Whistling By The Numbers
(A Survey of the Calliope in the U.S. Patents)

Ron Bopp

Attracting attention and the whistle seem to go together like peanut butter and jelly. As a child we all have blown a whistle to attract attention and then, nearing adulthood, we responded to a whistle blown in school, in the military service or from a group leader. Making a whistle musical then adds the charm of the music as well as the effects of the musical discourse. All whistles are loud but the steam whistle is the loudest. The 1800s were the heyday of the steam whistle and it evolved that someone would take these loud and attention-getting devices and make something musical from them.

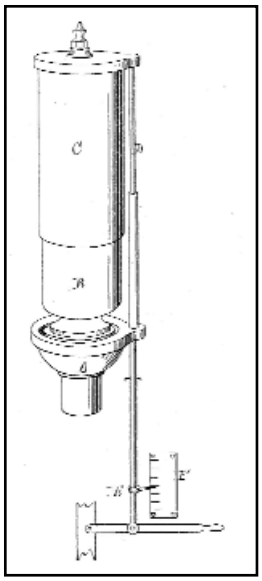

Figure 1. Otto Kromer's patent #142,166 reveals the bell (B) covered by another bell (C), which is telescoped over the inner bell (B). The overlying bell (C) is controlled by a rod (D), which attached to an index (E), set to any of the letters of the musical scale.

This phenomena is the impetus of this article—a review of those patents applied for in the U.S. Patent and Trademark Office (U.S.P.T.O.) that involves both steam and air whistles. As mentioned previously it would have been a natural to apply the musical scale to the principal of the steam whistle. Early examples of converting the steam whistle to play a musical scale were patents applied for by Otto Kromer of Sandusky, Ohio, in 1873. Mr. Kromer filed and was granted not only one but two patents in this year for a similar result but with different methods. His first patent was #142,166 (**Figure 1**) in which he proposed an ordinary steam whistle that had a movable sleeve forming part of the whistle bell. In his patent he noted:

> The nature of this invention relates to the construction of a steam whistle so that a variety of notes may be obtained, and such tones regulated as desired, by means of a graduated scale of musical notes. The invention consists in constructing the whistle with a double bell, one telescoping over the other, upon the principle of the trombone, so that high, low, and intermediate tones may be obtained at pleasure; and in connecting said whistle with a graduated musical scale, as more fully hereinafter set forth.

Mr. Kromer's second patent applied for just six days later on April 8, 1873 and granted in July of the same year (**Figure 2**). It was in the nature of "valves" which when operated by steam "a variety of tones may be produced at will." In describing the purpose of this invention Mr. Kromer noted "These valves may, perhaps, be properly termed diapason stops, and they may be arranged at distances apart to produce a regular musical scale."

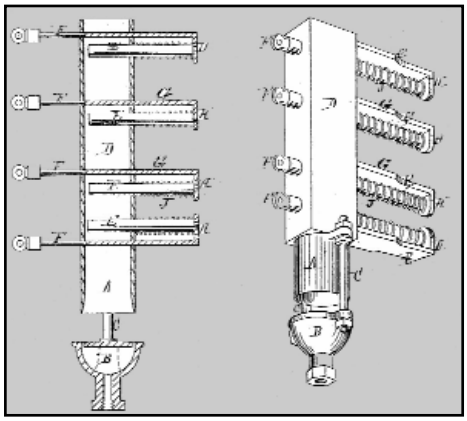

Figure 2. Otto Kromer's second patent, #141,280, details a whistle with multiple valves (E). F are the valve stems which are held open by springs (J). When the valve stems are pulled, the valve (E) is pulled to close off the whistle bell and "play" a particular note.

There have been many patents dealing with steam whistles and musical scales but I will present just one more—one by a company that was to dominate the steam whistle industry. Several years later, the Lunkenheimer Company patented a similar variable pitch whistle with a telescoping bell (mid-1870s) and then its famous Mocking Bird whistle (**Figures 3 & 4**) of 1895. Patent #503,547 noted that ". . . it has for its object the production of means for actuating the piston within the bell to vary the sound of the whistle."

While these whistle types are novel (and in quite demand by whistle collectors and enthusiasts) they are difficult from which to obtain a musical scale or recognizable song. Thereby comes the need for using multiple whistles to produce a musical scale. The following patents will reveal just how this was done-over 140 years of attempts [The complexity of the U.S.P.T.O. filing system prior to 1975 limits this article to a near-complete review].

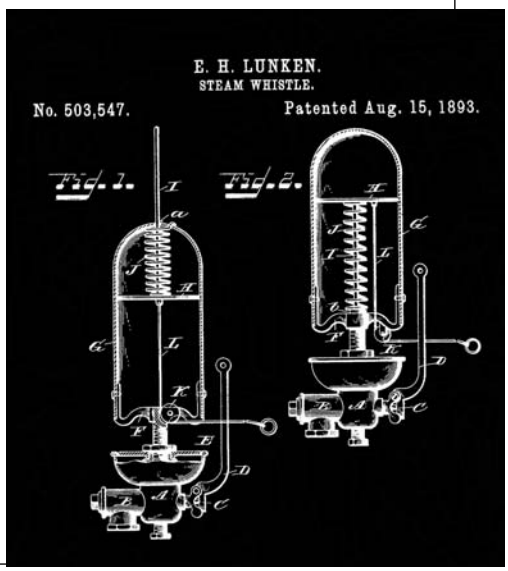

Figure 3. The Lunkenheimer Company's patent (#503,547) for its Mockingbird Whistle. Edmund Lunken described the operation of this whistle by saying: ". . . the combination of the bell (G), a spider (F) with pulley (K) journaled thereon, the piston (H) held up by the spring (J) and provided with the guide rod (I), and the operating chain or cord (L) running into said bell to said piston, for operating the latter."

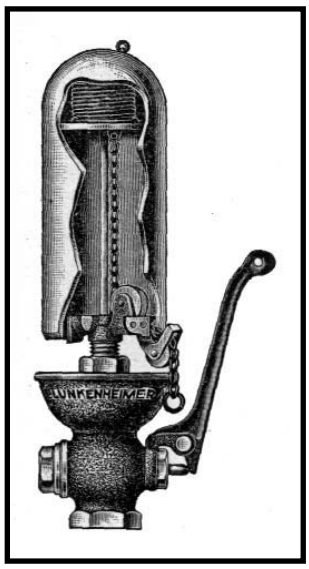

Figure 4. The Mockingbird Whistle as it appeared in the Lunkenheimer Company's advertisements, circa 1895. The cut-a-way drawing gives a good idea of how the whistle operates.

Stoddard's "Steam Calliope" (1855)

It was in 1855 (October 9th) that Joshua C. Stoddard was granted a patent for the first steam calliope. Ed Fagen notes in his new book on American Steam Whistles—"The Engine's Moan"—that William Hoyt of Dupont, Indiana was quoted in the April 1st, 1851 issue of the *Dayton Journal and Advertiser* to have "invented a plan whereby music can be produced on steamboats, of the softest and most pathetic character by the agency of steam." Fagen went on to write that "Hoyt described his device as consisting of a horizontal pipe into which were screwed seven or more whistles of various sizes and tones, the whole operated by a set of keys." Apparently no patent was ever applied and no evidence that such a machine was built.

Stoddard's patent (**Figure 5**) was entitled "Apparatus for producing music by steam or compressed air." It was quite simple in nature and noted:

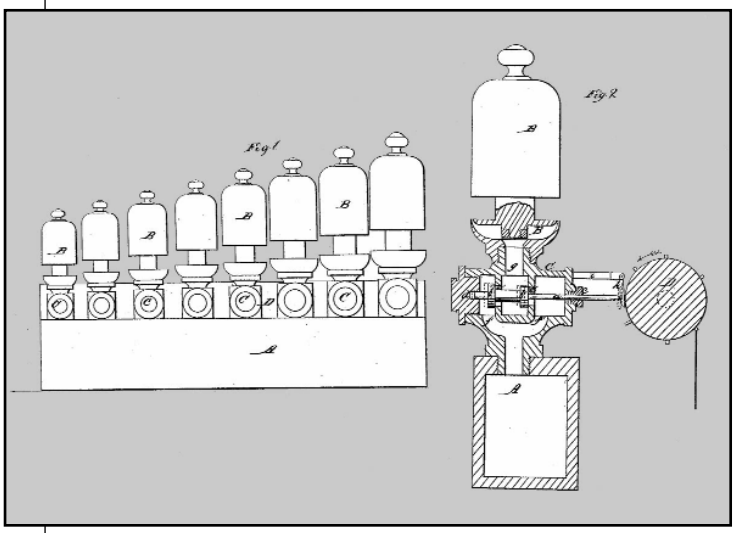

Figure 5. Joshua C. Stoddard's patent #13,668 for his "Musical Instrument." Figure 1 shows the line up of eight steam whistles (B) on the manifold (A). Figure 2 is a cross drawing of the puppet valve showing the end of the valve steam being activated but studs on the pinned barrel (D). It is this activation that opens up the valve and lets steam go from the manifold (A) through the base of the whistle (G).

> This instrument consists of a number of steam whistles of proper relative size to produce any desired musical scale, arranged in any convenient manner and provided with separate valves by the opening of which they are caused to receive steam or air from any suitable pipe chamber or generator the said valves being opened for the steam or air to escape to the whistles, by finger keys or by the revolution of a studded barrel or by any other suitable mechanical means.

Figure 6. An advertisement by National Life Insurance a few years mocks Stoddard's invention. The story, captioned by "Mr. Stoddard's Madness" states:

> You would expect an inventive person to come up with something practical, like a horse-drawn rake. And that's exactly what Joshua Stoddard of Pawlet, Vermont did. The funny thing is that he also invented the steam calliope. He presented his musical monster in 1855 and a large number were installed on larger steamboats. For several decades the waterways of America echoed to their strident music. Today, the calliope, which Joshua considered his masterpiece, survives only as a circus curiosity. But his horse-driven rake is still blessed whenever men toil on the land.

Mr. Stoddard purposely addresses the mechanism for playing the calliope and intended on it being purely mechanical in nature as he addressed:

> I have for the sake of illustration shown a studded barrel (D), as that will be the means most likely to be adapted as it is supposed the instrument will generally be used upon steam boats, steamships or locomotives, and that means of playing will obviate the necessity of employing a musician and enable it to be set in operation by the engineer or other person commonly employed.

In describing the driving force for the pinned barrel he explains:

> The barrel may be rotated by a band or other gearing from the engine, and then will only require to be thrown in gear for playing or it may be rotated by hand by the aid of the crank.

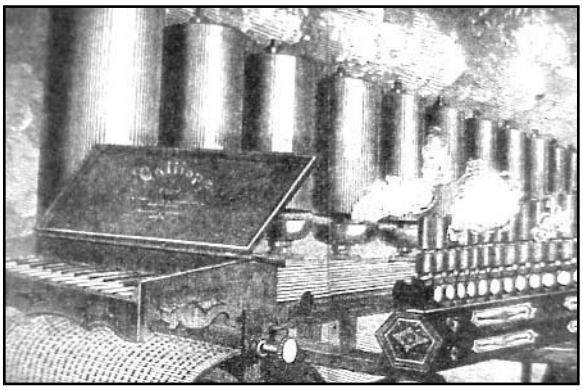

Figure 7. A sketch of an early Stoddard steam calliope, detailing the use of a keyboard and tracker-like mechanism. Photo: Q. David Bowers, *Encyclopedia of Automatic Musical Instruments*, page 840.

The valve portion of this "musical instrument" was the second portion of his patent. It was to address the force necessary for the player (if played by hand) and a way to decrease the pressure needed to open up the steam-operated valve:

> As a part of the said musical instrument, I claim the within described valve with its two puppets and seats of unequal size and with one end of its stem exposed to the atmosphere.

Figure 8. A keyboard operated steam calliope in the "America" circus wagon belonging to Circus World Museum, Baraboo, Wisconsin. Note the steam coming out of the various whistles. This calliope sounds best when fully warmed up with the steam.

An article *Harmony in Steam* taken from Esso Oilways (September, 1956) and reprinted in *Player Piano Treasurery* by Harvey Roehl in 1961, commented about Stoddard's first calliope saying:

> The first instrument consisted of 15 whistles, of graduated sizes, attached in a row to the top of a small steam boiler. A long cylinder with pins of different shapes driven into it ran the length of the boiler. The pins were so arranged that when the cylinder revolved, they pressed the valves and blew the whistles in proper sequence. The different shapes enabled the operator to play notes of varying length. Later, Stoddard replaced the cylinder with a keyboard. Wires running from the keys to the valves enabled the operator to play the instrument like a piano.

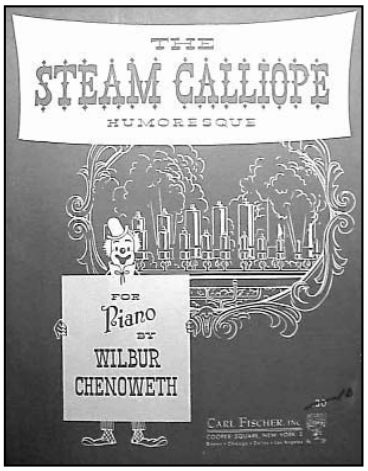

Figure 9. Sheet music entitled *The Steam Calliope (Humoresque)*. The popularity of the Steam Calliope probably parallels that of the sheet music itself—note drop in price! Also of interest was the piece is without any sharps or flats except for an occasional A flat (which is noted "if the humorous effect of a calliope out of tune is not desired, play G"). Written by Wilbur Chenoweth, 1950.

Needless to say, this was the first patent finding of a calliope-related instrument. Of importance is that it was, at first, totally mechanical—using the pinned barrel as a method of playing. Some of the following patents will be mechanical and some will be hand-played, but all show some effort to make calliope music with steam or air.

Standing's "Glass Tube Organ" (1872)

William Standing, Sr., of DuQuoin, Illinois was granted a patent (#128,566) dated July 2, 1872. While not called an air calliope per se, it does have similarities and was an interesting concept over 130 years ago. Mr. Standing stated in his patent (**Figures 10 & 11**):

> My invention consists of a musical instrument in which the sounds are produced by air forced into a series of glass tubes with contracted necks at one end and closed at the other, and graduated in size and length. It also consists in tuning said tubes by means of glass stoppers or plugs, with which they are closed at one end, said stoppers being inserted more or less according to the modification of the sound required, which is caused by lengthening or shortening the chamber of the tubes.

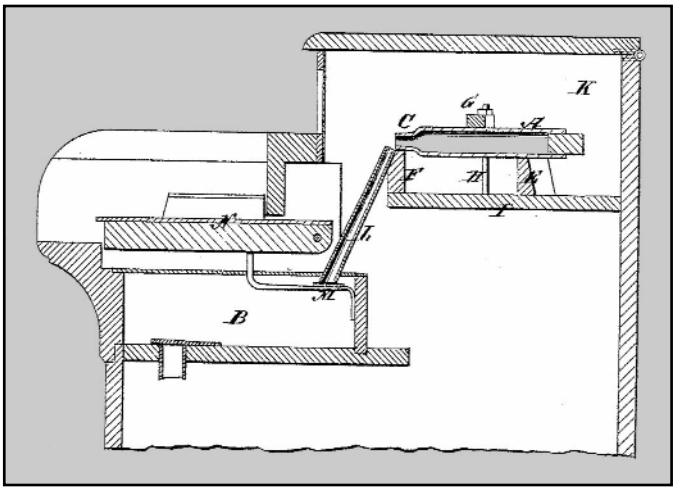

Figure 10. William Standing's patent #128,566 (7/2/1872). The typical keyboard (N) is depressed allowing for the valve facing (M) to move away from the air supply tube (L). Air under pressure then goes from the reservoir (B) to the mouth of the glass tubes (C) and provides a musical sound.

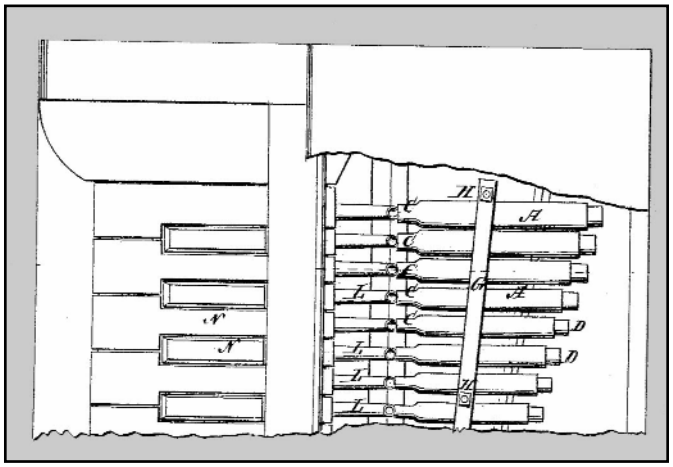

Figure 11. An overhead view of Standing's patent #128,566 shows the piano keyboard (N) and the air supply tubes (L) and the glass sounding tubes (A). (D) represents the tuning plugs.

Earley's "Whistle Organ" (1906)

In May 11, 1906, James O. Earley, Jr. applied for a patent, #847,169 (granted 3/12/07), entitled "Whistle-Organ" which he states (**Figures 12 & 13**):

> The invention relates to musical instruments; and its object is to provide a new and improved whistle-organ, arranged to sound graduated whistles by the operator playing corresponding keys.

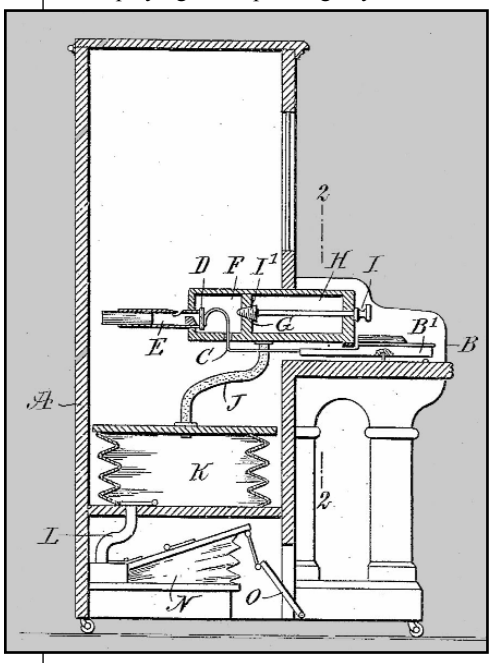

Figure 12. Mr. Earley's patent, #847,169 dated March 12th, 1907 depicted an upright-cased machine with a foot pump bellows (N) which supplied a reservoir (K) which in turn supplied a wind chest (H) of which various whistles (E) were attached. Depressing the key (B) caused the rod (C) to pull away from the opening, or valve, (D) which allowed any particular whistle to sound.

Mr. Earley was from Richmond, Virginia and related that he had "invented a new Whistle-Organ, of which the following is a full, clear, and exact description" (as per his claim):

> A whistle-organ comprising a main wind chest in the casing of the instrument with its end adjacent to the keyboard, a compensating reservoir connected with the said wind chest for supplying the latter with air, bellows for pumping air into the said compensating reservoir, a whistle wind chest adjacent to and communicating with the main wind chest, stops controlling the communication between the said main wind chest and the said whistle wind chest, said stops extending out through the front of the main wind chest, whistles having their entrance ends projecting into the said whistle wind chest, means for normally closing the entrance ends of the whistles, and keys controlling the said means.

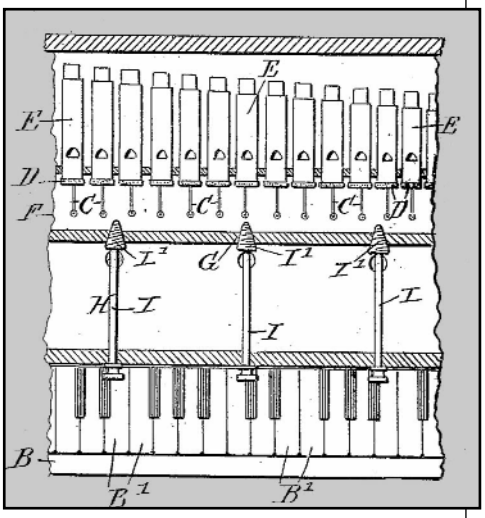

Figure 13. An overhead patent drawing of Mr. Earley's patent invention reveals the different sized whistles corresponding with their playing keys. Stops (I) are provided to allow air to mass into the wind chest (H) to a secondary wind chest (F) to allow for pressure to the individual whistles. The reason for having the different stops as noted on this patent is unclear.

Day's "Pneumatic Calliope" (1909)

Patented on January 5, 1909 (application filed August 31, 1907) was Samuel V. Day's "Pneumatic Calliope" (**Figure 14**). Mr. Day was from Wichita, Kansas and noted that in describing his invention he claimed:

> A calliope comprising a tank, whistles, valves connected to the tank and whistles, yokes connected to the valves, a megaphone enclosing the whistles, and the base of the megaphone having slots formed at one edge through which the whistles extend.

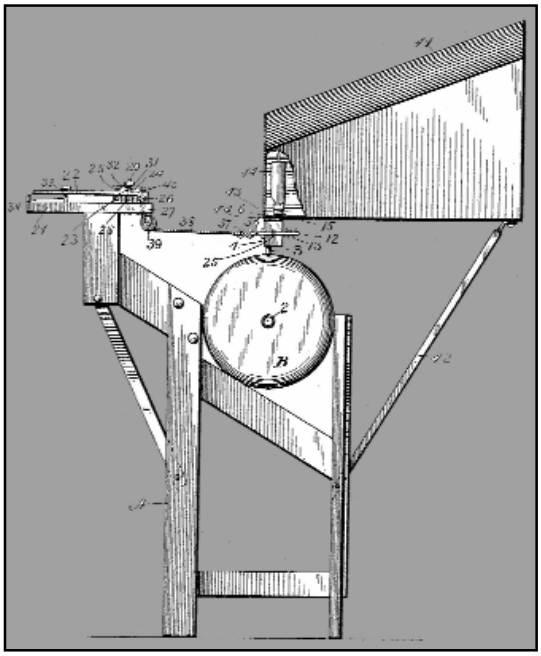

Figure 14. See photo caption next page

Caption for Figure 14 (previous page): Mr. Day's "Pneumatic Calliope" (#908,968) patented January 5, 1909 had the following description of action: ". . . a whistle is caused to sound, by the operator pressing a key (22), which causes the opposite end to rise drawing the rope or wire (38) which is connected to the yoke (12), unseating the valve (12), which permits the air from the tank to pass through the valve casing (4) up to the whistle (14) causing it to sound, and the plunger in whistle adapted to reciprocate therein to give the tone." In this drawing (B) is the compressed air tank and (41) is the megaphone.

Interestingly Mr. Day had also specified "A further object is to away with the use of a steam boiler, and to provide a calliope which will be cheap to manufacture and a small cost to operate." This appears to be the first attempt (in patent literature) to come up with alternative to the steam calliope. Fred Dahlinger (in his article "Joseph Ori and The Early Circus Air Calliope," *Carousel Organ,* # 16) noted that George Kratz of Evansville, Indiana had built an calliope in 1903 that could use steam or compressed air, again indicated for the same reason-as an alternative to the steam calliope.

Also of interest is the use of a megaphone (41) on Figure 14. No where in the patent does he provide a reason for the megaphone (which normally would be used to increase the volume of what was placed in it). He just mentions that the megaphone "enlarges from the whistles in all directions."

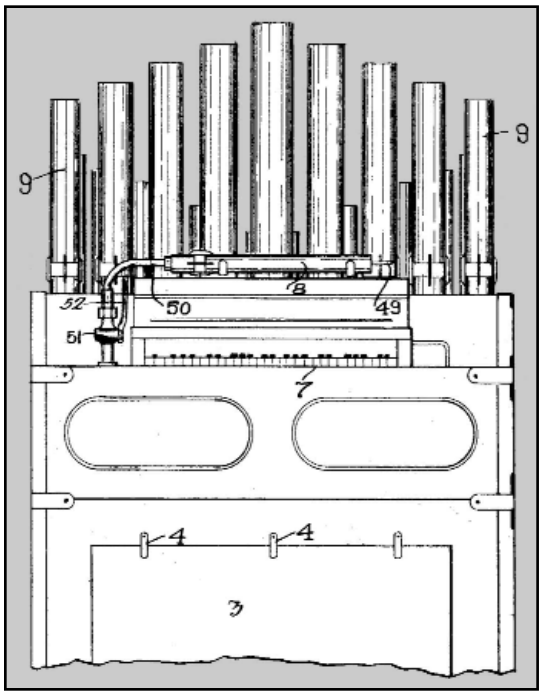

Figure 15. Joseph Ori's 'Pneumatic Calliope" patented September 5, 1916. This is patent #1,197,302 and features not only the 43-note calliope which was to become the standard for air calliopes but also the unusual "special variable pitch whistle" (8) discussed in the text of this article. See Figure 20 for another view of this whistle.

Ori's "Pneumatic Calliope" (1916)

The subject of Joseph Ori's air calliope and its use in the early circus has been well covered by Fred Dahlinger in his article mentioned above. While Dahlinger pointed out that Ori first constructed his air calliope in 1905-1906 (as a mechanic for Sorcho's Deep Sea Divers) and it was 1912 at the time that he began his Pneumatic Calliope Company. The patent for his calliope was not applied for until September 6, 1913 and not granted until September 5, 1916. This was patent #1,197,302 and can be viewed in **Figures 15-17** and on the back page of this issue of the Carousel Organ. A photo of Ori's workshop is viewed in **Figure 18** where several air calliopes are in production. A restored Ori calliope can be seen in **Figure 19 & 20.**

Joseph Ori's specification for patent #1,197,302 included:

> My invention relates to a pneumatic calliope and has as its principal object the provision of a novel instrument comprising a plurality of single tone whistles in combination with a variable pitch whistle.
>
> A further object of my invention is to provide a whistle organ having a plurality of single tone whistles in combination with a variable pitch whistle so arranged that the variable pitch whistle may be under the immediate manual control of the operator.

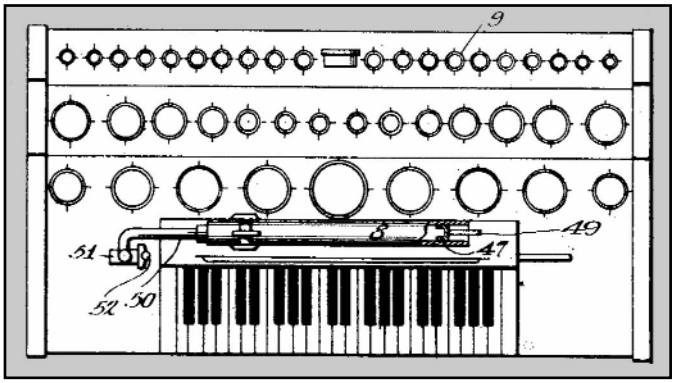

Figure 16. This is an overhead view of Ori's invention, showing placement of the keyboard, the variable pitch whistle (8) and the individual whistle locations (9). The pressure gauge is located in the middle of the top row of whistles, facing away from the operator! A strange location, to say the least.

Figure 15 details the front view of Ori's "Pneumatic Calliope." Besides providing detail and impetus to begin the air calliope phase of mechanical music the patent details an unusual feature, a "variable pitch whistle:"

> . . . it will be understood that the special whistle (8) is constructed in the same manner as the whistles (9), in detail, but it is provided with a rod (49) which is seen projecting from one end of the special whistle and which, it will be understood is connected to a movable plug (47) slidably mounted within tube (8). It will be seen moreover, that the end of the special whistle opposite the rod (49) is connected to a tube (50) which is connected to a cock (51), the handle (52) of which may be operated by hand when desired, and it will be understood that the cock (51) is connected directly to the lower portion of the valve box [not seen-Ed] by connections not shown. Consequently, air may be admitted to the special variable whistle when desired independently of the keyboard and the note emitted by the special whistle may be varied at will by pushing the rod (49) to and fro.

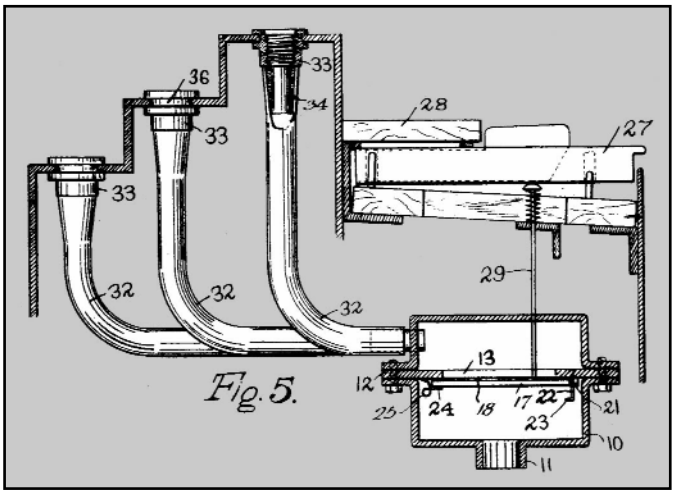

Figure 17. A side view of the valve/key portion of Ori's "Pneumatic Calliope." A description taken from the patent best describes: ". . . the attendant presses on the keys of the keyboard (27) as if playing on a piano or organ, whereupon the valves (16—not shown this view), corresponding to the keys pressed, are opened by means of the rods (29). Thereupon air passes from the lower part of the valve box (10) into the upper part thereof and then through the corresponding tubes (32) which deliver the air to the corresponding whistles and cause the same to be sounded."

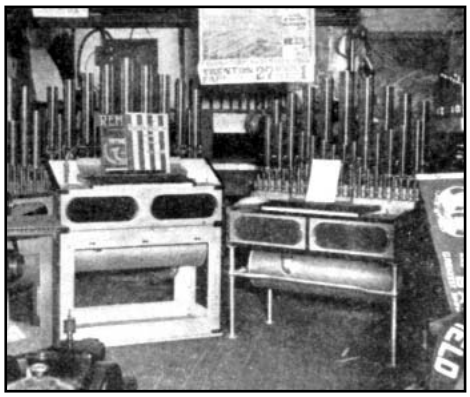

Figure 18. A view of Ori's workshop where several air calliopes were under construction. The photo was taken circa 1915. Photo: Fred Dahlinger.

A reference to this unusual whistle arrangement is made in Fred Dahlinger's Ori article where Ori had responded to the Ringling Bros. Circus regarding purchase of a new calliope (January 9, 1913). It was noted "The calliope, complete with a blower, small tank, siren whistle, and a pedal to alter the volume, was offered for $625.00, a base or stand being $25.00 extra." Interestingly there is no reference in this patent regarding "a pedal to alter the volume." Since this comment was made prior to the application of the patent, it may have been found to be a non-viable application to the calliope. The siren whistle, mentioned above twice can be seen in a closeup of the existing Ori calliope in **Figure 20.**

Figure 19. An existing Ori calliope. Photo: Dave Miner

This patent is most interesting and a must for anyone wishing to understand more about the air calliope as it embraces a lot of features seen today on old and contemporary calliopes.

Figure 20. A closeup of the "siren whistle" on an Ori Calliope. Photo: Dave Miner

Stanton's 'Whistling Musical Instrument" (1916)

John James Stanton invented and patented his "Whistling Musical Instrument" on February 22, 1916 (filed July 18, 1914). It was patent #1,173,054 (**Figure 21 & 22**) and he noted in his invention of "New and Improved Whistling Musical Instrument:"

> The invention relates to pneumatic musical instruments known as calliopes. An object of the invention is to provide a simple and compact musical instrument in which the strength of the tones may be varied by varying the pressure of the air supplied.

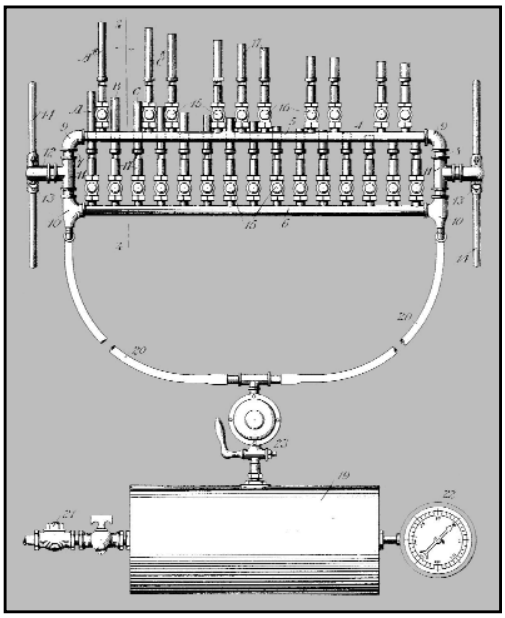

Figure 21. Stanton's Whistling Musical Instrument, patent #1,173,053. Seen in this drawing is the air tank (19) with attached gauge (22) attached to a reducing valve (23) which then leads to the calliope manifolds (5 & 6) where the individual valves (15) and whistles (17) are attached.

Interestingly enough his varying the strength of tones involves reducing the high pressure in the tank (19) noted in Figure 21 by way of a reducing valve (23). In the patent he states:

> Furthermore, by providing the reducing valve (23), the size of the air tank (19) can be greatly reduced, as the air in the tank is stored under high pressure and will last for a very long time, as the same is used at low pressure.

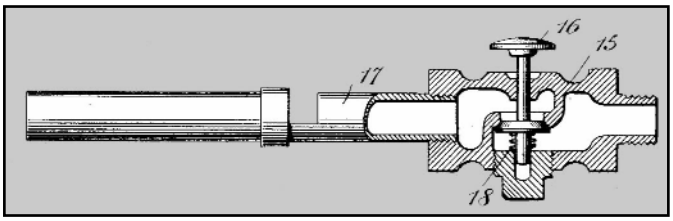

Figure 22. Here is a close-up of Stanton's valve button mechanism. He describes this as: "Engaging each of the valves (15) are whistles (17). The valves (15) are so positioned as to be maintained against their seats by the pressure of the air in the chamber; but in addition, each valve is provided with a light spring (18) tending also to seat the valve." (16) is the valve button pressed to activate a whistle.

Instead of a conventional keyboard to operate the whistles he suggests using the valve button (16) as seen in Figure 22 with the individual valves and whistles arranged in keyboard fashion. All of this is arranged on a folding, tubular frame "thus making the instrument collapsible and reducing the bulk of the same to a great extent during transportation."

Baker's "Automatic Calliope" (1923 - 1927)

Norman Baker (Muscatine, Iowa), inventor of the Tangley Calliophone, had four patent applications and all four will be discussed together in this section. First was his patent #1,449,211, which was filed on November 6, 1922 and granted March 20, 1923. This patent was for his calliope whistle design and his specification noted:

> This invention is a novel improvement in whistles for musical instruments, such as calliopes. The object of the present invention is to insure more direct and uniform pressure of the air discharged from the cup of the whistle; and to improve the construction of the air distributing devices in the cup of the whistle.

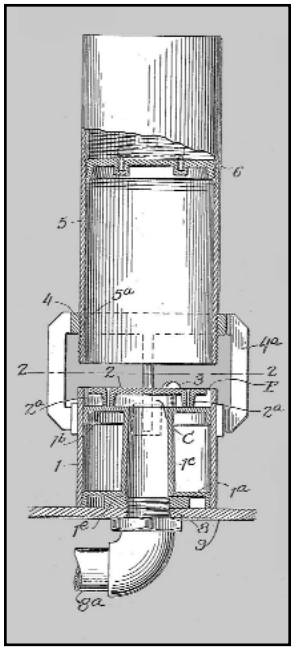

Figure 23. Norman Baker's patent #1,449,211 granted March 20, 1923 dealt specifically with the calliope whistle design. A descriptive use of this patent includes the incoming pressurized air through a supply hose (8a) into the cup (1) up around the spreader disk (2) and onto the edges of the open bell (5) to provide the whistle sound.

In the body of the patent Mr. Baker gives a useful tutorial on the physics of calliope whistle sounds:

> Calliope whistles are usually made with a hollow top piece called a bell and a lower part called a cup, which are disposed in axial alignment, with the bell spaced from the cup, the distance there between regulating the tone or speaking quality of the whistle. The bell is made adjustable toward or from the cup, and supported thereon. Within the cup is an air distributing disk by which the air or stream is distributed below the open end of the bell to produce the sound. The cup is made fast to a suitable support and connected with a compressed air or steam supply, or to the exhaust of a combustion engine.

In **Figure 23** we can see details of the calliope whistle. This is a very descriptive and accurate specification for the calliope whistle and is summarized in his claim (refer to Figure 23 for letter and number references):

> A whistle having a cup (1) and a bell (5); upper and lower plates in the cup (1a & 1b), each having an opening; a tube (1c) between the plates connecting with said openings; and means for connecting the lower end of the tube with an air or steam supply (8a); a spreader (2) in the upper end of the cup supported on and spaced from the upper plate to disseminate air or steam passing through the tube between the spreader and the upper plate (P); and means for securing the spread in position (3).

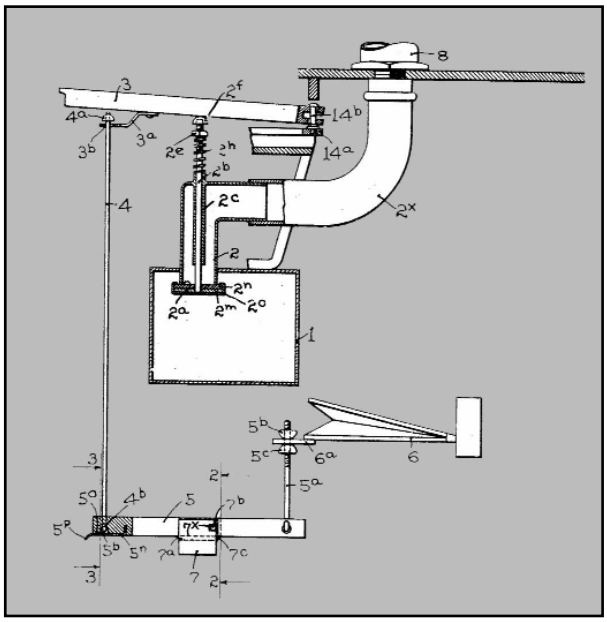

Figure 24. Norman Baker's patent #1,512,666 describes the interrelations of manual (top of drawing) and automatic (bottom of drawing) playing of the air whistle (8). Besides this relationship the patent notes the easy cessation of automatic playing (to stop ciphers of particular notes) by disconnecting the connecting rod (4) from the fulcrummed lever (5).

Norman Baker's second patent is #1,512,666, which was granted on October 21, 1924 (**Figure 24**). The title of the patent is "Automatic Calliope" and the purpose is described as follows:

> This invention is a novel improvement in musical instruments particularly designed for use in so-called calliopes,

> and one object of the invention is to provide a musical instrument which can be readily played manually or automatically; and whose parts can be easily assembled or repaired; and in case of derangement of any particular note operating mechanism whereby such note might be cause to sound continuously, such mechanism can be readily and quickly disconnected, without interfering with either the operation of the mechanisms controlling the other notes, or the manual operation of the instrument.

Looking at Figure 24 we can see the automatic/manual arrangement of the calliope. To simplify Mr. Baker's detailed description of these workings I will try to explain. Pressured air comes from the air tank and (when opened to play) goes through pipe 2x to the calliope whistle (8). The valve mechanism (2a, 2m, 2n, & 2o) can opened by a valve stem (2b) coming from a normal key on a keyboard (3) or via connecting rod (4) to a slot in a lever (5) which is actuated by a individual pneumatic or bellow operating from a calliope roll keyframe.

The reference to the "quick disconnect" in the previous "improvement" is the ability to unhook the connecting rod (4) from the fulcrummed lever (5) at its slot or juncture (5o), thus making the automatic playing of the calliope whistle inoperable.

Where as this patent is quite complex in its readability the basic idea is quite simple as outlined in Figure 24.

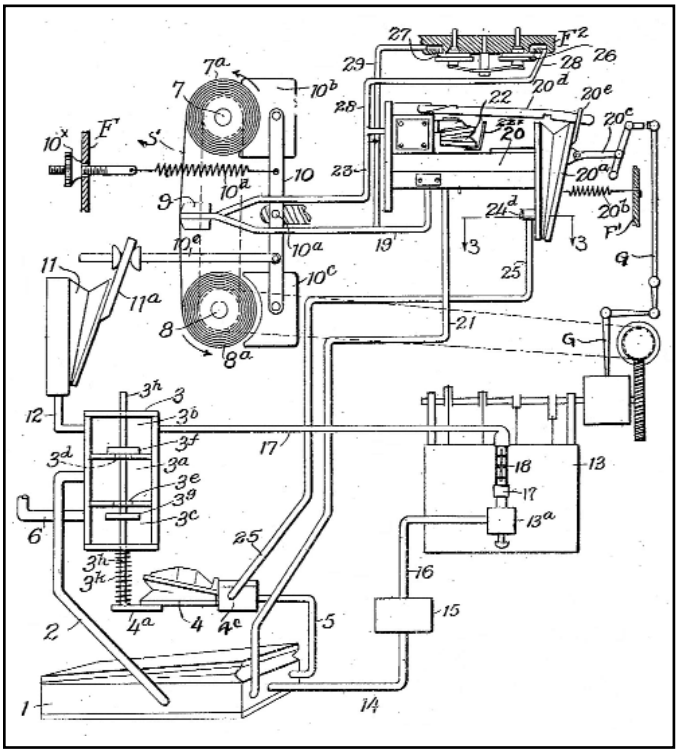

Figure 25. Baker's patent #1,609,102 was granted on November 30, 1926 and is entitled "Vacuum Brake Apparatus." While not specific for the calliope the concept of his braking ideas encompasses several mechanical musical instruments.

Patent #1,609,102 is Norman Baker's third patent, granted on November 30, 1926. **Figures 25 & 26** illustrate this patent that is entitled "Vacuum Brake Apparatus." He begins his patent by stating:

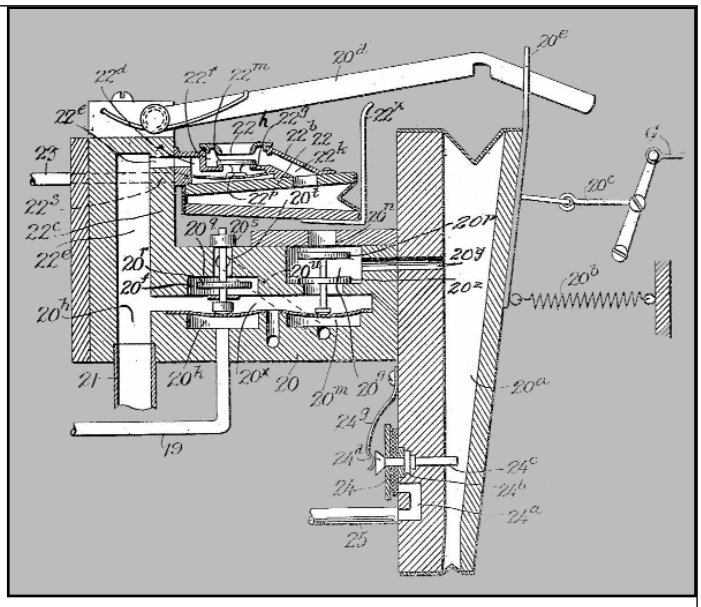

Figure 26. A close-up of Baker's "rewind device" reveals the complexities of the action proposed. The tracker bar signal comes by way of the nipple (19). The bellows (20a) is held open by a spring (20b). When activated the bellows close and the notch in lever (20d) engages the catch (20e) attached to the movable portion of the bellows and it remains closed until the small bellows (22) underneath the lever is activated by the "play" perforation. When it is activated, it pushes the lever (20d) up with the tongue (22x) and the large bellows (20a) opens again.

> This invention is a novel improvement in vacuum brake systems especially adapted for braking the music rolls of automatic band organs, pianolas, and the like [calliopes?—Ed], and the principal object of the invention is to provide an efficient, novel, and inexpensive vacuum brake system embodying certain novel constructions and arrangements of parts whereby a minimum of such parts in the system will be required.

Simply put, this complex patent can be described by following along with Figures 25 & 26 with Mr. Baker's recapitulation:

> This provides a simple and efficient vacuum brake system [10 and 10c] for automatic musical instruments in which the roll [7 & 8)] from which the music is unwinding, either in the playing or rewinding direction will be automatically braked; the excess vacuum during rewinding will be set up in the wind motor [13] to increase the speed of rotation thereof during rewinding; valve (18) automatically prevents vacuum in the wind motor (13) operating the brake bellows (11) while the instrument is playing and valve (24) on the rewind device automatically admits vacuum into the break bellows (11) during rewinding.

Norman Baker's last patent is #1,619,690, which was granted on March 1, 1927. This can be viewed in **Figure 27**. Like the previous patent this is not specific for just calliopes but for:

> . . . tracker bars for automatic musical instruments, such as pianolas, band organs, and the like, and the principal object thereof is to provide a tracker bar, made in two

separable sections and having a removable dust screen interposed between the sections, with novel means for readily and quickly locking or unlocking the sections, in order that the dust screen may be readily removed for cleaning.

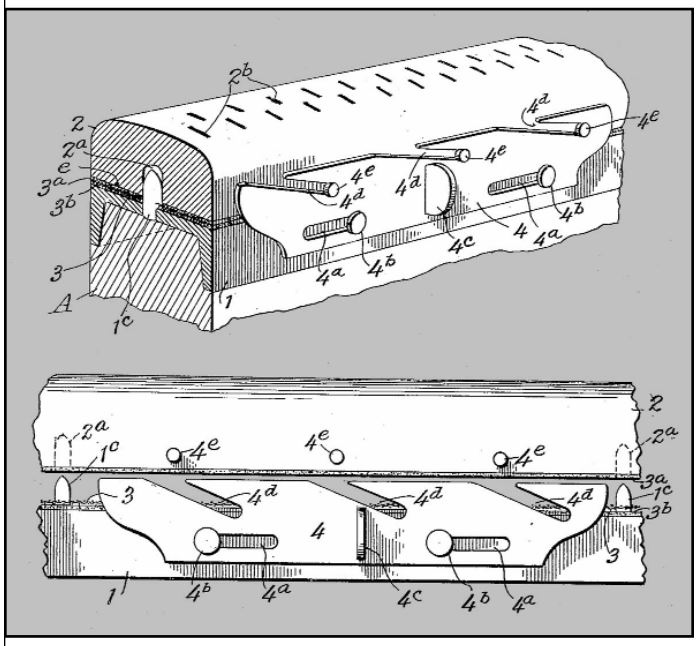

Figure 27. Norman Baker's patent #1,619,690, "Tracker Bar," was granted March 1, 1927. The tracker bar can be seen to be constructed in two pieces (2) and (1) with a screen (3) between. Attachment of the top portion to the bottom is accomplished via the sliding cam (4), which attaches via slots (4a) over protruding pins (4b).

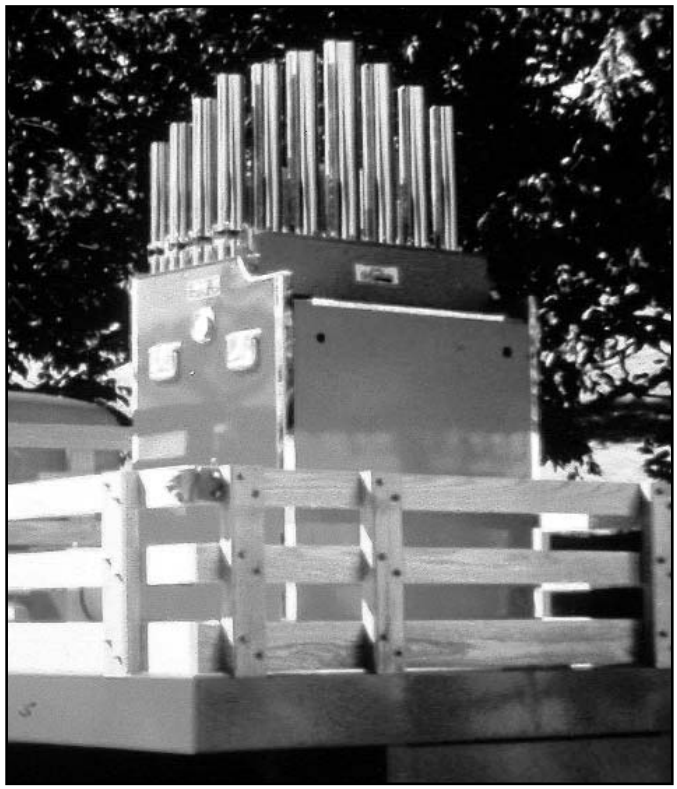

Figure 28. A 43-note Tangley Calliaphone on display, mounted on the back of a flatbed truck.

In reviewing the tracker bar featured in Figure 27 it is obvious that Mr. Baker's goals were met. "A dust screen (3) of fine mesh, and preferably of same area as the opposed faces of the tracker bar sections is interposed between the two sections (1) and (2), and also between two gaskets (3a) and (3b), preferably of soft leather . . ." In removing the dust screen for cleaning he provides a sliding cam affair (4) which moves across pins (4b) mounted in the lower section of the tracker bar.

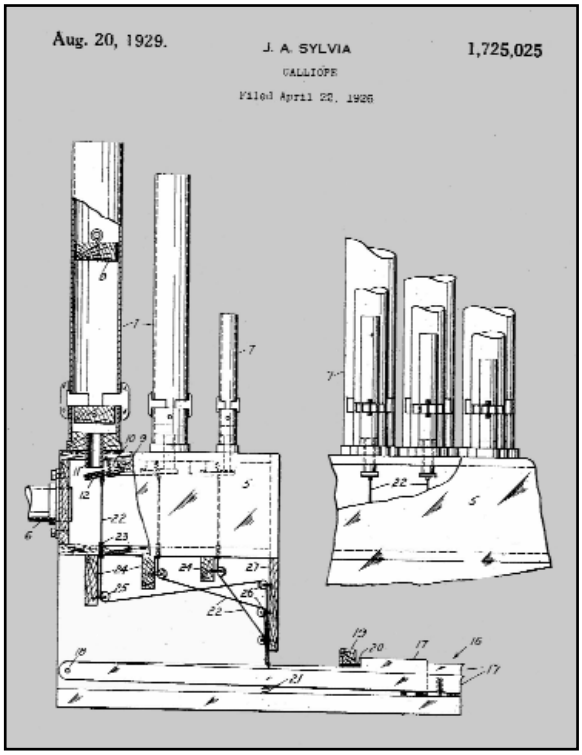

Figure 29. Joseph Sylvia's "Calliope" which was patented on August 29, 1929 and numbered #1,725,025. Examination of this patent drawing reveals the simplistic method of playing a whistle (7) by cords (22) and pulleys (25 & 26), the cords being attached to keys (17) on the keyboard (16).

Sylvia's "Calliope" (1929)

Joseph Sylvia of Alameda, California applied for a patent on April 22, 1926 and was granted patent #1,725,025 on August 20, 1929. This patent was entitled "Calliope" and can be seen in **Figure 29**. The idea behind this invention is interesting in light of Ori's and Baker's successful attempts at calliope design and manufacture. Mr. Sylvia wished to improve the mechanisms for operating the whistles within the calliope and so notes:

> Much effort has heretofore been required for operating the valves in calliopes on account of valve control through a system of tubing. In such calliopes the air travels a comparatively long distance through the tubing before it acts on the whistles, thus, action on the whistles is not instantaneous with the remote valve action and therefore the playing on the instruments is more or less unsatisfactory due to the delayed whistle action. Also, the crisscrossing of the tubes requires a maximum space and causes confusion in the assembling of the calliopes. As a result the manufacturing cost of the instruments is high and the instruments are cumbersome and heavy.

> One object of my invention is to connect the whistles directly with the air chest and to provide a mechanism whereby the valves are controlled instantaneously and with a minimum of effort by but slight depression of the keys in the keyboard.
>
> Another object is to construct a calliope of a minimum number of parts and to arrange the parts within a minimum space so as to facilitate the assembling of the instrument and thus materially reduce its cost of production.

The accomplishment of these goals seems to be quite simple as review of **Figure 29** reveals. Depressing a key (17) on the keyboard (16) pulls a cord (22) that, via a pulley system (25 & 26), attaches to a simple valve (12). The valve is normally held closed by a spring [not marked but indicated by (16) in the patent, which is incorrect as (16) is also used for the keyboard]. The calliope whistle (7) is attached directly to the air chest (5) so that when the valve (12) is opened by the cord mechanism, the whistle will sound. Mr. Sylvia states "It is seen from the foregoing that my invention includes very simple, yet efficient, means for actuating the valves of a calliope and that instantaneous delivery of a full volume of air to the whistles is always assured by the arrangement of the whistles directly on top of the air chest."

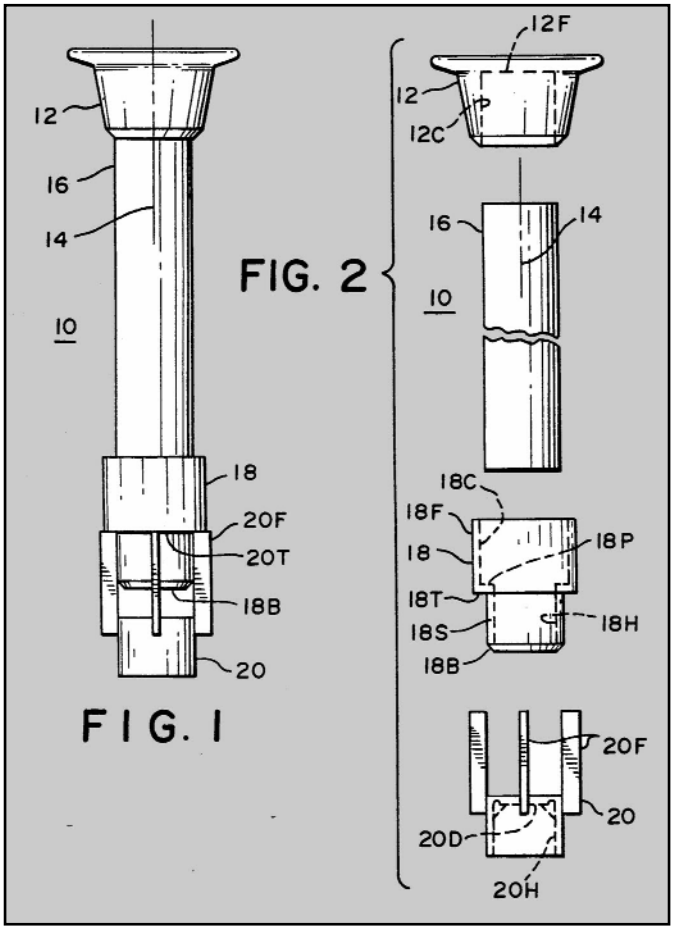

Figure 30. Patent #5,255,589 details a normal and exploded view of Caulkin's "Calliope Pipe Converter."

Caulkin's "Calliope Pipe Converter" (1993)

Over 60 years transpired with no calliope patent activity until Kenneth Caulkins of Ceres, California was granted a series of three patents. In 1986 he was granted a patent for a "Musical Instrument Pneumatic Actuator" to be used with player pianos (patent #4,619,177). Again, in 1988 patent #4,733,592 was granted for "Player Piano Tracker Bar," again used with player pianos. On October 26, 1993 patent #5,255,589 was granted for "Calliope Pipe Converter, Assembly and Method." This can be viewed in **Figures 30 & 31**.

Mr. Caulkin's abstract defines the purpose of the patent by saying:

> A converter allows one to use common PVC pipes for making a musical pipe. The converter has a beveled edge such that one need not provide a separate beveled edge tube for each note, but one may simply use the same converter on various tubes of different lengths in order to produce different notes. The converter is used to produce a calliope pipe. A valve arrangement cooperates with the converter and sound pipe in order to allow one to individually control the sound of a particular musical or sound pipe.

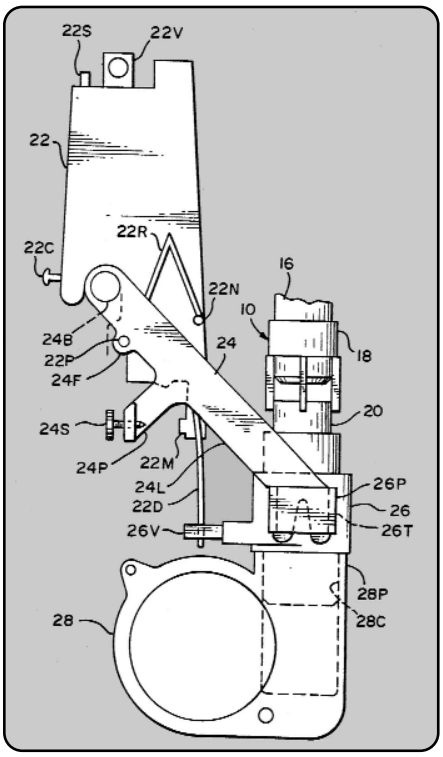

Figure 31. Caulkin's "Pneumatic Activator" is presented in patent #4,619,177. This is a valve assembly to allow the pipe to play.

Referring to Figure 30 one can see the simplicity of Mr. Caulkin's ideas. The PVC pipe (16) has a cap (12) attached to the top and then a PVC ("a plastic-molded article made using injection molding techniques") coupler (18), which he refers to as a "converter." It is this concept, that different length pipes can be attached to a uniform converter, which is the basis for this patent. On the right of Figure 30 is an exploded view of the pieces in-volved.

Figure 31 displays his concept of a pneumatic activator, some of which was presented in his previous patent, #4,619,177. The pneumatic (22) has a finger (22D), which operates a port (26V) on a valve (26), which allows the pipe (16) to play. The pneumatic is normally held open (which closes the port) by a spring (22R). The air supply comes in via the connection (28) at the bottom.

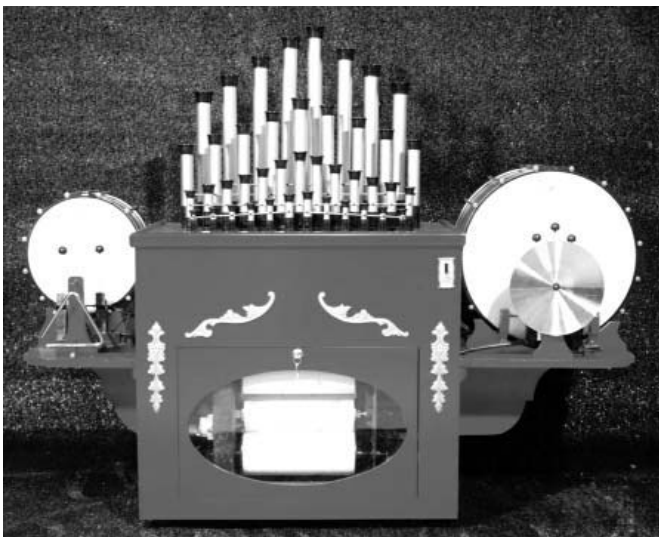

Figure 32. The model D42r is a typical calliope unit produced by the Ragtime Company, which features 42 calliope pipes as well as drums and traps. It uses the PVC pipe and converter referred to in patent #5,255,589.

An example of a Caulkin's Calliope, model D42r (and marketed by the Ragtime Co.), can be viewed in **Figure 32**.

Conclusion

This review of the patent literature dealing with calliopes has spanned 140 years. Stoddard's Steam Calliope patent was one of the earlier patents entered in the U.S.P.T.O. Several complete machines have been described in these patents with Ori's Pneumatic Calliope of 1916 being, perhaps, the most complete. In reviewing the patent literature it is unusual to find a complete "machine" being described (when they are large, like calliopes and band organs). Steam whistles, on the other hand, because of their size, are usually described in their entirety.

These patents become of interest, obviously, because of their relationship to the existing calliopes operated by collectors and concerns today. It is the author's desire that the information presented in this article will help others understand the complexities and performance of the calliope, whether steam or air.

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