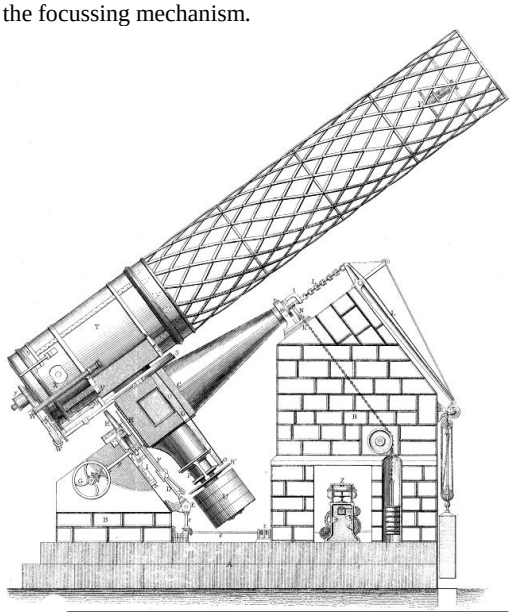
The Great Melbourne Telescope Project

A Joint Venture by Museum Victoria, The Royal Botanic Gardens and the Astronomical Society of Victoria

4. The Great Melbourne Telescope's Mechanical Innovations Part -3

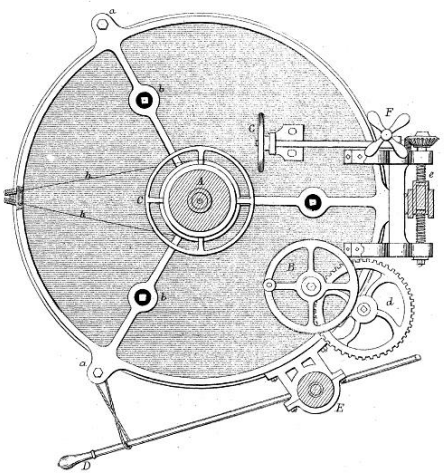
The Great Melbourne Telescope incorporated many technical innovations. Described here are details of the focussing mechanism.



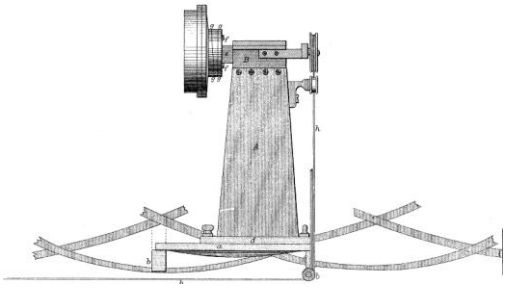
The original design drawing of the GMT by Robinson and Grubb

Focussing Mechanism

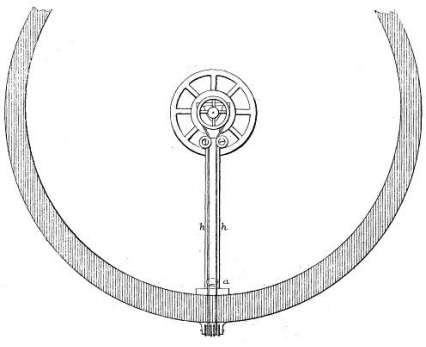
As the GMT was of Cassegrain design, it was necessary for Grubb to develop a focussing system that would accommodate eyepieces ranging in focal length of 9.1 inches to 2.0 inches (220X to 1000X magnification.) Instead of moving the eyepiece in and out to achieve a sharp focus, or by moving the primary mirror back and forth as is used on modern amateur Schmidt-Cassegrain telescopes, Grubb designed the GMT so that the convex secondary mirror moved back and forth along the optic axis of the telescope, leaving the eyepiece stationary. Focussing was achieved by turning a hand-wheel (rather like a steering wheel) that was concentric with the eyepiece. This wheel turned a drum on which was wound a long loop of wire that ran across the back of the mirror cell, up along the outside of the telescope tube and up to the secondary mirror. The moving wire, guided by pulleys, turned a drum behind the secondary mirror that moved the secondary back and forth along the optic axis.



Eyepiece end of the GMT showing the focussing wheel around the central eyepiece. The adjusting cables can be seen on the left of the focussing wheel.



Secondary mirror end of the GMT showing the focussing drum controlled by wire cables. The cables can be seen along the bottom rising up to the pulley on the right.



The secondary mirror end of the GMT showing the focussing wire cables.

The Great Melbourne Telescope Project Information Fact Sheet

This fact sheet is one of a series providing information on the GMT historical background, technical details of the instrument and the efforts to reconstruct this magnificent telescope for use by the public.