# British and Irish Flour Mills

# No3 Messrs James Comerford & Sons' New Roller

## Milling journals of the past at The Mills Archive

by Mildred Cookson, The Mills Archive, UK

As with my previous articles, I have chosen accounts from The Miller or Milling describing successful mills from the early days of roller flour milling. Both these Victorian publications are held at the Mills Archive, along with the American Northwestern Miller. All three journals have some significant gaps, so we would welcome any offers of material as we move to create the World's first roller flourmill library and archive.

Comerford's roller mills at Rathdrum in Ireland featured in a detailed illustrated article in the 7 June 1886 issue of The Miller. At that time, exactly 130 years ago, the mills, which were situated in the beautiful valley of the Avoca, belonged to the Comerford family. The mill described had just been built on the foundations of the previous mill. Its predecessor, while having a steadily growing trade, met the same fate that had overtaken so many other flour mills, with a disastrous fire a year earlier on 20th June 1885.

At the time of the fire, the mill had eleven pairs of millstones with 18 silk reels with purifiers and one set of rolls. It was believed that the middlings were floured in part by the help of smooth rollers, but the breaking of the wheat was left to the stones; and for all intents and purposes the mill, whose products were certainly held in very high esteem, was a millstone mill.

**Rebuilding after the fire**

The new mill, a four-storied structure, was built of stone; facings of red brick agreeably tempered the effect of which. The mill had an inside measurement of 57 by 36 feet and was fitted out with a full five sack per hour roller plant by Mr J Harrison Carter of 82 Mark Lane, London and of all the rolls were of Harrison Carter's latest design at that time, that is to say, furnished with four rolls and driven by gear drive.

The cog wheels by which the rolls were put in motion worked in oil-tight casings. Another feature in the mill was a specially designed conveyor, which was underneath each reel, and centrifugal, this apparatus was fitted with an ingenious cut-off which was patented in 1880.

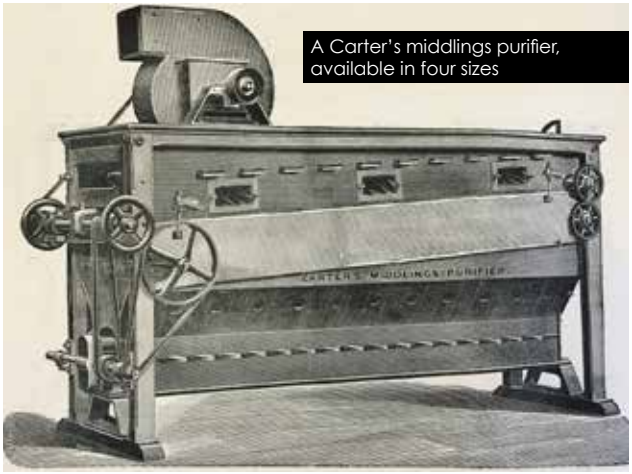
The wheat cleaning department was in a separate fireproof department adjoining the mill, and was connected to the top or fourth floor by double iron doors. The cleaning process was carried out by passing the wheat through a Howes & Ewell zigzag separator which was placed on the top floor, eight Van Gelder's cockle, oat and barley cylinders on the third floor, a Eureka horizontal smutter on the second floor and a Eureka horizontal brush on the first floor. By this arrangement of machinery, only one pair of elevators were required to elevate the wheat again to the top floor from where is passed into the mill itself.

The main drive for the mill machinery was on the ground floor. The drive consisted of a spur wheel 11 foot in diameter fixed on the Star wheel shaft, the shaft turned at 18 revolutions per minute. The spur wheel drove a pinion 4 feet 6 inches in diameter, which set the main shaft in motion by means of a bevel gear. The pinion shaft turned at 47 rpm and the main shaft 125 rpm.

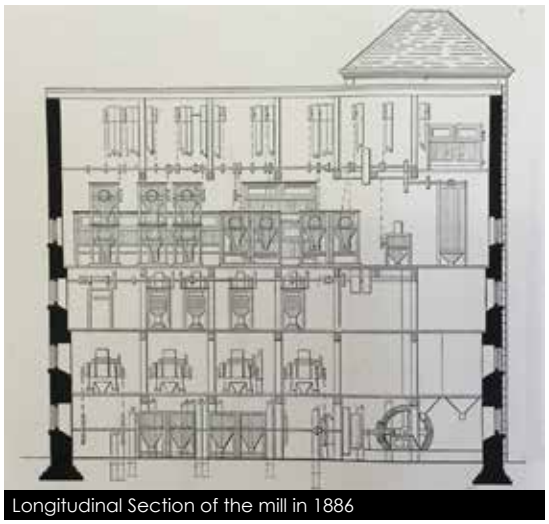
On the main shaft were fixed various pulleys from which the roller mills on the floor above were put into motion. A pulley, 72 inches in diameter drove the wheat cleaning machinery and another of 4 feet 6 inches drove the flour dressing machinery by means of a 12 inch belt. On this floor were four scalpers for separating the particles of wheat from the semolina, middlings and flour and the various elevator bottoms, which were arranged in a straight longitudinal line.

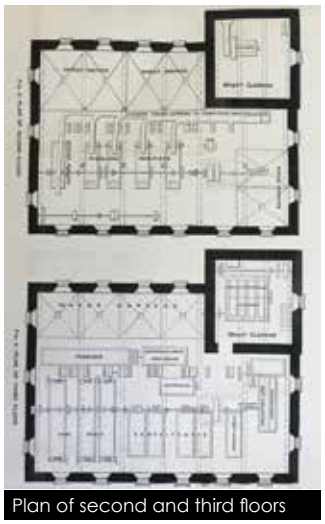
The first floor or grinding floor had eight sets of Carter's roller mills placed in two rows, which served for the reduction of the wheat on the system of six breaks, and for flouring of the middlings. The first break was done on a four-grooved chilled iron roll, the second, third, fourth, fifth and sixth breaks and tailing was done on three of Carter's four-grooved chilled iron roller mills. The flouring of the semolina and middlings was carried out by


Comerford Mill in 1924 (advert in Milling)

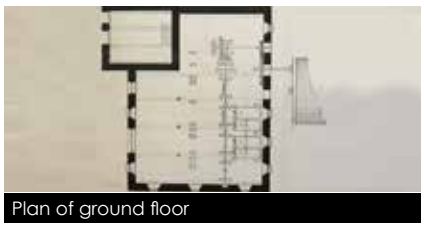


A Carter's middlings purifier, available in four sizes


Longitudinal Section of the mill in 1886


Plan of second and third floors

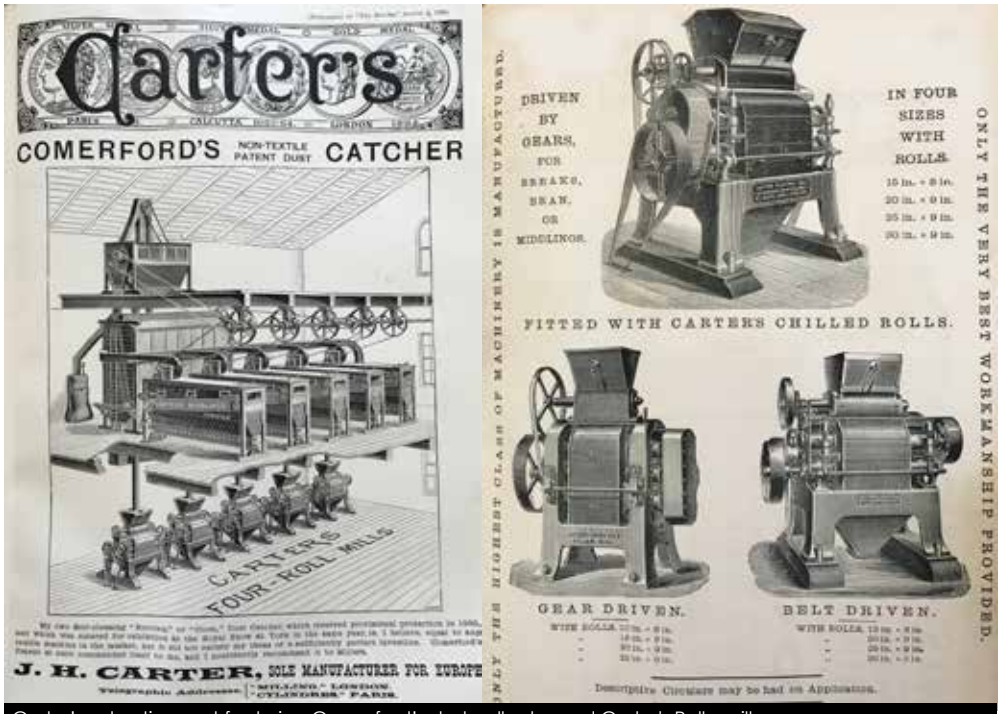

Cross Section of the mill in 1886 showing the 20 foot diameter waterwheel


Plan of ground floor

four Carter four-roller mills. Over each line of roller mills was an exhaust trunk to which the exhaust spouts from the roller mills was connected.

The second floor had one gravity purifier with five sets of legs, four of Carter's single sieve purifiers, a suction fan exhausting from the rolls, and a Penney grader which had a fan attached at the top of the machine to take out light material that may have remained in the wheat. This grader was placed directly over the first break roll.

The third or top floor housed the dressing machines, namely six Carter's centrifugals and eight long silk reels. These were put in motion by means of a 12 inch belt which connected the shafting on this floor to the shafting on the second floor. 15 of the 19 elevator heads were also here along with four wheat bins each capable of holding ten to twelve tons of wheat. The bins were of solid construction and were built and installed by the millwright, Mr Peter Murphy of Wexford. On this floor there was also the Carter dust collector, which had no textile material used in its construction, and which featured prominently in a Carter's advertisement in August that year.



Carter's advertisement featuring Comerford's dust collector and Carter's Rollermills

The most dramatic external feature of the mill was the large waterwheel which provided the motive power for the mill. It was a high breast-shot waterwheel 20 feet in diameter and 12 feet wide. It had ventilated buckets and a 26 inch shroud. The fall was around 12 feet and the wheel could produce 80 horsepower.

**The water for the mill came from a mountain torrent**

Messrs Comerford were proud of the mill weir, which had been constructed under their own direction. The water for the mill came from a mountain torrent, which at the end of a severe winter, when masses of snow would suddenly melt under the April sun, would pour a swollen volume of water into the valley, Before the new weir was built flooding around the mill was a frequent event. The new weir, a semi-lune was built of concrete with massive stone walls and had a curved apron to break the force of the fall.

These articles only give a brief glimpse of the several million records held by the Mills Archive Trust. If you would like to know more please email me at mills@millsarchive.org .


A Carter's semolina purifier, available in four sizes