

A Tale of “Twin” Ruth Organs

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In early December 2002, Jim and Sherrie Krughoff took delivery of an exceptional Model 38 A. Ruth & Son band organ. There was already another instrument of comparable size in the Bob and Paul Milhous collection that had a nearly identical façade, so similar as to make them essentially “twins” at first glance. An opportunity to learn some interesting details about Ruth organ history is presented by telling the story of these two fine music machines.

Ruth Cardboard Organs

A. Ruth & Son of Waldkirch, Germany completed their first paper or book-operated organs in 1900. The innovation occurred while Adolf Ruth I (1845-1907) was the leader of the firm. Black Forest builders, led by Ruth, devised “keyless” control systems as an alternative approach to the patented French systems that used “keys.” The former utilizes the exhaust of air through the circular holes punched in the folded book to activate valve functions, whereas the latter employs the mechanical action of metal fingers rising through the slotted perforations to accomplish comparable valve work. Initially, a Ruth music book passed across the tracker bar and through the keyframe rollers, which then propelled it across an open slide, through the case sidewalls to the receiving crate on the far side of the instrument. The tracker bar and rollers were outside the case, parallel to the right side when facing the façade (**Figure 1**). Though it is little known today, the same arrangement was also used in Gavioli book organs in the 1890s. The configuration remained in effect in Ruth machines until 1908. The longitudinal slide design was superseded by the self-contained keyframe, mounted in a wooden housing at the same corner of the case, but with the tracker bar perpendicular to the case sidewall. The redesign minimized the distance that heavy crates had to be moved from the discharge back to the start position.



Figure 1. In 1907 the Ruth keyframe connected to a slide that ran across the width of the case. It meant that heavy music crates had to be dragged back from one side to the other. Author’s photograph.

It also facilitated the playing of endless, looped books moving through a cradle placed below the keyframe, thereby eliminating the need for frequent operator attention.

Ruth commenced their manufacture of book organs by offering new instruments designated as Models 35, 36 and 37. They were listed in a catalog printed on yellow paper that did not include the Model 38, which was introduced for delivery in 1903. That would date the catalog to circa 1899-1901. All of the new models were offered under the heading of “Organworks with Folding Books with beautiful Façade in black and gold.” Each was a revision of an existing cylinder organ design. The Model 35 was described as a “Carousel Organ,” the Models 36 and 37 given “Concert Organ” status. The document also advised customers that painted facades with figures, revolving columns and other decorative elements could be specially quoted.¹ Two Model 36ers were delivered in 1900.

From Style 24 to Model 38

The first Model 37 was fabricated for 1901. It was based on the 90-key Style 24 Ruth cylinder organ and also had a 90-key specification. An earlier, very original 90-key Ruth cylinder organ, shop number 3220, circa 1884, is in the Elztäler Heimatmuseum at Waldkirch. The new book organ included piano and forte registers internally, as well as large and small drums, and a cymbal mounted in removable side wings. The circumstances are not entirely clear, but it appears that one key was subsequently added to the margins at each end of the scale, shifting the “original” scale up one key. It resulted in the 92-keyless design that is recognized today as the Model 37 scale. The new key #1 operates the figures while key #92 works the bandleader, additions that would have been desirable when facades with mechanical figures were applied to the machines.

A comparison of the case measurements for the various instruments provides an interesting insight.

Case Dimensions (in cm):	Height	Width	Depth
Organ Type			
Style 24 Cylinder Organ*	183	214	190 [90]
1901 Model 37 Book Organ*	186	225	105
1904 Model 37 Book Organ	195	214	94
1906 Model 38 Book Organ	208	230	96
1907 Model 38 Book Organ	208	235	97
1912 Model 38 Book Organ	203	239	97

* catalog dimensions

The depth dimension for the Style 24 provided in the yellow catalog was a misprint. In lieu of 190, it should be somewhere between the 87cm depth of the Style 23 and the 110cm of the larger Style 25, likely the 90cm we have specified. Generally it could be concluded that during the development from Style 24 to Model 37 to Model 38 that the case depth nominally increased by eight percent. Width grew by almost 10% and height by fourteen percent. The 34% increase in case volume facilitated additional and larger scaled pipework, ease of

pipework installation, maintenance and tuning, along with any number of other tonal or construction advantages, all at somewhat greater weight and cost. The primary determinant of depth and width would have been the design of a pump and reservoir with significantly greater wind capacity to support the playing of an ever grander repertoire of ambitious music. The case depth also had to consider the book handling apparatus, whether of the through the case or corner keyframe design, with space allowed in reference to the side case construction. All of the organ's elements, the pump and reservoir, chests and pipework in combination had an impact on height.

The Ruth catalog does not refer to them, but violins came into use on Waldkirch organs in the mid-1890s and would eventually replace the pan-flutes that had previously dominated as the upper melody voice. The patent protecting the improvement that made fair-ground organ violins and other string-tone pipework feasible, Anselme André Marie



Figure 2. The Hattenhorst Model 38 Ruth front is an exceptional example of the deep relief, sculptural quality facades that were provided with larger Ruth organs. Author's photograph.

Gavioli's harmonic frein of 1875, may have restrained their use until the coverage had lapsed. European patents are valid, today, for twenty years. If the same period, or one that could be exercised by the patentee to reach that term applied in the late 19th century it would explain the lack of violin pipes in German band organs until 1895-1896, compliant with the 1895 date that Brink identified. Fortuitously, the harmonic frein and the pipe voices that it facilitated became available for use on the eve of the greatest period of fairground organ manufacture. Brink cites and illustrates a cylinder-operated 72-key Ruth Style 22 Concert Organ, shop number 3800 of 1897, which had violins and automatic piano-forte registers controlled by the barrel. It anticipated several of the advances that were incorporated into book organs.² Clearly, the changes in Ruth specifications occurred over a period of time, and not instantaneously. Their continuing improvements mark the firm as being progressive, making technical and tonal advances here and there, delivering instruments of ever finer quality.

An expanded version of the Model 37, the 96-keyless Model 38, was first manufactured for delivery in about June 1903. The typical Model 37 usually has 342 pipes whereas the Model 38 has 417. Internally the organs are laid out the same way, though some slight differences in specific pipework can be

observed. A glockenspiel and an alternate flute melody voice, each controlled by a "chain perforation" register, along with an added A# trombone differentiated the two models in most cases. There were exceptions; notably, a couple 38ers were later made without glockenspiels. In still other cases, glockenspiels were retrofitted to 37ers during subsequent rebuilds. Within two years of the introduction of the Model 38 orders for the Model 37 nose-dived, causing fewer of the latter to be built. The instrumentation included in the Model 38 enabled it to play a very broad range of music desirable for any showground application. It remained the pinnacle of Ruth fairground organ

design until the early 1920s, when the Model 39, a rather sophisticated instrument playing an entirely different 96-keyless scale was devised.

More than a dozen Model 37s and nearly two dozen Model 38 organs were eventually built, the majority delivered before 1915 and the war in Europe. They were bought by continental and American show-

men for placement within large carousels and switchback rides, and within the fronts of traveling bioscopes. Their visual beauty, audio power and music quality attracted large groups of customers in ways that are difficult to appreciate in our own time of musical excess. The organ melodies were readily heard above the din of the midway crowd and the noise of mechanical rides. Particularly in Europe, midways were assemblies of independent showmen, each competing with another for the available disposable income. Having good, enjoyable music to boost the perceived quality of the proprietor's presentation was an important undertaking; patrons rewarded them with the purchase of tickets.

No new Model 37s were ever sold to the United States. A second-hand instrument arrived here in 1912, with two more rebuilt 37ers reaching these shores in the last forty years. Four Model 38 machines were sold new and exported directly by the Ruth factory to the United States. The first one arrived in 1907, with three others received by 1914. Subsequently, another five or six have been imported, some by showmen and others by collectors.³ Thus, America has been enriched by over one-third of the 38ers that were built. Today, nearly two-thirds of all original Model 38s remain in existence, a significantly greater survival rate than the usual 10% rule of thumb. Their continued

existence is testimony to the value placed on them by past and present showmen and contemporary preservationists. Only one organ of either style, a Model 37 of 1904 vintage, has been acquired by a cultural museum, in Germany. A modified 38 Ruth is owned by an American municipality. Most large Ruths continue to be shared by dedicated and generous owners via public exhibition or private visitations, thereby keeping their music alive and vibrant a century after their manufacture.

The “Later” Twin: The Hattenhorst Model 38 Ruth

Very specific documentation is available confirming the origin of the Krughoff organ (**Figure 2**). The shop order number, “4192,” and the model identification, “38,” are stamped on the flywheel crankshaft flats and on the outer face of the drive wheel hub. The shop number is also on top of the front of the chest, near the feed holes for the trumpets.

Inside the pump is a small label reading “26/2 1907 R D[v]orer.” This sets the date of general fabrication activity with certainty as February 26, 1907. Dvorer’s signature and date, as well as those made by another employee, J. Hippach, have been found inside of a number of Ruth pumps, their surviving notations serving to date machines that exist today.⁴ The Ruth ledger that documents the music supplied with the instrument states that this organ was the last one worked upon by the elder Adolf Ruth, who passed away on March 21, 1907. The shop number and dating are all consistent with other compiled Ruth manufacturing data and support a completion and debut of the instrument in 1907.

Another notation found inside the pump during the most recent rebuild was an entry reading “raparatur Januar 1925 Franz Dufner.” Apparently somewhat less than two decades of service had distressed or depleted the pump capacity to the point that a major repair or rebuild was mandated. Dufner’s name has also been found inside other Ruth instruments marked with the years 1926 and 1931. He may have been a Ruth factory employee, or in service with another of the organ shops in Waldkirch. The family name is better known in the Black Forest for orchestration building.

Between 1907 and 1931 a considerable number of tunes were ordered from A. Ruth & Son for the repertoire. They ultimately exceeded 100 in number. The large library facilitated constant variation in the musical program supplied on the fairgrounds. About a dozen crates of music originally came from the Ruth factory, the titles including *La Traviata*, *Casanova*, *Die Ehrenwache*, *Zigeuner March* and *Stars and Stripes Forever*. Later, there was also a delightful Berlin melodies medley arranged by Gustav Bruder with the instrument. The owners of this great organ took great pride in sustaining a broad and varying musical program.

The Ruth was originally delivered to a fairground ride owner named Hattenhorst from Herford, Germany. One or two showmen of that name are known to have owned and operated “Berg und Talbahn” mechanical rides and the organ likely served in the center of it. The device was a huge switchback ride with elaborately carved gondola cars that were pulled around an undulating, circular track. Surrounded by an access walkway, the cars circled underneath a large, decorative top that

also rotated in some cases. Dimensionally, switchbacks were about fifty feet in diameter and stood about 25 feet tall, with a central smoke stack rising even higher. They were the dominant machines on turn of the century fair midways, providing a substantial visual context for a large organ.

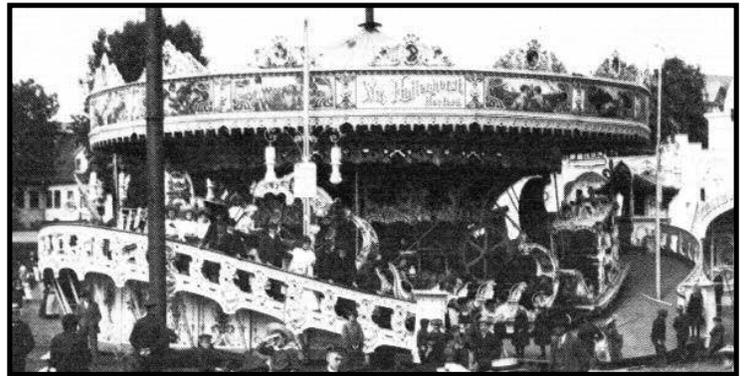


Figure 3. Wm. Hattenhorst’s Berg and Talbahn switchback was fabricated in the mid-1890s. It’s possible that the 38 Ruth organ served on it sometime.

Image courtesy of Keystone-Mast Collection (X112039), California Museum of Photography, Univ. of California-Riverside.

There’s a rich history connecting these turn of the century thrill rides with the largest Ruth and Waldkirch Gavioli organs, instruments that could be easily heard above the mechanical noise of the ride. Frederick Savage (1828-1897) of King’s Lynn, England, was the dominant builder of switchback rides, furnishing them primarily to British customers and exporting a number of them to the continent. He filed for two British patents applicable to such rides in 1888 and delivered his first example in July of that year to fellow countryman George Aspland. There were also continental builders of similar machines, like Siebold & Hotto, of Essen, Germany, which received four ride and two organ engines from Savage in 1890-1891, and Siebold another ride engine in 1894. A photograph of one of their machines documents a simple ride, very similar to the first Savage device, with a cylinder organ in the center. Hugo Haase (1857-1933), initially of Rossla am Harz, Germany, fabricated a switchback for 1892, larger than the first Savage machine and notable for being the first ever powered by electricity. Like its predecessors, it was more mechanical than decorative in its presentation. Haase filed for a German patent to protect his improvements. It was followed in Germany by a Savage-built switchback imported by the German showman Reestermeier (possibly Kastemeier, spelling uncertain) in July 1893 and one for Hattenhorst in early 1894.⁵ A third Savage ride of reported 1895 British origin was acquired by Ignatz Lambertz and later outfitted with a Model 37 Ruth, the first furnished with a Baroque façade as original equipment (1902). Another elegant machine of British decorative styling and probable origin was operated by the Oscar Bruch family, descendants of which remain active in the German fairground business today. It had an elaborate extension front that may have inspired the painted replica on a British ride owned by Britain’s Codona brothers. Lambertz had another switchback built in 1909, reportedly in Bremen, Germany, and into it went the first Model 38 Ruth (1903). The initial Haase ride had six-seat cars,

while the gondolas in the imported British rides were of the five-seat configuration, some with elaborate canopies over the occupants. The Savage switchbacks were massive and heavy devices, liberally encrusted with elaborate painted and gilded Baroque carved woodwork. The decorative treatment was also applied by German manufacturers, to keep them competitive with the imports. One of Haase's later, finely crafted switchbacks had what appears to be a Style 25 Ruth cylinder organ, the largest made, in the ride center.⁶ The elaborate and heavy rides eventually fell from favor, but at least two were traditional favorites and operated with very large Ruth organs at German fairs through 1934 and 1938. An elegant Haase-built switchback ended up in a Danish amusement park with an expanded Ruth barrel organ playing Model 37-new rolls and survives today. Earlier photographs of this ride reveal a Gavioli façade that is associated with a Model 38 Ruth (1914). A nominal 87-keyless Waldkirch Gavioli, style 588 with a huge façade, was installed in the switchback (with 1891 and 1893 Savage ride and organ engines, respectively) owned by the German showman Aug. Leeser sometime after 1900, about circa 1905. The original 87-keyless instrument known today as "De Lange Gavioli" was also in the center of a German-built switchback at one time.

Unfortunately, the specific details of the Hattenhorst involved with the subject Ruth organ are a bit uncertain. It's possible that the various references we will cite may involve the same person by different names, or perhaps members of the same family (father and son), and the same ride, as the name Hattenhorst has not been discovered elsewhere. The earliest reference, of a tertiary nature, is to a Gustav Hattenhorst, who is credited with presenting his switchback on the midway of the Bremer Freimarkt between 1893 and 1919, and again in 1921.⁷ No other reference to that name has been located and we suspect that the 1893 date may be in error by a year, given the existence of Savage engine information.

The engines to power one Hattenhorst-owned ride and an organ providing the music to it were supplied in 1894 by Frederick Savage. It was likely the 1894 Savage switchback noted above.⁸ British ride historian Stephen Smith confirmed that someone named Hattenhorst (possibly given as Hatternhorst in some Savage documents) took delivery on a Savage switchback with five-seat gondola cars about February 1894.⁹ The date is partially confirmed by the Savage design drawing for the rotating "cradle wheel" of the ride. It is inscribed with the name "Hattenhorst" between other names that are aligned with dates of July 1893 and 1896.¹⁰

A stereoview taken at an unknown date at Coburg, Germany, likely depicts the subject ride, bearing the name of "Wm. Hattenhorst" and "Herford" on the rounding boards (Figure 3). The city identification aligns it with the organ owner's place of residence.¹¹ Some Hattenhorst gondola car carving details match those on other Savage rides built in the mid-1890s for George Aspland (1890, refitted with gondolas by 1902), John Waddington (1892) and John Studt (1894). Smith noted that the ride in the photograph was powered by a traction center engine, a self-propelled road machine, as opposed to one that simply powered the ride. It is possible that Hattenhorst had the center mechanism rebuilt on the continent at a later date to

the configuration seen in the photograph, which was not a favored design.



Figure 4. A rare Imhof & Mukle organ preceded the Ruth in the center of the Hattenhorst switchback. The ride men and their pets posed in a gondola for this image. Author's collection.

A close-up photograph of the Hattenhorst ride gondolas reveals that the Model 38 Ruth was preceded by another very large organ, thought to have been built by Imhof & Mukle of Vöhrenbach, Germany (Figure 4). Known more for orchestri- ons than band organs, the firm either manufactured their own instruments, or perhaps sold hand, military trumpet and fair-ground organs fabricated and furnished for resale by one or more of the well-known Waldkirch builders. Such an arrange- ment existed circa 1911-1915 whereby orchestrion builder M. Welte & Sons marketed Wilhelm Bruder Sons band organs in the United States. The smaller ones were cylinder operated and the larger machines were outfitted with Welte roll-playing sys- tems. An organ like that in the Hattenhorst ride is illustrated in Imhof & Mukle factory marketing materials.¹² The same style carved caryatids that were applied to the front can also be seen on the largest Ruth cylinder organ facades, causing some cau- tion in attributing the instrument to this little recognized builder of band organs. The figures may simply have been sourced from the same Black Forest carver. Another pair of similar fig- ures was applied to an unusual 76-keyless instrument assem- bled in the Voigt shop using various components that were available. It incorporated Phillips orchestrion pipework and was once located in the Father Rhine restaurant in Andernach, Germany, on the Rhine River. Whether the Imhof & Mukle organs were operated by pinned cylinder, cardboard books or heavy paper rolls is an intriguing and unanswered question.¹³ There are three noticeable differences between the Imhof & Mukle image and the ride organ: the trumpeter figures flanking the bandleader are in opposite positions; there's a different center crown atop the case; and a 13-note horizontal glockenspiel was positioned below the bandleader. Each of these could be rationally explained. Otherwise, the organ in the field photo- graph is in good agreement with the engraving, supporting the attribution.

Upon his retirement from the business in the 1930s, Hattenhorst gave the organ to another traveling showman named Otto Viol, who resided in Erfurt, in eastern Germany. The man was Hattenhorst's son-in-law, which explains the



Figure 5. The elegant bandmistress of the Hattenhorst organ stands in front of the display violins and panflutes. They are all functional in the organ. Author's photograph.

munificent gift. Viol used the organ with a switchback ride featuring swan cars until about 1948, having bought another case of new music from Heinrich Voigt about 1947. His machine may have been the former Hattenhorst ride with new cars. A German showman named Ludwig Rausch bought the Ruth in about 1949 and eventually it ended up with his son, Dieter Rausch, in Berlin. Anticipating the celebration to commemorate the 750th anniversary of the founding of the city in 1987, Rausch gained permission to have the organ restored so that it could appear as a highlight of the celebration. He was authorized to exchange 50,000 East German Marks for the equivalent in West German money and traveled to Waldkirch to secure the purchase of three crates of music from Carl Frei, Jr. for the organ. In 1984 the rebuilding of the organ was undertaken. The mechanism was repaired by A. Stüber in Berlin and the front redecorated by Firma Patzer in Chemnitz, Czechoslovakia. New leaf was applied to the facade, in essentially the same pattern as it had been placed before (Figure 5). All finances were managed by a state security officer. The East German government was very impressed with the appearance and music produced by the organ and desired to declare it a German state cultural treasure. That would have cost Rausch his status as legal owner and designated him a caretaker for the state. The move was thwarted by declaring that the organ was no longer usable, an action supported by trusted friends within the government. Following the re-unification of Germany in October 1990, the instrument appeared for the first time at the Berlin Christmas show.¹⁴

For shipment to North America, the organ remained inside in the special 20-foot long continental showmen's wagon that had safely housed and transported it for many years. Heinrich Mack, another long-time Waldkirch firm that served the show grounds, was the builder of the caravan. It stands 11'-8" tall and has a split roof, with the front lifted upwards about one meter by a hydraulic system for the unobstructed display of the organ façade. Special apparatus within the interior provides for the safe and comfortable transport of various parts of the organ that were removed for travel purposes. A shallow, laced steel truss spanning the length of the wagon does triple duty, stabilizing the end walls, supporting the roof along the centerline and also restraining the main organ case against upward motion. The entire assembly of the wagon, organ and books weighed in at 14,330 pounds. The Krughoffs originally planned to mount the wagon on a trailer and take it to various exhibitions, but the size, weight and other factors weighed in against the possibility of domestic travel.

The Hattenhorst instrument is a standard Model 38 with about 440 pipes, snare drum, bass drum, cymbal and sixteen bell glockenspiel. The 23 additional pipes are panflutes visible in the façade. If one examines the organ while looking at a scale stick, it is seen that the internal mechanism is laid out in a very rational manner. The interior of the instrument is defined by the chest design, which has a "straightened Z" cross-section when viewed front to back. The main chest is horizontal, spanning between the sidewalls. It is of layered construction, with windways reaching front to back. Towards the middle there is a "riser," spanning across the width of the case, with windways reaching upwards from the main chest. A similar, channeled panel reaches downward towards the floor from the lower front edge of the main chest. The valve action spans the main chest width and is positioned behind the riser. The main chest and riser have pipe toeboards on top of them that hold the upper pipework. The bottom pipes are fed by the lower channeled extension and additional channeling and are glued to the bottom face of the base floor. The upper melody pipework is laid out symmetrically because some of it is on display. Other pipes, like the trumpets, are asymmetrically arranged, with the lowest note to one side and the highest on the other. Accompaniment and other pipework are placed where they would logically



Figure 6. The horizontal channel boards supply wind to the display violins and panflutes, as well as the glockenspiel action. Jim Krughoff photograph.

fit, but here and there are one or two stand-alone pipes that would not fit elsewhere utilizing available channels. The positioning of the pipework is reflected on the scale stick.

Violins are the primary upper melody voice, consisting of three ranks of the same scale and tuned in unison. In addition to a rank of display violins, which are fed via the same channels that supply wind to the two concealed ranks of violins, the façade also features a rank of 23 generous scale panflutes on the front. The same arrangement is seen on other large Ruths, like the slightly older Myrtle Beach 38er. For years it's been unclear whether these additional flute pipes are functional or not, an unobstructed inspection of an organ façade not being possible until this time. The Krughoff organ has supplied an answer; they are indeed working pipes (**Figure 6**). The panflutes are mounted on and supplied with wind via a channel board reaching out from the top forward edge of the main chest. The board is essentially a horizontal extension of the primary windways for the top melody notes. It comes forward, across the tops of the center trumpets and extends back nearly to the forte mechanism that energizes the mixture. There is no register controlling the wind, so the panflutes are always in play on the designated melody notes, augmenting a set of foundational stopped flutes playing on the same notes under the case floor.

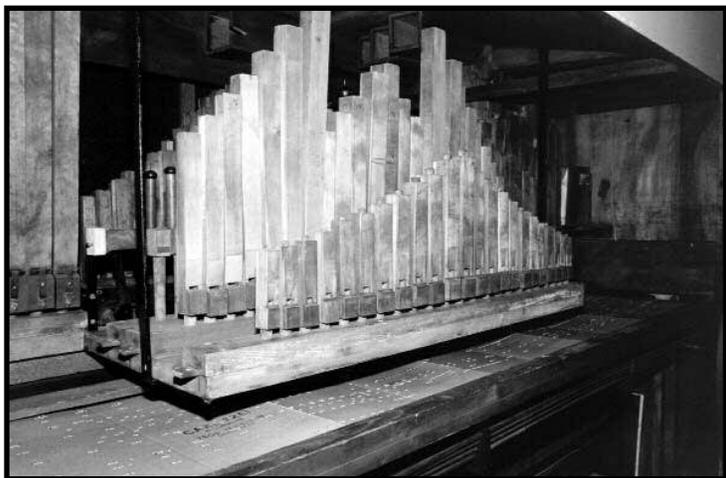


Figure 7. The three-rank flute voice is controlled by the register action immediately in front of it. The music book slide is immediately below it. Author's photograph.

The alternate melody voice is a three-rank flute, comprised of (front to back) one rank each of panflutes, open flutes and stopped flutes. It is properly termed a flute stop and not an ocarina, which was implemented about 1920 and involves the use of doppelflutes (**Figure 7**). A chain register is activated that simultaneously silences the violins while turning on the three rank flute stop. A pneumatic powered action on top of the riser facilitates the necessary operation. The discontinuation of the chain perforation and application of the cancel key silences the flute and brings the violin back on. The violin and flute do not play simultaneously in original Ruth 38s.

A three-rank mixture is located in front of the chest riser, adding brilliance and power to the upper melody, alto violins and accompaniment notes. It adds the silvery tonal quality achieved by the North German church organ builders many

years before. When the forte is utilized it is usually in conjunction with the violins. It is brought into play by the forte register, another chain perforation. The chain-type registers were implemented by Ruth as something of a "positive action" type mechanism. They have advantages and disadvantages. They are quick acting and do not "latch" into position per se, but are directly reversible by the cancel key. The action requires a long, continuous perforation to sustain them, the presence of the extended string of punched holes taking additional time to perforate and serving to weaken the music book.

The channel board that feeds the display flutes also supplies wind to the bell action that is mounted on the lower front cross-member of the case. There is a 90-degree drilled channel board affixed below the horizontal channel board and the tubes that power the bell actions are connected to it. The bell actions are thereby always "charged" so that a rapid response can be achieved once the register is activated. There is no interruption of the wind to the bells as they are always being supplied. The glockenspiel has an early style of mechanical muting mechanism wherein each beater is restrained from downward movement by a small notched finger that is pivoted at the top (**Figure 8**). A pneumatic shifts a bar that is connected to all of the fingers, placing them into their muting position. The mechanism stops the hammer from moving until the action is activated by a chain register punched in the book, moving the stop levers aside and permitting free motion.

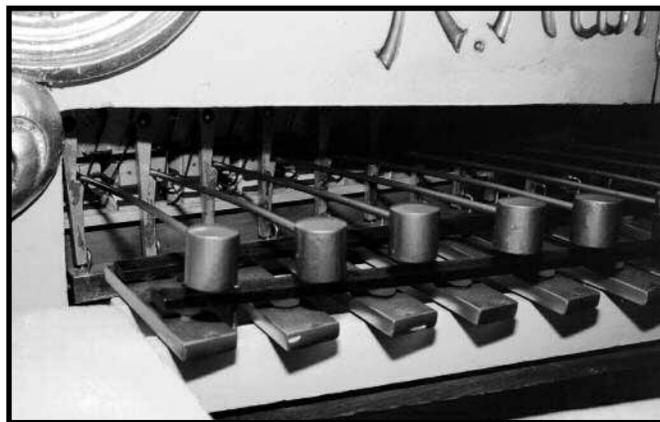


Figure 8. The large diameter glockenspiel beater heads and pivoting finger style of muting mechanism can be seen in this detail of the Hattenhorst organ. Author's photograph.

In later 38s, two, large pneumatics below the bell table inflate, lifting a stop bar that prevents the hammer pneumatics from collapsing and thereby the hammers from striking the bells. Springs also help to propel the hammers downward. This provides a more positive striking and stopping action and also unites both the mute removal and hammer movement into one, common downward motion, creating a slightly faster response. Bells are also stopped from acting in the event that there is a sustained upper melody note that continues beyond the required use of the bells. The new design also eliminated any alignment issues between the vertical movement of the hammer shafts and the horizontal motion of the muting mechanism, as might occur immediately at the end of the chain register. The initiation and conclusion are thus more positive with the later action. The

glockenspiel beater heads on this organ are much larger in diameter than on later instruments, the added inertia of which slows the action. The design improvements, perceptible to the ear with focused attention, were put into effect by Adolf Ruth II (1878-1938), following the death of his father.

The pipes that are displayed and the percussion mechanism that plays on the same notes, namely the violins, flutes and glockenspiel, are all arranged in a visually balanced design, as seen in French and Belgian organs, wherein most of the pipework is usually visible. The remainder of the Ruth organ interior is concealed by either the façade or the cloth coverings through which the instrument speaks.

The dominant and characteristic sound of the Ruth organ is developed by the twenty chromatic trumpets, three contra-trumpets and nine trombones. These generous reeds have large scaling, especially in the wooden resonators, giving them almost a coarse sound, yet at the same time a rich tone in solo or ensemble playing. The trumpets are located in the lower front area, the resonators opening downward just behind the lower case cross member through a slot between the floor and the case. There are stopped flute trumpet helpers on top of the riser. The trombones are located to either side of the case interior. Most of the trombones extend upwards towards the top of the case and are then mitered and reach across its width. Three are located to either side of the trumpets, with their resonators opening downward, miters taking them under the organ floor.

The ten large stopped basses are under the organ floor with stopped flute helpers above on the riser. Also underneath are the foundational stopped flutes, 28 melody and sixteen accompaniment. There are additional accompaniment pipes on the riser.

With the exception of the glockenspiel that protrudes from the front and the support for the keyframe and slide on the left side, the works of the organ are generally housed within a stoutly constructed wooden case. It is made in two parts. The base, a rectangular box lying flat, rests upon two length-wise skids that facilitate movement on a flat surface. The upper section, a rectangular box resting in a vertical position, fits something like a socket into the top of the base. The four handles attached to the outer case sidewalls are for horizontal movement and cannot be used to lift the entire weight of the instrument, which runs about 1500 pounds.

In addition to the majesty of the music that they create, Ruth organs have always been admired for the impressive quality of their façades. The grandest decorative fronts fitted to them were designed in the Baroque style by Josef Dopp (1869-1948) of Waldkirch. They were sometimes embellished with carved figures provided by the Demetz family of the Tyrol.¹⁵ (Figure 9) The façade applied to the Hattenhorst organ was a truly fine one, with some carvings providing sculptural effects over a foot deep. Just building up the blanks for the carver's chisels took extraordinary planning and labor. The end result was a front with great visual impact and a general feeling of extraordinary beauty. The Hattenhorst front measures 9'-8" high by 18'-3" across. The end wings on larger Ruth organs are usually made with a box construction affixed to the back side. That enables them to stand alone, to securely support percus-

sion apparatus or figures, and in general make assembly and disassembly an easier task. Quality construction was present throughout these organs.



Figure 9. This close-up of a harpist on the Hattenhorst front confirms the attention to detail that was provided by Demetz, the carver of the façade images. Author's photograph.

There were façades made for two different Model 38 Ruth organs in 1907 that had the same center section, but each was finished with different end wings. The Hattenhorst organ received rounded ends filled with display pipes and automated figures tapping faux tambourines. The other instrument was made somewhat broader, perhaps for application to a bioscope façade. It was outfitted with large niches into which twirling dancers were placed, as in the Myrtle Beach Model 38 Ruth.¹⁶ Both façades had automated female band leaders, female harpists to either side, and multiple carved figures scattered about. To say only that the façades were a feast for the eyes that kept the mind searching for new details to enjoy is to minimize their wealth of extravagant detail. They are a *tour de force* in fairground organ decorative design.

After arrival in America on December 2, 2002, Jim Krughoff determined that the instrument required a comprehensive restoration to return it to the capability that it had when originally constructed. The contract for the work was awarded to A. C. Pilmer Automatic Music (Leasing), Ltd. in Rufforth, York, England. The labor required to restore the mechanism was concluded in mid-2005. In addition to a complete restoration of the instrument, Krughoff arranged for the new manufacture of 1,250 meters of original Ruth, Carl Frei and Gustav

Bruder arranged music. This outstanding example of Waldkirch organ building is now housed amongst the other musical treasures in the collection maintained by the Krughoffs in Downer's Grove, Illinois.

The "Earlier" Twin: The Ohr Model 37 Ruth

The 1907 Hattenhorst façade is a nearly identical twin to one applied to a Ruth organ constructed several years before it, in 1901. Though the instrument itself was six years older, there is no evidence to determine exactly when the companion "twin" façade was made. It could have been fabricated before the Hattenhorst façade, but there is nothing immediately at hand to strongly make a case for any particular year between 1901 and 1907. The possibility even exists that it was made after the 1907 façade, as a copy of it. It might have been original equipment, but it seems to have been retrofitted later. The facade timing issue will become clearer as the story of the organ unfolds. For purposes of identification, we will use the name of the instrument's original owner, Ohr, to identify it.



Figure 10. An elegantly dressed male figure, usually identified as Wolfgang Amadeus Mozart, served as the bandleader on the exceptional Ohr organ facade. Photograph by Ron Bopp.

A number of differences in the two façades enable one to differentiate between them. Most noticeably, the Ohr organ front had a Mozart-style male bandleader, whereas the 1907 instrument has a female Brunnhilde figure (Figure 10). There are two smaller guitar or mandolin players and the seated bell ringers in the Ohr creation whereas taller harpists and seated tambourine players are on the Hattenhorst. A rank of tubes, looking somewhat like pipes of Pan, was affixed behind the male bandleader, whereas a rank of working panflutes was furnished on the 1907 instrument. There were originally three,

small angels fluttering above the Ohr organ façade and the snare drum had a carved collar encircling it. The 1907 issue had no drum collar and perhaps just two little figures on top, in addition to the two top-position female trumpeters shared by both arrangements. The Ohr instrument front has two male musicians in the outermost positions, one with pipes of Pan and the other a set of cymbals, whereas the 1907 organ has females holding fanfare trumpets.

A photo of the Ohr facade, taken while erected outside the shop of the maker or perhaps the decorator, has been preserved.¹⁷ Viewing it should cause some concern as there is clear provision for a glockenspiel, a percussion device that is associated with the Model 38 specification introduced in 1903. The immediate and generally correct conclusion would be that this is a Model 38 façade. But, this is one of those cases where rationality breaks down; it is not a Model 38 facade. As the analysis will reveal, the presence of the glockenspiel housing helps to secure the identification of the organ as the first Model 37 constructed. A process of elimination involving all known Model 37 and 38 Ruths and the application of shop order number and date analysis support the conclusions that we have reached concerning the origin of this organ.

The Ohr organ has been modified in various ways that make determination of the provenance considerably more difficult than that of the Hattenhorst Ruth. The pump crankshaft and wheel were removed when the pump was replaced by a blower, eliminating them as data resources. No other significant markings inside the instrument were noted during the last rebuild.

The glockenspiel hammers in it are of the same large diameter as the 1907 Hattenhorst 38, suggesting manufacture during the time of Adolf Ruth I, or at least before the design was modified (by 1912). There is evidence that at one time horizontal slots existed in the case sidewalls, wherein the music went longitudinally through the case on a slide. That detail indicates it was a pre-1908 book organ. There is no residual evidence of any telltale "keyhole" opening that would suggest previous cylinder operation. These observations, as well as a lack of any pertinent entries in the Ruth ledgers identifying the organ as a rebuild, generally eliminate the possibility that it's a modified cylinder organ. There are actually no such rebuilds noted in the Ruth documentation until 1921.

Two numbers are found within the organ. The number 4471B was marked with chalk on the inside of the case roof. That entry aligns with the latter half of 1908 in the Ruth number sequence, but no Model 37 was delivered that year and the single 38er of late 1908 is another known instrument. The only Model 38 delivered in the spring of 1909 was made without a glockenspiel. One Model 37 was completed in 1909, but it can be eliminated based upon photographic documentation of the instrument. We would, therefore, surmise that the 4471B entry represents some sort of repair or alteration commission accomplished in the Ruth shop and is not pertinent to the original instrument delivery. It might mark the time at which a glockenspiel and façade were added to the instrument. A notation in the same ink that marked the addition of the percussion device also noted that the music books needed to be 369mm wide, a dimension nearly the same as the 370mm others have specified

as the standard for Model 37 music. 90-key music would have been about 8mm narrower, allowing for 10mm from the edge to the center of the first holes.

The most authoritative piece of data available for the instrument is believed to be the number 4007 that is stamped on the back of the valve chest cover board. It is reasonable to assume that the board is original to the organ, given the general appearance and close fit of it to the valve chest and the other markings on it. Assuming 4007 to be a Ruth shop number, it falls at about 1901 in the Ruth manufacturing sequence. Only one 37er was built in 1901, the next was fabricated for 1902. The 1901 date also precedes by two years the construction of the first Model 38, eliminating that style from consideration.

The narrowing field of identification alternatives leads to the conclusion that the organ was the 90-keyless instrument that Ruth built in 1901 for Heinrich Ohr. Three Model 36 book organs were booked before this first 37 was produced. Ohr was the operator of a fine traveling cinema operation that always featured an impressive, large organ on the façade.¹⁸ He made several purchases of Ruth factory-made music as late as 1907. The musical selections included the overtures for *Zampa*, *The Thieving Magpie*, and *La Traviata* as well as the *Carmen Fantasie* and *Merry Widow Potpourri*. It was heavy on classics, with some popular selections, obviously chosen for a certain market appreciation. A single tune, *Du Kannst Nicht Treu Sein*, was provided to the organ's owner in early 1935.

In the case of this instrument, it appears that a decision was made to also obtain a decorative façade at a later date. A number of Ruth organs were furnished without facades, typically because the owner already had one in his possession. That may well have been the case with Ohr. It is important to note that there is no general indication that the front of the organ case had ever received any display treatment of the type applied to cylinder organs, namely, a black and gold scheme directly applied to the case housing and base. The lack of any residual decoration might suggest it was totally obliterated by later sanding of the face. One could also suggest that the case was replaced, but sidewall details generally eliminate that possibility. The most likely scenario is that the organ was supplied without a decorative façade, or acquired with the intent to apply one of the carved and painted style to it at a later date.

The Ohr instrument, as noted in Ruth documentation, was enlarged with the addition of a glockenspiel. It was probably undertaken in conjunction with the fabrication of the decorative facade that now stands before the instrument. The advent of the Model 38 with a glockenspiel, two years after the Ohr instrument was built, may have been the event that sparked the addition. That would explain the façade construction to accommodate the mechanism. The initial 90-key Ruth book organ scale lacked separate keys to operate façade figures. Thus, it would be likely that the figure and bandleader motions were the two keys added to it, keys 1 and 92 respectively, thereby creating the Model 37 scale as it is now known. The added keys enabled the arranger to script more realistic visual effects for the figures into the music.

The subsequent modifications of the organ do not make it possible to determine how the added glockenspiel was operat-

ed. When a Model 36 was first outfitted with a glockenspiel in 1908, it was activated by the forte key. It should be noted that Jan L. M. van Dinteren, who has extensively studied Ruth documentation, wrote that the Ohr organ had a "register metallo-foon." His work did not clarify the exact detail as to whether it was a separate key solely for the glockenspiel or the forte key; that detail was presumably beyond the written documentation. It would seem that it was the forte key, as was done with the 36er.¹⁹



Figure 11. Large Ruth organs made an impressive presentation on show fronts, as this undated view of Fritz Krebs' Oriental Elektro-Schau confirms. Postcard in author's collection.

An original photograph documents the organ in the show front of Fritz Krebs' Oriental Elektro-Schau (Electric Show), something akin to a traveling night club (**Figure 11**). Descriptive phrases on the façade proclaimed the features, "Künstler aus dem fernen Ost" and "Original Chinesen Truppen" (Artists from the Far East, and Original Chinese Troupes, respectively). The artists doing the bally out front had no apparent Chinese appearance, suggestive of either inventive showmanship or the free display of another act from the stage presentation. The image is not dated in any way, but the wardrobe and the painted, flat panel façade suggest a 1920s or 1930s operation.

The instrument was repaired in the Waldkirch shop maintained by Alfred Bruder (1889-1937), sometime between 1919 and 1937, as another photograph records it having been there (**Figure 12**). Though it was a Ruth, Bruder painted his name on the façade in two places. He also inscribed "Repariert" in smaller lettering above his name, thereby not taking complete credit for the show piece. It may have been during this shop visit that a multitude of light sockets were applied to the organ, the bulbs later detracting from the general elegance of the façade. The image also confirms the presence of eighteen faux brass trumpets originally installed behind the band leader. They were deleted at an unknown date thereafter.²⁰

A later owner of the organ, Horst Schmidt, ascertained a story from people in Germany that the instrument was originally owned by a bioscope operator, who sold it to someone in East

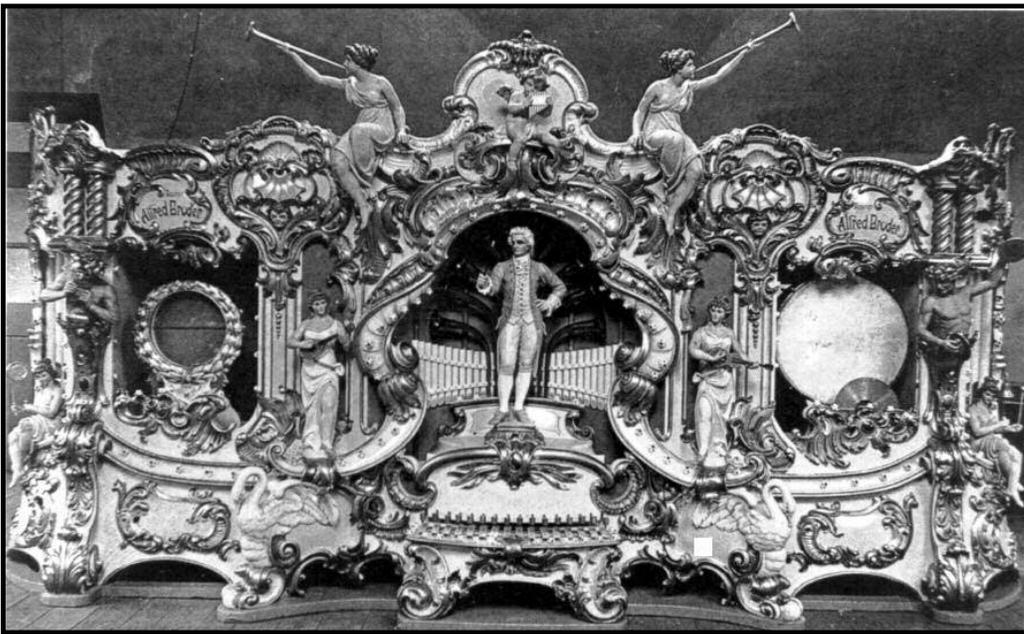


Figure 12. The Ohr organ was processed through the Alfred Bruder shop in Waldkirch sometime in the 1920s or 1930s. The brass trumpets behind the bandleader were still intact. Photograph courtesy Malfertheiner-Kuehne Family.

Prussia. A showman named Stahlman in Nuremberg reportedly bought it during World War II, moving it into storage a day before his fairground attraction was destroyed. Though it may be entirely accurate, there is currently no confirmation for this series of events. Josef Hammerdinger of Günzberg on the Danube used it with his auto scooter ride after the war (Figure 13). A photograph documents that it appeared at Munich's Oktoberfest as early as 1951 or 1952. Hammerdinger still owned the organ in 1958, according to an article in a Munich newspaper that focused special attention on the heritage of the instrument without revealing any specifics of prior ownership.²¹



Figure 13. There was an abundance of aluminum leaf on the Ohr 37er façade during much of the time that it was utilized on German fairgrounds. The figures were done in real-life colors. Author's collection.

Schmidt acquired the organ about 1972-1973 and commissioned Wilhelm Heinrich Voigt (1904-1992) to rebuild the instrument. The work was completed by 1974 and the Ruth brought to the United States. Until 1986 the instrument was on display in Las Vegas, Nevada, at the Red Rock Theatres complex. Schmitt sold the Ruth and a 56-key Black Forest Limonaire to Jasper Sanfilippo, who later sold that organ at public auction and the unrestored Ruth to Paul and Robert Milhous in 1996. They retained Johnny Verbeek of St-Job-in-'t-Goor, Belgium to rebuild the instrument once again. Fairground art decorator Will Morton provided his services to paint and gild the façade, following removal of the retrofitted light bulbs and sockets.

The 1901 organ was substantially modified during the early 1970s work. The added hardware, inscribed markings, etc., all align the work with Wilhelm Voigt. He expanded the organ to 97-keyless, adding a "0" key at the inside of the scale and others at the opposite end to activate the additions. Sixteen contrabass pipes were placed behind the left side wing, two octaves of eight pipes each (Figure 14). They are brought into play on bass notes by the forte key. The contrabass pipes caused a need for increased wind, which resulted in the removal of the pump and crankshaft and the installation of a higher capacity blower. Elimination of the crankshaft required the application of a gear motor to drive the keyframe rollers. A Voigt keyframe was fabricated and attached to the case, replacing the original longitudinal tracker bar, roller and slide arrangement (Figure 15).

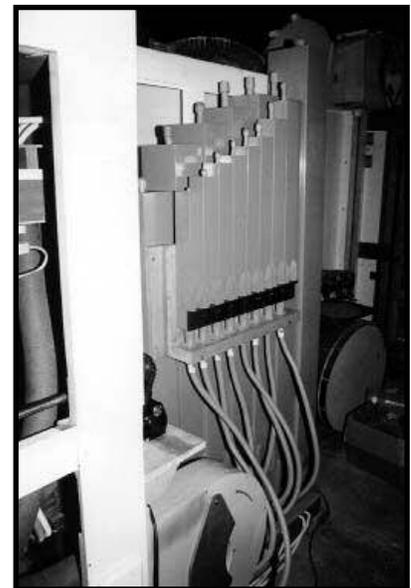


Figure 14. The sixteen contrabass pipes that play with the bass were placed behind the left side wing area.

Author's photograph.

The three-rank violin melody arrangement was retained without change and two alternate melody voices installed (Figure 16) Immediately behind the violins a two-rank voice was placed, termed the tremolo flute. It consists of a stopped



Figure 15. Through the case book systems were not operator friendly. It was a simple matter to change music crates in this style keyframe, which Voigt installed on the rebuilt Ohr instrument.

Author's photograph.

the 4471B shop order, as the resonator does not have the appearance of recent construction. It rises from the chest and then has a double miter that causes it to turn downwards towards the ground (**Figure 17**). In another 37er that was modified by Voigt in the early 1960s, the added trombone was placed in the upper, right rear corner of the case, extending towards the keyframe side in a straight line. Admittedly while looking old, the A# trombone configuration is different than that in 38ers known to the author. Each has a somewhat different configuration. It may only mean that the craftsman who fitted the trombones inside the cases executed the miters in different ways.



Figure 16. The alternate melody pipework in Ruth organs is typically located behind the violins, on a separate chest. These are the two added voices in the Ohr organ.

Author's photograph.

flute in front and an open flute that breaks back (twelve lowest notes). Behind it is mounted the two-rank ocarina, consisting of a rank of panflutes in front (the eight lowest notes are stopped flutes) and a rank of doppeflutes behind. There is a register action incorporated into the panflute base, but the exact internal construction hasn't been determined. One of the elements that differentiates a 38 from a 37, the additional A# trombone, is found in the organ. It's operated by key 93 in the Model 38 scale. It may actually have been installed earlier, perhaps as part of

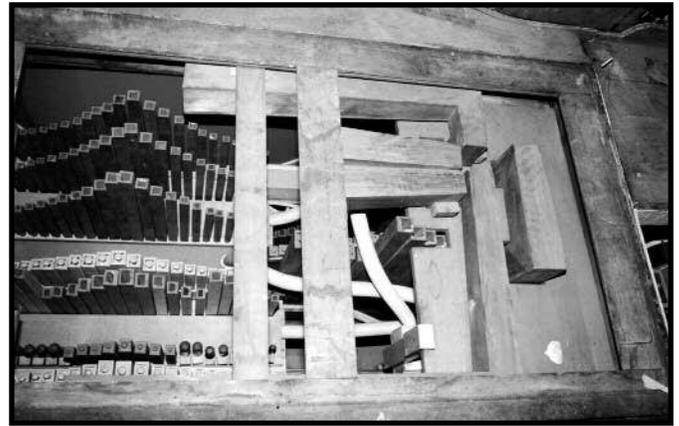


Figure 17. This unusual top view reveals the arrangement of the three upper melody voices, mounted on top of the riser. The A# trombone is on the far right.

Author's photograph.

The percussion also received augmentation. A second snare drum was installed. There is provision for regular snare action and also a reiterating action for drum rolls. Keys 89 and 91 activate the two regular snare drum beaters, with key 91 causing a drum roll action in forte on the added snare drum. A most unusual addition was the installation of a second glockenspiel. It was fitted behind the faux pipes of Pan by cutting away some of the façade structure. A board was placed across the entire front width of the case to mount the bells and their action. The second glockenspiel was apparently added by the forte key, but the entire mechanism was removed prior to the most recent rebuilding. The left bell ringer always plays with the bass drum, with the right bell ringer added in forte.

A new Voigt register box was installed in the back of the organ to control some original and the added functions.²² The actions that it controls are labeled as follows:

- key 96 violin on (added function key)
- key 75 forte (original function key, activates some additions)
- key 95 glockenspiel (an added function key)
- key 0 tremolo flute on (added function key)
- key 94 ocarina on (an added function key)

All of the modifications have resulted in the creation of a unique sounding instrument.

Conclusion

The great fairground organs manufactured by A. Ruth & Son of Waldkirch, Germany starting more than a century ago maintain their interest among preservationists and showmen concerned with mechanical music instruments. With the identification of the Ohr instrument, it is now known that the first Model 37 and 38 Ruth organs ever fabricated survive in preservation today. The first 38er (1903) is owned by Erich Grund, a German showman. The front fitted to it may be of Cocchi, Bacigalupo & Graffigna origin, or at least inspired by one illustrated in a catalog issued by the Berlin firm. It is further evidence that there is often a story within the façade, as well as the instrument.

Notes

1. The catalog is reproduced in Musikhistorische Gesellschaft für Selbstspielende Instrumente in Deutschland Journal No. 3 (1980?), largely the work of Peter Schuhknecht and J. Brink. Ruth's book organ period is discussed in some detail in Jan L. M. van Dinteren, "A. Ruth & Sohn-Waldkirch," *Het Pierement*, XL, 1, pages 6-23, with subsequent discussion by others in XL, 2, pages 64-65. Also valued is the Ruth analysis in Herbert Jüttemann, *Waldkirch Street and Fairground Organs* (2002).
2. The 1875 date is from Jüttemann, page 70, and may be for French or German patent coverage. The device was further covered by Dutch Patent 113,577 of July 3, 1876; British Patent 3013 of July 26, 1876; and U. S. Patent 203,438 granted May 7, 1878. A slightly smaller 70-key cylinder-operated Style 32 Ruth "Large Organworks" exemplifying the more typical design is in the Utrecht museum. See *Het Pierement*, XL, 2, page 68; XL, 3, page 120; and XXXIX, 1, page 7.
3. In 1986, the late Wilhelm Voigt permitted the author to examine the Ruth ledgers in his possession, providing a basis for some of the observations made within this article.
4. Information courtesy Jim Krughoff, e-mail, August 14, 2003. Dvorer is the spelling given in *Het Pierement*, XL, 4, page 187, derived from a similar insertion within the interior of a 1910 Ruth organ pump. It is given as Dorner in J. Brink, "Boekorgels van A. Ruth & Sohn," *Het Pierement*, XL, 2, pages 66-83 (with further commentary in XL, 3, pages 120-124). The actual spelling remains to be resolved, according to an e-mail from Brink to the author dated April 14, 2005.
5. It's possibly the 1893 ride, or another with a large Ruth organ, that is shown in Florian Dering, *Volksbelustigungen* (1986), plate 90.
6. Photo, *Het Pierement*, XLII, 2, page 91, bottom.
7. The information is posted on the website www.bsm-bremen.de/html/historic.htm. The Lambertz family's similar ride was photographed at Bremen; perhaps there was confusion in identifications? See *Het Pierement*, XLII, 2, page 92.
8. The apparatus furnished were a four-horsepower double cylinder engine, #606, 4.75" bore x 9" stroke and a No. 3 organ engine #604. They are in the Savage engine list in David Braithwaite, *Savage of King's Lynn* (1975), page 121.
9. Stephen Smith, e-mail, April 4, 2005. The standard reference on British-built and operated switchback rides is *The Circular Steam Switchback* (1995) written by Smith and Kevin Scrivens. Unfortunately, there is no known comparable, comprehensive volume or article on continental switchbacks known to the author.
10. The rotating cradle wheel was mounted on a radial bearing supported by the central exhaust stack of the engine boiler. The rotating apparatus that pulled the cars around the track, termed the "spinning frame," was built out from it. See David Braithwaite, *Fairground Architecture* (1968), page 50.
11. The Underwood & Underwood stereoview is printed in *The World As It Was—A Photographic Portrait—1865-1921* (NY: Summit Books, 1980), page 66. The image (X112039) is in the Keystone-Mast Collection, California Museum of Photography, University of California-Riverside. Two large standing figures attributed to a Hattenhorst ride are now in the Munich City Museum, the gift of A. Steiger.
12. Ride photos in author's collection. The factory image is in Q. David Bowers, *Encyclopedia of Automatic Musical Instruments* (1972), page 468. Through their London operation, Imhof & Mukle sold military style organs to British showmen, several being found in old photographs, such as Crighton's No. 1 Electric Eragraph, a traveling bioscope (1899-1902).
13. Daniel Imhof (1825-1900) applied for a patent for improvements for a keyed roll playing system on February 19, 1895 and was granted U. S. Patent 540,059 for them on May 28, 1895. Arthur W. J. G. Ord-Hume, *Barrel Organ* (1978), page 307, states that the heavy paper roll system was perfected about 1898-1899. The first Waldkirch book organs appear to have been fabricated in 1900.
14. Fred Gerer, who facilitated the organ's recent sale, obtained and verified the history in this paragraph with Dieter Rausch between 2003 and 2005. Documents relating to the 1984 work are housed in the Internationales Artistenmuseum, a showmens and circus museum maintained by Roland Weise in Klosterfelde, Germany.
15. Jan L. M. van Dinteren, "Demetz Kunstanstalt," *Het Pierement*, XLII, 4, pages 165-170.
16. Image in Romke deWaard, *From Music Boxes to Street Organs* (1967), page 128.
17. See Hermann Rambach and Otto Wernet, *Waldkircher Orgelbauer* (1984), page 119. The name on the building in the background has not been determined, but it is not the Ruth factory.
18. Ohr identification courtesy Dr. Florian Dering, Munich City Museum.
19. *Ibid*, page 12.
20. See Youri Messen-Jaschin et al, *Le Monde de Forains* (1986), page 69.
21. Information sheet distributed by Red Rock Theatres, author's collection. Unidentified clipping dated June 17, 1958, copy in author's collection.
22. Some of these observations were made in 1995, prior to the most recent sale and restoration of the organ. Additional images were supplied by Art Reblitz, with Bob Brown and Johnny Verbeeck providing technical clarifications via a telephone conversation on April 7, 2005.

Fred Dahlinger is a frequent contributor to the *Carousel Organ*. He is interested in all historical aspects of outdoor musical instruments, especially European fair organs. He and his wife, Anita, live in Baraboo, Wisconsin.

An Organ Grinder Automata & Clock Picture

An unusual automata and clock picture is housed in the penthouse home of Marty and Elise Roenigk, Eureka Springs, Arkansas. The name of the picture is unknown. When activated by the clock, or manual switch, the organ grinder cranks the organ with the monkey, and other creatures nearby, moving as well. Marty feels this was made in Switzerland, France or Austria. It was purchased from an antique shop in Chicago and the owner had obtained it in France.

