(12) **United States Patent**
Van Gorder

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(54) **WHEELS, FOR CARRIAGES**

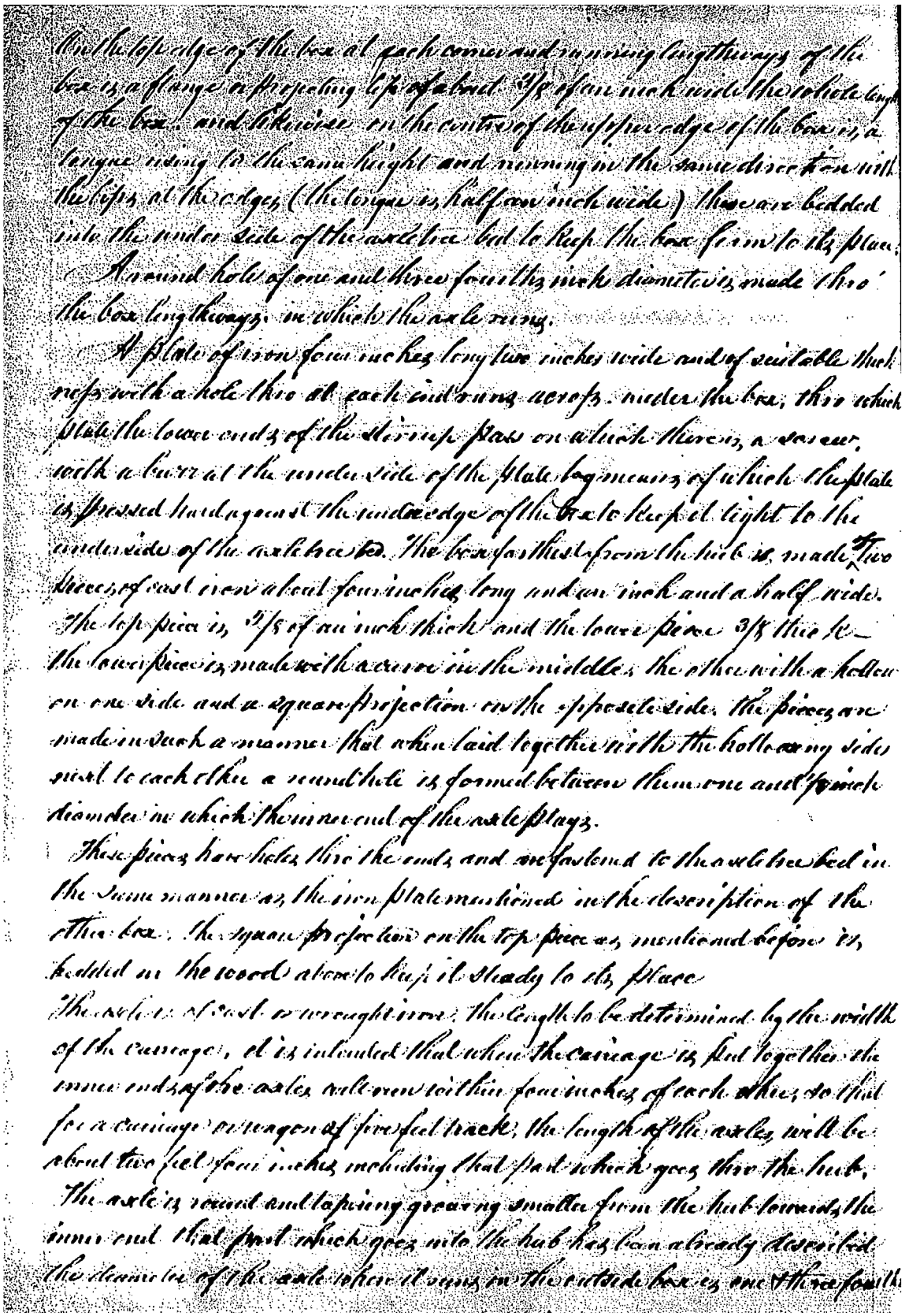
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Isaac Van Gorder of Warren Ohio

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Isaac Van Gorder himself of his improvement in the construction of Wheels for Wagons and Carriages

To all to whom these presents shall come, Be it known that I Isaac Van Gorder of Warren in the County of Trumbull and State of Ohio have invented a new and useful improvement in the manner of constructing wheels for wagons and Carriages, and that the following is a full and exact description of the construction and operation of said improvement as invented by me, to wit. The hub or nave of the wheel is made of Cast iron, and for a two horse carriage the diameter of the hub for the hind wheel is six and a half inches, with mortises for thirteen spokes, and that of the hub for the fore wheel, six inches, with fourteen mortises. The thickness (or that which in the common hub would be termed the length) of the hub is two and one fourth inches at the outer edge and three inches at the centre. The size of the mortises for the spokes is sufficient to admit a tenon of one and three fourths inch wide and three fourths of an inch in thickness. Thro' the centre of the hub is a round tapering hole of one and one fourth inch diameter at the outer end of the hub, and two inches at the inner end, into this hole in the hub is inserted the end of an axle, or journal made of cast or wrought iron and made tapering so as exactly to fill the hole thro' the hub the axle is made fast by means of a screw bolt inserted into the end of the axle at the outer end of the hub, on which bolt is a head eight square of one and three fourths inch diameter resting against the outer end of the hub. The axle passes from the hub under the axle bed and plays in two boxes of cast iron which boxes are made fast to the under side of the axle bed by means of thin straps passing over the axle bed with screw bolts at their two ends. The bed next to the end of the axle is two inches and one fourth inches thick by five and a half inches wide tapering on the inside ways of the box as up and down. The length of the box is three and a half inches on the fore edge, and two inches on the lower edge



On the top edge of the box at each corner and running lengthways of the box is a flange or projecting piece of about 3/8 of an inch wide the whole length of the box. and likewise on the centre of the top edge of the box is a tongue rising to the same height and running in the same direction with the tops of the edges, (the tongue is half an inch wide) these are bedded into the under side of the axle piece and to keep the box from wearing the plate.

A round hole of one and three fourths inch diameter is made thro' the box lengthways. in which the axle turns.

A plate of iron four inches long five inches wide and of suitable thickness with a hole thro at each end runs across under the box, thro which plate the lower ends of the stirrup plate on which turns a screw. with a burr at the under side of the plate by means of which the plate is pressed hard against the under edge of the axle to keep it light to the under side of the axle tree. The brass bush from the hub is made thro pieces of cast iron about four inches long and one inch and a half wide. The top piece is 3/8 of an inch thick and the lower piece 3/8 thick the lower piece is made with a curve in the middle, the other with a hollow on one side and a square projection on the opposite side. the pieces are made in such a manner that when laid together with the hollow sides next to each other a round hole is formed between them one and three quarter inches diameter in which the inner end of the axle plays.

These pieces have holes thro the ends and are fastened to the axle tree bed in the same manner as the iron plate mentioned in the description of the other box. the square projection on the top piece as mentioned before is, bedded in the wood above to keep it steady to its place

The axles are cast or wrought iron. the length to be determined by the width of the carriage, it is intended that when the carriage is put together the inner ends of the axles will come within four inches of each other, so that for a carriage or waggon of three feet track, the length of the axles will be about two feet four inches including that part which goes thro the hub.

The axle is round and tapering gradually smaller from the hub towards the inner end that part which goes into the hub has been already described the diameter of the axle where it runs in the outside box is one & three fourth

inch being one fourth of an inch less than its diameter at the end of the hub which leaves a square shoulder on the axle close to the inner end of the hub, this shoulder works against the box end prevents the wheel from pressing inward when in motion. The diameter of the axle between the boxes is one and one eighth inches. On the inner end of the axle is a collar about ⅜ of an inch wide in seting about a quarter of an inch above the circumference of the axle where it passes thro the inner box. the shoulder of this collar works against the inner edge of the box to prevent the wheel from drawing outwards when in motion. When a wrought iron axle is used the end which goes into the hub will extend thro the hub about an inch on the outside with a screw cut on the end, and a burr to screw up against the end of the hub. The other end of the axle will likewise have a screw and burr with a washer (in the room of the collar as described in the cast axle) to work against the inner edge of the box. (In the room of the inside box as above described may be substituted a bolt of wrought iron passing up thro the axletree bed with an eye on the lower end and a burr on the top. The axletree bed to be made the same as when the common iron axletree is used.

The spokes, and felloes, and shroud of the running work to be made in the usual way of making wagons and carriages.

What I claim in the above described machinery as new and of my own invention, is the principle of attaching each wheel to its respective axle or journal made fast in the hub and running the axles or journals in boxes attached to the axletree bed.

Witnesses,
M Blanchard
David Tod

Enos Van Gieder

(320 Acres)

(Granted January 7. 1828) 1500