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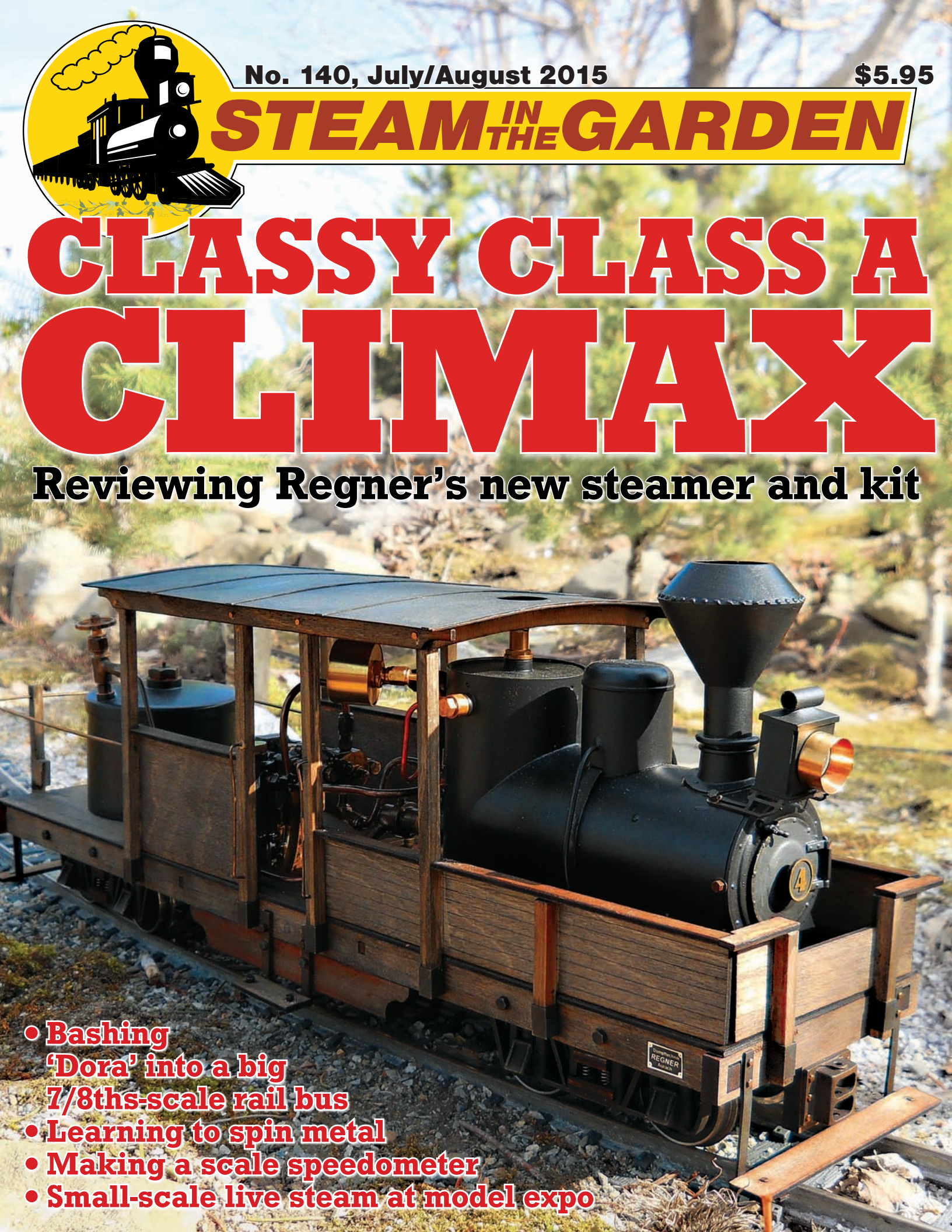

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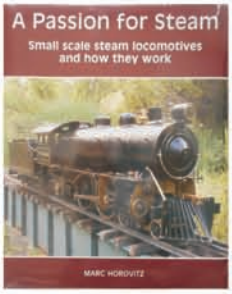

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Vol. 25, No. 4; Issue No. 140; July/August 2015

STEAM IN THE GARDEN

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into trains, propelled by fire ...

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Cover: Regner Class A Climax on author's New Jersey railway. Photo by Shawn Viggiano.

RAILWAY POST OFFICE

Incorrect history

In the article, "Accucraft out with two more in 1:32," in *Steam in the Garden*, November/December 2014, No. 136, the historical information about the Southern Pacific No. 2467 was incorrect. I know this because I was involved in this loco's acquisition and restoration by the Pacific Locomotive Association.

There was no "another group of volunteers," or any "later merged." The PLA took title of the engine originally from the City of Oakland and everyone who worked on the locomotive was a PLA member.

No. 2467 was restored between 1990-1999 on some leased tracks in Oakland, not in Richmond, long after the PLA had moved from Richmond to Niles Canyon, which happened in 1987-1988.

There was no cause and effect between the PLA's move from Richmond to Niles Canyon and the loan of the loco to California State Railroad Museum in Sacramento.

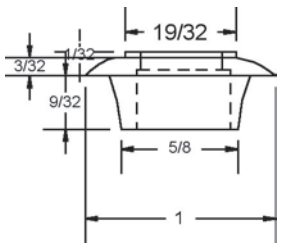
There was a single attempt to run an excursion with No. 2467, but it had mechanical problems, so really never got into service. Union Pacific was not interested in other people's trouble-prone steam locos running on their tracks.

Jeff Williams
Livermore, Calif.

Editor's note: I apologize for the error; I relied upon my personal memory when I should have researched the issue.

Turning a chimney cap

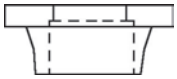
Recently I was asked how I made the chimney (smoke stack) cap for my Lancashire & Yorkshire Aspinall A class 0-6-0 (see *SitG*, Nos. 138, 139). The chimney for these engines is a parallel tube, with a flare where it merges into the smoke box, and with an elegant cap at the top end. (See the drawing.) This cap has a double curve, so making it requires a little thought as to the sequence of construction.



The first action was to place a length of one-inch diameter brass in the chuck of the lathe, face the end and drill it 7/16-inch diameter for a depth of one-half-inch. Replacing the bit with a one-half-inch diameter bit, the hole was opened out to a depth of 5/16-inches.

A shoulder was then turned on the outside to three-quarters-inch diameter for a distance of 9/32-inches. The curve on this shoulder was then turned using a round ended tool to finish with a diameter of five-eighths-inches at the lower end.

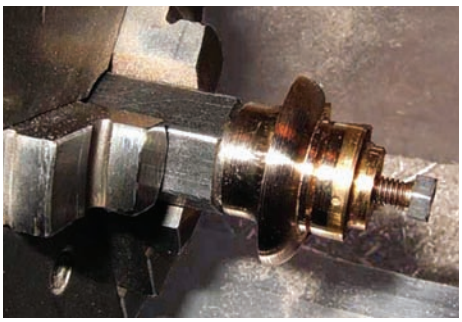
Next task was to part off the work piece at a distance of 13/32-inches from the bottom end. This produced a lump of brass with the adjacent shape. We now need to shape the top of the chimney cap. Because of the curved and tapered lower half, we can not grip this in the normal chuck. We therefore need to mount the cap on a mandrel for turning.



The mandrel is made from a piece of scrap material — steel, brass or whatever will do. Grip this in the chuck, face the end and turn it down for one-half-inch to a diameter where it will just slip into the recess in the cap. For absolute accuracy, we should now mount the work piece on the mandrel without removing it from the chuck until the work is completed.

However, in this case, it is perfectly possible to remove and replace the mandrel and store it for future use. We need to be able to clamp the work piece on the mandrel for turning. Drill a suitable size hole in the mandrel and thread it — say 3/16-inch diameter for a machine screw. Drill an axial hole in another piece of scrap material around one-eighth-inch — 3/16-inches long so that it will slide over the screw. Place the work piece on the mandrel, then fit the screw and clamping washer to hold everything secure.

Once the cap is mounted on the mandrel, turn the diameter of washer and work piece down to that required by the drawing (in this case 19/32-inches). Take care not to remove too much metal from the work piece, as you only want a slight lip 1/32-inches high. The curve at the top of the cap can be shaped firstly by shallow turning to the approximate curve required, then finished by filing. Alternatively, you can make a form tool by grinding a piece of tool steel to the curve required. Once you have a shapely curve with which you are satisfied, remove the work piece from the mandrel.



Chucked in lathe: *Finished cap.*

Mark the position of No. 1 jaw on the mandrel and store the mandrel for future use when you want to make another chimney cap.

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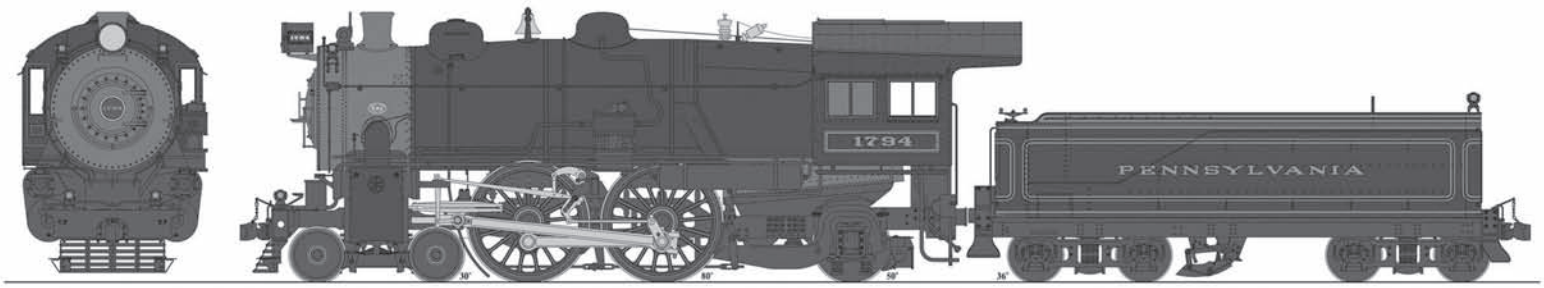

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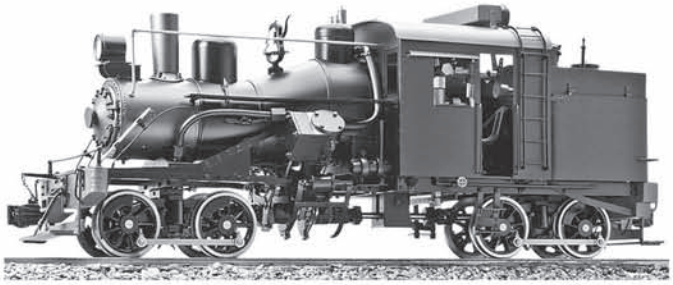

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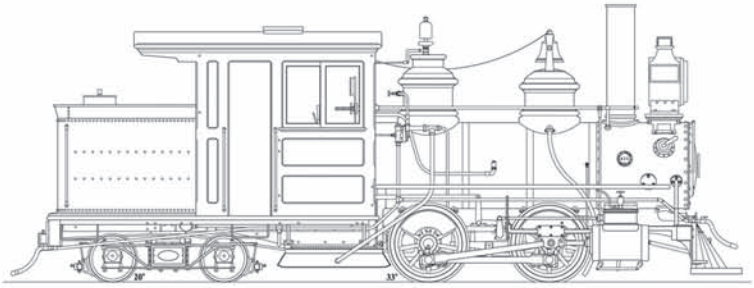

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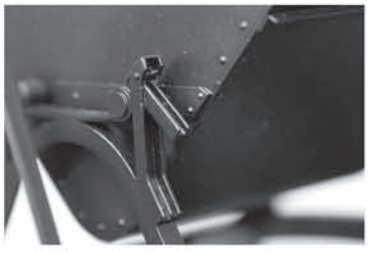

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LATEST WAYBILL

A Garratt from Roundhouse

A narrow-gauge locomotive that ran in India for 43 years will be the latest live-steam model from Roundhouse Engineering Ltd., the company said last spring. It is creating a version of the Garratt that ran on the two-foot gauge Darjeeling Himalayan Railway (DHR), No. 31, in West Bengal, India.

English locomotive manufacturer Beyer Peacock & Co. of Manchester, which specialized in Garratts — the articulated locomotives with two separate steam engines on each end of a center boiler — built the 0-4-0+0-4-0 locomotive in 1910 and DHR gave it a "D" class designation. It was only the third Garratt constructed at the time.

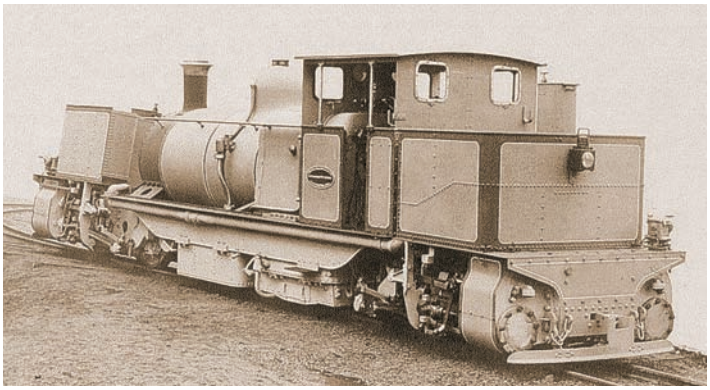
The DHR, which was constructed between 1879-1881, runs for about 50 miles in the Indian state of Bengal, and rises from an elevation of 328 feet to 7218 feet at Darjeeling, using loops and zig-zags to climb the Himalayas.

Doncaster, England-based Roundhouse said the model would have four double-acting, slide valve cylinders with simplified Walschaert valve gear. The boiler will feature Roundhouse's "FG2" butane burner and will have a water top-off system and gauge. The locomotive will be almost 21-inches long, 4½-inches wide and 6¾-inches tall (532mm by 116mm by 170mm).

Controls for the Darjeeling Garratt will include a steam regulator, a safety valve, a pressure gauge, a displacement lubricator, a gas regulator and reversing gear. Roundhouse said the cab windows will be glazed and that the locomotive can be ordered in any of Roundhouse's standard colors.

The outside-frame locomotive will have insulated wheels and has a 32mm- or 45mm-gauge conversion kit. It will only be available with radio control and will have no manual version.

In addition to the Garratt, Roundhouse also said last spring that it has released an upgraded version of its "Russell." The 2-6-2 tank locomotive is based on an engine built by The Hunslet Engine Co. Ltd. of Leeds, England,



Builder's photo: *DHR No. 31 at the Beyer Peacock plant. Photo: Wikimedia Commons/public domain.*

and which continues to operate on the Welsh Highland Railway in North Wales.

The new version of the "Russell" will have a "wealth of detail" added and represent it as it currently appears. "Russell" will include a butane-fired boiler, two slide-valve cylinders, simplified Walschaert valve gear and has the adjustable 32mm/45mm conversion kit. The "Russell" nameplate is sold separately.

Roundhouse's North American distributor is The Train Department of Hazlet, N.J. The company said last spring that the first runs of the Garratt are sold out and that the next delivery date will be February or March 2016. The Garratt will retail for about $4600 (depending upon the currency exchange rate), while the "Russell" will be about $2140.

Roundhouse is on the Web at http://roundhouse-eng.com/ or by phone at 01-44-1302-328035, while The Train Department's site is http://www.thetrain department.com/ and its phone is (732) 770-9625.

In memoriam: Peter Jobusch

Lifelong fan of railroads and urban transit systems Peter Jobusch enjoyed rail travel in Europe, Asia, Australia and the Americas and was a collector of model trains of many sizes, but in recent years had focused on outdoor railroading, especially

Garratt in green: *Roundhouse will offer the 0-4-0+0-4-0 in various company colors.*

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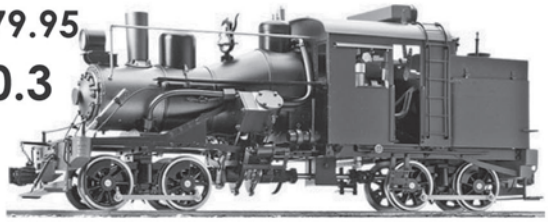

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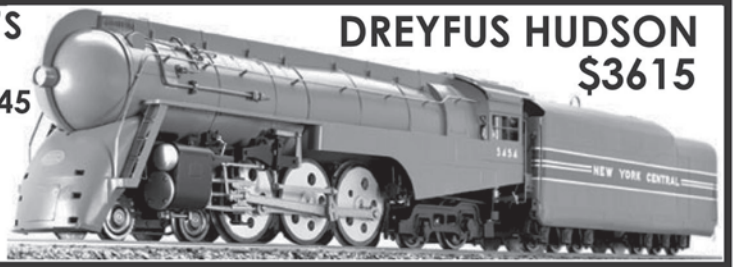

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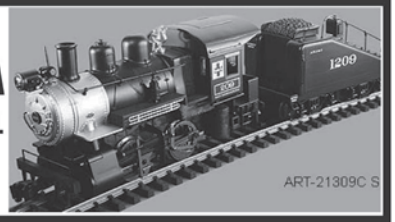

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Peter at the throttle: *Jobusch ran restored S.P. 745 in early 2014 in Louisiana. Photo by Carol Jobusch.*

Hunslet: *A 30-inch gauge locomotive which started life in Sierra Leone is next for Accucraft UK.*

small-scale live steam. His "Mardis Gras," "Tea Time" and other whimsical trains were big hits at the International Small Scale Steamup in Diamondhead, Miss., for years.

Jobusch died on Jan. 25 at age 66 after almost a year of battling cancer.

Peter Jobusch came by his love of trains naturally; he frequently talked of his childhood rides on Wabash Railroad's "Cannon Ball" to visit his grandparents in Indiana. He is credited with helping many live steamers in the Mid-Atlantic region build and operate their backyard railroads, as well as constructing his own in his backyard in Rockville, Md.

Over the years, Peter and Carol Jobusch helped organizers of the Diamondhead steamup with many tasks, and Carol was the event's official photographer. Together they would produce CD-ROMs of photos of the events and provided general audio-visual support in Diamondhead.

After graduating high school in West Lafayette, Ind., in 1966, Peter Jobusch received a bachelor's of science from Purdue University — also in West Lafayette — and joined the U.S. Marine Corps, where he served as a computer-systems instructor at Quantico, Va. He then returned to Purdue as a systems programmer and received a master's of science in industrial engineering. In the early 1980s, Peter was with SAS Institute in North Carolina and then had a 25-year career with the Central Intelligence Agency as a senior scientist.

As well as loving trains, computers and photography, Peter Jobusch was an avid choral and opera fan; he and Carol toured Europe 11 times to attend concerts. The couple were leading members of their church, St. Patrick's Episcopal Church of Washington, D.C., where Peter's life was celebrated March 21, with numerous live steamers in attendance.

In addition to Carol, Peter Jobusch is survived by his father, a brother, a son, a granddaughter and his beloved dog, Woofgang Amadeus.

Accucraft UK goes with African loco

A live-steam model of a 30-inch gauge locomotive built by The Hunslet Engine Co. Ltd. of Leeds, England, that handled switching service in Sierra Leone from the 1950s to the 1970s — and which did excursion service in England from the 1980s until 2010 — has been announced by Accucraft UK Ltd.

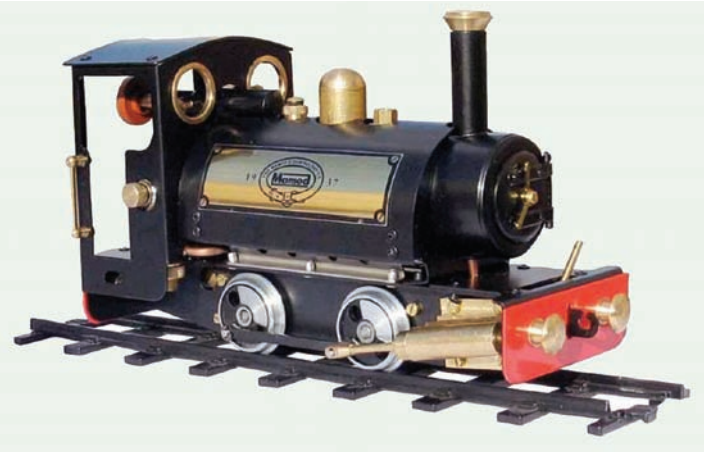
The Welshpool & Llanfair Railway No. 14, which started life as Sierra Leone Government Railways' No. 85, was one of the two last steam locomotives the African railroad acquired. Founded in 1897, the railroad eventually had more than 300 miles and various branches, running from the capital of Freeport to the interior cities of Makeni and Daru.

After the Sierra Leone railroad folded in 1974, No. 85 was acquired by the Welshpool & Llanfair Light Railway in mid-Wales and renumbered to No. 14. The locomotive was used by the W&LLR through until 2010 when its boiler certificate expired; Accucraft UK says the engine is now on display at the National Railway Museum at Shildon, England.

Accucraft UK's model is scaled 1:19 and will have adjustable wheels that can be gauged at 32mm or 45mm. It will have a center-flue boiler with butane firing and a working pressure of 60psi. The boiler fittings include a safety valve, pressure gauge and water gauge, and cab controls will include a steam regulator, reverser lever and lubricator with an under-floor drain valve.

The No. 14 model will have slide valves and use simplified Walschaert valve gears. The locomotive will be 13½-inches long, 4½-inches wide and seven inches tall (350mm by 116mm by 168mm). Minimum operating radius will be 48 inches (1.2 meters).

Accucraft UK said there will be four versions of No. 14, in black, green, blue and red (the latter two have lining livery) and will come in either manual control or fitted radio control. The manual locomotive will retail for about $2760 (£1700), while the radio-control version will be about $3030 (£2000). A limited number of locomotives are available, the company



Back in the saddle, again: *Mamod Ltd.'s latest.*

said, and delivery is scheduled for "this summer."

The Shropshire, England-based Accucraft UK is on the Web at http://www.accucraft.uk.com/ or by phone at 011-44-01694-723799. The company is represented in the United States by Accucraft Trains and its retailers; Accucraft Trains' site is http://accucraft.com/ and its phone number is (510) 324-3399.

Mamod makes a saddle tank

Following the success of its "Diamond Jubilee," Mamod Ltd. of Smethwick, West Midlands, England, said earlier this year it would launch a new saddle tank, which won't have a name but simply will be referred to as the 2015 model.

The company said the new locomotive will have a slight improvement from the "Diamond Jubilee" version in that the oil reservoir seal will be moved to inside the cab. Previous versions of the saddle tank have had the seal on the outside.

The limited-edition "Diamond Jubilee" was issued to commemorate the 60th anniversary of the accession of Queen Elizabeth II. That model was "one of the first ... that came with technology that allowed users to easily switch between gauges to suit their own set."

The decision to go with this style of engine, Mamod said, was "driven by the success of the 'Diamond Jubilee' engine." The company said it "wanted to create a more permanent feature after the demand for the limited edition version had exceeded its supply."

There are a limited number of North American dealers for Mamod; products are available for sale and overseas shipping on the company's web site at http://www.mamod.co.uk and by phone at 011-44-0121-500-6433.

Static park loco to be restored

Council members in Colorado Springs, Colo., voted in March to approve a lease to send a historic 1883 steam locomotive, that has been on display in a city park since 1938, to a Colorado heritage railroad for restoration and operation.

Denver & Rio Grand Western No. 168 is to be moved from Antlers Park to the Cumbres & Toltec Scenic Railroad's restoration shops in Antonito, Colo. The restoration will follow guidelines in order to preserve the locomotive's status on the National Register of Historic Places and "complies with both historical preservation standards and current railroad operating regulations."

The Cumbres & Toltec has previously restored six locomotives and was itself designated a National Historical Landmark in 2012 by the National Park Service.

The city of Colorado Springs and the railroad have signed three, 15-year agreements; no other terms were provided.

The 4-6-0, three-foot-gauge locomotive was built by Baldwin Locomotive Works of Philadelphia, Pa., for passenger use. It has 46-inch drivers, claimed to be the largest used on any D&RGW narrow gauge engine. It is believed to have been used in Denver-to-Ogden, Utah, runs, where the Denver & Rio Grande met the transcontinental railroad.

The Cumbres & Toltec is a joint venture between the states of Colorado and New Mexico and operates 64 miles of narrow-gauge track in both states, running from Antonito to Chama, N.M. The railroad is at http://www.CumbresToltec.com or by phone at (888) 286-2737.

Converting Accucraft's 1:20.3 0-4-0 to a 1:13.7 steam bus

Big 'Dora'

Text and photos by Eric Schade

Last year, I won an Accucraft "Dora" in *Steam in the Garden*'s "Steamie" video contest. I immediately started messing with her. In the November/December 2014 issue I wrote about adding a wood burner stack, headlight and plow.

As I have been working in 7/8ths-inch-to-the-foot scale, I thought it would be fun to see what I could come up with using "Dora." This scale is called 7/8n2 or 1:13.7 scale, and is used to model two-foot gauge equipment running on 45mm gauge track.

Coach coupler: *A one-eighth-inch thick piece of scrap brass connects the coach to 'Dora's' coupler.*

A scaled person is about five inches tall. The stock "Dora" would scale out to about seven-feet long by seven-feet tall and four-feet wide. I had thought of building an amusement-park style engine with the engineer's knees under his chin, but then I saw the "Coffee Pot," a steam-powered rail car from Australia, and that is just what the Maine two footers would have done during lean times to save crew and coal!

I had built a pair of four-wheel "plantation coaches" to pull behind my "SD Warren" tank engine (a modified "Ruby"). One was a four-window-per-side coach, the other a combine. I was no longer using the coach much, so I thought it might be a suitable addition to "Dora." I put the coach and engine together on the shelf above my computer and studied them for a few days and liked the idea.

The coaches were scratch built almost entirely from wood. The car's floor consists of some lengthwise beams with pine board decking. The main beams with the integral wheel journals were cut from one-quarter-inch plywood. Brass tubing served as the axle bearings.

Bits of wood were glued to the sides of the plywood to represent journal boxes, lids and bolts. Painted black and partially hidden under the wide car body they look good. A walnut buffer beam was glued to the platforms. The coach sides were made of plywood and pine strips with additional strips added as interior and exterior detail.

Vertical posts and trim made tracks for movable windows. Originally the coach and combine had

arched roofs. The roof was made removable so that seats and other details could be added. Simple dumb couplers were used, consisting of a curved block of wood with a pin which would hold a link or chain between cars.

I mated the coach and "Dora" by removing one set of wheels from the coach and adding a brass bar which fit into the coupler pocket on "Dora's" rear buffer. The brass bar was made with a hole to accept a pin which secured it into the coupler. At first the height of the coupler was low so that the coach sloped forward. I put a sharp "Z" bend into the end so that the coach would ride more level. It is still a little off, but that just adds "character."

In order to "up-scale" the locomotive, I felt that I needed a higher cab to fit larger engineers, and wider tanks to "puff" up its look. I had several side tanks left over from "Ruby" kit bashes; they actually are pretty similar in size to "Dora's" tanks, being just a bit wider.

Steam bus: *Top, converted to a 7/8ths-scale rail car, 'Dora' drifts into Popham Station on the author's Winnegance and Quebec Railway in Phippsburg, Maine. Bottom, With the car attached to the locomotive, the coupler end has a little 'Z' bend to level the car.*

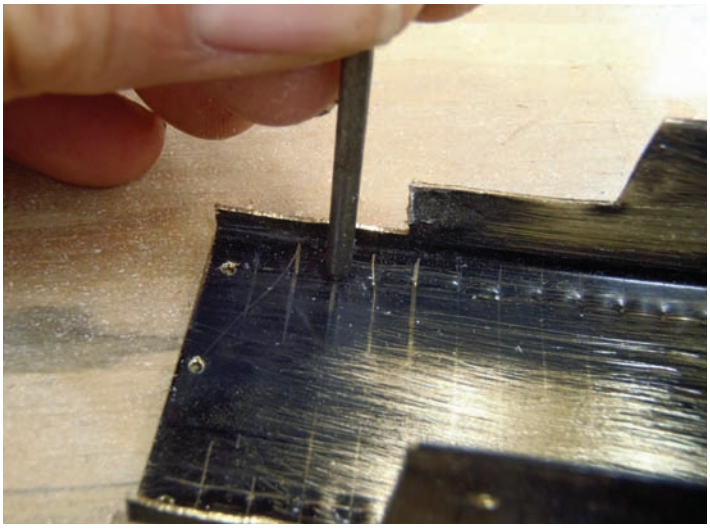
I found that these tanks were soft-soldered brass and easily modified. I trimmed away some of the material to make them fit around the lubricator and fuel tank. I also cut out the inner side so that I could make punched fake "rivets."

I marked lines one-eighth-inch away from the top and bottom and a series of vertical lines 3/16-inches apart to mark the rivet spacing. I used a somewhat dull center punch to form the rivets with a sharp tap from a small hammer and worked on a hard plywood surface. The rivets were not perfectly formed or lined up but they look pretty good.

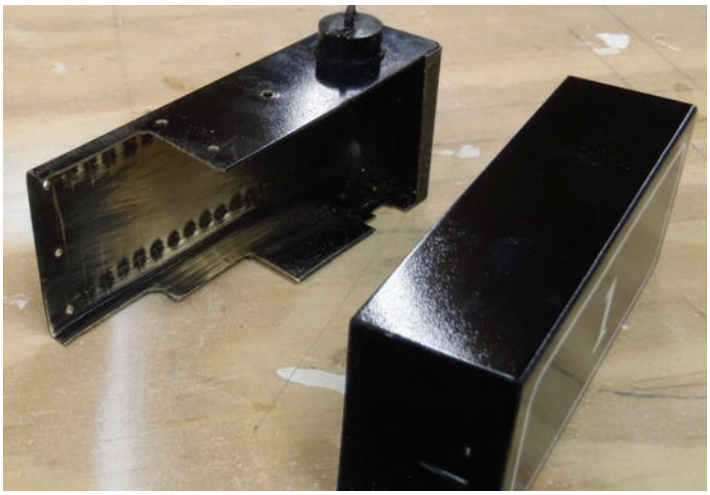
A couple of screws up through the engine deck hold each tank in place. The fill hatches and bell I made last time were installed on the new tanks after painting.

"Dora's" cab is too small for a 7/8ths-inch scale engineer, so a new one was needed. My plan was to make just the cab front and sides attach

Trucks: *Old metal LGB (I think) wheels from my junk bin are the basis with wooden journal and journal pedestal. Bolt heads are just square strip wood bits glued in place. Journal lids are thin plywood. Bearings are a short length of brass tubing.*



Tanks: *Rivets were added to modified 'Ruby' tanks using a somewhat dull center punch and a light hammer, working against a hard plywood surface.*



Counting rivets: *Side tanks from a 'Ruby' were reused because they were wider than 'Dora's' stock tanks and could have added rivet detail.*

Pane-less: *A new wood-and-metal cab front to replace 'Dora's.' Glass windows will be installed later.*

to the locomotive, and the roof attach to the coach.

I started by making a brass plate which attached to the rear of the side tanks, spanning the rear of the boiler.

This turned out to be a tricky project, as the shape was quite complicated. It had to leave room for the lubricator and fuel tank while being far enough away from the dome to look right, and had to have angled sides so the front of the cab would resemble the front of a closed street car. Once done, the plate was painted black and screwed in place.

Two walnut posts served as the cab side and front corners. Holes in the posts allowed them to be screwed to the side tanks. They had to be angled to match the angle of the cab front. Two more posts were screwed to the brass plate.

A cross beam was made to connect the tops of all four posts. The front of the beam was cut to match the angled shape of the cab and the top arched to match the roof. Arched top window frames were added and straight window ledges.

Some pine trim was used to match the light and woodwork on the coach. I made glass windows to fit the front of the cab. These needed to withstand some heat, so they could not be plastic. When complete, I varnished the whole thing with a matte finish. I found that the cab was quite tight and I had to make special allowances to access the fuel filler. I just needed to file a notch in the cross beam to make room for the gas can's filler spout.

I spent quite a bit of time thinking about how to connect the coach and locomotive. The bar-and-coupler pocket system was simple and robust but what to do with the sides and roof? I thought of a roof fixed on the locomotive cab, with some sort of sliding or bellows connection with the coach. That

The coffee down under

Melding a steam locomotive with a passenger car usually produces something like Sonny Wizelman's inspection car "Leo" (see *Steam in the Garden*, No. 122, July/August 2012). But if you look hard enough, there is a great prototype to copy, the Australian "Coffee Pot."

This combination engine-and-car — built on a single, rigid frame — was commissioned by the South Australian Railways for use on lightly used rural routes in 1905. The 2-2-0WT locomotive was built by Kitson & Co. of Leeds, England, while the coach was made by Metropolitan Amalgamated Railway Carriage and Wagon Co. of Birmingham, England.

Two units were built, "Steam Motor Coach No. 1" and "Steam Motor Coach No. 2." No. 1 was used on a 40-mile route from Quorn to Hawker in South Australia, while No. 2 was used in the Mount Gambier district, according to the 1986 book, "Steam locomotives and Railcars of the South Australian Railways."

In 1924, No. 1 was transferred to the Commonwealth Railways, and was taken out of service in 1932. In 1960, Commonwealth moved what it called NJAB1 to a static display at Alice Springs, Northern Territory (almost 800 miles north), and in 1975 the Pichi Richi Railway Preservation Society Inc. of Quorn acquired the steam motor coach and moved it back south.

Java jaunt: *'Coffee Pot' idles at a stop on a 2005 excursion in Australia. Photo: Courtesy Pichi Richi Railway Preservation Society.*

According to the society, the nickname "Coffee Pot" came about because of the little engine's heavy use of water. Barrels of water were stored on the coach's running boards to prevent running out of steam between depots and one railway wit chalked "coffee" and "cocoa" on the barrels; the name stuck.

The volunteer Pichi Richi group was able to get the "Coffee Pot" operating in 1984 and it ran through the late 1990s, when it was taken out of service for much-needed boiler repair. Back in service in 2005, the "Coffee Pot" needed more repairs by the turn of the decade. The group reported in October 2014 that the boiler work was done and it passed its steam test. Pichi Richi said in May that it plans to use the rail car in excursions "within the next 12 months."

In 2000, Australian small-scale live steam builder Rishon Locomotive Works created a 45mm-gauge locomotive based on the "Coffee Pot." It is not quite to scale but it is clearly a "Coffee Pot." There were probably fewer than 100 of the models built and but a handful are in North America.

And, as reported in the last issue of *SitG*, at least two other hobbyists have converted their "Doras" into steam rail cars.

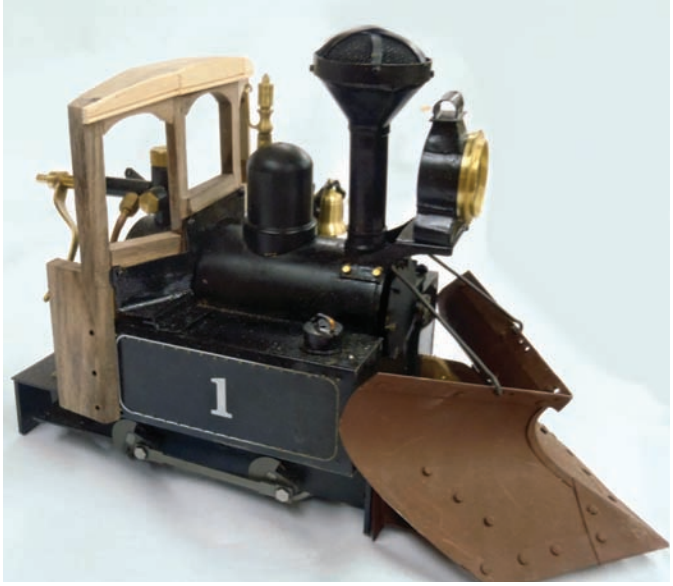
— *dmc*

certainly would work but might be tricky and could limit the motion between the two units.

Settling on the idea of making the coach roof extend forward over the locomotive's cab, I realized there would be motion between the two but a small gap would take care of that. The roof would need to be removable to allow access to the fuel and oil. Access to the throttle and reverser would be through the side "doors."

I had built a simple arched roof for the coach with extensions forward and aft of the coach body to cover the boarding platforms. I could easily enough extend the "front porch roof" over the cab. Then I thought while I was at it, why not make a completely new roof with a long extension that drooped down like a street car. I could add a clerestory to boot.

The roof was made, boat-like, using pre-sawn beams running from side to side and planking running forward and aft. The pre-sawn beams were cut out of one-eighth-inch plywood to the shape of the roof which included the clerestory. I nailed several pieces of plywood together and cut them all at the same time



Transformation: *With new side tanks and cab front, the engine takes on a different character.*

Top: *Coach roof was extended forward to cover cab.*

on my band saw so that they would be identical.

Simple arched beams were used for the porch extensions over the cab and platform. The beams were glued to the letter-boards and a pair of inner trim boards, then pine sheathing was glued lengthwise across the beams using cyanocrylate adhesive (Super Glue).

At the front and rear where the roof droops down, the strips were just bent down by hand and glued in place with the glue and a spray of accelerator. Once complete the entire roof was sanded then painted with diluted carpenters glue, and a layer of old bed sheet spread on to cover the entire roof. Extra coats of diluted glue and red paint were added to seal the cloth.

The coach windows and clerestory windows are plastic. I rescued the material from clear packaging from some product or other. The plastic was cut into panes and assembled into wooden frames made from walnut strips with slots sawn in them.

I arched the tops of the windows to give them that Victorian look. I added a pair of figures I was given as passengers riding the bench seats, and a conductor and engineer make themselves useful as the need arises.

In operation, the rail car works quite well. The "Dora" power plant has plenty of energy to pull the light coach and will easily pull a trailer if necessary. It seems to handle fairly rough track and smallish radius curves happily enough.

Servicing the engine is easy enough because the roof comes off giving good access. I made an extended handle for the throttle which makes it easy to reach while the machine is in operation.

I had good fun with this project. I think it makes a pretty believable rail bus even if none exactly like it ever existed here in Maine.

Rear view: *The steam rail bus approaches the Winnegance station.*

Regner's new Climax is easy to assemble and runs well

Classy Class A

Text and photos by Shawn Viggiano

My favorite locomotive has to be the Class A Climax. I have always been intrigued by this engine because of its wood construction, which gives it an authentic old backwoods feel — plus I'm a fan of unusual and simple locomotives. The Climax fits into these categories because there were so many variations. Every logging company modified the Climax one way or the other to fit their needs.

When I first saw pictures of the Class A Climax, I immediately wanted one, but the only issue was that no one produced the Class A Climax. My solution was to build one. I built my first battery-powered Climax, which was more of a static display with a non-working marine engine and gears.

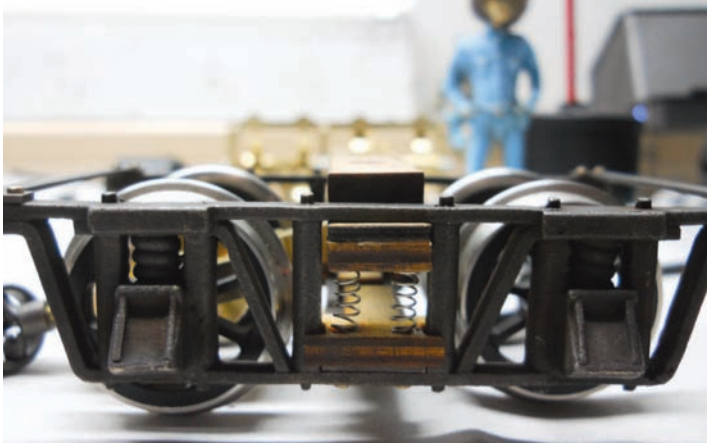
Winter forest: *Author's Class A Climax on his railroad in Wantage, N.J.*

When I got into live steam I decided to make something similar to my battery-powered Climax. I gave it the appearance of a Class A, with the wooden body and cab. The difference was, it didn't stay true to the mechanics of the original engine.

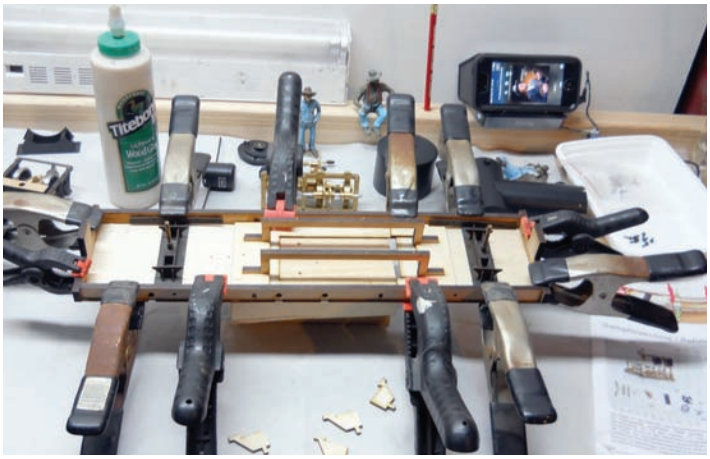
Then, just a little more than a year ago, Jason Kovac from The Train Department of Hazlet, N.J., posted a list of the new live-steam locomotives that Regner Steam and Railway Engineering GbR of Aurach, Bavaria, Germany, would be producing. One of them happened to be the Class A Climax. It was going to be produced in the three boiler arrangements, offering the same three configurations as the prototypes: straight, T- and vertical boilers; Regner subsequently said buyers expressed no interest in the vertical configuration, so it never went beyond a pilot model. The Regner Climaxes were also going to be kits, which would require assembly.

I started saving up my money and eventually put a deposit down on one. Then January came around and I got a call that my Climax had arrived. Rather than wait for it to be mailed, I took the 90-minute drive to pick it up.

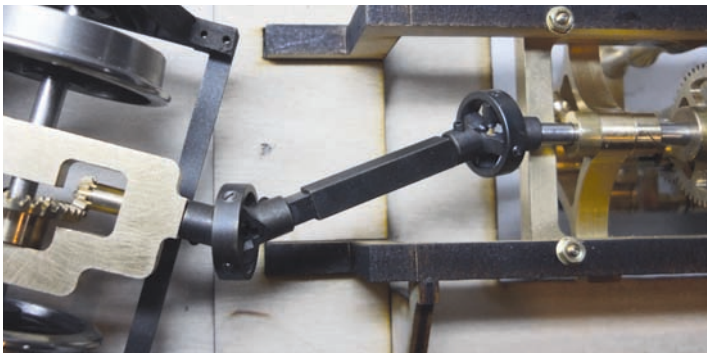
Components: *Parts for the Class A in Regner's kit.*



Trucks: *Wheels attached to bolsters.*



Glued: *Frame and deck held together with clamps.*



Geared: *Drive shaft connects motor to wheels.*

The kit and assembly

That evening I sat down and opened the box. All the parts for the kit were neatly wrapped in tissue paper and packed tight in the box so no shifting would occur during transport. The first thing I did was take the instructions out and read them over.

To my disappointment, the instructions were written in German. Unfortunately for me, I do not speak or read German! Apparently this is a common problem with Regner products, but I was unaware of this because I had built a "Lumberjack" and its instructions were in English.

I was able to come up with a solution by scanning the instructions into a PDF format and then passing those files along to Google Translate, which made the words comprehensible. The directions also had pictures as infographics. I would not recommend relying solely on the pictures if you have never assembled a live-steam engine.

The assembly went fairly smooth, considering I relied on a translated version of the instructions. It also helped that the parts needed for each step were placed in separate numbered bags so there was no question as to which screws were for what step.

While Regner provides proper-sized Allen wrenches and hex-nut drivers in all its kits, a mistake was made and mine didn't have them; this wasn't a problem for me, as I had built other Regner kits and used those tools.

Also making assembly easier were the laser-cut wood parts and decent quality wood material. There is no soldering required, which makes it a great kit for a beginner and able to be completed in a few days.

Regner Class A Climax kit

- **Prototype:** Climax Manufacturing Co., eight drivers, 1888-1924. Cylinders: 7½-inch diameter, seven-inch stroke. Drive wheels: 27-inches. Boiler pressure: 160 psi. Tractive effort: 9680 pounds. Average weight: 44,000 pounds.
- **Scale:** 1:22 at 30, 32 or 45mm gauge.
- **Length:** 16 15/16 inches (430mm).
- **Height:** 6 11/16 inches (T-boiler; 195mm); 6 7/8 inches (straight boiler; 175mm).
- **Width:** 5 3/32 inches.
- **Boiler:** Single flue, poker burner; 150ml (5.1 ounces).
- **Fuel:** Butane.
- **Min. radius:** 23 5/8-inches (R1; 600mm).
- **Cylinders:** Two; 5/16-inch bore (8mm), 3/8-inch stroke (10mm); Teflon.
- **Fittings:** Throttle, water-level gauge, sprung trucks, two-speed gear box.
- **MSRP:** T-boiler — $2233; Straight boiler — $2212.

Climax to the max

In order to haul logs to his mill in Spartansburg, Pa., lumberman Charles Darwin Scott created a geared steam locomotive in the mid-1870s. That work lead him to invent the Climax, but it wasn't until 1888 that the first Climax locomotive was built by the Climax Manufacturing Co. in Corry, Pa.

Early Climax locomotives were basic: vertical boilers, a two-cylinder motor, a flat, round water tank, a fuel bin and four-wheeled trucks. Power was transmitted to the axles by gears and a differential arrangement (like what we know today in a car) and driven by a line shaft connected to the engine using a two-speed gear box — this was referred to as a loose-wheel arrangement. The frame, cab and trucks were all made from wood. It was later found that this configuration was insufficient, because pulling power was lost while negotiating sharp curves.

The trucks were redesigned to eliminate the differential gears. A beveled skew gear was used instead and the wheels were pressed tight onto the axles – this came to be called the tight-wheel arrangement. The trucks were also redesigned to use a steel arch bar with individual springs over each journal. This allowed the locomotive to negotiate rough track.

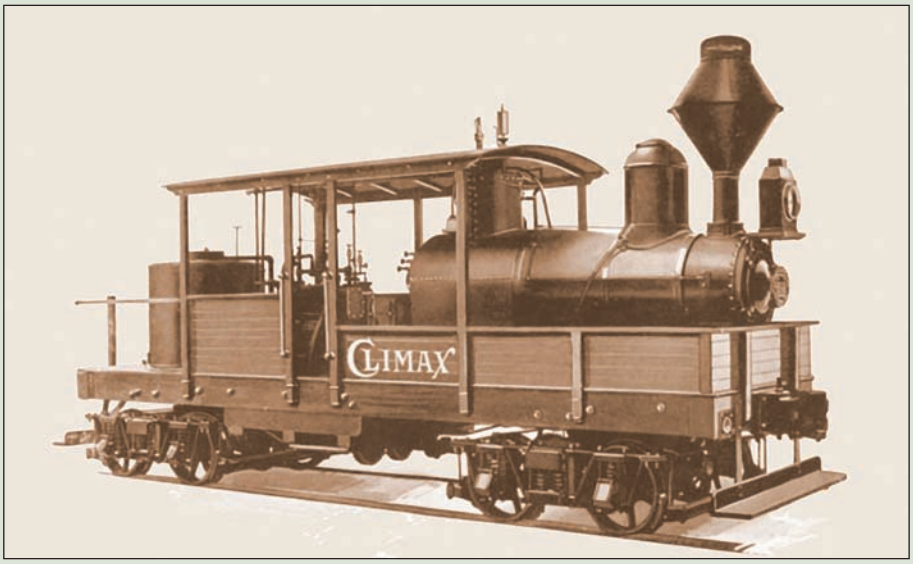
Sometimes referred to as "the poor man's engine," two main features set the Climax locomotive apart from the rest. One was the two-speed gear arrangement that connected the engine to the longitudinal line shaft that is connected with the axles in the center. The two speeds were high and low; low speed would be used for pulling heavy loads and climbing steep grades.

The other main feature of the Class A was Climax's uncomplicated design. Because it was simple and made from wood, a locomotive could be built inexpensively and easily repaired out in the woods.

The Class A, which came in sizes from 17 to 62 tons, had a few variations. The original open-cab style was usually modified by the owners. The manufacturer later changed the open cab style to an enclosed cab. There were even a few built to completely enclose the locomotive. The standard round, flat water tank was replaced with a larger square one. The vertical boiler was replaced with a T-boiler, and later on the T-boiler was replaced with a taper-shell boiler. Finally, a larger straight shell boiler was added. After 1911 the main frame was redesigned using steel.

Climax had enduring success in building locomotives. According to the web site ClimaxLocomotives.com, the company continued to innovate, creating Class B and Class C engines that used a unique angled-cylinder configuration, and ranged up to 100 tons in gauges as narrow as two feet up to nine feet. The site says the company sold between 1030-1060 locomotives over a 40-year period. Climax Locomotive was sold in 1928 to a firm that continued to provide spare parts but that no longer built engines.

— S.V.



Simple: *Wood-constructed Class A (tapered boiler). Photo: 'Climax Geared Locomotive Catalogue "L,"' 1923; Dave Cole collection.*

While connecting the drive shafts I noticed the back shaft was too long, not allowing the truck to go straight. After looking everything over and making sure I hadn't missed anything (because all holes are pre-drilled it's hard to be off on the placement of things), I decided that I had to cut some of the shaft to shorten it. This was an easy task using my rotary cutting tool (Dremel) and a file. After putting the shaft back together I was able to swing the trucks around with nothing getting tight.

All the brass parts were then darkened — I debated long and hard on whether I should darken the brass or keep it shiny. The fact is it would not be

— Continued on Page 28

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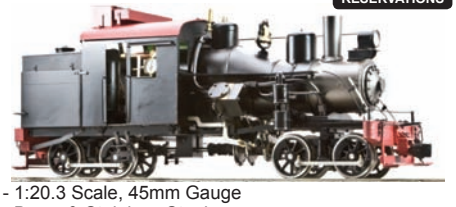

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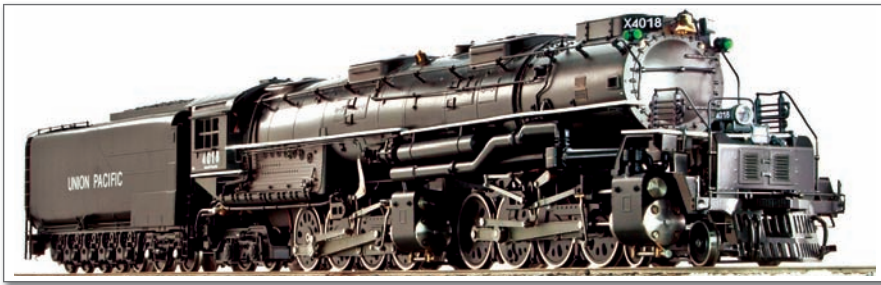

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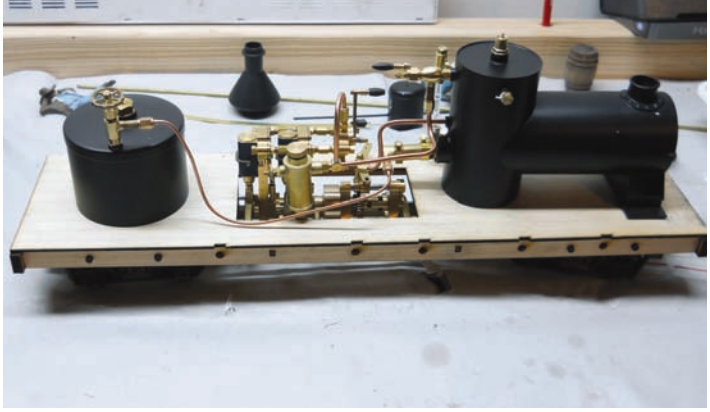
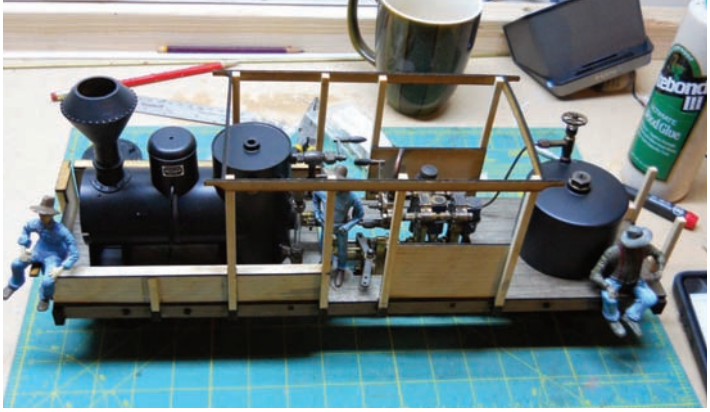


Bolted: *Gas tank, motor and boiler are installed.*



Cab: *Uprights and walls are placed on the deck.*

— Continued from Page 25

a logging engine if everything was pretty and that made up my mind.

I also started to weather the wood some, using India ink and alcohol. A few coats were applied until I got the look I was after. Once that was completed the boiler, gas tank, stack and piping were all hooked up and the cab was fitted.

The only issue I ran into was the screws. The two screws for the gas tank were too long. I solved this by cutting them shorter; not a big deal. I also broke one of the hex heads on the screw when screwing into the tank. You have to be super careful with these, as the heads will snap easily if they are overtightened even slightly.

Specifications and testing

The Class A Climax kit comes in two boiler arrangements, a T-boiler (the one reviewed here) and the later straight (or tapered) boiler. Regner says the scale is 1:22, but my 1:20-scale figures fit comfortably inside. Both the models share the same frame, trucks, "Lilly" motor and gas tank.

The cab and boilers are all slightly different but similar in style. The all-brass construction motor has Teflon pistons and like the prototype, has a two-speed gearbox (high/low). The T-boiler holds 150ml of water (5.1 ounces) when filled to the top and the gas tank is large and will hold more than enough gas.

According to Regner specs, the Climax is all-axle driven, but in fact only one axle per truck is actually powered. This was a little disappointing because the prototype would have been all-axle driven. The trucks are all sprung, can handle R1 curves (two-foot radius) and can be adjusted to 30, 32 or 45mm gauge (the first is a rare gauge used by hobbyists who believe 32mm track is out of scale for two-foot gauge at 1:20.3).

My first test was to check for any steam or gas leaks. I started by oiling all the moving parts. The motor itself has a few small cups for oil, a nice feature. I filled the gas tank with butane until it was full but had trouble lighting the burner and keeping the burner lit because I kept getting gas spitting out (this was because of the cold temperature in my basement). Eventually I got the burner to light. As steam started to build, I noticed a few of the steam lines had leaks. These were easily fixed by tightening the connecting nuts.

One thing that disappointed me was the fact that Regner does not provide a pressure gauge. I didn't bother to check this because I assumed it came with one, since all my other Regner Easy Line engines had. You have to depend on the safety going off to tell when it's up to steam. It would also be nice to see what the pressure is while the locomotive is in motion.

When the safety went off I turned the throttle up and after the cold water cleared from the cylinders, off it went. The engine went at a nice slow speed when in low gear. High gear increased the speed but also lessened the power.

My first test was cut short because of the cold of my basement; with the gas tank so far from the boiler, it has no way of staying warm. As time went on, the burner had a hard time keeping up pressure.

For my second test, I used a hand warmer placed over the top of the gas tank. I also added a pressure gauge off of my Regner "Konrad." That way I could get a better idea of where the pressure was at. With the hand warmer on top of the tank, the burner lit on the first try.

The safety went off at three bar or 43 psi and took six minutes. I got about 25 minutes of run time on one boiler fill. Using Regner's top-off system will give you over an hour and 45 minutes run time (I gave up after the 105 minutes). I was pleased with the run time and on flat track it would steam at about 1.5 bars or 21 psi with no problems.

My third test run was with log cars. I used three log cars weighted with real logs. The first thing I noticed was I had some wheel slippage in the start. Turning the throttle up helped the engine to move forward. Throughout the run there was wheel slippage, especially on the slight grade.

I think adding some weight over the driving wheels will help with traction, since the engine is made mostly from laser-cut wood. I feel more weight on the engine would make a big difference. Having all the axles driven would have helped as well. It has the earmarks of being a strong puller.

Completed: *Regner Class A Climax out for a run last winter on the author's railway.*

Additions

The Climax has a lot of kit-bashing potential and plenty of room for some additional personalization — for example, I added a pressure gauge. Because the gas tank is large, the boiler will run out of water before the gas, so I added Regner's top-off system (similar to a Goodall valve).

I also changed out Regner's proprietary gas filler valve with the more common Ronson valve. Future plans include figuring out a way to keep the gas tank warm for cold weather running. One option might be to install a smaller gas tank next to the boiler or routing a hot steam line around the gas tank.

I also was able to get a Summerlands Chuffer made to fit the Climax, which made a big difference in the sound. I tried one of the new FX controls on the chuffer so I can adjust the sound and steam plumes. Another plan is to add a whistle and other smaller details to give it a unique look.

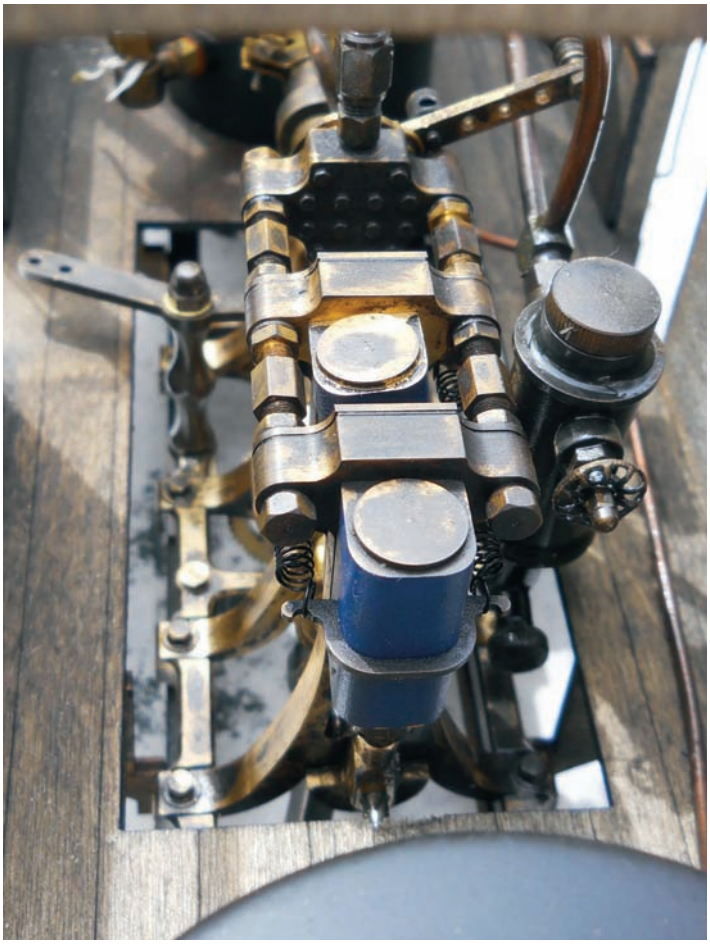
The wood beams were glued together and then reinforced with small hex screws for added support. To help give it better traction, some extra weight over the driving wheels will help.

Since Regner does not provide a headlight for the Climax I decided to get the same headlight that is found on the Regner "Lumberjack." The holes are already pre-drilled making it easy to add.

Conclusions

After running the Regner Climax a few times at home and at shows, I feel I made a good choice in my purchase and would definitely do it again, even knowing the flaws mentioned above.

Regner has a good reputation, its live-steam trains are always my most reliable and it is always a pleasure dealing with Jason Kovac from The Train Department when I need something for my Regner engines.



Motor: *Cylinders in the center, oiler to the right.*

Make nice cylinder-head covers and learn a new skill

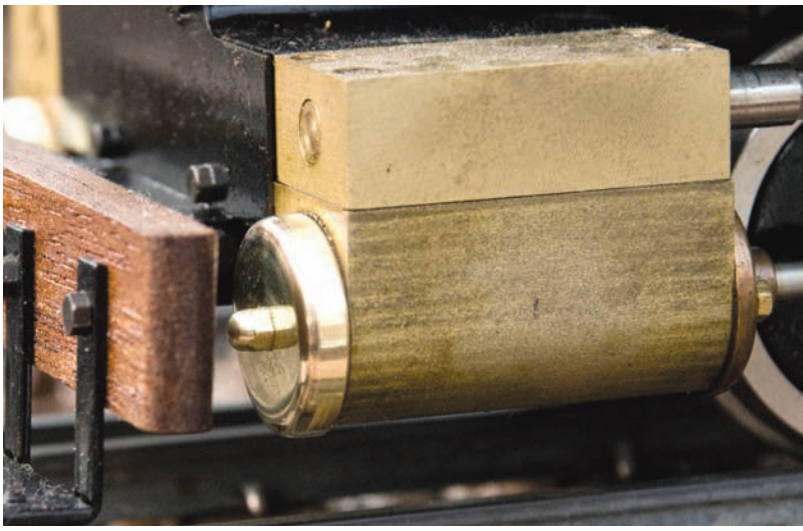
SPINNING METAL

Text, photos and illustration by Marc Horovitz

Most full-size steam locomotives have nicely made sheet-metal covers over their cylinder heads, which give the engines a more finished appearance. Many of the commercially available models today have exposed cylinder heads with unsightly bolts or (worse) screws holding them on (**Photo 1**). If you have a lathe, you can custom make cylinder covers for just about any engine that needs them.

Spinning is an ancient technique whereby a piece of sheet metal is held to a form in a lathe. While the lathe is spinning at high speed, the metal is forced over the form with hand tools, causing it to assume the form's shape. It's a craft that, once mastered, can be used to make any number of beautiful and complex objects. Cylinder-head covers are pretty simple and, with a little practice, should be attainable in your home workshop.

The covers we'll be making have four components, including a screw and a nut. The other two are the cover itself and a decorative cap or acorn nut. We'll be making the latter two items, starting with the acorn nuts. However, before that, it will be necessary to make the spinning form and also a spinning tool.



'Ruby' dressed for the ball: *Locomotive cylinder heads, as supplied by the manufacturer, are often unsightly. A little work and some new skills will turn them into things of beauty.*

The form

I made my form out of brass but any metal will be adequate for this project — aluminum, brass, or steel. Measure the outside diameter (OD) of the cylinder head you wish to cover (**Photo 2**). I'm making covers for an old Accucraft "Ruby," just because I had one lying around. I removed the front beam to get to the cylinders.

Chuck up a piece of metal in your lathe, somewhat larger than the OD you just measured. Turn a half inch of the end down to the diameter of the cover, or maybe 0.003-inches bigger. Once that's done, round the corner off nicely with a flat file — don't leave it too sharp but don't make it too round either (**Photo 3**). Smooth everything off with some fine sandpaper.

With a tiny center drill, lightly dimple the end of the form, then drill one-quarter-inch or so into it with a No. 50 drill. Tap the hole 2-56 (**Photo 4**). Remove any burrs that resulted. Take a 2-56 screw that's longer than one-quarter-inch and screw it tightly into the hole.

With a jeweler's saw, cut the screw off so that only about a 1/16-inch stub remains (**Photo 5**). Mark the form so that you can put it back in the chuck the same way. I just put three dimples in mine with a center punch next to jaw No. 3 on my chuck (**Photo 6**). Remove the form.

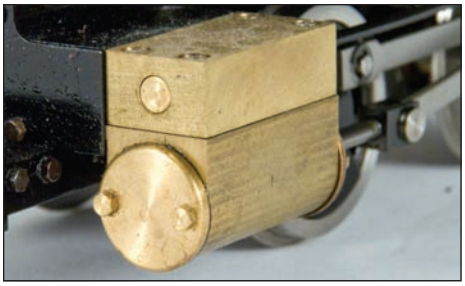


Photo 1

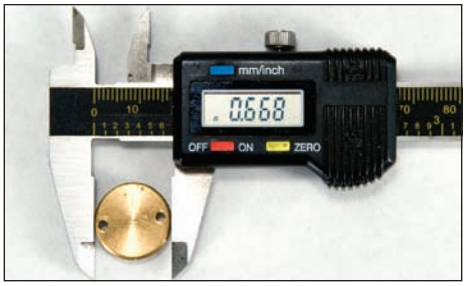


Photo 2

Photo 3

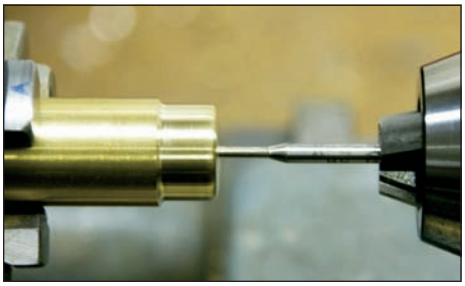


Photo 4

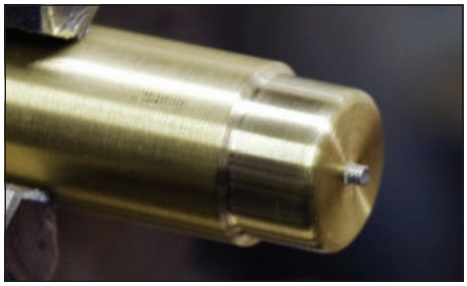


Photo 5

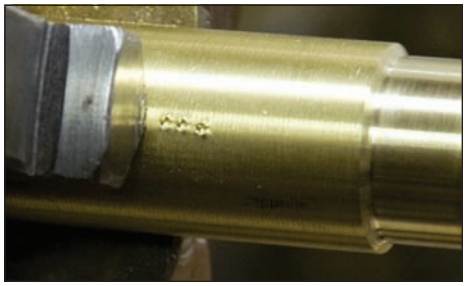


Photo 6

Take another piece of rod that's about the same diameter as the flat face on the end of the form (i.e., not including the curved edges — the exact diameter doesn't matter that much) and chuck that up. Deeply center drill the end with a medium-size center drill (**Photo 7**). Then part off a piece that's beyond the end of the center-drill hole (**Photo 8**). Reverse the piece in the chuck and lightly dimple the end with a tiny center drill. Then drill through with a No. 43 drill. This piece will be used, with your live center, to hold the work to the form.

The tool

The spinning tool itself is an important bit of kit and is worth spending some time on. It's basically just a wheel on a long stick. However, the stick needs to be stout and the wheel should be free rolling. **Figure 1** shows a design similar to my wheel. Since I already had my wheel on hand, I'm going to leave it to you to make your own. It should be a straightforward job.

The exact shape of the wheel isn't that important but it should be fairly small and able to get into tight places. (If you get seriously into spinning, you'll want several tools with different wheel shapes.) My wheel is brass, which is adequate for a few spinnings. However, if you intend to do a lot, I suggest using steel. It is important that the business edge of the wheel be highly polished—it could mark the work otherwise.

The handle for the wheel should be fairly long — 18- to 24-inches would be good, as you'll need some leverage. I used a piece of rectangular brass for mine, milling out a slot for the wheel on one end. The wheel can be seen in **Photo 9** and the entire tool in **Photo 10**.

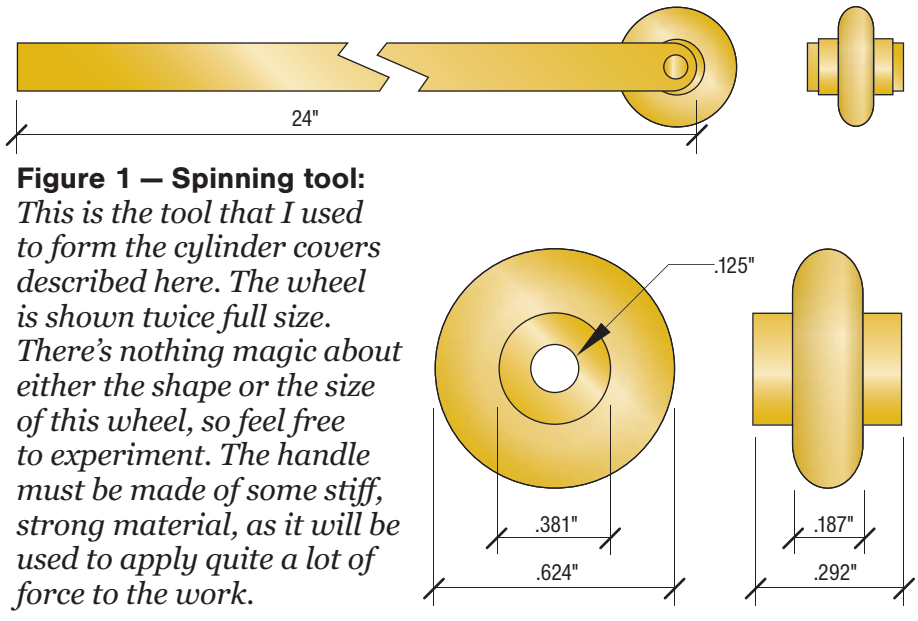


Figure 1 — Spinning tool: *This is the tool that I used to form the cylinder covers described here. The wheel is shown twice full size. There's nothing magic about either the shape or the size of this wheel, so feel free to experiment. The handle must be made of some stiff, strong material, as it will be used to apply quite a lot of force to the work.*

The acorn nuts

Set the spinning tool aside for now, as the acorn nuts come next. These will be made of one-eighth-inch hex brass. It's best to shine up the metal before working on it, as it's more difficult afterward. A little 600-grit sandpaper followed by some No. 0000 steel wool should do the trick (**Photo 11**).

Chuck a piece in your three-jaw with about one-eighth-inch or so sticking out. Face off the end dead flat. With your tiny center drill,

Photo 7

Photo 8

Photo 9

Photo 10

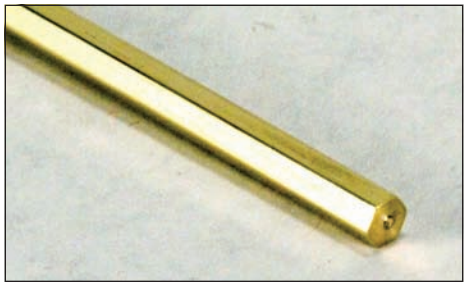


Photo 11

Photo 12

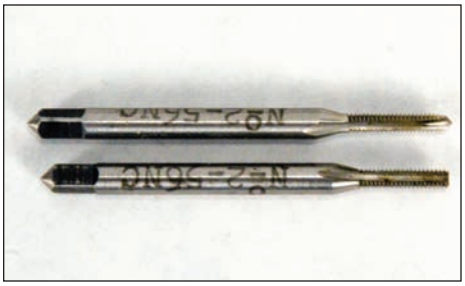


Photo 13

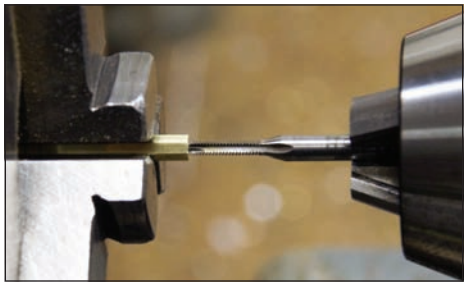


Photo 14

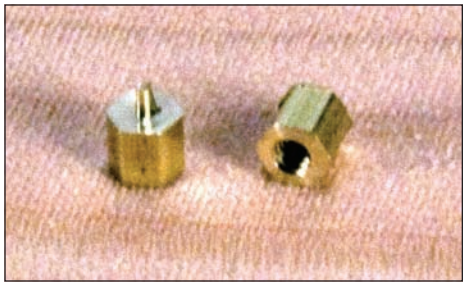


Photo 15

dimple the end. Then, with a No. 50 drill, drill into the end 3/32-inch (0.094-inch — **Photo 12**). If you don't have a way of measuring the depth of the hole as you drill, measure the drill and wrap a piece of tape around it, 3/32-inch from the end to use as a guide.

The resulting hole will be tapped 2-56. For this you'll need two taps — a taper tap and a bottoming tap (**Photo 13**). If you don't have a bottoming tap you can easily make one by carefully grinding the taper off a taper tap, leaving only full threads at the end of the tap and a square end. Start the hole with the taper tap (**Photo 14**). When it hits bottom, go back with the bottoming tap and finish the thread. Work slowly and carefully to avoid breaking the tap and you should be fine.

When the tapping has been satisfactorily completed, part off a one-eighth-inch-long blank. Now repeat the process for the other nut blank (**Photo 15**).

When you've got two nut blanks, return the spinning form to the lathe. Tightly screw a blank to the threaded projection on the end of the form (**Photo 16**). Turn off the hex sides half the length (1/16-inch) of the blank (**Photo 17**). Then, with a small flat file, carefully round the end of the nut until it looks as hemispherical as you can get it (**Photo 18**). When you're happy with it, polish it up with some 600-grit and No. 0000 steel wool. Repeat for the second one (**Photo 19**).

Modifying the cylinder heads

Before you do the actual spinning, the cylinder heads must be modified. This is a fairly simple procedure but you'll need to make a fixture — a split chuck — to hold the head. To do this, find a piece of rod that's one-eighth-inch to one-quarter-inch larger in diameter than the cylinder head. Any material will do. I used brass for mine.

Cut off an inch or so and chuck it up. Progressively drill through the piece until you've drilled the largest hole you can through it. For me, this was one-half-inch, which should be big enough (**Photo 20**).

Recess the face of your work piece just slightly deeper than the thickness of the cylinder head (**Photo 21**), and to a diameter that just allows the head to slip into it (**Photo 22**). Remove the piece from the chuck and saw through one wall with a hacksaw, then clean up the burrs. Your fixture is finished (**Photo 23**).

Slip a cylinder head into the fixture, with the inside facing out, and place it in your three-jaw, making sure that the fixture's slit is between two of the jaws. When you tighten the chuck, the fixture

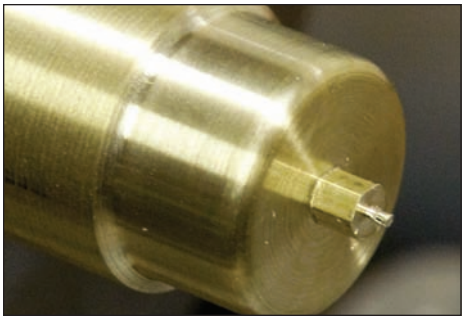


Photo 16

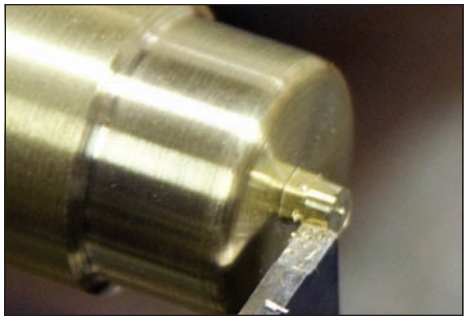


Photo 17

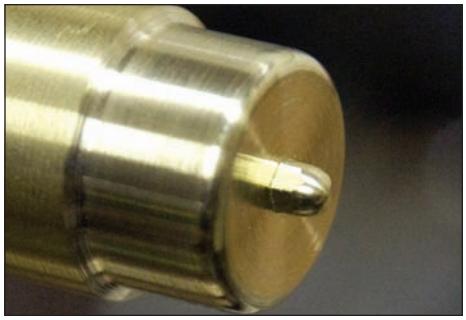


Photo 18

Photo 19

Photo 20

Photo 21

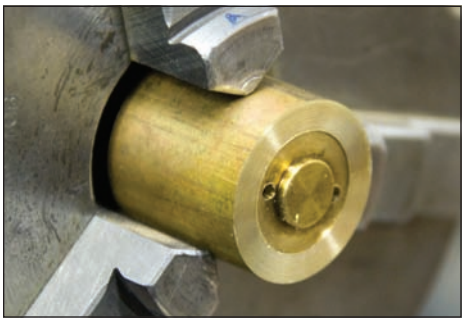


Photo 22

Photo 23

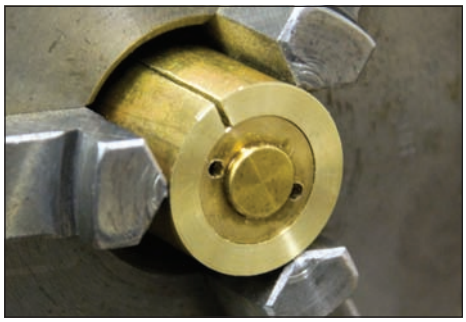


Photo 24

will compress slightly, holding the cylinder head firmly and concentrically in place (**Photo 24**).

Dimple the inside of the cylinder head with a tiny center drill and drill through No. 43. Then, using a countersink or a center drill, countersink the hole (**Photo 25**) so that the head of a flat-head 2-56 screw is flush with the surface (**Photo 26**). If the head of the screw protrudes slightly it will be okay, as there is room inside the cylinder for it, even when the piston is at front dead center. Do the same for the other head.

When both are done, insert a 2-56 screw in each and put a nut on the outside (**Photo 27**). The screws should be brass or stainless steel. Their length doesn't matter, as they'll be trimmed later on. You might want to run a little bit of sealant around the head of the screw. I like Loctite's "Gasket Eliminator." The cylinder heads can be set aside for now.

Spinning the covers

Many metals can be spun, with a greater or lesser degree of ease. Soft aluminum is perhaps the easiest. Copper also works well, as does brass. The latter two require annealing before work can begin. I have not done a great deal of spinning but I have done some, including spinning copper hemispheres from flat sheets that were later joined to make spheres.

For the project at hand I did several test pieces using brass, aluminum, and tinplate. All worked well. For the cylinder-head covers, I would suggest using copper or brass sheet. I have some 0.007-inch brass shim stock, which worked fine. The metal you use should not be more than 0.010-inch thick.

Start by measuring the thickness of the cylinder head. If the head has an internal step, like the "Ruby's," don't include that dimension. Then measure the thickness of the nut on the outside and add the two dimensions together. For mine, the final dimension is 0.140-inch. Multiply that by two-thirds (0.094-inch). Add that dimension to the radius of the cylinder head, then set your caliper to that number (0.428-inch).

Cut up some squares of sheet metal that are a little more than twice that dimension in both directions. Make a few of them, which will give you several to play with. Make a little dimple in the center

Photo 25

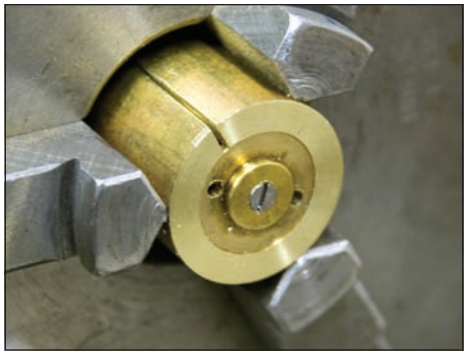


Photo 26

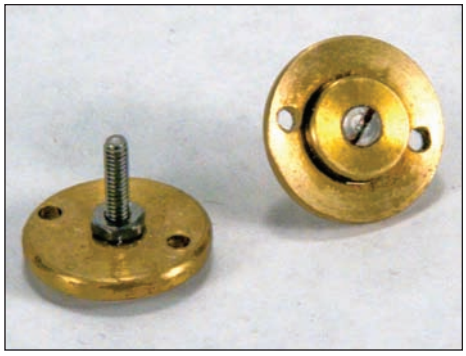


Photo 27

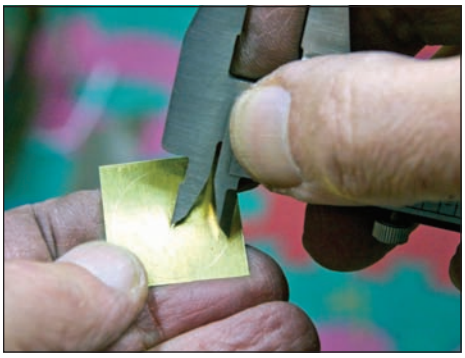


Photo 28

Photo 29

Photo 30

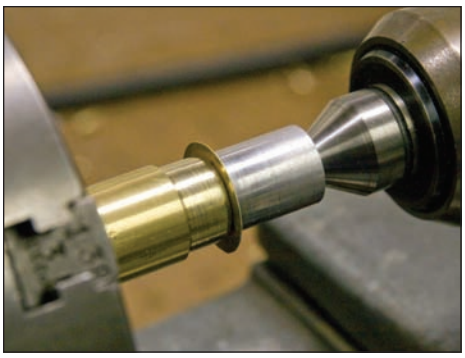


Photo 31

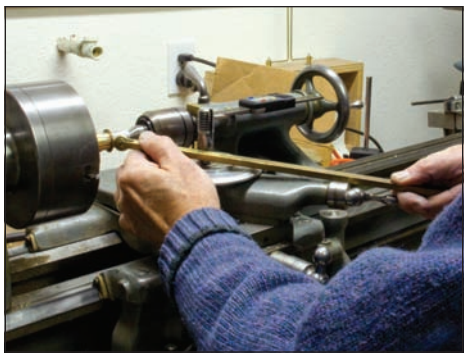


Photo 32

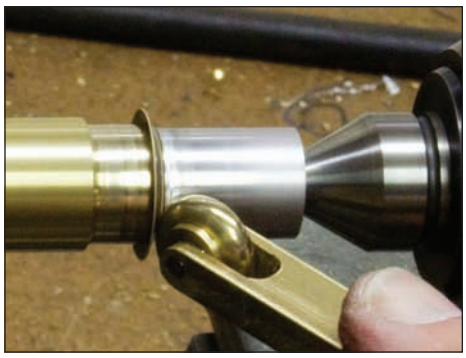


Photo 33

of each with something sharp, then use your calipers to scribe a circle on each one (**Photo 28**). With a pair of scissors, cut out the circles. Then carefully drill through the centers with a No. 43 drill. Clean off the burrs (**Photo 29**).

Now anneal all of the circles with a torch. Bring them up to cherry red, which should only take a few seconds (**Photo 30**), then let them cool. Don't worry about any discoloration.

Return your forming tool to the lathe. Place one of the circles over the threaded rod protruding from the end. Then slip the retainer piece over that, engaging the center-drilled end in the live center, as per **Photo 31**. Use the tail stock wheel to apply quite a bit of pressure to the assembly.

To do the spinning, use the wheel of the tool you made to actually do the shaping of the metal over the form. To apply the pressure that's required, you'll need a pivot or fulcrum against which you can press the arm of the tool as a lever (**Photo 32**). I use the vertical post that's part of a multi-tool holder, which I've disassembled for this purpose.

A proper spinning lathe is a specialized machine that has tool posts and accessories that are different from those on a turning lathe, such as we use, but we can still get acceptable results with our machines. The fulcrum should be positioned close to the work and to the right of it. With a little practice you'll get a better feel for where it should be placed.

Don't hesitate to move the fulcrum during the process, too. As an aside, I suggest that you go to YouTube.com and do a search on "metal spinning." Watching the pros do it is an education in itself and will put you in the picture a lot better than these written words.

Set your lathe at its highest speed, then give it a go. Start where the work piece emerges from under the retainer and try to form the rounded corner. **Photo 33** shows the first step. In **Photo 34**, the ful-

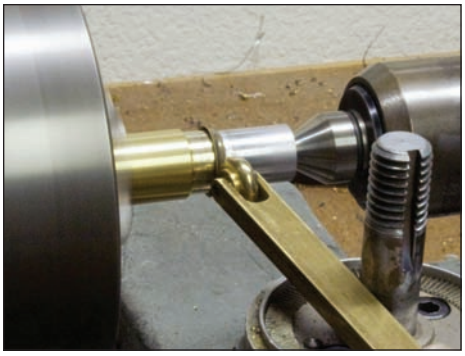


Photo 34

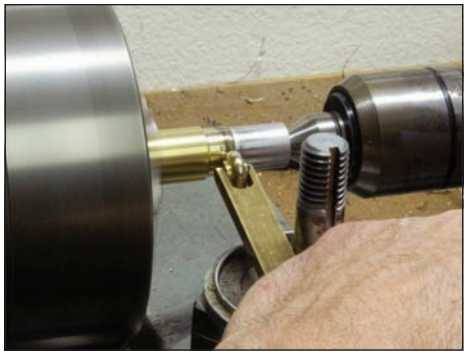


Photo 35

Photo 36

Photo 37

Photo 38

Photo 39

Photo 40

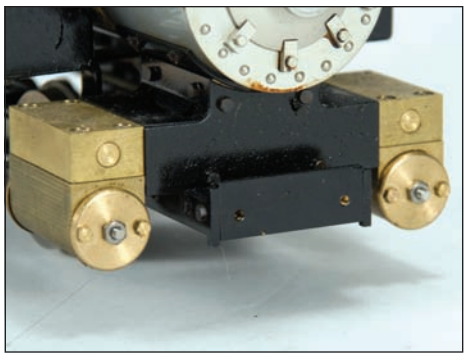


Photo 41

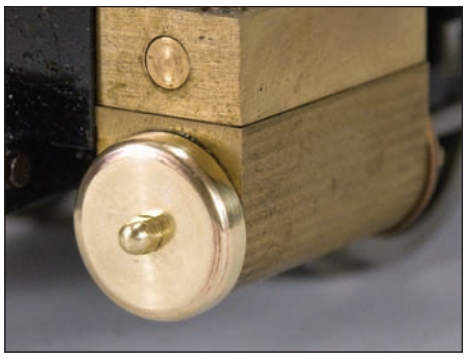


Photo 42

crum has been moved to the left for better access to the side of the cover. The fulcrum was moved again in **Photo 35** for more side smoothing.

A lot of pressure is applied along the axis of the spinning tool, directly into the work. That's why the tool's handle is long and robust. Work slowly and carefully. Once you've got the hang of it, you'll find that you can form the entire cover without any further annealing.

Even though the metal allowance for the sides was only two-thirds of the required dimension, the metal will stretch and the sides will be quite long enough. **Photo 36** shows all of the rough pieces I did for this project, using a variety of different materials.

All that remains is to finish the covers. Choose your two best ones. Put one back on the form, using the retainer piece and the tail stock to keep it in place, and measure the point at which the excess material should be trimmed off, leaving the cover at its proper size.

Using a sharp-pointed tool in the lathe, slowly advance the tool into the work until the waste piece is cut free (**Photo 37**). If that has raised a burr on the cover, you can use your spinning tool to press it down again. While the piece is still on the form, polish up the edges with some 600-grit paper, followed by No. 0000 steel wool (**Photo 38**). Do the same on the other cover.

Remove the cover from the form and sand the flat surface with some 600-grit paper until all of the discoloration has been removed. Then replace it in the form. You won't need the retainer piece this time. Using the steel wool, polish the face of the cover while the lathe is spinning (**Photo 39**). The finished covers can be seen in **Photo 40**. You can spray them with a clear coat if you want to retain the shine.

Replace the cylinder heads on your locomotive, being sure they are properly sealed (**Photo 41**). When all is good, put the shiny new covers in place on the cylinder heads, secure them with the little acorn nuts (**Photo 42**), and admire your work.

Bringing steam trains to the model-engineering crowd

Cabin Fever

Text and photos by Scott E. McDonald

A couple of years ago the Cabin Fever Model Engineering Expo & Auctions moved from the frigid winters of January to the warming of spring in April. This year's event was held at Pennsylvania's York County Fairgrounds, April 10-12. For many years, regardless of the date, small-scale live steamers from the northeastern United States, Canada and as far away west as Ohio arrived in York for a long weekend of celebrating all that is steam and mechanical.

Double-heading: *Dave Orwig paces his Mikado.*

As in previous years, Mike Moore of Ellicott City, Md., just a stone's throw from York, and Chuck and Ryan Bednarik of New Jersey brought their layouts, for a total of six mainlines for steamers to enjoy. Each year Mike and the Bednariks continue to add small improvements to ensure smooth running. Not only is this a benefit for the operators of the locomotives, but it makes us look good in front of the general public who are there to enjoy the view.

The expo portion of the event includes displays of all types of model engineering, including stationary gas and steam engines, hot-air engines, a miniature radio-controlled working quarry scene, steam boats that operate in a large indoor pond and, of course, live-steam trains. Hobbyists exhibit their handcrafted projects both inside and outside the hall. Some just bring their huge collections of machines for everyone to enjoy.

Friday is the big auction day, though a smaller one was also held on Saturday. Check out the videos on YouTube.com and you'll hear the auctioneers in the background moving the sales right along in their fast-paced lingo. There were only a couple of Gauge One items this year, but we did see a vertical boiler 7½-inch gauge Shay get moved into Jeff Paxton's car for further delivery to Ohio.

Friday evening is the live-steam family's get-together at the hotel to relax and watch movies after a full day at the event. This year we had a selection of train cartoons from the 1950s, a short about model railroading also from the '50s, along with the 1937 movie, "Oh Mr. Porter," as the main feature. The best part about the get-together is the fun we have with side commentary in addition to the pizza.

Saturday is always the busiest day, and the general public quickly filed into the huge halls as the doors opened. The dealers seemed busy with potential customers all day. Many sell new and used tools and machinery, as well as raw castings, plans and kits, while others sell books on mechanical engineering and the history of machining and the Machine Age.

Steam in the Garden's Marie Brown was on hand to take new subscriptions, renewals and sales of past issues. The magazine's new "Starting in Steam" book was also a big seller. One gentleman bought his book on Saturday and then came back Sunday to get a subscription and purchase a locomotive! The book was a hit with him and he told us that he felt more comfortable jumping into the hobby now that he had the ability to carry years of experience in his steamup kit.

Adjusting: *Scott Loomer works on his C-19.*

R/C: *Ron Vertrees checks his Garratt's controls.*

Brothers Quirk: *Paul and Harry build up a train.*

PRR G5: *Steve Bitondo inspects Wuhu's latest.*

Pond: *Organizers provided space for steam boats.*

Those steamers not operating their engines helped out around the steamup tracks by answering the questions that come from the viewing public. This allowed the operators to maintain a careful watch on their locomotives to keep things running smoothly.

Locomotives in attendance ranged from antique tinplate to the very latest releases by Accucraft Trains, Aster Hobby USA and Wuhu Arts & Crafts Ltd. Bob Clark of Stoke 'M and Smoke 'M of Mount Airy, Md., demonstrated the new Wuhu Bowande BR "Black Five," which is currently in production. This locomotive has a ceramic burner and a windowed firebox that makes it easy to see the status of the fire. It also gives the cab a fun glow. I spied a Pennsy 10-wheeler G5 making the rounds a few times over the weekend as well.

It was announced that starting in 2016, the event will return to Lebanon, Pa., where it first began many decades ago. The date will also move back to January to again provide a brief respite from the harsh realities of winter and allow the steamers and mechanical engineers to get a break from their own induced cabin fever.

While this has advantages for the organizer and some attendees, those of us who were enjoying not having a conflict in January with the much beloved International Small Scale Steamup in Diamondhead, Miss., will again be thrust into the realm of having to choose, because the dates selected for Cabin Fever 2016 will again conflict with Diamondhead. Although I do not look forward to making that decision, the memories of Cabin Fever 2015 will never fade.

How fast does your train go? Build a tool to find out

Speedometer

Text and photos by Carl Weaver

I am often amused at a public steamup when I am asked by a visitor, "How fast can the train go?" Not only is this question asked by youngsters, but also by many grown men. It may be a flashback to their Lionel days when many ran their trains just under the speed at which the locomotive left the track. But this was usually with the track on the floor, where a derailment might not cause any damage.

Live steam locomotives create another situation altogether. There are at least three good reasons for not running live steam trains at a fast pace:

- None of us want an expensive locomotive to take a tumble off the track, especially a raised one.
- It is hard to operate a locomotive manually when you have to chase it.
- It is hard for visitors and operators to enjoy the motion of the valve gear and side rods when they are a continuous blur.

The proper question for a narrow-gauge railroader should be, "How slow can your train go?" For a standard-gauge steamer, the question should be, "What is a realistic speed for your train?" This is what I and many others prefer.

I am a narrow-gauge runner. To properly pace myself and get a good picture in my mind of a realistic speed, I have made two speed indicators out of inexpensive bicycle speedometers. I have one configured for 1:13.7 scale (7/8ths) and one for 1:20.3 scale. For you standard-gauge steamers, the same can be configured for 1:32 — or for any other scale. Regardless, it is quite a revelation to see your locomotive running at its correct scale speed — a lot slower than you might imagine.

What speeds are correct? To give you an idea, take a look at one portion of a 78-year-old narrow gauge timetable published by the D&RGW Railroad, left.

As for contemporary standard gauge, mainline track in the U.S. is classified according to its configuration (type of ties, size and type of rail), condition and the frequency and type of grade crossings. Most mainline track is Class Four, which limits freight trains to 60 mph

The Denver and Rio Grande Western Railroad Co.

Alamosa Division

Time-table No. 120
Takes Effect Sunday, June 6, 1937
at 12:01 a.m.
Standard Time, 105th Meridian

Special Time-Table Rules Superseding General Rules and Regulations which are Inconsistent Therewith

Rule 12. The speed of trains should be so restricted that absolute safety will be assured, and the maximum speed will ordinarily be that necessary to make the schedule. ... At no time, however, should a speed exceeding 45 miles per hour be made with standard-gauge passenger trains, or 35 miles per hour be made with narrow-gauge passenger trains, nor a speed exceeding 35 miles per hour be made with standard-gauge freight trains or 25 miles per hour be made with narrow-gauge freight trains.

— Adapted from the Tom McConnell collection of employee timetables, DRGW.net

Speedo: *Above, clockwise from the left: Sensor, cable hooked to the mounting bracket, speedometer, battery and in the center, magnet you shouldn't use. Right, car with speedometer installed.*

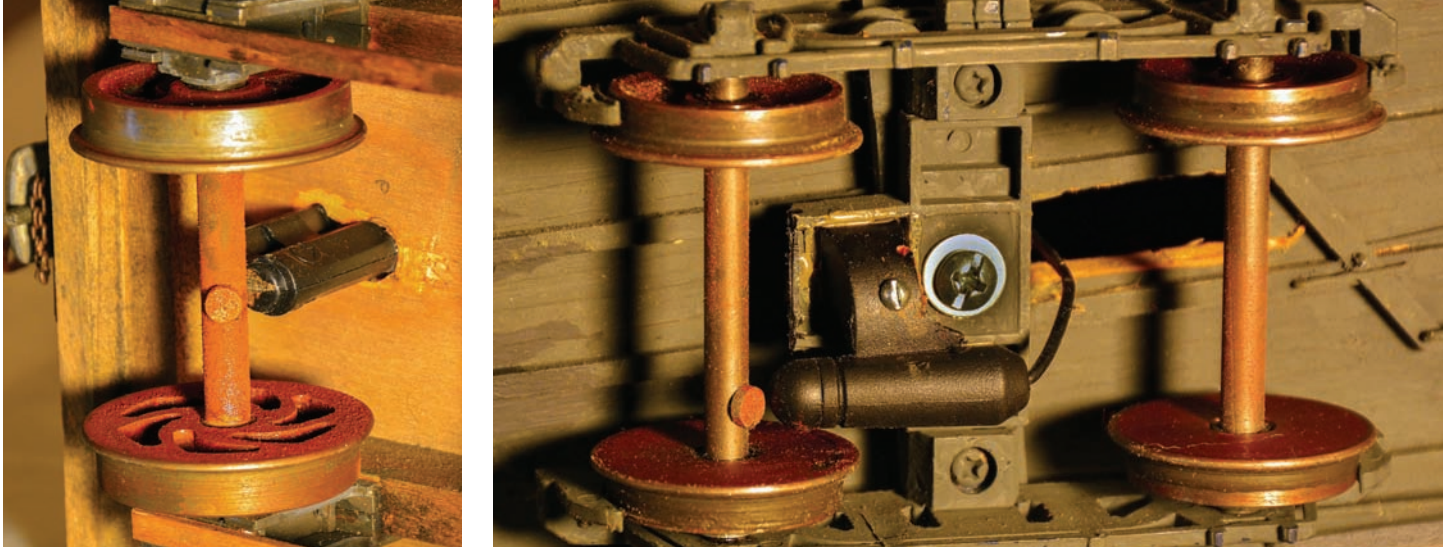
and passenger service to 80 mph. With these speed limits, you can determine how fast you should be running your trains.

If you are curious or actually want to keep your speed in check, configure a typical bicycle speedometer to convert the actual speed of your train to scale miles per hour. Here's how:

- Buy an inexpensive bicycle speedometer. Walmart is a good source. In this case, cheaper is better because the more expensive ones do more than you want or need.
- Buy a pair of 3/16-inch diameter, rare earth super magnets. One source is Radio Shack (Part No. 64-1895 — apparently still available at remaining stores even after the company's bankruptcy). Do not use the large magnet that comes with the speedometer. Keep the extra Radio Shack magnet as a spare.
- Inside the window of one of your passenger cars or in the open door of a box car, fabricate a slide-in holder out of wood or styrene (you'll want to be able to remove the unit for battery change and to make settings). Make sure you can see the entire monitor of the speedometer through the window or door when it is in the holder.
- Trim any excess plastic off the sensor, such as the mount, which is not needed.
- For four-wheel cars, place the magnet in the center of one of the axles where the area above it inside the car is open (the sensor has to go here). Then cut a hole exactly above the magnet position to accommodate the speedometer sensor.
- For a car with a truck (bogie), install the sensor on its side on the underside of the truck, pointing toward the center of the axle.
- In either case, the magnet should now be glued on the axle exactly in line with the business end of the sensor. It will probably magnetically stick to the axle, but a drop of cyanocrylate adhesive (Super Glue) will keep it from sliding out of place or flying off at high revolutions. Make sure to position the sensor to barely clear the magnet as it rotates. This is often a matter of 1mm or 2mm as per the speedometer instructions.
- Once correctly positioned, glue the sensor in place (I prefer Amazing GOOP-brand adhesive).
- Insert the speedometer in the wooden holder you created.
- Connect the wire between the sensor and the speedometer if it is not already attached.
- Bundle and tape the excess wire.
- Measure the diameter of one wheel on your selected rail car where it touches the track, not at the flange. If all you have is a ruler, measure a wheel off its axle in millimeters for more accuracy. If you have a digital caliper, then an accurate measurement in either inches or millimeters can be easily made with a wheel on an axle. After making the calculations that follow, what you finally come up with should be close to the advertised scale size of the wheel you are using.

1. For ruler use, measure the diameter in millimeters then multiply the result by the scale you are building the speedometer for. For example, 35mm measured on the train wheel times 20.3 equals 710.5mm. Then, convert the resultant diameter to inches by dividing millimeters by 25.402. For example. 710.5mm equals 27.97, or rounded off to 28 inches.

2. For caliper use, measure the diameter of the



Sensors: *Left, mounted through the car floor on a single-axle; right, mounted to the truck's bolster.*

Seeing speed: *Left, speedometer in a pocket in the car; right, the read out peeks through the car's door.*

wheel in inches, then multiply the result by the scale you are running. For example, 1.379 inches measured across the diameter of the wheel times 20.3 equals 27.99 or rounded off to 28 inches.

- Install the battery in the speedometer.
- Now you want the speedometer to think that it is attached to a bicycle wheel. Follow the setup directions that came with your speedometer as if it will be put on a bike with 28-inch wheels (or whatever wheel diameter you calculated after measuring the train wheel).

Note: As a convenience, most bike speedometers only require the bike wheel diameter in inches (or in your case, the wheel diameter you figure in inches that your scale wheel represents). Then in a table in the instructions, you locate a corresponding "Wheel Factor," which is nothing more than the circumference in millimeters. The wheel factor is in most cases, entered directly into the speedometer's computer during setup.

- Continue setup so that the speed, as it is calculated in miles or kilometers per hour, will be continuously shown on the speedometer monitor.
- Another feature of setup will be to select what else shows on the monitor. I chose distance traveled, but you can also select elapsed time or other indicators.
- Test the setup by rolling your car on some track to see numbers on the monitor. Most bike speedometers automatically come to life when the sensor detects magnet movement and shut off after a predetermined idle time.
- Keep a spare battery and the setup directions in the car in case you have to reset everything. I also keep a card with my wheel calculations and wheel factor on it.
- Run a train as you usually do and be surprised.

What's next? Once you complete this project, try to keep your locomotives running at a realistic speed and have fun with this clever gadget. And by the way, take your speedometer car to a steamup and share it with your friends. They'll be surprised too!

DIAMONDHEAD

JANUARY 10 to 17 2016

◆ International Small Scale Steamup ◆

Important contacts

Patrick Darby
Registration
15616 Hwy 1085
Covington, LA 70433
(985) 867-8695
k5pat@bellsouth.net

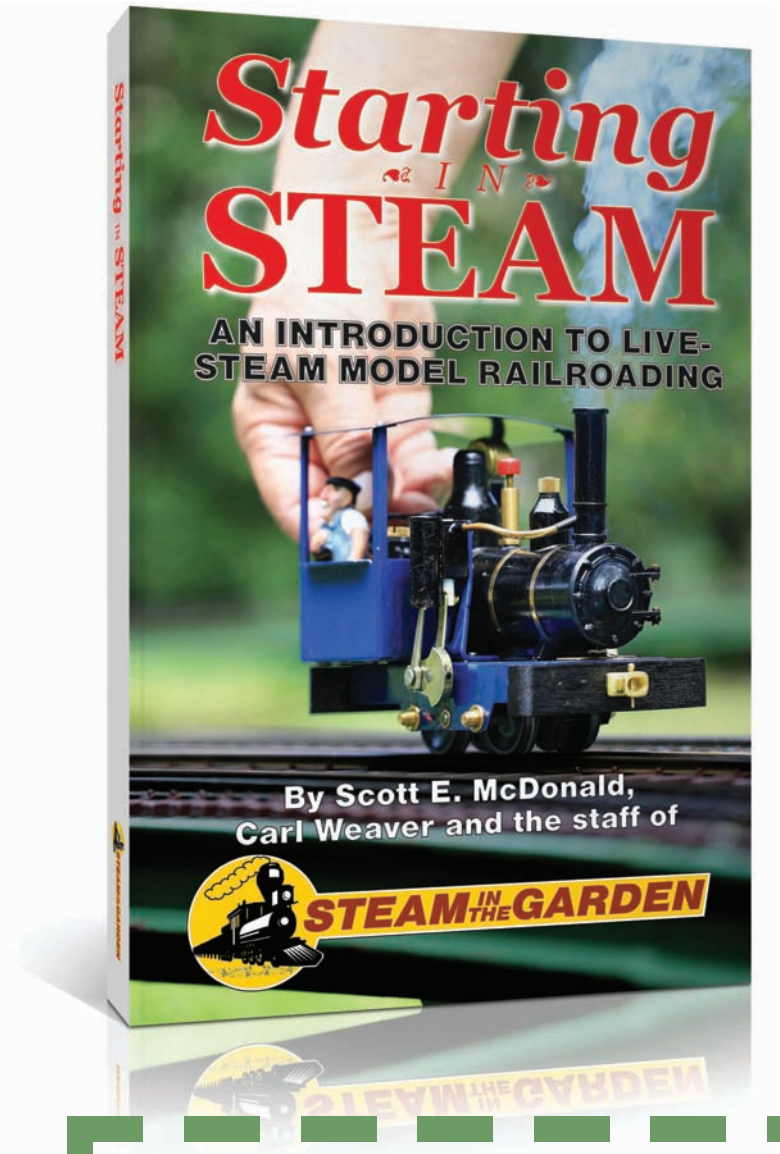
Richard Jacobs
Manager
(504) 343-8091
trainmax@yahoo.com

Terry Smelser
Activities Director
(985) 373-7593
onyx1955@aol.com

Diamondhead Inn and Suites
(228) 255-1300
Fax (228) 255-9848

◆ For more information and registration forms ◆
◆ visit http://www.diamondhead.org/ ◆

FUN TRAINING FOR TINY TRAINS



A BEGINNERS' GUIDE TO LIVE-STEAM MODEL RAILROADING

"STARTING in STEAM" is a new 174-page book designed to help not only small-scale live steam newcomers, but veterans as well. Written by the staff of *Steam in the Garden* magazine, this profusely illustrated book provides a wealth of information on how the locomotives work, how to run them, how to care for them and how to have fun with them.

"STARTING in STEAM" includes 10 chapters, with titles such as "Choosing your first locomotive," "Butane-firing basics" and "Getting help." Additionally, the book features an extensive glossary that addresses not only the specifics of live-steam model railroading but also general railroading terms such as "cylinder," "piston," "switch" and "Whyte notation."

"STARTING in STEAM" is available both in paperback and digital versions. The paperback retails for $9.95 in the United States and for a limited time we'll provide free shipping (Canada and overseas is higher). The digital version is $5.95 on the web site; single copies (as well as bulk purchases) are also available by calling (607) 642-8119.

http://www.steamup.com/starting/

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THE CUPOLA VIEW

Railroad librarian: 'Passion for Steam' an important book for anyone in hobby

Let's get to the point quickly: A new edition of "A Passion for Steam" has been released and anybody who wants to understand our hobby should own a copy. And, if history is any indication, one should move fairly quickly.

Marc Horovitz, the author, truly has a passion for steam, and it is illustrated profusely here. The first edition of the book, published in 2008 by Atlantic Transport Publishers of England, went out of print fairly quickly and for whatever reasons, the company refused to reissue it. Cal-Pac Trading Co. of Union City, Calif. (the holding company that also owns Accucraft Trains), rectified this problem late last year and a new edition was delivered beginning in April. I immediately bought one.

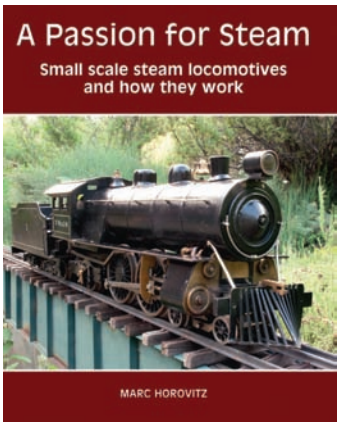
I am not proud to admit this, but when the first edition of "Passion" came out in 2008, I declined to purchase a copy. So I went searching for one when I became editor of this august journal. I had heard that it had gone out of print and I found that one could be had for on Amazon.com — for a mere $2623.39 (plus $3.99 for shipping).

No matter how much I wanted the book, I thought that was a little dear.

In 2013 at a gathering of the magazine's owners, I mentioned in passing that high price; Howard Freed said he had a copy and would be happy to loan it to me. So, I read the first edition just last year.

In a unique hobby, this is a unique book that only one individual could have written. Marc Horovitz is a life-long rail fan. He began importing small-scale live steam engines in 1979, founded *Garden Railways* magazine in 1984 (he remains editor) and has designed and built at least a score of locomotives in his workshop. Designs of many commercial live steamers have Marc's fingerprints on them. In his spare time, he has written about steam trains not only for his magazine, but also this journal and on the Web; from 2000-2010, he produced "Locomotive of the Month" for his own site, SideStreet Bannerworks (http://sidestreet.info).

The modern history of the small-scale live steam hobby can no more be written without discussing Marc Horovitz than you could write the history of the United States of America without including Benjamin Franklin.



"A Passion for Steam: Small scale steam locomotives and how they work," by Marc Horovitz. Cal-Pac Trading Co., Union City, Calif. Second edition, 2014, 240 pages with index. $45.

The book is full of railroading principles and small-scale facts. Marc's great illustrations help to explain complex concepts and his photography — both in outdoor settings as well as studio pictures — is crisp and well composed.

In both editions, more than half of "A Passion for Steam" is focused on Marc's collection of steam trains. Each locomotive is given one or two pages of text and photos with a specification box on each. Some are obscure; some are ubiquitous.

The latest edition adds 32 more pages; while there were 82 locomotives reviewed in the first edition, this latest effort examines 100 locomotives. The new edition adds essays on post-2008 engines, including Accucraft's "Emma" and "Fairymead." Though some are also on the "Locomotive of the Month" web site, the listings are not exactly the same; the Web of course contains more raw information, but the essays in the book provide more insight, in my opinion. Further, there are quite a few locomotives addressed in the book that aren't on the site.

Were a review like this to appear in a general-interest magazine, the editors would compel me to disclose that I have business and personal relationships with Marc: you need only look back a few pages to see his latest contribution to *Steam in the Garden* on metal spinning. Since I became editor of the magazine, Marc has been among its most prolific writers, photographers and illustrators.

So it is doubtful I would have anything but good words for "Passion." Nonetheless, I sincerely believe that regardless of our relationship, I couldn't be anything but complimentary about this book.

In the event "Passion" goes out of print again and takes another half-decade to get to the third edition, you probably should acquire this work for collection as soon as possible.

And Howard, now you'll get your first edition back.

'Cupola View' is written by Editor Dave Cole; you can contact him at dmcole@steamup.com or P.O. Box 719, Pacific a, Calif. 94044-0719.

TIMETABLE

July 5-11, 2015 — National Garden Railway Convention, Crowne Plaza Airport Hotel, Denver, Colo. Self-guided and motor-coach tours of area garden railroads; clinics, vendor hall (50-plus expected), speakers, banquet, ice cream social. Steam layout provided by International Small Scale Steamup will be open for general use in vendor hall. Info: http://ngrc2015.com.

July 15-19, 2015 — National Summer Steamup, Lions Gate Hotel, McClellan, Calif. Multiple layouts, more than a dozen loops, 38,000-square-foot steamup hall; open 7 a.m.-1 a.m. Clinics, dealers' room, door prizes, swap tables, Saturday night BBQ. Lions Gate room reservations: (916) 643-6222 (http://www.lionsgatehotel.com). Info: http://www.summersteamup.com or (650) 898-7878.

Sept. 2-5, 2015 — Thirty-fifth National Narrow Gauge Convention, Royal Sonesta Galleria Hotel, Houston, Texas. Layout tours, modeling contest, modular layouts, more than 30 clinics, almost 70 dealers. Info: http://www.nngc-2015.com.

Sept. 17-20, 2015 — Fall Steamup, Staver Locomotive, Portland, Ore. Info: http://www.staverlocomotive.com.

Jan. 10-17, 2016 — International Small Scale Steamup and Arts Festival, Diamondhead Inn and Suites, Diamondhead, Miss. Hotel: (228) 255-1300. Info: Patrick Darby, k5pat@bellsouth.net, (985) 867-8695; http://www.diamondhead.org.

Jan. 15-17, 2016 — Cabin Fever Model Engineering Expo, Lebanon Valley Expo Center, Lebanon, Pa. Info: http://www.cabinfeverexpo.com.

Feb. 12-14, 2016 — 18th Annual Presidents' Day Steamup, Electric City Trolley Station & Museum (Steamtown), Scranton, Pa. Info: Clem O'Jevich Jr., (570) 735-5570 or wrunloco@aol.com.

March 26-27, 2016 — East Coast Large Scale Train Show, York Fairgrounds, York, Pa. Info: http://www.eclsts.com and Mike Moore, mike@aikenback.net.

April 21-24, 2016 — Spring Steamup, Staver Locomotive, Portland, Ore. Info: http://www.staverlocomotive.com.

Regular steamups

Michigan Small Scale Live Steamers (MSSLS). Info: http://www.mssls.info.

Greater Baton Rouge Model Railroad Club Open House and Gauge One Steamup. Info: Ted Powell, (225) 236-2718 (cell), (225) 654-3615 (home), powell876@hotmail.com.

Upstate N.Y. Steamers. Several steamups per year in various locations around Western New York. Info: http://www.tinyurl.com/upstatesteamers.

Southern California Steamers. Contact Jim Gabelich for dates, places and other pertinent information. (310) 373-3096. jfgabelich@msn.com.

Crescent City High Iron. Steamups as necessary on an elevated backyard layout in Northern California. Info: Don Cure, diamondd1947@msn.com.

On the Brink Live Steamers. Wednesday, and occasional weekend, greater Sacramento, Calif. Info: Earl Martin (916) 773-0933, emartin187@aol.com.

Puget Sound Garden Railway Society. Two steamups per month, one at the Johnsons' on the second Saturday and a steamup at a member's track on the fourth Saturday. Info: http://psgrs.org/or call Pete Comely at (253) 862-6748.

Advertiser index

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博万德

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GERMANY BR41 — Big deflector

1:32-scale, G-gauge (45mm)
live steam

U.S. 'Casey Jones' ICRR No. 382

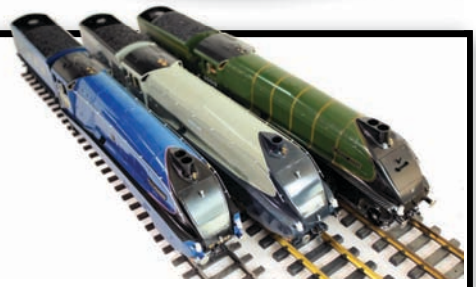
One fateful night in 1898, Illinois Central's No. 382 was in a horrific crash in Mississippi, but lives were saved by the heroic engineer, Casey Jones, who remained in the cab with his hand on the brake. Jones died, but his legend lives on in story, song and film.

Bowande Wuhu immortalizes this train driver with its Gauge One live steam version of ICRR's 4-6-0, which will be limited to 100 sets. This 1:32-scale, 45mm-gauge brass and stainless steel, butane-fired locomotive is 23¼-inches long, 3⅞-inches wide and 5⅝-inches tall (590mm x 97mm x 144mm). Its minimum operating radius is 78¾-inches (two meters).

Run time of the "Casey Jones" is more than one hour, and the locomotive features a copper boiler, adjustable safety valves, sprung bumpers, a water gauge, a British pressure gauge, an axle pump with bypass valve, a hand pump with check valve and a working whistle.

BRITISH A4

1:32-scale, G-gauge (45mm)
live steam



BRITISH A4

1:32-scale, G-gauge (45mm)
live steam

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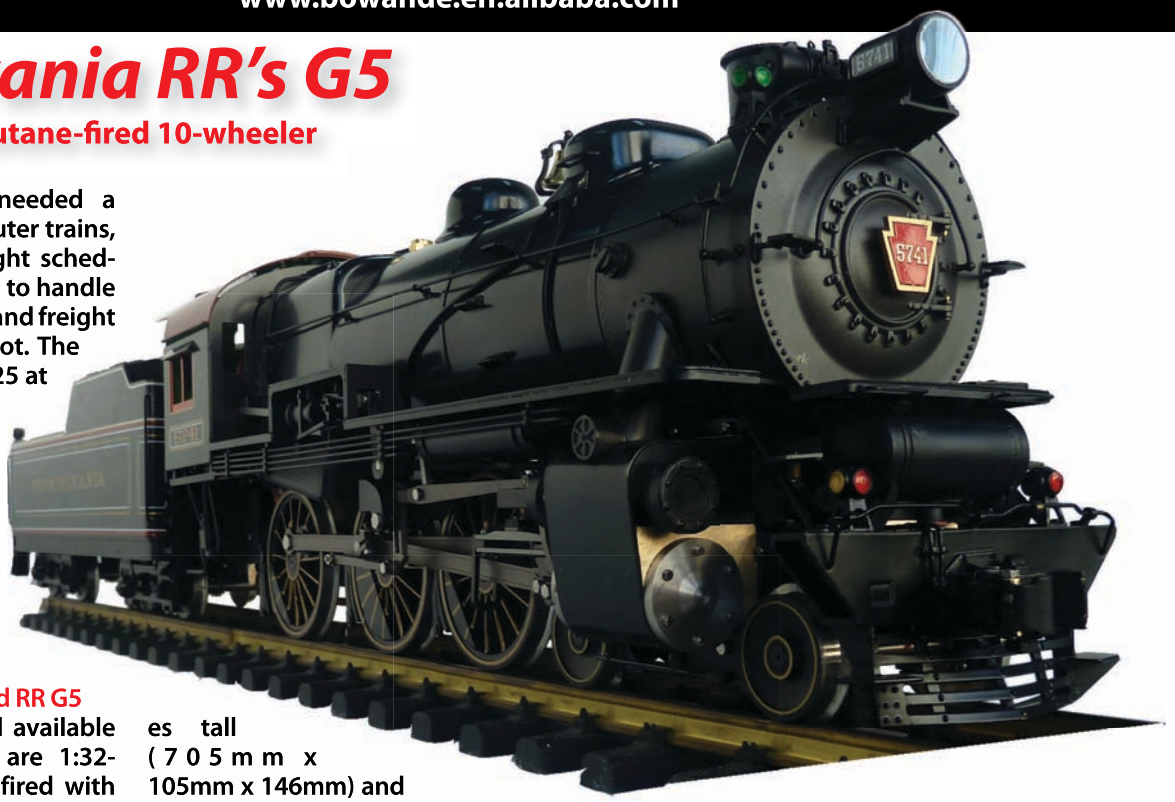
Pennsylvania RR's G5

A 1:32-scale, butane-fired 10-wheeler



The Pennsylvania Railroad needed a more powerful engine for commuter trains, with their many stations and tight schedules. The G5 4-6-0 was developed to handle heavier trains — both passenger and freight — that the typical 4-4-0 could not. The G5s were built between 1923-1925 at the railroad's Altoona shops in a batch of 50, numbered 5700-5749 for the Pennsy; another batch of 31 were built for the Pennsy subsidiary, the Long Island Railroad (they were numbered 20-50). These engines were used through until the end of steam in the mid-1950s.

New! Two Editions!

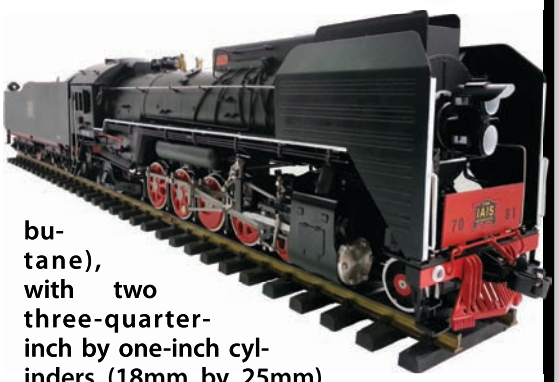
The PRR G5 and the Long Island RR G5 are both now in production and available for purchase. The locomotives are 1:32-scale, G-gauge (45mm), butane-fired with ceramic burns, and include two cylinders and operate at 60psi. The engine is 27¾-inches long, by 4⅛-inches wide by 5¾-inches tall (705mm x 105mm x 146mm) and can negotiate a 78¾-inch radius (2 meters). The PRR G5 models are available as Nos. 5741 and 5748, while the LIRR G5 engines is lettered No. 28. *Purchase this steamer today!*

China's 'Big Boy' — taking reservations

2-10-2 QianJin built in China, prototypes still running in USA; model wins Diamondhead draw-bar pull

The first high-powered locomotive designed and built in China, the QianJin production run ended in September 1956 after 4707 units had been made. No. 7207 was the last of the QJ to run in China, retiring in December 2005. Five of the engines were sold to U.S. railroads and three are still used in excursion today. Its 2-10-2 wheel arrangement naturally makes it China's "Big Boy."

Diamondhead draw-bar winner.



Bowande Wuhu will show its 1:32-scale model of the QJ at the National Summer Steamup at Sacramento, Calif., July 15-19.

The QJ will come in both butane- (left) and coal-fired (right) models (ceramic burner for butane), with two three-quarter-inch by one-inch cylinders (18mm by 25mm) and two-inch driver wheels (46.8mm), with boiler working pressure of 60psi. Including the six-axle tender, the locomotive will almost be 36-inches long (911.9mm); with the four-axle tender, 32-inches long (813.2mm). Both will be 4⅛-inches wide by 5⅞-inches tall (105.5mm by 149.7mm). Minimum radius will be 78¾-inches (2 meters). Revised livery options include Nos. 6800, 6988, 7040, 7081, 7143 and 7207. *Reserve this locomotive today!*

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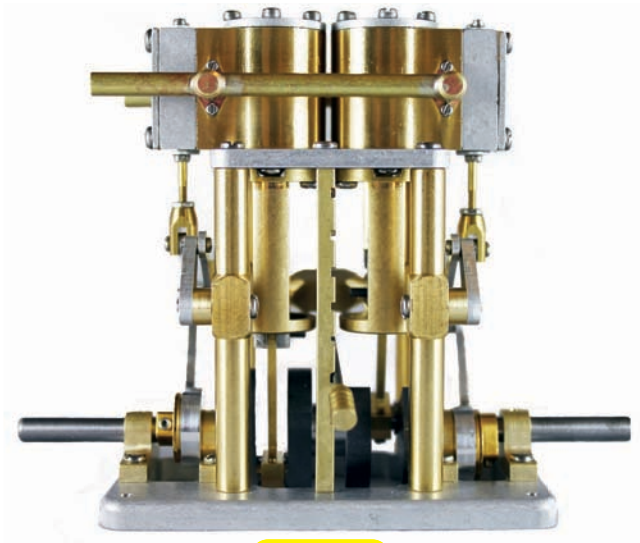
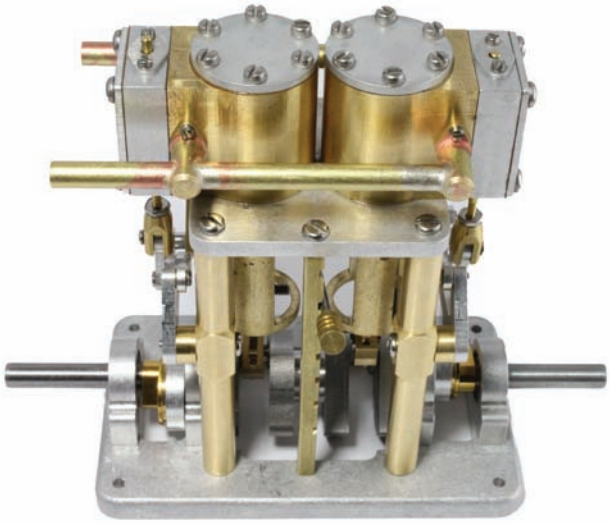
Fully Machined Steam Engine Kits



TVR1A

Ready to assemble steam engine kit: $245
Fully Assembled and Tested: $350
Includes all hardware
Double acting, twin cylinder
Hackworth reversing gear
Includes full-color assembly manual
Dimensions:
Base: 3.000" x 1.844"
Crankshaft end-to-end: 4.344"
Height: 3.375"
Weight: 327 g



TVR1ABB

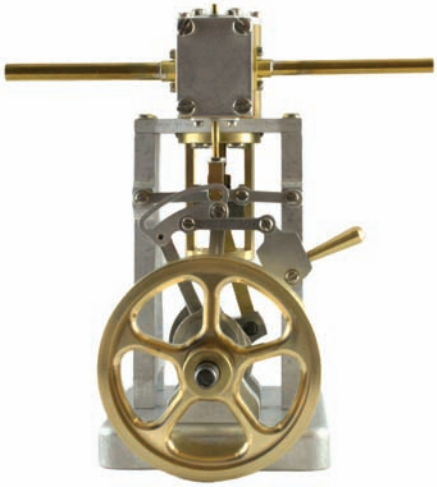
Ready to assemble steam engine kit: $295
Fully assembled and tested: $400
Includes all hardware
SAME AS TVR1A but with shielded ball bearings
Includes full-color assembly manual
Dimensions: Same as TVR1A
Weight: 323 g

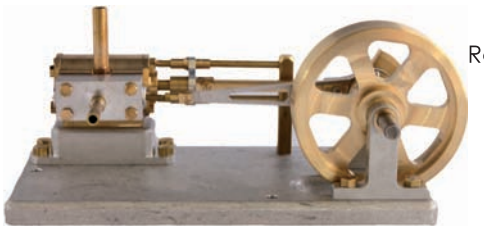
Flywheels for TVR1A / TVR1ABB

MFLY: $20
1 3/8" DIA
(Solid Marine)

BFLY1: $25
1 3/4" DIA (5 Spoke)

BFLY2: $30
1 3/4" DIA (6 Spoke)





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Union Pacific FEF-3 No. 844

Production of this most popular steam locomotive is now in progress. Delivery re-scheduled for late June 2015. If you missed the reservation deadline, please contact us, we may still be able to accommodate your request. A Greyhound version, No. 837, is also in produtction. For complete information about this product, visit our web site:

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Pilot model shown; subject to alterations and modification.

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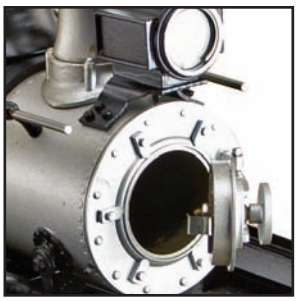

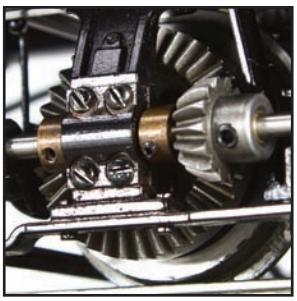

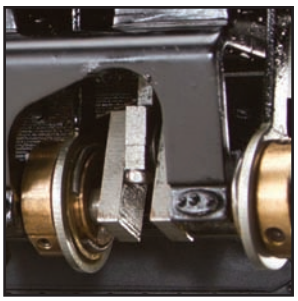

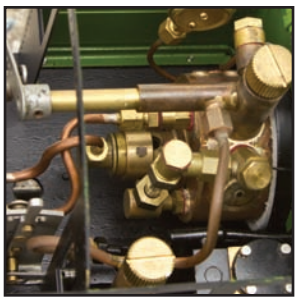

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