Case No. 17,865. WINANS v. SCHENECTADY & T. R. CO.

{2 Blatchf. 279; Merw. Pat. Inv. 416; 53 Jour. Fr. Inst 256.}[1]

Circuit Court, N. D. New York. Sept. 1, 1851.

PATENTS FOR INVENTIONS—CONSTRUCTION OF RAILROAD CARS—LOCATION OF TRUCK—SUFFICIENCY OF SPECIFICATION.

1. The claim of Winans' patent, granted October 1st 1834, for an "improvement in the construction of cars or carriages intended to run on railroads," which claim is "the before-described manner of arranging and connecting the eight wheels, which constitute the two bearing-carriages, with a railroad car, so as to accomplish the end proposed by the means set forth or by any others which are analogous and dependent upon the same principles," is a claim for the car itself constructed and arranged as described in the patent and evidence that parts of the arrangement and construction were before known does not affect the novelty of the invention.

[Cited in brief in Locomotive Engine Safety Truck Co. v. Pennsylvania R. Co., Case No. 8,453.]

2. The location of the trucks relatively to each other under the body of the car, as well as the near proximity of the two axles of each truck to each other, form an essential part of the arrangement of the patentee, who states, in his specification, that the closeness of the fore and hind wheels of each truck, taken in connection with the use of two trucks arranged as remotely from each other as can conveniently be done for the support of the car-body, with a view to the objects and on the principles set forth by him, is considered by him as an important feature of his invention. But the improvement does not consist in placing the axles of the two trucks at any precise distance apart, or at any precise distance from each end of the body; and the specification is sufficient, although it does not state in feet or inches the exact distance from the ends of the car-body at which it would be best to arrange the trucks, or what should be the exact distance between the axles.

3. The patent, which was issued in 1834, had no drawings originally annexed to it, and the specification contained no reference to any drawings. The patent was recorded anew in June, 1837, under section 1 of the act of March 3d, 1837 (5 Stat. 191), and a drawing of the invention, verified by the oath of the patentee under said section 1, was filed in November, 1838: *Held,* in an action for the infringement of the patent, that a certified copy of such drawing was admissible in evidence under section 2 of said act, in connection with certified copies of the patent and specification, and that the whole together were prima facie evidence of the particulars of the invention and of the patent granted therefor.

4. As a general rule, such a drawing cannot be used to correct any material defect in the specification, unless it corresponds with a drawing filed with the original specification for the patent; otherwise, in case of discrepancy, the specification must prevail.

5. Nor can such a drawing have the same force and effect as if it had been referred to in the specification, nor is to he deemed and taken as part of the specification.

6. The specification of Winans' patent said nothing about the mode of attaching the car to the motive-power or to the next car in a train, nor anything about the use of side-bearings to prevent the rocking of the car from side to side, but the drawing filed in November, 1838, showed that the car was to be attached to the motive-power and to the next car in a train by its body, and not by a perch from the truck, and also showed a provision for side-bearings: *Held,* that the specification afforded a sufficient description of the invention independently of the drawing, and that

the mode of attaching the car and the use of side-bearings did not enter into the essence of the invention or constitute any substantial part of the improvement.

7. The law allows an inventor a reasonable time to perfect his invention by experiment and ascertain its utility, before it obliges him to take out his patent; and, in the case of Winans' invention, experiments could be made only by putting the car into the service of those controlling lines of railroads. In applying the rule, a jury must take into consideration the nature of the invention, and all the circumstances of the case. But an inventor is bound to act in good faith, and must not suffer his invention to be used except for the purposes of experiment.

This was an action on the case, tried before CONKLING, District Judge, in June, 1850, for the infringement of letters patent[2] granted to the plaintiff on the 1st of October, 1834, for an "improvement in the construction of cars or carriages intended to run on rail-roads."

At the trial, the plaintiff gave in evidence the original patent. It had been recorded anew on the 7th of June, 1837, under section 1 of the act of March 3d, 1837 (5 Stat. 191), as appeared by a memorandum to that effect endorsed upon it. No drawings were annexed to the original patent, nor was there any reference in the specification to any drawings on the 25th of September, 1848, the patent was extended for seven years from the 1st of October, 1848, as appeared by a certificate of extension endorsed on the

original patent. The plaintiff then offered in evidence a certified copy from the patent-office of the patent; of the specification; of the certificate of extension; of a drawing accompanied by written references thereto, which drawing was not filed at the time the patent was recorded anew, but was filed on the 19th of November, 1838; and of an affidavit made by the plaintiff on the 19th of November, 1838, and filed in the patent-office. The written references accompanying the drawing were in these words: "References to the annexed drawings of Ross Winans' improvement in the construction of cars or carriages intended to run on rail-roads, for which letters patent were issued, dated October 1st, 1834. Fig. 1. Side view of an eight-wheel car. Fig. 2. End view of the same. Fig. 3. Upper and lower bolsters, detached from the body and bearing-carriages. AA represents the body of the car resting on the bearing-carriages B and C, as exhibited

at DD, on pivots equidistant from the wheels of each bearing-carriage. H represents an upper bolster of cast iron, separate from the body of the car, with its pivot X corresponding with the socket Y in the lower bolster E, also shown as separated from the bearing-carriage." The said affidavit was in these words: "State of Maryland, Baltimore, Set.: On this 19th day of November, in the year eighteen hundred and thirty-eight, before me, the subscriber, a justice of the peace of the said state, in and for the said city, personally appeared Boss Winans, and made solemn oath that he is the inventor on an improvement in the construction of cars or carriages intended to run on railroads, for which letters patent of the United States were granted him, dated the first day of October, 1834, and that the annexed drawing is, as he verily believes, a true delineation of the invention, as described in the said letters patent. Sworn before James Blair, justice of the peace." The defendant objected to the evidence offered, on the grounds, first, that it appeared no drawing was annexed to the original patent; second, that the act of congress did not make such a drawing as this evidence. The court overruled the objection and admitted the evidence. It was claimed by the plaintiff that the drawing showed that his car was to be attached to the motive-power, and to the next ear in a train, by its body, and not by a perch from the bearing-carriage or truck, it being conceded that this connection by the body was indispensable to the free action of the plaintiff's trucks; and that the drawing also showed a provision in the arrangement of the trucks for side-bearings, to prevent excessive rocking of the ear from side to side. It was insisted by the defendants that the specification was defective in saying nothing about the mode of attachment of the car or about the side-bearings; and that the plaintiff could not give any evidence to show in what manner his ear, as perfected and used, and the various arrangements of trucks which he tried while experimenting, were connected in a train for the purpose of draught, or use the drawing to show anything which was not set forth in the specification. The court decided that the drawing might be referred to the illustrate the specification, but not to enlarge the claim of the patent, and allowed the plaintiff to give evidence as to what was represented in the drawing in regard to a mode of attachment and to side-bearings, and as to the mode of attachment actually used in the car as perfected and the various modes tried while the plaintiff was experimenting. The evidence was, that the plaintiff was experimenting at Baltimore, Md., to produce an eight-wheeled rail-road car, for about four years prior to October, 1834; that the first car made by him, the Columbus, was made in July, 1831; that three others were made, all of them unsatisfactory, prior to the car described in the patent, which was completed and found to be successful but a short time before the date of the patent; that one of the chief defects in the various arrangements of trucks tried during the course of the experiments was, in the cars being coupled together by the trucks and not by the bodies; and that the car, as finally successful, and as shown in the drawing, was drawn by the body. The car Columbus, made in July, 1831, had two trucks, with

four wheels in each, but was drawn by a perch from one of the trucks, and the axles of each truck were too far apart from each other, which defects caused the car to run off the track in turning curves.

The defendants set up that one Conduce Gatch, of Baltimore, was the actual inventor of the successful car made in 1834; and that the claim of the plaintiff's patent was void for want of novelty. The various points raised by the defendants in connection with this latter defence, and the nature of the evidence adduced in its support, will sufficiently appear from the instructions prayed for by the defendants, as hereafter set forth.

After the close of the evidence, the defendants requested the court to charge the jury: (1.) That the mode of attaching the car to the motive power, or to other cars to be drawn in trains, formed no part of the improvement claimed by the plaintiff, and, therefore, could not be taken into consideration in determining whether all or any part of the improvement claimed by the plaintiff was new. The court refused so to charge, but instructed the jury, that although the mode of attachment formed no part of the improvement claimed by the plaintiff, yet it might be taken into consideration for the purpose of ascertaining whether the plaintiff had complied with the law by describing his invention and showing how it was to be used; that the specification was sufficient if the patentee had described a carriage susceptible of an attachment of the power to the body, if the drawing showed such mode of attachment; that the plaintiff could suffer no disadvantage from not having stated it in his written specification; and that, although the drawing was not to be taken into consideration for the purpose of measuring the extent of the patentee's claim, yet it might be considered in ascertaining whether what he claimed was new, if the jury could discover that it had any bearing on that point. The court also charged, that the drawing, of which a certified copy had been given in evidence, was to have the same force and effect as if it had been referred to in the specification, and was to be deemed and taken as a part of the specification.

The defendants also requested the court to charge: (2.) That the remoteness of the two bearing-carriages from each other when attached to the car, was not so expressed or described in the specification as to constitute any part of the improvement claimed by the plaintiff. The court charged to the contrary of this instruction.

The court further charged that the improvement claimed by the plaintiff consisted: 1st. Of the manner of arranging the eight wheels into the two trucks which constituted the two bearing-carriages, which arrangement included the bolsters placed on the centre of each bearing-carriage, and the placing the axles of each truck as near together as could be done without the flanges of the wheels interfering with each other. 2d. Of the manner of connecting the two bearing-carriages to the body of the car by a centre-pin or king-bolt passing through the centre of the upper bolster, which was attached to the body of the car, into the lower bolster on the bearing-carriage. The court also charged that the position of the trucks at or near the ends of the car, was to be considered as constituting a part of the arrangement claimed by the plaintiff as his invention.

The defendants also requested the court to charge: (3.) That if the jury should find that any part of the arrangement of the eight wheels into the two trucks, or the manner of connecting these trucks to the body of the car, was known and used before the alleged improvement by the plaintiff, the patent was void, but the court refused so to charge.

The defendants also requested the court to charge: (4.) That if the jury should find that, prior to the alleged invention of the plaintiff, there was published, in any public work, a description of a car to run on rail-roads, resting on two bearing-carriages composed of four wheels, each having a bolster extending across in the centre between the two wheels, fastened to and forming a part of the carriage, and attached to these bolsters by a centre-pin or bolt passing through the substantial frame of the car in the centre of the bolsters, so as to allow the frame of the carriage to turn and swivel upon the bolsters of the bearing-carriages, the plaintiff's patent was void. (5.) That if the jury should find that any part of the arrangement of the eight wheels into bearing-carriages, or the manner of their connection with the frame or body of the car, was described or delineated in Chapman's patent, or the plates accompanying it, as set forth in the 24th volume of the Repertory of Arts, &c, second series, published in London in 1814, or in Wood's Treatise on Rail-roads, published in London in 1825, at pages 154 to 157, or in the plate between pages 294 and 295 of the latter book, the plaintiff's patent was void. The court declined to give the instructions specified in the fourth and fifth prayers, In the form therein requested, but left it to the jury to say whether, In their opinion, it had been shown that the alleged invention of the plaintiff was substantially described in either of the books mentioned in the fifth prayer, and instructed the jury that, if it was so, the patent was void.

The defendants also requested the court to charge: (6.) That if the jury should find that it was known to persons acquainted with the science of mechanics and mechanical motion, that a four-wheeled carriage, with its axles in close proximity, would traverse a curve more easily than if they were further apart, then that part of the arrangement described and claimed in the specification was not new, and the patent was void. But the court refused so to charge.

The defendants also requested the court to charge: (7.) That if the jury should find that the timber-car found to have been used on the Baltimore and Ohio Railroad before the car Columbus was built, embraced any part of the manner of arranging or connecting the eight wheels to the body of the car, as claimed in the plaintiff's specification, his patent was void, and that it made no difference that said timber-car was only used temporarily or for a temporary purpose. (8.) That if the jury should find that the car Columbus did not substantially embody the whole improvement claimed by the plaintiff, and should also find that the truck of four wheels constructed by Mr. Jervis in the winter of 1832 for the locomotive Experiment, and put in use on the Mohawk and Hudson Railroad in April, 1832, or that the timber-car proved by Mr. Williams and Mr. Whitney to have been constructed and put in use on said road in April or May, 1832, contained any part of the arrangement or connection of the eight wheels to the body of the car claimed in the plaintiff's specification, his patent was void. The court refused to give the instructions mentioned in the seventh and eighth prayers, in the form therein requested; but, after informing the jury that unless the plaintiff appeared by the evidence to be the first inventor of all that by his patent he claimed as his invention, his patent was void, and after submitting to them the evidence relative to the timber-carriage mentioned in the seventh prayer, and also that respecting the four-wheeled truck devised by Mr. Jervis for the locomotive Experiment, and the timber-carriage mentioned in the eighth prayer, the court left it to the jury to decide whether or not it was shown by this evidence that the plaintiff was not such inventor, and declined to give any other or further instructions in answer to these prayers.

The defendants also requested the court to charge: (9.) That if the court should be of opinion that the remoteness of the two bearing-carriages, as described in the plaintiff's specification, constituted a part of the arrangement of the eight wheels into bearing-carriages and the connection to the body of the car, as claimed in the plaintiff's specification, then the patent was void, unless the jury should find that the specification described, with sufficient precision, the proper and necessary location of those bearing-carriages under the body of the car, to enable a mechanic of sufficient skill to construct rail-road cars, to locate the bearing carriages under the car the necessary distance apart, without any experiment, invention or addition of his own. The court gave the instructions contained in this

prayer, and left it to the jury to say whether the plaintiff had not sufficiently indicated the position of the trucks with respect to the ends of the carriage; and remarked that their distance apart must depend on the length of the carriage.

The defendants also requested the court to charge: (10.) That if the jury should find that a car constructed as described in the plaintiff's specification, without side-bearings at the ends of the bolsters, would not be entirely safe to passengers, the patent was void. In answer to this prayer, the court instructed the jury that, in order to find for the plaintiff, the jury must be convinced that what the plaintiff had patented was useful, but that any degree of utility was sufficient to support a patent, the word "useful" in the patent law being used In opposition to "frivolous" or "noxious" and that, with regard to the question of side-bearings, although the jury should think it better to have longer bearings than the plaintiff contemplated, that would not warrant them in finding the patent void, if the invention was useful, within the instructions given, as it was not necessary that the thing patented should be the best possible thing of the kind that could be made; and the court refused to charge the jury otherwise in relation to this prayer.

The defendants also requested the court to charge: (11.) That if the jury should find that the car Columbus embraced in substance the improvements claimed in the plaintiff's specification, and that said car was put into use by the Baltimore and Ohio Railroad Co., on the 4th of July, 1831, and that it was occasionally used by said company from that time, by the consent of the plaintiff, then the patent was void. In relation to this prayer, the court instructed the jury that the law allowed to an inventor a reasonable time to perfect his invention and ascertain its utility, before, in order to secure to himself Its exclusive use, it obliged him to take out his patent; that, in applying this rule, it was the duty of the jury to take into consideration the nature of the invention and all the circumstances of the case; but that an inventor was bound to act with sincerity and good faith towards the public, and in accordance with the policy of the patent laws; that if he unnecessarily deferred his application for a patent, and suffered his invention to be used, except for the purposes already mentioned, and beyond what he had reason to believe necessary for those purposes, his patent would be void; and that this instruction was intended to embrace the evidence relating as well to the Winchester, Dromedary and Comet, as to the Columbus mentioned in this prayer. And, in relation to this prayer, the court refused to give any further or other instruction.

The defendants also requested the court to charge: (12.) That if the proximity of the axles of the bearing-carriages, and any particular remoteness of those bearing-carriages from each other, formed any valid part of the improvement claimed by the plaintiff, then, unless the jury found that both the proximity of said axles and the remoteness of said bearing-carriages from each other in the defendants' cars, were the same as that claimed by the plaintiff to be his improvement, there had been no infringement and the defen-

dants were entitled to a verdict. The court instructed the jury, that in order to warrant them in finding the fact of infringement, they must be satisfied, from the evidence, that the defendants had used either the same thing, or substantially the same thing, as the plaintiff's invention; and the court refused to charge otherwise in relation to this prayer.

The defendants also requested the court to charge: (13.) That the patent was void on its face, because, 1st. There was not in the-specification any sufficiently precise or certain rule for the arrangement and connection of the bearing-carriages with the car, to accomplish the objects of the pretended invention. 2d. The end proposed by the patentee was stated in the specification, but no means of accomplishing it were described, other than the application of known mechanical principles in such manner as would best accomplish that end or object 3d. The claim was for an improvement to accomplish the"end proposed," by such arrangement and adjustment of things in use as would accomplish that end, but the specification left the rule or particular manner of arrangement and adjustment to be discovered and applied. 4th. The specification left the manner of arrangement and connection of the bearing-carriages or wheels, for the accomplishment of the purpose or end the patentee had in view, as much a matter of accident or experiment as they were before the specification was written. 5th. The patent was for a car to be constructed upon such known mechanical principles and with such mechanical arrangement as might be found necessary to attain the "end," or accomplish, the purpose stated in the specification and claimed, without describing what that mechanical arrangement or combination must be. But the court refused so to charge.

The court also instructed the jury, that the-drawing—a certified copy of which had been, given in evidence by the plaintiff—was to have the same force and effect as if it had been referred to in the specification, and was to be deemed and taken as a part of the-specification. The court further instructed the jury, that the application of a thing already known to a new and useful purpose, might be the subject of a patent, provided the new use was not analogous to the old, and required the exercise of the inventive faculties.

The jury found a verdict for the plaintiff, and the defendants, upon a case made, now moved for a new trial.

Joshua A. Spencer and Samuel Blatchford, for plaintiff.

Samuel Stevens, for defendant.

Before NELSON, Circuit Justice, and CONKLING, District Judge.

NELSON, Circuit Justice. I. We have examined the various grounds presented by the counsel for the defendants on the motion for a new trial, and, after the fullest consideration, are of opinion that the motion must be denied.

Most of the exceptions taken at the trial, and relied on in the argument here, are founded on what we regard as an entire misapprehension of the thing claimed to have been discovered by the plaintiff and for which the patent has been issued. This will be seen on a reference to the instructions prayed for by the defendants, upon which most of the questions in the case arise. They assume that if any material part of the arrangement and combination in the construction of the cars or carriages described in the patent was before known or in public use, it is invalid; and hence, various parts were pointed out by the counsel at the trial, and the court was requested to charge, that if either of them was not new, the jury should find a verdict for the defendants.

Now, the answer to all this class of exceptions is, that the patentee sets up no claim to the discovery of the separate parts which enter into his arrangement in the construction of his cars. These may be old and well-known, when taken separately and detached, for aught that concerns his invention. His claim is for the car itself constructed and arranged as described in his patent. This, we think, is the clear meaning of the specification, and of the claim as pointed out in it. Proving, therefore, that parts of the arrangement and construction were before known, amounted to nothing. The question was, whether or not ears or carriages for running on rail-roads, as a whole, substantially like the one described in the patent, had been, before known or in public use; not whether certain parts, were or were not substantially similar. The argument presupposes that the claim is for the discovery of a new combination and arrangement of certain instruments and materials, by means of which a car is constructed of a given utility; and that, if any one or more of the supposed combinations turns out to be old, the patent is invalid. This is the principle upon which much of the defence has been placed; but no such claim is found in the patent. No particular combination or arrangement is pointed out as new or claimed as such. The novelty of the discovery is placed upon no such ground. On the contrary, the, result of the entire arrangement and adjustment of the several parts described, namely, the rail-road car complete and fit for use, is the thing pointed out and claimed as new. This is the view taken of the patent by the chief justice, in the case of the present plaintiff against the Newcastle and Frenchtown Turnpike and Rail-road Company, tried before him in the Maryland circuit, and which was adopted by the judge on the trial of this case.

II. It was further insisted, on the part of the defendants, that if the relative position of the two bearing-carriages to each other constituted a material part of the arrangement in

the construction of the car, the patent was void, unless the jury should find that the specification described with sufficient precision the location of these bearing-carriages under the body of the car, so as to enable a mechanic of skill in the construction of cars, to place them at the proper distance apart without experiment or invention. It was also contended, that the remoteness of the bearing-carriages from each other was not so described in the specification as to constitute any part of the improvement. In respect to this branch of the ease, the court charged that the relative position of the bearing-carriages to each other, in the construction of the car, was a material part of the arrangement of the patentee, and left the question to the jury whether or not he had sufficiently described the position of the trucks, having in view their distance apart and also their distance from the ends of the car-body, suggesting, at the same time, that their location must always depend, in a measure, on the length of the body.

It will be seen, on looking into the specification, that the location of the trucks relatively to each other under the body of the ear, as well as the near proximity of the two axles of each truck to each other, form a most essential part of the arrangement of the patentee in the construction of his cars. Great pains are taken to point out the defects in the existing four-wheel cars, and the impediments to be encountered and overcome in the running of cars upon railroads, as the latter are usually constructed. The patentee states that, in the construction of them, especially when of considerable length, it has been found necessary to admit of lateral curvatures, the radius of which is sometimes but a few hundred feet, and that it becomes important, therefore, to so construct the cars as to enable them to overcome the difficulties presented by these curvatures, and to adapt them for running, with the least friction practicable, on all parts of the road. The friction referred to is that which arises between the flanges of the wheels and the rails, causing great loss of power and destruction of the wheels and rails, besides other injuries. For this purpose, he constructs two bearing-carriages, each with four wheels, which are to sustain the body of the passenger or other car, by placing one of them at or near each end of it, as particularly described. The two wheels on either side of the truck are to be placed very near each other—the spaces between the flanges need be no greater than is necessary to prevent their contact with each other. The car-body rests upon bolsters supported on each of the two bearing-carriages or four-wheeled trucks, the bolsters so constructed as to swivel or turn on each other like the two front bolsters of a common wagon. The body of the car may be made of double the length of the

four-wheeled car, and is capable of carrying double its load. The truck may be so placed within the ends of the car as to bring all the wheels under it; or, without the end, so as to allow the body to be suspended between the two bearing-carriages. The patentee further states, that the closeness of the fore and hind wheels of each bearing-carriage, taken in connection with the use of the two bearing-carriages arranged as remotely from each other as can conveniently be done for the support of the car-body, with a view to the objects and on the principles before set forth, is considered by him as an important feature of the invention; for by the contiguity of the fore and hind wheels of each bearing-carriage, while the two bearing-carriages may be at any desirable distance apart, the lateral friction from the rubbing of the flanges against the rails is most effectually avoided, while at the same time all the advantages attendant upon placing the axles of a four-wheeled car far apart are obtained. The two wheels on either side of the bearing-carriages may, from their proximity, be considered as acting like a single wheel; and, as these two bearing-carriages may be placed at any distance from each other, consistent with the required strength of the body of the car, it is apparent that all the advantages are obtained which result from having the two axles of a four-wheeled car at a distance from each other, while its inconveniences are avoided. Among the principles stated by the patentee to be taken into consideration in the construction of the car is, that the greater the distance between the axles, while the length of the body remains the same, the less the influence of shocks and concussions occurring on the road; and hence the relief from them, when the trucks are placed under the extreme ends of the body, is greater than when they are placed midway between the centre and the ends.

It is apparent, from what we have already referred to in the specification, and still more manifest on a perusal of the whole of it, that the improvement in this part of the arrangement does not consist in placing the axles of the two trucks at any precise distance apart, in the construction of the car, or at any precise distance from each end of the body. The distance used must necessarily depend somewhat upon the length of the car and the strength of the materials of which if is built, and hence it was impracticable to specify in feet or inches the exact distance from the ends of the car-body at which it would be best to arrange the trucks. Neither do the advantages of a car constructed and arranged as described, depend upon the trucks being placed at a specified distance from the ends, or so that there may be a specified distance between the axles. Having in view the defects in the existing cars, and other difficulties to be encountered, some considerable latitude may be allowed in this respect, consistent with the object sought to be attained, to remedy the defects in the existing cars. All the principles for the construction of a car for the purpose of overcoming these difficulties and remedying these defects, are particularly set forth in the description given by the patentee. We think the specification sufficient, and that the court was right in the opinion expressed on this branch of the case. Any mechanic of skill

could readily arrange the bearing-carriages in connection with the body of the car, so as to secure the advantages so minutely and clearly pointed out, and which are shown to attend the practical working of cars constructed in the manner described.

III. The questions of originality and of infringement were questions of fact, depending upon the evidence, and were properly submitted to the jury. We think the weight of it decidedly with the verdict.

IV. The patent in this case was originally issued on the 1st of October, 1834, and was recorded anew on the 7th of June, 1837, according to the act of congress of the 3d of March, 1837 (5 Stat. 191). No drawings were attached to the original patent, nor was there any reference therein to drawings. On the 25th of September, 1848, the patent was extended for the term of seven years from the 1st of October, 1848. The plaintiff gave in evidence, at the commencement of the trial, a certified copy of the patent and specification, of the certificate of extension, of a drawing with references to the same, and of an affidavit of the plaintiff, made November 19th, 1838. The drawing was not filed at the time the patent was recorded anew, but was filed on the 19th of November, 1838. The counsel for the defendants objected to the evidence, on the grounds: 1st, that it appeared that no drawing was annexed to the original patent; and, 2d, that the act of congress did not make such a drawing evidence. The court also instructed the jury, in summing up the case, that the drawing, a certified copy of which had been given in evidence, was to have the same force and effect as if it had been referred to in the specification, and was to be deemed and taken as part of the specification.

The 1st section of the act of 1837 provides that any person interested in a patent issued prior to the 15th of December, 1836, may, without charge, have the same recorded anew, together with the descriptions, specifications of claim and drawings annexed or belonging to the same, and it is made the duty of the commissioner to cause the same, or any authenticated copy of the original record, specification or drawing which he may obtain, to be transcribed and copied into books of record kept for that purpose; and that, whenever a drawing was not originally annexed to the patent and referred to in the specification, any drawing produced as a delineation of the invention, being, verified by oath in such manner as the commissioner shall require, may be transmitted and placed on file, or copied as aforesaid,

together with the certificate of the oath, or such drawings may be made in the office, under the direction of the commissioner, in conformity with the specification. The 2d section provides, that copies of such record and drawings, certified by the commissioner, or, in his absence, by his chief clerk, shall be prima-facie evidence of the particulars of the invention and of the patent granted therefor in any judicial court of the United States, in all cases where copies of the original record or specification and drawings would be evidence, without proof of the loss of such originals. This section also provides, that no patent issued prior to the aforesaid 15th day of December, 1836, shall, after the 1st day of June then nest, be received in evidence in any court on behalf of the patentee, unless it shall have been so recorded anew, and a drawing of the invention, if separate from the patent, verified as aforesaid, shall have been deposited in the patent office. See, also, section 3 of the same act.

It is quite clear, from the above provisions of the act, that the court was right in admitting the drawing in evidence, in connection with the patent and specification. The whole together are made prima-facie evidence of the particulars of the invention and of the patent granted therefor. The weight to be given to the drawings furnished under the act, by way of enlarging or explaining the description as given in the specification, is another question. That will depend upon the circumstances of each particular case. As a general rule, they will not be effectual to correct any material defect in the specification, unless it should appear that they correspond with drawings which accompanied the original application for the patent; otherwise, in ease of discrepancy between the drawings and specification, the latter should prevail. Care must be taken to avoid imposition by the use of the newly-furnished drawings, and, for this purpose, the specification will afford the proper correction, unless the plaintiff goes further and shows that the drawings conform to those originally filed.

The charge that the drawing in this case was to have the same force and effect as if it had been referred to in the specification, and was to be deemed and taken as part of it, was, perhaps, too strong, as it respects the drawings furnished under the act of 1837. The principle is true as it respects those accompanying the original application for the patent, but can hardly be said to be applicable, to the full extent stated, in the case of these newly-furnished drawings. The principle might open the way to imposition and fraud. Assuming that there is nothing but the oath of the party attesting that the drawing affords a true delineation of the invention, the specification should prevail, in case of a material discrepancy. But, admitting the instruction in this respect not to be strictly correct, and that too much weight was given to the drawing, we do not see that it would have altered the result. The specification afforded a sufficient description of the invention, independently of the drawing. It was open to some question whether some slight additions that improved the working of the ear, were embraced in the specification, but they did not enter into

the essence of the invention or constitute any substantial part of the improvement. Time and experience usually indicate these slight additions and alterations, and they should be regarded as consequential results, belonging to the inventor. It requires time and experience usually to perfect the machine, and improvements derived therefrom are justly due to him.

V. We think that the court was correct in its instructions as to the prior use of the car Columbus and of others constructed by the patentee before he made application for his patent. The law allows the inventor a reasonable time to perfect his invention by experiments; and these could be made, in this instance, only by putting the car into the service of those controlling lines of railroads. There were repeated failures in the experiments tried and in the cars which were abandoned before the perfection of the ear described in the patent. These experiments and trials sufficiently account for the previous use set up by way of forfeiture of the invention.

Upon the whole, after a careful examination of the ease, and of all the points made by the defendants on the argument, many of which have been noticed above, we are satisfied that the verdict is right, and that a new trial should be denied.

{For other cases involving this patent, see Winans v. Eaton, Case No. 17,861; Winans v. New York & E. R. Co., Id. 17,863; Winans v. New York & H. R. Co., Id. 17,864; New York & M. L. R. Co. v. Winans, 17 How. (58 U. S.) 30.}

WINCH, The M. F. See Case No. 4,485.

[1] {Reported by Samuel Blatchford, Esq., and here reprinted by permission. Merw. Pat. Inv. 416, and 53 Jour. Fr. Inst 256, contain only partial reports.}

[2] The specification was as follows:

"To all whom it may concern—Be it known, that I, Boss Winans, civil engineer, of the city of Baltimore, in the state of Maryland, have invented a new and useful improvement in the construction of cars or carriages intended to travel upon railroads; which improvement is particularly adapted to passenger-cars, as will more fully appear by an exposition of the difficulties heretofore experienced in the running of such cars at high velocities, which exposition I think it best to give in this specification, for the purpose of exemplifying the more clearly the object of my said improvement. In the construction of all railroads in this country, which extend to any considerable distance, it has been found necessary to admit of lateral curvatures, the radius of which is sometimes but a few hundred feet; and it becomes important, therefore, so to construct the ears as to enable them to overcome the difficulties presented by such curvatures, and to adapt them for running with the least friction practicable upon all parts of the road." The friction to which I now allude is that which arises from the contact between the flauches of the wheels and the rails, which, when it occurs, causes a great loss of power and a rapid destruction of or injury to both the wheel and the rail and is otherwise injurious. The high velocities attained by

the improvements made in locomotive engines, and which are not only sanctioned, but demanded, by public opinion, render it necessary that certain points of construction and arrangement, both in the roads and wheels, which were not viewed as important at former rates of travelling, should now receive special attention. The greater momentum of the load, and the intensity of the shocks and concussions, which are unavoidable, even under the best constructions, are among those circumstances which must not be neglected, as the liability to accident is thereby not only greatly increased, but the consequences to be apprehended much more serious. The passenger and other cars in general use upon railroads have four wheels, the axles of which are placed from three and a half to five feet apart; this distance being governed by the nature of the road upon which they run, and other considerations. When the cars are so constructed that the axles retain their parallelism, and are at a considerable distance apart, there is a necessary tendency in the flauches of the wheels to come into contact with the rails, especially on the curvatures of least radius, as the axles then vary more from the direction of the radii. From this consideration, when taken alone, it would appear to be best to place the axles as near to each other as possible, thus causing them to approach more nearly to the direction of the radii of the curves, and the planes of the wheels to conform to the line of the rails. There are, however, other circumstances which must not be overlooked in their constructions. I have already alluded to the increased force of the shocks from obstructions at high velocities; and, whatever care may be taken, there will be inequalities in the rails and wheels, which, though small, are numerous, and the perpetual operation of which produces effects which cannot be disregarded. The greater the distance between the axles, while the length anew on the 7th of June, 1837, under section 1 of the act of March 3d, 1837 (5 Stat. 191), as appeared by a memorandum to that effect endorsed upon it. No drawings were annexed to the original patent, nor was there any reference in the specification to any drawings. On the 25th of September, 1848, the patent was extended for seven years from the 1st of October, 1848, as appeared by a certificate of extension endorsed on the of the body remains the same, the less is the influence of these shocks or concussions; and this has led, in many instances, to the placing them in passenger-cars at or near their extreme ends. Now, however, a compromise is most commonly made, between the evils resulting from a considerable separation and a near approach, as, by the modes of construction now in use, one of the advantages must be sacrificed to the other. But it is not to the lateral curvatures and inequalities of the road alone that the foregoing remarks apply. The incessant vibration felt in travelling over railroads is mainly dependent upon the vertical motion of the cars, in surmounting those numerous though minute obstructions which unavoidably exist. The nearer the axles are placed to each other, the greater is the effect of this motion upon the passengers, and the greater its power to derange the machinery and the road. It becomes very important, therefore, both as regards comfort, safety and economy, to de-

vise a mode of combining the advantages derived from placing the axles at a considerable distance apart, with those of allowing them to be situated near to each other. It has been attempted, and with some success, to correct the tendency of the flauches to come into contact with the rails, on the curved and other parts of the road, by making the tread of the wheel conical; and, if the travelling upon rail-roads was not required to be very rapid, this would so far prove an effectual corrective, as the two rails would find diameters upon the wheels which would correspond with the difference in length, the constant tendency to deviation being as constantly counteracted by this construction; but, at high velocities, the momentum of the body in motion tends so powerfully to carry it in a right line, as to cause the wheel on the longer rail to ascend considerably above that part of the cone which corresponds therewith; the consequence of this is, a continued serpentine motion, principally, but not entirely, in a lateral direction; nor is this confined to the curved parts of the road, but it exists to an equal, or greater extent, upon those which are straight, especially when the axles are near to each other, the irregularities, before spoken of, constantly changing the direct course of the wheels, whilst there is no general curvature of the rails to counteract it. To avoid this effect, and the unpleasant motion and tendency to derangement consequent upon it, an additional motive is furnished for placing the axles at a considerable distance apart.

"The object of my invention is, among other things, to make such an adjustment or arrangement of the wheels and axles, as shall cause the body of the car or carriage to pursue a more smooth, even, direct and safe course than it does, as cars are ordinarily constructed, both over the curved and straight parts of the road, by the before-mentioned desideratum of combining the advantages of the near and distant coupling of the axles, and other means to be hereinafter described. For this purpose, I construct two bearing-carriages, each with four wheels, which are to sustain the body of the passenger or other car, by placing one of them at or near each end of it, in a way to be presently described. The two wheels on either side of these carriages are to be placed very near to each other; the spaces between their flauches need be no greater than is necessary to prevent their contact with each other. These wheels I connect together by means of a very strong spring—say double the usual strength employed for ordinary cars—the ends of which springs are bolted, or otherwise secured, to the upper side of the boxes which rest on the journals of, the axles; the longer leaves of the springs being placed downwards, and surmounted by the shorter leaves. Having thus connected two pairs of wheels together, I unite them into a four-wheel bearing-carriage, by means of their axles and a bolster of the proper length, extending across, between the two pair of wheels, from the centre of one spring to that of the other, and securely fastened to the tops of them. This bolster must be of sufficient strength to bear a load upon its centre of four or five tons. Upon this first bolster I place another of equal strength, and connect the two together by a centre-pin or bolt pass-

ing down through them, and thus allow them to swivel or turn upon each other in the manner of the front bolster of a common road wagon. I prefer making these bolsters of wrought or cast iron; wood, however, may be used. I prepare each of the hearing-carriages in precisely the same way. The body of the passenger or other car I make of double the ordinary length of those which run on four wheels, and capable of carrying double their load. This body I place so as to rest its whole weight upon the two upper bolsters of the two before mentioned bearing-carriages or running gear. I sometimes place these bolsters so far within the ends of the body of the car as to bring all the wheels under it, and, in this case, less strength is necessary in the car-body, than when the bolster is situated at its extreme ends. In some cases, however, I place the bolster so far without the body of the car at either end as to allow the latter to hang down between the two sets of wheels or bearing-carriages, and to run, if desired, within a foot of the rails. When this is done, a strong frame-work projects out from either end of the car or carriage-body, and rests upon the upper bolsters of the two bearing-carriages. This last arrangement, by which the body of the car is hung so low down, manifestly affords a great security to the passengers, exempting them, in a great degree, from those accidents to which they are liable when the load is raised. Several bodies may be connected or rest on a common frame, and be supported, on the bearing-carriage, in a manner similar to that of a single body. When the-bolsters of the bearing-carriages are placed under the extreme ends of the body, the relief from shocks and concussions, and from lateral vibrations, is greater than it is when the bolsters are placed between the middle and the ends of the body, and this relief is not materially varied by increasing or diminishing the length of the body, while the extreme ends of it continue to rest on the bolsters of the bearing-cars, the load being supposed to be equally distributed over the entire length of the body.

"Although I prefer the use of a single spring to a pair of wheels, as above described, instead of the ordinary spring to each wheel, and consider it as more simple, cheap and convenient than any other arrangement, the end which I have in view may, nevertheless, be obtained by constructing the bearing-carriages in any of the modes usually practised, provided that the fore and hind wheels of each of them be placed very near together; because, the closeness of the fore and hind wheels of each bearing-carriage, taken in connection with the use of two bearing-carriages coupled remotely from each other as can conveniently be done for the support of one body, with a view to the objects and on the principles herein set forth, is considered by me as a most important feature of my invention; for, by the contiguity of the fore and hind wheels of each bearing-carriage, while the two bearing-carriages may be at any desirable distance apart, the lateral friction from the rubbing of the flauches against the rails is most effectually avoided, whilst, at the same time, all the advantages attendant upon placing the axles of a four-wheeled car far apart are thus obtained. The bearing of the load on the centre of the bolster, which also is the

centre of each bearing-carriage, likewise affords great relief from the shocks occasioned by the percussion of the wheels or protuberant parts of the rails or other objects, and from the vibrations consequent to the use of coned wheels; as the lateral and vertical movements of the body of the car, resulting from the above causes, are much diminished. The two wheels on either side of one of the bearing-carriages may, from their proximity, be considered as acting like a single wheel; and, as these two bearing-carriages may be placed at any distance from each other, consistent with the required strength of the body of the car, it is evident that all the advantage is obtained which results from having the two axles of a four-wheeled car at a distance from each other, whilst its inconveniences are avoided. Another advantage of this car, compared with those in common use, and which is viewed by me as very important, is the increased safety afforded by it to passengers, not only from the diminished liability to breakage or derangement in the frame-work, but also from the less disastrous consequences to be apprehended from the breaking of a wheel, axle, or other part of the running gear, as the car-body depends, for its support and safety, upon a greater number of wheels and bearing points on the road. I do not claim as my invention the running, of cars or carriages upon eight wheels, this having been previously done; not, however, in the manner or for the purposes herein described, but merely with a view of distributing the weight carried more evenly upon a rail or other road, and for objects distinct in character from those which I have had in view, as hereinbefore set forth. Nor have the wheels, when thus increased in number, been so arranged and connected with each other, either by design or accident, as to accomplish this purpose. What I claim, therefore, as my invention, and for which I ask a patent, is the before-described manner of arranging and connecting the eight wheels, which constitute the two bearing-carriages, with a rail-road car, so as to accomplish the end proposed by the means set forth, or by any others which are analogous and dependent upon the same principles."