

with a small file. Only one tooth is really in action at a time, so that the exact shape is not so important as, at first sight, appears to be necessary, moreover, if the rack is cut in aluminium, which I recommend, it is softer than brass and more easily worked and very soon wears down to correct bearing on the teeth of the clock wheel. I found that the performance rapidly improved during the first 30 or 40 hours and I still further improved it by carefully easing off the places on the teeth of the rack where, by the marking, they appeared to have been bearing too hard on those of the clock wheel.

The arms of the bell-crank lever must be at  $90^\circ$  to the face of the R.A. wheel (that is parallel to the polar axis) and to the rod P respectively, at the centre of the travel. The angular motion of one arm compensates for that of the other, almost exactly when they are equal, and approximately in any case.

The telescope must be balanced so as to pull slightly against the weight W.

The R.A. slow motion is superimposed on the clock drive and to free the telescope in R.A. the worm must be lifted out of gear and a hook may generally easily be arranged to hold it out.

If required, the whole clock drive can be removed in a few seconds by removing the fulcrum screw F and taking away the rod, bell-crank, spring steel S and weight W.

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## Obituary.

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### Scriven Bolton, F.R.A.S.

Christmas Day in 1929 is sadly memorable to the Association for on it took place the deaths of three of its members: Mr. Scriven Bolton, Dr. Ralph H. Curtiss and Major P. H. Hepburn. Mr. Scriven Bolton was elected to the Association on 1899 December 27, his sponsors being his fellow-townsmen, Mr. Washington Teasdale and Mr. Charles Whitmell. He was in business in Leeds, but his main interest was in astronomy, and he built for himself an observatory with an 18-inch reflecting telescope, clock-driven during most of his life, and just before his death he had completed a much larger mirror on which he had spent the previous year in grinding and figuring. Perhaps he was best known for the astronomical drawings that he contributed to the illustrated papers, such as the *Illustrated London News* (on whose staff he was for 15 years), the *Graphic* and the *Sphere*. He was awarded a gold medal for his exhibit in the Science Section at the Franco-British Exhibition in 1908, and he received a diploma for drawings of astronomical subjects at the Japan-British Exhibition in 1910. He became a Fellow of the Royal Astronomical Society in 1905 May, Mr. Richard Kerr proposing him for this from personal knowledge; he was also a Fellow of the Royal Society of Arts and an Honorary Member of the Société Astronomique de France.