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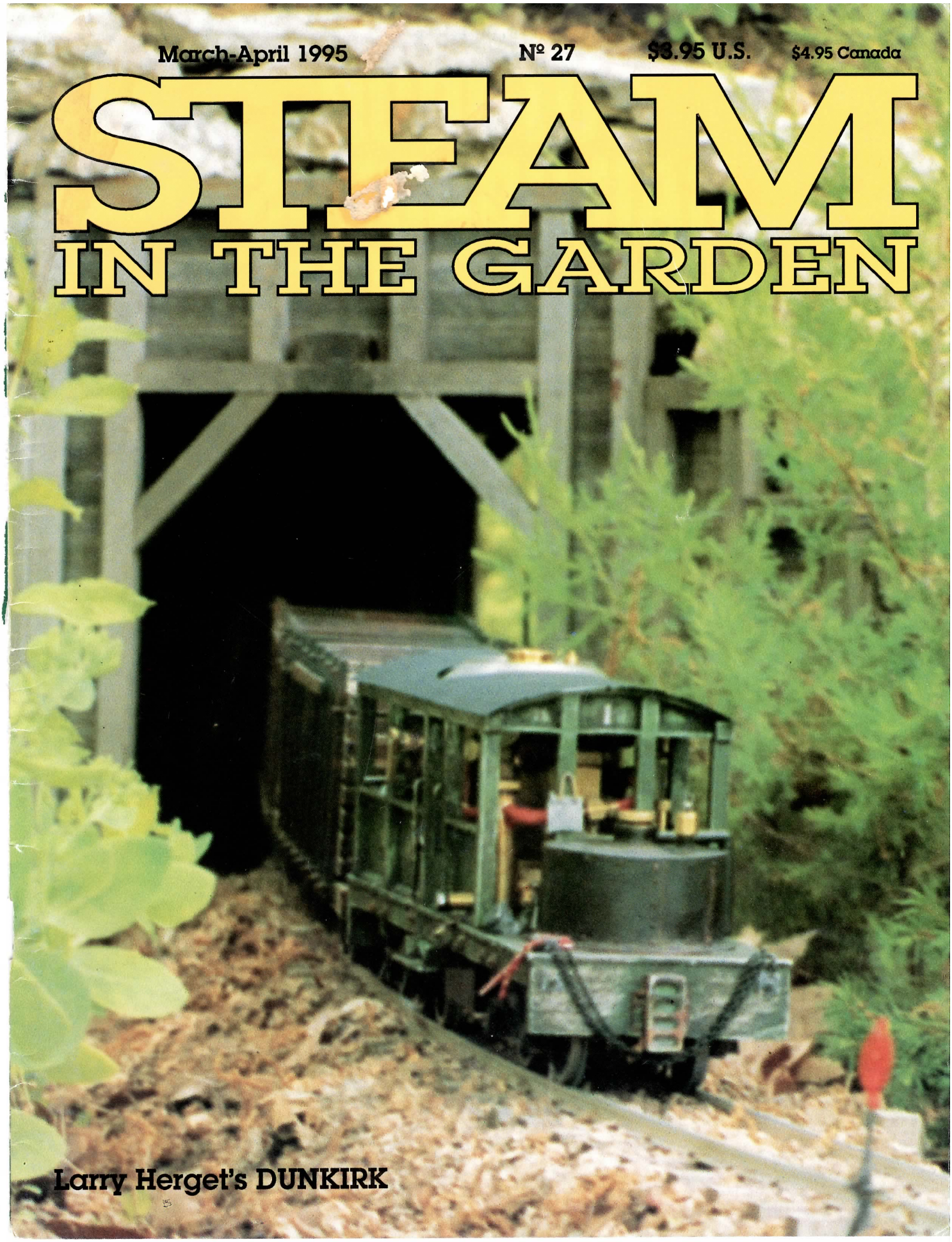
STEAM IN THE GARDEN



Larry Herget's DUNKIRK

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STEAM IN THE GARDEN

Vol. 5 No. 3
Issue No. 27
March/April 1995

Articles

Departments

ON THE COVER:

In a cloud of smoke and steam and with a clatter of rods, axles, gears and other assorted mechanical parts, Dunkirk № 4 of the Hollow Log Co. exits the tunnel mouth and rolls toward the mill with a load of logs from down in the hollow. Check this unique scratch-built loco by Larry Herget out in more detail on page 15 in this issue.

Photo by Glenn Owens

1995 Calendar of Events

May 6, 1995 -- 2nd 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' minimum radius siding, main loop approximately 90', ground level, yard, 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, info on lodging if needed, etc.

May 27-28 -- Pennsylvania Live Steamers Memorial Day Steamup. Rt. 29, 1 mile north of Rt. 113, Rahns Pennsylvania (25 miles 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" and 1-1/2" scale trains. Bring your engines! 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.

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.).

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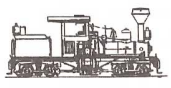
U.K. subscriptions & inquiries may be sent to our agent in the U.K.:

Brandbright Ltd., The Old School, Cromer Road, Bodham, Near Holt, Norfolk NR25 6QG -- phone 0126-370-755 FAX 0126-370-424

Items for review may be mailed to P.O. 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 at 607-642-8119 before 9:00 p.m. Eastern time, please -- or FAX us any time at 607-642-8978.



R P O Mailbag

Letters from all over

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. 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.

* * * * *

Portsmouth, New Hampshire

Dear Ron,

Happy New Year. Please note I have changed my address again. This is the second time I have moved in the 18 months or so I have subscribed to your magazine. Hopefully the last for a while.

My little 0-6-0 tank looks great in her coat of maroon paint lined out in blue, and the Brandbright coaches are similar. I finished them just in time for the New Hampshire Model Railroad annual show in November. I only finished reassembling the loco on the morning of the show and its test run was with an audience all afternoon. All rather nerve wracking, not knowing whether the thing was going to behave itself or not.

As it turned out, it ran faultlessly and was appreciated by many. It now sits on a shelf in my office, waiting for a railway to be built.

I think a start will be made on the 5" gauge first, as it is over two years since it ran and I have the offer from friends to help build it. Of course the ground will have to thaw, and I will have to finish the home improvements first.

Thanks for connecting me with Rich Chiodo and Wayne Slaughter of the New Hampshire Garden Railway folk. I will get organized and take some photos eventually.

Regards,
Jon Guilbert

Castaic, California

Dear Ron & Marie,

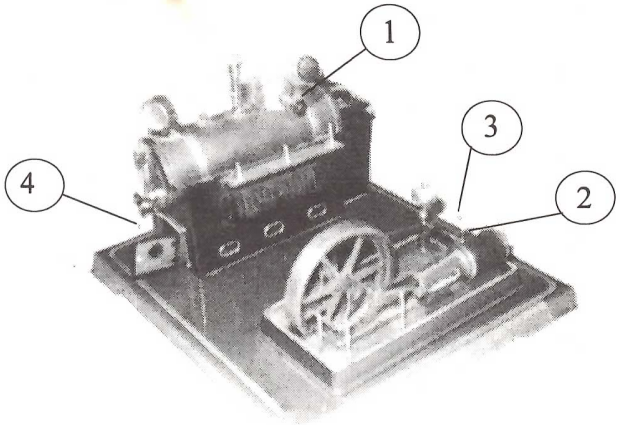
I really do enjoy your magazine and enclose my subscription renewal. As a newcomer to this steam business I'm learning a lot.

Regards,
Leslie A Bedding

Alamo, California

Dear Mr. Brown,

Thanks for your reply on my model steam engine, which needs some parts. It is a FLEISCHMAN (German) 14" X 16" base unit.



Missing Parts:

I Steam line from steam done outlet valve, (1) to (3). Line goes under base near (3) and ends in a plastic or rubber tube out the back of the base. The line is gray metal about 1/8" od and is soldered into the steam chest.

II Needle valve on top of steam chest is missing. Ordinary screw is in its place. *(Condensate release? -- ed.)*

III Fuel tray in firebox (4) is missing.

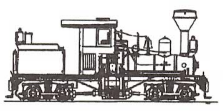
My guess is it dates from 1930's or 40's. Mechanically it is in excellent shape.

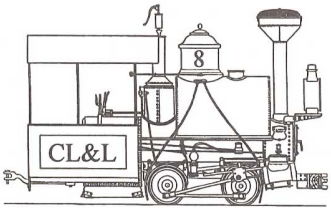
Any info on catalog, spare parts or manufacturer will be greatly appreciated.

Thanks,
A. C. Perkins
3062 Lunada Lane
Alamo, CA 94507

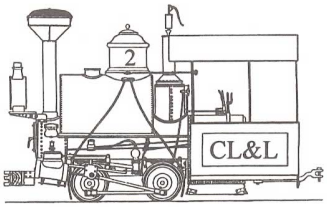
phone 510-820-7145

How about it, readers? In that vast pool of wisdom and knowledge there must be at least one of you who can help Mr. Perkins with his stationary engine -- ed.

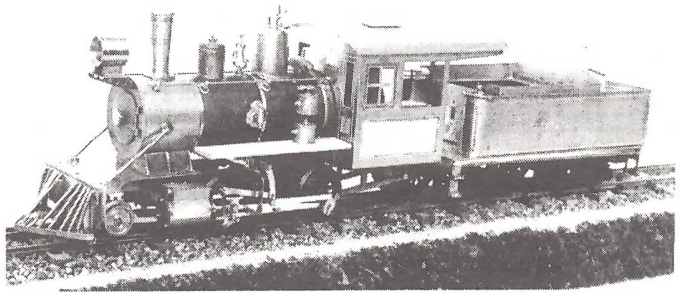




WHAT'S NEW?



Rio-Pecos Garden Railroad Co., 27136 Edenbridge Ct., Bonita Springs FL 33923 -- phone 813-495-0491 or fax 813-495-7264 reports that the new live steam mogul from Pearse Locomotives, "Colorado", is well along in development and is expected to be ready for introduction in early April, with engines available for delivery in May and June. Pearse Locomotives has earned a reputation for quality and innovative engineering, and their locomotives are all highly respected for their good running qualities. This is the first locomotive from Pearse that will be based on Colorado narrow gauge practice, and should prove to be very popular with narrow gauge enthusiasts. Contact Rio-Pecos for full details.



Bob & Fran of Rio-Pecos also announce that their son, Rob, who does the model building and blueprints, is now with the company full time. Congratulations, Bob, Fran & Rob, on a fine and growing business!

Saxton Car & Foundry, PO Box 26, St. Ann MO 63074 sent the following press release: Effective January 1, 1995, the line of large scale kits made by American Model Builders of St. Louis MO has been sold to Saxton Car & Foundry. The sale entails the 800 Series of large-scale kits and parts only, and does not affect AMB's existing line of N, HO and O scale kits. A catalog from the new company is available for $2.00. The first item to be released in this line of very high quality craftsman kits will be #01, a 1:20.3 scale 22' Russel skeleton log car with trucks. Materials used will be wood, white metal and plastic. Affordable built-up units will also be available. Please write for details.

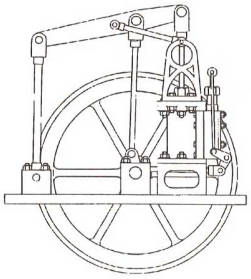
Sulphur Springs Steam Models Ltd., PO Box 6165, Chesterfield MO 63006-6165 -- phone/fax 314-527-8326, has just released a new catalog. Most of us involved in small-scale live steam find it necessary to order a lot of our hobby-related items from a catalog. I enjoy browsing through a good catalog, and this one definitely falls into the "good" category! We were very pleasantly surprised to see that there are many new and useful items for the kitbasher, scratch builder and steam engine owner and operator. SSSM offers tools, parts and supplies that are difficult or impossible to find anywhere else. BA fasteners, taps, dies, wrenches and nutdrivers, for example, which are a necessity for anyone owning or working on British-made steamers. Other useful items include wire screen cloth, pipe lagging, spring wire and lots more. Many neat items you didn't know you needed -- or even that they existed. SSSM are an agent for the excellent Sievert brand of propane torches -- great for soft soldering, silver soldering, brazing and more. Gas filler valves, gas filler adaptors, wick material, books, videos.....there are too many new, useful and "gottahaveit" items to list here, so send $2.00 for a catalog and see what you can't live without in SSSM's latest "Wish Book".

SSSM Ltd. are now building Goodall-type water injection valves for most popular steam locomotives, which will let you add water to the boiler while the engine is under steam, lengthening your run time and testing your endurance! Also available are modified pump-spray bottles for use with the Goodall-type valves. We received a sample of one of these bottles and found it to be just the ticket for filling boilers through Goodall valves, Enots couplings, or a gaping hole. Where you took out the filler plug, of course! The bottle holds 16 oz. of distilled water, which will keep you on the track for a long, long time. Much more convenient than a syringe, and you don't have to keep refilling it. As a bonus, it is much easier to fill a boiler under pressure with one of these than it is with a syringe. Write, phone or fax and ask Bob or Carol about these new products.

WADA Locomotive Works, Yokohama, Japan's custom manufacturer of 5" gauge live steam engines, is preparing to enter the Gauge 1 market with several new products. Items planned for release are: a **Reading 0-4-0 Camelback** (Kit or RTR); a **Steam Turbine Module** (just add boiler); and a **Diesel-Electric Module** to turn electric trains into true diesel-electrics! These Gauge 1 items made their debut at the 1995 National Gauge 1 Steamup in Diamondhead, Mississippi, and will be available through WLW's exclusive US Agent, **Potomac Steam Industries (PSI), 5595 Saint Charles Drive, Dale City, VA 22913-3503**. For more information send SASE to the above address.

ASTER Hobby, Yokohama, Japan, is now offering a **Utility Car Kit** for locomotives with limited run time capability due to small boiler size or small meths tanks. The car is equipped with an electrical powered water pump with a bypass valve to control the flow of water to the boiler. It is also equipped with a gravity feed meths tank. The utility car will add an additional 15 to 20 minutes of running time when it is connected to your locomotive. It will be available in a German passenger car for locomotives such as the Glaskasten, and a British coach for the Pannier Tank or similar locomotives. All parts required to attach the car to the Glaskasten or the Pannier are included in the kit. For more information contact **Aster Hobby West, PO Box 1226, Cypress CA 90630 -- phone/fax 714-828-1537**.....or contact your local Aster dealer.

Mike Chaney, 116, Vicarage Road, Chelmsford, Essex CM2 9BT, ENGLAND -- phone 011-441-245-260-096, builder of fine steam locomotives and after-market parts, reports that he is hard at work on a 1:20 scale C-16. This locomotive will be offered for sale once the development work is complete and the pilot model is up and running. With all the Colorado narrow gauge fans around the world, it should prove to be a very popular locomotive. If you are interested it would be a good idea to write or phone Mike to let him know of your interest, and to offer your suggestions, comments and support for this worthwhile project.



Grasshopper Beam Engine

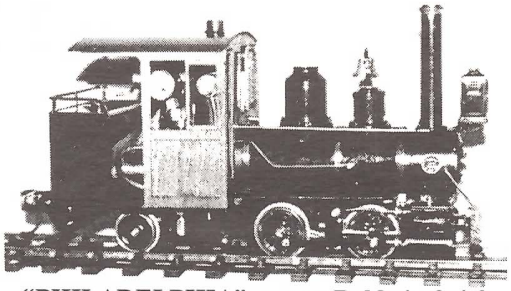
Coleman Engineering, Park Gate, Clapton, Berkeley, Gloucestershire GL13 9QU, ENGLAND -- phone 011-44-453-810-188, offers some neat steam engines of brass and stainless steel as fully machined kits and as unmachined materials kits. Both come with full machining drawings and instruction manual. They even offer a Helpline Service in case you get into trouble! Boilers are available as materials kits and fully machined kits with finished and tested drum. What a great way to develop your skills and build your confidence so that you will be ready to tackle a loco building project! It is also a very pleasant way to spend some time, and stationary engines can be run and enjoyed indoors during periods of bad weather when you can't get out to the railroad. CYGNET is available now, and the Grasshopper Beam Engine will be available late Spring. A 6-coupled locomotive is under development and will be available at a later date. Write or call for full details, and please mention that you saw it in Steam in the Garden.

Sierra Valley Enterprises, 2755 Saratoga Avenue, Merced CA 95340 -- phone 209-722-8278, has released their Outside Hung Brake Beams (part no. OBW-43, $9.95 per set) to fit LGB, Bachmann and USA Trains freight trucks. They attach quite simply to the bottom of the trucks using the same screws that hold the side frames to the truck bolster. They come painted a neutral gray color to represent aging wood and can be installed as is, but the manufacturer recommends painting the brake shoes and the nbw castings either flat black or a rusty color for more realism. The castings are clean and crisp and very nicely done. These brake beams really add a lot to the appearance of your rolling stock. Gary Watkins at Sierra Valley Enterprises is a fine craftsman and a perfectionist as well, which is good news for us consumers. Send $1.00 for spec sheets and more information on the Outside Hung Brake Beams and all the other neat items from Sierra Valley, including accurate, nicely detailed, 1:20 scale, <u>super quality</u> RTR narrow gauge rolling stock.

The East Coast Locomotive Works has moved to the West Coast. It has been purchased by Donald Viale, and the name of the firm will be changed to **The Klamath Model Machine & Locomotive Works. The new address is PO Box 350, Calpella CA 95418 -- phone 707-485-8634 or 800-532-8523.** The line currently consists of a 1-1/2" scale 7-1/2" -- 7-1/4" gauge Southern PS4 4-6-2 and a New York Central Hudson 4-6-4. Don is active in forming a new live steam club in the Mendocino -- Lake & Humboldt & Sonoma County area of Northern California. The new club welcomes all gauges & scales.

Argyle Locomotive Works, 72 Garland Road, Bundanoon 2578, AUSTRALIA -- fax/phone 011-61-48-836-787, has introduced a new locomotive in their already extensive line of Baldwin steam locomotive models. Named "PHILADEL-

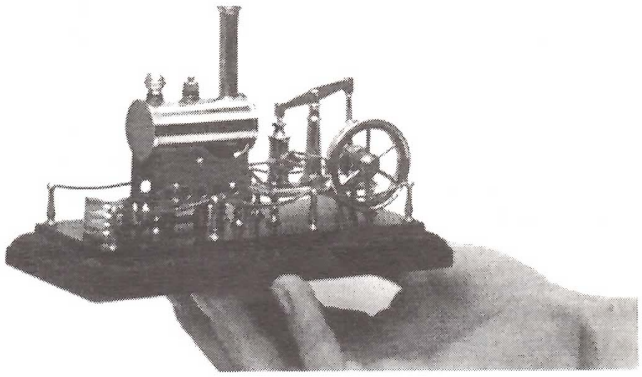
PHIA", the new loco is a Baldwin 0-4-2 of the same high quality design, materials and construction we have come to expect from Argyle, but priced in the entry level range. We had a chance to look at the first production engine closely at Diamondhead, and we were impressed with both appearance and running qualities. We hope to be able to have a review available for our readers soon. In the meantime, you might want to contact Argyle to get on the reservation list. In the USA contact Argyle's agent, **Sulphur Springs Steam Models Ltd., PO Box 6165, Dept. RB, Chesterfield MO 63006 -- phone/fax 314-527-8326,** for more information and pricing...or to get on the reservation list.



"PHILADELPHIA", a new Baldwin 0-4-2 from Argyle Locomotive Works.

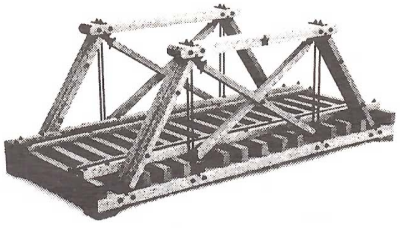
Rio-Pecos Garden RR Co., 27136 Edenbridge Ct., Bonita Springs FL 33923 -- phone 813-495-0491 fax 813-495-7264, informs us that the refillable fuel tank for the Maxwell Hemmens Porter has been improved by the addition of an external filler valve. This improvement means that the fuel control valve will not need to be removed to get at the filler valve when refilling the tank. This tank, though designed and sold by Maxwell Hemmens specifically for their Porter, is extremely well made and could be used by kitbashers and tinkerers looking for more fuel capacity for their project locos. Write, call or fax Bob, Fran or Rob Osterhoudt at Rio-Pecos for more information and pricing.

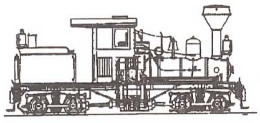
PHILCRAFT, Spring Head Farm, Amberley Road, Storrington, West Sussex RH20 4JD, ENGLAND -- phone 011-44-903-742-777, has sent photos and descriptions of some exquisite, tiny stationary steam engines, available from them as a kit or a finished engine and suitable for display or operation. Or both. The most interesting item in the PHILCRAFT line *(my personal opinion - ed.)* is the Beam Engine Plant, shown here balanced on a 1:20.3 scale hand for size reference. Just kidding! That's a full-sized human hand, of course. Write or call Phil Gravett at PHILCRAFT for more information and pricing. Include a dollar or two to help defray the cost of mailing -- and please tell him Steam in the Garden magazine sent you.



Sierra Valley Enterprises, 2755 Saratoga Avenue, Merced CA 95340 -- phone 209-722-8278, has introduced another item in their line of outstanding Custom Built, Ready-To-Run, 1:20.3 scale rolling stock. The new 24 Foot Carter Brothers Boxcar was given a top rating of "SUPERB" by Russ Reinberg, editor of Outdoor Railroader. Pick up a copy of the February/March 1995 issue of OR and read the review (though you must be very careful about what you read in OR, as it has been known to cause severe brain damage). Uncle Russ loved the new boxcar. Not surprising, as Sierra Valley's Gary Watkins has been turning out the nicest looking, most accurate, beautifully detailed RTR rolling stock we've ever seen. The boxcar was used on, and is available lettered for, the South Pacific Coast Railroad, Nevada County Narrow Gauge or Nevada Central. Send $1.00 for more information on the boxcar and the other superb items by Sierra Valley Enterprises.

Lone Star Bridge & Abutment, 1218 A-8 Colorado Lane, Arlington TX 76015 -- Phone 817-548-5656, announces a new bridge in their № 6 Truss Bridge Series -- the Queen Post Truss Bridge. At 17-5/8" wide, 8" wide and 6-1/2" tall, the new Queen Post Truss is a small bridge, and it would fit neatly into the smallest garden railway. Like other Lone Star bridges, it's made of hand rubbed mahogany with a marine grade teak oil finish and assembled with functional, blackened brass hardware and numerous detail castings. A unique feature of the model are the center panel counters made up of strutted timbers with working strap fittings and hardware. Deck timbers are spaced for drop-in installation of LGB sectional track. Fully assembled and priced at $145.00, including shipping to the lower 48 states. Write or call Lone Star for more information.





The Fitter's Bench

by Crankpin

Drawings by Harry Wade

The 3-Jaw Chuck

Despite a Winter that has brought several particularly nasty doses of weather to many parts of the world, I am fortunate in that the workshop at Crankpin Hall has remained warm and dry and a tolerable amount of good modeling work has been accomplished in the last few months. This is particularly satisfying since, as I have mentioned before in these pages, it seems that for a long while now the making of chips has been overshadowed to a great extent by a number of other less interesting domestic chores. However odious these chores may be, they have kept a maintenance level of bread on the table and a lump of coal on the hearth, so without further discussion I will get on with what you came to hear more of, the on-going description of chucks for the lathe. The first and only order of business for this issue - the basics of the three jaw chuck, also sometimes called the self-centering chuck, or the SC chuck.

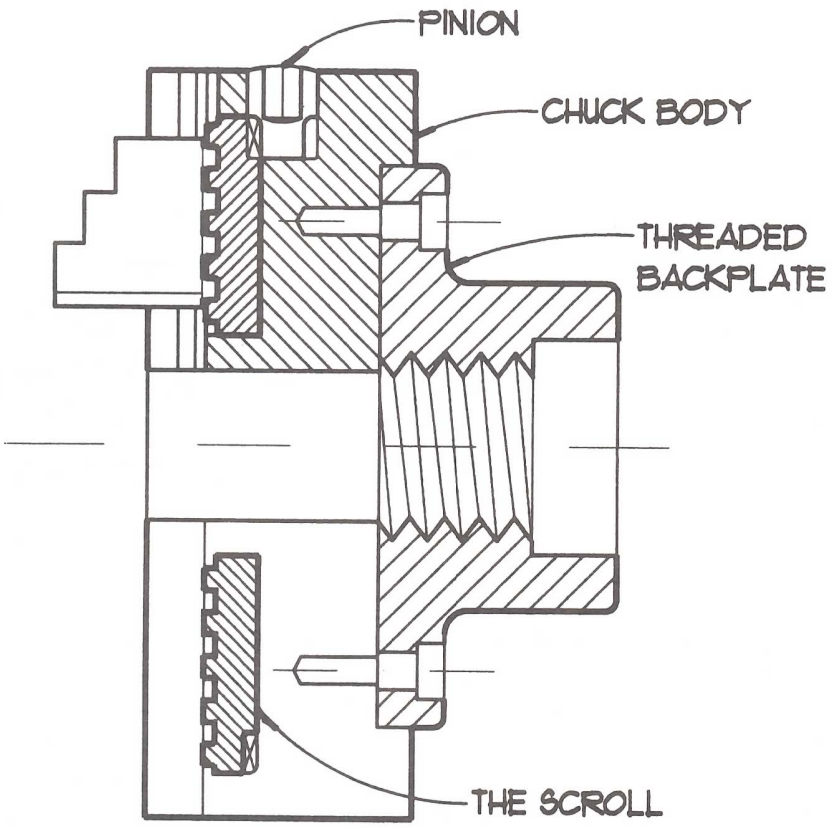


FIG. 1: THE INTERNAL WORKINGS

The three jaw and four jaw chuck are alike in that they both screw on to the lathe spindle and they grip material by means of movable jaws. They are also similarly shaped although the three jaw will have a thicker body because of the mechanism that it must house. After that point the similarities tend to trail off at an alarming rate. First, the purpose of any self-centering chuck (three jaw or otherwise) is to close (or open) all jaws simultaneously with precisely the same amount of travel. The three jaw, of course, has its jaws and their slots spaced about the face of the chuck at 120 degrees apart (Figure 2) and like the four jaw, these are usually stepped on their fronts so as to be able to grip both in the inside and over the outside of a piece. Unlike the four jaw however, the jaws of a three jaw cannot be reversed or turned end-for-end in their tracks; a separate set of jaws is required for the inside and outside positions. (Figure 3) The reasons for this will become apparent a bit further along when I describe the jaw operating mechanism.

Every three jaw chuck should come furnished with two sets of three jaws; one set for the inside holding position and one set for the outside position. New chucks are normally packaged in this way and the second set of jaws should never have to be bought at additional cost, except of course when they are replacement jaws which most manufacturers make available. I would recommend that you not give serious consideration to a chuck which does not include both sets of jaws unless you have confirmed that replacement jaws are available for that particular model you are offered, or unless you accept that you will only be able to use it in a single gripping mode. Of course if one of your local club chums is willing to lay one on you for nothing

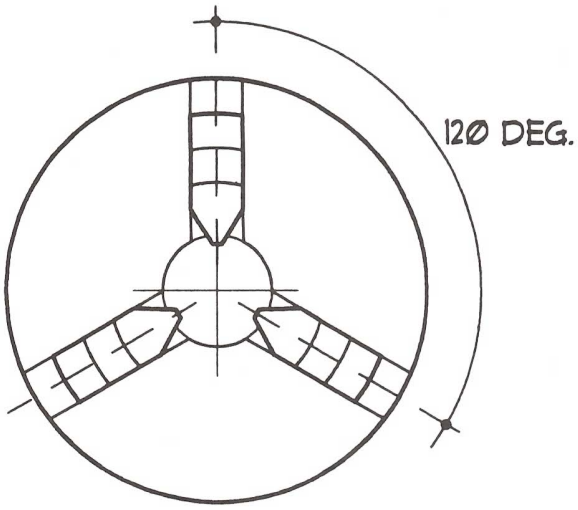


FIG. 2: JAW ARRANGEMENT

or next to it, what have you got to lose?

In most all chucks the movement of the jaws is done with a T-handled wrench, "the chuck wrench" (Figure 4), whose business end is milled square to fit a like driving socket in the chuck, although I once owned a chuck fitted with hexagon sockets. As in my previous statements about extra jaw sets, the chuck wrench is usually considered part and parcel of the chuck "set" and should be included in your purchase. Should you come across a good used chuck that is without its wrench you should give it fair consideration as many chuck wrenches are interchangeable and new ones can be had cheaply. If worse comes to worse, you can always file one up from a piece of bar stock, drilled through for the T-handle.

The primary difference between independent (4-jaw) and self-centering chucks is the method by which the jaws are moved. Whereas the jaws of a four jaw are moved in or out by turning each of the jaw screws independently, the heart of the three jaw chuck is the SCROLL, which in technical parlance could be termed a "radial screw". (See Figure 1) The "screw" on the scroll is actually a single, somewhat thick, square-toothed thread that winds its way inward from the outside edge of the scroll in a continuous spiral. The chuck wrench is inserted to turn the pinion which is in permanent engagement with a ring gear on the outer edge of the scroll. The pinion rotates the scroll so that the spiral moves inward or outward depending upon which direction the pinion is turned. Since everything is radial and symmetrical about the chuck body, many chucks are made with several pinion locations, usually three, giving the operator a bit more convenience than if there were only one. All of them will operate the chuck in the same way.

The jaws have largish square teeth milled into their back sides which mate precisely with the thread of the scroll. As the scroll turns the jaws are simultaneously drawn in or pushed out along their slots by the spiral movement of the scroll teeth, or TOOTH I should say. Since the thread of the scroll is curved, the teeth of the jaws must also be curved in order to mate with them. A jaw with teeth curved inward to match the scroll, when reversed in its slot, would then have teeth that curved outward, yes? Hence the need for two sets of jaws; a set to match the curvature of the scroll thread when installed in either inside or outside position.

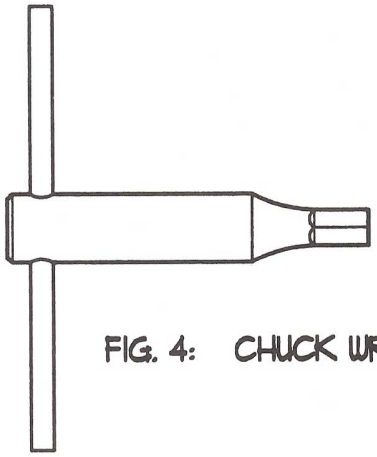


FIG. 4: CHUCK WRENCH

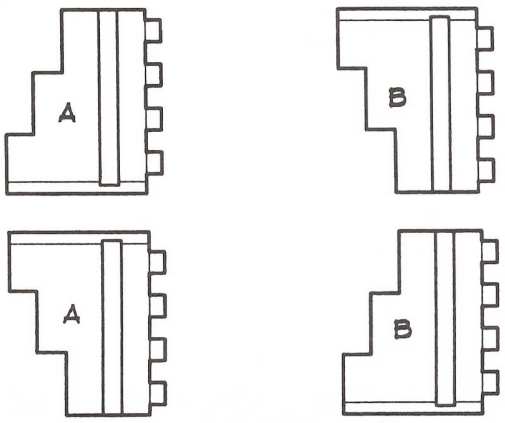


FIG. 3: OUTSIDE (A) & INSIDE (B) JAW SETS

The geared operation described above is the most commonly used arrangement for scroll rotation on chucks of 3" diameter and larger on machines suited to home workshop use. However, the smaller lathes of, say, 2" centers and below, which include the watchmaker's and instrument lathes, are very often found to have chucks in which the front and back halves of the chuck body are movable and may be rotated against each other by means of one or two tommy bars, or levers. (Figure 5) The scroll is milled into the rear or backplate half of the chuck, hence the entire front of the chuck body must be rotated against the back half, rather than a separate internal scroll, to produce the spiral action. Rather than being less accurate than their larger brothers, these small manually operated chucks are usually more so, although they lack the gripping power provided by the mechanical advantage of a geared scroll. They are nicely suited for their work as a bigger chuck would most likely squash a weensy fitting flat without

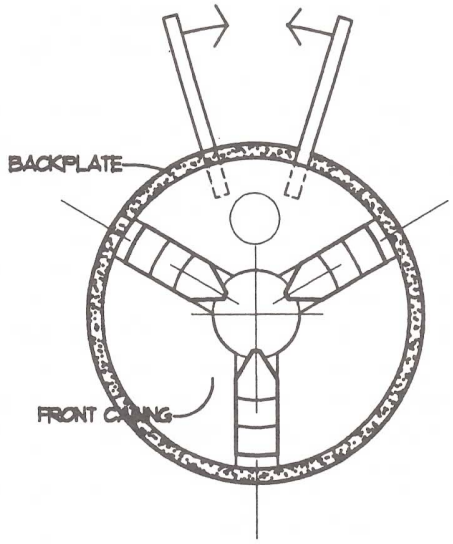


FIG. 5: INSTRUMENT CHUCK

any warning at all.

There are several other jaw configurations to be found here and there on self-centering chucks including two jaw, four jaw, and six jaw models. The rarest of these is the four jaw, rarely seen these days and a strange bird in anyone's book, but considered very useful by those who own them. The two jaw is a common item in commercial industrial use where the chuck jaws are often machined to suit a specific shape for secure holding and speedy changes. The six jaw, even though they are quite expensive and a luxury of sorts, is to be found more often in home workshops these days. They are usually made with an internal body mechanism which will allow them to be adjusted to hold work within .0005" on a given diameter. A six jaw chuck, by applying pressure at six points instead of three, will also allow you to chuck up light gauge materials, such as thin wall brass tubing, very tightly without causing it to become deformed or "lobed" during the process.

I think that before I close a few comments on the recommended size of the three jaw are certainly in order, but in this respect the remarks I made in the last issue about four jaw chucks could be generally applied, although with one exception. It seems to me that in all my wandering about in model engineering workshops throughout the world, the most common combination of chuck sizes that I see, including those in my own workshop, are a four jaw of "X" given diameter and a three jaw that is nominally 2" smaller in diameter than the four jaw. The single most commonly observed combination being a 6" four jaw with a 4" three jaw. This particular combination best suits lathes of 6" to 10" swing (3" to 5" center height) and larger or smaller machines would require appropriate adjustment in chuck size.

Those of you who read my last episode in which I trotted out the wonders of the four jaw chuck may have noticed a few remarks which suggested that I might have a low opinion of the three jaw chuck, such as it would not be my first choice of chuck. Good friends, nothing could be further from the truth! While it is probably true that I do hold the three jaw in somewhat less esteem than I do the four jaw, for good reasons which I will eventually reveal to you, the ease and convenience that the three jaw offers to the machinist is a very handy thing to have about and is always welcome in my workshop. Convenient though it is, the three jaw does have certain inherent limitations with regard to accuracy and therefore it has a definite place. When you know its limitations you will also know the proper time and place to put it to use and in the final analysis your work should be the better for it.

The overall accuracy with which the scroll spiral, thread, and the mating surfaces of the jaws of a three jaw chuck are made is critical to the holding accuracy of the chuck. A chuck with any of these mating parts poorly made cannot accurately center work. In addition, SC chuck mechanisms, like any other machine, are subjected to friction and wear and will become less accurate with time. In our next issue I will continue with a rather more specific explanation of the limitations of the three jaw and how they are likely to affect your work.

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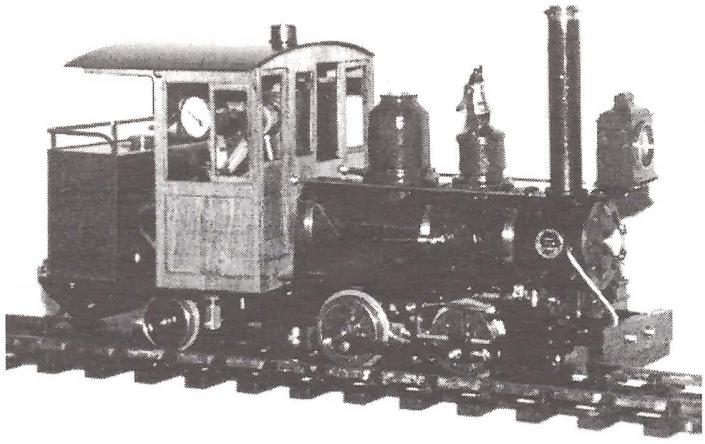

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The Steamchest

by Marc Horovitz

KEEPING 'EM IN SUSPENSE

I've heard it said that unsprung 0-4-0s spend most of their lives with only three wheels touching the rails. Indeed, the same might be said of any unsprung locomotive, no matter how many wheels, since it takes only three points of contact to provide a stable base. Obviously, this is not an ideal state of affairs.

Springing a locomotive provides it with a variety of advantages. The two most obvious are that all wheels will be in contact with the rails at all times, thus improving performance, and that springing gives the engine flexibility to get over rough trackage without derailing.

Nearly all 0-4-0s that are commercially offered today are unsprung. The axles are held rigidly in the frames. The frames of these engines are sometimes not square and the engines will rock, even on the most level surface. But even on three wheels they perform well on the track, doing their job in a satisfactory manner, never letting on that they are, in fact, hobbling along one leg shy. There is no simple fix for these engines and, in truth, they probably don't need fixing. There is a great deal of compromise built into these little steamers, when compared with the full-size article. As a general rule, they do what they are advertised to do. On the other hand, if you are building a locomotive -- even an 0-4-0 -- you might want to consider springing it.

An 0-4-0, in our scales anyway, really only needs one axle sprung to keep all of its feet firmly planted. This is most often the leading axle. There are reasons for not springing the rear axle. 1) You don't gain that much more (if the front axle is sprung), and 2) if you are using a valve gear like Hackworth, where the motion is taken from the crank pin and goes straight up, valve events can be affected by the up-and-down movement of the axle as the engine travels.

If you do spring just one axle, though, you must do your work carefully. The spring must be stiff enough to keep the engine from settling so much that when it is placed on the track, when viewed from the side, it appears to be nose down.

Six-drivered locomotives also sometimes have just one axle sprung, usually the center one. This technique allows the builder to do just one third of the work necessary to spring the entire engine, and it ensures that at least five of the wheels will be supporting the engine.

Most of the better engines, though, are fully sprung. The way this is usually accomplished is by making an axlebox that slides vertically in the frame. A spring that bears against the frame is fitted to the axlebox in one way or another, preventing excessive travel, and allowing the wheels to lift or drop slightly when they encounter unevenness in the track (see the drawings). Springs must be designed in such a way that when the engine is placed on the track, it will settle a little, compressing the spring slightly. If the spring is too strong, the weight of the engine will not be enough to deflect it, and it will be useless. If it is too weak, the weight of the engine will fully compress the spring, and the result will be the same. A little experimentation and/or engineering is usually in order to determine the best solution.

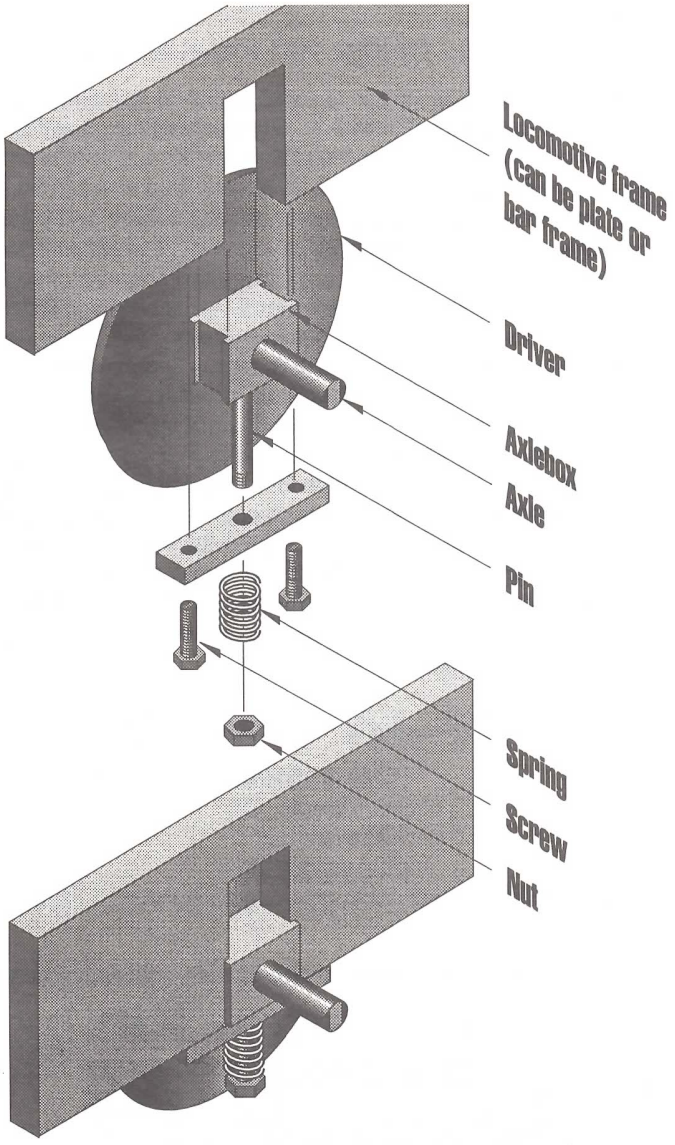
Springs, retained on rods, often project below the frames, beneath the axleboxes. This may be the most common way of springing a small-scale engine. The only real disadvantage is the vulnerability of the spring mechanism. These are offered some protection by the drivers they suspend, but on a bad, high-speed derailment, these spring assemblies can get bent or broken. They are usually designed, however, so that repairing and/or replacing them is not a difficult job.

If there is enough room, a spring can be incorporated between the top of the axlebox and the frame. This accomplishes the same purpose and it protects the springs, keeping them up off the ground in case of a mishap.

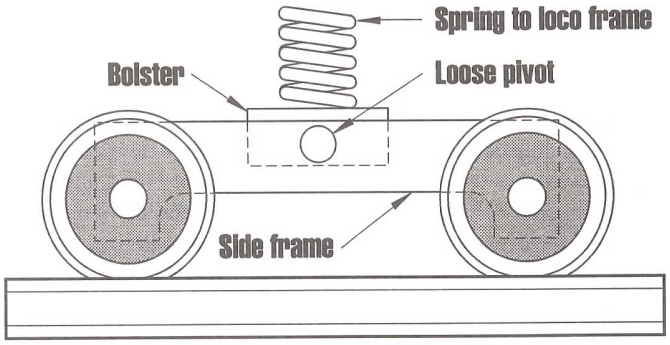
Locomotives without tenders or leading or trailing trucks to help stabilize them are in a state of constantly changing suspension. I once had a cab ride with Alan Bloom, of Bressingham Gardens fame, on a full-size two-foot-gauge 0-6-0T quarry engine that he had restored. The amount of extra motion in all three axes (roll, pitch, and yaw) was amazing, and was largely due to the springing. Even an engine pulling a train on well-laid track will move about on its springs, due to the forces exerted upon it by its own forward motion and the restraining action of the train. So if you notice your fully sprung 0-4-0 bouncing slightly as it trundles along, it is only doing what it is supposed to do, obeying the laws of nature. I once had an old Ford with worn-out shock absorbers that acted similarly. While it was an interesting lesson in physics, I could have done without the embarrassment heaped upon me every time I stopped at a red light. While all other cars on the road remained stationary and dignified, mine continued to hop up and down until the light changed, providing a great source of amusement.

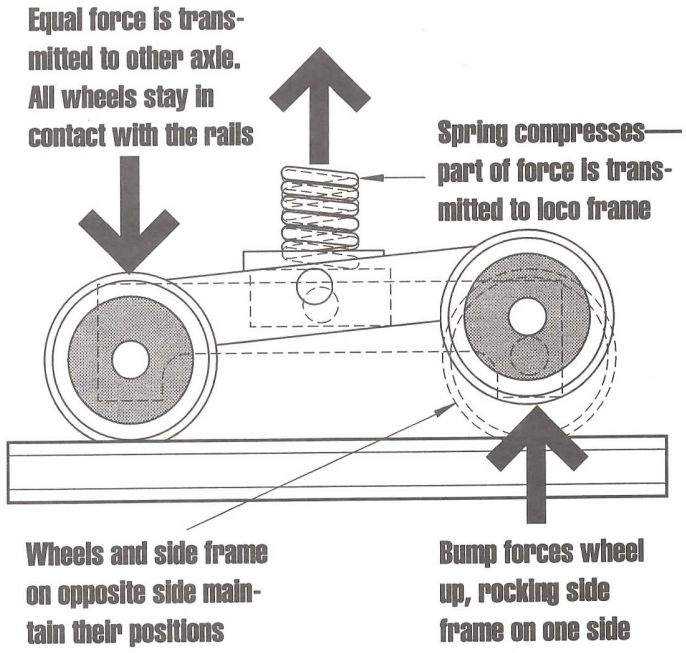
The actual springs, especially in our small locomotives, are usually of the coil or helical variety. Leaf springs can be used, but they cannot be easily scaled down. Coil springs are usually fairly easy to conceal. I have also seen small blocks of rubber used as springs. These tend to give more limited motion, but if your track is well laid you shouldn't need a lot of travel.

When springing a locomotive, other problems must be addressed as well. The side rods, particularly on six- and eight-coupled engines, must be made to flex so that they don't bind up the mechanism when the engine goes over a hump. This can be done in two ways. The first is simply to make the crankpin holes much larger. However, this is not only a sloppy solution, but it detracts from the efficiency of the engine. If you are going to go to all of the trouble of springing the engine, you might as well go

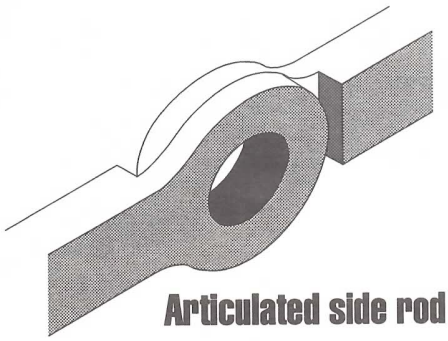


Typical springing for a gauge-1 locomotive

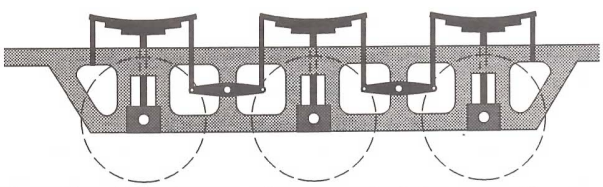




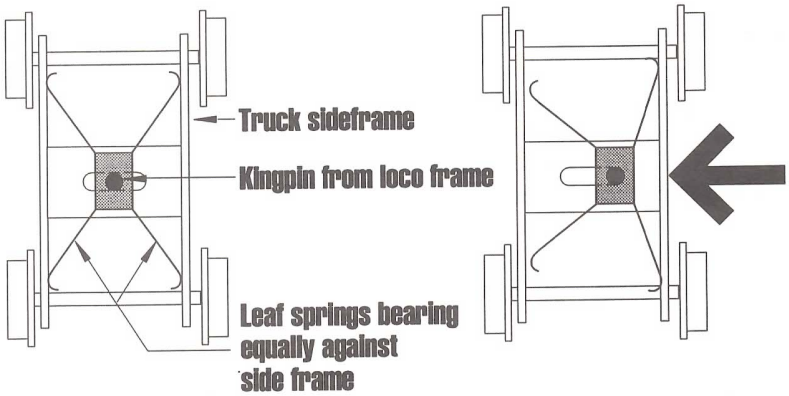
Equalization for a four-wheel leading truck



Articulated side rod



Equalization for a six-coupled locomotive



When the truck is forced to one side by a curve, the springs transmit that force to the kingpin, and thus to the engine, which guides it into the curve.

Aster's lateral suspension for leading truck

to the additional trouble of articulating the side rods. This is simply a matter of providing them with joints (see sketches).

Full-size engines, especially larger ones, use an additional system called equalization. This is a series of rods and levers, designed in conjunction with the springing, that tie each axle to the ones adjacent to it. Thus, when one axle is raised a little, it exerts a downward force on its neighbors, thus tending to maintain an equal axle loading on the rails. Most small-scale steamers do not use this system, but some, like Aster's K-4 Pacific, do.

When a leading or trailing truck is added, additional suspension problems arise, unless these trucks are to be considered mere ornaments. In full-size practice, the leading truck not only aids in supporting the cylinders and smokebox, it has the additional function of helping guide the locomotive into curves. So, this truck must not only be suspended vertically, but it must incorporate lateral springing as well. Trailing trucks mostly support the firebox, but in full-size locomotives they also incorporate lateral springing. In a fully equalized locomotive, the leading and trailing trucks will also he incorporated into the equalization system.

In our models, independently equalizing a four-wheel leading truck is a relatively simple task, usually easier than springing it. The sideframes are pivoted to the bolster by a pin in the center of the frame, and the axles are held somewhat loosely in the frames. When lifted from the track, the truck will appear a little floppy. On the track, however, when, say, the lead wheel is raised, the sideframe acts as a lever, with the fulcrum at the pivot point, transmitting the force to the rear wheel (see drawings). All wheels remain in contact with the rails at all times. (A similar system can be used for model freight- and passenger-car trucks.) The entire lead-truck assembly is then sprung to the engine frame, the spring simultaneously offering support to the engine while forcing the truck onto the rails.

Aster uses a simple system to provide its leading trucks with lateral spring. This is accomplished with leaf springs, and is best explained by the drawing. As the engine enters a curve, the spring presses against the truck's frame and the centerpin of the truck, exerting a force on the engine toward the inside of the curve, helping it to smoothly enter the curve. Again, the stiffness of the spring is important. If too stiff, the truck will derail; if too weak, it will have little or no effect.

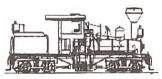
So there you have it. This has been a brief overview of locomotive suspension. While not enough hard information was included here to let you go out and start springing your engines, I hope that I have offered enough theoretical material to whet your interest in doing more research on the subject.

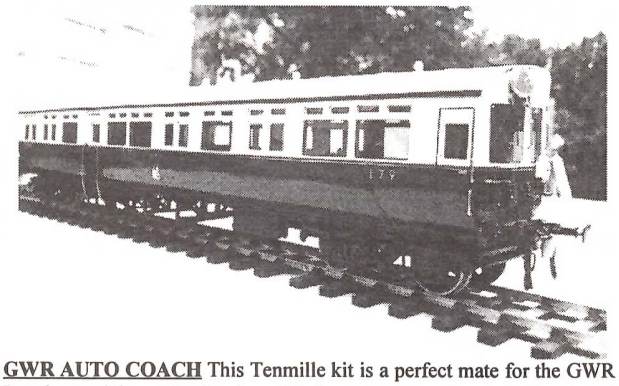
For further reading

Here are but two of the many books out there that I have found helpful.

Greenly's Model Steam Locomotives. Revised by Ernest Steel, Cassell Ltd., 1979.

Model Locomotive Construction. Martin Evans, Model and Allied Publications, 1974.





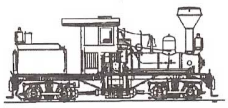
DUNKIRK Revisited

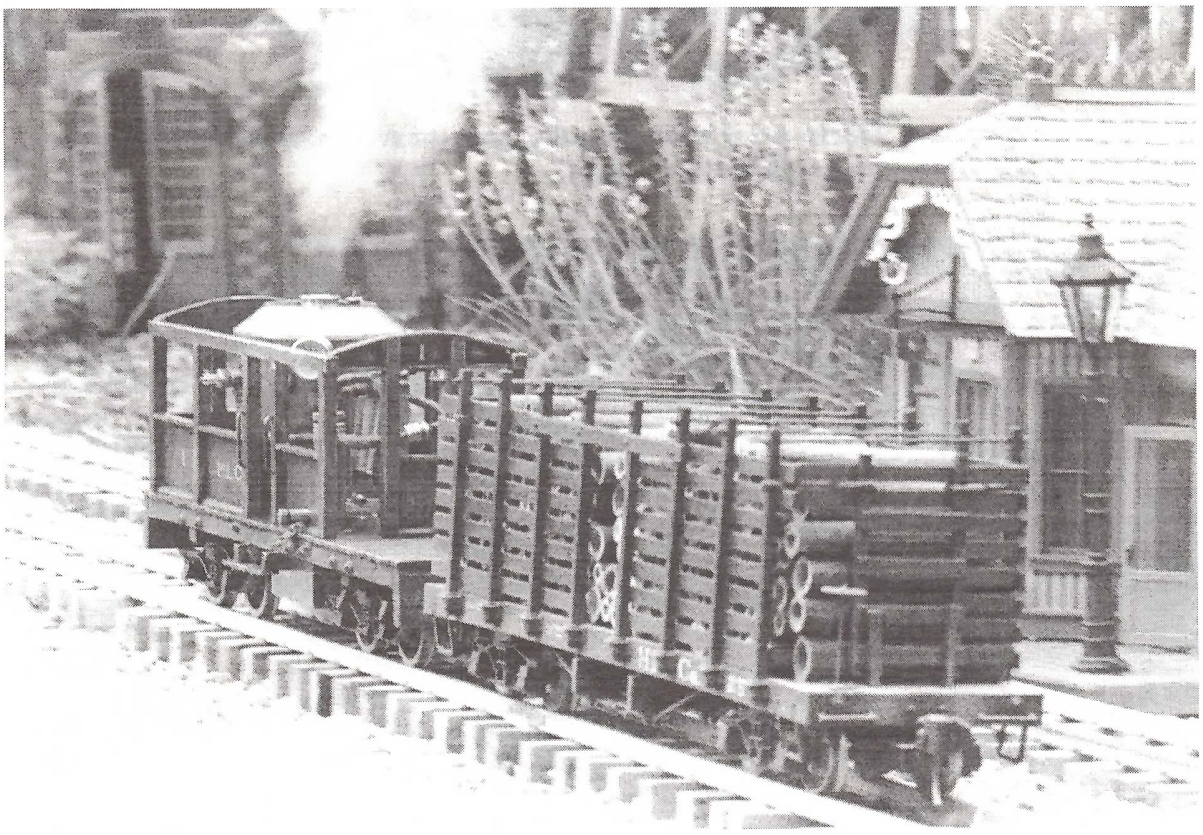
Loco by Larry Herget -- photos by Glenn Owens -- text by Ron Brown

Our "Cover Girl" this month is Larry Herget's scratchbuilt DUNKIRK, a geared logging locomotive that didn't enjoy the popularity of the Shay or the Climax during the heyday of logging, and is still mostly overlooked today by modelers. Our last look at Larry's 1891 Class A 13-ton DUNKIRK was in the July/August '94 issue, where we saw it in pieces and under construction. Since then Larry has not only finished this locomotive, he has also built several others. *(Larry must be using smoke and mirrors...no one should be allowed to build engines that fast and that well! -- ed.)*

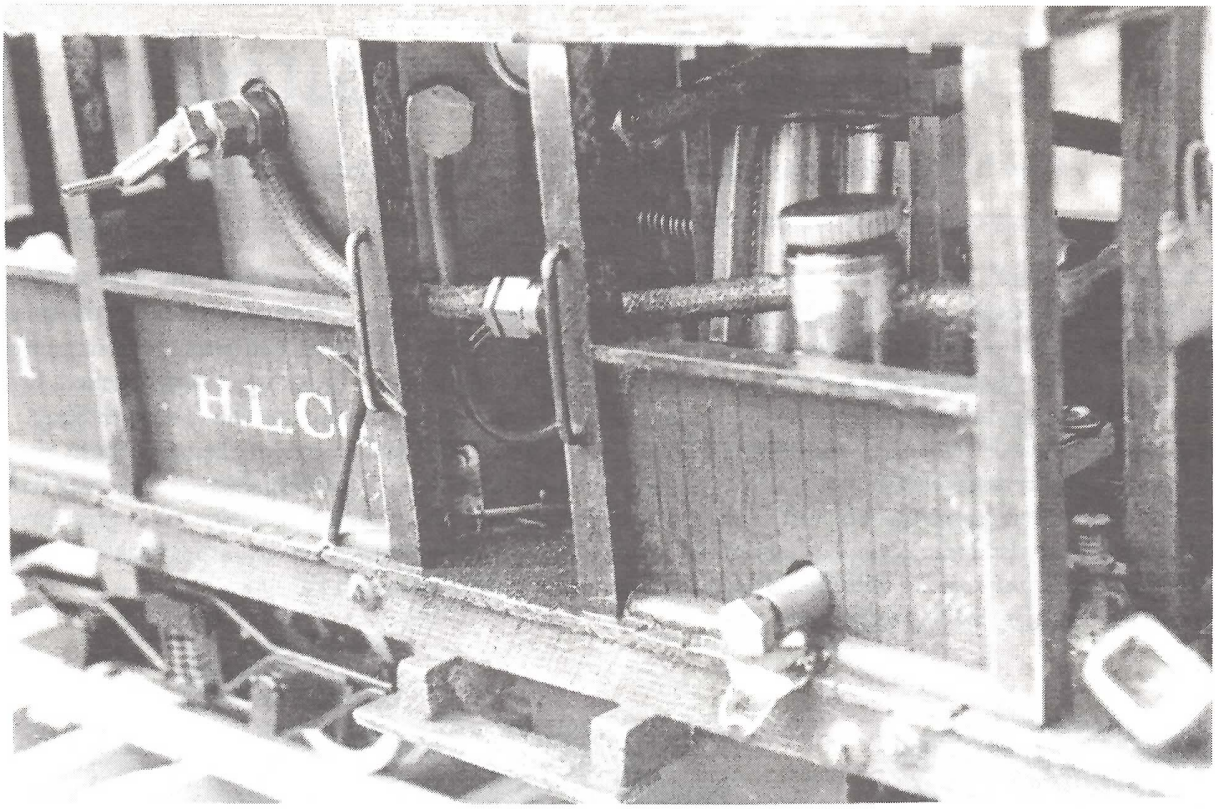
As promised in last year's article, here's a look at the finished product. Those who attended the steamup at Diamondhead this year had several opportunities to see this engine run – including a thrill-packed, breath-taking race to the death with the Catatonk Shay.

The DUNKIRK is one of the smoothest, slowest, most enjoyable and relaxing engines I've ever had the pleasure of seeing in action. Larry takes great pride in the fact that he uses a calendar, rather than a stopwatch, when timing laps with this jewel.

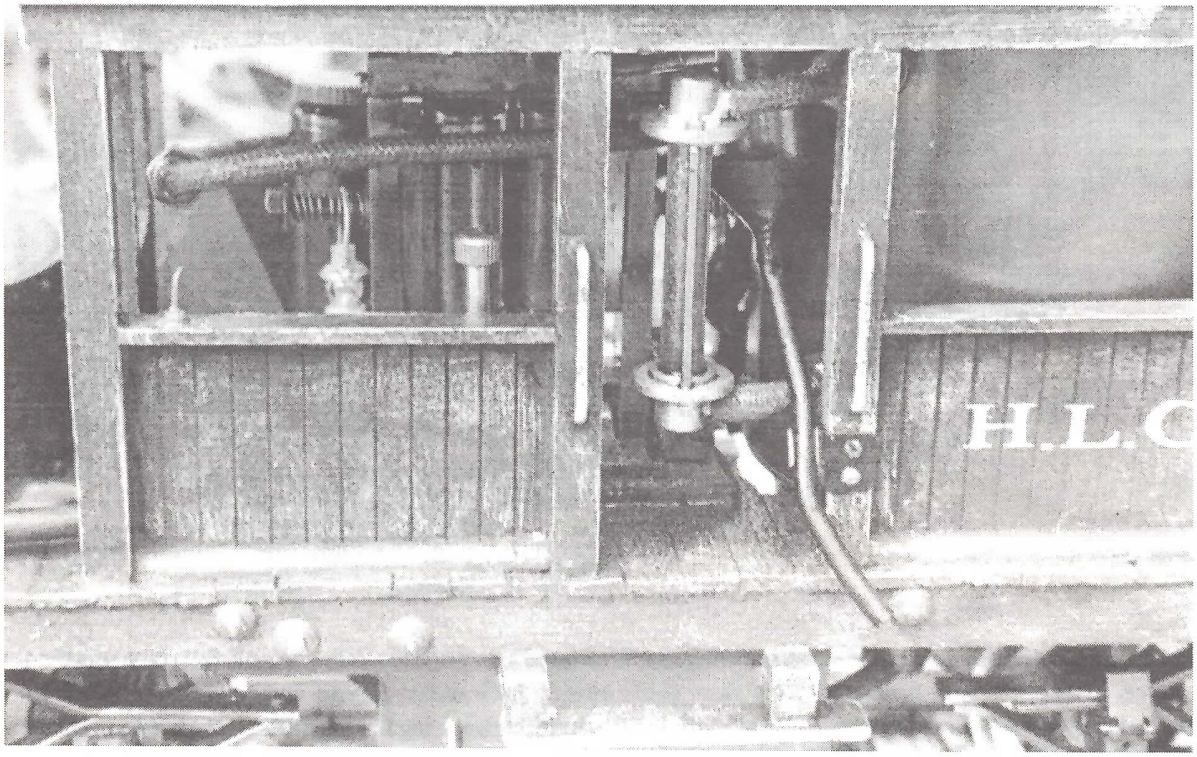




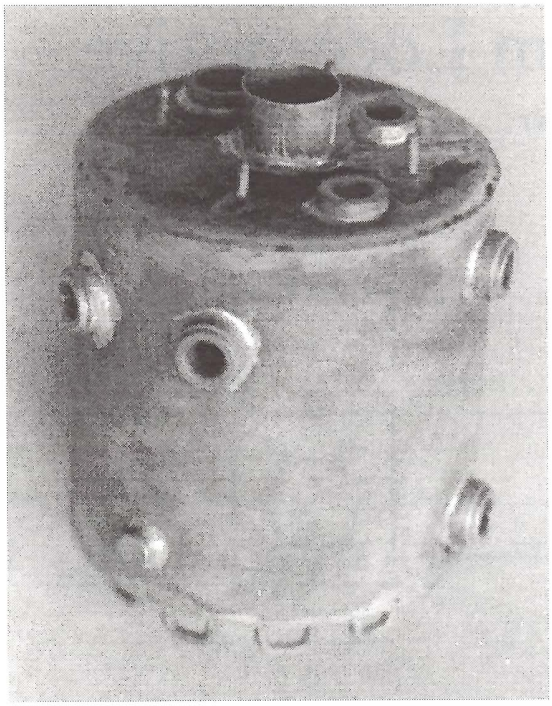
This is only the second run on the new engine. It started out pushing one car and finished pushing three. Lots of power and runs at a slow scale speed. At low speed you can count the RPM by watching one of the cylinders rock. Check out the load -- those logs are grown hollow down in the hollow.....and brought to the sawmill by the Hollow Log Co.



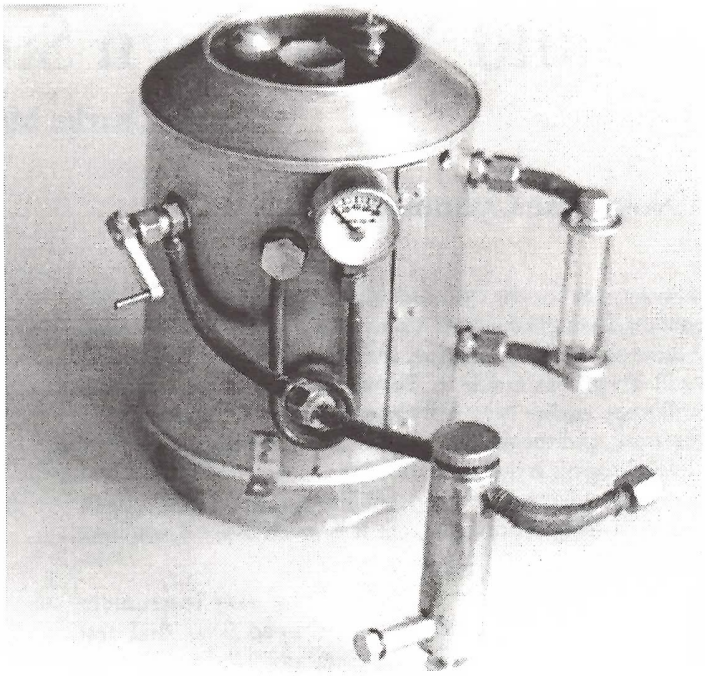
View from right front. Layout left to right...throttle, gauge connection, motor assembly (behind lubricator), lubricator drain and spill guard.



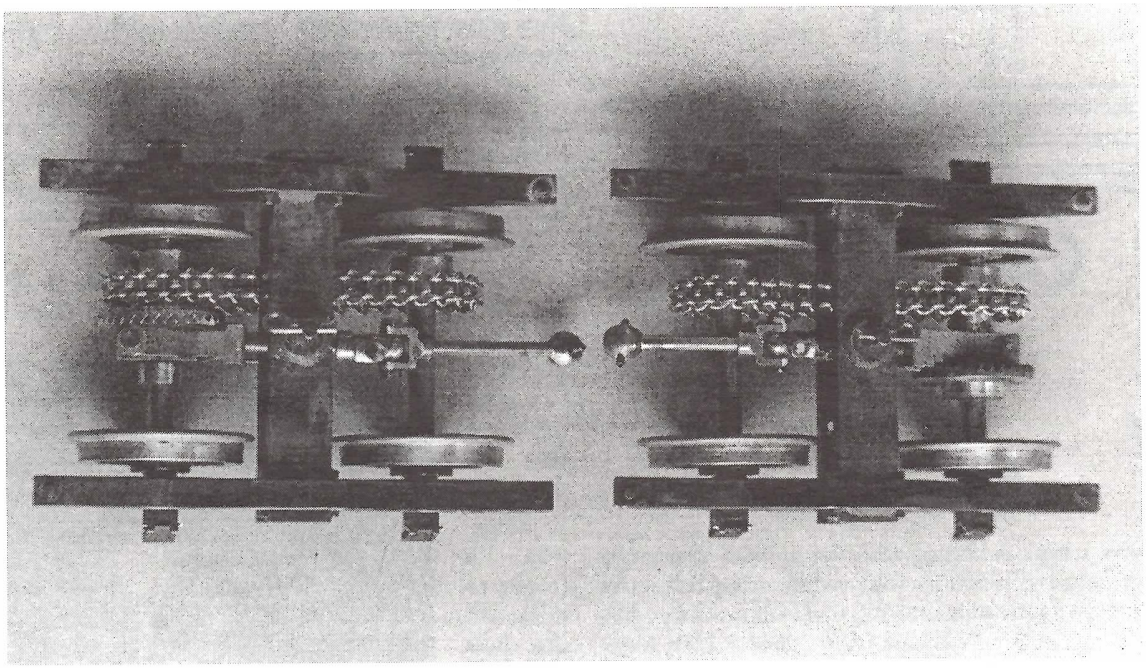
View of left side. Front to rear...lubricator, motor, the knob that holds the fuel tank in (see it at bottom), and waterglass. Just above the waterglass is the exhaust drier. The condensate drains into the funnel below it so the floor doesn't get slopped up. Big thing in the window on right is the boiler.



NAKED BOILER! The center flue is brass with copper crossflow tubes (water tubes) set off-level to promote circulation. The loops at the bottom are Loop Quills...they extend up into the water 3/4". That's 24 quills inside. The 4 rods sticking out of the top are the stays.



BOILER ASSEMBLY: Contains throttle, pressure gauge, filler, safety valve, lubricator and water glass. The only purchased items here are the pressure gauge and the glass tubing in the water glass. Copper boiler is phos-copper brazed, and all brass fittings are silver soldered. The outside wrapper sheet is brass. Operating pressure is 18 psi and test pressure is 30 psi.



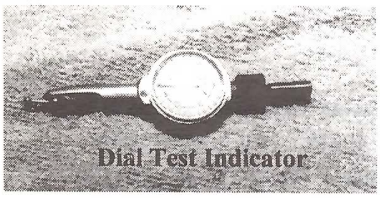
DUNKIRK TRUCK ASSEMBLIES viewed from the top. Construction is all brass, silversoldered, with journal lubing done by lifting the journal doors. Note the ladder chain and sprockets used to transmit power from the geared axles to the unpowered axles.

Build Your Own Steam Locomotive

by Charlie Mynhier

And Now...the Cylinders!

While we wait for the cylinder drawings to be completed, let's talk about machining techniques. Most of the work for these cylinders will be done on a milling machine, and it is that piece of machinery that I will devote this article to. Before we start, let me state this: how well your engine runs will depend on the accuracy of your machine work, and the design. The design has already been proven so the only thing left is the machine work. I hope you have a caliper capable of measuring to .001" It is possible to build an engine without precision measuring instruments, but it is much easier if you have them.


Dial Test Indicator

The next instrument you need is a "dial test indicator" *(left)*. This little tool will help you line up your vise so that when you mill a piece of metal you don't cut a taper – or it will allow you to cut the taper that we will talk about later.

The next 2 instruments you will need are called "dial travel indicators". The most common ones read from 0" to 1". Most mailorder houses sell these babys for as low as $15.95 – the dial test indicators are somewhat more expensive.

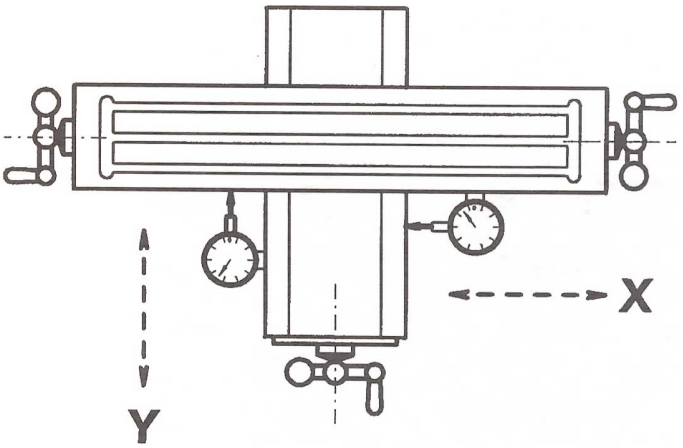


Fig. 1

Fig. 1 shows a typical milling table set up with dial travel indicators. With dial travel indicators, you can drill and tap bolt circles on tiny cylinders more accurately than you could with a rotary table. Believe me, I have a rotary table and I have done it both ways. Indicators are best for tiny cylinders, and rotary tables are best for large cylinders. Anyway, you may not have a rotary table so don't worry about it.

Fig. 2 shows a cylinder block that we will be making. Notice the 2 horizontal center lines, the upper center line and the vertical

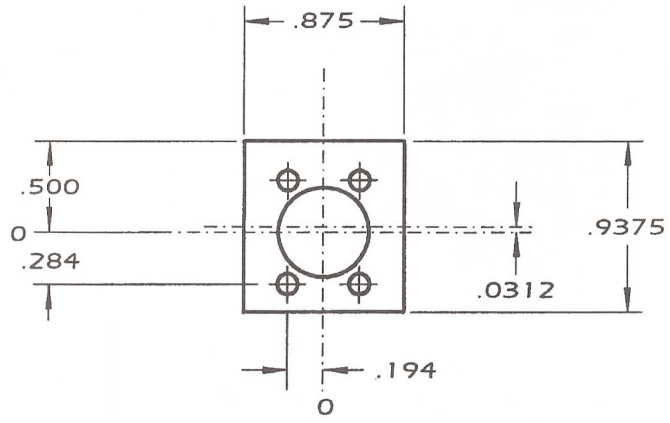


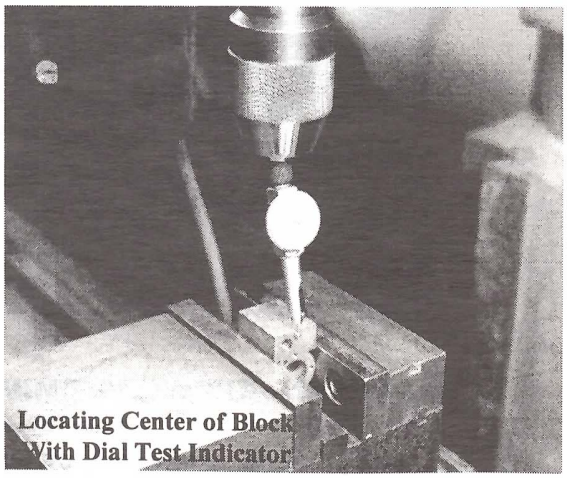
Fig. 2

centerline, indicating the absolute center of the block. The center of the block is found with the dial test indicator in the spindle of your milling machine *(see photo below)*. After clamping the cylinder block in the vise, bring it under the spindle. Your test indicator will need a way to move it off center *(mine has a ball and socket arrangement)*. Now drop the spindle down and adjust the indicator so that the contactor is against one side of block – let's say the right hand side. Now rotate the spindle by hand, back and forth slightly, and note the most negative reading.

Dial test indicators generally read from -.015" to +.015". Let's say your reading was +.003". Drop the indicator down on the left hand side of the block and find the most negative reading. Let's say it was -.011". Move the mill table toward the left *(x axis)* until the indicator reads -.004". Now pick up spindle and drop it down on the right hand side and it should also read -.004".

Now that you have found the center of the block on the "X" axis, set your 0" to 1" travel indicator about halfway through it's travel and zero it by turning the outer ring on the dial.

By the way, I forgot to mention that these indicators should have magnetic bases.


Locating Center of Block With Dial Test Indicator

Now you can precisely move the table along the "X" axis using the indicator – as long as you don't move it out of the indicator's range, which is approximately 1/2" in either direction.

Now that we have the "X" axis taken care of, we will do the "Y" axis the same way. After finding the absolute center of the block, we note that the drawing calls for the bore and hole pattern to be .500" down from the top. This happens to be .03125" down from the center. Move the mill table in the "Y" axis .03125", and re-zero the indicator. Lock the mill table in position, and drill and ream the 12.5mm bore.

Unlock the table and, watching the "X" indicator, move it negative .194". Watching the "Y" indicator, move the table positive .284". Now you can drill and tap the upper right hand hole of the cylinder block, and you can get the other three in like manner.

About that five decimal place number...don't worry about the last two. If we can get the first three that will be plenty close enough.

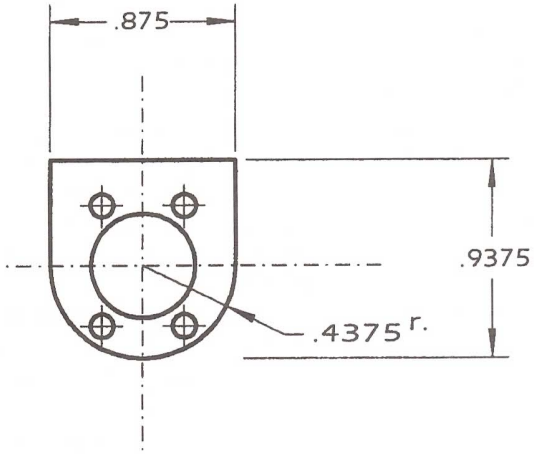


Fig. 3

Fig. 3 shows the cylinder block with a .4375"r. That is, a 7/16" radius. An R-6 bearing happens to be .875" outside diameter, which is exactly the radius we want. You will need two R-6 sealed bearings and a piece of 1/2" diameter brass rod to make your radius tool (***see photo***). Insert the brass mandrel into the cylinder block, fasten a bearing to each end, take the cylinder assembly with radius tool to a belt sander and sand the corners away until the bearing starts to turn with the sanding belt. Turn the block, don't stand there all day and watch the bearing turn!

Fig. 4 shows the crank rod that we will make later. Notice the drift and drop symbol. I think the architects call this pitch, but I will call it drift and drop. The first thing we need is 2 strips of metal 7/16" wide by 3-1/4" long by 1/16" thick. Stainless steel sure makes pretty side rods if you are up to it. Clamp a piece of flat bar in the milling machine vise. This bar can be any thickness above 5/16", and it should be at least 3-1/4" long and stand up above the vise jaw 1/4".


Radius Tool

At one end drill and tap a 1/4-20 UNC hole 3/16" from the front edge. Using the graduated hand wheel, crank the table along the "X" axis exactly 2.750" toward the other end and drill and tap a 2-56 UNC hole. Remove the bar from vise, clamp the 1/16" thick strips in the vise. Drill a 1/4" hole on one end, crank the table exactly 2.750" and drill a 3/32" hole on the other end.

Now put the flat bar back in the vise, go to the lathe and make a washer 1/4" I.D. x 1/2" O.D. for the big end and another washer with a #43 drill I.D. x 1/4" O.D. Stack the strips on top of each other and fasten down the small end with a 2-56 screw and the 1/4" O.D. washer, and the other end with a 1/4-20 screw and the 1/2" O.D. washer.

Now put a 1/4" end mill in the milling machine and drop it down so that it cuts both strips and a little bit of the flat bar. Mill both sides of the strips until they are .375" wide and the holes are in the center. Loosen the vise and cock it a little bit, then put your test indicator in the spindle and crank the table on the "Y" axis until the bar touches the indicator. Now crank the table on the "X" axis exactly 1.000" and see how far the test indicator moved. Adjust the vise until the indicator reads .022" and tighten the vise down.

Start milling the strips along the "X" axis between the washers. Try to not mill the washers! Use a strip of paper between the rotating mill and the washer, and when the mill grabs the paper, stop cranking and go the other way.

The radiused ends can be made by standing a short length of 1/2" square steel in the vise and drilling a 1/4" hole about 1/2" deep, then inserting a 3/4" length of rod into the hole. Put a 1/8" rotary file in the mill spindle and turn the spindle at about 1200 rpm. Let the spindle be on the left hand side of your little turning post – the spindle should be turning clockwise looking down on it. Hold the rod firmly in your hand ***(leather gloves are advisable)*** and hang the big end with the 1/4" hole over the protruding rod, then crank the mill table toward the left while pulling the free end of the rod toward you ***(that will be clockwise)***. Take very small cuts, .002" or .003" at a time, until you have the radius you want.

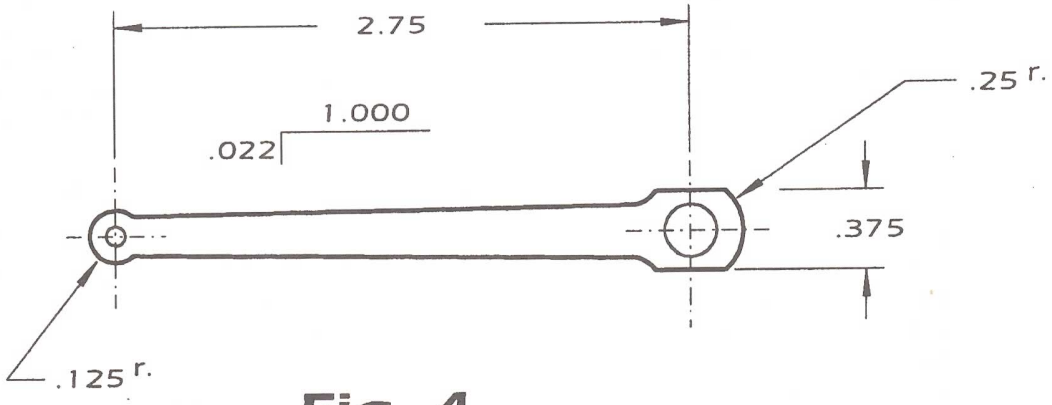


Fig. 4

Diamondhead '95

starring Jerry Reshew and a cast of thousands

report by Ron Brown
photos by Carol Jobusch, Jerry Hyde & Mike Buster

The National Steamup held at Diamondhead, Mississippi continues to grow by leaps and bounds, and this year convention attendees from Japan, England, Canada and Trinidad gave the event quite an international flavor. Additional steamup and train storage tracks helped to ease the congestion somewhat, but even with trains running literally around the clock it was not always easy to get track space and time. Just goes to show that Jerry Reshew had the right idea, the right time and the right place.

And speaking of Jerry -- it's a good thing he's now officially retired and has a lot of free time. Putting together an event of this magnitude takes an enormous amount of time and effort, and Jerry did a wonderful job for all of us again this year. He reports the following interesting statistics concerning the steamup. 137 people registered (which was only a fraction of the total attendance), and the brought approximately 200 locomotives. Total running time was 600 1/2 hour periods, during which time the locomotives consumed 18 gallons of distilled water, 6 gallons of meths, 3 cans of Sterno, 104 cans of butane and 20 lbs. of rags.

As in previous years, seminars on many interesting topics packed the conference rooms. The seminar presenters this year included Toyoki Inoue, Manager of Aster Hobby Co. Inc. (Japan); Mel Ridley of High Noon Loco Works (England); Richard Chiodo (New Hampshire); Roy Scott (England); and Bob Hartford (Maryland).

The dealer room was packed to capacity this year, and those who were slothful about getting their dealer table reservations in *(including yours truly)* either shared tables or lost out. As in previous years, many new and used locomotives were sold and/or traded...including some pretty fancy wheeling and dealing and creative financing by at least one of the younger participants -- Graham Bass from Tennessee.

There were several young people and even more of the ladies participating this year, which gave the whole event a lift. And I wasn't kidding with that comment about running round the clock. Anthony Chiodo pulled his dad out of bed at the crack of dark to get some track time, and even at 5:00 am he didn't have it all to himself for long.

At least one new company, Wada Locomotive Works of Yokohama, Japan, was there with some very impressive new equipment, and some of the old, established firms introduced new engines as well.

Wada Locomotive Works had more new and interesting items than any other single manufacturer, including a commercial version of the incredible steam turbine seen running at warp speed while pulling all the gauge 1 rolling stock in Mississippi. Kosaku also introduced a beautiful new 1:32 scale Reading 0-4-0 Camelback that ran like the proverbial Swiss watch. The last item in his bag of tricks, though it wasn't steam powered, probably made as big an impression as any item seen this year. A real, honest-to-gosh gas-electric locomotive! Utilizing a small helicopter gas engine coupled to a starter/generator, this little loco put on quite a show. Self-contained electric starting and radio control was just the beginning. Once the engine was running, Kosaku slowly advanced the throttle and the loco pulled away as smooth as can be -- with a plume of exhaust smoke streaming from the exhaust stack. Fantastic! At least as impressive as the smooth, realistic operation was the fact that the engine was so well muffled that it ran very quietly from idle right on up the rpm range -- and with a real internal combustion engine sound that had to be heard to be believed.

Narrow gauge fans were in heaven with all the new 1:20.3 scale engines and rolling stock. Argyle Locomotive Works (Australia), showed off a fine little Baldwin 0-4-2. A good looker and fine runner, it's priced to give the steamer on a tight budget a quality North American locomotive choice. High Noon Loco Works (England), showed their exquisite 18-ton Climax. This jewel is literally dripping with lost-wax brass detail castings. Wonderful! Mel Ridley gave a seminar on the development of the Climax -- but I'll still buy one anyway. Catatonk Loco Works (USA), had the pilot model of their 14-ton Shay, which made a good showing on the track by running at realistic, scale-like speeds. We had the good fortune to get some track time with Larry Herget of DUNKIRK fame (cover photo & article in this issue) during the dinner lull, and we "raced" our little locos around at breakneck speeds of up to 10 or 15 scale mph. Breathtaking!

For gauge 0 (16mm) fans, Richard Longley of Brandbright Ltd. (England) had the pilot model of Dolgoch, and a very beautiful model it is. Gas fired, slip eccentric reversing, water level gauge and top-up system -- the model is fully detailed and even has working head and tail lamps!

Private builders & kit-bashers hadn't let any grass grow under their feet since last year, either. Charlie Mynhier demonstrated the loco he designed for SitG readers, which has been appearing in build-it-yourself serialized segments for the past year. Like all of Charlie's designs, it is totally bullet-proof and it put on an impressive performance. At least one fellow who has been following the series was there with the loco he built (John Baker -- Ohio), and he and Charlie and other interested individuals talked and looked and talked some more. For those who took the time to sit in on Charlie's

impromptu clinics, there was much to be learned.

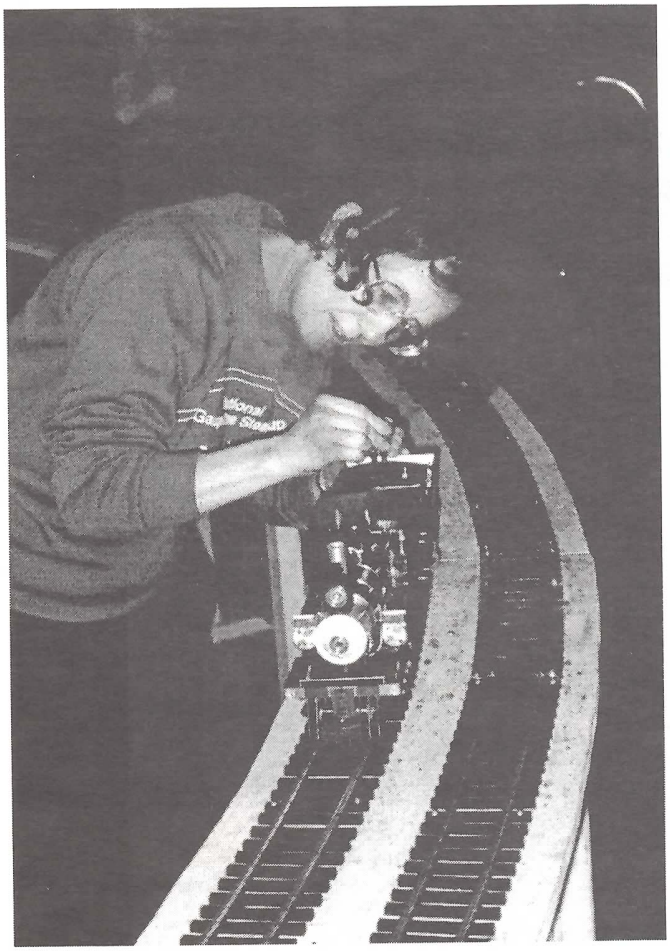
Most of the locos and rolling stock were of the gauge 1 variety, but there were a few diehard gauge 0 (16mm) enthusiasts on hand. Charlie Mynhier (Texas) brought his 0 scale steamer (featured in SitG #25), which put on an impressive performance, pulling a train with ease and handling as well as its larger cousins. Charlie also brought his own loop of HO track and fired up an HO live steam loco that he built 20 years ago. It performed surprisingly well...who says that small steamers are uncontrollable?

Jim Hadden (Utah -- of rotary snowplow fame) was there with his plow and his latest Frank S. kitbash -- Frank the Tank -- which showed up sans paint on the inside front cover of the last issue of SitG. Jim had it all painted and detailed and looking too terrific to resist at Diamondhead. I hear that Frank S. sales took a huge leap in the weeks after the steamup. Jim is responsible for selling so many of them that Ron Gibson should put him on commission!

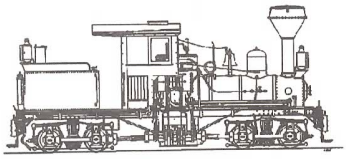
Like I said in my report last year -- there was so much to see and do that it could fill the whole magazine and then some, but we'll let some great photos by Carol Jobusch, Jerry Hyde and Mike Buster tell the rest of the story.

I don't know of anyone who didn't have the time of their lives. Many of us who know what to expect have already made our reservations for next year.

I'll conclude this portion of my National Steamup report by saying that Diamondhead is truly the steamup you don't want to miss. If you love small-scale live steam, you'll see more new products introduced and enjoy more wonderful people, more great steaming, more camaraderie and more good times than at any other event. Make your reservation now for next year or take your chances on missing out!



Carol Jobusch (Maryland) keeps a watchful eye on the water gauge as she uses the hand pump to add water to the boiler on her Aster Climax. This was the first outing for Carol's Climax, which she purchased at Diamondhead '94 and built during the 12-month interval. There were quite a few of these impressive engines on hand this year, and we were treated to the sight of double and triple headed Climaxes on more than one occasion.

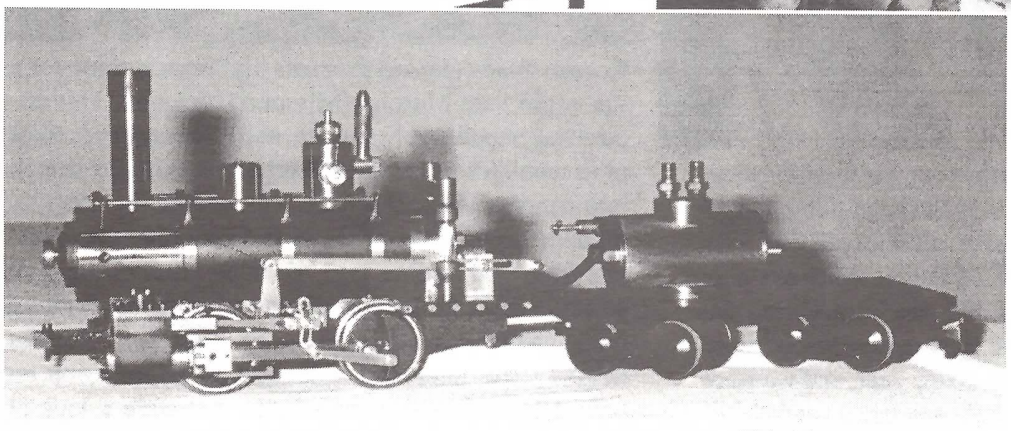


Kosaku Wada (Japan) prepares his steam turbine for a run while Sam Murphy (Missouri) looks on. This engine was unbelievably smooth, and it ran at speeds most of us wouldn't have believed possible without a launch into disaster when it reached the end of the straight. Kosaku is a member of the Yokohama Live Steamers, and from what we've seen on video tapes of the club steamup days, those fellows are serious about running long, heavy trains, and running them fast. Kosaku treated some interested onlookers to a discussion on how the steam turbine was built, including a look at some of the intricate CNC machined parts.

Left: A happy gathering to present the super door prize donated by ASTER Hobby West Inc.. The lucky winner of the ASTER Grasshopper steam engine kit was Dan Fuller (Texas). Dan is the one with the ear-to-ear grin!

Left to right: Jerry Reshew (Mississippi, steamup organizer), Jeanette Weiland (California, Aster Hobby West), Dan Fuller, Toyoki Inoue (Japan -- Manager, ASTER Hobby Co., Inc.) and John Weiland (California, Aster Hobby West).

Right: Jim Hadden (Utah, front) and Pete Olson (Wisconsin, rear) doublehead their Aster C&S Moguls behind Jim's beautiful steam-powered rotary snowplow. This made quite an impressive train as it moved slowly around the track, blade on the rotary whirling and steam plumes blasting out everywhere.



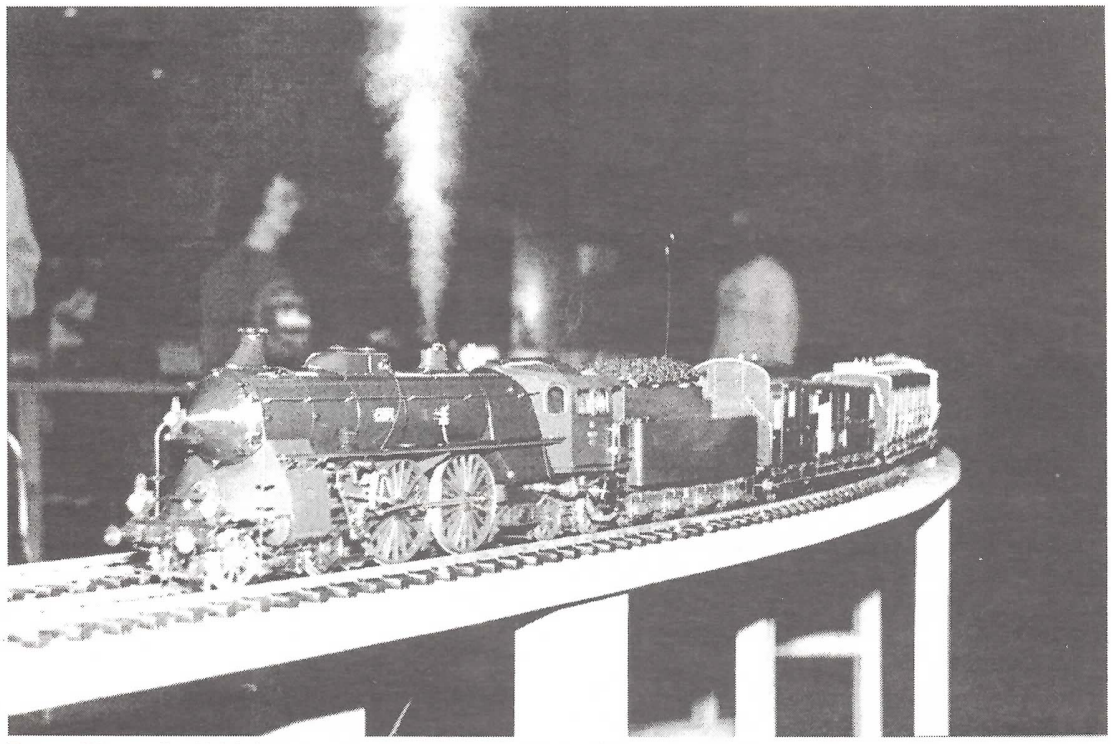
Left: Charlie Mynhier's (Texas) Build-it-Yourself locomotive, currently the subject of a series of articles in this magazine, was on display and in operation at Diamondhead. Another fine engine by Charlie.

Left: The suction fan atop the stack pulls on the fire as Jeni McDonald (Virginia) and Joanne Stapleton (Virginia) enjoy the happy spirit of the steamup while they wait for steam pressure to build in the Aster Schools.

Right: Marc Horovitz (Colorado, center) and Richard Finlayson (Pennsylvania, right) discuss the workings of a Roundhouse Old Colonial while Toyoki Inoue (Japan) looks on.

Left: Kosaku Wada and his amazing steam turbine engine running at warp speed! It pulled every piece of available rolling stock without even breaking a sweat.

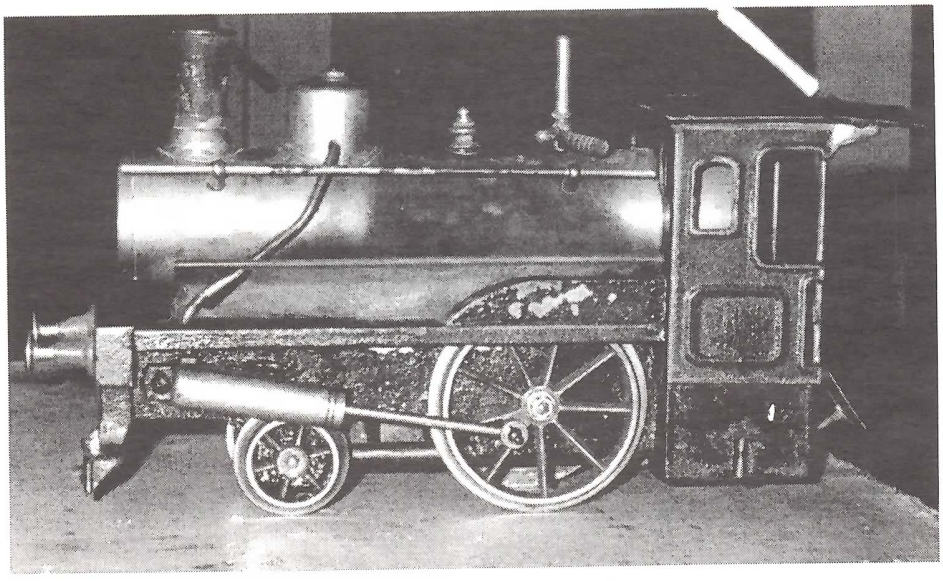
John Bloxdorf (Indiana), veteran live steamer and organizer of the Indiana Transportation Museum Steamup held in September, appears hypnotized by an Aster Southern Pacific Daylight. Not surprising, as this has been called the most beautiful locomotive ever built.



Barry Harper's (Ohio) Aster Bayern S-6 lifts the safety valve as it rounds a curve with passenger train in tow. The drivers on this intriguing locomotive have more spokes than my Schwinn!

Left: Clark Lord (Nevada) is obviously having more fun than the law allows. Clark is a Diamondhead veteran and a fine fellow, and he's always got a smile on his face. He had one of several LGB Frank S. locos seen at the steamup this year -- some stock and some not so stock. The Frank S. has become a favorite with kitbashers, and is a great running steamer in any form.

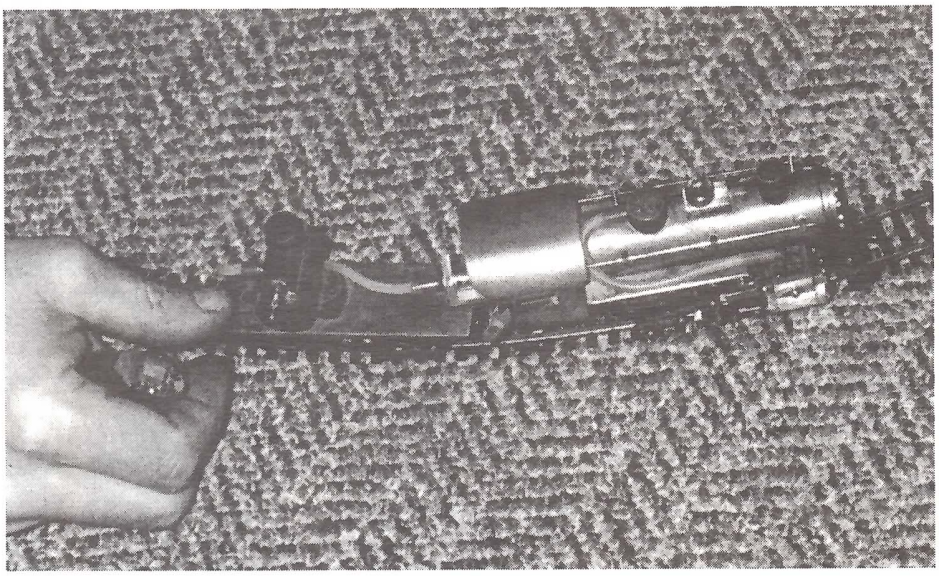
Right: Diamondhead is about steam, but there's more to it than that. The camaraderie and socializing is a big part of the "Diamondhead experience". Here we see Marc Horovitz (Colorado) on the recorder, Mike O'Rourke (California) on vocals and Patty Guilleume (Trinidad) on piano and vocals -- sharing their talents with the rest of us and having a great time in the lounge.

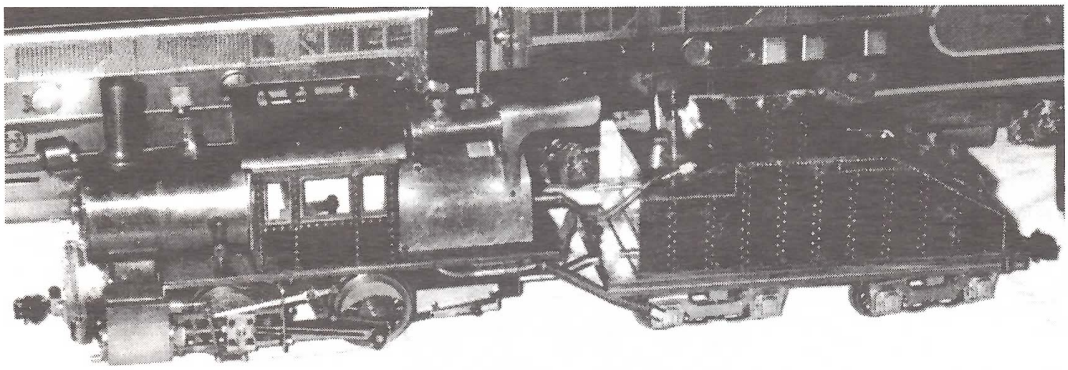


Left: Just one of several wonderful turn-of-the-century steam toys brought by Murray Wilson (Pennsylvania). Murray doesn't just put these highly collectible toys on the shelf -- he runs them...and runs them, and runs them. All of those I saw performed very respectably, and it was obvious that Murray was having as much fun as anyone there.

Left: Some very serious transactions took place at Diamondhead this year, including locomotive purchases. Here we see such a deal in the works, with (clockwise from left front) Graham Bass (Tennessee) as the purchaser, Vance Bass (Tennessee) as the purchaser's dad, Jim Grummons (Maryland) as the financier, Ken Matticks (Texas) as legal counsel and Richard Finlayson (Pennsylvania) as the seller. Graham walked away from the negotiating table with a fine little Mamod loco under his arm.

Right: Not a real popular scale with live steamers, but certainly not as impossible as some would say, this HO steamer was built by Charlie Mynhier (Texas) 20 years ago...and it ran surprisingly well.





Left: A sneak preview of the new Wada Locomotive Works Reading 0-4-0 Camelback. This pilot model showed excellent craftsmanship and was a silky smooth runner and a sweet steamer.

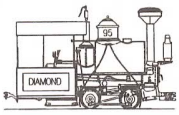
Left: Anthony Chiodo (New Hampshire) watches as Scott McDonald (Virginia) runs his CRICKET. Scott and his wife Jeni are doing business as Potomac Steam Industries, and are the USA agents for Wada Locomotive Works in Japan.

Below: The Gang's All Here! Well...not really. It was impossible to get everyone in one place at the same time, so we had to settle for Almost Everyone in this group photo. No, we are not going to list names! It's obvious from this group photo that it will take two group photos starting next year, or it will no longer be possible to recognize individuals.

For anyone wanting an 8 x 10 color print of the group photo, Mike Buster has volunteered to provide them at his cost...around $8 - $10. Please contact Mike for details.

Mike Buster
906 Grady Drive
Johnson City TN 37604

phone 615-282-5060



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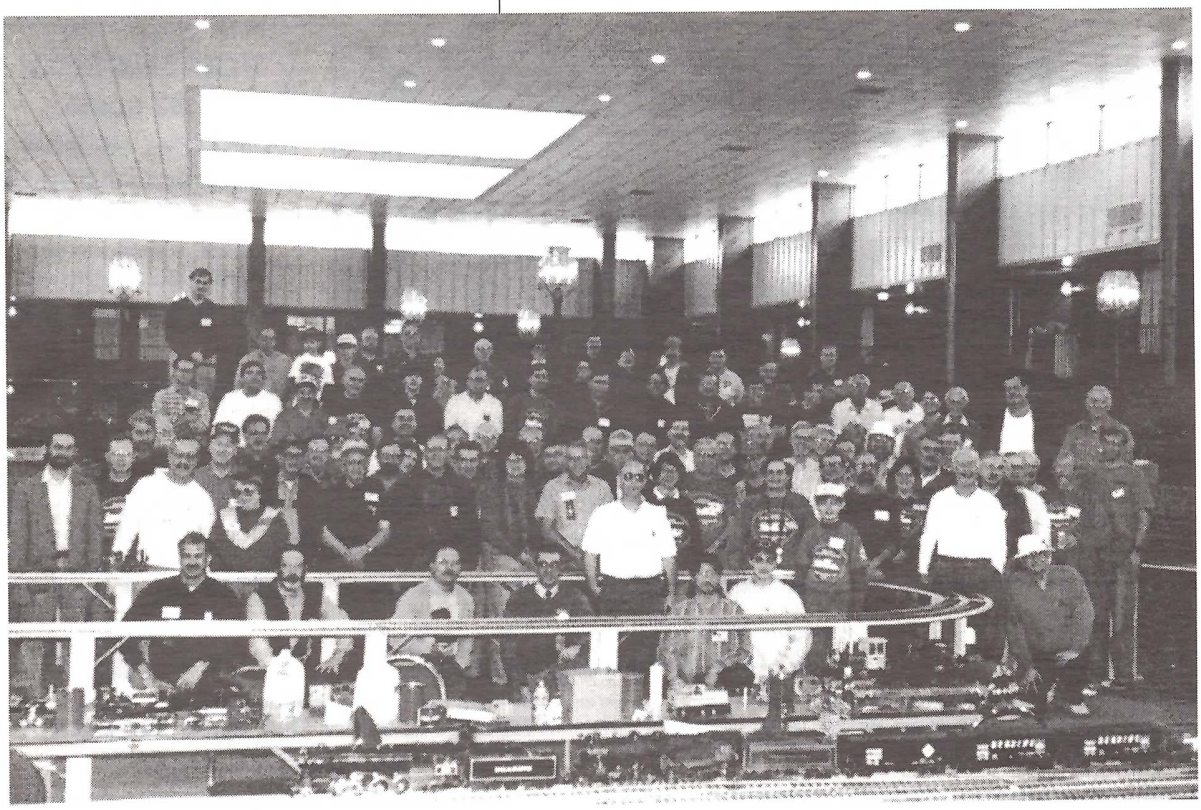

IMPORTANT ANNOUNCEMENT

The following NEWS ANNOUNCEMENT is to inform all readers and dispel certain rumours that Maxwell Hemmens Precision Steam Models has ceased trading.

Maxwell Hemmens' sons, Philip and Martyn, recently left the firm for pastures new. Maxwell Hemmens International Limited is now continuing the business that Maxwell created twenty-five years ago, and a new management team is forming to enhance the company's ability to meet increasing world demand.

I am Maxwell Hemmens' newly appointed **Customer Relations Executive**, responsible for the day-to-day administration with special emphasis on customer relations. As a new team member, my aim is to ensure that you will be totally satisfied with the service, and Maxwell will now concentrate on the design of new products, day-to-day factory management and production.

Due to the demise of our American Agent in 1993/4, we have lost our customer list and contact with many of our American customers. If you have previously sent for a catalogue and never received it, or would like your name on our mail list to receive details of our wide range of steam engines, please call me or send your details by FAX.

Shortly our new **"Silver Jubilee"** catalogue will be available to celebrate Maxwell Hemmens' twenty-five years in model engineering, producing the very best of British Steam Models and products. Please write to me if you would like to receive a copy.

In addition, our newsletter **"The Age of Steam Journal"** will be sent at regular intervals to keep our customers aware of all the latest information "hot off the press" from the Steam Gallery.

My name is **Joanna Hemmens**, your Customer Relations Executive here to provide you with a fast service. Maxwell Hemmens (Dad) is doing what he likes to do best -- making the finest steam engines in the world.

Please contact me direct by telephone on **01144.109044488331** or FAX me your details on **01144.1094448841**.

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MASTER BUILDER -- Peter Hicks

by Jerry Reshew

This is the second in a series of profiles about people who have been influential in the small scale live steam hobby by creating the models which we all enjoy. This series is a recognition of the debt that we all owe to builders who have pioneered design techniques and undertaken research projects to bring us interesting and exciting live steam locomotives and rolling stock that will perform with ease and grace in our backyards, gardens, and wherever live steamers congregate. The series is to be published on a rather casual schedule, but our goal is to bring you into contact with the legendary builders.

It was after the second world war that Peter Hicks became enamored of steam engines. During his school holidays he traveled to Cornwall twice a year and started to observe the different types of trains along his route. He became a train spotter and learned more about the steam engines that he saw on the way. Because the route was that of the Great Western Railway, this line became his passion and was to create a desire in him to become involved in a variety of ways with this historic railroad.

Peter started his work career as an apprentice in the printing trade in 1952 and became a typesetter in London. A short time later he married Ruth and soon was to have two daughters and the start of a model railway in OO. Young children and model railroading shared his leisure time and he was able to build a layout which eventually was exhibited at the Annual Model Railway Exhibition in London. It was during the late 60s that he first saw a Gauge One live steam engine and the die was cast for the hobby that has been his passion for the ensuing years.

Peter Hicks takes a break between projects.

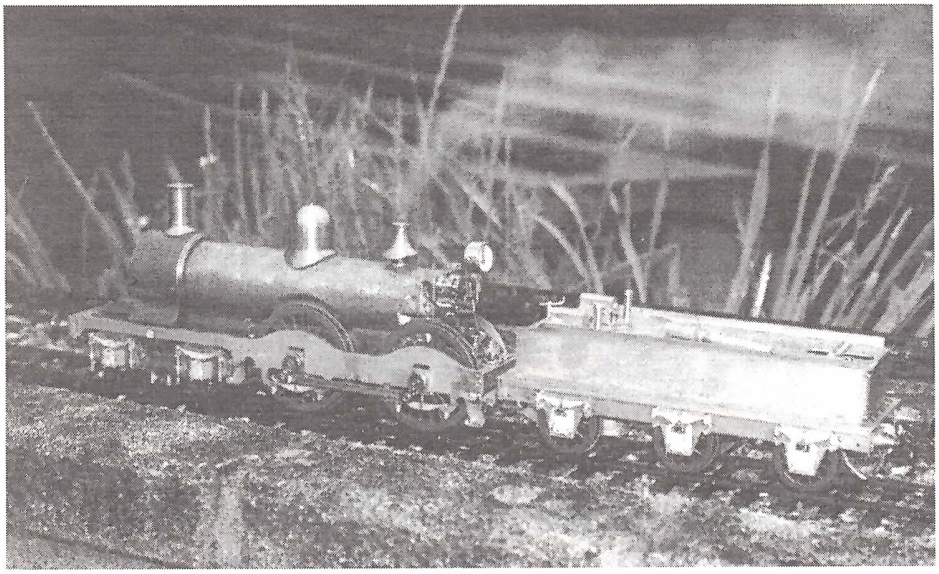
Peter had started his model engineering with a foray into constructing some locomotives during his OO phase, but he recognized the inevitability of building live steam engines almost from the first sight of a live steamer running in a friend's garden.

Being of particularly strong will, he sold his OO layout and stock and made a commitment to build a live steam engine. The proceeds from the sale of his layout provided the wherewithal to build a shed in his garden that was to serve as the workshop for the novice builder. Peter equipped it with a new Myford ML10 lathe, a second hand Champion No. 2 bench drill and a collection of second hand tooling, drills, etc. He also was able to find a small gas plant for making boilers. Thirty odd years later, he still has the venerable bench drill, but he has replaced the lathe with a Myford Super 7 and he finally has added a bench mill to his workshop.

What is truly remarkable about this decision to build a live steam engine is that Peter knew nothing about model engineering when he made his decision to go at this project. He had never had any formal training and only learned about the workings of his newly acquired equipment from visits to the local library. He had joined the Gauge One Model Railroad Association and was able to gather bits of information and advice from the members in his area. The cooperation and support of the small scale live steam community seems to be the catalyst that Peter needed in order to tackle what must have seemed a formidable undertaking for a novice.

He decided to build the Project, the single cylinder locomotive that is suggested as a starting project by the Gauge One Model Railroad Association and plans for which are supplied in the packet of materials given to every new member. This practice continues to this day and many model steam buffs have cut their teeth on the Project. Nothing goes easy when you start making things out of metal for the first time and the Project was typical. There were fits and starts, a lot of waste metal and some degree of frustration, but Peter did finish the model and it did run!

1982 found the English printing industry undergoing some drastic reductions in the Waterford region and Peter found himself out of work. This may have been a fortuitous event because it was with this that he decided to become a full time builder of steam engines to the growing hobby of small scale live steam. In order to better prepare himself for this rather dramatic change of career, he enrolled in a full time engineering course in order to better cope with the development problems that he foresaw in catering to a clientele of very demanding and knowledgeable people. With this under his belt, he accepted his first commission, an LNER J39, an 0-6-0 tender locomotive. There were no available plans for this engine in anything near the scale of 1:32, so Peter enlarged a 4mm drawing to 10mm



GWR 4-4-0 #8 "GOOCH"

and drew a set of engineering drawings from the result. The customer was delighted with the resulting locomotive and it is still running at the English get togethers. A demand was created by the smooth running engine and commissions followed for two models -- an electric GWR Pannier tank and a LT & SR 4-4-2T. After this foray into the world of electric trains, he started building steam engines with renewed vigor. The next engine that he built was the LMSR 8F heavyweight freight locomotive shown in the photo, closely followed by an SR M7 for a Canadian client. He also built a number of Aster kits for clients who wanted to get on the rails with a steam engine but who did not want to wait for a one-off locomotive.

Professional model building was not the business on which to raise a family, so the model engineering had to be interwoven with a business that could support the family and allow the live steam hobby to be pursued on a part-time basis. The intervening years had seen Peter afflicted with rheumatoid arthritis and he had to think of something that would allow him to work comfortably and also have some time to build locomotives. Ruth had died of a brain hemorrhage in 1977 and Peter had remarried in 1982, so he looked for a location in which to start a different life. He found this in Huntingdon, the birthplace of Oliver Cromwell and a popular vacation destination in the east of Britain. The Hicks family bought a bed and breakfast business and Peter now has the full advantage of a pleasant early morning with the guests and a good amount of time to work at the bench and drawing board.

It is in Huntingdon that the Great Western Railway Bulldog "Skylark" was completed, and where the two large boilered and two small boilered Q5s were built. On the drawing board is a GWR "Castles", and an early Victorian GWR 4-4-0 tender locomotive is under construction.

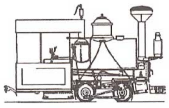
The quality of a Peter Hicks built engine is apparent in the ability of these locomotives to run at very slow speeds, and in the attention to proportion rather than extraneous minute detailing that could impede the enjoyment of running the engine. Peter is of the school of builders who design the engine around the weak points and then eliminate them. His engines do not carry water glasses for this reason.

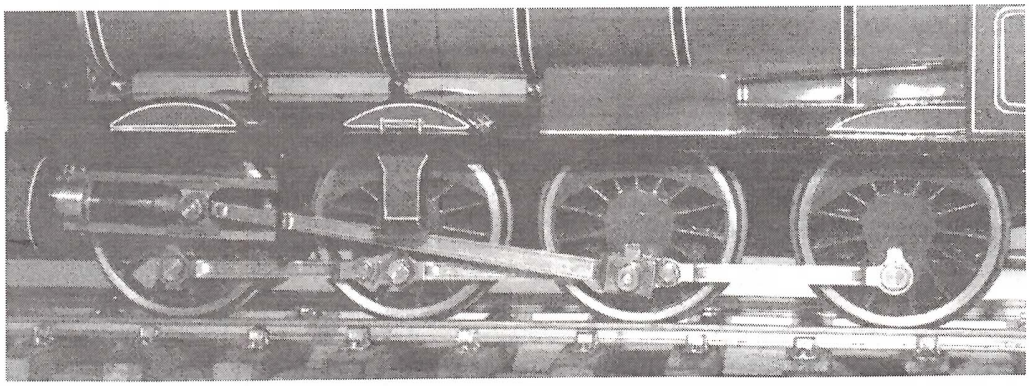
The wheels that are on these engines are turned from LocoSteam castings which are of soft gray iron with no hard spots to deflect the tool. The beautiful lining on the finished model is done by a friend and is the only part of the locomotive that is not of Peter's hand. This is to change on the Castle engines that he will build next, since he is practicing this most arcane art as you read this story.

Peter still has the original Project, but it bears little resemblance to the first efforts of the neophyte model engineer. It has changed dimensions, a boiler jacket, and will become a two cylinder engine at the first opportunity and some spare time.

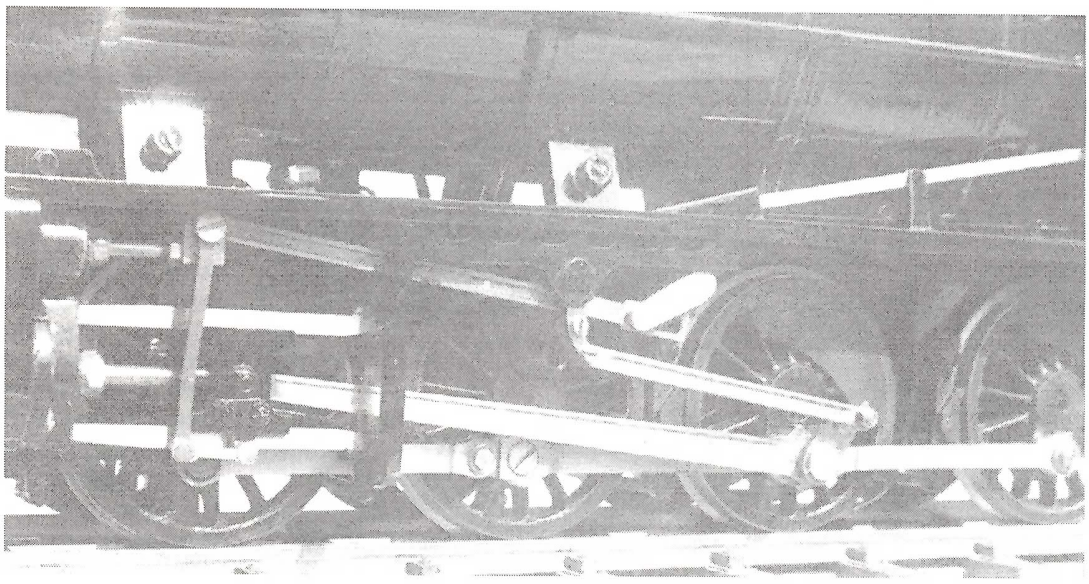
The decision of which engine to build next is driven by the availability of drawings and the results of research in the literature. Peter estimates that the process, from research to testing of the model under steam, takes about 15-18 months of truly enjoyable effort.

I hope that you can get to see Peter's Q-5 at one of the regional steam events. You are certainly going to be impressed by the beauty and performance of the engine, a typical product of the Peter Hicks workshop.





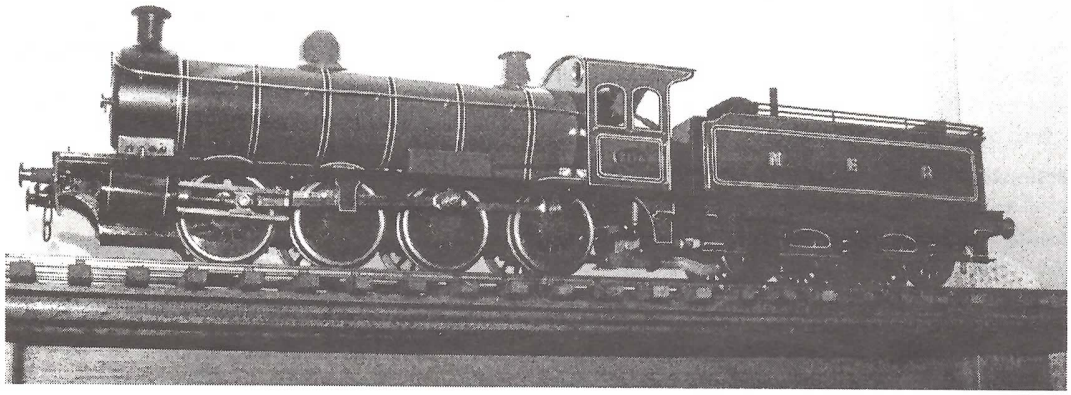
A look at Peter's excellent craftsmanship on the magnificent Q-5

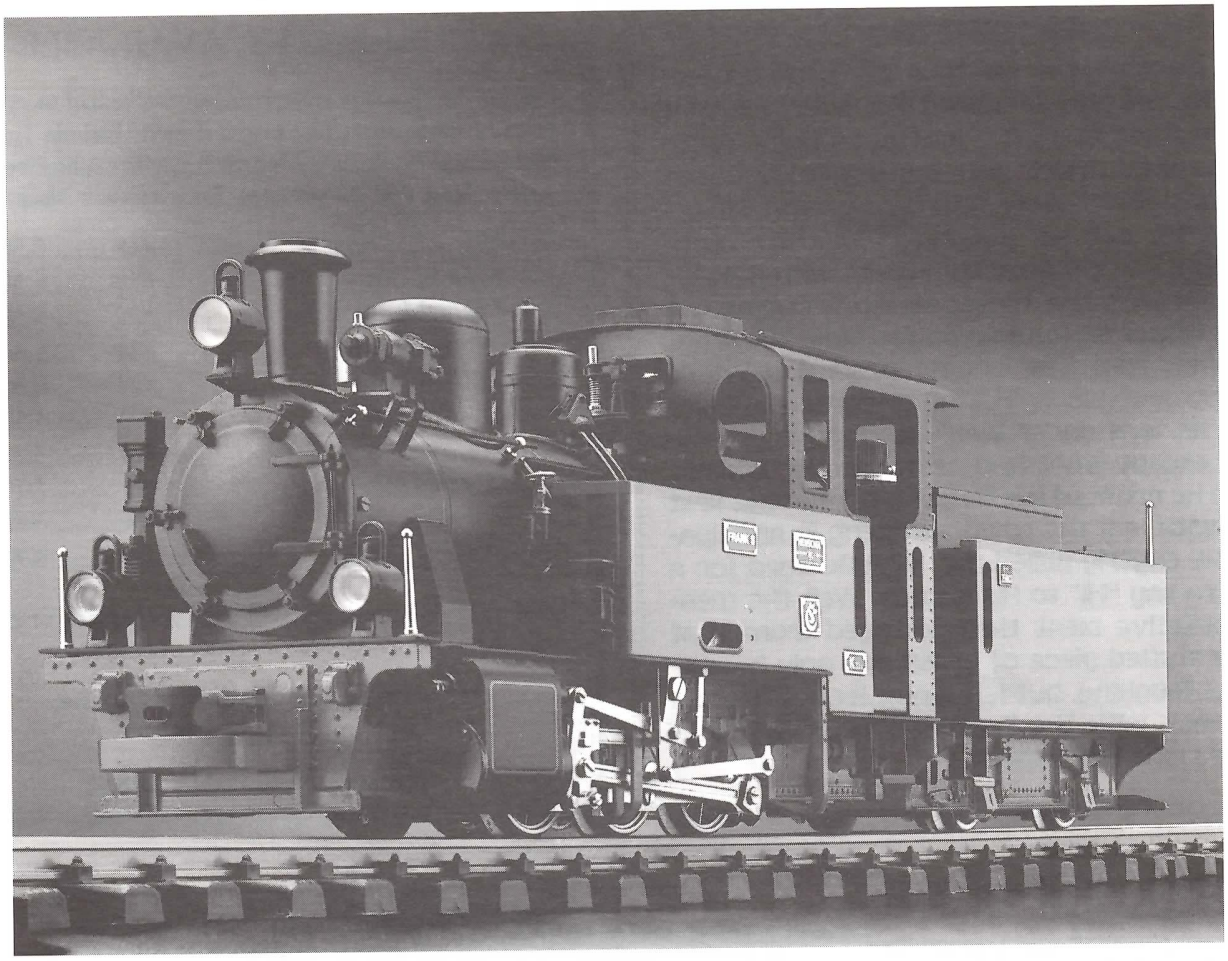


ABOVE: Notice the fine fluting on the drive rods and valve gear linkage on this LMS 8F 2-8-0. This locomotive has a 6-wheel tender.

BELOW: A very fine locomotive -- the Q-5.

All photos in this article by Peter Hicks





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Back in 1988, two great names in model railroading, LGB and Aster, joined together to create one great live-steam locomotive—the"Frank S."

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That is, until now. LGB of America has obtained a small supply of Frank S. locos from inventories in Europe. You now have a second chance to own the Frank S. Don't miss it. Visit your LGB Authorized Retailer or LGB Authorized Train Stop for details today. To find the LGB retailer nearest to you, call LGB of America toll-free at 800-669-0607.

LGB OF AMERICA

Steam...Just Half-a Bubble-Out-of-Plumb

by Anonymous

Ever wonder how railways get their names? Well, let me tell you about the shortline that Cousin Andy bought a few years back. Actually, it wasn't much...just the 6 miles between the sawmill and where the tracks ended in his cornfield, but he figured that the steam switcher and caboose that came with it made it worthwhile just to get to work downtown in the winter without having to plow the drive. Warmer, too. The engine needed a lot of cleanup and work, but after some pressure tests he was under way! He checked everything except what had nested in the whistle. When he crossed the main street for the first time, with half the town watching in anticipation, he eagerly pulled the whistle cord for a blast to say "Hi" to his friends. Well, the meager, plaintive bleat that emerged from that straw-stuffed piece of brass not only left everyone laughing, but left Andy feeling that he was back with the livestock. Thus the birth of the Goat Belt Line.

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The Lathe-Free Locomotive

Part II -- The Chassis

by Rob Kuhlman

A loco construction project series for fellow mechanical neophytes and klutzes

Welcome back. Ready to make a mess? What we need to do is hacksaw and file our sheet steel into several 1" and 1-1/4" wide strips. (Now don't cheat and purchase 1" wide steel; remember, we're trying to build skills here.) We'll need two 1" wide strips 8-1/2" long for the chassis sides, two 1" pieces 3-1/2" long for the chassis ends, and two 1-1/4" wide strips 6" long for the deck pieces.

Use your dart tip and scribe one true line; slowly hacksaw and then file down to the line as straight as you can make it. We'll use that line as a reference edge from which measurements will be taken. Measure 1" (or 1-1/4") into the sheet from your reference edge at several places and scribe a line connecting these marks. Saw and file to this line. Scribe perpendicular lines (use your square) for the ends; saw and file to the lines. A good workbench vise really helps, but lacking that, use two C-clamps to sandwich the steel between a piece of 1 x 3 and the workbench top while you saw and/or file. Don't forget to sweep up frequently; in the summertime I work in bare feet, and steel sawdust and filings make nasty toe jam. When you're satisfied with your work, lightly file at an angle the corners of your prepared edge; this is to knock off the steel grunge that has built up which can slice your fingers if you grab your steel strips in a careless manner. Before you go any farther, take a magic marker and label each side piece accordingly (engineer/fireman, right/left, or starboard/port — whatever makes sense to you). Also label the inside and outside of each piece, and draw a big arrow toward the front/bow and one towards "up". That way, at a glance, you can tell which piece you have in your hand and what its orientation should be. Please do this. Label the end pieces and the deck pieces in a similar sensible fashion.

The next step is to lay out the locations for the various holes on one side piece, one end piece, and one deck piece. Use **Fig. 2** for guidance. As you lay out the pieces scribe short (1/8") lines at the intersections of your scribed lines with your square and dart tip. If you can't see your lines, get a stronger workbench lamp. Also, try smearing with a magic marker in the general vicinity of the location; then when you scribe, your mark will be where the ink ain't. Got it?

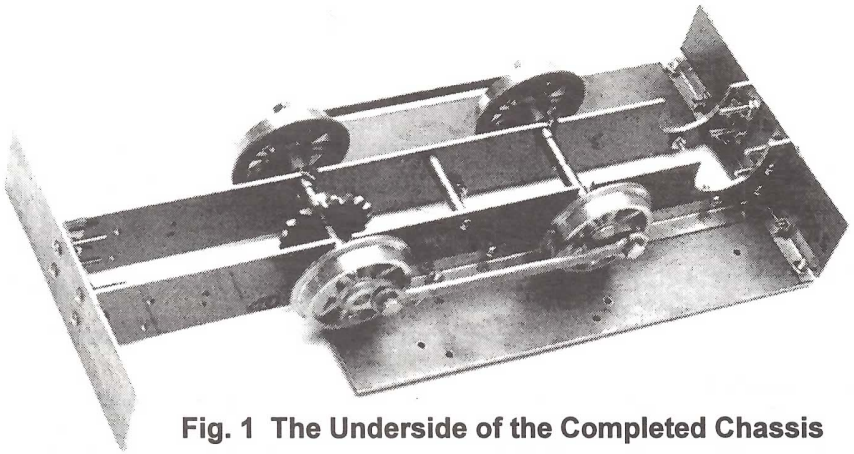


Fig. 1 The Underside of the Completed Chassis

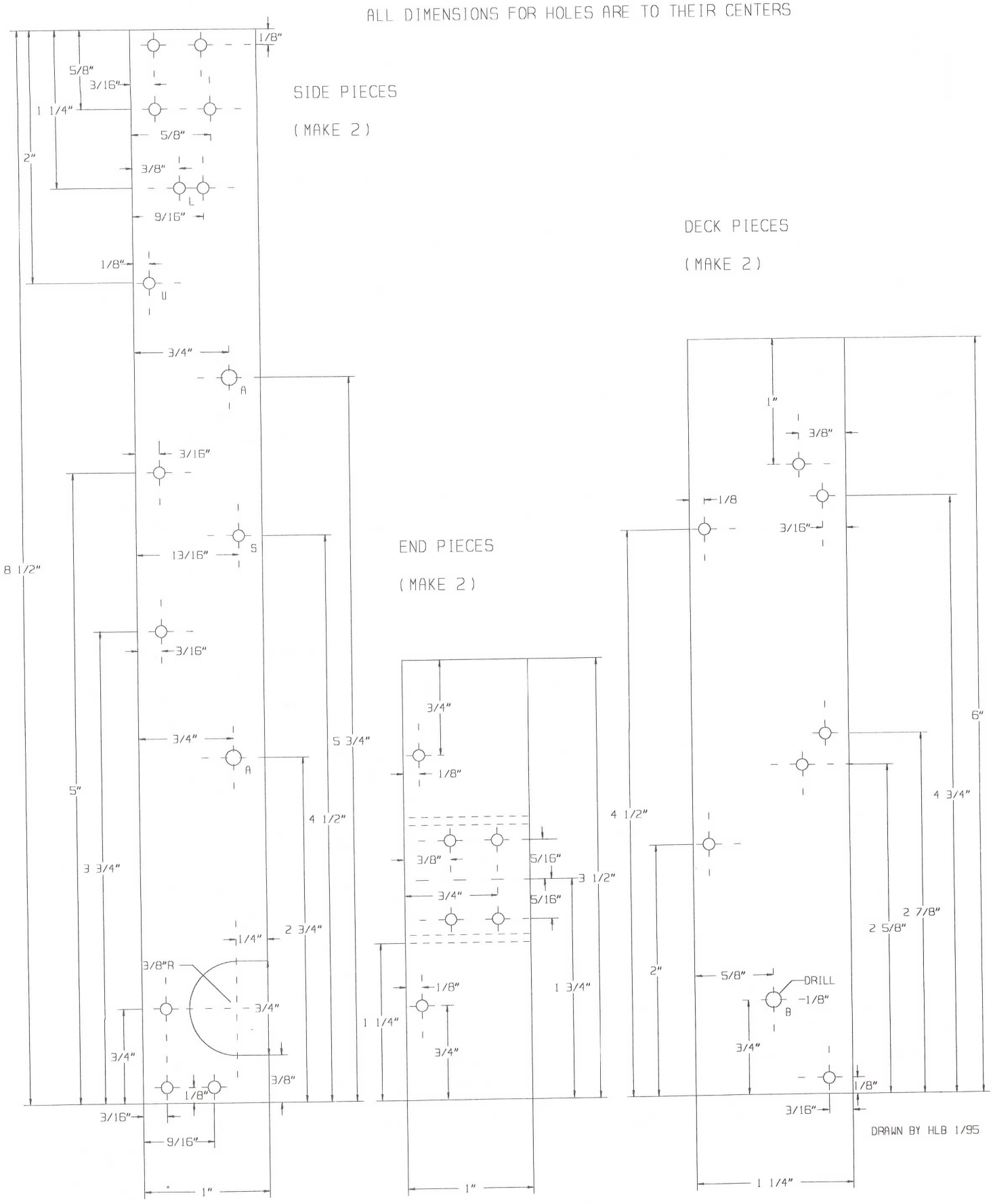
On each of your end pieces, on their insides, scribe alignment lines for the inner and outer edges of the side pieces.

Take your center punch (hopefully nice and sharp) and punch at the intersections of your scribed lines. Here's where that optical center punch is invaluable. Clamp your two end pieces together, inside facing inside, up arrows both agreeing which way is up. Now it's time to drill.

We'll be using 2-56 nuts and bolts to hold everything together. A 3/32" drill (remember, I'm not a machinist) will clear these. Yet, I'm a sissy, so I drill the holes initially with the next smaller drill, the 5/64" one, then open them up to 3/32". By the way, do yourself a favor and start this project with new drills. *(A set of number drills -- 1-60 -- and a machinists wall chart to show which size drill to use for tapping or for clearance is a valuable investment -- ed.)* Also, get yourself one of those portable lights with a spring clamp and mount it close to the drill press. That way you can really see what you're doing.

Chuck the 5/64" drill, prop the clamped end pieces up on a piece of 1 x 3 (so the clamps clear the drill table), and drill very gently at each of your punch marks — just make a little dimpled crater. *(A center drill works even better for this initial step -- no walking and no flexing -- ed.)* Now, drop a drop of oil in the crater. There is good official machinist oil, but I use el cheapo 3 in 1. The oil helps keep the drill bit and the steel cool and helps transport the chips out of the hole.

ALL DIMENSIONS FOR HOLES ARE TO THEIR CENTERS



DRAWN BY HLB 1/95

Now drill down about halfway through one piece of your pair. Withdraw the drill, clean the chips, add some more oil and drill some more. Work incrementally this way all the way through and you should be fine. Drill out the remaining holes. All done? Now chuck (who was Chuck, by the way?) the 3/32" drill, add a drop of oil to each hole, and open them all out to 3/32".

Good job. Take a file and smooth off the back side where the drill broke through. Now, unclamp the pieces and, if necessary, smooth the inner surfaces as well.

The deck pieces are drilled out the same way as the end pieces; do them next. However, the hole labeled "B" in the deck needs to be opened up to 1/8".

We'll try something different for the side pieces. We've got lots of holes to drill on these, and those clamps were a real bother on the ends and decks, weren't they? This time, clamp the sides (inner-to- inner, fronts to the front) and drill out just the end holes and the stretcher hole (labeled "S" in Fig. 2) to 3/32". Now use five 2-56 nuts and bolts to hold the pieces together. By the way, many of our suppliers and SitG advertisers sell these 2-56 nuts and bolts, but I'm always running out, so I usually end up stopping at Radio Shack on my way home from work and buying a poly bag of them. Remove the clamps and drill out the remaining holes to 3/32".

At this point it's time to think about connecting rods. Cut out two pieces of steel 3/8" wide and 3-1/2" long and clamp them under your bolted side pieces roughly "centered" upon the axle holes (marked "A" in Fig. 2). It's critical that your axle separation distance and the crankpin separation distances be identical (otherwise the drivers will bind); we can ensure this by drilling these holes at the same time. Now, measure the diameter of the outside of your axle bushings (not the axle itself, but the bushing) and the diameter of your crankpin. Write these measurements down. We'll incrementally enlarge holes "A" until we reach the smaller of these two critical diameters. (By the way, when we get into the larger drill sizes, hold tightly to your workpieces; don't get complacent and sleep through what you're doing. Clamping the pieces to the drill table may be in order.)

Back to work. Drill down through the four pieces with the 3/32" drill, then 7/64", and so on until we get to that smaller critical diameter. Separate the two pairs of workpieces and continue enlarging the clamped remaining pair, either the side pieces or the side rods, until you get to its respective critical diameter.

The side rods can now be made pretty. Keep them clamped, mount them in a vise, and file them to a serviceable shape. When you're satisfied, unclamp them and clean off the filing grunge with a tilted file. Make them nice and smooth so they'll tinkle musically as the drivers go around.

On the side pieces, still screwed together, scribe in the semicircular recess (for the burner alcohol tank) and cut it out. I used a hacksaw for the straight cuts and a jewelers saw for the curve. A round file will help clean the curve up. The recess can be slightly wider than 3/4" without a problem, but it can't be narrower. All done? Now we need to hacksaw slots for the driver axles to drop into our side pieces. Measure the axle diameter and scribe a pair of little vertical lines, centered under the axle holes, down to the bottom of the side pieces for each of our two axle holes. Saw them out and clean up the slots with a file. Ensure that the axle drops in. Try to just barely nudge a bushing into the axle hole. Do you now see how the drivers mount on our chassis?

Take a strip of hobby shop 1/4" brass angle and cut four pieces 1" long, two pieces 5" long, and one piece 3-1/2" long. The 1" pieces will hold the sides and ends together, the 5" pieces will fasten the sides to the decks, and the 3-1/2" piece will join the decks and the rear end.

Take one of your 1" pieces and clamp it flush to the inside front edge of the engineer (right/starboard) piece. Now, using the side piece as a template, drill down with a 3/32" drill through the brass. Supporting the workpiece on a scrap of 1 x 3 helps keep everything square to the drill bit. Disassemble the pieces and label the brass angle right away with a marker or a dart tip (up, engineer, front). Now, clamp the same angle to the inside surface of the front end piece on the engineer's side while aligning the angle's bend with the inner side piece alignment line. Drill out the end piece mounting holes. See how it's done? Repeat for the other three 1" angles. Please don't forget to mark them, and clean up the drilling grunge with a file. We'll do the same thing for the 5" deck/side piece mounting angles. Drill out just the rear end attachment holes in the 3-1/2" angle; don't drill out the deck mounting holes yet. Now, take a bunch of 2-56 nuts and bolts, tweezers, needlenose pliers, a screwdriver, and lots of good cheer and bolt the chassis together. Pretty brutal, huh? See why commercial locomotives cost so much? Those squeeze-to-open tweezers really help out here when you run out of thumbs. Take your square and check to see if the end/side intersection is perpendicular. No? Then give your chassis a slight skew until it is. Got it? Take a dart point or marker and mark the hole locations down through the deck pieces to the end brass angle underneath. Loosen the rear end of your chassis a bit (that sounds terrible, doesn't it?) and slide the 3-1/2" brass angle out. Centerpunch your marks, drill them 3/32", and file them clean. Now slide the angle back in, tighten up the chassis, and add the new bolts. Well done.

Let's turn our attention to the drivers. Take the axle which is missing a driver and slip on an axle bushing and the larger of the two metal sprockets. I used Chicago Gear Works #107-B, with 16 teeth (to be driven by #103-B, with 9 teeth, and about 1 foot of steel ladder chain). Its inner bore matches my MSR driver axle diameter.

Whichever drivers and sprockets you use make sure the bore matches the axle and that the teeth don't extend to a larger diameter than the wheel rims or you'll end up with a live steam rack engine! Next slide on the axle bushing, making certain that it's properly oriented. We'll now need to press the remaining driver on. But first, do you know about quartering? Look at the assembled axle end-on and note how the far driver's crankpin is rotated 90 degrees ("quartered") in relation to the near driver's crankpin? We'll need to mount

the loose driver onto its axle with the same relative 90 degree offset. Some companies make axle stubs ground to a square ("self-quartering") but if you are using MSR drivers as I've done, you'll need to use your eyeballs to align the loose driver as best as you can. The spokes really help here to keep things aligned. Now, before you press the driver on, make sure the sprocket and the oriented bushing are on first. Open your vise jaws about 1/16", rest the axle onto the groove, and tap about 8 dimples with your centerpunch around the axle circumference just inboard of the axle end. This way, the driver won't slip in operation. Align the loose driver on its axle with the driver properly quartered and press it on (crankpins off, by the way). I used a woodworking vise. Perhaps a metalworking vise would work as well, but face the jaws with thin plywood so the drivers won't be marred. Give the vise jaws a slight crank shut, then check to make sure the driver isn't cockeyed. Rotate the driver axle assembly in the jaws from time to time to ensure that it goes on straight. When you've got it pressed on correctly (same gauge as the other, or 41 mm flange back-to-back or 45 mm flange front-to-front) pat yourself on the back.

At this point unscrew the bolts holding one of your side pieces on to the chassis and allow the side piece to fall towards its sibling. Drop the axles into the slots (sprocket-driver forward) and pull the side piece back where it belongs. In so doing, the axle bushes will press into the axles holes in the sides. Rebolt the side piece and enjoy a spin of the drivers. If they're tight, keep spinning them and they should loosen up. If things are really obstinate, try to give the chassis a slight twist to see if that frees up the drivers. Finally, attach your side rods with the crankpins, and, if your drivers are properly quartered, the drivers should spin delightfully in unison. Mild binding in the side rods can be relieved by filing with a round file, but if things are really bunged up, you'll need to pull your driver back off the axle (a gear puller from the hobby shop, or a battery cable puller from the auto parts store) and try to press it back on correctly. I seriously doubt you'll have this problem; I've "eyeball quartered" these drivers many times with nary a bind, and if I can do it, anyone can.

One last chore. We need to make a stretcher or spacer to strengthen the chassis between the drivers. Coles and others sell thick-walled cylindrical or hexagonal brass tubing which would be cut to length to fit the inside frame spacing. These get tapped 2-56 and attached to the frame with 2-56 bolts inserted in holes "S". I make my stretchers by cutting two or three telescoping brass tubing (hobby shop) sleeves 1" long, soldering the pieces together at each end, filing them to fit between the side pieces, and then tapping them 2-56. If you're not familiar with tapping at this point, hold off for now; we'll discuss how next time.

Well...that was a lot of work, but you've just fabricated a real locomotive chassis. You should be proud of your work. The hard part of this project is now behind you; it's all downhill from here. Next time we'll break down the boiler/engine assembly and prepare it for locomotive duty. So...if you haven't purchased your stationary engine yet, go ahead and order it. Also, if you're using the Mamod boiler purchase a Goodall filler valve, a Chaney or Goodall safety valve, and everybody get a packet of the Mike Chaney ceramic wick material while you're at it. See you then.

Sources for items mentioned in this article:

Diamond Enterprises, Dept. SitG, Box 537, Alexandria Bay NY 13607. Phone 613-475-1771 FAX 613-475-3748. Mamod & Wilesco Stationary Engines, Traction Engines & lots more. Phone, fax or write for catalog & information.

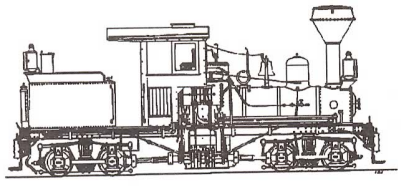
Micro Fasteners, 110 Hillcrest Road, Flemington NJ 08822. Phone 800-892-6917. Great source for fasteners of all types and sizes. Ask for their FREE catalog.

Sulphur Springs Steam Models, Ltd., PO Box 6165, Dept. RB, Chesterfield MO 63006. Phone/fax 314-527-8326. Excellent source for many scratchbuilder and kitbasher items, including hard-to-find items like BA fasteners, taps, dies, Goodall valves, safety valves, wick packing and lots more. Send $2.00 for their catalog.

Berkeley Locomotive Works/Brandbright, 2821 Hillegass Avenue № 22, Berkeley CA 94705. Phone/fax 510-849-9284. Wide range of valves, wick packing, pressure gauges, and everything under the sun. Send $5.00 for their catalog.

Mike Chaney, 116 Vicarage Road, Chelmsford, Essex CM2 9BT, England. Phone 011 441 245 260 096. Mike manufactures and sells safety valves, Goodall valves and just about every other kind of valve you can think of. Also wick packing, steam regulators, replacement boilers, lubricators and a whole lot more. Send a $1 bill for a catalog.

When contacting any of these firms, please mention that you saw it in Steam in the Garden magazine. Thanks!



PRODUCT REVIEW

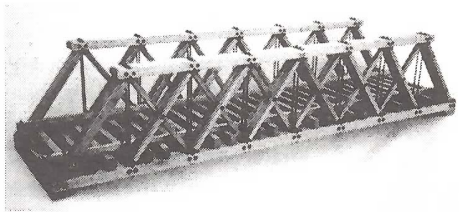
Lone Star Bridge & Abutment
Hermosa Creek Pony Truss Bridge

Available from: Lone Star Bridge & Abutment, 1218 A-8 Colorado Lane, Arlington TX 76015 -- phone 817-548-5656

Nothing adds interest to a railway -- ground level or elevated -- like a bridge. And nobody builds bridges like Mark Smith at Lone Star Bridge & Abutment.

We have reviewed several bridges from Lone Star, and we found them so irresistible that we used them on our own Catatonk Log & Lumber Co. Sometimes I think that's why Mark sends us so many bridges to review -- because he knows we'll send him back a check instead of returning the bridge!

At the steamups held here at Paradise East - and everywhere we go where there are bridges installed on the railway -- you can easily tell where the bridges are without even looking for them. Just look for the places where the folks with 35mm cameras and video cameras are bunched up looking for a photo opportunity.



The Hermosa Creek Pony Truss Bridge is based on a bridge currently owned by the Durango & Silverton RR in Hermosa, Colorado and previously owned by the D&RGW. Like other wood bridges in the Lone Star lineup, this one is made of hand rubbed mahogany with a marine grade teak oil finish.

The bridge measures 31-1/2" long x 6-1/2" high x 8" wide. Lone Star notes that it is built to 1/2" scale, but it would fit in with any of the popular large scales used outdoors -- or indoors, for that matter.

Workmanship and fit & finish is furniture quality. Deck timbers are spaced so that LGB sectional track will drop right in. All metal parts (brass & white metal) are chemically blackened, and the bridge comes assembled and ready to install. Cast abutments are available separately.

This bridge, like all the products we've seen from Lone Star, is excellent in every way and would be a great asset to your railway.

reviewed by Ron Brown

PRODUCT REVIEW

IMP Models 4 Wheel Goods/Brake
16mm scale, gauge 0 or 1
Available from: IMP Models, 3 Nightingale Crescent, Birchwood, Lincoln LN6 0JJ, England
Phone 011-44-522-730-854

The IMP 4 Wheel Goods/Brake represents a generic British narrow gauge combination goods/brake van. The train guard (conductor) rides here and the van portion carries packages & express. These trains usually did not have continuous train braking, so the locomotive and the brake van would have the only brakes on the train.

The construction of this van follows typical British modeling practice. The body is constructed from a plywood floor and subroof, with vacuum formed styrene overlays for the sides. The roof is bent from styrene sheet. Strips of wood and ply are provided for the solebars (side sills) and drag beams (end sills).

I assembled my model with 5-minute epoxy, which provides a good bond between styrene and wood, and MEK for styrene bonds. The styrene body components must be carefully cut from the sheets. A sharp X-Acto #11 blade is perfect here. Some scraping and trimming is required to get the window openings and edges of the walls just right. Be sure to sand all the edges of the wood components. I found that my floor and subroof were not square, but thankfully were a bit oversized. Some careful trimming put things right.

The corners require extra attention. I bonded scrap styrene strips inside the corners to stiffen them, and then filled the imperfections with Squadron Green putty. Some filing and sanding brought the corners out nicely.

I sprayed my model with Testors Model Masters. First, gray primer and some sanding with 300 grit wet-or-dry. Then a finish coat of Guards Red mixed with brown. The roof has a layer of tissue painted on with flat black to represent canvas.

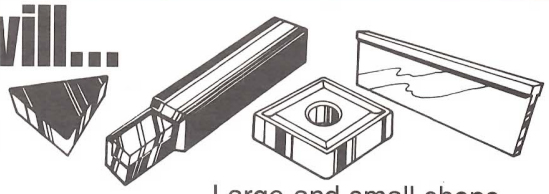
The kit does not include wheels, couplings or details, but these are readily available from a supplier such as Brandbright. Try Tenmille AG014 or AG087 24.5mm wheel sets for Gauge 0; AG113 or AG188 for Gauge 1. Use these with Tenmille AG019 plain axle guards or make your own from brass strip. For couplings, Tenmille AG205 centre buffer couplings are fine -- or use some wood buffer blocks and a cup hook.

Finish the model off with some extra details, such as Phoenix GVT axle guards, Brandbright RSA21 Guards Van chimney and a RSA17 brake standard out on the veranda. Top it off with a working guards van lantern (Garden Railway Specialists has a nice one with an LED and built in battery) and I think you've spent more on details than on the kit itself!

This kit goes together quickly and, with care taken, comes up nicely. It's not by any means a "fine scale" model. For outdoor models, excess detail is often lost (sometimes for good), but neat crisp modeling goes a long way. Although simple in appearance and detail, this van will look great on the end of your goods train!

reviewed by Wayne Slaughter

Your Cutting Tools will...



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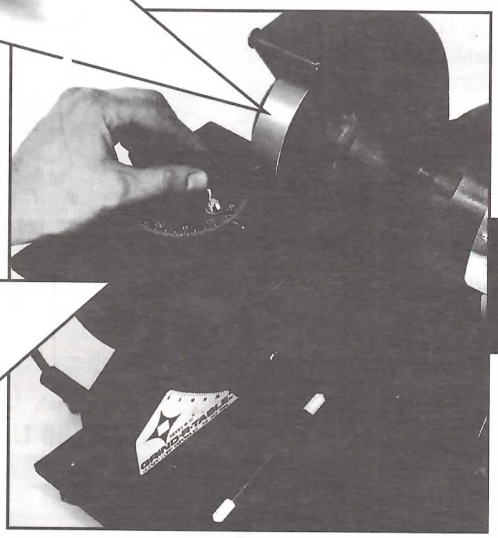

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SWAP SHOP

For Sale: Railroad books & magazines. Please write for listings. Thank you. Philip Larson, 2830 Wenonah, Berwyn IL 60402. Phone 708-484-4284.

Wanted: #1 Aster Pannier -- any road -- skinny four figures. **#2** Aster Baldwin 0-4-2T -- mid three figures. **#3** Aster 0-6-0T -- any road -- mid three figures. Any condition commensurate with price acceptable on all of the above. Reply "S" Street Alley Unit Shop, PO Box 161697, Sacramento CA 95816-1697 or fax 916-447-5433 24 hours.

Wanted: Railroad books and magazines, 16mm & 8mm railroad movies. Steam, diesel, traction. Run to your attic and get them now! I pay top cash. Please write and send listing. Thank you. Philip Larson, 2830 Wenonah, Berwyn IL 60402. Phone 708-484-4284.

For Sale: #1 Mamod Locomotive, good condition, meths burner. $100.00. **#2** Mamod Steam Roller, good condition, meths burner. $75.00 Both for $160.00. Call Jack evenings (eastern time) at 607-838-0409.

Wanted: Saito OB1, OE1, Boiler and Oscillating Engine Kit. Also need cylinder upgrade kit for Aster JNR Mogul. Write or call Rich Chiodo, 9 Janvrin Road, Hampton NH 03842 -- 603-926-4858.

For Sale: Aster 2-6-0 JNR 8558 Mogul, 1:32 scale, alcohol fired, single cylinder version. Requires 2 meter radius. Fired 2 times. Asking $1200.00, includes shipping. Bob Simpson, PO Box 21, Mount Dora FL 32757 -- 904-383-4991.

Wanted: Aster kits to buy or build. Experienced craftsman, reasonable prices. Virgin kits only, please! Allan Caperton, 8202 Wolf Pen Branch Road, Prospect KY 40059 -- phone 502-228-1235.

For Sale: New shipment just arrived! **Optical Center Punch** -- unique design, highest quality, incredible accuracy. Satisfaction guaranteed! $49.95 ppd. Check or money order to Steamchest Publications, PO Box 335, Newark Valley NY 13811. NY residents please add appropriate tax.

Wanted: Aster Shay -- 2-truck or 3-truck, kit or factory built. Also want Aster Climax, kit or factory built. Bob Simpson, PO Box 21, Mount Dora FL 32757 -- 904-383-4991.

For Sale: (#1) New Maxwell Hemmens Porter with tender. Never run. Servos installed, R/C ready. With refillable gas tank -- $1300.00, shipping included. **(#2)** Two (2) Aster 18-inch log cars, mint -- $250.00 each. Call Mike after 7pm eastern time (Florida) 407-333-4179.

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

End of the Line

by Ron Brown

SUPPORT YOUR LOCAL CLUB TRACKBUILDING EFFORT!

The following was sent in by Harry Quirk, well known and very active Gauge 1 steam enthusiast from Pennsylvania.

"Your subscribers in Eastern Pennsylvania, Delaware and New Jersey might be interested to know that the Board of Directors of the Pennsylvania Live Steamers is considering construction of a permanent Gauge 1 track at their site in Rahns, Pennsylvania. A survey is being conducted and their decision will be based on how much interest is shown in the project. For more information please contact George Lord, Secretary, 2988 Penn View Avenue, Broomall PA 19008 -- or call 610-356-5713. Let's get it built!"

Harry, we couldn't agree with you more. If our hobby is to continue to grow -- which means a continuing flow of new and better steam engines and supporting equipment at lower prices for all of us -- we need places to run them and places where we can gather with kindred spirits for fun and relaxation. Not everyone is fortunate enough to have a large, elevated track at home, and club tracks seem to be a good answer to the problem of where to run our engines and enjoy our hobby.

We encourage all of you who live within a few hours of the Pennsylvania Live Steamers club site to call or write to offer encouragement and support for this project. And please be prepared to put your money -- and your time -- where your mouth is! These club tracks don't build themselves, and good ones don't come cheap. If you want a quality track on which to run your pampered and beloved steam engines, then dig in and help get it done right.

And don't forget to spread the word to your friends who might not see this announcement. C'mon, guys and gals -- this is important to the continued good health of our hobby! If we don't support efforts like this now and in the future, we'll all be back to running electric trains in the attic!

And on another topic.....

In a recent issue (November/December 1994) we published a photo of our own Peter Jones, stopping for a photo with his **World's Fastest Gauge 1 Loco**, clocked in the presence of witnesses (Brother Don & a bevy of airline stewardesses) at 566 mph. We failed to give you the rest of the story, which details exactly how Peter mustered up the brass to make this scantily substantiated claim.

Seems that during his flight to "The Colonies", while crossing the Atlantic Ocean, Peter unpacked his loco, laid a section of track in the aisle and proceeded to operate it at 1 mph, which, when added to the speed of the plane itself, yielded a total ground speed for the locomotive of 566 mph.

There you have it. A world's record with plenty of witnesses to substantiate Peter's *Solid Brass* claim.

Thanks to Harry Quirk for providing this missing information. Harry also tells us that his brother Paul has vowed to take a crack at this record in May at the Pennsylvania Live Steamers Memorial Day weekend run.

Will this be with or without the help of an airplane, Paul? Do you have access to an F-14?

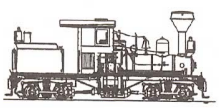
GOOD NEWS!

Good news from a government agency for a change. I have been told -- and have verified it with additional phone calls -- that the Harmonized Tariff has been changed, and as of January 1, 1995, **ALL TOYS**, including **TOY TRAINS**, imported into the USA are no longer subject to customs duty. That means we save the approximately 7% we used to be required to pay on every steam loco we brought in from England, Japan, Australia or wherever.

So when you purchase a locomotive, rolling stock or any other item of significant price from overseas, be sure to have the sender label it as TOY TRAINS, and not something like CUSTOM BUILT MUSEUM QUALITY PRECISION SCALE MODEL.

And Finally.....

Faithful Assistant and I recently returned from the 3rd Annual National Gauge 1 Steamup in Diamondhead, Mississippi, and it was fantastic. If you haven't already done so, get your reservation in now for 1996. This event is growing exponentially, and you shouldn't miss it. Diamondhead, thanks to the efforts of Jerry Reshew, has become The Center of the Universe for live steamers everywhere. Hope to see <u>you</u> there next year!



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THE LIVE STEAM 1832 B &O GRASSHOPPER IS HERE!

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SPECIFICATIONS OF THE B&O 1832 "GRASSHOPPER" TYPE LOCOMOTIVE

Scale/Gauge: 1/30,45 mm, Weight: 0.94 kg, Length O.B.: 172 mm, Width: 80 mm, Height: 141 mm, Wheel Arrangement: 4 wheeler (0-2-2), Driving Wheels: Dia. 31.0 mm spoked type, Cylinders: 2 Cylinders, Bore 9 mm x Stroke 15 mm, Valve Gear: Piston valve with reversing block, Boiler type: Verticle type with 4 fire tubes, Water Capacity: 45 cc at 80% full, Pressure: 0.8-1.00 kg/cm^2 at normal working, Fittings: Safety valve, pressure gauge, check valve, water plug, Lubricator: Roscoe displacement type, Fuel: Methylated alcohol, Fuel tank capacity: 30 cc.,Burner: 4 wick type burner, Minimum radius: .55 meter

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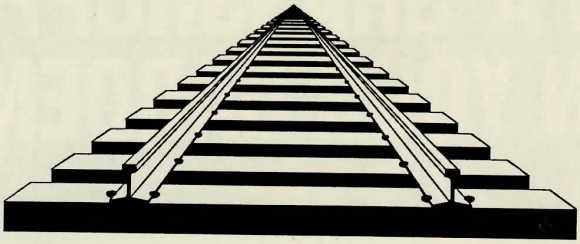

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