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A NEW TELEPHONE SYSTEM.

We illustrate this week a new and remarkable system of telephonic communication, which by its originality and efficiency promises to be of great value to the public. It embodies the discoveries of A. E. Dolbear, Professor of Physics, Tufts College, Massachusetts, whose interesting contributions to the SCIENTIFIC AMERICAN during several past years have rendered his name familiar to our readers. His additions to the general stock of knowledge pertaining to the useful arts and sciences have been very extensive, and he ranks among the most prominent of American scientists. In the department of electricity his indefatigable researches have generally kept him in advance of his contemporaries; and had he been more observant of Patent Office formalities, it is probable that the speaking telephone, now so widely credited to Mr. Bell, would have been garnered among his own laurels. Experimental philosophy and common-place business are, however, seldom conjoined in the same individual; and the professor's contest to establish his priority in the discovery of the magnetic telephone has not yet, in law, culminated in his favor. But the world is probably the gainer, for Professor Dolbear now brings forward a new and independent system, which has important advantages over the Bell and other telephonic methods.

Prominent among the advantages of the Dolbear system are its capability of transmitting speech over long lines of wire, and its freedom from the troubles of induction. It has not yet been fully ascertained how far the Dolbear system will successfully operate; but judging from the principles on which it works and the practical experience had with it on limited circuits, it seems capable of doing effective business on lines of far greater length than heretofore have been employed. The Dolbear telephone is a silent instrument. The words and voice of the speaker come clearly to the ear without the bubbling, crackling, sputtering, and whizzing noises that so seriously curtail the use of the Bell method.

Every practical form of electric telephone heretofore brought before the public has, at some point or other, been claimed as touching the Bell system, and subject to the Bell patents.

We have said that the Dolbear is an independent system, by which we mean that, in its principles of operation, it is an absolute departure from the Bell method. For example:

In order to receive messages by the Bell system it is necessary to use, between the ear and the line wire, an electrical machine, consisting of a magnet, a metallic diaphragm near the magnet, a magneto-coil to influence the magnet, which coil is connected with the line wire and with the ground.

Take out this machine and we take out the Bell telephone system. This, substantially, is what Dolbear does. To receive a message he takes out the machine, and puts the end of the telegraph wire directly to the ear.

For convenience of ordinary use Mr. Dolbear provides the receiving end of his telegraph wire with a small handle, in which he arranges a couple of thin diaphragms, one of them attached to the wire—contrivances that improve the vocal delivery of the line wire.

Our illustrations are taken from the actual working apparatus and line as recently set up in the SCIENTIFIC AMERICAN office by Mr. Dolbear's able assistant and enthusiastic coadjutor, Mr. H. C. Buck, of Massachusetts. The practical working of this line in our office was admirable in all respects and gave us the utmost satisfaction.

The description of the new system which we publish elsewhere, written by Prof. Dolbear, apart from the instruments to which it relates, constitutes a clear, instructive, and interesting essay, in which are embraced, in concise form, the leading laws that govern all forms of electrical action.

Professor Dolbear has prepared a number of splendid exhibits of his new system, destined for display in the great International Electrical Exhibition at Paris, this summer. The invention will doubtless attract its full share of attention in that extraordinary assembly of wonders.

MEDICAL PATENTS AND TRADE MARKS.

At the recent meeting of the American Medical Association in Richmond, the report of the section on medicine contained the following curious resolution, which was referred to the Judicial Council for report at the next annual meeting:

"Resolved, That the spirit of the Code of Ethics forbids a physician from prescribing a remedy controlled by a patent, copyright, or trade mark. This, however, shall except a patent upon a process of manufacture or machinery, provided patent be not used to prevent legitimate competition; and shall also except use of a trade mark used to designate a brand of manufacture, provided that the article so marked be accompanied by working formulae, duly sworn to, and also by a technical, scientific name, under which any one can compete in manufacture of same."

It would manifestly be unfair to hold the medical profession of the United States responsible for the sentiments of a resolution not formally passed upon and adopted by the association. So far as appears the resolution expresses the mind of perhaps only a small part of the section in medicine; nevertheless the fact that a resolution so worded could be presented to the association and obtain any countenance whatever, too clearly shows that some of the members at least are sadly in need of enlightenment with respect to the policy and ethics of patents, copyrights, and trade marks.

Certainly the man that draughted the resolution betrays a degree of ignorance of the function and practical working

of patent rights, copyrights, and trade marks as thorough-going as his inacquaintance with the usages of English speech.

The wisdom of the general policy of refraining from prescribing any of the secret compounds misnamed "patent" medicines, is beyond question. But that class of alleged remedies for disease is entirely without the scope of this resolution as it stands. A patented medicine cannot be of secret composition, since one of the prime conditions of granting letters patent is that the matter patented shall be fully and explicitly published to the world.

That a physician ought to know the ingredients of whatever he offers a patient goes without telling; it is desirable also that he should know what effect the several ingredients alone or combined are likely to have upon the human economy under any given circumstances; but it is gravely to be feared that if the general practice of physicians were strictly limited to the administration of remedies under such conditions the majority would find their practice amazingly restricted—possibly to the advantage of their patients. Be that as it may, it is obviously the physician's duty to administer to his patient in any instance the remedy best suited to the case, so far as he knows; it is his duty also to widen his knowledge of probable or approved remedies to the utmost; and he has no moral or professional right to accept or reject a proposed remedy for any other consideration than the best interests of his patient. The fact that the manufacture or sale of a remedy is controlled by patent, label, or trade mark has nothing to do with the medical aspects of the case. If the remedy is better calculated to benefit the patient than any other remedy known or available, the physician is morally bound to use it, whatever the Code of Ethics or the resolutions of any professional association may have to say in the premises.

For the enlightenment of the draughter of the resolution under criticism it may be proper to remark here (1) that it is impossible for a patent to be "used to prevent legitimate competition;" consequently the exception cuts the ground from under the first clause of the resolution so far as it relates to patented remedies, and the subsequent exceptions do the same with respect to labels and trade marks. (2) That the sole function of a trade mark is "to designate a brand of manufacture." (3) That a trade mark in no way hinders competition in the manufacture of any article.

Stripped of its errors of fact and misconceptions with regard to the purpose of patents, trade marks, and copyrights, there is left of the resolution but one possible idea, which may be expressed in this wise:

"Resolved, That a physician should not prescribe an alleged remedy, the composition of which he does not know."

Should the association entertain and wish to express a disapprobation of patents, copyrights, and trade marks a resolution to that effect might take some such form as this:

"Resolved, That professional bigotry and prejudice forbid the physician to use any patented remedy, or any remedy obtained by the use of any patented implement or implements manufactured under any patent; or any remedy manufactured by any patented process or machinery, or put up in any package tainted by patent rights, or bearing a copyrighted label, or transported in any vehicle so tainted; or to use any patented surgical or other implement, or any device or implement in the manufacture of which patented tools or processes have been employed; or to make use of any copyrighted book or treatise for study or reference; or (in short) to make use of any modern means or methods in the practice of the healing art, or in preparation for such practice."

We have no fear that the associated physicians of the United States will deliberately commit themselves, even by implication, to any such absurdity.

TESTING ARGENTIFEROUS LEAD ORES.

The following will serve as an answer to a number of our correspondents asking information respecting the simplest reliable method of testing lead ores for silver:

Take out the front grate of an ordinary cooking stove with a good grate space and draught, and put in a piece of thin earthen drain pipe about nine inches in length and three inches inside diameter, supporting it on bits of brick so that it rests about two and a half or three inches above the grate. The tube should be heated in an oven or otherwise as hot as possible before setting it, so that when a fire is built under and around it, it will not snap or break into fragments. Build the fire so that the air may pass through the tube from front to back and escape through the fire without danger of the coals falling into it. Let the fire gradually increase until the greater part of the tube is at a bright red heat, the front of the tube being loosely stopped with a piece of fire brick trimmed to fit.

Weigh out on an apothecary's balance about one-tenth of an ounce of the ore reduced to a very fine powder by grinding it in a mortar; also two separate lots of one-half ounce each of granulated lead free from silver. Mix one part of the lead with the ore in the bottom of a small scorifier; cover the mixture with the rest of the lead, put the scorifier into the extemporized muffle. Close the mouth of the muffle until the lead has melted, then partly open it to let the air flow in. If the muffle is hot enough the lead will soon begin to scorify the liquefied litharge formed collecting as a ring around the sides of the vessel and gradually increasing in quantity until the whole surface of the melted metal is covered. It is well to add to the contents of the scorifier two or three pieces of borax glass (borax that has been melted in a crucible and poured out on a plate of iron to cool)