

arranged that any part of the clock works could be removed without interfering with the others. The wheels, bushes, caps and expansion joints were made of the best quality gun metal and the gear teeth "engine-cut" and finished. The rope barrels were of cast iron, turned true and equally balanced and grooved to suit patent steel wire cord. The flies in all cases were at the back of the clock and long enough to make "the time of striking quite uniform." The ratchets and wheels were keyed on to the steel shafts and another feature was "Denison's improved maintaining power on the bottle and shutter principle", to keep the clock going during winding and so arranged that winding could not commence before it was engaged. The dials were of plain design with raised figures and minutes and sunken centres. The hands were of strong copper and correctly balanced to counteract the effects of the wind. All the "going" parts were made to run eight days between winding and a minute dial was attached for regulating and setting the hands.

No less than three medals were awarded, including the "Silver Medal - The Highest Award for Bells in all Classes", plus a "special mention by the jurors for the great purity of tone." The firm also exhibited at The Royal Yorkshire Jubilee Exhibition at Saltaire in 1887 on Stands Nos. 112 and 113:

1. Cambridge Quarter-Chime Clocks.
2. "A set of Musical Hand-Bells, Chromatic Scale for Tune Ringing, also Other Classes of Bells."

for which it received the "Gold Medal Highest Award."

During the same decade church bell-hanging also played an important role in the firm's activities. As well as hanging the new bells at Ranmoor in 1881, it also rehung the bells at Bacup, Lancs. in 1883 and the 18th. century Rudhall six at Didsbury, Gtr. Man. in 1884, where afterwards the "go was pronounced to be first class." In the field of bell-hanging the firm of James Shaw, Son and Co. was certainly quite innovative. In 1884 under G.B. 6641 it applied for a patent on its "Church Bell Gravity Stop Motion." Intended to supersede the stay and slider mechanism, the "Gravity Stop Motion" had the advantages over the traditional system (or so it was claimed) of there being no risk of the clapper coming into contact with the slider bar and thus jarring the bell from its bearings; no risk of the stay hitting clock or other chiming hammers, and no friction. It could be fitted to either side of the headstock, was easily adjusted and for the benefit of novices learning the basic bell handling skills, rubber buffers could be readily fitted. Where space in the bell chamber was at a premium it would be of greatest advantage. Unfortunately the patent was declared "Void or Abandoned", that is to say, it was either rejected by the Patents Office or withdrawn by the applicant and as a consequence was never published, so no details as to how the device actually worked exist. A later patent, G.B. 13701 (1888) on "Bells and Gongs for Churches", was also declared "Void or Abandoned."

The 21st. March 1885 edition of *"The Bell News and Ringers' Record"* contains a report of a visit to Shaws' works and gives an excellent account of how the workshops were laid out. "The visitor to Messrs. Shaw & Co.'s works must not expect to find a palatial mansion, or a miniature town hall", the second paragraph of the report begins.

"Wending our way on a short street off one of the principle thoroughfares of Bradford", it continues, "we came to a plain looking building which bore a sign indicating that this was Messrs. Shaw & Co.'s place of business." Known as "The Ebor Works", the building was in fact a two-storey brick edifice on the corner of Lyndhurst Street and Maud Street. On entering the main door a stairway led to a landing, above which hung "a fine shaped old bell of about half-a-hundredweight" and upon which was located the main office. A door to the right led into the hand-bell tuning and finishing room, replete with lathes and other machinery of the most up to date design. Hand-bells in every stage of manufacture lay about