

WILLIAMES *ET AL.* V. BARNARD *ET AL.*

*Circuit Court, S. D. New York.*

February 12, 1890.

1. PATENTS FOR INVENTIONS—DATE OF INVENTION—EVIDENCE—STEAM-HEATING APPARATUS.

On a bill to restrain the infringement of letters patent No. 256,089, issued April 4, 1882, to Napoleon W. Willames for an improvement in steam-heating for buildings, it appeared that the first practical apparatus embodying his system had been put in operation in October, 1880. He, however, claimed that he had made his invention, and exhibited it to a society of engineers, January 23, 1872. In this he was corroborated by two members of the society, and portions of the apparatus used for the exhibition were put in evidence. The minutes of the meeting, however, made no mention of the exhibition, but did mention other experiments, for which the apparatus was suitable. *Held* that, in the absence of a definite showing that the invention was perfected prior to October, 1880, that date must be fixed as the date of the invention.

2. SAME—ANTICIPATION.

The first claim under letters patent No. 256,089, for an improvement in steam-heating for buildings, provides for an apparatus with an exhaust-pipe and heating coils opening from it, in combination with a bleeder-pipe connecting with the coils, and opening at the bottom into a hot-well, in which a partial vacuum is maintained. The third claim also provided for an exhaust-fan and a feed water pipe to assist combination. It appeared that prior to the issue of the letters an English patent had been issued for a device for heating railway carriages by steam, which consisted of a pipe running from the exhaust-steam passage of the engine, conveying steam to the heating pipes and coils in the carriages, and a return-pipe, conveying the steam back to the engine, which opens into the smoke-box, and is fitted with a small ejector. It also provides in place of the ejector a small exhaust-pump placed on the engine or guard's van for drawing the return steam through the pipes. *Held*, that the English patent was not such an anticipation of the combination set forth in the first and third claims of plaintiffs' patent as to render it invalid.

3. SAME.

But the English patent does anticipate the claims of plaintiffs' patent for an exhaust-pipe supplying steam to heating coils in combination with a bleeder-pipe connecting with the coils, and means to create a suction in the bleeder-pipe, to draw the steam, through the apparatus.

4. SAME—INFRINGEMENT.

Infringement of a patented combination cannot be avoided by merely using another part in addition to the combination.

In Equity. Bill to restrain infringement of patent.

This action was brought by Napoleon W. Willames and Robert Coddington against George A. Barnard and the Ingersoll Rock-Drill Company to restrain the infringement of letters patent No. 256,089, issued to Willames April 4, 1882, for an improvement in steam-heating apparatus.

*Frederic H. Betts* and *Samuel R. Betts*, for complainants.

*Benjamin F. Thurston* and *Thomas L. Livermore*, for defendants.

COXE, J. Napoleon W. Willames is the owner and Robert Coddington is the exclusive licensee of letters patent, No. 256,089, granted to Willames April 4, 1882, for an improvement in heating apparatus used in buildings. They bring this action against the defendants, seeking the ordinary decree in equity.

The principal improvement which, the complainants insist, was original with Willames may be briefly stated as follows: Prior to his invention steam had been circulated direct from the boilers, under considerable pressure, and, in other instances, the exhaust-pipe of the engine was loaded, and the exhaust steam forced through the system by the back pressure thus created. The steam was, in each case, permitted to escape at the tail end of the system under a pressure above that of the atmosphere. Willames's idea was to get rid of the back pressure upon the steam-engine by removing the loaded valve at the end of the exhaust-pipe and create and maintain a partial vacuum by means of an exhaust-fan or vacuum-pump. By producing a suction through the pipes he draws the steam from an open exhaust. In other words, he pumps steam through the heating coils. By the older mechanisms the steam was *pushed* through the coils. Willames *pulls* it through. In the former the principal force came from the engine and boiler. In Willames's device it comes from a vacuum pump at the other, or tail end, of the system. An essential feature is that when the steam has once entered the heating pipes there shall be a closed circuit to the vacuum-pump. If air is permitted to enter at any intermediate point the apparatus will not operate. The patent describes in detail the means for carrying out this principle. The chief advantages claimed for Willames's system over prior systems, are, that it increases the power of the engine by removing the back pressure; that it is cheaper and more simple; that the circulation of steam is more rapid and reliable; that water-hammering is avoided and the water of condensation is returned to the boiler. The patent is not limited to the use of coils; in place of these any heating apparatus, steam-drums, for instance, may be substituted. The inventor also provides for the use of a cold-water spray to induce condensation in the hot-well and states that his invention may be practiced in cases where live steam is taken direct from the boiler, or where steam is taken from a loaded exhaust. No specific construction of vacuum-pump is shown, any apparatus by which a partial vacuum is maintained within the hot-well and its communicating pipes, is within the description. In fact, the invention is broadly stated and broadly claimed. In the language of the specification, it "comprehends broadly a main to supply steam when arranged with steam-heaters, and means to create a suction through said heaters." The claims alleged to be infringed are as follows:

"(1) In apparatus for heating buildings, the unobstructed exhaust-pipe and heating coils opening from it, in combination with a bleeder-pipe connecting with said coils and opening at the bottom into a hot-well in which a partial vacuum is maintained, substantially as and for the purpose specified. (2) In apparatus for heating buildings, the unobstructed

exhaust-pipe and heating coils opening into it, in combination with a bleeder-pipe connecting with said coils and means to create a suction in said bleeder-pipe, substantially as and

for the purpose specified. (3) In apparatus for heating buildings, the unobstructed exhaust-pipe, A, heating-coils, B, bleeder-main, D, hot-well, E, suction or exhaust fan, F, feed-water pipe, N, substantially as and for the purpose specified. (5) In apparatus for heating buildings, an exhaust-pipe and steam-heating apparatus, in combination with means to suck steam from said exhaust into or through said heating apparatus, substantially as and for the purpose specified. (7) In apparatus for heating buildings, a steam-main into which steam is fed, in combination with steam-heating apparatus and means to create a suction through said heating apparatus to draw steam from the main into said heating apparatus.”

The defenses are anticipation, lack of novelty and invention, two years' public use, and non-infringement.

It is necessary at the outset to determine the date of the invention. The first practical working apparatus embodying the Williames system was placed in the Chatham Mills in October, 1880. This is not disputed. Williames insists, however, that he first conceived the invention in November, 1871, 10 years before his application for a patent was filed. (December 31, 1881.) The excuses for this long delay are poverty, sickness, and the nature of his employment. He says he exhibited a model of his apparatus, January 23, 1872, to a society of engineers, of which he was president, and illustrated the principle of its operation by an experiment performed in their presence. In this he is corroborated by two members of the society. Portions of the apparatus then used have been preserved and are in evidence. Other portions have been lost or destroyed. The most pregnant piece of evidence tending to show that these witnesses are mistaken is the record of the society, giving a description of what took place on the evening in question. It is as follows:

“The balance of the evening taken in experimenting, the subject was boiling-point of water. The apparatus being got ready, namely a bottle of ordinary river-water, and heated with an alcohol lamp, when no hotter than could be held in the hand, was made to boil by relieving it of the pressure of the atmosphere, by a vacuum-pump. Water was then brought to the boiling-point, with heat, when the hose attached and at the end a hollow ball, after the air had been expelled, the lamp removed, the water in the jar was kept boiling by condensation, namely by a flow of cold Water on the ball. The open mercury column gauge next produced, when the members commenced blowing, to test the strength of their lungs, also the gauge from 1 to 2½ lbs. per square in was reached, the gauge attached to the steam-bottle, but, the hour of adjourning having arrived, the experiment ceased, to be continued next Tuesday evening.”

This ends the description. If the discovery, which, years afterwards, was so startling a surprise to many learned men, was first disclosed on this evening how does it happen that no notice of it appears in the minute-book, especially when the book deals so fully with experiments evidently made with the apparatus, portions of which are produced in proof?

Again, the reasons offered by Willames for not applying for a patent earlier seem wholly insufficient. They might justify a short delay, but not a delay of 10 years. The fact that the invention was not patented until 1882, certainly raises the presumption that it was not perfected in

1872, but was still in a tentative and embryonic form. It is unnecessary to enter into a discussion of this subject further than to say that the proof is not of that clear, positive, and convincing character required to establish the invention at a date so long anterior to the application.

The witnesses offered by the complainants describe the minutiae of an experiment which took place, in a private room, 18 years before. If they were mistaken, even in the smallest particulars, their testimony is valueless. The experiment which the record shows was actually made and the experiment which the complainants seek to establish, are so similar, that a slight change would enable the apparatus to accomplish either. How easy to be mistaken, after so long a time, upon a point so minute, how easy to be misled by interest, friendship, a confusion of dates, or any of the thousand influences which affect the mind and memory of man. The impossibility of recalling the details, even of the most important events, after the lapse of 18 years, is manifest to any one who attempts it. The complainants' witnesses may be correct in their statements, but it is also true that they may not be. It is enough that the court entertains grave doubt upon the subject. Their story, from the nature of the case, cannot be met by positive contradiction. A party thus confronted is always compelled to rely upon negative proof for his denial. The danger of accepting such testimony as is here offered, to establish facts which affect the litigants not only, but the rights of third parties and the public, is apparent. The injustice, that may be done in individual instances, by the establishment of a rule which rejects such proof, is not to be compared with the greater calamities which would spring from a contrary rule. Whether the inventor, conceding the conception of the invention in 1871, did not lose his rights because of inexcusable laches in asserting them, is an interesting question, which, however, it is not necessary to decide. As there is no definite date intermediate this experiment and the placing of the apparatus in the Chatham Mills, the time when this took place, October, 1880, must be fixed as the date of the invention.

The evidence, documentary and oral, offered to prove want of novelty, has been examined, and the conclusion is reached that the Reid and Billinton English patent, sealed December 7, 1877, is the strongest reference presented by the defendants. The patent is for improvements for warming railway carriages. The specification describes both a double-pipe and a single-pipe arrangement, the tail end of the former being carried forward, by a return-pipe, to the engine; that of the latter being at the end of the train. The patentees propose to take a pipe from the bottom of the exhaust-steam passage of the engine and to run it from thence, with suitable couplings between the carriages, to the delivery or warming pipe of the train. This pipe is to be arranged under each seat of all the compartments in a series of coils, or other suitable heaters, to the end of the train, where it is connected with a return-pipe which passes through the carriages, or under them, to the

engine. The end of the return-pipe is projected into the smoke-box close to the top of the exhaust-pipe orifice and is fitted with a small ejector. The patentees

assert “that by this arrangement of the ejector and return-pipe the force of the blasts, together with the extra force given by the use of the ejector, will be sufficient to keep up a current of steam moving in the pipes to cause any degree of temperature required to warm the apartments, and also in a great measure prevent water-logging or condensing of the steam in the apparatus.” In place of the ejector they propose to substitute “a small pump or exhauster, fixed on the engine or van, for *drawing the return steam through the pipes or apparatus.*” The *exhauster* here referred to performs the same functions as “the exhaust-fan F,” of the Williames patent. Mr. Knight, in his new Mechanical Dictionary, (1884) defines “exhauster” as follows: “An aspirator, exhaust-fan, suction-fan, known by many names according to construction or purpose,” In the case of a train fitted with art atmospheric brake they propose to use a jet of compressed air, or to fix a small additional pump onto the existing pump, or otherwise, and use the same for drawing the exhaust steam through the pipes. Of the single-pipe arrangement the inventors say:

“Another means we propose, whereby one pipe may be used instead of two is, to arrange the pumps already mentioned for forcing instead of drawing, the suction of the same to be connected to the bottom of the exhaust passage of the steam-cylinder; by this means the exhaust steam is sucked from the exhaust part or passage and forced through the train pipes, pans, or heaters, and allowed to escape at the end of the train through a suitable valve and drip-box, or otherwise, in the guard’s van at the end of the train; or on each van or engine a small exhauster, pump, or fan can be arranged and put in motion by a friction drum wheel, or strap on one or any of the axles; or a small air-pump, worked in a similar manner by a friction drum, wheel or eccentric fixed on the axle of the van, or engine, or by steam, or otherwise.”

The specification then states that the patentees do not restrict themselves to the precise details described and shown in the drawings, and that they claim, among other things, the ejector or ejectors, fan pump, or exhauster, with pipe arrangements for causing a circulation of steam.

From this brief summary it will be seen that the broad invention claimed by Williames is described in the English patent. Recognizing this fact, the most heroic efforts have been resorted to to break its force. Some of the objections urged against it are hypercritical and others so technical that they tend to strengthen rather than weaken the force of the proof. For instance, it is said that the exhaust, because it is in the shape of a frustum, larger at the bottom than at the top, is not an open exhaust, and this, too, in the face of the declaration of the Williames patent that his invention is practiced with a loaded as well as an open exhaust. The conclusion that the apparatus is inoperative is reached by importing into the double-pipe system mechanism evidently intended for the single-pipe system, and by exaggerating alleged inconsistencies in the minute drawings attached to the specification, Supplemented by experiments tending to show that an apparatus made upon this



chimerical plan could not produce practical results. An expert who starts out to construct a machine that will *not work* is usually successful. It is enough to say that the distorted couplings which, it is insisted, are shown in the drawings, would never be adopted by a mechanic who is

gifted with the smallest degree of common sense, and further, that the drawings, when taken together and fairly construed and understood, do not show such a construction.

Again, the bold theory is advanced that Reid and Billinton were ignorant men who stupidly stumbled upon the use of such expressions as the following: "By this means the exhaust steam is *sucked from the exhaust part* or passage," and "the pump or exhauster is fixed on the engine or van *for drawing the return steam* through the pipes or apparatus;" and that they used this language without comprehending its meaning, and with little conception of what they were thus formally stating to the world. It is clear that no patent can survive such tests. The patent in suit would be eviscerated if subjected to criticism so captious. The Reid and Billinton apparatus is intended for railroad trains, and Williames's for buildings. The mechanisms described are applicable to these uses, respectively. Necessarily they differ in detail, but their general aspects are similar. It is manifest that the Reid and Billinton apparatus anticipates the broad claims of the Williames patent, if it infringes those claims. Compare it with the seventh, for instance. This claim has for its elements—*First*, a steam-main or exhaust-pipe, open or obstructed. Reid and Billinton have it. *Second*. A steam-heating apparatus. They have this also. *Third*. Means, no matter what, for creating a suction to draw steam from the main into the heating apparatus. Unquestionably, they have this element also. One of the "means" proposed by them is "a small pump fixed on the engine or van for drawing the return steam through the pipes," but they disclose several other methods of accomplishing this result. If the ejector or pump at the tail of their system is not intended for the purpose of drawing the return steam through the pipes it would puzzle the imagination to suggest what its office is. It is true that the word "vacuum-pump" is not used in the specification, but the use of such a pump is certainly implied. A pump which draws return steam through the pipes must necessarily be a vacuum-pump. It does not make the statement stronger to assert that the pump which is used to produce a vacuum is a vacuum-pump.

It is unnecessary to attempt a solution of the numerous theoretical problems propounded by the experts, or to follow them through the varied phases of their scientific wrangle, for, when all is said, the fact remains that Reid and Billinton disclose, as plainly as the English language can state it, the idea of taking steam from an open, or partially obstructed, exhaust, and drawing it through a system of pipes by means of an ejector or pump, at the tail end of the system. When Williames states, "My invention comprehends broadly a main to supply steam when arranged with steam-heaters, and means to create a suction through said heaters," he describes the English system as aptly as his own.

The evidence relating to the heating apparatus in the Morse building has been examined, and every effort has been made to reconcile the conflicting theories with regard to it. It would seem that a very simple experiment might demonstrate, with absolute precision, whether or not a

vacuum is maintained in the pipes and whether the pump which operates at the tail of the system tends to draw steam from the exhaust. But after reading the evidence of the experts this question is left in doubt. Many facts are presented which indicate the presence of a vacuum and there are others which seem to render its presence impossible. No one can read this testimony and arrive at a definite conclusion upon this proposition either way, at least so far as it relates to the apparatus as it existed prior to the time which has been fixed as the date of the Williames invention. The doubt which is thus present is sufficient to eliminate this apparatus from the case as an anticipation.

Although the broad invention is thus anticipated by the English patent, the combinations represented by the first, and third claims are nowhere found in the prior art, and it is thought that there is sufficient invention in the combinations to sustain these claims. To Williames, unquestionably, belongs the credit of adapting the principle of pumping steam from an open exhaust to the heating of large buildings. This, at least, was original with him; even the most accomplished specialists in this branch of industry were first informed of it by Williames. Furthermore, he is entitled to the credit of solving the problem not only unaided and alone, but against the opposition and ridicule of friends and associates as well as rivals and competitors. There is not the slightest reason to suppose that he ever heard of the Reid and Billinton patent. The rule is well settled that there is no invention in finding a new place for an old device, but it seems very clear that the ingenious and complicated arrangement by which the principle in question has been harnessed and set to work in warming buildings is far above the perception of the ordinary mechanic. The elements of the combination of the first claim are an unobstructed exhaust-pipe, heating coils opening from it, a bleeder-pipe connecting with the coils and a hot-well in which a partial vacuum is maintained by an exhaust fan or vacuum-pump. The third claim is substantially like the first but with the addition of another element—the feed water pipe, N. As to the defendants' infringement there is little doubt. All the elements of these claims are present in their system. It is quite possible that their "condenser" operates to assist in creating a vacuum, but it is established with reasonable certainty that the function of the pump, F, in their apparatus, is to produce and maintain a vacuum in the hot-well and return-pipe. A party who uses a patented combination cannot escape the consequences of infringement by showing that he uses something in addition to the combination. On riling a disclaimer of the claims covering the broad invention the complainants are entitled to a decree, upon the first and third claims, for an injunction and an accounting, but without costs.