

ELECTRO-TELEGRAPHY.

PROGRESS AND PRACTICABILITY OF SEA AND RIVER LINES OF COMMUNICATION.

BY PROFESSOR PAGE.

A variety of inventions under this head have been presented to the office, most of them based upon the electro-magnetic telegraph, or nearly related thereto. Prominent among these is the electro-chemical telegraph. Two patents have been granted for inventions of this kind, one of which has already gone into practical operation to a considerable extent. These inventions were adjudged by the office to interfere with each other, and, upon a hearing, priority of invention decided in favor of one of the parties. Upon appeal, however, to the usual tribunal, it was decided that the alleged interference did not exist, and patents were ordered to issue to both parties. The whole case was one of unusual interest, involving many intricate and important questions, and although the whole proceeding was prior to your accession to the office, yet the leading features are doubtless by this time familiar to you. The parties, Samuel F. B. Morse and Alexander Bain, came into the contest for priority of invention upon unequal grounds, the former being a citizen of the United States, and the latter a foreigner. It was held by your predecessor in office, that under the law a foreigner could not go behind his foreign patent or printed publication for evidence of his invention, and upon reference of this subject to the Attorney General, the opinion of the Commissioner was confirmed. It was also held, that in a contest for priority of invention, the sealing of a foreign patent was not to be taken as proof of invention, and that proof of enrolment was alone adequate. On the appeal to Chief Justice Cranch, the parties appeared by counsel, who occupied some days in elaborate and lengthy arguments. It was, I believe, the first trial of appeal from the office, had in open court, and the whole

case has been faithfully reported and printed at the expense of one of the parties. The report will be read with much interest by inventors and professional men.

The operation of the electro-chemical telegraph depends upon the chemical re-agency of the galvanic current. Marks or stains are made upon paper through which the galvanic current is made to pass, the paper being first saturated with some neutral or other salt, and moistened at the time to give it sufficient conducting power. The advantage claimed for this over the electro-magnetic telegraph is, that it may be worked with much greater rapidity. In the electro-magnetic telegraph a signal is made by the development of electro-magnetism, and the consequent movement of a small bar of iron, both of which operations require appreciable time. In the chemical telegraph the production of the stains or marks is commensurate with the passage of any portion of the galvanic current; for, according to the best authorities, the current could not pass through the salt without decomposition. The change of colors, as indicated to the eye, may not be so sudden as the transit of the current, but if it should not be so in fact, it becomes so practically, as the marks are not required to be seen at the instant of decomposition. I am not informed upon this point, but it is immaterial; the practical distinction between the chemical and electro-magnetic telegraph being this, that as it requires time to change and discharge an electro-magnet, and also to overcome the inertia of moving parts, there must be a limit in practice to the rapidity of making signals, while in the electro-chemical telegraph, the limitation would depend upon other causes, and the rapidity of action would probably far exceed the ordinary mechanical facilities for communicating signals. With a view to avail himself of this greater capability of this telegraph over the above, one inventor has patented a means of preparing and transmitting communications much more rapidly