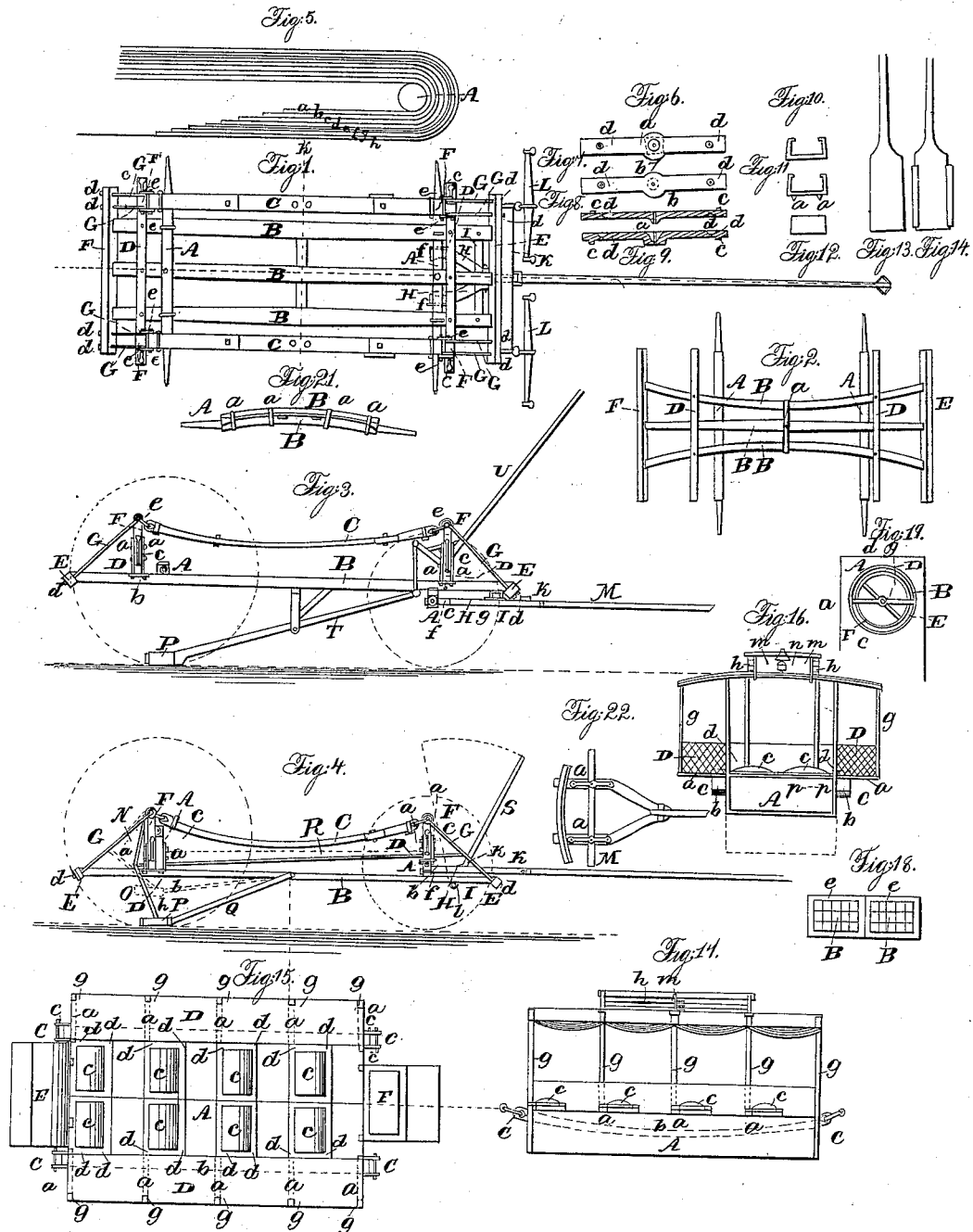


T. SHRIVER.

Running-Gear.

No 1,399.

Patented Nov. 7, 1839.



UNITED STATES PATENT OFFICE.

THOMAS SHRIVER, OF CUMBERLAND, MARYLAND.

COACH, PLEASURE-CARRIAGE, RAILROAD-CAR, &c.

Specification of Letters Patent No. 1,399, dated November 7, 1839.

To all whom it may concern:

Be it known that I, THOMAS SHRIVER, of the town of Cumberland, in the county of Allegany and State of Maryland, have invented an Improvement in Coaches, Pleasure-Carriages, Railroad-Cars, and other Vehicles for Traveling or Transportation of Burdens, and the following is a description of the construction and operation thereof.

First, the running gear.—In the annexed drawing Figures 1 and 2 represent bird's-eye views without the wheels, and Figs. 3 and 4 profiles thereof, the same letters being made to refer to similar parts in these figures.

A, A, are the axletrees; B, B, B, the perches, which project about eighteen inches beyond the axletrees; C, C, the leather braces which sustain the body; D, D, the jack bars. These parts are made in the usual way, except that the perches project more than ordinarily beyond the jack bars, which instead of being framed on the ends of the perches, are bolted down on the top of them near the usual points, with reference to the axletrees, (Figs. 1 and 2) or on the perches or axletrees as in Fig. 4.

In light vehicles, I prefer, for greater facility in turning and to increase the elasticity, to bend the side perches inward and confine them in that position, which may be done by an iron ring or band (*a*, Fig. 2) fastened by a bolt and screw through the middle perch, the side perches being left free to spring inward. Instead of the horn bar in common use, from which the jacks are propped, and which are bolted to the perches between the axletrees, I dispense with them entirely, and frame strong bars (E, E) at the extreme ends of the perches as shown in the drawings, which from their use, I call the stay-bars. The jacks, F, F, I make of straight grained tough wood, (or they may be made of iron). They are framed upright in the jack bars; and for better securing them, two plates of iron *a, a*, are bolted to the sides, which, passing through a plate, *b*, under the bar are confined to it by screw bolts, or dispensing with the plates, screw bolts may be passed up through the jack bar into the jacks. The bar may also project and lateral braces C, C, be applied to support them.

G, G are the stays, which are made of rod iron, and pass through the stay bars and are secured on the outside by nuts *d, d*. The

bolts which confine them to the jacks pass through circular heads at the other ends. The same bolts pass through the ends of the shackles *e, e*, which likewise have circular ends for the purpose. The other ends of the shackles are in like manner connected with the leather braces, by screw nuts and bolts, surrounded by friction collars. By this arrangement it will be seen that the whole of the space between the jacks may be occupied by the body, which latter may be brought down very near to the hindmost axletree as in Fig. 3, or below it, as in Fig. 4. The pressure of the burden will be perpendicular, upon the jacks, and from the increased length given to the perches the spring will be much improved, differing materially in these respects from the modes in ordinary use, which is to take hold of the tops of the jacks, and prop them from the horn bars on the inside, placed over or near the axletrees, and the weight, or stress being all on one side, tends to twist the axletrees, lessens the spring, and prevents the body being lowered. The mode of construction on my plan is much simplified, and the weight, and expense greatly diminished.

I have improved the leather brace, by omitting the stitching either throughout its length, or so much of it as is bent around the shackle bolts, and in all cases before stitching or cutting off the straps, I cause them to be bent around the shackle bolts, so as to give to each ply of leather an equal bearing before it is confined, making after it is bent, each ply (commencing with the outside) one or two inches shorter. The advantages of this mode of constructing them will be apparent by inspection of Fig. 5 which represents the plies of a brace bent around the bolt A. According to the method in use the braces are stitched before bending and great force being employed in that operation the ends of the plies, which should be at the points *a, b, c, d, e, f, g, h*, are forced into the line *a, k*, the effect of which is to throw nearly the whole stress on the outside ply, and injure the inner plies.

The hounds H, H, Figs. 1, 3, and 4, pass through the axletree bed, and project only a short distance inside. The tenons as seen by the dotted lines in the drawing, Fig. 1, being dove-tailed on the inner sides, and substantial wedges (*f, f*) inserted on the outside thereof through the mortises enlarged for the purpose by which they are

secured in their places, and may be tightened whenever required. To prevent the wedges from drawing out they are confined by screws to the hound.

5 The axletrees A, Fig. 21, are made of iron, much thinner in the middle than those in use, and arched upward. They are stocked with tough straight grained pieces of wood B, B, above and below, which I
10 confine at the ends by iron bands *a, a*, which are simply driven up without bolting, the wood being slightly beveled for the purpose. By this mode of construction, I am enabled to make them much stronger, and at the
15 same time much tighter than those in ordinary use.

Instead of the slide bar in ordinary use, the tongue, is supported in front by a bar I, attached to the under or upper side of the
20 perches. When attached to the lower side it passes through a staple and friction roller, *g*, secured to the upper side of the tongue. Or instead of this mode of constructing the hounds, when the perches lie
25 on the top of the front axletree, I extend the hounds in the usual way with the common sliding bar but instead of propping them from the under side of the axletree with iron braces, I suspend them by iron
30 stays *a, a*, Fig. 22, which pass over the axle tree and are secured thereto by their center, by bolts which pass through the said plates, stocks, axletree and hounds, the ends of the stays being bolted to the hounds. K, is the
35 wheel bar; L the swingletrees; M, the tongue, which are all made in the usual way. The sand plates instead of being wrought are of cast iron, in the form represented in Figs. 6, 7, 8, 9, the two first being views of the
40 upper surfaces, of the under and upper plates respectively, and Figs. 9 and 8 vertical sections thereof.

a (Figs. 6 and 9) represents a circular sink in the top of the under plate of about
45 2 inches diameter and $1\frac{1}{2}$ inches deep, which receives a corresponding knob or projection *b* cast on the under side of the upper plate Figs. 7 and 8, circular openings being left through the knobs and sinks, for the king
50 bolt. The lower plate, as will be seen, is thickened at the sink by a square or circular projection on the underside, which is let into the top of the axletree bed. The plates are also cut with knobs, *c, c, c, c*, or flanges
55 which, being let into the wood aid in confining them.

d, d, d, d, are countersunk holes for securing the plates by bolts and nuts. By the use of plates of this form the stress on the
60 king bolt is relieved, the greater part falling on the knob *b*, which is also a substitute for a safety hook, and being cast they are more durable, cost less, and may be expeditiously replaced since new ones do not re-
65 quire fitting.

My brake instead of rubbing on the tire of the wheels as those in ordinary use is caused to operate on the road, (if a railroad either the horse path or the rails) by various
modes, some of which I will here describe. 70 Having secured to the perches, a substantial upright N, Fig. 4, I connect to the upper end thereof a toggle joint lever O, which I call the leg of the brake, the lower end of which is attached by a joint *h* to a solid block of
75 wood P, which I call the foot, the latter being attached to a stiff bar or rod *a*, called the tow bar the front end of which is secured to the perches. A lever rod R which passes underneath the body of the vehicle to
80 the knee or middle joint of the leg, and the front end being secured at *h*, to the foot lever S which has its center of motion at *l*. The leg is operated thereby, and the foot made to press upon the ground; or is drawn
85 up out of the way, as is represented by the dotted lines in the drawing. The foot is armed with a shoe of cast iron, of which Figs. 10 and 11 are transverse sections. The
90 latter which is intended to be used, during the winter, and when no other brake now in use will operate on account of the ice and having projecting prongs *a, a*, on the under
95 side. The sides of the foot are beveled upward, as in Fig. 12, and forward, as in Fig. 13. The shoe is cast to fit and being slipped on the front end of the foot and driven on, as in Fig. 14, remains firmly attached.

The brake shown in Fig. 3 has a foot similar to that just described and simply
100 consists of a strong wooden lever T, suspended from the perches, and operated by an angular foot lever U. This brake would probably be found best adapted to the
105 wagons on turnpike roads or similar vehicles.

Second, the bodies of coaches, mail coaches &c.—I prefer constructing the bodies rectangular instead of curved, as they may be
110 made of lighter materials and yet be stronger, and at the same time less expensive.

Fig. 15 is a bird's-eye view with the top or covering removed, and Figs. 16 and 17 are transverse and longitudinal vertical
115 sections.

The same letters refer to similar parts in each figure.

a, a, are bars which bear upon the sills of the braces *b, b*, Figs. 16, 17, and support the
120 body. The seats *c, c, c, c*, which are placed on them, being made in two equal sections, are secured by hinges *d d* to the sides of the coach, so as to be thrown up out of the way. They consist of frames *e, e*, Fig. 18,
125 which are rabbeted on the inside and receive an inner frame on which the webbing or canvas B, that bears the cushion, is stretched, thus greatly reducing the weight below those in ordinary use and making a
130

more comfortable seat. Or instead of frames and webbing, &c., I use boxes of about 6 inches deep with two cushions for each seat, as shown by the dotted lines *p, p*,
 5 Fig. 16, the under one of which I make of corn husks or other cheap materials.

C, C, represent the leather braces between which the part of the body A descends beneath which the baggage boot may be suspended if required as shown by the dotted lines the jack being raised for that purpose. The bearings of the seats *a, a, a*, being extended over the space between the wheels of the body, the standards *g, g, g*, which support the top, are framed from the extreme end thereof, and a net work or sides made of thin boards, leather or other materials, being attached to the standards the spaces D which I call the gallery thus
 20 formed between the standards and body can be used to carry light articles. The standards being thus set out from the body add greatly to the comfort of the passengers sheltering them from rain and sun as well as
 25 giving them a rest for the arms, without being encumbered by the standards as ordinarily placed.

The curtains are secured to the outside of the standards in the usual way and descend
 30 to the foot of them. The door E, Fig. 15, I place in the back of the body and a platform made on the extended part of the perches affords an easy and safe entrance. Entrances may also be made from the sides
 35 in the usual way through the galleries.

F is the driver's seat and boot.

In the top of the body (and the same may be applied to those of other constructions) I make an oblong opening, Figs. 16 and 17,
 40 for a ventilator, which rises a few inches above the top and has Venetian slats *h, h*, which are closed or opened by a small upright shaft *m*, with projecting arms and a neat lamp *n* may be suspended from the top thereof to light the inside of the body. Also
 45 instead of the square sliding windows in

ordinary use, I make a circular window, as shown in Fig. 19, in which A, B, C, represent the opening in the door, *a*, horizontal bar with a round hole at the center. Into
 50 this circular opening a circular sash D, E, F, is placed with a similar bar *d*, and square mortise through which a pin *g*, with a round head or knob passes and forms the bearing of the sash, the upper semicircle of the
 55 sash and the lower semicircle of the opening in the door being glazed with glass or vice versa. This window is found convenient to open by simply turning the pin with which it revolves, and from the peculiar
 60 bearing being at the center it is prevented from rattling when the vehicle is in motion.

What I claim as my invention and improvements, is—

1. The extension of the perches beyond
 65 the jack bars and axles, the mode of staying the jacks outside in vehicles of every description on railroads or common roads in the manner herein described, or in any other substantially the same. The mode of sup-
 70 porting the tongue by a slider or sway bar in front of the axle tree. Also the plan of bending the side perches inward better adapted for light vehicles on roads and the mode of stocking the axle trees and arching
 75 them upward as herein described.

2. I also claim the brake acting against the road or if a railroad against the horse path or rails by means of the above or any other mode substantially the same, and the
 80 window bearing turning on its center whether circular or other shape operating as herein described or in any other manner substantially the same.

In testimony that the foregoing is a full
 85 and exact description of my said invention, I have hereunto set my hand this 18th day of June in the year 1839.

TH. SHRIVER.

Witnesses:

JAMES H. CAUSTEN, Junr.,

JAMES H. CAUSTEN.