α − λ being very small, the last member simply can be called \( B - \ell \) without committing a great error. All the values introduced, we find

\[ s = 1787.74 \text{ feet}. \]

The wire in the upper portion forms the curve \( n \), \( p \), the length of which also is equal to \( s \) (neglecting thereby the elongation to which the wire is subjected under the greater tension), hence:

\[
\omega \left\{ 1 + \frac{3}{8} \left( \frac{f_1}{\omega} \right)^2 - \frac{3}{8} \left( \frac{f_1}{\omega} \right)^4 \right\} + B_1 \left\{ 1 + \frac{3}{8} \left( \frac{a_1}{B_1} \right)^2 - \frac{3}{8} \left( \frac{a_1}{B_1} \right)^4 \right\} - (B_1 - \ell_1) = s
\]

(3)

In this equation are three unknown values \( a_1 \), \( B_1 \) and \( \ell_1 \), consequently, to solve the problem, we need two other equations. They are found by expressing in symbols, that the tension of both curves must be alike, and that \( n \) is a point of the parabola \( v \), \( G_1 \):

For flat curves both formulas are almost identical. In our case the error is less than of a foot.