

Dissenting Opinion: Field, Bradley, Harlan, JJ.

so far as it is against that company on the fifth claim of the patent of January 30, 1877, must be reversed and a decree directed to that extent in its favor. It is consequently so ordered.

MR. JUSTICE BRADLEY, with whom concurred JUSTICES FIELD and HARLAN, dissenting.

Mr. Justice Field, Mr. Justice Harlan and myself are not able to concur with the other members of the court, sitting in these cases, in the result which has been reached by them. Without expressing an opinion on other issues, the point on which we dissent relates to the defence made on the alleged invention of Daniel Drawbaugh, and applies to all the cases in which that invention is set up. We think that Drawbaugh anticipated the invention of Mr. Bell, who, at most, is not claimed to have invented the speaking telephone prior to June 10th, 1875. We think that the evidence on this point is so overwhelming, with regard both to the number and character of the witnesses, that it cannot be overcome. As this is a question of fact, depending upon the weight of the evidence, and involves no question of law, it does not require an extended discussion on the part of those who dissent from the opinion of the majority,—which is very ably drawn, and presents the case with great clearness and force. On the point mentioned, however, we cannot concur in the views expressed.

The essence of the invention claimed by Mr. Bell is, the transmission of articulate speech to a distance, by means of an electrical current subjected to undulations produced by the air vibrations of the voice. There are two modes (as yet discovered) by which these undulations may be thus produced. In one they are produced by interposing in the circuit a substance whose electrical conductivity may be varied by the concussions, or vibrations of the air produced by the voice. This is called the variable resistance process, because the electrical current is subjected to the variable resistance (or conductivity) of the substance thus interposed. By the other

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mode, the undulations are produced by the inductive effect of an armature (or small, flat piece of iron), attached to the membrane spoken against, and placed near to the poles of an electro-magnet situated in the circuit. In both cases, the undulations impart the vibrations which caused them to another diaphragm at a distance (called the receiver) by means of an electro-magnet in the circuit, placed near to an armature affixed to such diaphragm. These vibrations, thus reproduced, are detected by the ear, and the spoken words are heard.

We are satisfied from a very great preponderance of evidence, that Drawbaugh produced, and exhibited in his shop, as early as 1869, an electrical instrument by which he transmitted speech, so as to be distinctly heard and understood, by means of a wire and the employment of variable resistance to the electrical current. This variable resistance was produced by causing the electrical current to pass through pulverized charcoal, carbon and other substances, acted upon by the vibrations of the voice in speaking. This was the whole invention so far as the principle of variable resistance is concerned.

We are also satisfied that as early as 1871 he reproduced articulate speech, at a distance, by means of a current of electricity, subjected by electrical induction to undulations corresponding to the vibrations of the voice in speaking, — a process substantially the same as that which is claimed in Mr. Bell's patent.

In regard to the instrument in which the principle of variable resistance was used, more than seventy witnesses were examined, who either testified to having seen it and heard it, or established such facts and circumstances in relation to it as to put its existence and date beyond a question. With regard to the instrument in which electrical induction was employed to produce the requisite undulations, some forty or fifty witnesses were produced, many of whom saw it and heard speech through it, and others either saw it, or heard it talked about in such a manner as to fix the time when it was in existence. On the questions of time and result, there is such a cloud of witnesses in both cases, that it seems almost impossible not to

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give credence to them. The evidence of some of them may have been shaken with regard to the time they had in mind; but that of the great majority was not shaken at all, but corroborated by circumstances which rendered the proof irrefragable. Many of them, it is true, were plain country people; but they heard the words through the instrument; and that is a matter about which they could not be mistaken. It did not require science nor learning to understand that. But the witnesses were not confined to this class. A number of them were people of position in society, official, professional, and literary, — all, however, like the inventor, regarding the matter more as one of curiosity than of public importance.

As it would serve no useful purpose to repeat the testimony of these witnesses, we shall refrain from doing so. We will only add that nearly all the original instruments used by Drawbaugh were produced on the trial, and identified by the witnesses. Some of them were broken and in a dilapidated condition, but sufficiently perfect to be accurately reproduced. Their very form and principle of construction showed that they were intended for speaking telephones, and nothing else. Drawbaugh certainly had the principle, and accomplished the result. Perhaps without the aid of Mr. Bell, the speaking telephone would not have been brought into public use to this day; but that Drawbaugh produced it, there can hardly be a reasonable doubt.

We do not question Mr. Bell's merits. He appreciated the importance of the invention, and brought it before the public in such a manner as to attract to it the attention of the scientific world. His professional experience and attainments enabled him to see, at a glance, that it was one of the great discoveries of the century. Drawbaugh was a different sort of man. He did not see it in this halo of light. Had he done so, he would have taken measures to interest other persons with him in it, and to have brought it out to public admiration and use. He was only a plain mechanic; somewhat better instructed than most ordinary mechanics; a man of more reading, of better intelligence. But he looked upon what he had made more as a curiosity than as a matter of financial,

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scientific, or public importance. This explains why he did not take more pains to bring it forward to public notice. Another cause of his delay in bringing his invention to public notice was, that he was ever indulging the hope of producing speech, at the receiving end of the line, loud and distinct enough to be heard across a room, like the voice of a person speaking in an ordinary tone.

It is perfectly natural for the world to take the part of the man who has already achieved eminence. No patriotic Briton could believe that anybody but Watt could produce an improvement in the steam engine. This principle of human nature may well explain the relative feeling towards Bell and Drawbaugh in reference to the invention of the telephone. It is regarded as incredible that so great a discovery should have been made by the plain mechanic, and not by the eminent scientist and inventor. Yet the proof amounts to demonstration, from the testimony of Mr. Bell himself, and his assistant, Watson, that he never transmitted an intelligible word through an electrical instrument, nor produced any such instrument that would transmit an intelligible word, until after his patent had been issued; whilst, for years before, Drawbaugh had talked through his, so that words and sentences had again and again been distinctly heard. We do not wish to say a word depreciatory of Mr. Bell. He was original, if not first. He preconceived the principle on which the result must be obtained, by that forecast which is acquired from scientific knowledge, as Leverrier did the place of the unknown planet; but in this as in the actual production of the thing, he was, according to the great preponderance of the evidence, anticipated by a man of far humbler pretensions. A common astronomer, by carefully sweeping the sky, might have been first in discovering the planet Neptune; whilst no one but a Leverrier, or an Adams, could have ascertained its existence and position by calculation. So it was with Bell and Drawbaugh. The latter invented the telephone without appreciating the importance and completeness of his invention. Bell subsequently projected it on the basis of scientific inference, and took out a patent for it. But, as our laws do

Petition for Rehearing.

not award a patent to one who was not the first to make an invention, we think that Bell's patent is void by the anticipation of Drawbaugh.

MR. JUSTICE GRAY was not present at the argument, and took no part in the decision of these cases.

MR. JUSTICE LAMAR, not being a member of the court when these cases were argued, took no part in their decision.

PETITION FOR REHEARING.

On behalf of the People's Telephone Company and the Overland Telephone Company, the following petition for rehearing was filed May 7, 1888 :

"TO THE HONORABLE JUSTICES OF SAID COURT :

"The appellants in the above-entitled cases hereby humbly pray that the court will rehear and reconsider the matters decided March 19, 1888, so far as the same involve the question of priority of invention of the electric speaking telephone between Alexander Graham Bell and Daniel Drawbaugh ; and that an order or orders be entered reversing the decisions below and dismissing the appellees' bills, with costs to the appellants in said cases respectively.

"The grounds of this application are, first, that the court, in its said decision, as evidenced by its written opinion, filed on said 19th day of March, giving its reasons therefor, inadvertently erred in respect to certain matters of fact and of law material to, and decisive of, said question, and therefore of these cases ; and, secondly, that in consequence of said errors, the decision of the court was against the weight of the evidence.

"The opinion of the court treats three portions of the evidence as controlling, viz. : (1) The evidence of a great cloud of witnesses as to what Drawbaugh, prior to the fall of 1876, had accomplished in the matter of an electric speaking telephone ; (2) His conduct from that time to the year 1880, when the appellants became interested in his inventions ; (3) The New York and Philadelphia tests.