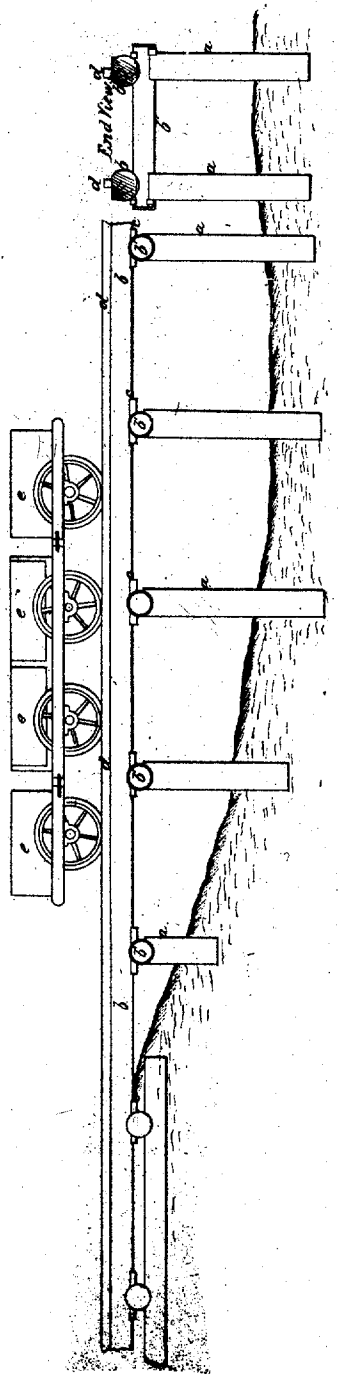
9255X

E. Johnson.

Railroad Track.

Patented Nov 23, 1835.



Nov 23. 1835 9255X

Elisha Johnson. of Rochester, New York.

Letters Patent.

The schedule referred to in these Letters Patent, & making part of the same containing a description in the words of the said Elisha Johnson himself, of his improvement in the construction of Rail Roads.

Be it known that I Elisha Johnson of the city of Rochester county of Monroe and state of New York, have invented new and useful improvements in the construction of Rail Roads, and that the following is a full and exact description of the materials, Machinery, form of construction and the mode of executing the work. First a timber work of the description represented in Fig 1. prepared and put up in such parts of the line of Rail Road as required embanking a.a.a. blocks of round timber sawed with square ends of any diameter, the most suitable size is 18 inches placed in firm earth by excavating pits or shafts through the roots & vegitable soil and of a proper length to suit the grade line and placed ten feet from centre to centre, in two lines under the line of railing. on these are placed round cross timbers of any size (those of 12 inches diameter and nine feet in length the most suitable) these are spotted and fitted to the blocks, places are prepared in the cross timbers 12. to 15 inches in width over the blocks to receive the sleepers marked on plan b.b.b.— The longitudinal sills or sleepers to be round timber not less than one foot in diameter at the small end, to be well hewed on the upper side squared at the end, and at each ten feet, and these are placed on the cross timbers and secured by keys marked on plan c.c. where the surface is near grade the cross timbers are placed on blocks placed horizontally or laid in trenches. in this form all of the line may be timbered excepting the cuttings. this preperation of timber work is made in timbered land while clearing and slashing the line using any description of timber for blocks and cross timbers and for the strings select descriptions for durability in the ex-

viewing

Drawing annexed.

uniformly of the line, and sufficiently straight to admit of the
true grade surface and to admit the line of track within the flat sur-
face, the roughest description of timber answers for the frame
and is more secure in the grade; where the surface is near the
grade line the timber is gutted and the surface notched other
parts of the line where there are embankments, the stumps are
cut low, and timber moved off, otherwise the surface is left
in its natural state— On the flat surface of the longitudinal timbers
are placed rails of hard timber 8 by 4 inches or of any other size tem-
porarily spiked on— On this timber work is placed four six or eight
wheeled cars, and designed as a part of the permanent Machinery
of the Rail Road and of the form in common use, The arrangement
of the frame and earth boxes are of a peculiar and particular form
of construction and adapted to the purpose of completing the
excavations and embankments as the work progresses. The cars
at short distances are moved by the laborers and greater by
horse power. The eight wheel cars are represented by Fig 23 and
have a centre frame and 8 wheels with two boxes 4 by 6 feet and two
feet in height hung by hinges or bilbills in the centre of the side pieces
of the frame and are dumped on the outside of the track and constructed
of 1½ and 2 inch plank secured by eyelets at the bottom and dovetailed
at one end and open at the other and otherwise secured by spike—
At each end of the centre frame is a square frame with one pair of wheels
secured to the centre frame, by clasps, staples and keys and when
dumped, balances on the axle of the wheels at the pivots and dis-
charges between the rails. The box is secured to the frame between
the wheels. The six wheeled cars have but one end frame and a pi-
small end box hung by hinges to the end piece of the centre frame before de-
scribed. The four wheeled cars consist only of the centre frame in the form
above described and four boxes of 4 by 4 feet and 2 feet in height secured to the side
and end pieces by hinges dumping in the side and centre of track, and both adapt-
ed to light hauling and embankments. The cars enter the ending from one to two
hundred feet upon a trailing placed from the line of grade. The bar is then
removed

removed and the permanent timber work put down and again proceeds as before completing the road as the cuttings progress. The road when any part is completed is used for the removal of materials and for the transportation of goods persons or property until the embankments are permanent by age at which time the temporary rails ribbons or dwelling are taken up the timber adjusted if settled at any point the grade particularly prepared, examined, and new dressed, and the masonary examined or built if tem=porarily passed over to favor the transportation of the materials by the line of road. New rails are then put down with care, the iron put on with spike passing through the rails into the longitu=dinal sills or sleepers, and provision made for passing of the water from the centre of the track at the meeting of the rails, which are proposed to be three by four and a half or five inches of the most suitable timber that can be obtained. The grade to cover one and a half inches over the sleepers or longitudinal sills thereby covering within the grade the whole line of timber work except a part of the rail on which the iron rests and thereby favour=ing the durability of the timber work. The advantages proposed in the above system of road ears and mode of construction and executing the work in the improvement claimed and described as follows First. The application of such timbers as is near or in the line of road and in its rough form, and of any length at small expense accordingly. The use of such timber work for the purpose of grading and the removal of other materials for the construction of the road, and of persons and property in such parts of the line as is completed upon wood (or iron temporarily put on) while the embankments are perfecting, completing the embankments, and cuttings at one third to one half of the expense of any other known mode. Thirdly, Applicable to extending a line of road into, and through swamp districts where cordy prairie where timber has to be removed or for the road at great distances as well as earth for embankments. Fourthly, The plan proposes that all the timber work (excepting

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the ribbons on which the iron (rails) be within, and secured by the guide and protected in its durability and providing for a continuous bearing of the rail on which the iron lies, removing the difficulty incident to wood roads for locomotive power, and heavy trains, accidents to the machinery prevented by coming in contact with the cross timbers when thrown from the track, with many other advantages in detail not necessary to enumerate. Fifthly.—A change can be effected in the operative part of constructing a road in the mode proposed; The labour would be controlled and managed by the agent of the company without contractors and the evils incidental thereto by employing fractionable superintendants (working men) and small parties employed by them in laying the rails and constructing other parts of the work with weekly worklists. The progress of construction being similar to working the road after construction, and similar agencies and means employed and all of the economy, of rail roads in the transportation of property applied in the removal of the great amount of tonnage required in grading & constructions of the masonary and wood work. The reading of labour was and nine tenths of the team work, and avoiding the difficulties incident to the increased demand of labour. Team work, Annuities and forage are important to the interests of a company and the progress of internal improvement, and is particularly applicable to new districts of country in the progress of settlement and where limited investments of capital would be necessary.

in comparing this plan with other modes of construction or in describing other modes to distinguish the mode proposed, and the improvement claimed thereon premised that all known modes of construction contemplate first grading of the line by contract, or days work by the use of carts teams or wheel-barrows and in some cases temporary ways with a train of temporary earth cars passing on the side of earth banks and line given to a line graded to perfect the banks after which commenced (and generally the following season) the construction of other parts of a rail road employing tools to prepare ground for the sleepers grading and road track without any use of the road or benefit from the

the yearly investments. Secondly. That in the construction of wood roads a superstructure is formed upon the grade with cross timbers from three to five feet apart on which rests the rail secured by keys or wedges leaving no support to the rail between the cross timbers. The ends of the cross timbers and rail [illegible] being above the grade. This form is the modern common use with variations adopting similar principles and the use of small light timber sawed and in other known modes larger hewed timber for rails has been substituted with more substantial cross timbers. Remark. The Tonawanda Rail Road commencing at City of Rochester. State of New York is now constructing on the plan on which I claim my improvement and is under my direction as chief engineer and is the first road known to have been built or building on any similar plan to which references had to upon proposed improvements.

Elisha Johnson

Witnesses
William Wallace
William Fitch

Drawing Made

1728 Words