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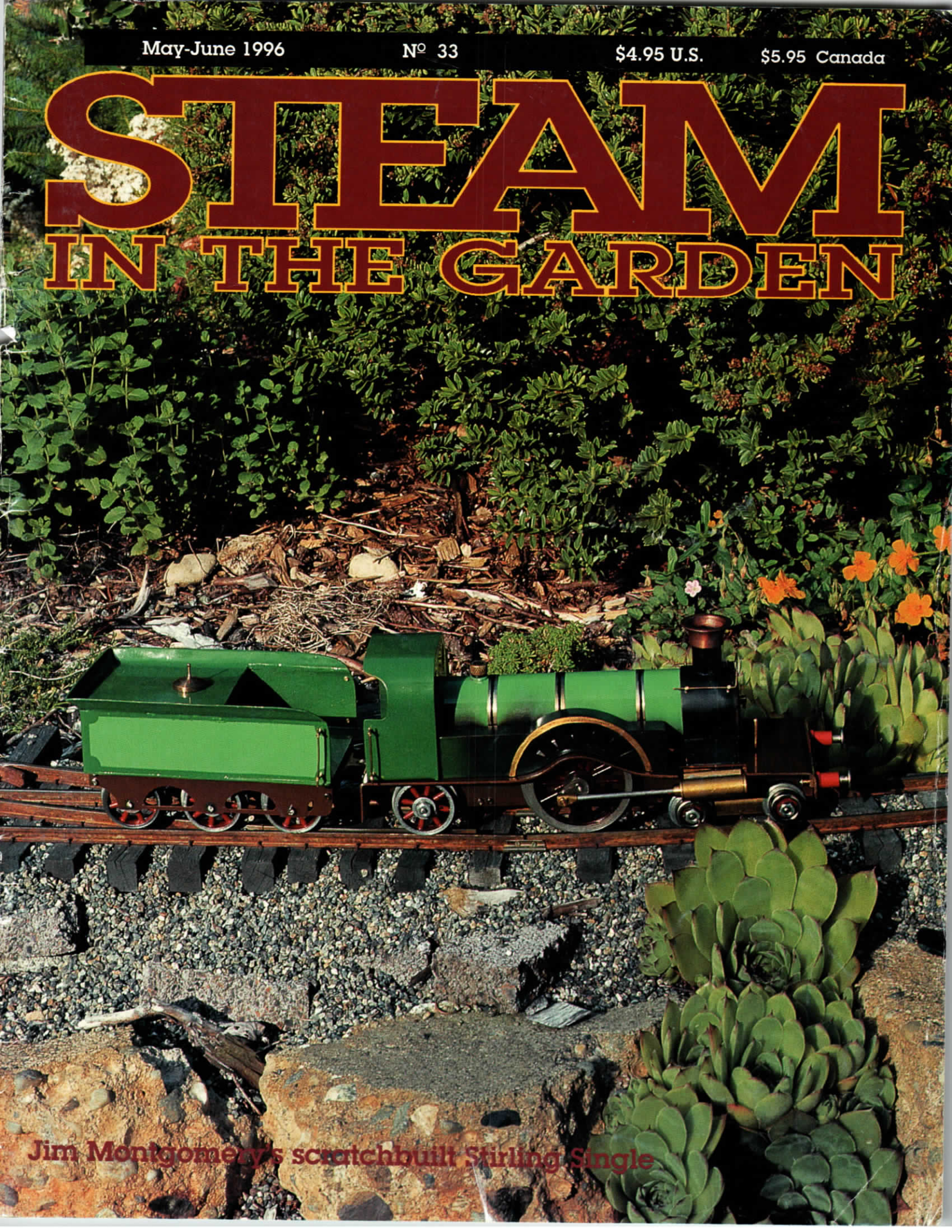
STEAM IN THE GARDEN



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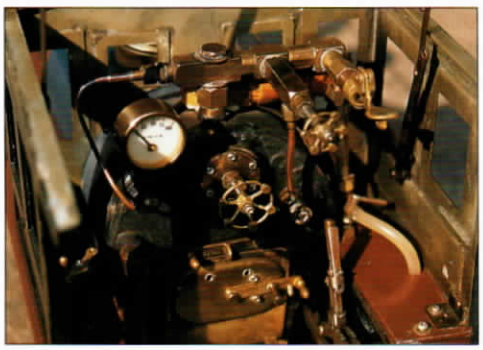
Notwithstanding the tremendous advances made in recent years in other types of working models - radio-controlled planes and helicopters, for example - the steam locomotive still takes pride of place in the eyes of many model engineers. O.S. live steam locomotives bring the hobby to a new and wider section of model enthusiasts. No longer is it necessary to possess an expensively equipped workshop and to spend years building a steam loco. Parts are ready machined and some sub-assemblies, such as the boiler, are ready built. An O.S. locomotive kit needs no more than a few simple tools and the true enthusiast's careful hand,to produce a superb model that duplicates a fullsize locomotive's operation in every respect' from raising steam to driving and maintenance procedures.



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STEAM IN THE GARDEN

Vol. 6, Nº 3
Issue Nº 33
May/June 1996

Articles

Departments

ON THE COVER: A British mainline passenger-hauling loco on a Pacific Northwest narrow gauge logging railroad? Well.....why not? That's one of the great things about this hobby; you can choose to follow a specific prototype exactly, or you can decide to create your own prototype. Jim Montgomery (of scratchbuilt Heisler fame) scratchbuilt this neat and colorful Stirling Single, and he wins a one-year subscription to SitG for submitting the cover shot for this issue.

Photo by Jim Montgomery

Publisher/Editor
Ron Brown

Indispensable Assistant
Marie Brown

Graphics Director
Harry Wade

CAD drawings in this issue by:
Harry Wade, Charlie Mynhier & Jim Curry

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Joe Leccese	Massachusetts
Marc Horovitz	Colorado
Kevin O'Connor	California
Chip Rosenblum	Ohio
Gene Rutkowski	Washington
John Wenlock	Wales

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Items for review may be mailed to P0 Box 335, Newark Valley, NY 13811—or sent via UPS or FEDEX to 6629 SR 38, Newark Valley, NY 13811.

Questions or comments? Call us Mon. - Fri. at 607-642-8119 before 9:00 p.m. Eastern time, please—or FAX us any time at 607-642-8978. e-mail address: docsteam@servtech.com

Our web site, ***Steam in the Garden Online***, is located at: http://www.steamup.com

1996 Calendar of Events

May 11, 1996 -- 3rd Annual Piedmont Central Railway Steamup and Open House, Charlotte, North Carolina. Saturday, 10:00 AM to 6:00 PM. Gauge 1 railway with 6' minimum radius main line, 5.25' sidings. Main loop approximately 90', ground level, with yard and steaming bay. Contact Malcolm Schaeffer, 704-552-2869 between 6 pm and 8 pm eastern time -- or write 6521 Highwood Place, Charlotte NC 28210. Please enclose SSAE for directions and info on lodging if needed, etc.

May 17 & 18, 1996 -- Marty Maloy's Spring Steamup. Beautiful elevated gauge 1 track with wide radius curves in a lovely botanical garden-like setting. Write or call for details and directions. Marty Maloy, 7 Abbot Road, Wayne NJ 07470. 201-696-3747.

May 24-26, 1996 -- Pennsylvania Live Steamers 50th Anniversary Memorial Day Weekend Steamup -- Rt 29, 1 mile north of Rt 113, Rahns PA (25 mi NW of Philadelphia). Elevated gauge 1 double track mainline with steaming bay, turntable and storage yards will be in operation. Also available -- ground level tracks for 1/2" - 3/4" - 1" - 1-1/2" scale trains. Food available on site, lodging available nearby. For more information, contact Harry or Paul Quirk, PO Box 215, Springtown PA 18081 -- phone 610-346-8073.

June 1, 1996 -- 2nd Annual Manassas Railway Festival -- Saturday, June 1, 1996 from 10:00 AM until 4:00 PM in historic Old Town Manassas, Virginia. The festivities will include full-size exhibit rail cars courtesy of Norfolk Southern, Virginia Rail Express and Amtrack; modular railroad exhibits in G, O, HO & N scales; railroad history and memorabilia exhibits; living history & folklore by the Buckingham Lining Bar Gang; rail excursions sponsored by the Virginia Railway Express; live entertainment and lots more. For more information call (703) 361-6599 or write to: Manassas Railway Festival, c/o Historic Manassas, Inc., 9025 Center Street, Manassas VA 22110.

June 2, 1996 -- Steam Boats Only Fun Float at South Orange, NJ, Meadowlands Park Pond. For information contact Charles Roth, 212 Rt. 513, Glen Gardner NJ 08826 -- phone 908-638-8341.

July 7, 1996 -- Steam Boats Only Fun Float, hosted by Valley Forge Model Ship Society at Gotwalls Pond in Kimperton PA, off Rt. 113 just outside of Phoenixville PA. Condensed navigational course set up, but no judging, no prizes -- just a good time. Lots of steam talk ensues! Call Ernest Morris at 610-948-8107 or write RD 4, Box 82, Spring City Rd., Phoenixville PA 19460.

July 19-21 -- Blue Mountain Gas & Steam Engine Association 25th Annual "Show in the Grove", Bangor, PA. Harry & Paul Quirk will have their gauge 1 track in operation and you are invited to come and run. Other activities include a flea market, antique gas & steam engines, sawmill and country music. Good home cooked food is available. For more information contact Harry or Paul Quirk, PO Box 215, Springtown PA 18081 -- phone 610-346-8073.

August 29-31, Sept. 1-2, Pennsylvania Live Steamers 5-day 50th Anniversary meet -- Rt 29, 1 mile north of Rt 113, Rahns PA (25 mi NW of Philadelphia). Elevated gauge 1 double track mainline with steaming bay, turntable and storage yards will be in operation. Also available -- ground level tracks for 1/2" - 3/4" - 1" - 1-1/2" scale trains. Food available on site, lodging available nearby. For more information, contact Harry or Paul Quirk, PO Box 215, Springtown PA 18081 -- phone 610-346-8073.

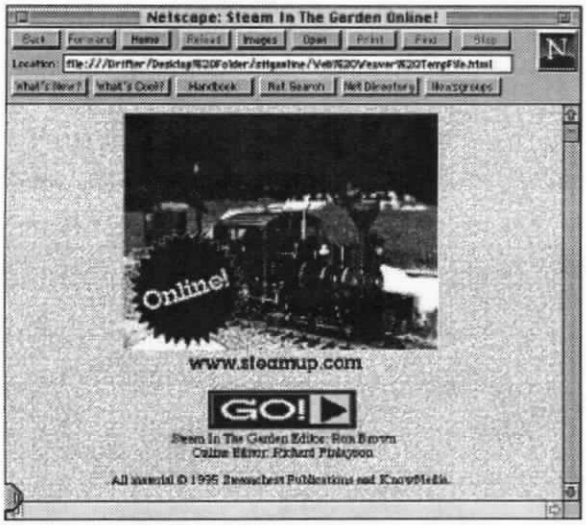
September 6, 7 & 8, 1996 -- Associazone Modellisti foligno Citta'Ferroviaria organizes III STEAM MODELING INTERNATIONAL FESTIVAL in Lovely Umbria -- Central Italy -- Foligno -- Valtopina. Steam locomotive exhibition and demonstration. Scale 1:32 and 1:11 (gauge 1 and 5"). The foreign people who will take their models will have discounts on hotel accommodations and restaurant. We speak English - French languages. Telephone +/342-212485 h8 pm. FAX: +/742-358449 24h/day. Secretary Dott. GUIDO MATTOLI, via Roncali 11, I-06035 FOLIGNO, ITALY.

September 20, 21 and 22, 1996 -- 4th Annual ITM Steamup, Noblesville, Indiana. Join us for a weekend of outdoor live steam operation, display and steam talk at the Indiana Transportation Museum Third Annual Steamup on the museum's grounds at Forest Park in Noblesville, Indiana near Indianapolis. The outdoor layout consists of five 380 foot loops elevated from 24 to 50
inches above ground level. The outer loop is "O" gauge, the next two are multigauge (O, O three rail, #1 and Lionel Standard) and the two inner loops are #1 gauge interconnected by crossovers with steaming tracks and storage tracks. Registration fee is $30. A tent shelter, tables and chairs, distilled water, methanol and butane will be provided and food and soft drinks will be available for purchase. Contact John W. Bloxdorf, 2540 North Ninth Street, Terre Haute, IN 47804 -- 812-466-1007.

November 2 and 3, 1996 -- First Annual West Coast Gauge 1 Steamup, San Luis Obispo County Fairgrounds, Paso Robles, California (halfway between Los Angeles and San Francisco on US 101). Contact James Fitzgerald, 1150 Wine Country Place, Templeton CA 93465 -- phone (805) 434-5058.

Because of publication lead time, please send info for Calendar of Events well in advance. Include name of host and location of event, with address and/or phone number to contact for complete information. Some basic info about the site is also useful (ie. ground level or elevated, minimum curve radius, ruling grade, etc.).

We are a crowd that not only honors, but also immerses ourselves in steam locomotive technologies that are not only growing old, but which have had no truly original R&D effort applied to them in more than 50 years. Yet the most modern of computing technologies bring Steam In The Garden magazine to your door or hobby shop. In a continuing blend of keeping some part of a historical technology alive by leveraging the new, Steam In The Garden Online is now available on the World Wide Web at `www.steamup.com`.

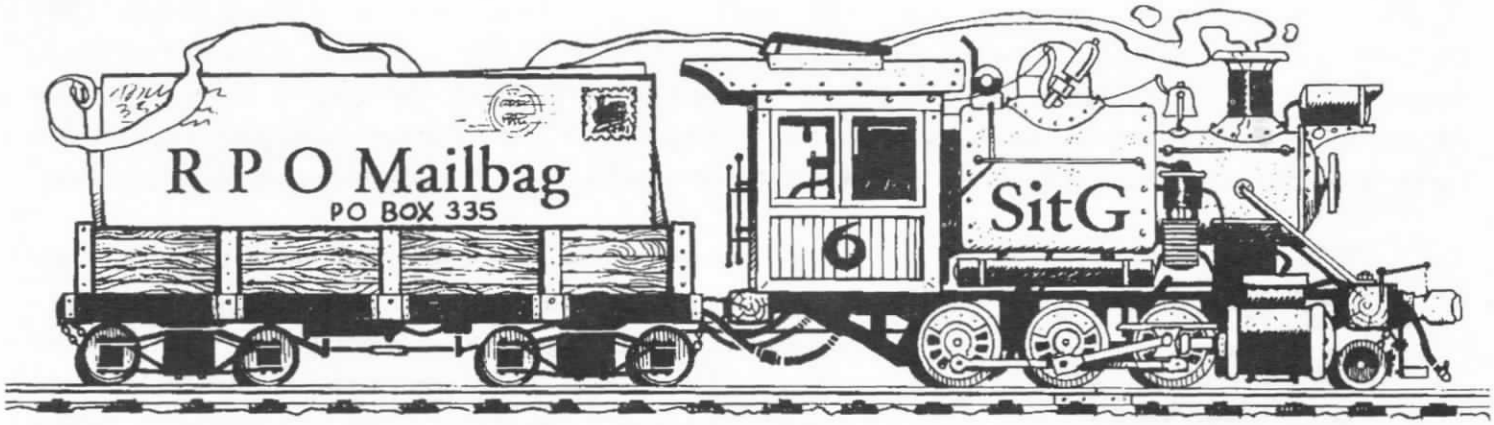


This "web site", as they are called, includes articles, editorials, pictures, video, and a trade center for dealers and manufacturers related to the live steam scene. Over the next several months full scale catalogs of the major dealers and manufacturers will be available online. It is also home to The Roundhouse, an online museum of live steam locomotives in our scales and gauges.

This online media form, as with print publication, has strengths as well as weaknesses but will be integrated with Steam In The Garden magazine in a way that will play to the strengths of both forms of publication. While the magazine looks forward and brings news of new products and activities in the live steam community, the online edition will serve as a living, continually updated archive of images and articles from the live steam community. Likewise, interesting articles or topics that may be too narrow in scope for the broader print publication may find a home in the online edition.

Likewise, since the "cost" of publishing a color photo on the Web is minimal, photos that are less than perfect but nonetheless interesting may be published online, as well as color versions of the black and white photographs. Full color versions of the black and white pictures in this issue are now available online. Video clips are currently available for downloading; the clips are usually 20 seconds in length. Animation is being incorporated in online catalogs and an animated simulation of locomotive running gear will soon debut. Over the next several years, real-time video viewing, animation, 3D modeling, audio, and other media forms will be an integral part of the World Wide Web and Steam In The Garden Online.

We look forward to learning how this new medium can best be used to provide the information that our fellow live steam enthusiasts have come to rely on Steam In The Garden to provide, and how this partnership with readers and advertisers can be enhanced through this technology. We welcome and encourage your feedback and contributions to Steam In The Garden Online. Ron Brown can be reached at `docsteam@servtech.com` and Richard Finlayson, Editor of SitG Online can be reached at `richardf@steamup.com`. Information on how to submit photos, articles, and videos is available on the site, or send e-mail to either Ron or Richard. We invite you to drop by Steam In The Garden Online at `http://www.steamup.com`, and don't forget to sign the guest book.



Letters from readers are welcomed and encouraged. Offer advice, encouragement, suggestions or constructive criticism. Tell us about your current project (and don't forget the photos!) or just share live steam experiences. But please keep your letters to a reasonable length so everyone has a chance to use this forum. Some letters may be edited for length or clarity. Send your contributions to: SitG, Dept. RPO, P.O. Box 335, Newark Valley, NY 13811, USA. Letters may be edited for clarity and space considerations.

* * * * *

Wales, U.K.

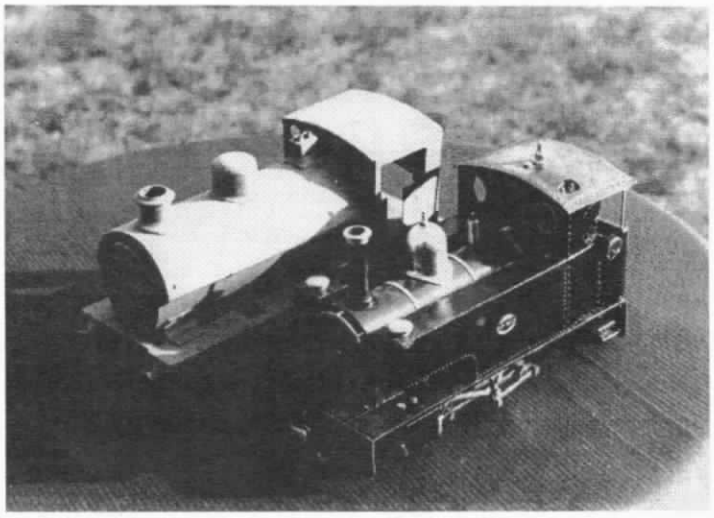
Dear Ron,

I was interested in the recent correspondence about Gauge 3 (2-1/2" gauge). In both the UK and the USA, there is a tendency to equate this with a kind of large version of Gauge 1, where the huge locos haul long rakes of bogie cars along large sweeping tracks. Great hobby this -- can't fault it. But it isn't the only way of looking at things. Away from the grandiose schemes, there can equally be the little backwaters, where 4-wheel lokies haul short trains over tracks that are tres secondaires. The rail is somewhere down in the Code 150-something bracket and the curves are quite sharp. I enclose a photo which shows a sixteen mil narrow gauge engine in front -- something we are all familiar with -- and a 2-1/2" gauge engine behind it.

This while area of modeling doesn't get the attention it deserves and there is tremendous scope for the individual who wants to stray away from the herd. There is still as much need for the pioneer as there ever was.

Yours sincerely,

Peter Jones



Above: Peter Jones illustrates his point with a 16mm gauge 0 loco (front) and a 2-1/2" gauge loco (rear).

photo by Peter Jones

Ontario, Canada

Dear Ron,

Just a slight error between the drawing and the text in the last installment of Charlie Mynhier's series. The expansion link is shown in the drawings with a 1.969" radius, but in the text calls for a 1.696" radius.

George Cockburn

Good eye, George! The drawing is correct in calling for a radius on the expansion link of 1.969". -- ed.

Champaign, Illinois

Dear Ron,

Enclosed is a photo of the engine I have been working on. So far it does not run, and I have made most of the parts at least two times. I am on my third alcohol burner. So far the fire is uncontrollable. I am trying both wicks mounted in 1 inch copper tubes under the boiler. There should be enough of a reservoir of fuel to eliminate the chicken feed. That thing never did work right anyway. Having the supply tank in the tender, it was difficult to manage the height so that it would feed and not flood the burners.

I should have better photos when the weather gets better. Also I have been keeping notes on my boiler construction for future publication.Thanks for a great magazine.

Sincerely,

Ernie Noa

Ernie Noa's scratchbuilt steamer -- looking good!

Ernie, you've got what it takes to successfully build a steam loco.....determination and perseverance! Congratulations to you on a fine looking engine, and we're sure that it will turn out to be as good a runner as it is a looker. -- ed.

Massachusetts

Hi Ron,

I was going to write on paper, then I noticed an e-mail address in SitG. This is easier.

In case no one else has called it to your attention, the formula for radius of a curve on page 47 of the November/December '95 SitG is not correct. At least it is not correctly expressed.

The formula in the magazine is written:

$$R = 1/2 \left(\frac{1/2\ C^2}{O} + O \right)$$

It should be:

$$R = 1/2 \left(\frac{(1/2\ C)^2}{O} + O \right)$$

By Pythagorean Theorem $R^2 = (R - O)^2 + (C/2)^2$

Expanding: $R^2 = R^2 - 2RO + O^2 + (C/2)^2$

The R^2s cancel, and $2RO = O^2 + (C/2)^2$

Solving for R: $R = 1/2\ (O + ((C/2)^2)/O)$

which can be rewritten as shown in the corrected equation above.

Bill Kaiser

Thanks for the correction, Bill. Serious mathematics has always been totally alien to me, so I'm glad there's someone out there keeping me honest when I make an error in transcription. -- ed.

Rocky Mount, Virginia

Dear Editor,

Thanks for the continuing improvements in SitG. Please continue my subscription for another year! With the recent discussion of the state of the art of scratchbuilding, or the lack thereof, my observations of garden railways has been that most hobbyists run trains right out of the box. I assume this has something to do with American's desire for "instant everything", including a model railroad which can be put together in a few weekends time. I wouldn't fault anyone for their approach to the hobby. The miniature railroad hobby is a big tent, and there is room for all persuasions.

There are, however, plenty of scratch builders around, and perhaps the reason you haven't heard from some of us is that it takes a zillion hours to build a steam loco from scratch, especially if we're new to the hobby, as is my situation. As time progresses, and we learn all of the techniques of small scale steaming that the British have known for 50+ years, I am sure that more of us will come out of the woodwork.

My first and continuing project is a 0-4-4 Forney in 7/8" scale to run on 45mm track. I am using the cylinders and plate frame of a Roundhouse 0-6-0. I spent the winter months building the boiler from 2-1/2" dia. copper pipe. Experience is the best teacher -- I built the boiler twice. Through all of my trial and error on the project, I have been indebted to the great teachers who write in each issue of SitG. Thanks, and keep up the great work.

Stephen D. King

El Dorado, California

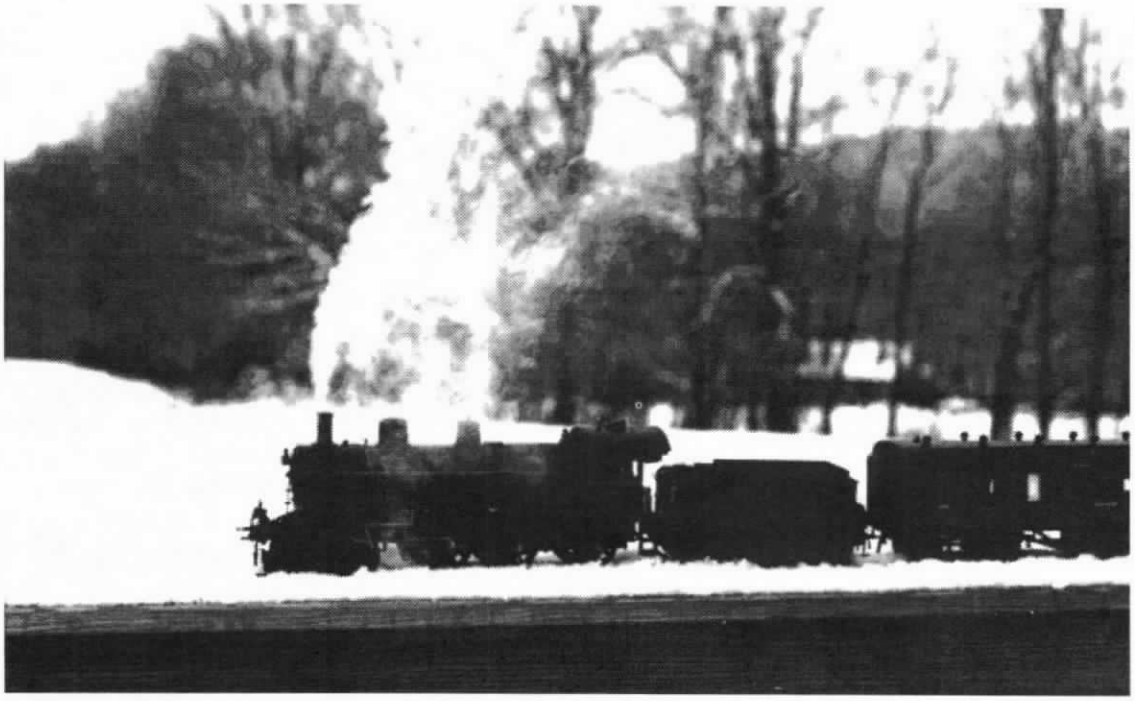
Dear Ron,

As a newcomer to the live steam hobby I have been in quite a quandary as to which engine to obtain as a first engine. Of course you are well aware of this as I have called you on at last two occasions for advice. Actually, that's why I'm writing this letter. I wanted to thank you and all the other very nice people in the hobby who I called and spoke to regarding various types of equipment. It was definitely a crash course and I probably now know just enough to be dangerous, but I have made a decision and hope to place an order for a locomotive and hopefully be up and running in a week or so.

Everyone I spoke with was so nice and willing to take the time to talk with me about equipment they sell, and even their competitors equipment, that I feel I have already made several friends, even if they are on the other side of the country. I would like to extend a special thank you to the following companies or individuals for their help and patience: Ron at Steam in the Garden magazine, Bob at Rio Pecos, Don at Rail Goods Ltd., Geoff at Geoffbilt (sorry about that late night call), the folks at Brandbright, Dan Pantages, Hyde-Out Mountain Live Steam.

Sincerely,

Tom MacConnell



Springtown, Pennsylvania

Dear Ron,

Issue #32 arrived yesterday, full of great articles as usual. Your "End of the Line" comments caught my eye. The likelihood of an indoor track is rather remote, however, I have another solution for "Cabin Fever". (See photo above)

1) A fresh layer of snow (or a cold spell in the south).
2) At least 15 feet of temporary track.
3) Fuel & water in your favorite locomotive.
4) Warm clothing and the ability to stand cold temperatures.

Ahh! Steam in the winter...what a sight! Makes you almost wish that summer will never come.

Sincerely,

Harry Quirk

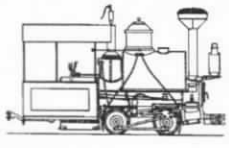
P.S. On a serious note, here's the latest news about gauge 1 at the Pennsylvania Live Steamers.

Planning to begin for Gauge 1 railroad

Last year there were discussions about the construction of a permanent gauge 1 track at PLS, and a survey of interest was made by several of our members involved in gauge 1. Enough interest was expressed to warrant additional consideration of the project by PLS as a whole. Accordingly, a small amount of money has been allocated in the fiscal '96 budget as a starting point. If this is to develop into a viable effort, planning should begin this year by those involved. Of course, no construction will begin this year, with our fiftieth anniversary events planned and an agreed moratorium on any major new construction for the year. But the design for a gauge 1 track installation must be planned this year if the start of construction is to be considered for 1997. The board of directors has agreed that the club should support such a project, and the resources of the club will be made available for it, but the work must be done primarily by those interested in having such a track. It is also expected that those with gauge 1 interest will support the club as a whole on other projects. So now is the time for all gauge 1 enthusiasts to get together and plan the construction of your track for discussion with the board of directors, along the lines already proposed, and agree how the work will be accomplished.

From the PLS Gazette, Jan/Feb 1996

Thanks, Harry, for the Cabin Fever cure suggestion, and for the good news about the status of the proposed Gauge 1 track at Pennsylvania Live Steamers. PLS has a beautiful club site, and I'm sure that we all look forward to seeing a permanent Gauge 1 installation there one day soon. - ed.



Brandbright

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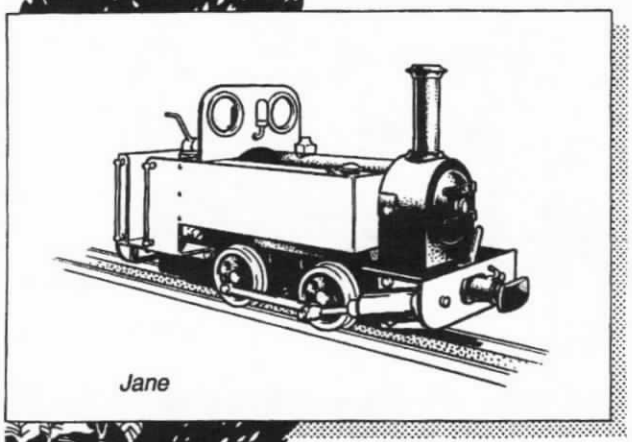

Jane

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For an American outline, Brandbright supplies the **Sandy River #24** - in either gas or coal fired forms, the **Liberty Belle,** the **Colorado,** and a choice of **Porter** saddle tanks. Now joining this established range is **BERTHA!**

BERTHA is a Porter 0-6-2 engine, the original being built in 1897 for the Westfield Plantation in Louisiana. The Brandbright model is gas fired, well engineered and crisply detailed. She is a pretty little locomotive and pulls like a champion!

Remember - Brandbright sells quality British engines with the Brandbright quality back up. Brandbright - the obvious place to get a working steam locomotive!

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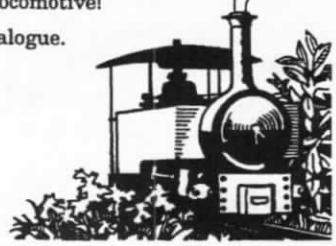


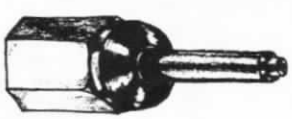
AN IMPORTANT NEW DEVICE AIDS PASSING GAS

Kevin O'Connor's "S" Street Unit Shop announces a new approach to fueling up your small scale steamer. It is the "Hadden Fill Valve", designed to mate up those super economical, blue, one pound butane/propane gaz® containers with the fill valve on your locomotive fuel tank. Aside from the cost advantage of paying 40% less for fuel, the 20/80% butane/propane mix provides significantly higher vapor pressure on those cold, marginal days when coal firing takes on a certain allure. Even on warm days the higher vapor pressure of the gaz® mix provides increased gas vapor velocity through the metering jet, thus drawing in more air though the mixing tube and providing a more efficient, easier to light flame in the combustion chamber. The cash savings realized in using just three (3) one-pound gaz® cannisters, versus an equal amount of isobutane, will pay for your new Hadden Valve. Hadden valves are available in burnished brass or matte black for $8.95 each plus $1.50 shipping and handling. Ask for my free product sheet describing Frank S. and C&S Mogul accessories when ordering. Hadden valves are in stock and ready to ship.

Order directly from:

Kevin O'Connor's "S" Street Unit Shop
P.O. Box 161631
Sacramento, CA 95816-1631
USA

Phone/Fax (916) 447-5433



Hadden Valve - for use on gaz® brand cannisters only - not for use on cannisters with threaded nipple

Gas cannister for illustration purposes only - NOT included with purchase of Hadden valve.

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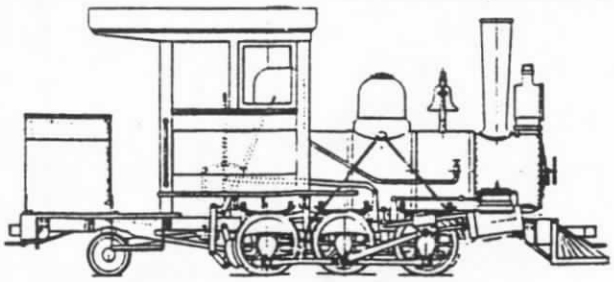
CATALOG:$2.00

WHAT'S NEW?

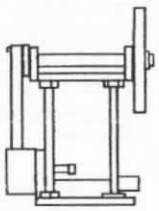
Brandbright Ltd., The Old School, Cromer Road, Bodham, Holt, Norfolk, NR25 6QG, U.K. -- phone 011-441-263-588-755, introduces a brand new locomotive from their new company, Brandbright Steam Traction. BERTHA is a wonderfully detailed scale model of the Westfield Plantation Company's locomotive #1, which was built for the Louisiana firm by the H. K. Porter company in 1897. Bertha performed well from 1897 through to the 1960's and the model follows suit. With a gas-fired boiler, slide valves, a generous lubricator, water level gauge and a water top-up system, she can be kept in steam for hours. The chassis and motion are laser cut from steel for strength and fidelity, the cab frame and bunker are in etched brass for detail and the cab panels, cab floor and pilot beams are in wood for authenticity. Full details are given on the Brandbright specification sheet -- contact Brandbright for more information and pricing.



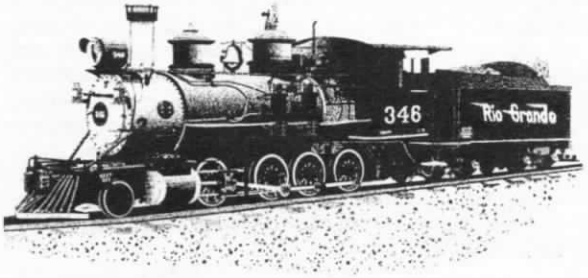
Kevin O'Connor's "S" Street Unit Shop, PO Box 161631 Sacramento, CA 95816-1697 -- phone (916) 447-5433 is building custom replacement safety valves in response to many requests for a smaller safety valve that would be more esthetically pleasing. The one we received fits the Catatonk Shay, and it is much smaller than the stock factory valve at barely 1/2" tall. This is a "Pop" style valve, which lets go with a loud pop and an impressive plume of steam. The price on this valve is $22.50 each. Contact Kevin at the address or phone number above for more information on this item, and on all the other interesting and innovative products he makes for miniature steam locomotives.

Remote Control Systems, PO Box 1118, Bayswater, Victoria 3153 AUSTRALIA -- phone/fax International (61-3) 97 62 77 85 -- voice or fax inquiries within North America call 1-800-490-6945, announces "MICRO TITAN", a micro sized R/C battery throttle system. This system is designed for "in-train" use with dc powered model trains from "O" scale and up. It can be powered by a constant track voltage or self-contained rechargeable batteries. Two versions are available. 1) 4-function FM R/C supplied, consisting of a pocket sized transmitter and a receiver throttle small enough to be mounted in an "O" scale diesel loco or the tender of a steam outline loco. Multi system capability. 2) This version is also small enough for "in-train" installation and uses readily available 2-channel model car type R/C. A decoder supplied with the receiver throttle interfaces with the R/C receiver. The R.C.S. "MICRO TITAN" throttles have sound system triggers and are rated up to 4 amps (80va) continuous. They have a 5-year guarantee. Write, fax of phone for more information or to place an order.

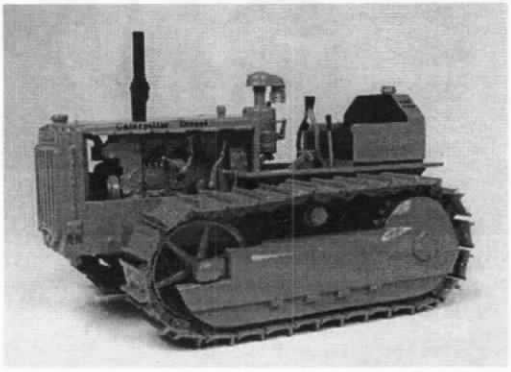
STEAM N STUFF, Ed Warren, 11996 Gast Road, Bridgman MI 49106 is offering inexpensive steam engine plans for those who would like something simple to start out with. Ed has written many articles for Modeltec magazine, and is making his plans and kits, designed especially for newcomers to machining and the live steam hobby, available to everyone. Check the advertiser index in this issue for Ed's ad, which has more information on pricing and ordering.



Toltec Images, Dept. SG, 1202 Kennedy Ave., Louisville CO 80027 -- phone 303-666-5484, has announced the second in a series of black & white renderings of narrow gauge locomotives. The first print is an image of Denver & Rio Grande Western locomotive number 346 -- the oldest steam locomotive still operating in Colorado. Robert W. Richardson, cofounder of the Colorado Railroad Museum, saved this engine from being scrapped in 1950. It became the original piece in what is now the museum collection. The print depicts the locomotive generally as it looked in late 1995. The drawings contain a wealth of detail that will be appreciated by railfans and modelers alike. Prints are on eggshell heavy stock paper and each is individually signed by the artist, Joe Mellen. They are conveniently sized and do not require a large amount of wall space. Prints are offered in 8 x 14 for $15 and 11 x 17 for $25 each. Prices include shipping and handling. To order send a check or money order to Toltec Images. Satisfaction is guaranteed. Return with your sales receipt within 15 days for a full refund (less actual shipping charges.) Write for a free brochure.



Classic Construction Models, 6590 SW Fallbrook Place, Beaverton OR 97008 -- phone 503-626-6395 or fax 503-646-1996, has announced the release of the newest model in their Classic Family, a Caterpillar D4 crawler tractor by master model maker Gilson Riecke. Using a 1950's vintage D4 tractor as a guide for construction, each unit features free rolling individually linked tracks, a functional tensioning system and an accurately detailed engine assembly. Licensed by Caterpillar and built entirely of metal, this beautifully hand built 1:16 scale model weighs in at an impressive 4.5 pounds. Each model has authentic factory paint and decals and will be built on a "per order" basis. Although a maximum production has not been determined, it is expected that approximately 500 units will be produced.



Sulphur Springs Steam Models, PO Box 6165, Dept. RB, Chesterfield MO 63006 -- phone/fax 314-527-8326 announces that they are now the U.S. agent for the Brian Jones SAM-2 radio control anti-glitch device reviewed in the last issue of SitG (#32). Bob Paule at SSSM tells us that he intends to carry the units in stock for immediate delivery. If you are experiencing "glitching" with your radio controlled locomotive, read the review and then check with Bob for smoother, glitch-free runs.

Llagas Creek Railways, 2200 Llagas Road, Morgan Hill CA 95037, phone/fax 408-779-4391 announces that they now have code 250 nickel silver rail available for their narrow gauge tie strips. Check out the whole Llagas Creek line of rail, tie strips, flextrack, turnouts, rail benders and other quality track products.

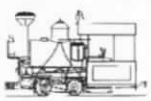
Shiloh Signals, 145 East Blvd., Dept. EA, Gloversville NY 12078 -- phone 518-773-8094 would like to announce that an updated catalog is now available. It includes new items which have been added to their existing line of G scale signals. The catalog can be obtained by sending a SSAE (2 stamps please) to them at the address shown above.

Kevin O'Connor's "S" Street Unit Shop, PO Box 161631 Sacramento, CA 95816-1697 -- phone (916) 447-5433 has designed a special adapter to allow the transfer of butane/propane blended fuel from Gaz™ containers into the fuel tanks of model locomotives. Gaz fuel is much less expensive than similar fuels, but the containers do not have the standard threaded nipple that would accept the Roundhouse-type adapters that most of us are using. Kevin tells us that his custom adapter will pay for itself in fuel savings after only three cannisters of fuel. Contact Kevin at the address or phone number above for full details, or see his ad in this issue.

Building or designing your own steam engines? Is valve gear a mystery to you? Or perhaps you are just interested in learning more about the various types of valve gear and how they work. Whatever your situation, we thought you might be interested in a computer software program we just received, which actually gives an animated graphic representation of the various types of valve gear and how they work. Additional technical information on each valve gear is also included. Best of all, you can't beat the price.....it's FREE! Contact **Allan K. Wallace, 31A Birkinshaw Avenue, TRANMERE 5073, AUSTRALIA for more information. Additional contact information: phone (08) 332 8183 -- fax (08) 340 2568 -- e-mail awallace@adelaide.on.net**. Ask him about his **Locomotive Valve Gear Simulator Software.**

Doubleheader Productions, 3725 Pageant Place, Dallas TX 75244 - phone/fax 214-247-1208 is developing a video tape which will be available this Spring. The video features many of the locomotives from the JD Models line, and some of the other lines carried by Doubleheader, and is a partial video catalog of Doubleheader's range of items for the live steamer and garden railwayman. The price is $8.00 for this unabashedly commercial tape, refundable with the first locomotive order. Most of the tape was shot on a lovely English garden line near Luton Bedfordshire. Please contact Ken Matticks at Doubleheader for more information, or to order the video.

J&J Trains, PO Box 1226, Cypress CA 90630 -- phone/fax 714-828-1537 announces the availability of Gauge 1, 1:32 finescale 1939 Daylight Chair Cars, priced at $725.00 per car with a delivery date of July 1996. The cars are made of brass and feature interior detail. The coaches are constructed as were the original prototypes with rolled, not extruded, corrugations that exactly replicate the appearance of the 1939 cars. The corrugations match the profile of the originals and are soldered to the interior of the coach shell. They are visible through openings in the car sides, as on the prototypes. Side doors open and close as on the prototype. The cars are full length and will negotiate 10' radius curves. Trucks are "Napoleon Hot" lost wax, fully sprung and equalized. Each truck has 12 lost wax castings and coinings. The cars will be drilled for Kadee couplers, but couplers will not be provided. Fifty cars have been manufactured exclusively for J&J Trains by Accucraft Trains for delivery in July of this year. This is the first car in the series, and baggage, tavern, dinner observation cars and more will follow. For delivery in winter of 1996, smooth sided Daylight Car models of the same chair car for Diesel Era enthusiasts. This replicates the rebuilding program for these cars that commenced in 1958. They would look superb behind the presently available EMD Class E8/E9 Streamliner from Garich Light Transport. Finally, J&J has a 1925 era boxcar in brass for $2175.00 per car. Contact J&J Trains for more information, or to place your order. Be sure to tell them that SitG sent you!



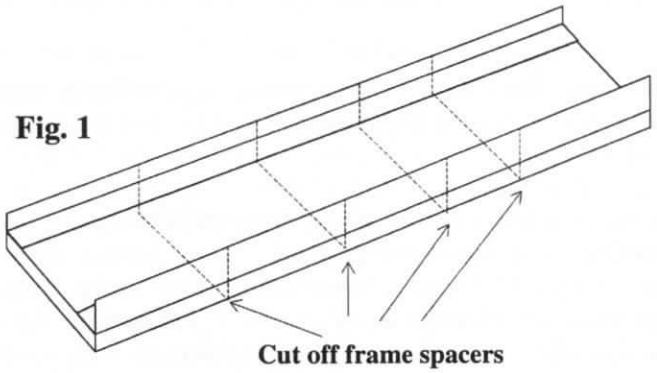
GAZING INTO THE FIRE

by Peter Jones
drawings by Jim Curry

Mechanical Wrinkles

Responding to various queries in my postbag, I'm going to run through one or two mechanical wrinkles this time. I don't THINK that I need to apologize if some are a bit basic and may be old news to some. I think that we sometimes take for granted the little mundane jobs that may frighten a beginner -- not because the tasks are hard, but simply because they are new.

Fig. 1



Let's start off with making frame spacers etc, to go into a loco chassis (**Fig. 1**). The trick is to find a piece of mild steel that is the right width to form the gap between the frames. If you can only get a strip that is slightly too wide, catch it between two strips of thicker metal in the jaws of the vice and file down.

Take a couple of pieces of small section angle and silver solder them along the length of the main strip, making sure that the edges are flush. You now have a long shallow channel section. Cut this into individual pieces and you know that they can't be anything other than the same width. Use a couple of pieces at the ends of the main frames as a seat for fixing the buffer beams. Thus when you fix the side frames to the spacers, they have to be exactly parallel; they can't be anything else.

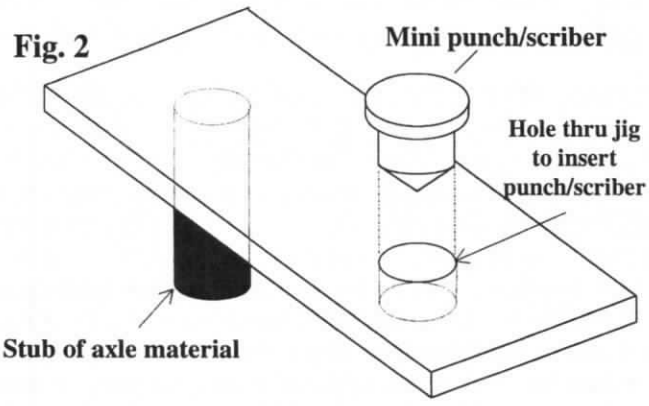
When I drill out the pilot holes for the axles, I do so with the blank mainframes clamped together...that is obvious practice. But what I also do is to clamp an additional strip of mild steel to the frames before drilling. So when the axle spacing gets drilled out, this is also recorded on the spare strip. I paint the strip with a bright colour because I'm not going to need it for a while and it is just the sort of thing to get lost in the workshop. Indeed, I usually put a sticky label on it and write down what the job is.

And the reason for this strip ? When I come to drill out the coupling rods, the centres will be exactly right for the crankpins, provided that the throw of the cranks is accurate.

To get this throw equal on all wheels, I make up a jig (**Fig. 2**). It is a flat strip of metal with a hole drilled out to take a short stub of the same material as used for an axle, but just touched down a gnat's whisker with a rub of emery as the stub spins in the lathe. The reason for this is so that the stub will be a tightish twisting fit in the holes drilled in the wheels (or the outside cranks), rather than the tight wringing fit that I would normally expect of the actual axles in the holes.

Now the distance of the crankpin throw isn't ultra critical in itself - we merely want to make it look right for the model. But the vital thing is to make sure that every throw is the same as its neighbour. To that end we mark a centre line down the strip and measure off the throw. In practice it is easier to use a pair of dividers and mark the centres of the two holes before you start drilling. The lower hole is drilled out. There are two routes you can go now. The first is to use this hole as a jig for drilling into the wheel, for the crankpin. It won't wear out if you only make one or two locomotives. But it isn't always easy to make the hole come out in the exact centre of the wheel boss. If it is slightly lopsided on the 'pear shape' it won't affect the running, it just doesn't look right. A more accurate method, and one which makes the jig last much longer is to drill out that hole at the correct throw and then to make up a special tiny centre punch to go in this hole. You scribe a line down the centre of the boss and then put your punch into the jig. But you don't use the punch as a punch, you use it as a scriber You press down on the punch, at the same time sliding the jig from side to side. When you remove the jig, you will see that you now have a crossing of two lines. You can centre

Fig. 2



pop this is the usual way (and I like the optical centre punches now available; one of my few luxuries in life), or you can put

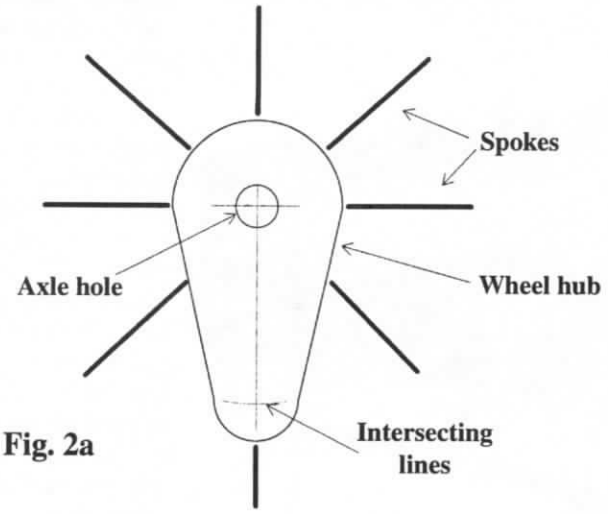


Fig. 2a

the little homemade punch back in place. If it is sharp, you can just feel where those two lines intersect **(Fig. 2a)** and you can give the punch a light tap.

It may be a bit long winded, but it is another of those techniques that deskills a job nicely. There are some people who go through life blissfully unaware of the right angle and the straight line. Normally I wouldn't dream of criticizing them - after all, they are probably much happier in their hobby than I am. But in putting together steam engines, there are times when things have to be right or they don't work. If there are ways of making sure that they are right, no matter how limited your experience, then go for them.

Into this category I also include wheel turning and wheel quartering, but there have been jigs for getting this right since Noah built his first dockside switcher, so I will move on.

I'll move on to other useful techniques that are less critical. Someone asked me recently how I fitted bushes to boilers, to accept boiler fittings. I thought that this seemed a bit obvious at first, but further thought was useful. The short answer is that I drill a hole so that the bush is a loose-ish fit and then silver solder it in place. But a beginner might have two queries. Firstly, drilling a hole in thin metal. Use the right size drill and there is strong possibility that it snatches or cuts an irregular hole. What I do is to drill a small hole and then open it up with a taper reamer which I abuse in the bench drill. I feed it in until I achieve that slightly loose fit I want. It also has the effect of thickening the metal downwards slightly, where the hole is drilled. This provides extra meat for the silver solder to bite against. It isn't scientific but it works.

Incidentally, whenever you are soldering a small job and you don't want the solder to spread untidily, try drawing a pencil line with a soft pencil as a limiting boundary. Provided you do the soldering job quickly, this keeps the joint neat. This is particularly useful when soldering union ferrules on the ends of pipes and you want to keep the pipe from having solder runs along it.

So a typical job might be in fitting a pressure gauge and a syphon. It is very useful to be happy in soldering up bits of pipe with union fittings -- you may need a lot of them in your loco building career. I like to put my bends in copper pipe first and so I anneal the pipe with the blowlamp. I like to try and make my pipe runs neat. It doesn't affect the performance but it is somehow more satisfying. I have various pipe benders, but, to be honest, a softened copper pipe will bend easily around any curved surface of the right diameter. For pressure gauge syphons, I wrap the tube around my little finger (the only thing I seem to be able to wrap round it in life.....)

Another subgroup of activities that benefit from a technique or two are those where you want to solder ends to bodies. Suppose you want to make a spirit or gas tank **(Fig 3)**. Well, the easiest thing to do is get a bit of round or square section brass tube and solder ends on. For a neat job, file a deep chamfer on the end faces of the tank body. Cut the ends slightly oversize and then silver solder them in place. Just file down the overlaps with an emery board and you are left with neat flush joints with a thin silver line where the solder is.

To take things a stage further, I would solder the base onto a brass tube that forms a displacement lubricator by turning a deep chamfer at the end and silver soldering the base in place. I would form a screw-cap, roughly to shape. This assumes thick-walled tubing for the main body. If I didn't have any, I would drill down a bit of brass rod and leave the bottom undrilled, of course, to form the base.

I would leave the cap overlong so that I could grip it in the chuck. I would then turn down top, body and base so that I

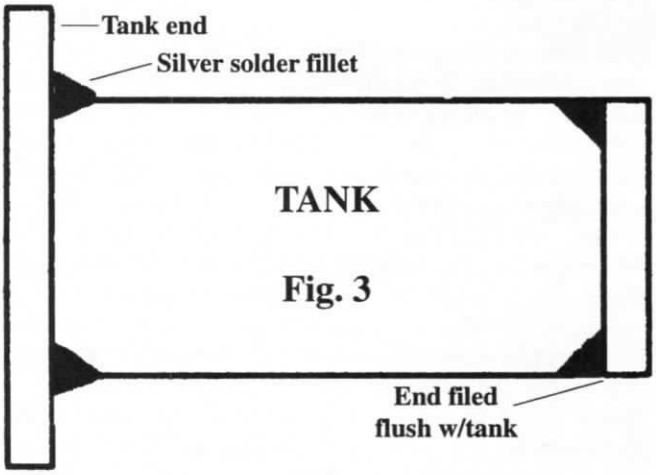


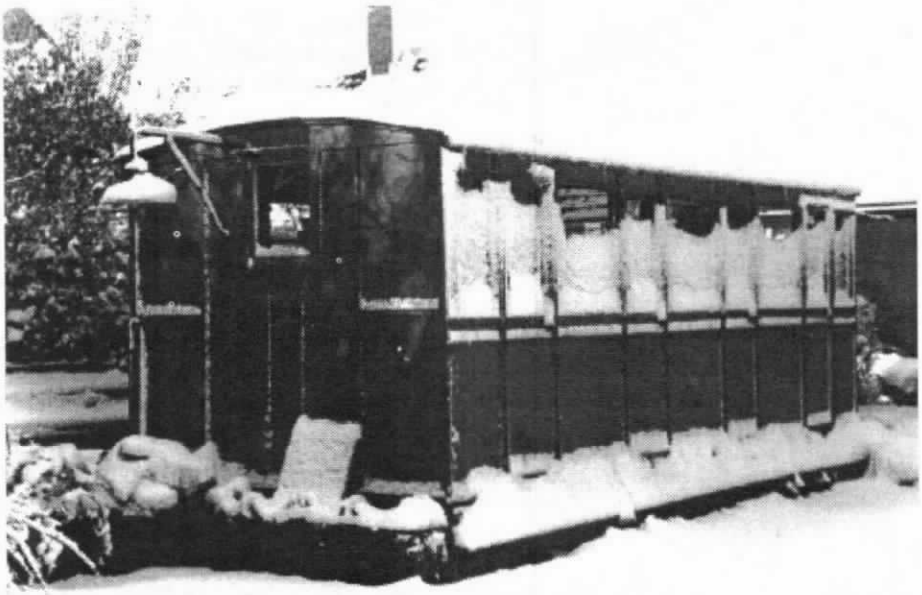
Fig. 3

had a nice flush finish, with a thin silver ring at the bottom where the base had been hard soldered in place. If I were cute, I could have made the lubricator oversize and then turned it to form the shape of a brake column **(Fig. 4)**. A cross slot could be filed across the cap and a bent handle hard soldered in place.

Maybe a word here about the uses of hard versus soft solder might be useful. The well known difference twixt the two is that hard solder needs a much higher temperature to run. We bear that in mind when we think of its applications. So, please, no soft soldered boilers in the normal course of events. Yes they can work and, yes, many old tinplate steam engines were soft soldered. But there isn't much margin for error. A well designed cool burning spirit tank can be soft soldered,

but I like the peace of mind that hard solder brings.

But there is more to it than just the temperature. There is long term durability. As months, years, decades roll by, soft soldered joints can lose the will to survive. It may be due to electrolysis of different metals and it may be due to the flux not having been properly cleaned off when the original job was done. But an old green-coloured, dirty soft soldered joint may come to haunt you with time. As well as that, a hard soldered joint, for whatever reason, has more strength under extreme stress.



This is where it all happens.....the Wizard's Workshop at Compton Down.
Photo by Peter Jones

All things being equal, a hard soldered joint is easier to make than a soft soldered one

I encounter folk who have been soft soldering all their lives but who are terrified of the voodoo art of silver soldering. They are frightened by the high temperature involved and by reading the long list of silver solders and fluxes, each with their own temperatures. But fortunately there is an easy intro to the subject that takes care of most of your needs. So forget the complications for now and let's look at basics.

We want a blowlamp, something to use as a hearth, silver solder and flux. The blowlamp can be a hand held gas gizmo. This did me proud for many years, although I now use a torch on the end of a hose connected to a bottle. Unless the job you are working on is very small, this won't give enough heat on its own. You need to reflect the heat back on itself to build up the temperature. At bottom level this calls for a couple of fire bricks. Refractory material comes in different guises. Bits of firebrick packed around the job work well. I've used an old asbestos blanket and I've even used bits of wood surrounding a hole scraped in the ground in an emergency. Coal is a good refractory material but is dirty. My favoured material is the broken up remains of the mantles used in old natural gas fires.

My current hearth consists of an old domestic coal grate on which I assembled various bits of fire bricks according to the job. It stands on my workbench (well away from paints and thinners...!), with something fire resistant underneath, but it is so efficient that the worktop never even gets warm.

The silver solder I use for ordinary jobs is whatever I can get locally in this remote part of Wales - usually some sort of unknown silver solder from the DIY store. I prefer to buy it uncoated and use my own flux. And that flux is Borax powder from the local pharmacist.

That's the ingredients, here's the method. Start out by soldering two offcuts of brass rail together. Silver soldering likes the bits to be cleaned first. I use wire wool, emery paper or a wire disc in the electric drill if needs be. Put one of the two pieces down on the hearth, whatever it is, and apply a little borax paste. I could tell you to do things properly and mix a little powder with water to form a fine, even paste. But I usually moisten the metal and then sprinkle a touch of the powder on. It's not very scientific but it works just as well where appearance doesn't matter.

Play the blowlamp on the job and touch the end of the silver solder onto the metal. You may see that the solder starts to bend before falling as a blob onto the metal. We are making the mistake of melting the solder first. Get the job hot enough, take the flame away and touch the solder against the metal. If things are right, you will see that it will instantly 'flash' to a lovely liquid finish. It doesn't blob like soft solder does. I usually predunk the silver solder into the dry powder before application.

There are several ways of joining two bits of metal together. The right way is to physically hold them together with a twist of wire or a nearby clamp and then to introduce heat first, then solder, and then a drop more heat to ensure a smooth flowing. But many's the time I have presoldered both pieces and then held them together under the influence of the blowlamp. Given a choice, leave the job to go cool naturally to avoid stresses, but don't lose sleep if you have quenched the occasional non-structural joint.

You will be delighted at just how little solder you need to make a good joint. The early mistake is to think in soft solder terms and use too much material. Whatever, when it cools down, evidence of the high temperature is there for all to see. The job is very discoloured and looks quite unappetising. But fear not. A good buffing up will soon bring back the shine. For larger jobs my favourite cleanup is by holding the job against a wire disc spinning in the bench drill.

If you are a skilled engineer, please don't write me to say how heretical I am. I know that I have long been pre-doomed for Hades. If we can assure the lone guy out in the boonies that he can build a steam engine, then I go to my fate happily; knowing that **a)** I will be in interesting company and that **b)** silver soldering is easier there than the alternative on account of the ambient temperature differential.....

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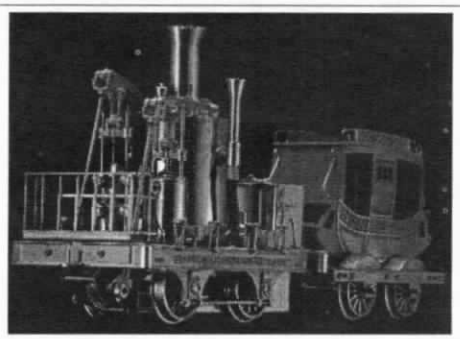

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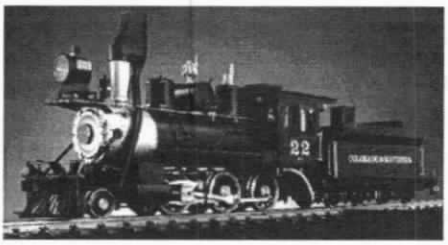

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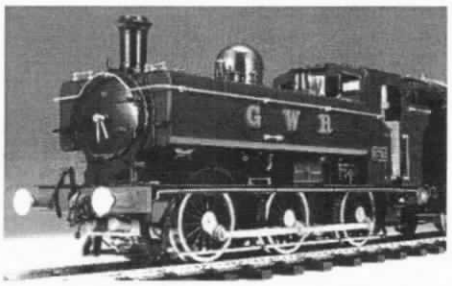

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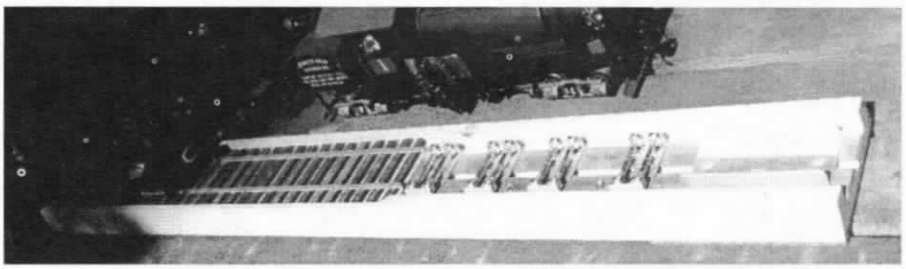

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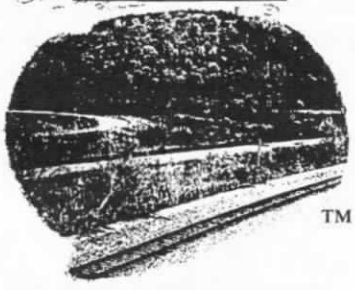

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The Fitter's Bench

by Crankpin

drawings by Harry Wade

Toolbits and Pieces

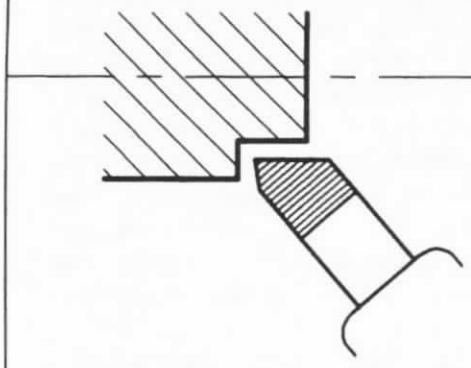
Having just recently touched on the subject of the subject of toolbit holders, we might just as well go ahead with a few words on the toolbits themselves. Tool bits (or simply "bits") are, after all, the parts that do the actual cutting of metal and are of fundamental importance to the machinist. Nothing can have a greater effect upon the accuracy and finish of your work as the selection, preparation, and surface finish of your bits. I must confess to you that this sermon had been preached to Old Cranky from the earliest days of my apprenticeship through many of my early years but in the face of evidence to the contrary I resisted the belief that this was of much importance. Only after I began to follow in the footsteps of those that have gone before, who properly ground and finished their cutting tools, did I make progress toward attaining the levels of accuracy and finish that I admire in the work of the masters of model engineering. Some of you who may be familiar with woodworking practices will know that craftsmen in wood always take great pains to keep their tools finely honed, and so it is with metalworking. Wander in the wilderness if you choose, but sooner or later you will see that what I say is true, and it is never too late to join the flock who are known and admired for their good machine work.

This toolbit business is a vast subject and to go very deeply into it would not only far exceed the space available to me here, but would quickly lead me to the furthest reaches of my knowledge. Today we will just touch upon a few basics, but for those among you who would benefit from more information than I can dole out here, I have included at the conclusion of this month's column a listing of books and publications on the subject, all of which can be highly recommended. All of these are available from suppliers in both the UK and US and I urge you to collect one or more of these for your own resource library.

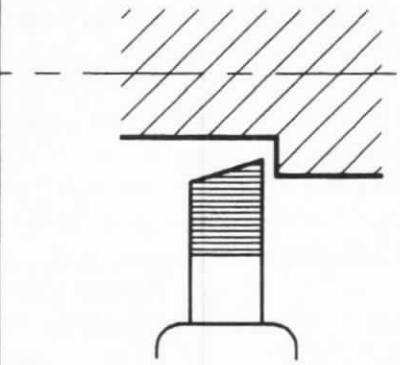
If I recall clearly what I have written thus far, the tooling I have described should be considered to be permanent accessories, by which I mean items which either enhance the operation or extend the structure and capacity of the lathe. These are items that once bought should last virtually the lifetime of the machine, barring accidental damage or loss. Tool bits, on the other hand, fall into a subclassification to this which is unnamed but is, one might say, the accessories to the Accessories. Items in this category are considered to be expendable, that is, they will eventually break or be continuously worn, shaped, ground, stoned, and worn again until there is too little left to be of any use and the smidgens are then tossed in the dustbin. This is the natural order of things and should not be considered waste. Toolbits are relatively cheaply had, and in the process of cutting metal some component must be sacrificed to the destructive effects of Friction and Heat. Alas, the poor toolbit is "it".

A bit of cutting tool history might be in order here and, sparing you the ancient history, I will take up the story with the introduction of "high speed" steels. This form of cast alloy steel for cutting tools made its appearance in industrial workshops in the early 1900's, and played an important role in the emergence of a "modern" era of machine tool technology. Since the advent of powered machine tools, the best material available for cutting tools had been forged high carbon steel which, as with knives and swords, could be given a superb edge. However, after the turn of the century, when the need for higher rates of production brought with it an increase in turning speeds and cutter feed rates, carbon steel proved to have a few disadvantages. The principle disadvantage was that as the temperatures found at the tip of the tool (which is the unavoidable result of our old friend friction) rose beyond a critical point, carbon steels would quickly lose their edge and require that the machine be shut down and a freshly ground toolbit thrown into the breech. Under normal circumstances the life expectancy of a cutting edge was expected to be one to two hours but as turning speeds and cut depths increased, the life of a carbon steel bit dropped sharply, as did production. High speed steels (universally abbreviated HSS) were so called because a freshly ground and dressed bit would withstand the higher levels of frictional heat produced by modern machining practice and would hold an edge for a much longer period of time before it required dressing or regrinding.

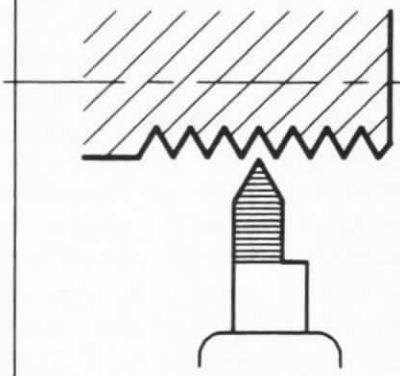
HSS toolbits are available in an extensive range of sizes and shapes, including squares, rectangles, rounds, and flats, although the most commonly used shapes for lathe applications are squares of 1/8", 1/4", or 3/8" size. There are a number of different HSS alloys which contain in addition to carbon steel some trace amounts of tungsten, molybdenum, cobalt, and other elements which give HSS toolbits



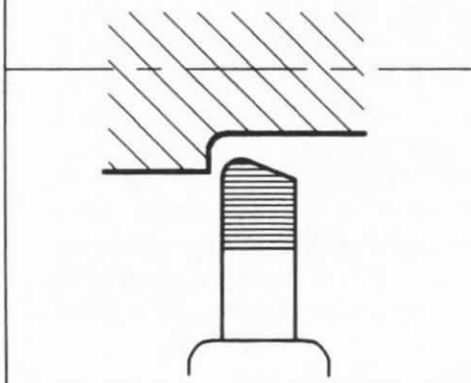
RIGHT HAND FINISHING TOOL



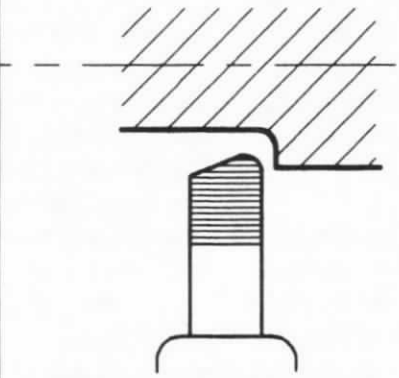
LEFT HAND FINISHING TOOL



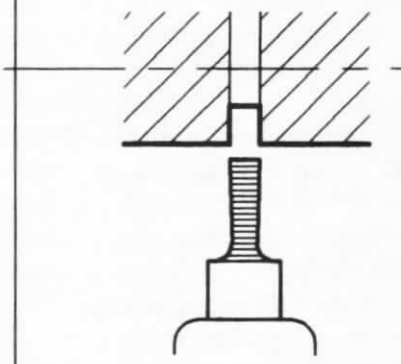
SINGLE POINT THREADING TOOL



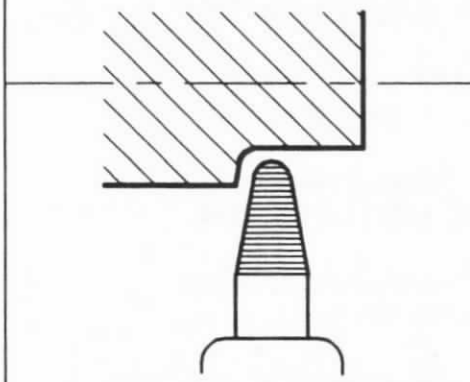
RIGHT HAND ROUGHING TOOL



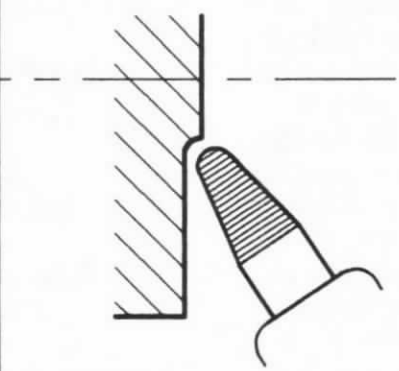
LEFT HAND ROUGHING TOOL



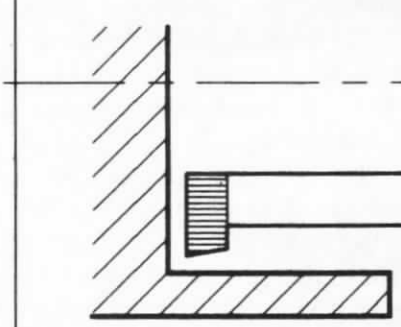
PARTING OFF TOOL



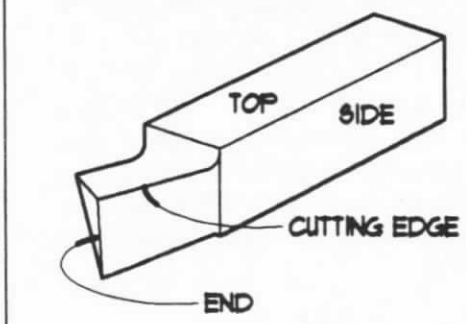
ROUND NOSED TOOL - ROUGHING



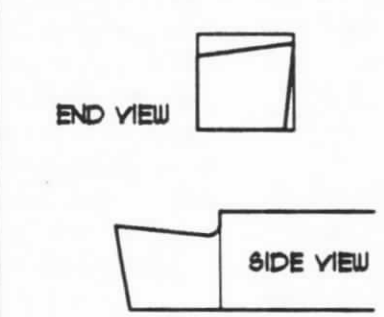
ROUND NOSED TOOL - FACING



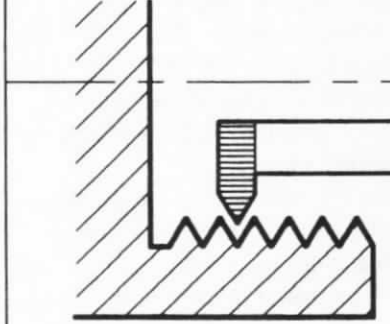
INTERNAL BORING TOOL



TYPICAL TOOL BIT



TYPICAL TOOL POINT GEOMETRY



INTERNAL THREADING TOOL

and other HSS cutters various degrees of heat resistance. In industry the various alloys tend to have specific uses, but for our purposes any one of the HSS alloys can be considered as good as another although you will discover that some alloys perform better than others. As with anything else, quality is a factor. A high quality toolbit can be seen by those with only a small accumulation of experience to have a longer edge life and produce better finishes than one of marginal quality. The various cobalt alloys, for instance, are one of the hardest of the HSS steels and will have a substantially longer edge life than the other alloys, although they will be considerably more expensive than the others. A first quality U.S. or British-made cobalt 1/4" square toolbit currently costs from $3 to $8 (U.S.) depending upon the percentage of cobalt in the alloy. This may seem unnecessarily expensive considering that an "economy" import from the Far East in generic HSS may be had for less than $1. Consider, however, that the cobalt will have the qualities mentioned above and, because it will require regrinding fewer times, using my own rate of consumption as an indicator, it should last the average amateur machinist many years. Now let us get on to the toolbit shapes.

Many manufacturers of small lathes and various tool suppliers offer HSS toolbits in sets, ready-ground to six or thereabouts of the basic tool shapes. These may at first seem attractive and convenient but I have found that they are a poor investment in the long run for two reasons. First, they are not inexpensive and in my experience are always made from only average quality HSS stock. (Not poor mind you, just average.) Secondly, you will find yourself immediately regrinding these shapes to those that suit your individual need and then the price you paid for the grinding will be lost. Some of you who are beginners may take some comfort in the ready-ground set as it might give you a platform from whence to work, allowing you the confidence to begin experimenting with your lathe without having to worry about tool grinding just yet. I do not think anyone could be faulted for this approach. However, bear in mind that for the price paid for one of these sets you may buy several of the $1 economy bits, which you will sacrifice to the grinder whilst learning the sometimes difficult technique of tool shaping, and several first-rate bits for your first line tools. The typical commercial HSS toolbit comes from the mill ground flat on all sides and it is up to the buyer to grind the tool into the required profile. For most amateur machinists this is a job done by hand on the bench grinder. A final dressing or honing of the cutting edge is done by giving the tool a few strokes on a fine oilstone or, in more recent times, a diamond slip.

The illustrations on the previous page show a collection of commonly used tool point profiles. Their respective cuts are indicated by the heavy line. These shapes, or minor variations of them, are generally accepted as standard and form a basic collection which will serve with consistency in most situations. However, in all my days I have never set foot in a workshop where good work was being done in which there could not be found a drawer of toolbits ground in all manner of curious shapes, most of which bore not the slightest resemblance to those in the illustrations. The reason for this recalls what I have told you several times in previous columns, which is that while there are standard profiles which have been accepted over the years, in the final analysis the best way is the way that works best for you. In the course of a project one never knows what sort of nook or cranny might present itself, so be prepared to occasionally grind up a "special" if needed for getting in for just the right cut.

Those of you who have been with me since the beginning will remember from my chats about drill bits that their point geometry (how the cutting edges are shaped) is different for different metals and materials; so it is with lathe bits. Tool tip geometry not only involves the profile shape, that is the shape of the cut as described above, but also the edge shape which determines how the turnings are "sliced" away the from the parent metal. This can be a moderately complex subject, being essentially an exercise in plane geometry, and is probably best learnt from a book whilst sitting down, preferably with at least one pint of the best local close to hand. To aid in that inquiry, here as promised are the titles of several books that I have found to be of help in learning the way to prepare a proper tool bit. There are of course many others, but these have been written with the model engineer in mind.

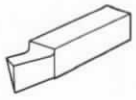
Model Engineer's Handbook,
Tubal Cain, Argus Books, UK

The Amateur's Workshop
Ian Bradley, Argus Books, UK

The Amateur's Lathe
L.H. Sparey, Argus Books, UK

Atlas Manual of Lathe Operation
Clausing Corp., USA

A word of caution before closing for this episode; do not confuse HSS with Carbide, which is a completely different tool material and behaves quite differently than HSS. I will tell you all about the carbides in due course but there is another stop to make first. With a few exceptions, usually dependent upon size, the various toolbits used by the average model engineer or amateur machinist require some sort of toolbit holder such as the forged "Armstrong" type as was mentioned in our last issue. When next we meet I will describe these and other types of holders which are commonly found laying about the world's workshops, both amateur and professional.



Product Review -- IPM01 Burner for the Mamod Steam Locomotive

Manufactured by: I.P. Engineering

Available from: Brandbright Ltd., The Old School, Bodham, Holt, Norfolk, NR25 6QG, U.K., phone 011-441-263-588-755, fax 011-441-263-588-424

The Mamod locomotive has long been a familiar sight on gauge 0 and gauge 1 tracks around the world. As it comes from the manufacturer, the fuel used consists of smelly little white tablets which are laid end to end in a burner tray and set on fire. The do a fair job of boiling water and raising steam, but they make a terrible mess of the bottom of the boiler, leaving a nasty black deposit that must be scraped off regularly to allow heat to get to the water inside the boiler. The burning tablets also have a pungent, unpleasant odor not soon forgotten. It's not surprising, then, that one of the first aftermarket items the new Mamod owner goes looking for is a replacement burner assembly. The good folks at Brandbright Ltd. have just released a new alcohol burner that does the job quite nicely.

The sample burner that I received came in packed in a nice resealable plastic bag. With the burner also came brief but adequate written instructions on how to install the burner, and a basic course in how to run the engine with the burner installed.

The burner itself is a three wick design with an integral fuel tank. The three, 3/8 by 1 inch wick tubes come packed with the wick material. These wicks fit between the axles and frame stretcher. They direct their flame directly onto the bottom of the Mamod pot boiler They are connected to the fuel tank by a single 5/32" tube which supplies the alcohol to the wicks.

Also connected to the feed tube is a flame shield which fits behind the rear axle. This prevents the flame from blowing back into the cab, and helps keep the alcohol tank cool, to prevent the fuel from being vaporized by the heat.

The tank is a 3/4" x 2-1/16" square tube. A filler tube and mounting stud are affixed to the top of the tank. The square tube is closed in at the front by a second flame shield which doubles the effectiveness of the first one, which is located 23/64" forward of the tank. The rear of the tank is closed in by a square .775" on a side, which has to be filed down a little in some cases to clear the rear buffer assembly.

The screws that attach the side frames to the rear buffer assembly and the 2 screws that attach the cab must also be shortened as per the instruction sheet. This can be easily accomplished by placing one or two 2-56 flat washers under head on the screw.

The mounting stud on the top of the tank is designed to fit into the slot in the floor of the engine cab. It just barely reaches far enough into the slot to hold the tank in place. A quick fix for this would be to cut a piece of brass 1/4" x 1-1/2" x 1/16". Drill a centered hole 7/64" into the brass strip. This could be placed over the mounting stud and on top of the floor to provide a more secure fit. Filling the tank requires a syringe or a piece of tubing attached to a squeeze bottle so that it can reach the filler neck. The filler cap is a brass turning that slips over the filler neck.

The burner provides a very good source of heat for producing steam to power your engine, and it provides a very great improvement in performance over the heat tabs.

reviewed by Henry L. Bloch

Steamup Report: Diamondhead '96

by Morgan Jennings
photos by Carol Jobusch

The Fourth National Gauge One Steamup

Jerry Reshew and his team did it again. They succeeded in providing a fourth year of premiere steaming and camaraderie. The effort that goes into this event is no small undertaking and the work load seems to grow each year. This year, tours were added to the agenda for those who wanted to see some of the local sites. Participants had the opportunity to visit Biloxi one day and New Orleans the next.

Another addition this year was a sign-up board (in 1/2 hr. increments) during the particularly crowded hours of 12:00 p.m. - 6:00 p.m. This seemed to work well. It helped avoid accidents and encouraged joint use of the track. There was a lot of double and triple-heading. Some Porters triple-headed as well as Frank the Tanks. Roundhouse Sandy Rivers and Aster K4's were some double-headed combinations. Two Aster SNCF 232 Ul's teamed up, one running on coal and the other meths. It was a grand sight. According to Jerry, we ran engines for a total of 600 half-hour track periods on the four different tracks.

Another welcome addition was a hospitality suite sponsored by Aster Hobby West. They supplied a traditional Mardi Gras King cake for breakfast and also sandwiches at lunchtime.

This year old and new technology merged; steam and computers coexisted quite nicely. Richard Finlayson brought his laptop so he could connect to the *Steam In The Garden* web site. The phone lines were inadequate, so he ran files of the site instead. Additionally, the combined efforts of three people (Joanne Stapleton, Valerie Nickels and Richard Finlayson) computerized the registration process for Jerry. In fact, over half of the rooms at the Days Inn are already booked for next year.

The weekend seems to get longer with each passing year. Some people arrived early Thursday and didn't leave until Monday. This is understandable because the weekend is therapeutic. During the steamup there's no telling what goes on in the real world because it seems that few people watch the news or read the paper. The opportunity to run trains and talk with fellow enthusiasts is too good to waste on the mundane stuff!

About 150 people may agree with this assessment because that was the official attendance count. Other stats from Jerry include: Two hundred and twenty locomotives were present and 72 cans of butane, 22 gallons of water, 7 gallons of meths, 20 pounds of rags and 2 cans of Sterno were used. Something else that seems to be on the rise is the interest in coal fired engines. Several people I talked with expressed a desire to acquire an engine using this fuel source.

Something new this year was the presence of steam powered boats running in the pool. Way cool!

We all enjoyed the mainstay activities as well. The trackside luncheon, complete with door prizes donated by some of the dealers, was held on Saturday. Opening and closing sessions were conducted by Jerry, who tries to incorporate suggestions made during the closing session into the next steamup. The traditional picture was taken on Sunday by Carol Jobusch, who has to use a wide-angle lens so she can capture all of our smiling faces.

Another tradition is the lack of sleep that often accompanies this special weekend. Trains are run well into the wee hours of the morning. Then, those who did go to bed at a relatively decent hour are up with the dawn running their engines.

Several new prototypes and varying levels of finished product were being shown by dealers and other builders. Gary Broeder showed parts for the Shay that he and Michael O'Rourke will be manufacturing. Jim Hadden was showing parts and the pilot model of his upcoming Heisler. He also had his conversion of an Aster Western Maryland Shay to a narrow gauge Westside #12 Lumber prototype (at the Georgetown Loop).

Brandbright has a new plantation tank engine and also an oscillating cylinder 0-4-0 quarry type engine (one was given away as a door prize!). Berkeley Locomotive Works had the new econo-model Cricket for sale and a Canary yellow one was presented to a lucky door prize winner. It was cute as a bug!!

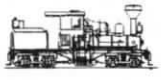
Roundhouse has a new steam tram, used on street railways and commuter lines. Charlie Mynhier ran a freelance streamline steam turbine that he built. Kosaku Wada from Japan had his new GP-9 diesel. This is the real thing in miniature: A diesel helicopter engine powers a generator that drives traction motors on each axle. It's available through Potomac Steam Industries.

I saw several people drooling over the latest stuff...and I'm currently adding to the humidity myself! J&J has plans to have a meths fired USRA 2-8-0 manufactured. During the steamup they asked people to fill out a survey, and Jeanette said that one out of every three respondents indicated that they would like this very engine, me included. Paul Quirk had to drag me away from his Aster 141R (French 2-8-2 prototype) that he modified into an American engine. J&J is taking reservations for the generic Mikado if you're interested. The price seems reasonable too.

As usual, there were great workshops. The United Kingdom was represented in two workshops: Lee Barrett did one on a British steam railway in California and Roy Scott on steam scenes from the UK. Coal firing was discussed by Marc Horovitz, and Murray Wilson showed slides of antique steam engines.

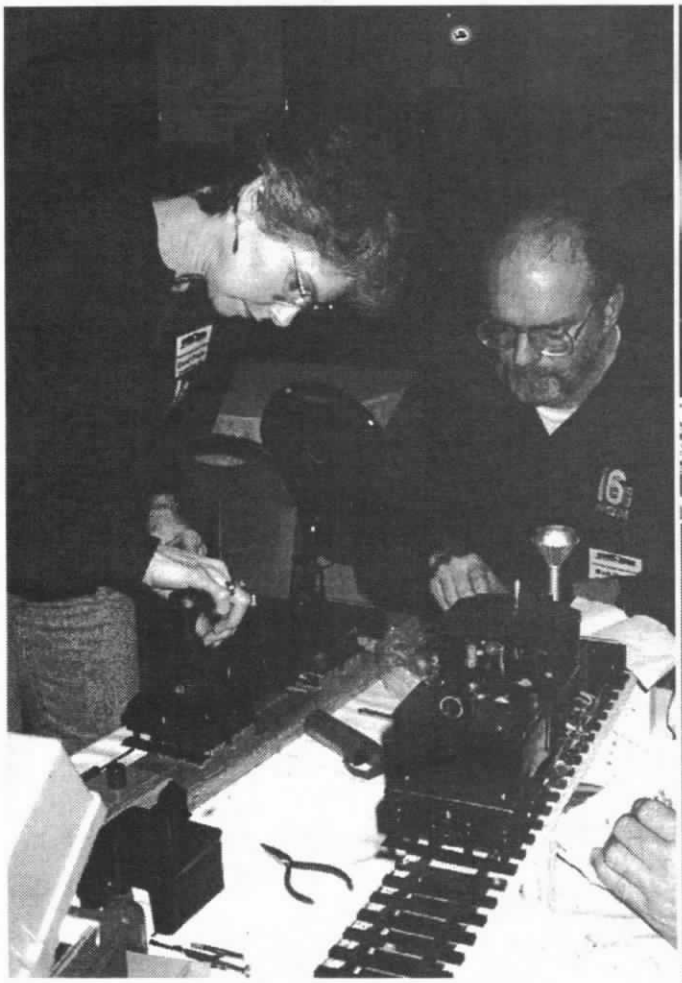
Two workshops on building steam locomotives were presented: Gordon Watson's seminar related to engines built by his Australia-based engine building firm, Argyle Loco Works. Jim Hadden gave a presentation about his Heisler narrow-gauge logging loco.

Next year the seminars and the steamup will have an interesting twist. The fifth year of the National Gauge One Steamup will be held in conjunction with the golden anniversary of the Gauge One Model Railway Association. All of the seminar speakers will be from the UK. As Jerry put it, we will "...meet with some of the living legends of small-scale live steam". Like this year, it promises to be another wonderful and exciting steamup.



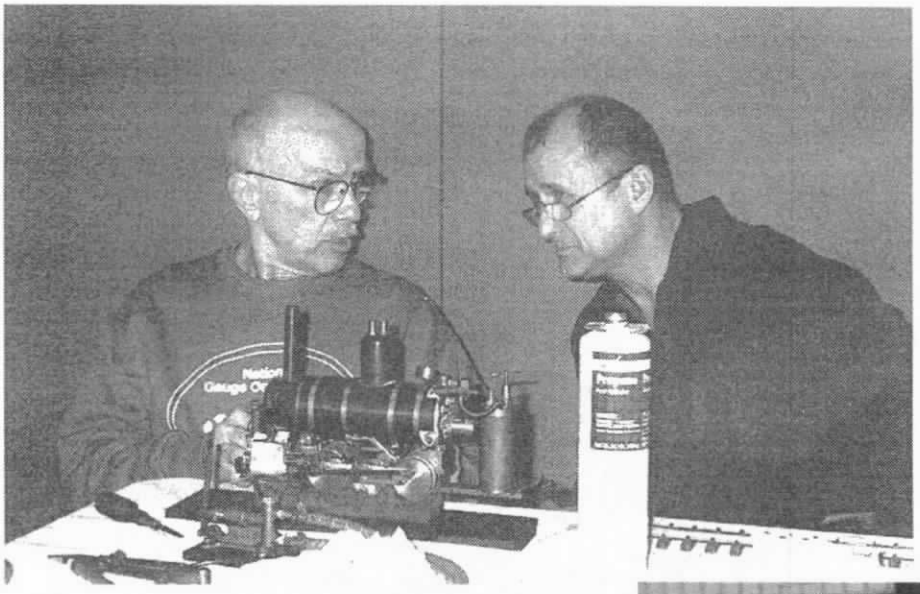
Left: A few Diamondhead attendees come early to help Jerry Reshew set up the track, registration, dealer room and all those things that go into making Diamondhead the top-rated steamup in North America. This cheerful crew, caught in the act of unloading sections of the track, is all from the Washington-Virginia-Maryland area, and they are a hard working bunch! l to r: Joanne Stapleton, Peter Jobusch, Jim Grummons and Isabel Grummons.

Below: To the delight of steamup attendees, Anthony Dimaggio (Florida) displayed several of his steamboats this year, a welcome new addition to the steamup. The indoor swimming pool provided ample water for Anthony to get in several runs.



Above: Carol & Bob Paule (Missouri) prepare Carol's Catatonk Shay for a run. On the right is another Catatonk Shay.

Right: Scott McDonald (Virginia) looks pleased with his neat little scratchbuilt Climax.

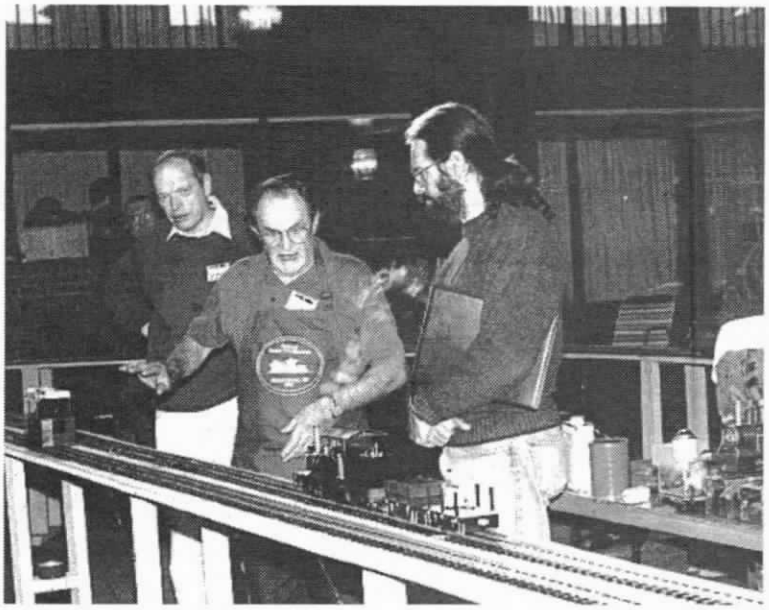


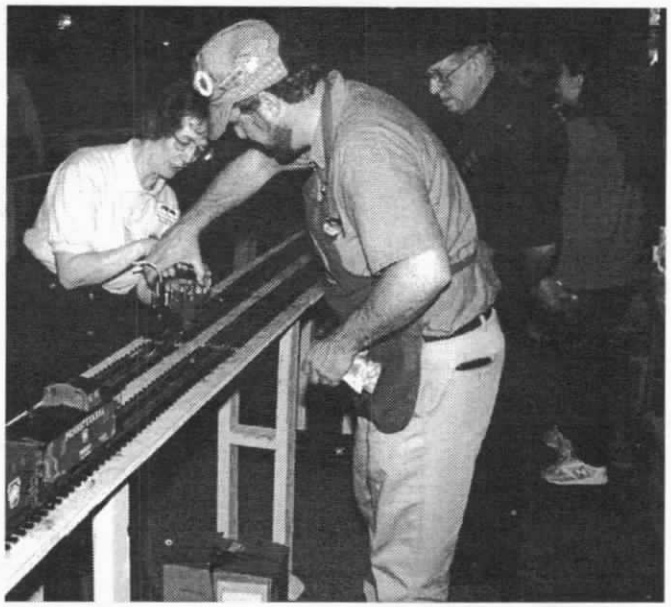
Left: John Baker (Ohio) and Charlie Mynhier (Texas) discuss the engine John has built following Charlie's construction series in SitG, ***Build Your Own Locomotive.***

Right: Doug Glatz (Pennsylvania) makes a run on the outer loop of the main track at Diamondhead '96.

Left: Vance Bass (Tennessee) pays close attention as Larry Herget (Missouri) divulges some trade secrets about his scratchbuilt Dunkirk (see SitG #27). Larry always manages to come up with something new and unique for every Diamondhead event -- that's his scratchbuilt 1-truck Heisler to the right of the Dunkirk.

Diamondhead is the place to learn how it's done from some of the world's great steam loco designers and builders!



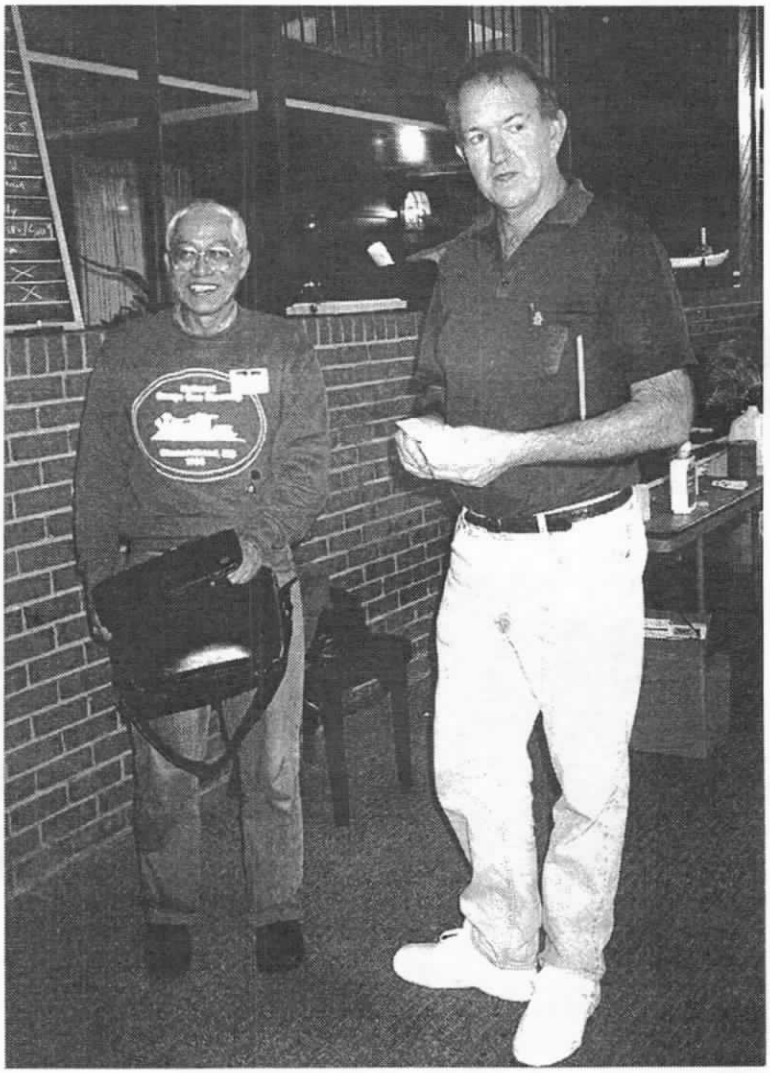


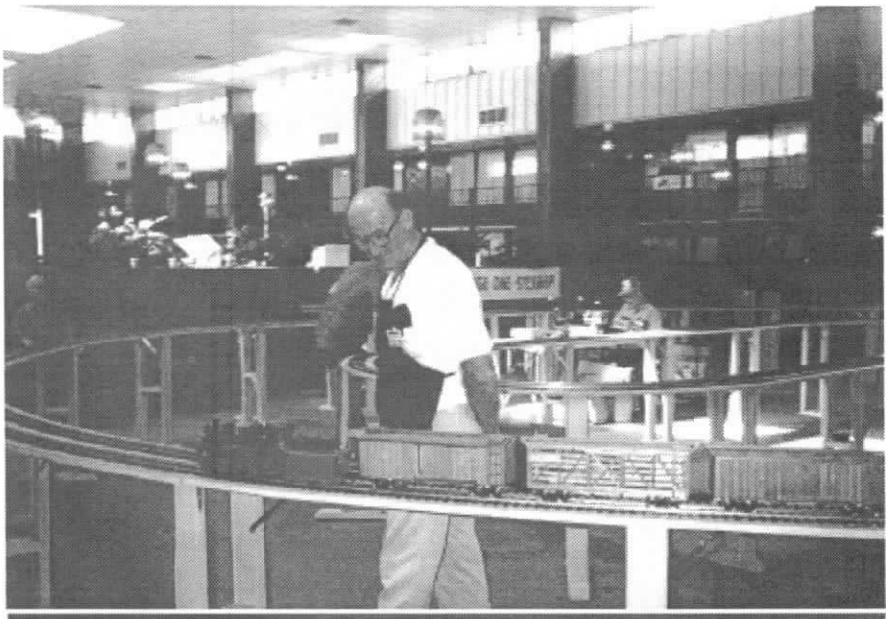
Clockwise, from above: Jim Strong (Maryland) looks on while Geoff Spenceley (California) explains to Marc Horovitz (Colorado) how they do it in the redwood forests on the Northern California coast.

Carol Jobusch (Maryland) and Michael O'Rourke (California) prepare an engine for a run.

Kosaku Wada (Japan) and Gordon Watson (Australia), both prominent builders of engines for our hobby, enjoy a chat.

Jim Hadden (Utah), prolific builder of museum quality engines and rolling stock, shows off his latest project, a beautiful live steam Heisler.





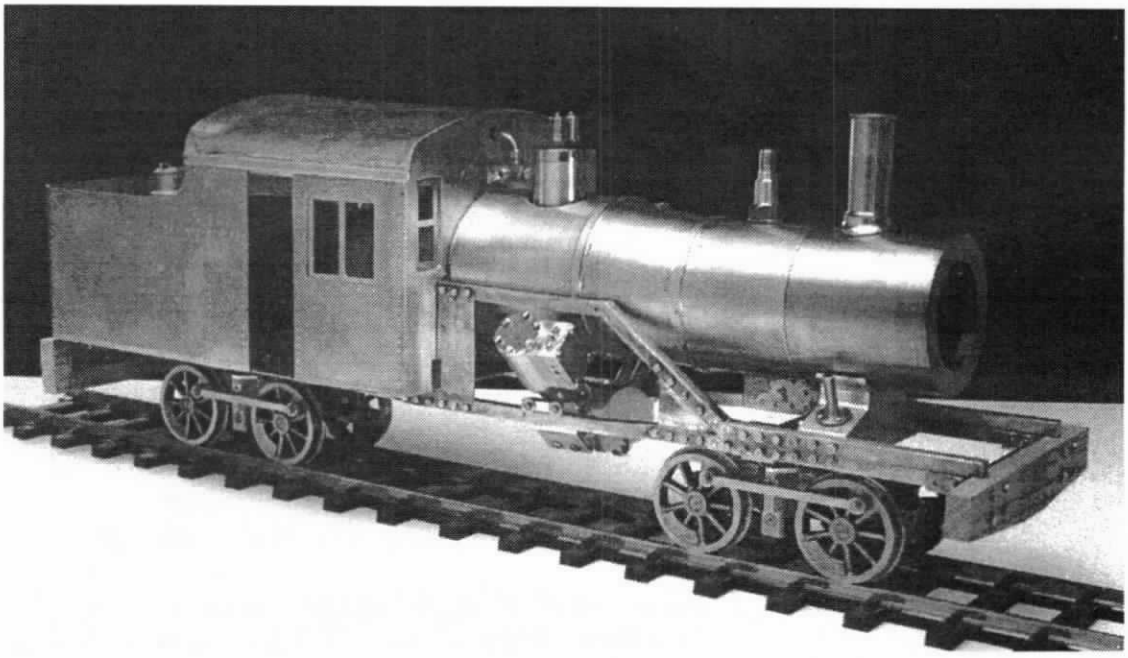
Top Right: Harry Treiber (Canada) is an enthusiastic steamer. He enjoys running his LGB/Aster Frank S, shown here pulling a freight consist.

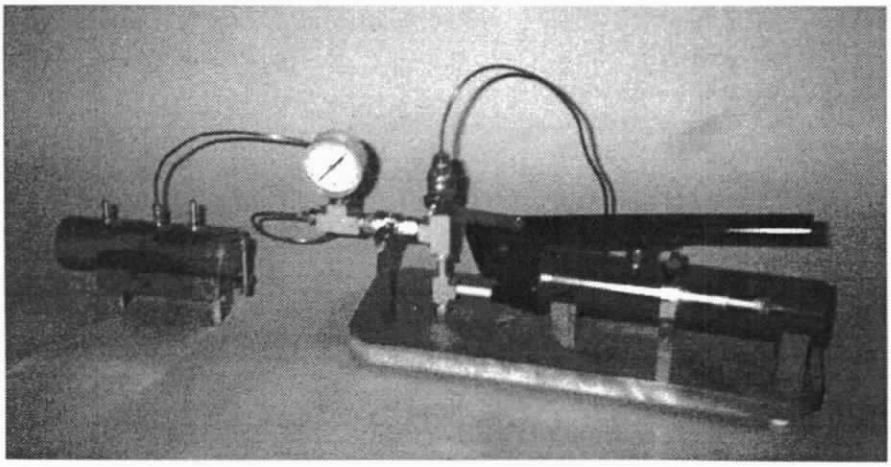
Lower Right: Kosaku Wada (Japan) is a brilliant designer/builder/modeler, and he never fails to amaze us with his new designs. His latest is a true diesel/electric GP-9 with electric starting (!) and radio control of speed and direction. It even has directional lighting. The sound and exhaust plume are as real as it gets...this is a truly amazing model. The interested spectator seen at left in this photo is Scott McDonald (Virginia), the man behind Potomac Steam Industries and the North American agent for Wada Engineering.

Left: Graham Bass (left - Tennessee) discusses his modified Mamod with Richard Finlayson (California) while Jim Grummons (Maryland) and his grandson Jeff look on.

Left: Teamwork! Jim Aubrey tends the fire and Morgan Jennings drives the train. Jim and Morgan are from Colorado and are active members of the Denver Garden Railway Society. Morgan wrote the article on Diamondhead '96 that accompanies these photos...and the heartfelt poem that concludes our Diamondhead '96 coverage.

Right: Couldn't resist another look at Jim Hadden's beautiful Heisler project. Looking good, Jim! In order to make it feasible to have some of the special parts cast and machined, Jim is building a small batch of these engines, and a few lucky people are going to have a chance to buy one.





Left: Kevin O'Connor is one of those lucky guys who is born with engineering vision and skills far beyond us mere mortals. One of his recent projects on display at Diamondhead is this boiler pressure testing setup, which uses an inexpensive automotive grease gun as a pump.

ODE TO THE FOURTH NATIONAL GAUGE ONE STEAMUP

by Morgan Jennings

Twas the night before steaming at Diamondhead Days Inn,
where the premiere steamup was about to begin.

The rooms were all filling, there wasn't much space.
People had come from all over the place!

Canada, Trinidad, England, Japan,
even Netherlands Antilles was one of the lands.

We knew we would see many bright happy faces
while all of the trains were put through their paces.

In order to run without feeling quite vexed
a sign-up board established just who was next.

Many different engines were run day and night,
from cute to majestic, it was an awesome site.

Aster, tinplates, Crickets and Argyles
were some of the engines that put on the miles.

Engines named Billy, Anna, Frank S
were placed on the track and put to the test.

Double heading, triple-heading and running more than one
happened quite often to add to the fun.

One of the engines, a tiny diesel
sent out fumes that were close to lethal.

A weekend of charred lungs, we didn't care
as meths, gas and coal smoke filled up the air.

The dealers did well, people spent lots of money,
and spouses tell mates, "It didn't cost much, honey".

The days were filled with laughter and cheer
and we registered early for the steamup next year.

The fun had to end, as we knew was the case
but we'll return next year to the very same place.

With friendships renewed and acquaintances met
we packed up our gear and off we did jet.

We smiled and thought as we flew out of site,
happy steaming to all and to all a good light!

PS: To Jerry we say with gratitude sincerely,
Thank you for having this gathering yearly.

FULL STEAM AHEAD!

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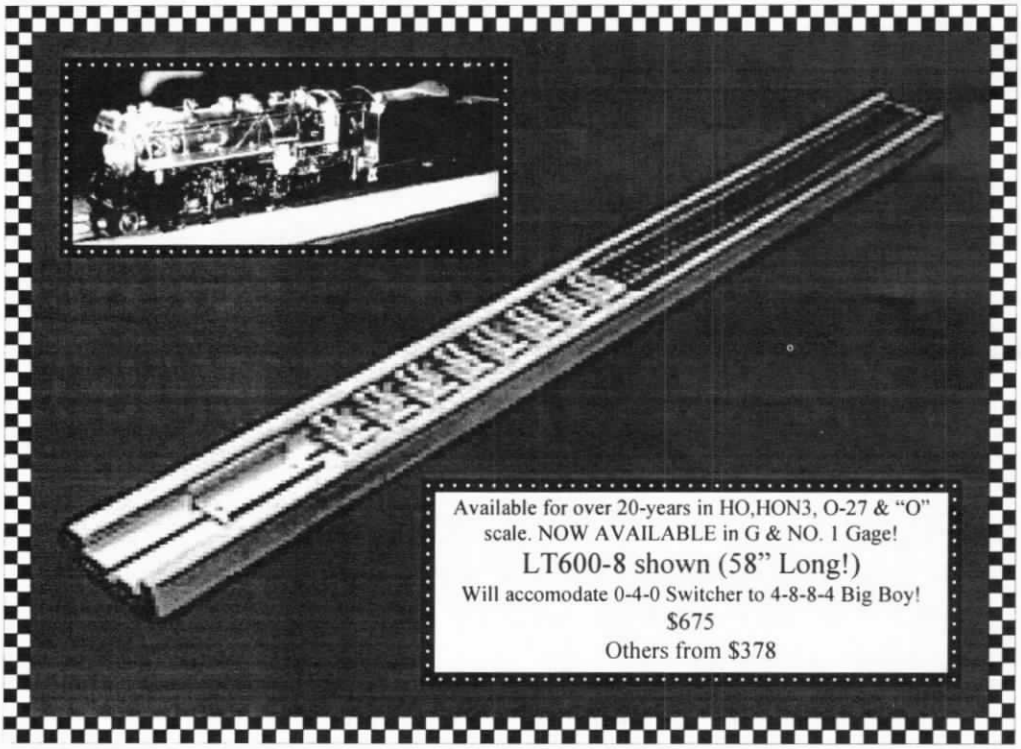

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Locomotive Review: Catatonk Shay

by Richard Finlayson

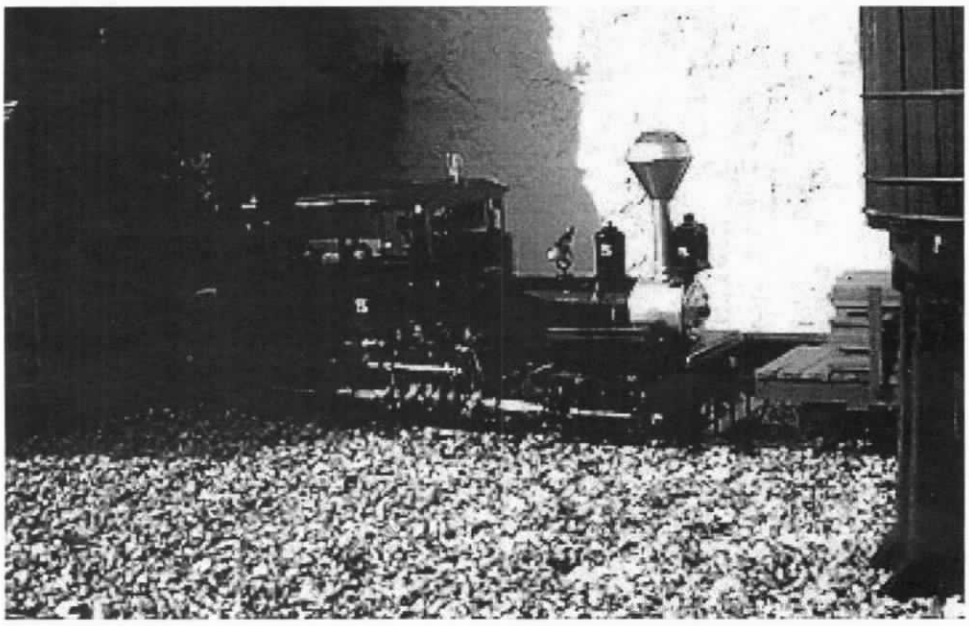
Technical Specifications

Description:	Model of a generic Lima 14-ton, 2-truck, 2-cylinder Shay, based on drawings by Al Armitage using standard Lima practices and components, which appeared in the November/December 1988 *Narrow Gauge & Shortline Gazette*
Scale:	15mm (1:20.3)
Weight:	5.1 kg (11-1/4 lbs.)
Length:	382mm over couplers (15")
Width:	112 mm (4.4")
Height:	170mm (6.7")
Minimum Radius:	48" (will negotiate LGB 1600 curves, but prefers larger radius)
Cylinders:	2 cylinders, 7/16" bore, bronze, with O-ring seals and brass crossheads
Crankshaft:	1/4" dia. main journals, 2-throw, pinned at cranks, 2 bronze main bearings
Valve Gear:	Slide valves actuated by Stephenson valve gear
Boiler:	"T" configuration with single flue, gas fired -- fitted with gauge glass, safety valve & regulator -- all copper, silver soldered, hydro-tested to 120 psi, working pressure 50 psi
Bodywork:	Cab, roof & bunker are all etched brass sheet
Trucks:	Investment castings and brass sections, 1/4" dia. steel axles, steel wheels (Delrin inserts on left side insulate for electric track running), 3:1 gears, slip joints and universal joints
Fittings:	Stack is etched, with turned and stamped parts; headlight, dome, bell, builder's plates, link & pin coupler pockets and whistle are all brass investment castings
Finish:	Primer + 2 coats heat-resistant black enamel -- colors are also available
Options:	Whistle, boiler fill valve (for adding water while in steam), pressure gauge & siphon, R/C mounting & linkage kit
Price:	USD$2675.00 (plus options, shipping & insurance) -- includes spare parts kit with fasteners, seals and extra gas jet
Builder:	Built by Gordon Watson, Argyle Loco Works in Australia for Catatonk Loco Works, USA
Available from:	Catatonk Locomotive Works, PO Box 335, Newark Valley NY 13811 USA -- phone 607-642-8119 or 24 hr. FAX 607-642-8978 or e-mail to docsteam@servtech.com

After a lengthy wait that seemed to stretch on forever, the anticipation of receiving my Shay was only heightened by the fact that we were in the middle of moving from Pennsylvania to California and I wasn't even sure of my address when the time came for it to be shipped. The time/space coordinate thing got figured out and eventually the Shay arrived at the proper location.

It took an entire evening of sorting and shifting the load of moving boxes in the garage to find my 5' radius track sections, but along the way I found all of my SitG back issues and communed with them until the wee hours of the morning, delaying my Shay steamup session. (I think this says something about my attention span!)

A stop at the Quickie Mart on the way home from work the next day took care of the need for distilled water and butane gas... but with the kids still in full swing at 10:00 p.m. and dodging my parental duties as I hunkered over my Shay on the back patio, I was horrified to find that at the Quickie Mart my hand had reached out in the vast expanse of space to grab the green capped distilled water... and snagged the blue topped mineral water instead. Mineral water! I shudder to think of it. I threw in the towel, thinking that tomorrow would be my day.



Jim McDavid's Catatonk Shay simmers on a siding in the California sunshine.
Photo by Richard Finlayson

Home from my day job (my night job is a cross between Home Depot Poster Child and Bob Vila), I searched for and reassembled the track after the kid's afternoon attempts to make tennis balls behave like fluorescent green Chip Rosenblum Rolling Stock specials. I filled the boiler, lubed up the chassis, took a shot of cold butane across the forearm, and headed out to the patio with the Shay. The "two-hands-full-of-prized-locomotive-slam-the-door-hip-thrust" is a tricky maneuver best tried only by professionals, and no sooner executed by me than all the yard lights went out, accompanied by that annoying high pitched ping of burned out bulbs. At this point I'd have taken a trailer hitch through my station wagon window in stride! I faced the northeast and gave our Fearless Editor a 3000 mile silent salute at having been inducted into the Bad Kharma Chapter of the Northern California Live Steamers Lodge.

But success was soon mine and the Shay has been trundling all over my deck since then. Here's the deal: you can tell from the SitG cover shot (July/August 1995) and the photos accompanying this review that this Shay is 10 lbs. of eye candy. It...looks...great.

It's got the characteristic details of the Argyle Forney I own and the other Argyle locomotives I've seen, which means that visible screw heads are kept to a minimum and the size of exposed nuts are small. Rivet detail is crisp, and castings such as lamps, pumps, etc. are clean. It's got the coolest little pressure gauge I've ever seen on a locomotive, and Ron and Gordon selected the much smaller 1/16" copper tubing for the butane lines and the pressure gauge for great visual effect.

The gas control valve is very well disguised as the bunker water supply valve on the tender deck. The roof has rain gutter detail and is double hinged in such an ingenious way that it flips completely forward and out of the way for servicing, but easily plops back into place for running. (I don't think I have a single photo of my Aster Climax under way with the roof in place..)

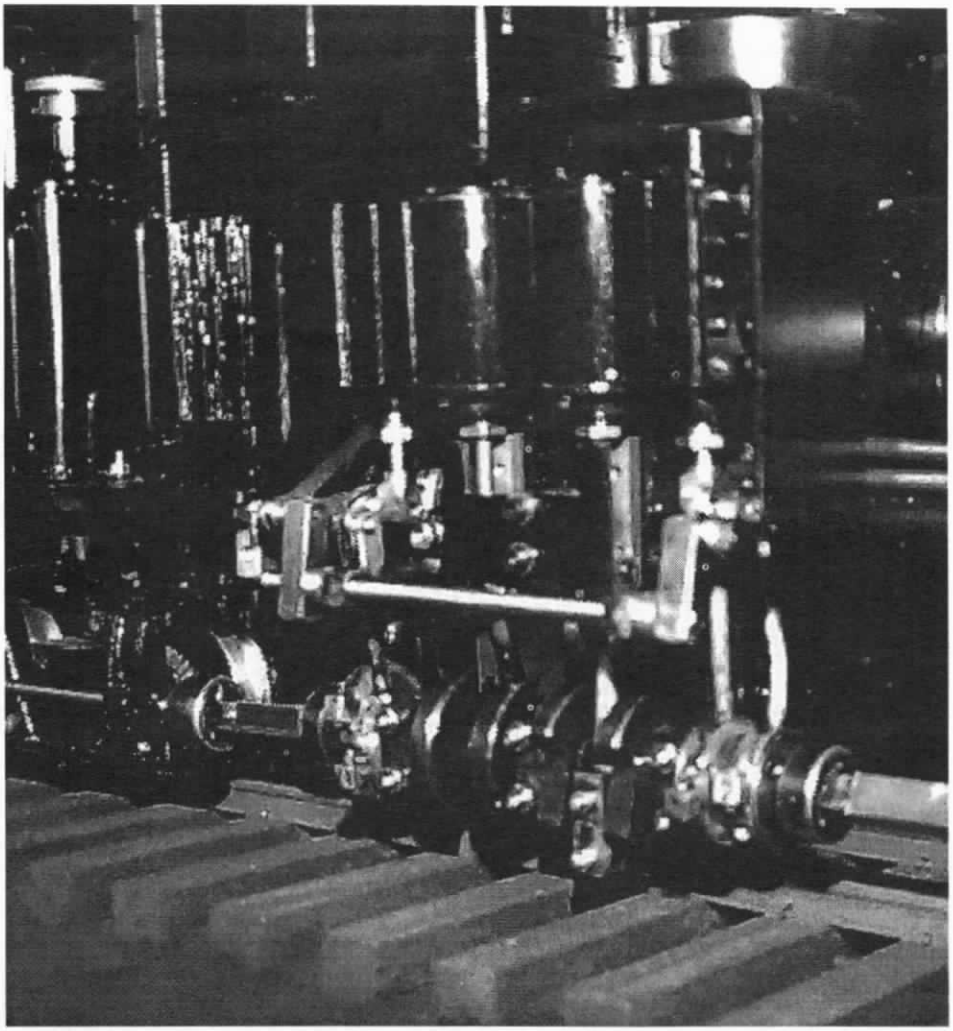
But the best eye candy is in the motion and valve gear. There are moving shafts and rods and U-joints and gears everywhere, and when the locomotive is set off on a crawl all the motion of flashing metal parts is a sight to behold. Of course, in typical Shay fashion, the other side is as boring as a diesel!

This Shay is 10 lbs. of thumb candy as well, due to the whistle (it sounds great!), easy controllability, and easily accessed controls and service points. Ron and Gordon have done an excellent job of combining what the quintessential large scale live steam enthusiast (if Ron is merely enthusiastic then the rest of us would have be classified as merely breathing) wants in a locomotive (sight glass, whistle, details, disguised knobs, etc.) with the design and manufacturing abilities of a best-of-class large scale locomotive designer and engineer. They do all the work, we have all the fun!

Care and feeding of the Catatonk Shay is as expected with the added benefit of great design features. Water is added through a filler valve hidden beneath the sand dome or from track side with a Goodall-type adaptor that will be fitted to the water filler plugs on all new locomotives. The first few production models (including mine) have a threaded adaptor located underneath the cab floor, but the Goodall-type valve will be moved to the top of the boiler on all future locomotives for

better access when running on ground level lines.

The lubricator is tucked up close to the inside cab wall on the engineers side of the cab, and it requires a little deftness to get that opposable thumb wrapped around it. The drain valve is easily accessible under the cab floor, and with just 1/4 turn will blow down the lubricator at the end of a run. The lubricator filler cap barely rubs against the engineer's armrest on the window frame of my Shay, but it won't for long because the knurl is gently filing its own clearance on the armrest to where it will soon not be a problem. *(This clearance problem has been fixed on subsequent production models.)*



A closeup view of "...moving shafts and rods and u-joints and gears everywhere...". Gordon Watson has done a fine job of bringing the look and feel of the prototype Shays to this model locomotive.

Photo by Richard Finlayson

The fuel system is just plain neat because of the previously mentioned visually appealing tiny diameter fuel lines. It really adds to the charm of the locomotive to see the much tinier lines running around in the cab, and the disguised fuel control valve looks great and has a good range of adjustment.

Firing the Shay is accomplished by hanging fire of your favorite variety under the smokebox. The fire will easily pop off and stay alive for the duration of the run, even when adjusting the burner through the full adjustment range. I found that the burner needed to be just barely audible to keep up steam pressure, but I am using straight butane and I suspect you could back it off to an inaudible setting if ISO Butane or any of the standard varieties of propane-butane mix is used.

Operating the Shay is a dream. Large but inconspicuous controls make it easy to find and select the right settings of the reverser and throttle, and the inherent slow-speed nature of Shay locomotives makes for an easily controlled locomotive. It won't run off and leave you, even if you accidentally kick the throttle wide open.

A low gear ratio (3:1) results in lots of thrashing metal and cylinders, which combines with slow, prototypically correct track speed to present a magnificent steam plume that even Grover Devine would have been hard pressed to beat.

Jim Hadden (Poison Creek Model Works) notes that the Shay creeps along at such a slow pace that he'll probably have to pull off on a siding for water before he completes a loop -- a pretty high class problem to have for those of you with long, sweeping mainlines.

A boiler blow down valve is provided under the floor of the cab and makes for a great scene at the end of the run when cracked open to let all of those water molecules loose to do that entropy thing. Future locomotives won't have a valve (for aesthetic reasons and because it sometimes hangs up on switch machines, guard rails and such), but will instead have a hex head drain plug underneath the boiler that can be used to drain the boiler for storage or travel.

I discovered another nice "feature" of this locomotive in that the safety valve rod, when lightly pushed to one side, will stay in that position, allowing all the steam to escape and air to enter as the boiler cools, which will keep the gunk in the lubricator from being sucked into the boiler for those of us who exercise poor form and don't blow the lubricator out at the end of the run.

A downside of the safety valve is that it is large and thus breaks the cleam, prototypical lines that the rest of the locomotive adheres to. Maybe a smaller valve, similar to the Aster variety, could be offered, or a skilled craftsman could make an

aftermarket valve available to us. *(Kevin O'Connor at "S" Street Unit Shops is adapting a very small Aster safety valve to fit the Catatonk Shay)*

By now you're thinking that I've lost all objectivity, but just to prove that I'm not on Ron's payroll there are a few more things we need to chat about. The first is that the locomotive arrives with some assembly required. The front and rear steps must be attached to the wooden end beams, and the tiny brass hex-headed bolts supplied are too long. I cut them off with sidecutters and hit the ends with a Dremel tool to flatten them off, and then painted them flat black. With eight bolts on each end and limited space to work with under the deck it would have been a bigger job without a Micro-bits nut driver that I happened to have in the toolbox.

The obvious benefit of shipping the loco with these parts detached is that you don't receive a locomotive with bent steps, bent stack, broken whistle, etc., which seems a fair trade-off. The headlamps, whistle casting, and other parts are easily attached.

The pins that are meant the keep the trucks from swiveling in such a way that the slip joints on the drive shafts don't separate aren't up to the task on my Shay. Not only that, but the pin makes it a bit awkward to get it all back together and on the track when things get hot.

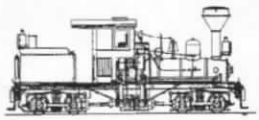
Based on lots of experience, Ron says to lay the loco on the boring side and the slip joints will fall back together in a jiffy. A few sessions later I've got it all figured out now and I seem to be able to get the Shay on the tracks with everything in place and all eight wheels lined up.

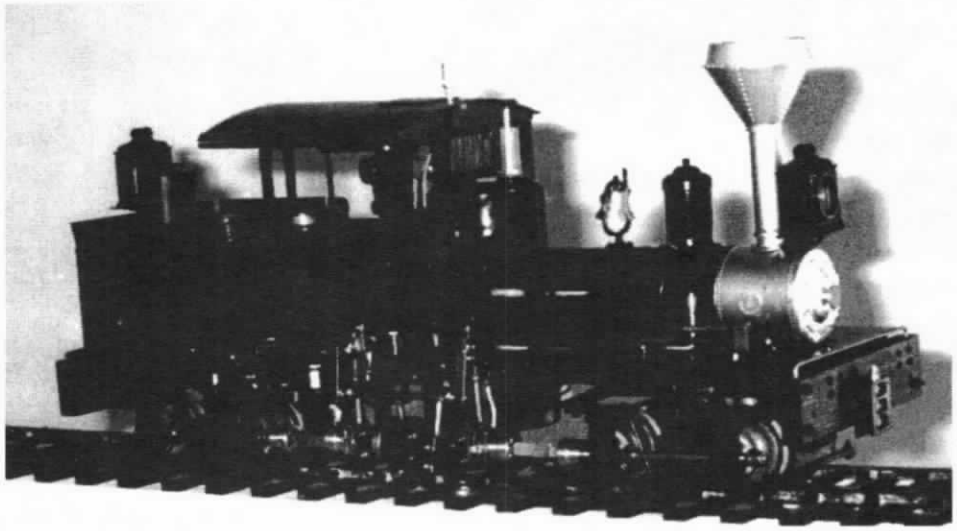
The butane filler valve is of the non-venting variety, and it caused me a bit of grief when I filled the tank from cigarette lighter fuel cans. Ron tells me that they have now changed over to the self-venting type of filler valves, like those used on Roundhouse locos. This will make for much easier filling of the fuel tank under any and all conditions.

It's not just that I'm enthusiastic about this Shay, but this engine tops the charts for design, performance, looks, ease of use, and raw fun factor. There are other locomotives that may have more detailing, that may be less expensive, or are 100% finescale. But you will have to look long and travel far to find a locomotive that is better balanced on price, features, performance and good looks than this one.

As a final note I should mention that the owner's manual sets a new standard in terms of quality and clarity. The locomotive construction number and owner's name are printed on the inside front cover for a real touch of class. The whole manual is of such a thorough nature that it would be interesting general reading for anyone interested in small-scale live steam locomotives.

Now that the Shay production line is humming and Gordon is turning these Shays out at a slow but consistent pace, I see a grand future at national and regional steamups for Catatonk Shay hill climbs and mud bog log pulls. Count me in!





Another shot of Jim McDavid's Catatonk Shay...this one was taken at Diamondhead '96 by Carol Jobusch.

PRODUCT REVIEW:

MAGIC MOTOR CO. STIRLING ENGINE

by Chip Rosenblum

Is there a hot air engine in your future?

I saw an ad for a stirling engine that would run on top of a cup of coffee [or on an ice cream cone], and was struck by the "gotta haveits". The engine is made from aircraft grade aluminum for the mainframe, anodized dark red. The cylinder is machined from optical quality acrylic so the operator can watch the action. The wire "camshaft" is electropolished stailess steel, which drives a wooden airplane propeller clockwise if placed on a hot material, counterclockwise if placed on a cool material.

I ordered the engine, and also a book on how Stirling engines operate. Before reading the book I was convinced that these things only function via smoke and mirrors in the first place. After reading the book I'm convinced that someone actually understands them, but I only a little. Since, however, they were first patented in 1816 by the Reverend Robert Stirling, and were used widely at the turn of the century for both pumping water and as cooling fans, I figure it doesn't matter if my own diminutive comprehension ever understands them, as long as they work!

None of this detracted from the quality of construction of the engine, and of the fun of watching it run! It does, indeed, work, and it works very well at that.

The question for us, aside from the pure enjoyment factor, is if this could be made applicable to wheels on track. I think so, but with some caveats. The introductory letter to the product says "If Stirling engines are so great, why don't I have one in my car? The best answer for that is to pick the engine up after it gets up to speed. Notice that it keeps running for some period of time. It's easy to make a Stirling engine stop instantly, but there is not one thing in the world anyone can do to make one start instantly."

So, the issue would be to adapt this, or other similar, engines to a light, self-propelled gondola [to hold the thermal source] or such, and be prepared to either hand start it after the cycle begins or create an engageable clutch mechanism. Once started, I believe it would continue to operate as long as the thermal source provided a temperature differential. Stopping would either be of the manual variety, or be prepared for a rather lengthy momentum effect.

At any rate, I've enjoyed mine immensely, even though I've not attempted adapting it yet to railway use.

The purveyor of this engine is:

Brent H. Van Arsdell
Magic Motor Company
1945 N. Rock Rd. Suite 1012
Wichita KS 67206

Phone: [316] 684-6235

e-mail: brentvan@fn.net
Internet Home Page: http://www.stirlingcycle.com

The price as of this writing is $179.00 rtr; $109.00 ready-to-assemble kit; $39.00 for plans and instruction book.

Product Review --
Sierra Valley Enterprises Ore Car

Description: OCE-9' Wooden Ore Car

Scale: 1:20.3 (correct scale for representing 3-foot narrow gauge on gauge 1 track)

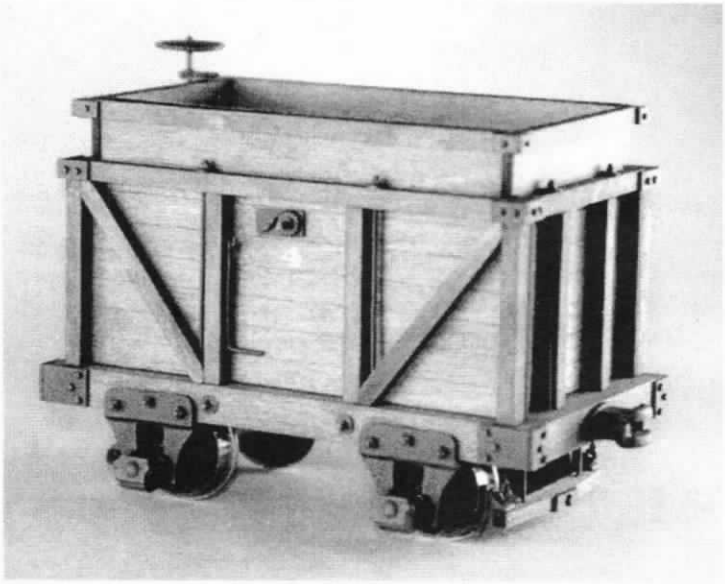
Features: Laser cut bass & plywood parts, exterior wood stained boxcar red, interior wood distressed and weathered, metal parts weathered and rusted -- each car individually numbered in order of manufacture or to your numbering requirements -- cars come with Sierra Valley's 20" dia. metal wheel sets and Saxton Car & Foundry sprung journals -- outside hung brake beams/shoes are included -- standard couplers are Saxton Car & Foundry link & pins, Kadee couplers optional -- 100% designed and manufactured in the U.S.A.

Options: Kadee couplers @ $5.00 upcharge (see text)

Price: R-T-R $95.00 each, 3 for $275.00 -- shipping $10 up to 3 cars via UPS surface -- California residents add 7.25% sales tax

Available from: Sierra Valley Enterprises, 2755 Saratoga Avenue, Merced CA 95340 -- phone 209-722-8278

Gary Watkins of Sierra Valley Enterprises tells us that the inspiration for these little ore cars comes from the cover of the 1989 March/April issue of Narrow Gauge & Short Line Gazette. This cover is a reproduction of an original painting by C. W. "Gus" Swanberg titled "Crew Conference at Iron Mountain". The painting depicts a three foot narrow gauge Porter



0-4-0T on a trestle, about to spot two wooden ore cars for off-loading. There is a third ore car spotted at the far end of the trestle.

These models are typical of the five ton drop bottom wooden ore cars that were used in the United States from the early 1880's through the turn of the century. There were literally tens of thousands of these little industrial cars in use during this time period. These models represent the general construction and railroad practices of the day, rather than a specific prototype. They attempt to capture the narrow gauge character and flavor of the original Swanberg painting.

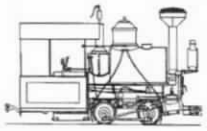
Our sample ore car is, like everything we've seen from Sierra Valley Enterprises, absolutely exquisite. The fit of all parts is perfect, the metal detail parts are all crisp and sharp with no shoddy, blurry casting details. No matter what the viewing angle, including bottom-side up, everything looks just right.

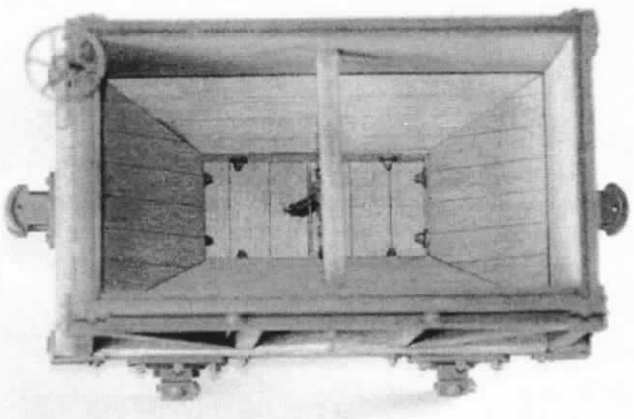
The sprung Saxton Car & Foundry journals are excellent, and should provide just the right amount of equalization for that less-than-perfect trackage. Not that you would have any trackage like that on your railroad, but some of your friends might.

The wheelsets furnished are a new size recently added to the excellent line of metal wheelsets from Sierra Valley Enterprises, scaling to 20" in 1:20.3 scale. They look and work just great in the Saxton Car & Foundry sprung journal boxes.

Standard couplers supplied on the model are Saxton Car & Foundry link & pins, which look "right" and function perfectly. For those who prefer Kadee knuckle couplers, they are available for an additional $5.00 per car, and they have been modified to adapt into the link & pin drawhead so that you can easily switch coupler types if and when you wish.

Getting back to the craftsmanship, fit and finish on the ore car -- it's hard to believe, but there just isn't anything here to be critical about. Having built quite a few wood models in my day, I have marveled at the absence of visible glue patches on any of the rolling stock we've received from SVE. This car is no exception. I can't find a bit of excess glue anywhere, and the finish on all parts is as close to perfect as any I have ever seen on a model. This ore car is a model any of us would be proud to display in a glass case, but I think it will be appreciated most as part of a string of identical cars coupled up behind a Wrightscale Porter, running across a tall, spindly trestle as they head back to the mine. - *Ron Brown*





Build Your Own Locomotive

text and drawings by Charlie Mynhier
CONCLUSION

Charlie concludes his popular series with a cab for your loco

By now we should have our little engine running, and the only thing left to build is the cab, runing boards, and front platform. These items are not essential for the engine to run, so you can make them any way you want... or follow the plans that I have drawn.

The FRONT was cut it from 1/4" thick plate. The SIDES were cut from 1/16" thick plate, and so was the TOP.

The RUNNING BOARDS were milled from 1/4" x 1" flat bar. The PLATFORM & STEPS were cut from 1/8" thick plate, and the step HANGER from 1/4" thick flat bar.

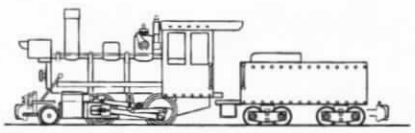
When making the FRONT, transfer the (2) #4 - 40 UNC tapped holes in the bottom from the floor that we talked about in an earlier issue.

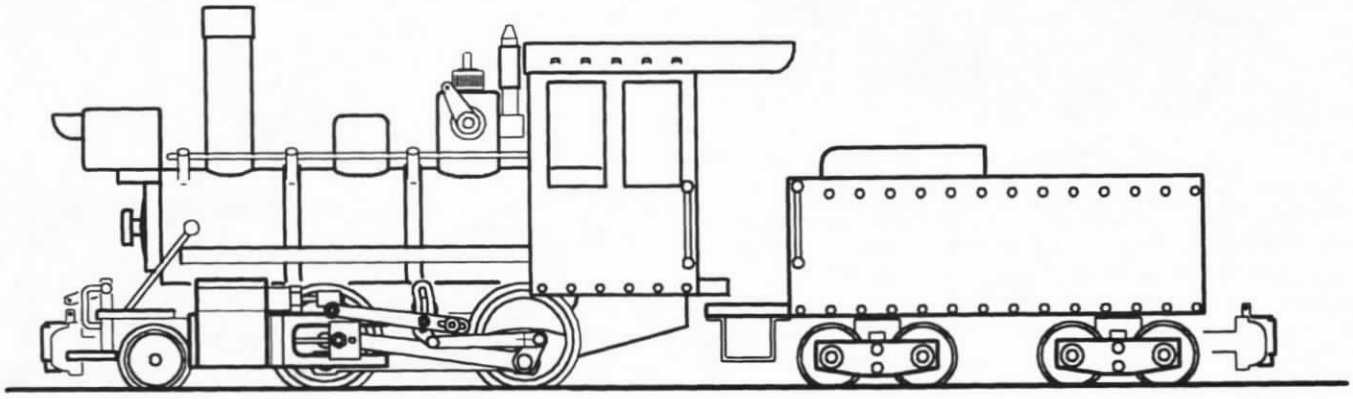
The (5) holes in the top of the SIDES can be drilled and tapped #2 - 56 UNC for fastening with screws, or drilled #43 for using screws with nuts.

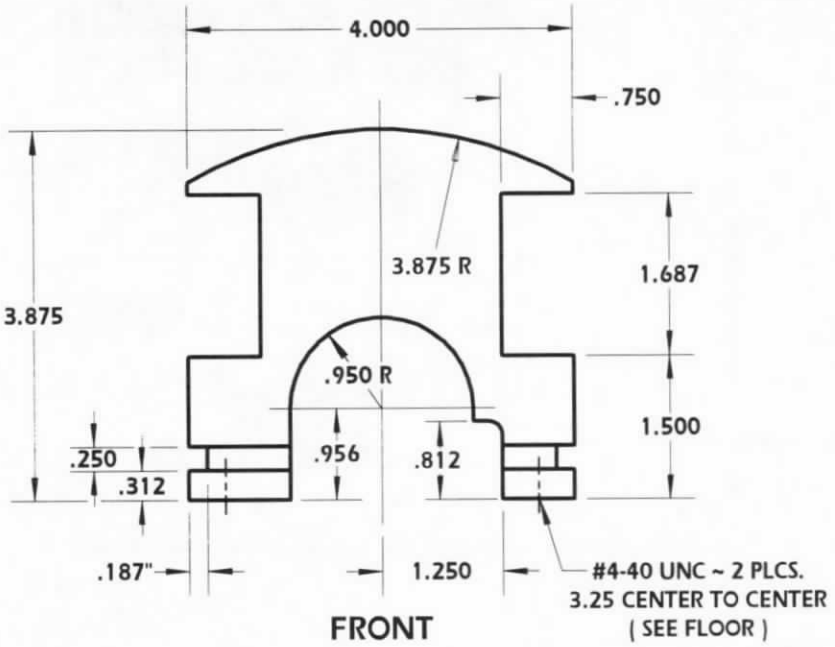
The TOP, if made from 1/16" thick sheet metal, will need to be rolled with a heavy sheet metal roll. If you don't have access to this piece of equipment you will need to use thinner metal. It will still keep the rain off the engineer's head.

Thats it for now. Until next time.....

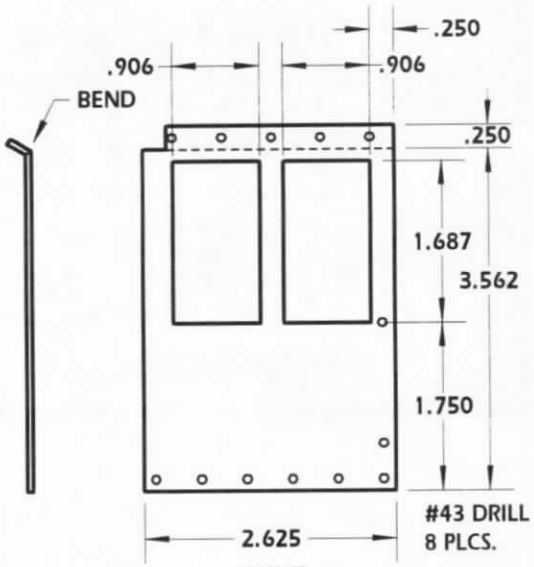
Charlie Mynhier



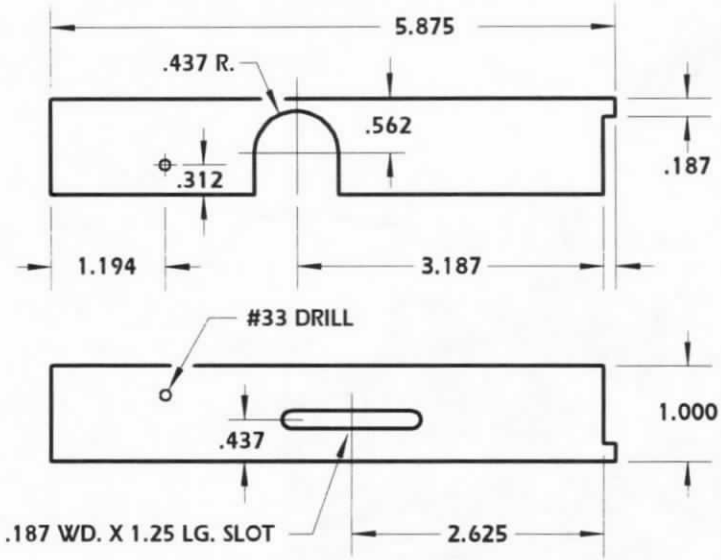




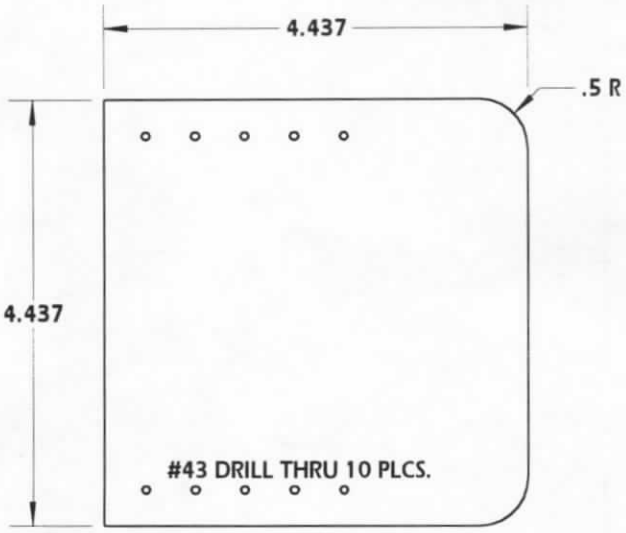
FRONT



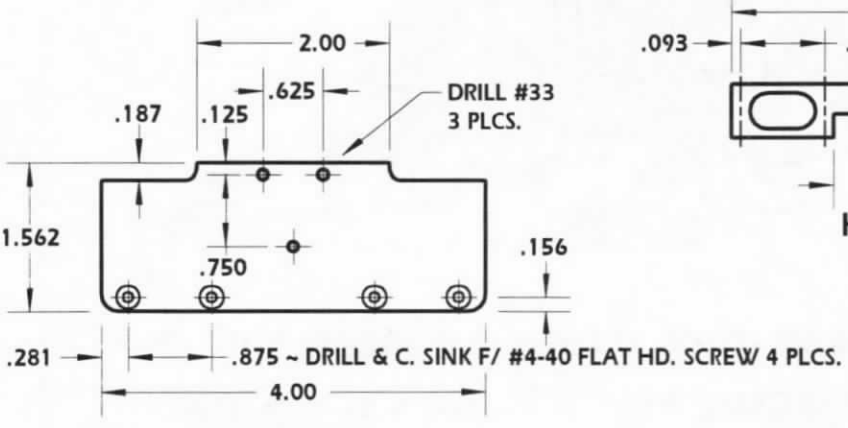
SIDE



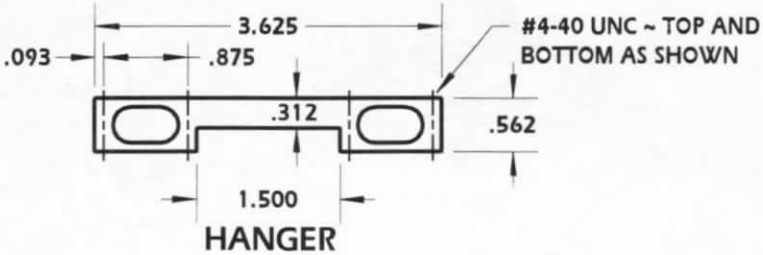
RUNNING BOARDS



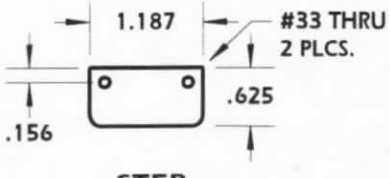
TOP



PLATFORM

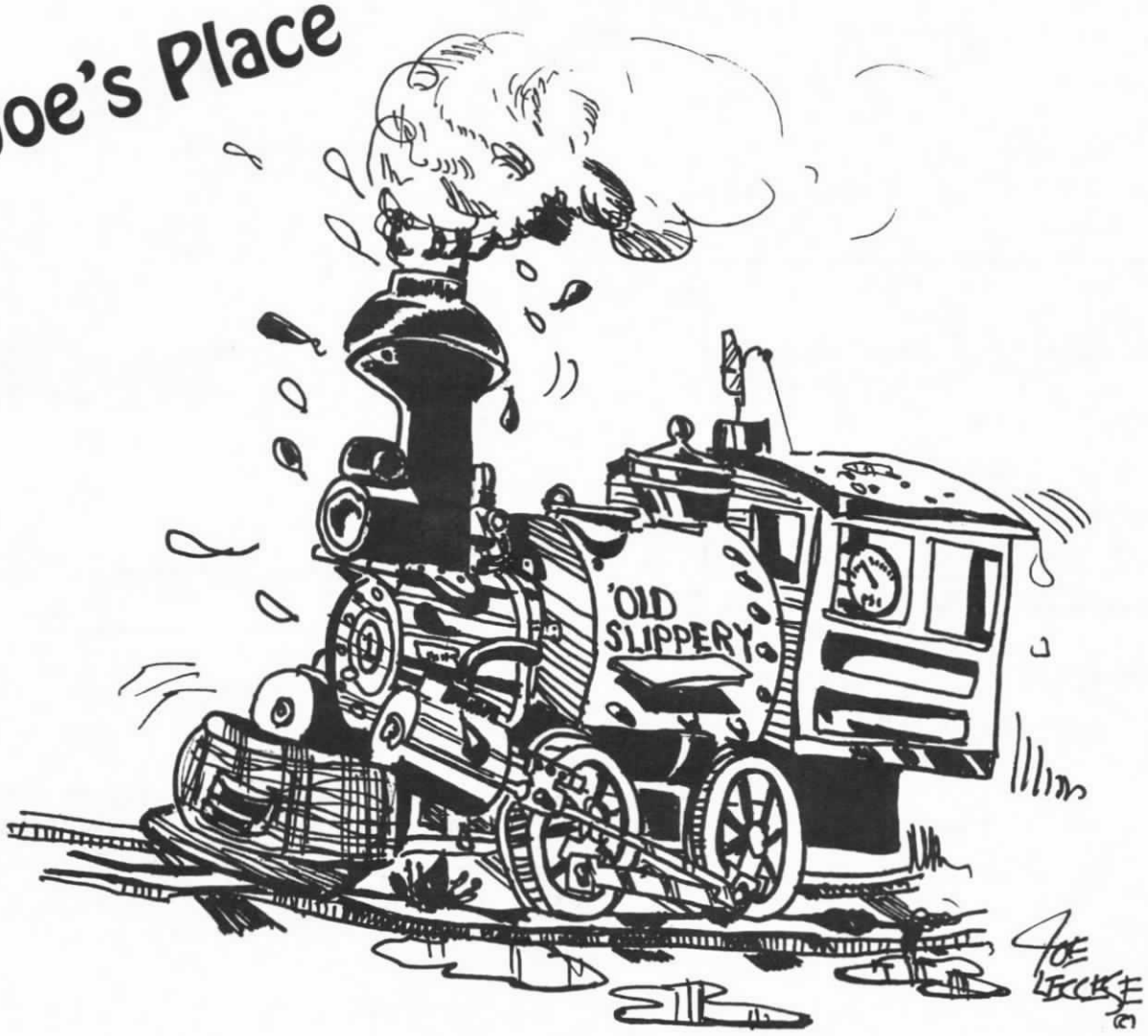


HANGER



STEP

Joe's Place



Some of our brethren tend to play fast and loose with the oil can, making for a greasy run for those who follow.

LETTERS FROM THE OLD CURMUDGEON

"A conference is a gathering of important people who singly can do nothing, but together can decide that nothing can be done."

- Fred Allen

The Old Curmudgeon

Dear Gene -

Glad to hear you're setting up a proper shop in your garage to build live steam locos. (Loco sounds appropriate doesn't it?) Here are some hints on what you should buy first for your lathe. In retrospect, many of the things I made long after I bought my first lathe are the most useful and, surprisingly, the easiest to make. Similarly, some of the things I bought first because I thought they would be very useful weren't needed for a long time to come. Some weren't needed or useful at all as it turned out.

Your 12 inch swing lathe with a 48 inch bed will give you all the turning capability you'll need for making that 1-1/2 inch scale Southern Pacific locomotive you've been talking about for years.

Well, one of the first things you need to make is a chuck holder to make the mounting and dismounting of those heavy three and four jaw chucks a lot easier. Even with only a six inch chuck you need a chuck holder to protect the ways from damage resulting from dropping the chuck while mounting it, as you eventually will. (Frowned on in most shops,)

A chuck holder is simple to make. For your 12 inch swing lathe get a piece of 4 X 4 a little wider than the lathe bed. Redwood, pine or any soft wood will do. Lacking a 4 X 4, glue and staple together a couple of pieces of 2 X 4. Put this block across the lathe bed and mark where the raised V rails fall. Cut slots in the wood block deep enough to allow it to rest on the flats of the bed.

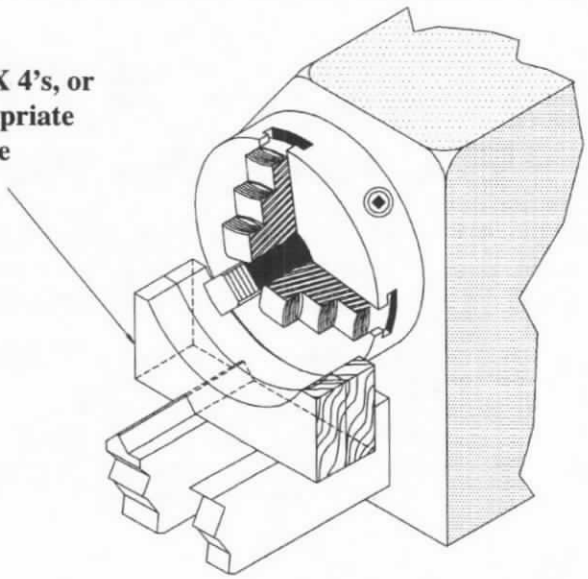
Mount the chuck on the lathe and trace the outline of the chuck onto the wood. If you have a bandsaw then use it to cut the marked arc out of the block, otherwise a little elbow grease applied to a keyhole saw will accomplish the same result. When you're through you will have something that looks like the enclosed sketch. Now you have a means of keeping the chuck aligned with the headstock threads for ease in threading on and off and it will keep you from making nasty looking dents in the lathe bed.

That's all for now. Next time I'll show you how to make a very handy gauge for setting up the lathe cutting bits to the proper height.

Keep turning - Marv

CHUCK HOLDER

4 X 4 Block, two 2 X 4's, or whatever is appropriate for your lathe



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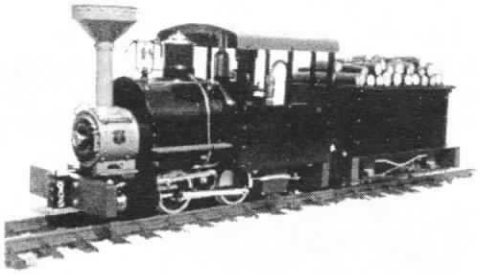
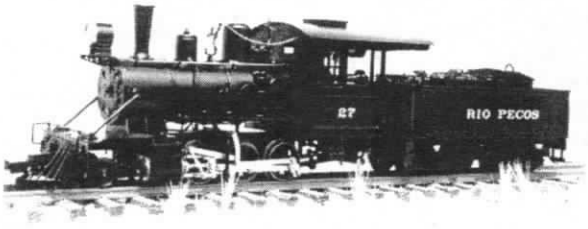


MAXWELL HEMMENS model of a generic 0-4-0 saddletank locomotive built by the H.K. PORTER CO. Pittsburg, PA. U.S.A. Call for a deal NOW!



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North American 32mm'ers Unite!

I've been considering expansion of my tiny 32mm (gauge 0) garden line for some time now. However, I've been in a quandary about whether to abandon 32mm and make the change to the more popular 45mm (gauge 1) so others can run on my line -- or to expand in 32mm because I prefer the diminutive gauge and the friendly little lokies that run on it more than the "wide gauge" equipment of 45mm.

Ongoing discussions with Fred Kuehl and Ron Brown convinced me not only to stay with the 32mm gauge and equipment, but also encouraged me to initiate some form of contact and discourse among other 32 millers in North America. I think we can all benefit from one another's enthusiasm and expertise and, to that end, I'd like to send to other 32 millers a survey questionnaire for them to fill out and return. I intend to distribute the compiled results to all respondents. So...if you're a full-time 32mm'er, a part-timer, or are just wistfully considering 32mm, please send me a stamped, self-addressed envelope and I'll see that you get a copy of the survey questionnaire.

Rob Kuhlman
1226 Linwood Avenue
Norristown, PA 19401-4211
USA

Steamup Rules

To Be Posted Visibly On Running Days

- No flirting with the host's spouse.
- No foul language. (This includes talk of electric trains.)
- No spitting (particularly when speaking venomously on your favorite live steam topic).
- No smoking (it usually means that due to lack of water you are burning the paint on your loco)
- Beautiful locomotives that don't run must always give way to everything, including battery powered diesels, wild life, and shadows.
- Ugly locomotives that don't run should be shown pity.
- Chaos, anarchy, and general disregard for authority shall always be practiced in determining who gets to run next.
- All moments of silence for derailed and damaged locomotives shall be strictly observed.
- All running shall be in either the clockwise or counterclockwise direction. In the case of point-to-point layouts continuous running shall only be allowed from one end to the other and back.
- Only the most technical use of befuddling live steam terminology shall be used in the presence of visitors.
- The perception that we know what we are doing must always be conveyed to the public most particularly and exactly when the opposite is the case.
- No backbiting or infighting shall be allowed among Live Steamers except when absolutely necessary or when weather prevents the running of locomotives.
- Strict adherence is required to the First Rule of Live Steam Cohabitation: locomotive prices shall NEVER be discussed in the presence of the host's spouse.
- Steamup hosts are not allowed to hold visiting locomotives hostage nor be allowed to engage in sabotage of a visitor's mode of escape.
- The above Steamup Rules shall be strictly observed...except for when they aren't.

by Richard Finlayson

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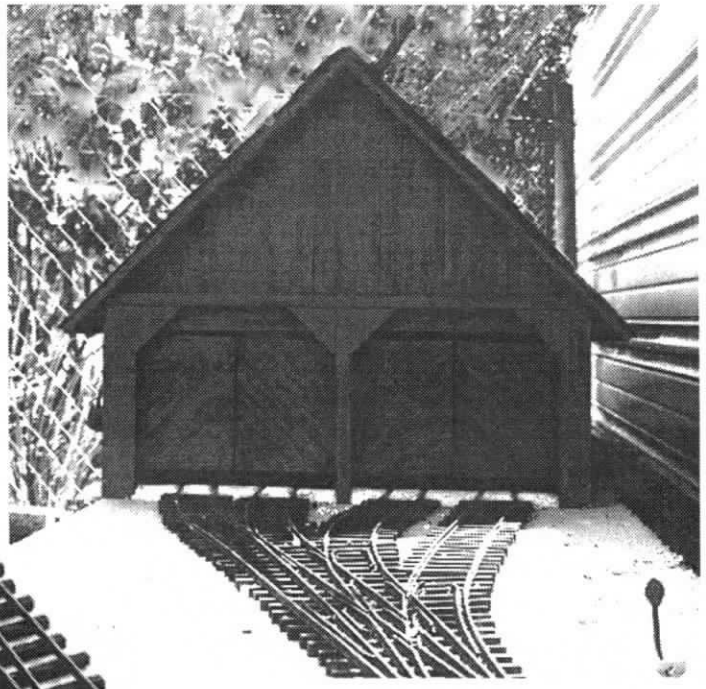
Car Barn & Stub Switch

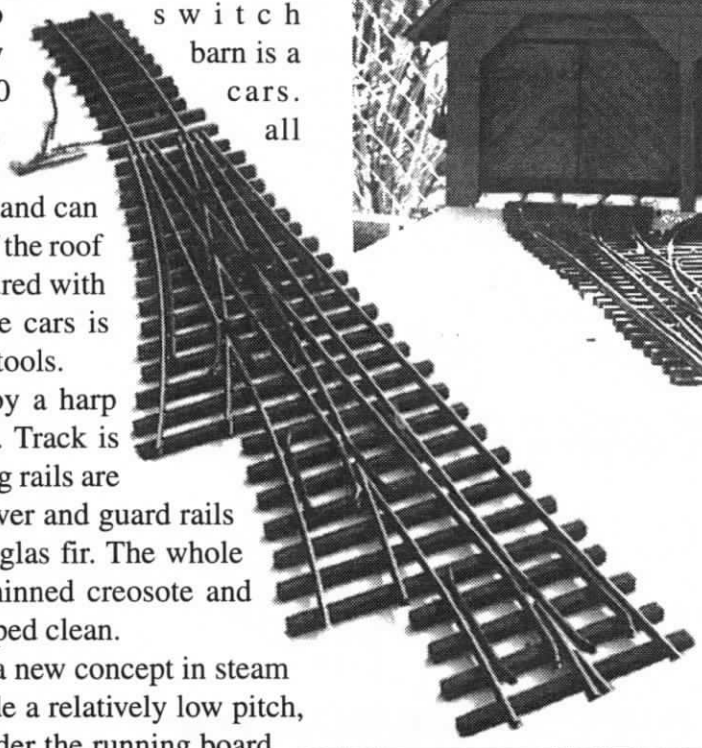
by Larry Bangham

La Mirada, California



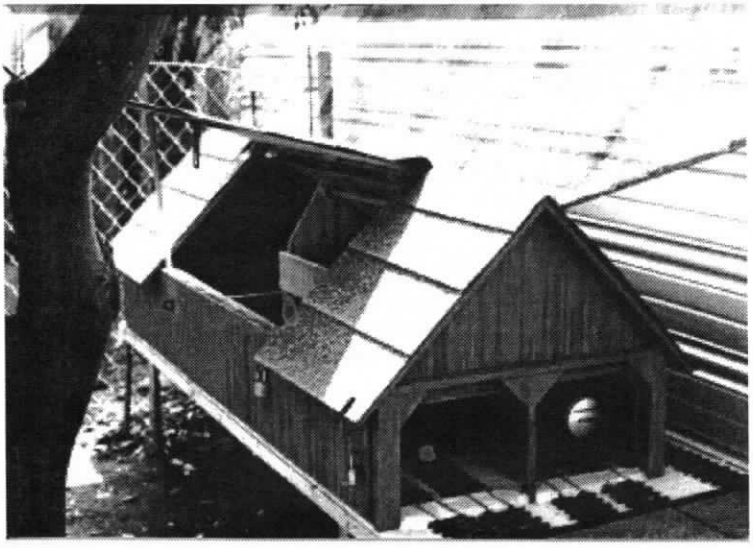
Hi Ron,

I wanted to share my latest project with you. This 4-way stub switch and car barn were inspired by an article in the Jan/Feb 1985 *Narrow Gauge and Short Line Gazette*, titled "Virginia and Truckee Yerington Barn". A photo showed a 3-way stub switch leading to a three stall barn. My barn is a secure storage area for 16 to 20 cars. It has a steel angle frame with all fasteners installed from the inside. The front door slides out and can be locked in place. A portion of the roof is hinged for access and is secured with a padlock. The attic above the cars is storage for track maintenance tools.



The switch is positioned by a harp stand similar to the prototype. Track is by Micro Engineering. Running rails are aluminum, frogs are nickle silver and guard rails are steel. Ties are treated Douglas fir. The whole assembly was painted with thinned creosote and then the running rails were wiped clean.

I am currently working on a new concept in steam whistle design that will provide a relatively low pitch, use little steam and will fit under the running board of my Aster C&S Mogul. The 2nd version is now mounted on the engine and has proven quite successful. I will keep you informed on the progress of this project.



Thanks for providing such an excellent forum for the exchange of ideas in this fascinating hobby of ours. Keep up the good work.

Appreciatively,

Larry Bangham

SWAP SHOP

Wanted: Aster Pannier 0-6-0 Tank. Frank Waters, 648 Mercer St., Albany NY 12208 -- (518) 482-2901. (33)

For Sale: NEW! JUST OUT! INDEX TO SitG VOLUME 5! Index to first 5 volumes of SitG, indexed by author, subject & contents. Send $5 (cash, check or money order) to Ricky Morningstar, 11 Kimberly St., Riverview NB, CANADA E1B-3P8.

For Sale or Trade: *(1)* 1975 ASTER Schools - 4-4-0 *(2)* 1982 ASTER Americanized Mogul (2-cylinder model) -- 2-6-0 All ASTER locos are new, unsteamed, and complete with documentation, but no boxes. *(3)* JNR freight car, new condition, missing one hook and chain, no box. Open to cash offers or trades. Send a list of what you have. **I am looking for:** ASTER SNCF 141R, preferably in green livery, stock #5408 --- 2-Truck Class B Shay, stock #36B2 --- Log Cars, stock #46A7. Dan Pantages, 8875 Queen Mary Blvd., Surrey, B.C., CANADA V3V 6P9 -- phone (604) 594-8695 6:00 p.m. to 10:00 p.m. Pacific Coast time, or FAX (604) 872-3955. (32)

For Sale: Hyde-Out Mountain live steam Shay with side oiler and Hi-Tec R/C. The only one produced with an extra tender to make it a 3-truck Shay. Used very little and is in excellent condition. $1.000.00 o/b/o. Will ship anywhere for free. Keith W. Jones, 724 Capp Road, Strasburg VA 22657. Phone (504) 465-8397 evenings. (33)

For Sale: 0-4-4 Geoffbilt Forney. Excellent runner, mint condition, 1 year old, one owner. $975.00. Donald Boone, 3381 Indian Trail, Suffolk VA 23434, or 804-925-1402 any time after 5:30 p.m. (32)

Wanted: (#1) Information wanted on the Frank S. as used in the military during WWII. Livery, typical use, loads, car types. **(#2)** Assembly and operating instructions for the Aster Reno. Please call or write Rich Chiodo, 9 Janvrin Road, Hampton NH 03842. Phone 603-926-4858. (32)

Wanted: Aster Pennsy caboose; J&M Pennsy automobile car; LGB 1200 & 1210 switches, old style with short moving points. Jerry Hyde (614) 946-6611. (33)

For Sale or Trade: #1 Portable gauge 1 logging layout, highly detailed, hand laid track w/wood ties, can deliver reasonable distance. $2900. **(#2)** Gauge 3 live steam 4-8-4, one of a kind, partly assembled, has operating brakes -- $2900. #2 J&M metal box car, $275. Jerry Hyde (614) 946-6611. (33)

For Sale: (#1) LGB/Aster Frank S., fired only 3 times, mint condition, $1095. **(#2)** Steamlines Aileen, built up from kit, unpainted, fired only 3 times, $450. Bob Helfman, (714) 640-8216 days, (714) 589-1710 evenings. (32)

Wanted: Steamlines or Samson Osmotor for a Shay project. Contact Jerry Barnes at 308-324-3004 or jbarnes@genie.esu10.k12.ne.us. (32)

For Sale: (#1) Roundhouse Sandy River 2-6-2. R/C, excellent condition, runs great! $2800 includes shipping in the USA. **(#2)** Roundhouse Pooter 0-4-0. Burgundy, R/C, excellent condition, good starter loco. $800 includes shipping in the USA. Jim Overland, Seattle WA, 206-524-5875. (33)

Wanted: Overtype, Gypsy, Class A Climax or other similar unusual live steam engines in 45mm gauge, 16mm to 1:24 scale. Description (including condition), price and phone number in first letter please. Will answer all responses. Will consider 32mm gauge in similar scales if price is right. D. Dostaler, 3200 W. Old Highway Road, Morgan, UT 84050. (33)

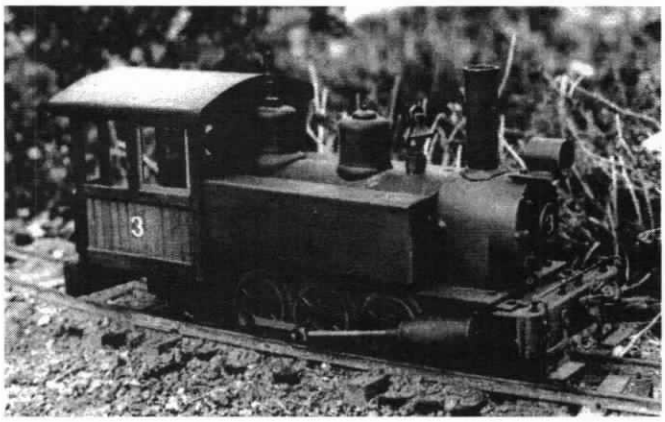
For Sale: Mamod gauge 1 steam loco, green. Latest improved version. Mint, like new condition. $300, I pay shipping. Frank Cavolo, 5 Tokeneke Trail, Darien CT 06820. Phone 203-656-2347 or fax 203-656-4525. (33)

For Sale: New in the box, old style Maxwell Hemmens Porter with wood cab, tender & fuel tank. $1450.00 includes shipping. Call Bob at 941-495-0491. (33)

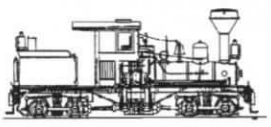
For Sale: Mamod 0 gauge live steam locomotive kit. New old stock in original box. Kit untouched and complete. Black finish with red lettering. Check inside front cover of Jan/Feb issue of SitG for picture. $250.00 plus shipping. John Mitchell, 207-799-0570 or smoky@mainelink.net. (33)

For Sale: Roundhouse Billy, Manual, Maroon. Two hours running, excellent condition. $900.00 obo. Mike O'Rourke, 510.849.9284. Leave message, I'll call back. (33)

For Sale: Live Steam Baldwin-style 0-6-0, gauge 1. Miniature Steam Railways chassis, spoked drivers, cylinders Chaney throttle and alcohol burner. Removable wood cab. Trackside Details domes & bell. Precision Scale working knuckle couplers. Photo available. $400. Alan Olson (303) 733-0472. (33)



Swap Shop *listings are offered at no charge as space permits. No phone-in ads, please! Send your listings to SitG, PO Box 335, Newark Valley NY 13811, or fax to 607-642-8978 (24 hours). Ads must contain sellers name, plus address and/or phone number.*



End of the Line

Phone Number Correction

In the Taff Vale loco review in the last issue, we somehow managed to transpose two numbers in the phone number for Sussex Model Centre Ltd., causing a great deal of frustration and consternation for those who attempted to call and order this locomotive. We apologize for the inconvenience, and the correct phone number is: 011-441-903-207-525. Thanks to Bob Uhrmann for pointing this out to us.

Computer Woes in Paradise East

You readers with unusually sharp eyes and keen intellect have no doubt noticed that 1) this issue of SitG is **really** late and 2) the March/April issue seems to be missing.

Right on both counts, but don't run to the phone or the typewriter to tell us you missed a magazine. Check out the number of this issue and you will note that it is Nº 33, and that January/February was Nº 32. So the number sequence remains unbroken.

Here's what happened: due to the problems encountered during a 2-month period that we refer to as "Computer Hell", there was no way on earth that we could get the magazine out on time. And, as a one-man operation, there was very little chance that we'd be able to catch up any time soon. So...we've done the obvious and skipped March/April to put us back on track with our publication dates.

Of course no one will get shorted. Subscribers will still get the full 6 issues for their one-year subscriptions.

For those who don't give a hoot about the gory details, you can stop reading now and go phone one of our advertisers and order something. Be sure to tell them where you got this subliminal suggestion.

And for those who can't stand not knowing "the rest of the story", here's the Reader's Digest Condensed version.

Too much time was being wasted sitting and waiting for our old 486 computer system to do various tasks, like scanning photos, and we had decided nearly a year ago that it was overdue for an upgrade. Macintosh users we know and love had been strongly suggesting that a cross-platform upgrade to a Macintosh would be in our best interests. We resisted because we had been using Wintel machines for too long and didn't want to go through a long, arduous learning curve that would surely be necessary with a platform change. So in January of this year we decided to bite the bullet and ordered a new, super-fast 166mhz Pentium Gee-Whiz computer with all the bells and whistles a desktop publisher could possibly want.

Sad to say that it didn't work, and the dealer was unable to get it to work, even after several weeks of fiddling with it.

The good news is that we got a full refund and ordered a Macintosh, which is what we should have done years ago. It's here, it's working and at least part of this issue was done on the Mac. There was no learning curve to struggle through (it's so easy to use a Mac that even an adult can do it!), and we are confident that it is going to make life a lot easier for us as we become more proficient in its use. Our readers should benefit from this in that they will get a better looking magazine -- and hopefully it will even be on time from now on!

No, we're not selling Macintosh computers, nor are we on their payroll, but Apple has made a solid convert here. Give us a call if you want to hear all the reasons why.....

Out on the West Coast

The West Coast is really coming alive with steam activity. We just received a notice that a National-class Gauge 1 steamup will be held in San Luis Obispo, California in November. Check the calendar in this issue for more info and start making plans to attend.

The Bay Area Garden Railway Society (also California) has had a growing number of live steamers among their membership, and at a recent mini-convention the live steam bunch held a meeting and decided to form a special interest group within BAGRS. More details of their plans will be forthcoming, but to begin with it looks like they'll be building a portable track and plans are being drawn for a Project Loco.

Photo Quality

Some of the photos in this issue are not up to the quality standard we'd like to adhere to. But when the surroundings dictate the quality of lighting, there isn't much to do but take what you can get. Carol Jobusch did a fine job of covering the Diamondhead '96 Steamup for us, and the lighting inside the atrium at the convention center is beyond her control. We've done the best we can with the photos and present them to you with the observation that sometimes any photo is better than no photo.

For those of you with computers and an internet hookup, check out our web site at http://steamup.com. All the b&w photos you see in the paper edition of SitG will be reproduced in full color online. Let us know how you like it.

Looks like we're out of room for this issue. See you out at the track, and until then.....

Happy Steaming!

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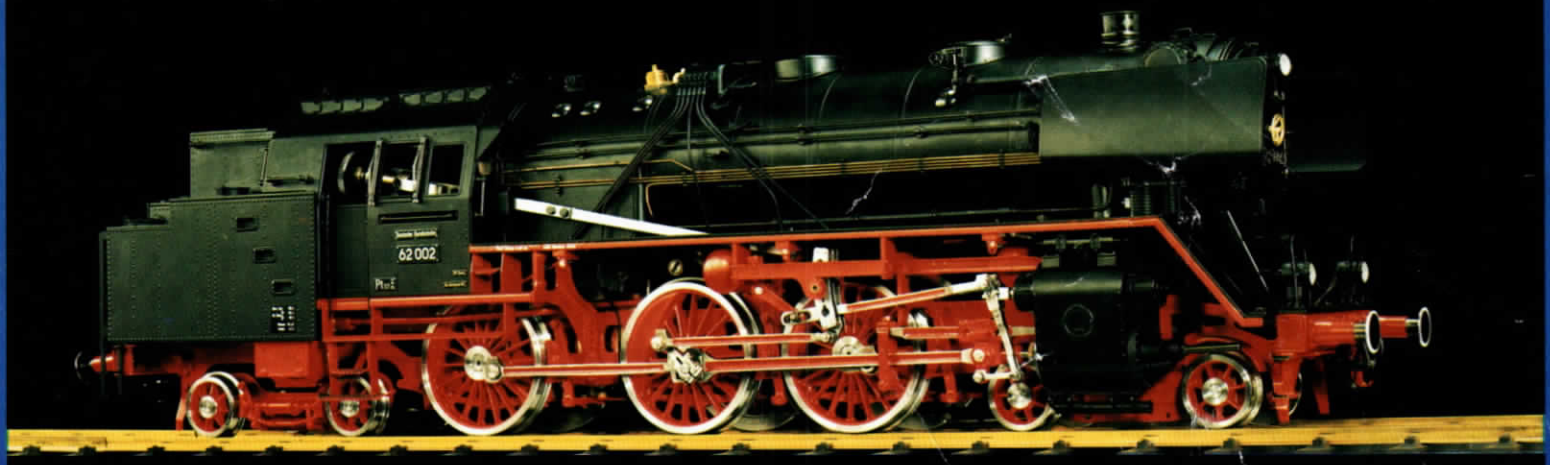
THE BR-62 "MAMMOTH"



Like the Prussian T-18 (later known as the BR78), the Reichsbahn BR62 "Mammoth" was conceived and built with a 4-6-4T wheel arrangement and an emphasis on economics and simplicity. Many years before any European 4-6-4's existed, the American locomotive builder Norris had demonstrated the feasibility of high speed locomotives by utilizing a four wheel leading truck configuration, which provided a safe and stable ride, even on rough tracks. Although Norris' configuration was popular in North America, it was not used in Europe during the early days, owing to the relatively short runs and smooth tracks which existed there. For distances of 160 km, tank locomotives were commonly used in both Europe and Japan since they eliminated the weight of the tender and allowed the locomotive to be operated at approximately the same speed in both forward and reverse directions, thus eliminating the need to turn the locomotive for its return journey. As speeds reached 90 km/hr., European designers turned to the four wheel truck for both leading and trailing wheels as being the solution to stability problems as well as keeping wheel loading within existing track limits. Starting in 1912 in Prussia, more than 500 T-18/BR 78 "Baltic" 4-6-4T's were constructed, and because of their phenomenal success, the Reichsbahn railway unification office in Berlin selected another 4-6-4T configuration, known as the BR 62, to be designed during the 1920's. The design of the BR 62 was based on that of the BR 78. However, many clever improvements were made. Unfortunately, a serious economic crisis was beginning in Germany during the late 1920's and only 15 examples of the BR 62 were built by Henschel at their Kassel works despite the locomotive's excellent performance. BR 62's operated during WWII; many survived those terrible days and continued to operate until 1956 in West Germany and possibly as late as 1976 in East Germany. Technically, the locomotive was a complete success and had "..the most beautiful architecture of all the unified locomotives".

SPECIFICATIONS OF BR 62

SCALE/GAUGE	1:32, GAUGE ONE
TOTAL WEIGHT	5.5 KG
DIMENSIONS:	
LENGTH	535 MM
WIDTH	97 MM
HEIGHT	143 MM
WHEEL ARRANGEMENT	4-6-4, LEAF SPRING ACTION
DRIVING WHEELS	DIA. 55 MM, STAINLESS STEEL
PILOT TRUCK WHEELS	DIA. 24.5 MM, STAINLESS STEEL
TRAILING TRUCK WHEELS	DIA. 24.5 MM, STAINLESS STEEL
ENGINE:	
CYLINDERS	2 X CYLINDERS WITH CROSSPORT, BORE 12 MM X STROKE 20 MM
VALVE GEAR	HEUSINGER VALVE GEAR STEAM PORT 1.5 MM, CUT OFF 84% LAP 1.0 MM, TRAVEL 5.0 MM
BOILER TYPE	"C" TYPE FOR ALCOHOL BURNING
WATER CAP.	280 CC AT 80% FULL
PRESURE	3 KG/CM2 AT NORMAL WORKING
FITTINGS	2 X SAFETY VALVES, 2 X SUPERHEATER TUBES, PRESSURE GAUGE, WATER GAUGE, BLOWDOWN VALVE, THROTTLE VALVE, BLOWER VALVE, BYPASS VALVE
AXLE DRIVEN PUMP	MOUNTED ON THE LEADING DRIVERS AXLE PUMP BORE 5 MM X RAM STROKE 6 MM
LUBRICATOR	ROSCOE DISPLACEMENT TYPE MOUNTED ON THE SMOKEBOX
BURNER	3 WICK TUBE ALCOHOL BURNER
WATER TANK CAPACITY	300 CC, HAND OPERATED PUMP MOUNTED
FUEL TANK CAPACITY	140 CC OF ALCOHOL
MINIMUM RADIUS	2 METER
WORKING LAMPS (BATTERY OPERATION)	2 X HEADLIGHT 2 X TAIL LIGHT 6 X VALVE GEAR CHECKING LAMPS

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