Winans Vs. Denmead

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Appellant : Winans

Respondent : Denmead

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Winans v. Denmead

56 U.S. (15 How.) 330

ERROR TO THE CIRCUIT COURT OF THE UNITED

STATES FOR THE DISTRICT OF MARYLAND

SYLLABUS

A patent was taken out for making the body of a burden railroad car of sheet iron, the upper part being cylindrical, and the lower part in the form of a frustum of a cone, the under edge of which has a flange secured upon it, to which flange a

movable bottom is attached.

The claim was this.

"What I claim its my invention and desire to secure by letters patent is making the body of a car for the transportation of coal &c.;, in the form of a frustum of a cone, substantially as herein described, whereby the force exerted by the weight of the load presses equally in all directions and does not tend to change the form thereof, so that every part resists its equal proportion, and by which also the lower part is so reduced as to pass down within the truck frame and between the axles to lower the center of gravity of the load without diminishing the capacity of the car as described. I also claim extending the body of the car below the connecting pieces of the truck frame and the line of draft, by passing the connecting bars of the truck frame and the draft bar, through the body of the car substantially described."

This patent was not for merely changing the form of a machine, but by means of such change to introduce and employ other mechanical principles or natural powers, or a new mode of operation, and thus attain a new and useful result.

Hence, where, in a suit brought by the patentee against persons who had constructed octagonal and pyramidal cars, the district judge ruled that the patent was good for conical bodies, but not for rectilinear bodies, this ruling was erroneous.

The structure, the mode of operation, and the result attained were the same in both, and the specification claimed in the patent covered the rectilinear cars. With this explanation of the patent, it should have been left to the jury to decide the question of infringement as a question of fact.

This was an action brought by Ross Winans for the infringement of a patent right. The jury, under the instruction of the district judge, the late Judge Glenn, then sitting alone, found a verdict for the defendants, and the plaintiff brought the case to this Court by a writ of error.

The nature of the case is set forth in the explanatory statement prefixed to the argument of the counsel for the plaintiff in error.

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MR. JUSTICE CURTIS delivered the opinion of the Court.

This is a writ of error to the Circuit Court of the United States for the District of Maryland. The plaintiff in error brought his action in that court for an infringement of the exclusive right to make, use, and sell "an improvement in cars for the transportation of coal," &c.;, granted to him by letters patent, bearing date on the 26th day of June, 1847, and, the judgment of that court being for the defendants, he has brought the record here by this writ of error.

It appears, by the bill of exceptions, that the letters patent declared on were duly issued, and that their validity was not questioned, but the defendants denied that they had infringed upon the exclusive right of the plaintiff.

On such a trial, two questions arise. The first is what is the thing patented; the second, has that thing been constructed, used, or sold by the defendants.

The first is a question of law, to be determined by the court construing the letters patent, and the description of the invention and specification of claim annexed to them. The second is a question of fact, to be submitted to a jury.

In this case, it is alleged the court construed the specification of claim erroneously, and thereby withdrew from the jury questions which it was their province to decide. This renders it necessary to examine the letters patent, and the schedule annexed to them, to see whether their construction by the circuit court was correct.

In this, as in most patent cases, founded on alleged improvements in machines, in order to determine what is the thing patented, it is necessary to inquire.

1. What is the structure or device, described by the patentee, as embodying his invention.

2. What mode of operation is introduced and employed by this structure or device.

3. What result is attained by means of this mode of operation.

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4. Does the specification of claim cover the described mode of operation by which the result is attained.

Without going into unnecessary details, or referring to drawings, it may be stated that the structure, described by this patent, is the body of a burden railroad car, made of sheet iron, the upper part being cylindrical, and the lower part in the form of a frustum of a cone, the under edge of which has a flange secured upon it, to which flange a movable bottom is attached. This bottom is made movable, in order to discharge the load through the aperture left by removing it.

To understand the mode of operation introduced and employed by means of this form of the car body, it is only necessary to state, what appears on the face of the specification, and was testified to by experts at the trial as correct, that, by reason of the circular form of the car body, the pressure of the load outwards was equal in every direction, and thus the load supported itself in a great degree; that by making the lower part conical, this principle of action operated throughout the car, with the exception of the small space to which the movable bottom was attached; that, being conical, the lower part of the car could be carried down below the truck, between the wheels, thus lowering the center of gravity of the load; that the pressure outwards upon all parts of the circle being equal, the tensile strength of the iron was used to a much greater degree than in a car of a square form; and, finally, that this form of the lower part of the car facilitated the complete discharge of the load through the aperture, when the bottom was removed.

It thus appears that, by means of this change of form, the patentee has introduced a mode of operation not before employed in burden cars, that is to say, nearly equal pressure in all directions by the entire load, save that small part which rests on the movable bottom; the effects of which are that the load, in a great degree,

supports itself, and the tensile strength of the iron is used, while at the same time, by reason of the same form, the center of gravity of the load is depressed, and its discharge facilitated.

The practical result attained this mode of operation is correctly described by the patentee, for the uncontradicted evidence at the trial showed that he had not exaggerated the practical advantage of his invention. The specification states:

"The transportation of coal, and all other heavy articles in lumps, has been attended with great injury to the cars, requiring the bodies to be constructed with great strength to resist the outward pressure on the sides, as well as the vertical pressure on the bottom, due not only to the weight of the mass, but the mobility of the lumps among each other tending to 'pack,' as

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it is technically termed. Experience has shown that cars, on the old mode of construction, cannot be made to carry a load greater than its own weight; but, by my improvement, I am enabled to make cars of greater durability than those heretofore made, which will transport double their own weight of coal,"

&c.;

Having thus ascertained what is the structure described, the mode of operation it embodies, and the practical result attained, the next inquiry is, does the specification of claim cover this mode of operation, by which this result is effected?

It was upon this question the case turned at the trial in the circuit court.

The testimony showed that the defendants had made cars similar to the plaintiff's, except that the form was octagonal instead of circular. There was evidence tending to prove that, considered in reference to the practical uses of such a car, the octagonal car was substantially the same as the circular. Amongst other witnesses upon this point was James Millholland, who was called by the defendants. He testified.

"That the advantage of a reduced bottom of the car was obtained, whether the car was conical or octagonal; that the strengthening of the bottom, due to the adoption of a conical form, was the same when the octagonal form was adopted, or the circular. That the circular form was the best to resist the pressure, as, for instance, in a steam boiler, and an octagonal one better than the square form; that the octagonal car was not better than the conical car; that, for practical purposes, one was as good as the other; that a polygon of many sides would be equivalent to a circle; that the octagon car, practically, was as good as the conical ones; and that, substantially, the witness saw no difference between the two."

The district judge, who presided at the trial, ruled:

"That while the patent is good for what [is] described therein, a conical body, in whole or in part, supported in any of the modes indicated for a mode of sustaining a conical body on a carriage or truck, and drawing the same, and to those principles which were due alone to conical vehicles, and not to rectilinear bodies, and it being admitted that the defendants' car was entirely rectilinear, that there was no infringement of the plaintiff's patent."

The substance of this ruling was that the claim was limited to the particular geometrical form mentioned in the specification, and as the defendants had not made cars in that particular form, there could be no infringement, even if the cars made by the defendants attained the same result by employing what was in fact the same mode of operation as that described by the patentee. We think this ruling was erroneous.

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Under our law a patent cannot be granted merely for a change of form. The Act of February 21, 1793, 2, so declared in express terms; and though this declaratory law was not reenacted in the Patent act of 1836, it is a principle which necessarily makes part of every system of law granting patents for new inventions. Merely to change the form of a machine is the work of a constructor, not of an inventor; such a change cannot be deemed an invention. Nor does the plaintiff's patent rest upon

such a change. To change the form of an existing machine, and by means of such change to introduce and employ other mechanical principles or natural powers, or, as it is termed, a new mode of operation, and thus attain a new and useful result, is the subject of a patent. Such is the basis on which the plaintiff's patent rests.

Its substance is a new mode of operation, by means of which a new result is obtained. It is this new mode of operation which gives it the character of an invention, and entitles the inventor to a patent; and this new mode of operation is, in view of the patent law, the thing entitled to protection. The patentee may, and should, so frame his specification of claim as to cover this new mode of operation which he has invented; and the only question in this case is whether he has done so, or whether he has restricted his claim to one particular geometrical form.

There being evidence in the case tending to show that other forms do in fact embody the plaintiff's mode of operation, and, by means of it, produce the same new and useful result, the question is whether the patentee has limited his claim to one out of the several forms which thus embody his invention.

Now while it is undoubtedly true, that the patentee may so restrict his claim as to cover less than what he invented, or may limit it to one particular form of machine, excluding all other forms, though they also embody his invention, yet such an interpretation should not be put upon his claim if it can fairly be construed otherwise, and this for two reasons:

1. Because the reasonable presumption is that, having a just right to cover and protect his whole invention, he intended to do so. *Haworth v. Hardcastle,* Web.P.C.484.

2. Because specifications are to be construed liberally, in accordance with the design of the Constitution and the patent laws of the United States, to promote the progress of the useful arts, and allow inventors to retain to their own use, not anything which is matter of common right, but what they themselves have created. *Grant v. Raymond,* 6 Pet. 218; *Ames v. Howard,* 1 Sumn. 482, 485; *Blanchard v. Sprague,* 3 Sumn. 535, 539; *Davoll v. Brown,* 1 Wood. & Minot 53, 57; *Parker*

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Haworth, 4 McLean 372; *Le Roy v. Tatham,* 14 How. 181, and opinion of Parke, Baron, there quoted; *Neilson v. Harford,* Web.P.C. 341; *Russell v. Cowley, id.,* 470; *Burden v. Winslow,* decided at the present term, 15 How.

The claim of the plaintiff is in the following words:

"What I claim as my invention, and desire to secure by letters patent, is making the body of a car for the transportation of coal &c.;, in the form of a frustum of a cone, substantially as herein described, whereby the force exerted by the weight of the load presses equally in all directions, and does not tend to change the form thereof, so that every part resists its equal proportion, and by which, also, the lower part is so reduced as to pass down within the truck frame and between the axles, to lower the center of gravity of the load without diminishing the capacity of the car as described."

"I also claim extending the body of the car below the connecting pieces of the truck frame, and the line of draft, by passing the connecting bars of the truck frame, and the draft bar, through the body of the car, substantially as described."

It is generally true, when a patentee describes a machine and then claims it as described, that he is understood to intend to claim, and does by law actually cover, not only the precise forms he has described, but all other forms which embody his invention, it being a familiar rule that to copy the principle or more of operation described is an infringement, although such copy should be totally unlike the original in form or proportions.

Why should not this rule be applied to this case?

It is not sufficient to distinguish this case to say that here the invention consists in a change of form, and the patentee has claimed one form only.

Patentable improvements in machinery are almost always made by changing someone or more forms of one or more parts, and thereby introducing some mechanical principle or mode of action not previously existing in the machine, and so securing a new or improved result. And, in the numerous cases in which it has been held, that to copy the patentee's mode of operation was an infringement, the infringer had got forms and proportions not described, and not in terms claimed. If it were not so, no question of infringement could arise. If the machine complained of were a copy, in form, of the machine described in the specification, of course it would be at once seen to be an infringement. It could be nothing else. It is only ingenious diversities of form and proportion, presenting the appearance of something unlike the thing patented, which give rise to questions, and the property of inventors would be valueless if it

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were enough for the defendant to say, "your improvement consisted in a change of form; you describe and claim but one form; I have not taken that, and so have not infringed."

The answer is

"my improvement did not consist in a change of form, but in the new employment of principles or powers, in a new mode of operation, embodied in a form by means of which a new or better result is produced; it was this which constituted my invention; this you have copied, changing only the form; and that answer is justly applicable to this patent."

Undoubtedly there may be cases in which the letters patent do include only the particular form described and claimed. *Davis v. Palmer,* 2 Brock. 309, seems to have been one of those cases. But they are in entire accordance with what is above stated.

The reason why such a patent covers only one geometrical form, is not that the patentee has described and claimed that form only; it is because that form only is capable of embodying his invention, and consequently, if the form is not copied,

the invention is not used.

Where form and substance are inseparable, it is enough to look at the form only. Where they are separable; where the whole substance of the invention may be copied in a different form, it is the duty of courts and juries to look through the form for the substance of the invention -- for that which entitled the inventor to his patent, and which the patent was designed to secure; where that is found, there is an infringement; and it is not a defense, that it is embodied in a form not described, and in terms claimed by the patentee.

Patentees sometimes add to their claims an express declaration, to the effect that the claim extends to the thing patented, however its form or proportions may be varied. But this is unnecessary. The law so interprets the claim without the addition of these words. The exclusive right to the thing patented is not secured, if the public are at liberty to make substantial copies of it, varying its form or proportions. And therefore the patentee, having described his invention, and shown its principles, and claimed it in that form which most perfectly embodies it, is, in contemplation of law, deemed to claim every form in which his invention may be copied, unless he manifests an intention to disclaim some of those forms.

Indeed it is difficult to perceive how any other rule could be applied, practicably, to cases like this. How is a question of infringement of this patent to be tried? It may safely be assumed that neither the patentee nor any other constructer has made or will make a car exactly circular. In practice, deviations from a true circle will always occur. How near to a

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circle, then, must a car be in order to infringe? May it be slightly elliptical, or otherwise depart from a true circle, and, if so, how far?

In our judgment, the only answer that can be given to these questions is that it must be so near to a true circle as substantially to embody the patentee's mode of operation, and thereby attain the same kind of result as was reached by his invention. It is not necessary that the defendant's cars should employ the plaintiff's

invention to as good advantage as he employed it, or that the result should be precisely the same in degree. It must be the same in kind, and effected by the employment of his mode of operation in substance. Whether in point of fact the defendant's cars did copy the plaintiff's invention in the sense above explained is a question for the jury, and the court below erred in not leaving that question to them upon the evidence in the case, which tended to prove the affirmative.

The judgment of the court below must be

Reversed.

MR. CHIEF JUSTICE TANEY, MR. JUSTICE CATRON, MR. JUSTICE DANIEL, and MR. JUSTICE CAMPBELL, dissented.

MR. JUSTICE CAMPBELL.

I dissent from the opinion of the Court in this case.

The plaintiff claims to have designed and constructed a car for the transportation of coal on railroads which shall carry the heaviest load in proportion to its own weight.

His design consists in the adoption of the "conical form" "for the body of the car," "whereby the weight of the load presses equally in all directions," does not "tend to change the form of the car," permits it "to extend down within the truck," lowering "the center of gravity of the load," and by its reduced size at the bottom adding to its strength and durability. He claims as his invention, and it is the whole of the change which he has made in the manufacture of cars, "the making of the body of the car in the form of the frustum of a cone."

It is agreed that a circle contains a greater area than any figure of the same perimeter, that the conical form is best suited to resist pressure from within, and that the reduced size at the bottom of the car is favorable to its strength. The introduction of the cars of the plaintiff upon the railroad for the transportation of coal was attended by a great increase of the loads in proportion to the weight of the car. The merits of the design are frankly conceded. Nevertheless it is notorious

that there does exist a very great variety of vessels in common domestic use "of a conical form," or, "of the form of the frustum of a cone," for the reception and transportation of articles of prime

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necessity and constant demand, such as water, coal, food, clothing &c.; It is also true that the properties of the circle and of circular forms alluded to in the patent of the plaintiff are understood and appreciated, and have been applied in every department of mechanic art. One cannot doubt that a requisition from the transportation companies for cars of a diminished weight and an increased capacity upon the machinists and engineers connected with the business would have been answered promptly by a suggestion of a change in the form of the car. The merit of the plaintiff seems to consist in the perfection of his design, and his clear statement of the scientific principle it contains.

There arises in my mind a strong if not insuperable objection to the admission of the claim in the patent for "the conical form" or the form of the "frustum of a cone" as an invention. Or that any machinist or engineer can appropriate by patent a form whose properties are universally understood and which is in very common use, in consequence of those properties, for purposes strictly analogous. The authority of adjudged cases seems to me strongly opposed to the claim. *Hotchkiss v. Greenwood,* 11 How. 249; *Losh v. Hague,* Web.Pat.Cas. 207; *Winans v. Providence Railroad Company,* 2 Story 412; 2 *id.* 190; 2 Car. & Kir. 1022; 3 W.H. & Gord. 427.

Conceding, however, that the invention was patentable, and this seems to have been conceded in the circuit court, the inquiry is, what is the extent of the claim? The plaintiff professes to have made an improvement in the form of a vehicle, which has been a long time in use, and exists in a variety of forms. He professes to have discovered the precise form most fitted for the objects in view. He describes this form, as the matter of his invention, and the principle he develops applies to no other form. For this he claims his patent. We are authorized to conclude, that his precise and definite specification and claim were designed to

ascertain exactly the limits of his invention. *Davis v. Palmer,* 2 Brock. 298.

The car of the defendants is of an octagonal form, with an octagonal pyramidical base. There was no contradiction, in the evidence given at the trial, in reference to its description, nor as to the substantial effects of its use and operation. In the size, thickness of the metal employed in its construction, weight, and substantial and profitable results, the one car does not materially vary from the other. The difference consists in the form, and in that, it is visible and palpable.

The circuit court, acting upon these facts, of which there was no dispute, instructed the jury that an infringement of the plaintiff's patent had not taken place. I do not find the

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question before the court a compound question of law and fact. The facts were all ascertained, and upon no construction of those facts was the plaintiff, in my opinion, entitled to a judgment.

In theory, the plaintiff's car is superior to all others. His car displays the qualities which his specification distinguishes. The equal pressure of the load in all directions; the tendency to preserve the form, notwithstanding the pressure of the load; the absence of the cross strain; the lowering of the center of the gravity of the load -- are advantages which it possesses in a superior degree to that of the defendants'. Yet the experts say that there is no appreciable difference in the substantial results afforded by the two.

The cause for this must be looked for in a source extrinsic to the mere form of the vehicles. Nor is it difficult to detect the cause for this identity in the results in such a source.

The coarse, heavy, cumbrous operations of coal transportation do not admit of the manufacture of cars upon nice mathematical formulas, nor can the loads be adjusted with much reference to exactness. There is a liability to violent percussion's and extraordinary strains, which must be provided for by an excess in

the weight and thickness of the material used. Then, unless the difference in the weight of the load is great, there will be no correspondent difference in the receipts of the transportation companies.

The patentee, not exaggerating the theoretical superiority of the form of his car, overlooked those facts which reduced its practical value to the level of cars of a form widely variant from his own. The object of this suit is to repair that defect of observation. It is that this Court shall extend, by construction, the scope and operation of his patent, to embrace every form which in practice will yield a result substantially equal or approximate to his own.

In the instruction asked for by the plaintiff, "form and circumstances" are treated as more or less immaterial, but the verdict is claimed if the defendants have constructed cars "which, substantially on the same principle and in the same mode of operation, accomplish the same result."

The principle stated in the patent applies only to circular forms.

The modes of operation in coal transportation have experienced no change from the skill of the plaintiff, except by the change from the rectilinear figure to the circular.

The defendant adheres to the rectilinear form. The result accomplished by the use of the two cars is the same -- a more economical transportation of coal. This result it is that the

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plaintiff desires to appropriate, but this cannot be permitted. Curtis on Patents, 4, 26, 27, 86, 87, 88; 2 Story 408, 411.

In the case of *Aiken v. Bemis,* 3 Wood. & M. 349, the learned judge said,

"When a patentee chooses to cover with his patent the material of which a part of his machine is composed, he entirely endangers his right to prosecute when a different and inferior material is employed, and one which he himself, after

repeated experiment, had rejected."

The plaintiff confines his claim to the use of the conical form, and excludes from his specification any allusion to any other. He must have done so advisedly. He might have been unwilling to expose the validity of his patent, by the assertion of a right to any other. Can he abandon the ground of his patent, and ask now, for the exclusive use of all cars which, by experiment, shall be found to yield the advantages which he anticipated for conical cars only?

The claim of today is that an octagonal car is an infringement of this patent. Will this be the limit to that claim? Who can tell the bounds within which the mechanical industry of the country may freely exert itself? What restraints does this patent impose in this branch of mechanic art?

To escape the incessant and intense competition which exists in every department of industry, it is not strange that persons should seek the cover of the patent act, for any happy effort of contrivance or construction, nor that patents should be very frequently employed to obstruct invention, and to deter from legitimate operations of skill and ingenuity. This danger was foreseen and provided for in the patent act. The patentee is obliged by law to describe his invention, in such full, clear, and exact terms that from the description the invention may be constructed and used. Its principle and modes of operation must be explained, and the invention shall particularly "specify and point" out what he claims as his invention. Fullness, clearness, exactness, preciseness, and particularity in the description of the invention, its principle, and of the matter claimed to be invented will alone fulfill the demands of Congress or the wants of the country. Nothing in the administration of this law will be more mischievous, more productive of oppressive and costly litigation, of exorbitant and unjust pretensions and vexations demands, more injurious to labor than a relaxation of these wise and salutary requisitions of the act of Congress. In my judgment, the principles of legal interpretation as well as the public interest require that this language of this statute shall have its full significance and import.

In this case, the language of the patent is full, clear, and exact. The claim is particular and specific.

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Neither the specification nor the claim, in my opinion, embraces the workmanship of the defendants. I therefore respectfully dissent from the judgment of the Court, which implies the contrary.

ORDER

This cause came on to be heard on the transcript of the record from the Circuit Court of the United States for the District of Maryland and was argued by counsel. On consideration whereof it is now here ordered and adjudged by this Court that the judgment of the said circuit court in this cause be and the same is hereby reversed with costs, and that this cause be and the same is hereby remanded to the said circuit court with directions to award a venire facias *de novo.*