THE WEST MIDLANDS NAIL TRADE

Guy Sjögren

'There is nothing more simple, more generally useful, or more efficient in its universal application, than a nail' wrote the Commissioner of Patents in 1873.[1] 'Simple' as nails might be, however, it was the manufacture of and trade in these highly functional objects that underpinned the industrial development of Birmingham and the Black Country.

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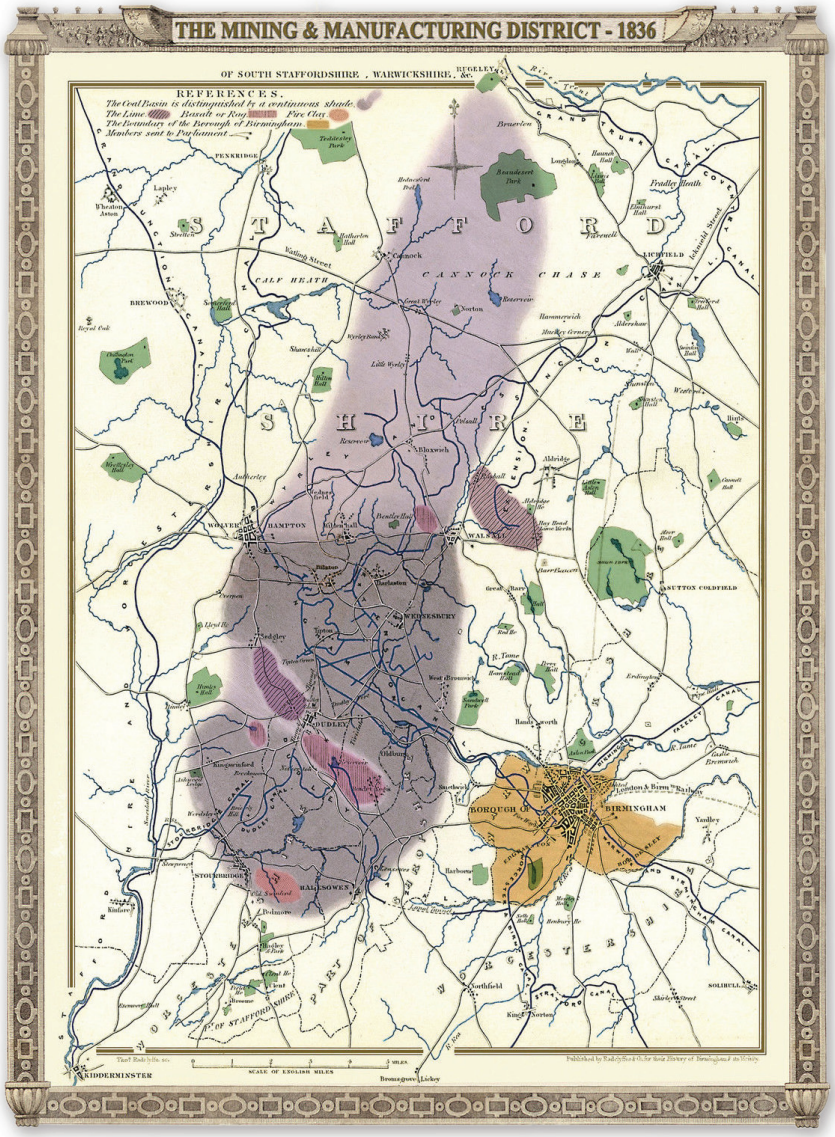
Selection of Black Country hand-made nails.

Historically, nails have been made by five different processes. From the Roman occupation until the late nineteenth-century, nails were made by hand, using simple tools and some form of anvil. During the early years of the industrial revolution, however, alternative means of production such as casting began to be developed. By the early nineteenth century, nail-makers were using hand-operated screw-presses to cut nails from sheets of metal, but it was not until the introduction of steam-powered nail-cutting machines to Birmingham in 1811 that the mechanisation of nail manufacture truly began to take off. However, by about 1880, both the hand-made and machine-cut branches of the West Midlands nail trade had fallen victim to yet another development in nail manufacture: the production of nails from steel wire.



Courtesy of Black Country Living Museum

The industrial Black Country and Birmingham.

The Hand-Made Nail Trade

Records show that nails were being made in Stourbridge and the Derbyshire town of Belper in the early fourteenth century. By the late seventeenth century, the trade was still flourishing in Belper, although the key areas of growth were to be found in Birmingham and its hinterland to the west. A combination of readily-available raw materials, an under-employed population and a growing water transport system aided the development of nail-making communities in places such as Dudley, Gornal, Halesowen and Sedgley. Probate records from 1660-1710 reveal that of the forty-seven metal-workers in West Bromwich, forty-one were nailers; and, in Rowley Regis, all thirty-three metal workers made nails. Not only did concentrations of nailers develop but, as these communities grew, so they also began to specialise. Dudley was renowned for making horseshoe nails; Sedgley for gate nails and rose-head nails; and Bromsgrove for brush nails, hob-nails and tacks.

When John Leland visited Birmingham in 1538, he observed that 'there be many smiths in the town [...] and a great many nailers'. Many more would join this army of nailers, their recruitment stimulated by a growing demand for nails and by an increasing supply facilitated by crucial technological innovations. These technical developments included the introduction of the blast furnace in about 1500; the heavy tilt hammer forty years later; and, most significant of all, the introduction of the slitting mill in the 1580s. Before 1500, the production of nails was a slow, laborious and costly business. The technological innovations that occurred in the sixteenth century facilitated the production not only of larger quantities of nails but also a greater variety to suit an ever-increasing range of uses – clout nails, lath nails, dog nails, brads and many more.[2]

The increased demand for nails came from two separate sources: one domestic, the other overseas. At home, demand was stimulated by the 'great re-building' of rural England that occurred between *c.*1570 and 1640. During this period, new architectural styles produced larger and more solidly-built houses, and a newly developing sense of privacy led to the introduction of features such as ceilings, staircases, floorboards, and glazed windows. These innovations required new methods of fixing building materials, stimulating a demand for an increasingly diverse range of nails. At the same time, England was extending her interests overseas, particularly in America and the West Indies. The impact of a burgeoning overseas trade and of colonial expansion on the English nail trade was dramatic. Trade required ships and shipbuilding required fixings such as deck spikes and scupper nails.[3] Sugar was transported in wooden casks, thus stimulating the production of specialised cask nails; and nails were required in the construction of dwellings, mills, refineries, wagons, wharves and warehouses. Thus, whether by design or coincidence, the increased demand for nails both at home and overseas was progressively matched by an improved supply facilitated by technological developments.

Nail-making was heavy, laborious and dangerous work. Nailers would collect 60 lb bundles of iron nail-rod from a nail-master's warehouse and take them back to their homes, which often had a cramped nail-shop attached. There they heated and cut a length of rod, hammered it into the required

1. Slate nails
2. Strake nails – for securing metal tyres to wheel rim
3. Shoe bills – small triangular nails to secure sole to upper – and hob nails
4. Cooper's nails
5. Saddler's nails
6. Horseshoe nails
7. Ox cogs – stud-like nails to prevent hooves slipping
8. Clasp nails, clout nails, floor brads, glazier's sprigs, lath nails, and more…all used in building construction
9. Scupper nails – nail for attaching leather under a scupper to prevent dirty water from soiling the hull
10. Sheathing nails – used to secure copper sheath to the hull

© The British Library Board 1786.c.9, Plate X/Guy Sjögren

The use of Black Country nails in Antigua.

length and thickness, pointed the end, and formed the head with a few blows of the hammer. At the end of the week, the nailers would take sackfuls of finished nails back to the nail-master. Adults and adolescents would make the nails, while young children heated the rods and pumped the hearth bellows: nail-making was a family affair. In 1775, Thomas Green, a Worcestershire nail-master, estimated that around 10,000 men, women and children were employed in the Birmingham and Black Country nail trade. By 1798 this figure exceeded 35,000.

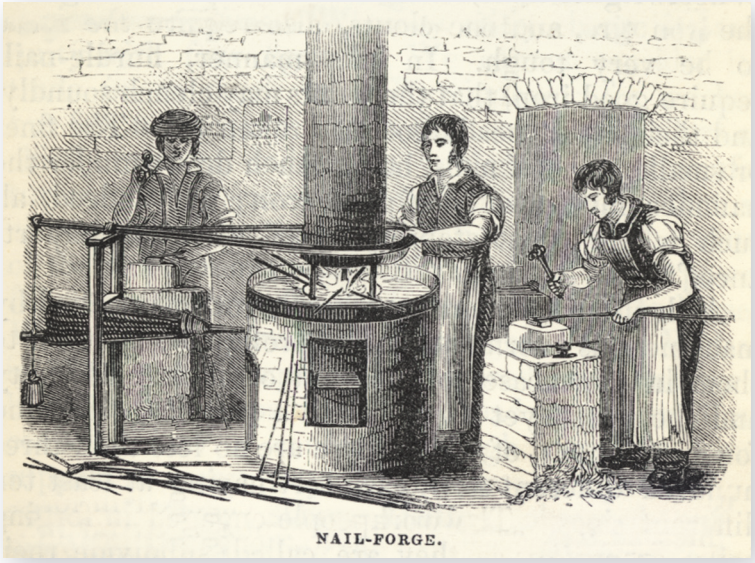
Towards Mechanisation

Although hand-tool technology would remain a significant feature of West Midlands nail production throughout the nineteenth century, signs of change began to appear in the late 1760s as new methods of production were explored. In 1769, Bordesley iron-founder Joseph Ashton was granted a patent for casting coffin nails and tacks from pig iron. Casting was cheaper than forging in that it obviated the need for time-consuming and costly processes such as hammering, rolling and slitting. However, although this method of producing nails continued well into the nineteenth century, and despite the cheapness of the product, the brittleness of cast nails meant that they had limited usage. Not only this but it was the opinion of some that alternative means of production would lead to a waste of human resources. In a letter to the *Birmingham Gazette* in December 1780, 'A friend of the iron trade' expressed concern about the effect that making nails by the more labour-efficient method of casting would have on employment, concluding with the question: 'Shall the welfare of forty thousand useful subjects be put in competition with the forty?'[4]

Despite this concern, the thoughts of inventors were turning to the mechanised production of nails. Two patents granted at the turn of the nineteenth century heralded the dawn of mechanisation. The first was awarded in 1790 to William Finch, one of a dynasty of Dudley iron-founders; the second, in 1808, to two Birmingham men, silversmith Joseph Wilmore and engineer John Tonks. Novel as both processes may have been in the manufacture of nails, from a technological point of view they were rooted in the past. According to one observer, Finch's machine 'consisted in little more than the use of hammers worked by power instead of by hand'; and the Wilmore-Tonks patent referred to a hand-operated screw-press adapted for cutting nails from a sheet of metal. Both the screw-press and water-powered tilt hammers had been in existence since the sixteenth century; but although these inventions were hardly revolutionary, they did serve as a bridge between centuries of traditional nail-making and the technological developments that were soon to revolutionise nail-making in the West Midlands.

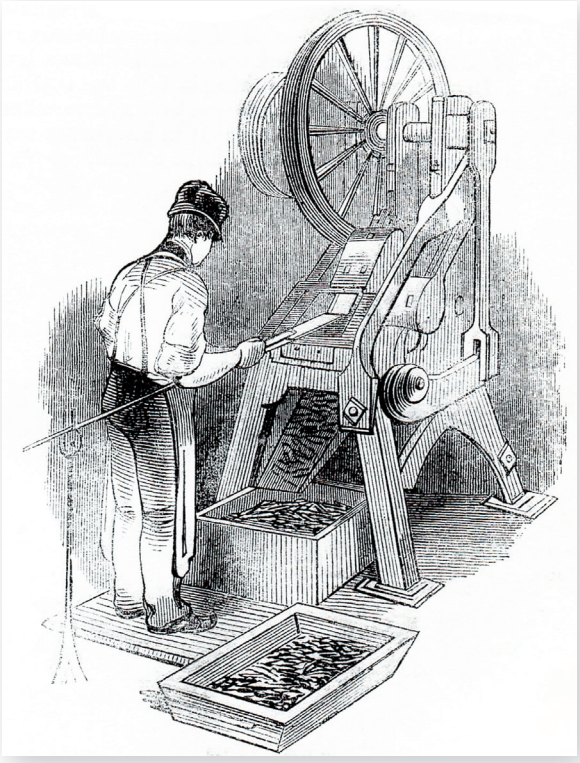
The West Midlands Nail Trade Transformed

The transformation of the regional nail trade had its roots not in the nail shops of the Black Country but across the Atlantic in New England. There, there was an abundance of timber – the primary construction material – but a shortage of nails. Mechanisation was a way of overcoming the problem, and government-inspired initiatives led to a race to develop a nail-making machine. When Bostonian merchant Joseph Dyer came to England in 1811, he brought with him a patent and a model of just such a machine. He hawked the model round the Black Country nail district but the nail-masters showed little interest. Dyer, however, had seen the future of nail-making and hand-made production was not it. Neither did he consider the Black Country to be the ideal location for his enterprise. Whilst the raw materials he needed – principally iron and coal – would come from the Black Country, it was Birmingham that was renowned for the manufacture of 'finished' articles.



A nail-making forge from *The Useful Arts and Manufactures of Great Britain, Vol 2*, 1850, p. 36.

'I succeeded in forming a company in London for establishing a patent nail factory on a large scale', recalled Dyer in 1861, 'to which company I transferred the patents, and undertook to superintend the building and starting of the machines […]'.[5] With capital provided by Samuel Williams, a wealthy American merchant in London, Dyer acquired the vacant Britannia Brewery buildings on the banks of the Birmingham & Fazeley canal in Aston. These he fitted out with American-designed machines, powered by a Boulton & Watt steam engine, and began production in 1814.



An early cut-nail machine from a supplement to *The Penny Magazine*, Vol. XIII, Dec 1844, p. 504.

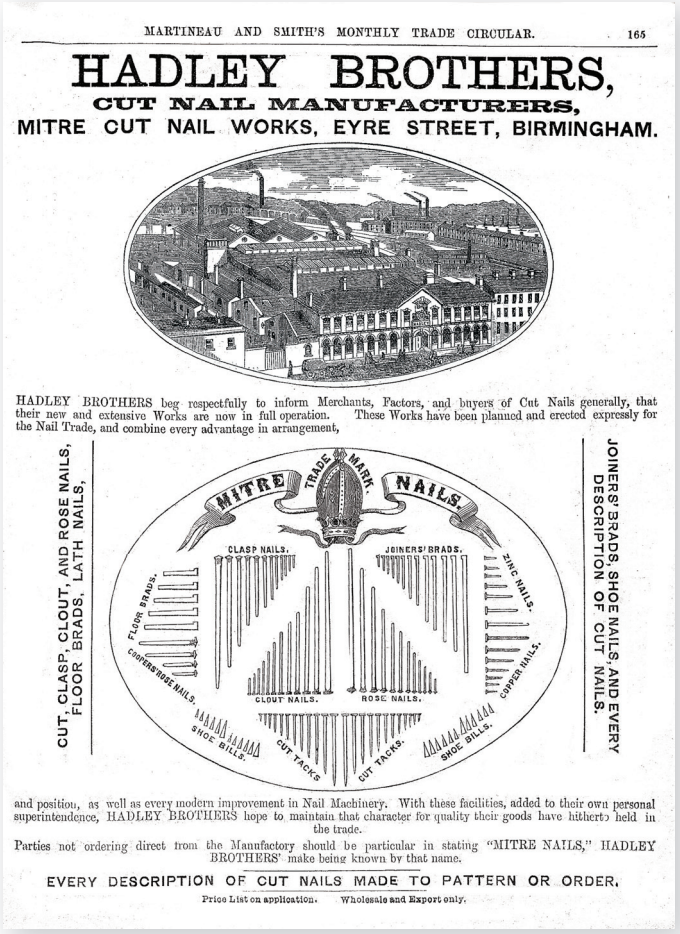
Despite the introduction of machinery, nail-making in the West Midlands remained a traditional hand-made industry: one that remained lodged firmly in the Black Country with employment reaching its peak of around 50,000 in 1830. However, 1830 was to be the turning point in the fortunes of both the hand-made and machine-cut branches of the nail trade. Dyer's patent expired in 1827 and this, coupled with the growing application of steam power in Birmingham during the 1830s, led to a growing interest in the mechanised production of nails. At the Great Exhibition of 1851, Aston nail manufacturer John Reynolds was awarded the only prize medal for cut nails. A year later, *The Times* proclaimed that: 'Cut nails have taken almost complete possession of the market. The immense powers of production now existing in Birmingham […], have combinedly annihilated […] the wrought nail trade'.[6] Whilst the report exaggerated the plight of the hand-made trade, the implication was clear to all.

By 1860, the contrast between the two branches of the trade could not have been starker. There were seventeen cut-nail manufacturers in Birmingham and four in Wolverhampton. John Reynolds' Aston factory was producing twenty million nails a week; and an article in the *Birmingham Daily Post* explained that the premises of the newly-established firm of Hadley Brothers were 'of large dimensions, with plenty of light and air, and of sufficient size [to accommodate] the 300 employees'.[7] On the other hand, an 1843 report on working conditions in the hand-made trade commented on how 'the filthiness of the ground, the half-ragged, half-naked, unwashed persons at work, and the hot smoke, ashes, water and clouds of dust are really dreadful'.[8] One Bromsgrove nailer referred to his occupation as 'the disgracefullest of trades', and yet another observer thought the trade to be 'a disgrace to England'.[9]

Decline

The lot of the Black Country nailers had always been grim; they worked long hours, in poor conditions, for low pay. The advent of machinery only made things worse. Cut nails could be made at a fifth of the cost of their hand-made counterparts. As demand for hand-wrought nails fell, so too did their price and the nailers' wages. Between 1830 and 1865, wages were almost halved; and, as food prices rose in the 1860s, real incomes fell still further, leading to a series of strikes. A strike in 1861 lasted for thirty-two weeks. However, strikes were largely self-defeating. The nail-masters found strikes of four to six weeks manageable, since orders could be met from stock. Longer strikes, however, were injurious since they encouraged buyers to look towards the cut-nail manufacturers for supplies. This only served to weaken the position of the Black Country nailers and strengthen that of the Birmingham and Wolverhampton cut-nail makers.

The early 1870s were a boom time for both branches of the West Midlands trade. From 1874 onwards, however, the industry began to be buffeted by a host of external forces. The contraction of the Black Country iron and coal industries; the introduction of cheap wire nails made from mild steel and manufactured largely in the north of England; unfavourable rail freight charges; an influx of Belgian nails into Britain; and the intervention of foreign manufacturers – notably from the United States and Germany – in overseas markets that had traditionally been the preserve of British producers, had a negative impact on the regional nail trade. In 1876 about 20,000 people had been employed in the West Midlands nail trade; by 1911 employment had fallen to 3,200. ●



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Martineau & Smith's Monthly Trade Circular, 32, 31 Aug 1876, p. 165. Advertisement for Hadley Bothers, Eyre Street, Birmingham.

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Notes

[1] Commissioner of Patents, *Patents for Inventions. Abridgements of Specifications Relating to Nails, Rivets, Bolts, Screws, Nuts and Washers. AD 1618-1866* (London: Eyre and Spottiswoode, 1873), p. xiii.

[2] Clout nails were short, thick nails with large flat heads used in roof construction. Lath nails were slender nails used to secure the thin, flat strips of wood that formed a foundation for the plaster of a wall. Dog nails fixed hinges to doors, whilst brads had an L-shaped head and were used for nailing floorboards to joists.

[3] Scuppers are openings cut through the bulwarks of a ship so that water falling on deck can flow overboard. Scupper nails were used to secure leather or canvas hoses to the scupper, enabling the water to be carried away.

[4] Quoted in John Alfred Langford, *A Century of Birmingham Life: or a Chronicle of Local Events, Vol 1, 1741-1841* (W.G. Moore and Co., 1868), p. 236.

[5] R.B. Prosser, *Birmingham Inventors and Inventions* (Privately printed, 1881; reprinted S.R. Publishing, 1970), pp. 70-71.

[6] *The Times*, 16 Aug 1852.

[7] *Birmingham Daily Post*, 28 Aug 1871.

[8] *Midland Mining Commission: South Staffordshire*. First Report 1843, p. v.

[9] R. H. Sherard, *The White Slaves of England* (Bowden, 1897), p. 98.