

pose is a circuit of about 100 miles, very close to 1,000 words on the sixth of a wire, *i. e.*, when the wire was distributed sextuplex, at the rate of from 43 to 44 words per minute. I received myself over a twelfth of a wire, eleven hundred words, at an average of twenty words and a fraction. It is equal to 18 or 20 words beyond a doubt.

Now as to the commercial advantages of either the six, or twelve divisions of the segments, that is a question. For commercial telegraphy I suppose that between two offices doing an ordinary telegraph business, the six circuits could be worked to the best advantage, because it requires the less number of operators to the circuit, and each circuit is equal to the best ability of the most expert operator. But for renting purposes, you may rent twelve circuits to a greater advantage than the six; beyond the twelve we have to abandon the Morse system and use 'Printers.'

WATERPROOF CEMENT FOR PAPER.—Labels can be attached to tin-boxes, or to other metallic surfaces which are exposed to dampness, in the following manner: Dilute white of egg in an equal quantity of water, or dissolve dry commercial albumen in two or three times its weight of water and apply the liquid with a brush upon the two surfaces which are to be joined. Iron the surface with a hot smoothing iron. By joining successive layers of paper in this manner, paper boxes may be made, which will be waterproof.—*Jour. d'Horlogerie; Les Mondes*, April 12, 1884. C.

A MINING PROBLEM.—The *Bulletin des mines* records the explosion of a heavy blast of dynamite which produced but little effect. The failure was attributed either to an insufficient charge, on account of the exceptional hardness of the rock, or to a crevice by which a large portion of the gases had escaped. Neither of these reasons, however, was the true one. One of the two halves of the original charge had remained unexploded in the rock, and it went off, some days afterwards, at the moment when several other blasts were exploded in the neighborhood. Fortunately no one was injured, but the consequences might have been very serious if the explosion had occurred while the miners were in the quarry. It is obviously an important problem to determine how best to ascertain whether all the charges of a blast have been really exploded.—*L'Electricien*, June 1, 1884. C.

MOTION OF THE SUN.—It has been hitherto supposed that the solar system is moving towards the constellation Hercules; but the investigations of Prof. Plummer, of Oxford, lead him to believe that the point towards which we are moving is nearer the constellation Lyra than has been generally suspected. As it is not likely that the sun describes a straight line in space, it becomes important to collect all possible information which may help us to ascertain the exact form of its orbit.—*La Nature*, May 31, 1884. C.