The Construction of a
Carousel

Clues to an Industry from the Frederick Fried Archives

William F. Mangels (1866–1958) is an established name in amusement-park literature. His factory, the Wm. F. Mangels Company in Coney Island, Brooklyn, New York, invented and manufactured many attractions in the first half of the twentieth century, including popular rides such as the Whip and the Tickler, and a major part of the company's business was attributed to its revolutionary approach toward carousel construction. Beyond patenting the internal mechanisms with which carousels are still constructed today and working with some of the most established craftsmen of his time, Mangels was an innovative and talented businessman. A vast number of carousels are attributed to his factory over a fifty-year period, with twenty-three of them still in use today. Further, an examination of his business model offers great insight into the world of early twentieth-century industry, communications, and art. The ledgers, blueprints, sketches, and photographs that survive within the Frederick Fried Archives offer a unique glimpse into Mangels's successful company.
After founding the American Museum of Public Recreation at Coney Island in 1927, Mangels contributed many of his workshop's documents and materials to the institution. The museum closed in 1955, and Vermont-based historian Frederick Fried (1909–1994) acquired a portion of the collection:

"Bought all remains of archive of the Wm. F. Mangels Carousell Works / and some remains of objects, etc. / from his (Mangels) requirements. With the aid of this ledger, it is possible to track the process of a carousel's creation from the initial order to its use as a promotion for Mangels's services. The story of the construction of the Willow Grove Park carousel in Willow Grove, Pennsylvania, just outside Philadelphia (illustrated on pages 52 and 53), gives a sense of the business as revealed by the ledger and the artistry as seen through blueprints and photographs that the Mangels factory employed to please its clients nationwide.

The Fried Archives, which also contain the histories and remnants of many other Coney Island attractions, show the extent and range of the work created by the Mangels shop between the late 1800s and the mid-1900s. The Willow Grove Park carousel, built for the American Amusement & Construction Company (later Ryan Amusement Company) under president Thos. J. Ryan in 1910, first appears in records as an order placed on January 27, 1910:

Jan 27 1910 / To contract to build (34 ft. Diameter) / Combination Galloping horse Carousell / as per
The detailed statement of price, delivery date, and transport demonstrates a focus within the ledger on logistical and monetary aspects of the construction and installation process, with little regard for the artistic requirements for the particular piece. The overall emphasis appears to have been on a timely delivery, as the client clearly wanted the carousel for the upcoming summer season.

Blueprints were likely created for each carousel order, and some were perhaps circulated among clients as well as craftsmen. The extant blueprints in the Fried Archives are not direct matches of the Willow Grove Park carousel but contain many of the same elements. One early drawing and its corresponding blueprint (opposite and below) are for a similarly styled permanent four-row carousel, and the rounding board (the decorative panel circling the upper rim of a carousel) features the same pattern of mirrors and frescoes. Indeed, the panels on the center pavilion depicted on the blueprint are very similar in shape and style to those on the Pennsylvania carousel, for which, at one point in time, a blueprint probably existed.

The archives contain various blueprints and drawings of carousels, ranging from utilitarian technical drawings, detailing specific parts of a mechanism, to aesthetically focused full-carousel renderings likely intended for the clients' eyes. Examples of the former bear penciled figures and diagrammatic markings that show its use over the years. The latter are carefully executed, artistic pen-and-ink drawings that evoke a feeling of beauty and movement through their detail, showing both the grace of the internal carousel mechanism and the skill required to create the carved animals and painted frescoes. These scale drawings work in a lyrical way, clearly intended to provide a glimpse of the outcome of the project rather than solid engineering guidelines—to convey the feel rather than the how. They allowed each participant in the construction process—the engineers, carvers, and painters—to understand not just the plans for his particular job but also the objective of the entire finished piece.

It can be inferred that these detailed drawings were not necessary to the step-by-step completion of the carousel. Carousel makers gradually outsourced blueprint drawings, and the depictions of the horses became more and more abstracted and simplified. A comparison between the c. 1910–1915 Mangels overhead blueprint and an overhead drawing created in 1974 for a Kansas manufacturer (see pages 56 and 57) demonstrates that such an artistic rendering was not necessary, yet the earlier drawing was clearly a product of great care and detail—each horse has been drawn
with precision, and no two are exactly alike. The outside standers are larger than the inner horses, and some show indications of decorative adornments. In contrast, the 1974 drawing does not even depict horses. Instead, a boatlike shape, indicating simply the presence of an object rather than the object itself, represents each animal.

While the Mangels factory created the mechanical components of their carousels, they outsourced woodcarving and fresco painting to artisans in their roster. For the Willow Grove Park carousel, Mangels collaborated with the renowned carver Marcus Charles Illions, who by then had established himself as a principal artist within the field. In 1909, Illions had formed M.C. Illions and Sons with his four sons and his daughter in the venture; the six family members, along with other relatives who assisted them, would have been responsible for carving and painting all of the horses and chariots on the Willow Grove Park carousel. Illions took great pride in his horses and was known for staying ahead of carving trends and techniques. By having Illions and Sons work on this carousel, Mangels and the client were assured that the carvings on the finished product would be magnificent and unusual.

Mangels's records on the American Amusement and Construction Company (as noted in the ledger) also offer a clue as to who may have erected the carousel once it was transported to Willow Grove Park. While a list of construction laborers is not noted for any of the jobs completed when the carousel was installed in 1910, the 1911-1912 roster of workers included an overlapping cast of characters, including the recurring names Bartolo, Rudolph, and Ward (as well as more common names such as George, Chris, Frank, and Tony, which perhaps also—though not as definitively—indicate overlap). The information in the ledger does not specify whether these same people were involved in the engineering process at the Mangels factory or were employed solely to install the finished product.

The archives contain no note of delays in the delivery of the Willow Grove Park carousel, implying that the entire process, from blueprint to carving to painting, took less than four months. After its completion, Mangels clearly considered this to be one of his finest carousels to date, as he used an image of the installed piece as an illustration of the most extravagant carousel his factory could offer, the Combination Palace Galloping Horse Carousell, in the "Wm. F. Mangels Co. Caroussel Works Catalogue No. 7" (circulated between 1913 and 1914). Described as "the highest type of mechanical construction . . . insuring durability and a large margin of safety," this carousel was promoted not only for its mechanical reliability but also for its aesthetics: "the decorations are most elaborate . . . The horses are . . . highly finished and decorated."

As remarkable as the Willow Grove Park carousel was, a photograph could not be used for promotional purposes without alteration. Due to the architecture of the building in which the carousel was housed, the full height of the rounding board of the carousel remain the same, the artist who touched up the original image carefully removed blurred details and unsightly patterns that would distract from the horses and sharpened dark and light highlights for effect. Most dramatically, he painted in part of the top portion of the rounding board that was obscured by the ceiling sin the original photo. In this same catalog, Mangels also listed testimonials from satisfied clients, stating the durability of the mechanics and the business the carousels brought in.
not only showcased his finest work but also focused on the positive responses inspired by the reliability and universal appeal of his amusement-park products.

The craftsmanship of the Willow Grove Park carousel, as well as the published promotional material, brought new business to the factory. The ledger documenting the Willow Grove Park order also lists a 1911 order placed by Joseph Geeller for Hollywood Park in Baltimore:

1911 / Sept 22 / to Agreement / to Build Carousell / (similar to Willow Grove Park Phil.) / . . . 11600.00

It is unknown whether this client placed his order after having studied the factory catalog or after he had seen the Willow Grove Park carousel firsthand (which could have been possible, given the proximity of the two amusement parks). Regardless, Mangels’s business model is clear: by creating an artistically dynamic product, delivering it on time, and promoting it following construction, he grew his company’s reputation for reliability and fine craftsmanship and thus brought in new orders and more innovation-seeking customers from around the country.

Though the Willow Grove Park carousel has been dismantled and the horses dispersed among other still-active carousels and private collections, the drawings, blueprints, ledgers, and photographs from the Frederick Fried Archives have lent life to this Mangels and Illions collaboration long after it stopped spinning.

Notes

2 This quote is handwritten on the inside front cover of a Mangels ledger labeled “Name and address book of suppliers, etc. Wm. F. Mangels Company W. 8th St. Coney Island” (Frederick Fried Archives, courtesy Ricco/Maresca Gallery, New York).


4 Mangels client ledger, 1908-1915, pp. 274-275, Fried Archives, op. cit.

5 That Illions carved this carousel is established by Fried’s handwritten notes within his archive, as well as by the National Carousel Association, which notes that some of the Illions horses originally created for the Willow Grove Park carousel are currently on other, still-functioning carousels; see www.nca-usa.org/census/census-CLA.html (accessed Aug. 10, 2007).


7 Mangels client ledger, op. cit., pp. 276 and 366.


9 Mangels client ledger, op. cit., p. 388.