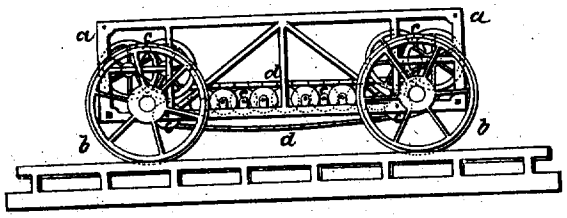
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J. Stimpson.
Car Truck.
Patented Feb. 16, 1830.



Feb. 16 1830 5833X 239

James Stimpson Baltimore Maryland

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 James Stimpson, himself, of his improvement, in the application of horse or other animal power, for propelling carriages on Railways or Roads.—

To all to whom these presents shall come.

Be it known that I James Stimpson of the City and County of Baltimore & State of Maryland have invented a new & useful improvement in the application of horse or other animal power for propelling carriages on railways or roads, which improvement consists in this, that the horse or other animal travels and rides at the same time on the carriage which by their power is is moved, & any degree of velocity can be imparted to the carriage, which never tires by a steady but moderate movement of the animal which of course enables him to perform a greater length of time under any speed of the carriage, than he otherwise possibly could if its rate of speed depended, as it ordinarily does, entirely on the degree of activity of the animal. To gain this great desideratum, the construction or make of the machine or carriage must be as follows, Viz; There must be two main shafts or axles of sufficient size and strength of iron or other materials, with four wheels fitted to run loose, & at close on said shafts at such distance as will fit the rails of the road on which they are intended to run, there is to be fixed fast on said axle, a nut or other fixture on the outside of said wheels, to prevent them from running off of the shafts, to which nut or fixture, is united a dog, fall, or catch on a cam or pin against which a spring acts or presses outwards sufficiently to throw said fall catch

catch or dog into which teeth five on the side of the hub of said
wheel next to the fall, by which means when the shaft is
turned round by the power of the animal, one end of said fall
being fast to the shaft, thro' the intervention of the mill or other
feature, the other end set against the teeth of the catch wheel, will
cause the head wheel to revolve as fast as the shaft; at
the same time in passing a curve in the railway, the wheels on
the outer circle is at liberty to revolve faster than the shaft or the
wheel on the inner circle of the rail; hence the wheels are
always at liberty to advance, but cannot recede without turning
the shaft with them; said falls or catch teeth may also be
placed on the inside of the wheels if more convenient.
Furthermore, I claim four pulleys or drums me to be fixed upon
said axles within the head wheels at such a distance as to
bring them directly under the animals feet, & sufficiently thick
or wide to receive bands six to twelve inches wide or any
other width; & of such diameter compared to that of the
head wheels as will produce any rate of speed, desired.
On these bands is to be laid a floor, each plank or board
of which is to extend across & beyond the bands on both sides
three inches more or less & fastened by iron bolts, with thin wide
heads, in the range of the belt bands, or directly under them a
groove must be turned in the drums or pulleys for the admis-
sion of the heads of said bolts, so that they may not raise the
bands from the drums as they revolve round them; the bolts
must extend about half an inch more or less into the bands
or planks above said bands, with a nut to be screwed down
close into a recess or hole large enough for said nut to turn in;
and after being forced down tight with a wrench, a plug is
to be driven in tight over it to prevent its coming off, and the
animals feet from touching it; said bands are to be thus en-
tirely covered with boards or planks, laid across one
foot wide more or less, each having two square bolts in the
middle

middle of them fall on a line with each other, by reason of which they will pass round the drums without varying the tightness of the bands & without any liability of splitting the bands or planks, which may also be fastened to the bands by wood screws nails or other means in like manner. The line main axles on which the bands and floor revolve must be at a distance sufficient to prevent the animals feet from extending beyond their centres either way. Between the drums on the main axles must be placed one or a double row of pullys five on each shaft near the outer ends, & directly under the horses or animals feet, and bands in a line with those on the main axle. The upper peripheries of which must be in a line horizontal with those or such a little below, & as near to each other as they can be without touching for the support of the revolving & flexible floor, & which will effectually prevent the floor from sinking beneath the head of the animals feet. Sections of pullys or drums under each band be used. The outside rows should extend to the outer edges of the bands & be from inches thick if for ten inch bands, & lie as near to each other as they can, leaving a sufficient space for the shaft of the inside rows to pass between the peripheries of the outside rows without touching. The pullys of the inside rows should be six inches thick, being so turned that they shall just clear the insides of the outside pullys or drums, these five must be the main axles should be lagged in the middle reaching to, but not quite touching the insides of those on the main shafts, or axles, turned so much above those on each side, as the thickness of the bands, by which means they will, receive & support the floor without however passing the first curve or hollow of the outside drums. The centers of all the middle or outside pullys should rest on friction wheels, either one, two or three, if one wheel only there must be a slot in the axle to support the shaft, if two or three, they must lay side by side on a horizontal line

5833 X

line, their centres sufficiently distant to let each fap the periphery of the other without touching, in which position they have a common place for the pulley shafts to revolve in without other support; and thirdly, if an three rollers, two must be fixed in the frame or side of said carriage, one on each side of the shafts of the pulleys, and the third directly underneath it on which the pulley shaft is to revolve and bear its whole weight, or the pulleys may rest on their own bearings, without any friction rollers whatever. A frame of sufficient height, length & width is to be made to receive the animal or animals to and of sufficient depth to receive the friction wheels of the pulleys under the floor bands, & a part of the sides, at least must be in double to support the centres of eight other friction wheels: (but if the machine is made without any friction wheels, there must be two main timbers running fore & extending beyond the wheels each way for their protection; & also in this particular for that with friction wheels) their inside edges will be above and rest upon the bosses of the main axles of the road wheels; the side posts must fap down sufficiently below these side timbers or rails to receive mortises, in which must be pinned two rails laying parallel to each other & reaching nearly from one axle to the other, & of sufficient width & thickness to receive the pulley shafts under the floor bands on which frame the weight of the pulleys & animals rest. The eight friction wheels are for the whole frame to rest upon, & their under peripheries move with and upon the axles of the first described road wheels said friction wheels may be of any dimensions in diameter or thickness, which may be found most convenient to use with their centres as before described in the second proposition or the carriage may rest upon bosses without any friction wheels whatever. The road wheels are made to revolve by the horse or other animals moving at any rate of speed upon the revolving floor. These must also be inside and near each and

end of said main axles near the friction wheels, located in the frame of the carriage to sustain them in their places under the extremities of the floor bands. Taken through the axles in the centres of the castings of the eight friction wheels on which the carriage. These friction wheels will always keep the two axles on one parallel line with each other but will admit the shafter axle to be forced forward by the bands being bent by a guide turning on the road before the carriage, for that purpose or otherwise to turn on any curve in the road that is to say, neither end of the forward axle can recede or move back by reason of the friction wheel behind, but may advance, so likewise the after axle cannot be moved forward, for the centres of the friction wheels being fixed in the frame directly before, forwards it may but cannot be moved backwards so as to cause or take the forward axle in turning a curve in the road. All the friction wheels are to be made of a thick hugh, conformable to the magnitude of the weight they are intended to support, & of a diameter as extended as the nature of their application will conveniently admit, & their centres must always conform in length & diameter to the extension of gravity in all cases applicable to their intended use. It is also intended in case roads or railways are not entirely level, or horizontal throughout, but have planes & inclines to be constructed the tow carriage adapted & enable the same animals to take up the inclines as much as they can draw on a level & to advanced speed by means of a reduction of the speed of the tow carriage proportionably to the amount of gravity of the incline which it is necessary to ascend: At the summit the speed is again renewed, the resistance being lessened, or the speed of the carriage is again in unison with that of the animals on a first gradient. This object is accomplished thus, the drum or pulley on the main shaft over which the bands or chains from the wheels are to be fitted on the shafts to be made with compression rivets between, inside of these pulleys or drums a pinion or cog is to be fixed to the shaft, then

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a bayonet hole be fitted on to said shaft, the fork of which
pass over said pulley, and come in contact with the fast-
ener or dog on the shaft, it will then cause the pulley to be
fast or affixed to the main shaft, of course one cannot
turn without the other, but by sliding out the bayonet the
forks lose their hold and then all the drums become suffi-
ciently loose to revolve upon the main shaft of the carriage,
by doing which all motion of the carriage ceases, as the hand
or floor on which the animals travel revolve round without
causing the shafts to revolve but for a small bevil or spur
pinion wheel on the axles side or edge of the bayonet hub
being made to come into gear at the same time the forks on
the fast dog on the inside of the pulley or drum, and the drum
is thereby free from the carriage or shaft, to communicate
any other speed or motion to the carriage which is wanted,
or the following other application of gears will do, with a
small bevil or spur gear fixed upon a small shaft, laying
fore & aft between the floor and road wheels, reaching if ne-
cessary to the other axle, on which shaft is also a sliding
bevil or spur gear made to come in contact with a gear
made fast to the inside of the road wheels, one side wheels
so fastened to the road wheels may be one, two, three or four
rows of teeth, more or less, or circles one with out the other,
so that in whichever line or row of teeth the small slide gear
is made to come in contact with, the speed of the carriage will
conform to, for instance, if the gear on the face of the bayonet
hubs, have ten teeth in it, and the small gear on the shaft
parallel to the floor has ten also, the slide gear on the same
shaft having ten, in all these there is no gain or loss of speed,
but the last mentioned slide gear being made to come in contact
with the outer row of teeth on the road wheels which row we
will say has forty teeth in it, it will reduce the speed of the
carriage to the natural speed of the animal, or the required

speed

speed of the carriage one fourth times faster. The aforesaid small gear shaft must be carried in two sticks or bows which must be fastened to a frame by itself & that again attached to the main frame of the carriage so to allow it to move forward & back by means of a fork steadling the main shaft & connected to the steelie frame so that when the main shaft is moved to conform to the curves of the road, the gearing will maintain their relative bearings & connections with each other, but this is only necessary when the main wheels are allowed to vibrate to the curves of the road; if it is necessary to convey the power of the animals to all the road wheels, it may be done by a pulley projecting from the pulley under the main bands & fast to it on the opposite side of the above gear, with a band passing over it over a pulley of the same size, made fast to the road wheel on the other axle.

What I claim in the before mentioned carriage as my invention or improvement is its application to horse or other animal power, whereby he or they can travel in or upon said carriage either upon roads or railways, & by so doing impart a power to move said carriage either with accelerated or diminished speed, compared with that of the natural travel of said animals. Also I claim the invention of the application of friction wheels to sustain the weight of said animals & the weight of the pulleys under the flexible floors; & the double series of pulleys or drums under each band. Also the application of friction wheels to support the weight of the frame or timbers, appendages & load, connected with & about said frame said carriage being of itself a new & useful improvement in locomotive carriage before unknown or used. Also I claim the application of the gear principle whereby a variation of the speed of the carriage more or less is effected without varying that of the animals as herein before described.

James Stringham

Witnesses
Jno Shelton
Thos Cunningham

9724 207 (Patented May 10th)

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