

## Frederick Savage, Victorian Fairground Manufacturer of King's Lynn

Until recent years, no fairground was complete without its share of Savage-built merry-go-rounds, switchbacks and showmen's engines. Each machine was a masterpiece, not only of engineering ingenuity, but also of flamboyant art and craftsmanship. Savages' fairground machinery was exported all over the world, but the root of this success lay in agricultural implements originally made for local farmers.



Frederick Savage in mayoral robes.

Frederick Savage was born in the Norfolk village of Hevingham in 1828, the son of hand-loom weavers. He received a scanty education and the family fell on hard times when his father was deported to Tasmania for poaching. When he was ten years old he started work as a farm labourer, earning 2/6 (12½p) a week. Eventually he was taken on by Thomas Cooper, 'Whitesmith and Machine Maker' of East Dereham, where he acquired enough experience to move to King's Lynn in 1848 and work for Charles Willett. On Willett's retirement in 1850 Savage set up his own business, first in Tower Street and then on London Road, making and repairing agricultural implements.

The mid-nineteenth century drainage of the Fens by steam power opened up new agricultural opportunities. Savage was quick to exploit these and built and developed carts, hoes and steam threshing machines. From these, the manufacture of traction, or self-moving, engines was a logical development. His *Juggernaut*, c.1856, was an extremely advanced model. At a time when most engines were driven by an endless chain, the *Juggernaut* had its rear

wheels gear-driven from the crank-shaft which could be disengaged on sharp bends and was therefore easy to manoeuvre. In spite of a warm reception at the Long Sutton Show in 1858, it was never developed and Savage returned to more orthodox chain-engines.

Expansion led to the firm's move to St. Nicholas Street in 1860, where Savage is described as a machine maker involved in the 'noisome trade or business of making and repairing steam engines'. In 1872 he was able to purchase reclaimed land off Estuary Road for the St. Nicholas Ironworks site. His biographer, William Sparkes, stated that 'the securing of the first four acres well nigh exhausted all his money, of which there only remained some £10 or £12 in the bank'. This financial problem was short-lived, however, for Savages was now about to enter its most prosperous era in which it was to receive international acclaim. All activity was now focused at St. Nicholas Ironworks which was equipped with the most modern machinery and staffed by up to 400 employees.



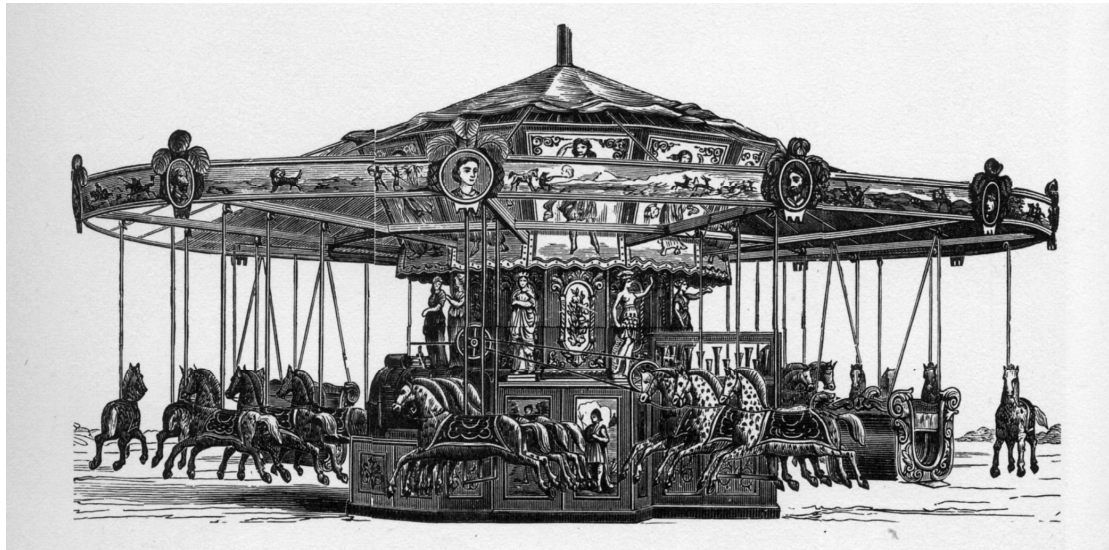
Poster advertising Savage farming machinery.

The efficiency of a steam engine depends on precision engineering. The highest technical abilities were demanded, from draughtsman to pattern maker to foundry worker. The pattern maker worked from a drawing to produce a wooden pattern of the casting, made from best Canadian yellow pine. Great skill was required in these often intricate carvings, for the smallest inaccuracy could render the final castings useless. Allowances had to be made for 'taper' - for drawing the casting out of the sand - and for the contraction of the metal. If the casting was to have hollow cavities, as in a cylinder block, then cores were made, also of sand. The patterns were painted with a hard heat-resistant varnish, stamped with their individual number and were then ready for use.

The pattern was placed in a box of specially-prepared sand, its tooled face downwards; often one half was cast at a time. Once it was removed, its corresponding solid sand core half was placed on top to form the internal cavity and the molten metal poured round it. Finally the casting was machined before being incorporated in the engine. Each steam engine was therefore very much a product of both craftsmanship and engineering.

Savage himself was not so much an inventor as a brilliant engineer and entrepreneur who was quick to spot growing trends and then develop machinery for them. The idea behind his *Agriculturalist* 10 h.p. ploughing engine was not new; a traction engine drew a plough across a field by a system of cables and anchors. Savage improved this system by incorporating a winding drum in the space around each wheel, introducing an automatic anchor and replacing chain drive with his patent 'slow-motion' gear. The *1902 Catalogue for Traction Engines and Farm Machinery* claimed that 'this will easily lift the engine out of any hole, rut or soft place without stopping to raise the steam to any excessive pressure'.

Most large farms possessed some form of steam-driven machinery, of which Savages was a popular and reliable supplier. Yet Savage himself was not content to produce only conventional engines but branched out into what was sometimes viewed as the fantastic. His ingenious patent 'annular compound', where the high-pressure compartment was surrounded by a low-pressure annulus, could not compete against the new duplex cylinders. The *Darby Digger* fared little better. When the agricultural world began to praise the method of deep digging, Savage contracted to build broadside diggers for Thomas Churchman Darby, of Pleshy, Essex. These huge machines were over 20 ft wide and weighed 20 tons; a series of forks arranged on different shafts reproduced the digging action of a spade to a depth of 10 inches, whilst the wheels could be turned across the boiler axis to convert the digger into a road locomotive. Such a monstrous and cumbersome machine must have certainly attracted more than an interested glance from passers-by. Its production was never an economic viability however, the last machine being made in 1913.



Savage 3-abreast steam 'Dobby' carousel, c.1865.

It was in the sphere of fairground machinery that Savages reigned supreme. In the words of their *1902 Catalogue for Roundabouts* 'we have patented and placed upon the market all the principal novelties that have delighted the many thousands of pleasure seekers at home and abroad'. As the expanding railway network made goods cheaply and nationally available, the ancient trading fairs turned to showmanship and public amusement for their survival. Prior to the mid 1860s, roundabouts were driven by young boys or horses pulling round the spinning frame. Similar technology had been applied to

horse-driven threshing machines, which Savage was manufacturing at the time. Frederick Savage did not invent the steam-driven roundabout; that privilege probably belongs to Sidney George Soame of Marsham, Norfolk, who exhibited his steam organ engine and roundabout in the 1860s. Nevertheless, Savage was a major pioneer whose engineering skill and commercial flair rapidly outstripped any potential rivals. His *Velocipedes* and *Dobby Horses* which proved so popular at the Lynn Mart quickly received nationwide admiration.

Savage developed these basic machines by combining technical ingenuity with his own vivid imagination to transform pieces of mechanical engineering into citadels of popular fantasy. The *Gallopers*, the best-loved of all merry-go-rounds, owe much of their character to the talent of Savage. His patent *Platform Gallopers* imparted a vigorous rocking motion to the mounted horses via a series of eccentrics under the platform.

They were soon replaced, however, by a more rational adaptation of Tidman's system of single overhead cranks, from which the horse-rods were hung. The most elaborate *Gallopers* had up to 56 4-abreast horses and were fitted with Savage's patent 'platform slide', which allowed the horses to swing out concentrically as the machine gathered speed. These roundabouts were the focal point of many small fairs, whilst larger grounds would boast several sets.



A carved cat's head prototype for Le Fevre's Jumping Cats machine made by Savages.

As the showmen jostled with each other for trade, they required larger, faster and more opulent rides to attract the punters' attention. Savage responded not only with *Racing Peacocks*, *Jumping Cats* and *Flying Pigs* as variations on the *Gallopers* theme, but also with the *Switchback*, the forerunner of most modern rides. Patented in 1888, eight cars ran on an undulating track to which a third compensating rail was added. The undulations of this rail, on which only the front wheel of each car ran, were out of sequence with the inner and outer rails and thereby corrected the proneness of the cars to overbalance. *Switchbacks* were the most lavish machines ever produced, their cars taking the form of Baroque-style gondolas, gilt-encrusted dragon carriages and the newly invented motor-cars. When steam centre engines were replaced by electric drive, rides became known as *Scenics*.

Further thrill and amusement was provided by *Steam Yachts*, *Sea-on-Land*, *Tunnel Railway* (incorporating a model locomotive), *Razzle Dazzle*, *Wheely Whirly*, *Cakewalk* and *Aeroflyte*, to name but a few. These machines could

transport people to new realms of ecstasy with their faster speed and sickening dips, all accompanied by the noise, smoke and smell of steam centre engines, the strident music of steam organs and glittering lights provided by *Savage Sparklers* - new steam-powered electric light engines. It was the golden age of the showman. According to William Sparkes 'immense sums of money have been paid for the purchase of these respective sets, and as much as £100 to £150 has been received by their proprietors in one day in penny and two penny fares'.



Savages giant cockerel galloper.

The worldwide popularity of these machines owed as much to Savages' carvers and illustrators as to the engineers. Some craftsmen like Vic Walker worked in both the carpenter's shop and pattern shop during their career, working a 50-hour week for 4d to 6d an hour, depending on skill. A galloping horse would take up to 10 days to make. Its body consisted of nearly 30 pieces of best yellow pine whilst its legs were made of beech or elm. Savages proudly claimed that only the glass eyes and horsehair tails were not made at St. Nicholas' Ironworks.



Savages gallopers being made in St Nicholas Ironworks

Pine rounding boards - fixed to the ends of the spinning frame - and shutters, which screened the engines, were faced with canvas and worked in with white lead before painting. Sometimes the style was dictated by the showmen or by Italian artists brought up from their Islington, London, workshop, but most details were left to Savages' craftsmen. Extravaganzas of fantasy were created by vivid scenic painting, exuberant scrollwork, carved Baroque dream images, plush upholstery, engraved mirrors, barley-sugar brasswork, gaudy hues and gilt. The emphasis was on unashamed opulence.



Giant ostrich galloper made by Savages.

Savages' specification book shows some of the details of these machines. For William Murphy's *Switchback* in 1905 '8 motor cars upholstered in Pegamoid with bonnets, lamps, steering wheels, motor wheels and compensating axles, number plates, reversing levers, horns, cloths, step on both sides of car and wheel boards'. For Mr Jackson's *Scenic* in 1909 'To provide all the necessary scenery with glass and framing for the waterfall. To provide lamp with revolving disc for throwing different colours on the waterfall from behind'.

Such vast and elaborate rides needed specialised machines to drive and tow them. Savage solved many showmen's problems by inventing the *Centre Truck*, a centre engine with overhead gearwork mounted on a horse-drawn truck. With polished brass fittings, gun-metal gauges and steam harmony whistles, these engines were masterpieces in their own right. His *Traction Centre*, a strange synthesis of road locomotive and centre truck, was not a success because the tractive effort required on roads could not be equated with the lighter bed of the spinning frame. Savages thus returned to the manufacture of sturdy showmen's engines like the *Little Samson* to haul their purpose-made transport wagons and living vans. Processions of these brightly-coloured engines were once a common sight in the countryside, but their days were numbered. Traction engines could only attain a maximum speed of 15 mph, and had to take on extra water every 5 miles. They had limited mobility; some had to be hauled over the Hardwick bridge by horses

on their way to the Lynn Mart. Restrictive legislation such as the £60 annual licence in 1930 finally forced them off the road.

Both showmen and the people of Lynn recognised their debt to Frederick Savage. On the 27th May 1892 his statue was ceremonially unveiled, bearing the words 'The People's Testimonial to F. Savage Esq.'. It was the only statue to a public man in King's Lynn, and in the words of Lord Henry Bentinck it would remind people 'that they must walk uprightly, and be kind and generous'. A grand banquet was held in Savage's honour. The former farm labourer now sold his products in America, Europe, Africa and Australia. He was a Councillor and J.P. and was mayor in 1889. In his biography, William Sparkes says that Savage 'displayed an unusual amount of liberality towards the poor, and various religious and secular institutions'. He and his wife were 'united in their efforts to promote the prosperity of the town and the happiness of its people; they succeeded'.



Statue of Frederick Savage in London Road, King's Lynn.

Frederick Savage died in 1897, much mourned by the people of Lynn. His sons carried on his business, and produced a very successful series of steam lorries, many of which were exported. The Class B wagon won the RAC Gold Medal in 1907, though the Class C was a better design. *The Implement and Machinery Review* of 2nd September 1903 said 'Even cursory glances at it forced repeated expressions of approval both in regard to its design and excellence of construction'. Their more unusual products included Voisin LA biplanes manufactured during the Great War.

Semblance of prosperity was now superficial, however. In 1910 Savages was declared insolvent and was only saved by a local consortium. Even in 1912 the Board Minutes report that 'more would need to be done to bring in sufficient orders to fill the works'. Showmen were slow to pay their bills. 'It was reported that Mr Collins had failed to meet a bill due on May 25th after being presented twice and written to several times'. The dominance of the internal combustion engine after the Great War, combined with Savages' lack of specialisation, hastened the decline of the company. Savages kept going when other famous firms like Burrells' of Thetford were closing down, but it

could not compete with its more modern rivals. Savages Ltd. finally closed in 1973. The St. Nicholas Ironworks were demolished and new factory units built on the site.

Many Lynn residents still have fond memories of the company, and some of its employees like Vic Walker and Arthur Johnson have presented relics of the firm to Lynn Museum. As well as photographs, ledgers, templates, catalogues and works drawings, the Museum has acquired a unique collection of 30,000 wooden engineering patterns as well as engineering drawings for the fairground and agricultural machinery produced by Savages. This collection can be viewed by appointment with the Curator.

**A display on the history of Savages, with carved fairground gallopers and other objects associated with the firm, can be seen at Lynn Museum.**



Model Savage carousel.

## **Bibliography**

Braithwaite, David, *Savage of King's Lynn*, (Patrick Stephens Ltd., Cambridge, 1975).

Braithwaite, David, *Fairground Architecture*, (Hugh Evelyn, London, 1968).

Clark, Ronald, *Savages Limited: A Short History 1850-1964*, (Modern Press, Norwich, 1964).

Clark, Ronald, *The Development of the English Traction Engine*, (Goose and Son, Norwich, 1960).

Hughes, W.J., *A Century of Traction Engines*, (Percival Marshall & Co., London).