings i, axles, loose wheels k, fast wheels l, and central cap g, the whole constructed, arranged, and operating as described and shown, for the purposes specified.

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