

## Horsfall

James Horsfall, a wire drawer from Digbeth invented high tensile steel wire. He moved to Hay Mill, a disused blade and sword factory at a water mill on the River Cole, rebuilding it as a steam-driven mill. The mill originally belonged to Hay Hall in Tyseley, where a manor was first founded at the site by the De La Haye family. Hay Hall had passed on to the Este family through marriage. The house was restored after a fire in 1810.



In 1855, the Horsfall company was merged with that of Joseph Webster of Penns Mill at Walmley, a manufacturer and exporter of piano wire to Europe, and a few years later their business transferred to the Hay Hall site. In 1853, Horsfall had patented a heat treatment process which strengthened the wire. This led to improved piano wire (giving a near monopoly) and wire for making needles in Redditch, fishhooks, and umbrella frames. The firm made the 'armoured' wire for the first successful transatlantic telegraph cable in 1866, using 30,000 miles of wire (1,600 tons), made by 250 workers over 11 months. The strengthened wire also made possible the construction of aeroplanes and automobiles.

The process involves heating the rod to a specific temperature for a predetermined period of time and then quenching it in a molten lead bath. The rod is cleaned by immersing it in a tank of acid, rinsing it with water and then it is covered with a layer of phosphate to aid lubrication during the drawing process. The wire is then cold drawn through tungsten carbide or diamond dies, the number of times determined by the size, tensile, torsions and flexions required. This process reduces the diameter and changes the properties of the metal, can be repeated several times, and the wire may be heat treated during the process to counteract hardening and restore ductility.

Horsfall built houses near to the works and, in 1863, a school for his workers' children. In 1873, he built a church in the Fordrough, St. Cyprian's, designed by Martin and Chamberlain and built as a mission church of Yardley and now a grade II listed building, over the mill race on the mill site. This area became the village of Hay Mills.



John Webster had originally traded as an ironmonger. The company had only prospered at the time of the Napoleonic wars through the help of their association with wealthy heiresses. The development of the slitting mill had been started in the eighteenth century by Sampson Lloyd of Birmingham (see the 1907 book 'The Lloyds of Birmingham'), and by the Foleys of Worcestershire at mills on the River Stour, creating a successful way of producing iron bars, with the availability of raw materials from areas round about, notably South Shropshire. Together with the development of the canals and later the railways, many makers of nails sprung up in the surrounding region and of other metal products over the course of the eighteenth and early nineteenth centuries.

According to the 1876 Kelly's Directory for Worcestershire, Horsfall was also at 'the Firs', which was believed to be a house in Moseley on Stoney Lane (now Yardley Wood Road). The property marked on an 1888 map is identified as belonging to the Lucas family. I am grateful to Moseley Local History Society for this information. A complete history of the family and of the company of Webster and Horsfall can be found in John Horsfall's 'The Ironmasters of Penns'.

A subsidiary company, Latch and Batchelor, produces wire rope. In the 1914-18 war Latch and Batchelor were the sole manufacturer of shell fuse spring wire, producing 80,260 miles, according to their records, along with anti-submarine netting, mine, aircraft and balloon cables. Webster and Horsfall produced wire that was used for a range of military purposes during WW1, from use for fuses to use in aero engines.