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THE INTERIOR DEPARTMENT FAVORS A SUIT AGAINST THE BELL TELEPHONE PATENT.

In the matter of the application made to the Department of Justice to have a suit brought to annul the Bell telephone patent, which application was referred to the Interior Department for preliminary inquiry, Mr. Lamar, the Secretary of the Interior, has at last promulgated the result of his deliberations, which he summarizes as follows:

"The grounds of invalidity alleged against the Bell telephone patent may be substantially summarized thus:

"First.—The patent was procured by the fraud of the patentee through the collusion or mistake of the officers of the Patent Office, and in violation of the rights of a caveator named Elisha Gray.

"Second.—The invention patented was not patentable, because already public. Referring to what I have said under the other head of inquiry, it is apparent that these allegations describe the occasions in which the Government, upon my view, ought to actively interfere for the cancellation of a patent.

"It is manifest that a decision upon the merits of the controversy, as to the validity of the patent, is not embraced within the terms of your request. The issue before me lies outside of the ultimate merits of the case as a subject of judicial investigation. As to what the final judgment should be I have not felt called upon to form (and if I had formed, I would not express) an opinion. The question is whether enough has been shown upon the hearing to require the submission of the matter to the court at the instance of the Government. The proof adduced in support and defense is very voluminous, and very conflicting in many respects. It involves great scientific research and detail, and perhaps some intricate legal questions. The allegations and the evidence touching the circumstances attending the issue of the patent are of such a nature and have such a support as to render it, in my opinion, improper to ignore or dismiss them. Such a case is presented as, I think, ought to undergo thorough judicial investigation. It appears that many suits have been pending and many are now pending between the corporation claiming this patent and others that assail it. In none of these cases has there been, or can there be, as I think, such thorough investigation and full adjudication as to the alleged frauds or mistakes occurring in the Patent Office, in the issuance of the patent, as could be had in a proceeding instituted and carried on by the Government itself. In a case involving such questions, it seems to me especially imperative upon the Government, as duty to its own officers to vindicate or condemn, and duty to the people, to set on foot and follow up a complete investigation. In my opinion the proceeding should be in the name and wholly by the Government, not on the relation or for the benefit of all or any of the petitioners, but in the interest of the Government and the people, and wholly at the expense and under the conduct and control of the Government. I think it should be instituted at such point and in such court as will best subserve the purposes of public convenience and full inquiry. Such a proceeding, so conducted, will, as I think, comport with the dignity of the Government and the gravity of the subject, and will insure a final and just adjudication of the merits of the controversy."

It is to be hoped the Department of Justice will coincide with the above views, and order the suit to be commenced. In no other way, apparently, can the real facts concerning the invention of the telephone be judicially determined.

SIBLEY COLLEGE LECTURES, CORNELL UNIVERSITY.

We have received from the director of Sibley College, Cornell University, and publish in the current issue of the SCIENTIFIC AMERICAN SUPPLEMENT, a second lecture of the course given by the non-resident lecturers to the associations of students in the courses of engineering and architecture. This lecture will be found to be quite different in its character from that delivered by Dr. Raymond, and published as the first of our series. Though less eloquent, it is as full of information as an egg is full of meat, and, in that sense, is as thoroughly satisfying. It is a simple, straightforward talk upon the subject chosen—a subject with which, probably, no member of the profession is more familiar than the lecturer. Mr. Hoadley is considered to be perhaps the best authority known in this country upon the practical application of the scientific principles of combustion, and of transfer and utilization of heat, and has attained an enviable reputation for the exceptional completeness and accuracy of his work in the determination of the economy and efficiency of steam boilers. He has earned the distinction of having been the first to make what is now regarded by engineers as a thoroughly complete and satisfactory investigation of the whole problem of the development and utilization of heat from the combustion of fuel, as illustrated in the operation of the steam boiler, and to give an exact account of its production, distribution, and disposal. The scientific aspect of his work is considered as satisfactory as the technical. The most striking

feature of his work generally is its precision and the scientific accuracy of its presentation.

Mr. Hoadley is one of the most experienced engineers in the United States, and has been well known for many years as a mechanic, a builder of engines of high grade, and as an expert. He is a prominent member of the Society of Mechanical Engineers, and was one of the committee which prepared the recent important and valuable report to that body upon the standard method of trial of steam boilers.

The editors of this journal have arranged for the publication of the whole series of these remarkably valuable lectures and addresses.

STEAM HEAT FOR MELTING SNOW IN STREETS.

Referring to our article in last week's issue, it may be as well to add that the disposal of snow by steam heat is already successfully practiced in the business part of the city of London. Pits are provided, with steam coils at the bottom. Into these pits the snow is shoveled, and, being rapidly melted, is run through pipes into the sewers. Such pits might be available here, and steam for them could be supplied from the steam pipes now employed for conveying steam to a large part of the city from the boilers of the New York Steam Heating Company.

It is stated, with reference to the London system alluded to above, that it has proved to be a large economy as compared with the carting of snow from the streets, still used in many parts of London and in other European cities.

Weight of Hydrogen.

A paper was read before the British Association on "An Approximate Determination of the Absolute Amount of the Weight of Chemical Atoms," by Professor G. Johnstone Stoney, D.Sc., F.R.S., who showed that the mass of a molecule of hydrogen is a quantity of the same order as a decigramme divided by 10^24, i. e., a twenty-fourth decigrammet, which is the same as the twenty-fifth grammet. (The grammetts are the decimal subdivisions of the gramme, of which the first is the decigramme, the second the centigramme, etc.) The mass of the chemical atom of hydrogen may be taken to be half the twenty-fifth of the grammet. This value is based on the conclusion arrived at by several physicists, that the number of molecules in a cubic millimeter of a gas at ordinary temperature and pressure is somewhat about a unit eighteen—10^18; from which it can be shown that the number of molecules per liter must be about a unit twenty-four—10^24. From this, together with a knowledge of the weight of a liter of hydrogen, the above value for the mass of a molecule of hydrogen has been deduced. The mass of a molecule of hydrogen being known, it is possible now to determine approximately the masses of all other simple substances and of compounds also.

Steering by Electricity.

The old war vessel Tallapoosa, which has been undergoing a thorough overhauling at the Brooklyn Navy Yard, has among other improvements been supplied with an electrical steering apparatus, by which the ship guides her own course automatically. The tiller is operated by compressed air, governed by electricity from the pilot house, and can be turned from its extreme starboard to its extreme port position, or the reverse, in a fraction less than three seconds. The automatic action is obtained by means of an electrical mechanism, which is attached to the compass at the point to which it is desired to secure the vessel's course. This mechanism holds the ship to that point, the electric circuit being opened and shut by the motion of the vessel. The rudder is thus acted upon, and corrects any deviation from the marked course.

The inventor states that the introduction of electricity into the compass box has no influence upon the needle; but a great many mariners, we fear, will be apt to think that this is playing with fire. The pilot house is further equipped with an independent hand wheel, by which the course of the vessel, by the action of the current upon the compressed air cylinder, may, when desired, be changed from the set direction without disturbing the automatic device. By means of a small electric lever on the bridge, the officer in charge may, however, take instant command of the rudder and change the direction of the vessel at will. This does away with the man at the wheel of our former navigation. At the same time, the control of the ship is much more perfect.

Of the Ericsson new submarine gun, mentioned a fortnight ago in these columns, the Naval and Military Gazette says it is an object of much interest in English naval circles. But, it adds, the partially bald ones are fast losing their few remaining hairs scratching their heads over the puzzle how the India rubber diaphragm over the muzzle is to be replaced for the second charge, after the first has been fired away nine feet under water. Captain Ericsson will no doubt provide a means for accomplishing that, so the British officers had better spare their scalps till they hear further from the venerable inventor.