

A single conducting wire only of number six (6) galvanized iron is employed, and in the present stage of the department I find this to be quite sufficient to meet all ordinary requirements. In connection with this branch of my subject I may mention that two of the latest improved double-acting Morse instruments, manufactured by Siemens and Halske of Berlin have been provided, the peculiarity of their arrangement consisting in their capability for transmitting simultaneously two distinct messages in contrary directions upon a single wire. As these instruments, however, are only really valuable between important terminal stations, where no intermediate station occurs, or where such stations are excluded from the circuit, I do not contemplate introducing them immediately, except in a single acting form.

Having now described the means I have adopted in constructing and working the Lines, I propose to exhibit by a financial statement the practical benefits which are derived from the establishment of the Electric Telegraph; and also to afford a comparative view of the results which may be naturally anticipated upon the greater extension of this invaluable adjunct to commercial intercourse.

(Signed) SAML. W. MCGOWAN.

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SPECIFICATION for MATERIAL and Work in the construction of a line of ELECTRIC TELEGRAPH between

MATERIAL.

Posts.

1. To be provided of straight sound hardwood, saplings, stringy bark, red or blue gum, iron bark or boxwood, dimensions to be twenty five (25) feet in length, ten to twelve (10 to 12) inches in diameter at the base, and not less than six (6) inches in diameter at the top, the bark to be entirely removed the base to be thoroughly charred over a space of five feet six inches (5 ft. 6 in.), the top to be firmly bound round and rivetted at one inch (1 inch) below its extremity with good hoop iron not less than one inch (1 inch) wide. A hole of proper size bored with one and one eighth inch ($1\frac{1}{8}$ inch), auger to receive the insulating pin to be bored vertically into the centre of the top of the post to the depth of five (5) inches. On portions of the route where round posts cannot be properly supplied, squared, sawed, or smooth hewed timber full cut and prepared as described may be substituted at the option of the Officer superintending the work, the dimensions of squared posts to be twenty five (25) feet in length by eight (8) inches square at the base, tapering to six inches (6 inches) square, at the top (8 x 8) (6 x 6).

Insulators and Insulating Pins.

2. Insulators to be formed of good bottle glass, or well baked and highly glazed earthenware, moulded in shape as the pattern exhibited at this Office. Insulating pins ten inches (10 inches) in length to be formed of well seasoned wattle tree, or blackwood of the size and shape herewith exhibited, to be boiled for the period of one hour in a mixture of equal parts of gum, shellac, resin, and Venice turpentine.

Wire.

3. The wire to be employed to be number six (No. 6) galvanized iron, well annealed, weighing not less than six hundred pounds (600 lbs.) to the mile, and manufactured expressly for Electric Telegraphs.

Work.

4. The posts are to be set out at a distance of fifty eight and two thirds ($58\frac{2}{3}$) yards apart, constituting thirty (30) posts to the mile, according to marks laid down by the Surveyors, or according to renewed marks or positions to be indicated to the Contractor by the General Superintendent of Electric Telegraphs, or by the Clerk of Works in charge.

5. The excavations for the posts to be effected (in earthy formations) by earth augers boring holes not less than twelve inches (12) in diameter and five feet (5) deep, or by bar and shovel, excavation not to exceed sixteen inches (16) diameter, the base of each post to be firmly wedged and imbedded to that depth in its position perpendicularly, and the displaced soil to be well packed around it—with a heavy rammer, no wood chips or refuse to be used in packing. In rocky formations, the excavations may be made by blasting or other available means, the depth in cases where the posts may rest in rock to be reduced to four (4) feet, but angular struts or braces of either iron or wood or of both are in such cases to be well and sufficiently placed fixed and attached as stays at the lower portion of the posts in such a manner as to render the work firm and substantial, and to maintain the posts in a perpendicular position. All angle posts are to be well and sufficiently stayed by bottom struts or