



MLS MasterClass Mini - 2005

"THE SINGLES"

Build a Classic American 4-2-4T Locomotive

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Melbourne, Australia
All Colour Photography by David Fletcher



MasterClass Mini 2005
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Chapter 2 - The Boiler & Superstructure

Background

We're back and its time to finish things up...!

This is the 2nd and final chapter of our C.P. Huntington mini-class. In this chapter we'll look into the background and history of the small U.S. 'singles' of the 19th Century, including the famous C.P. Huntington. We'll also be building the boiler, running boards, domes and finishes for the 4-2-4T model. The model we'll be building is generically based on the 1863 'Collis P. Huntington', a small and beautiful 4-2-4T now preserved at the California State R.R. Museum in Sacramento. However the model will —

be freelanced, to a nominal scale of 1:20.3, narrow gauge, since the prototype was actually a standard gauge locomotive. You can adjust, change, and enhance the model as you please. Unlike previous MasterClasses, this class is about *Basic Kit-bashing*, and as such the major components of the model will be provided to you in the form of a 'kit.'

Typical of my Internet MasterClasses, this chapter features two sections:

- **Background** - Written by R.R. Historian, Jim Wilke, and this background chapter outlines the history, purpose and decoration of the smaller U.S. 'singles' such as the '*C.P. Huntington*' and her sisters. Use this information to gain a better understanding of the model you're building, and also feel free to use the detailing ideas you see in the historical photographs. *A special thanks for additional information provided by Kevin Bunker and Randy Hees of the Early Rail group.*
- **Construction** - We'll be building the boiler, superstructure and finishing of the locomotive in this chapter.





The Singles in the US – The Forgotten Workhorses

By David Fletcher and Jim Wilke

A locomotive with a single pair of driving wheels was once a common sight. On both sides of the Atlantic '*singles*' performed both freight and passenger service in the first two decades of railroading, and passenger service long after. In Great Britain, splendid single driver engines ran the fastest express trains up into the early 1900s; in America, a few '*single*' express engines ran as late as 1903, but smaller engines like the *C.P. Huntington* more commonly were used for light local and suburban service. This background to David Fletcher's class on building a model of the *C.P. Huntington* will give some history to this remarkable and innovative locomotive, and show that it was much neater than imagined.

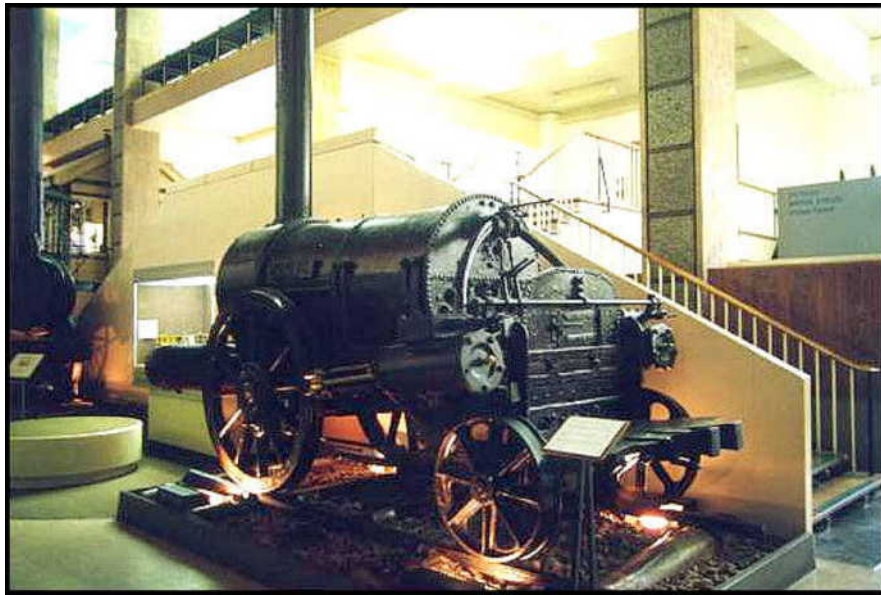
The Single Driver engine as a standard road engine 1829-1845

British Development:

From 1830 to the middle 1840s, single driver engines were standard machines for all types of work. They hauled freight and goods trains, passenger trains, and even dashed up inclines with audacity. The '*single*' was perfectly suited to the light track work of the era, simple in design, and economical in operation. It was the ideal locomotive.

Curiously, the '*single*' was not the first locomotive design. The earliest locomotives developed in the 1810s and 1820s for colliery work in Great Britain were commonly 0-4-0s with coupled drivers. They performed well and trundled about their work, but were not suited for commercial freight and passenger railways. A competition for a better locomotive design was held in 1829 for the Liverpool & Manchester - of the various locomotive designs entered, a '*single*' won the prize hands down.

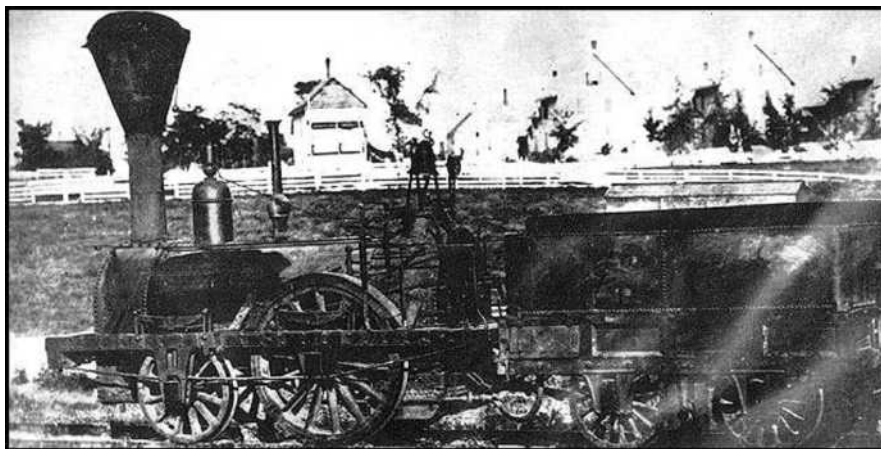
Robert Stephenson's ground breaking 0-2-2 rigid frame '*Rocket*' of 1829 was revolutionary - it introduced multi-tubular boilers, a firebox and direct connections between the pistons and driving wheels. It was also the first demonstrably successful '*single*', and spawned a series of similar engines, which opened the L&M railway. But problems with stability and Stephenson's desire to improve the design led to the 2-2-0 '*Planet*' class locomotive. Planets had rigid frames with both axles fixed to the frame, inside cylinders for stability and thermal efficiency, and rapidly became successful in all forms of work. Stephenson improved the design shortly afterwards by adding a fixed trailing axle with a longer boiler, creating what would become the quintessential British locomotive - the "*long boiler*" or "*Patentee*" 2-2-2. Stable, powerful and beautifully machined, the classic British 2-2-2 set a pattern in Great Britain that would last for decades.



The remains to the Single 'Rocket' as seen today at the London Science Museum.

American Adaptation:

The infant American railroad industry looked to Great Britain for models of railway engineering. Americans traveled overseas, studied British railway systems and purchased British locomotives for American railroads. The first of many single driver '*Planet*' class 2-2-0s began arriving at American ports in 1831, and were initially copied by American builders. Over the next fifteen years, these engines, and their offspring, would create two principal types of '*singles*' for main line service

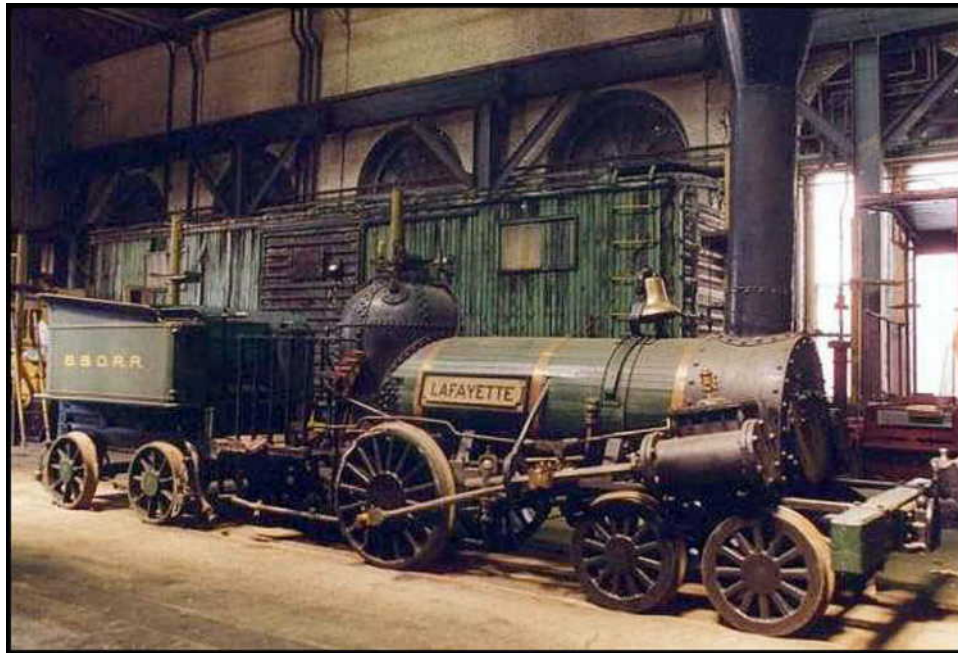


A Stephenson 'Planet' class, 1832, at work. Aptly named 'Pioneer', it was the first locomotive in the state of Maine.

New England railroad companies were enthusiastic about the '*Planet*' design, and built identical copies as late as the mid 1840s - it was not uncommon to see a homebuilt '*Planet*' named "*Meteor*" dashing off to Boston with its train; the conservative nature of New England engineering created a place where the traditional rigid frame, inside connected 2-2-0 design held firm.

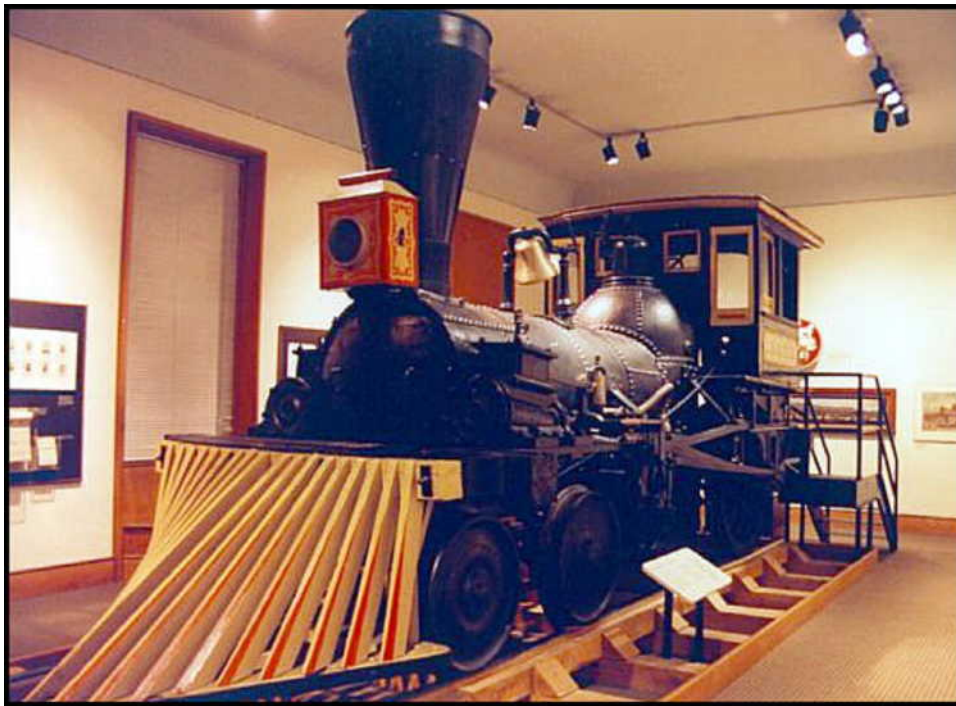
But most other American railroads were cash poor and had equally poor track. The rigid frame '*Planet*' design tended to run off the tight curves all too common in the "*New Country*." The problem was solved on the Mohawk & Hudson Railroad by John B. Jervis in 1832, substituting a four wheel swiveling lead truck for the rigid lead axle, creating the 4-2-0. The first of these engines - appropriately named "*Experiment*" - was built that year by the West Point Foundry and was so successful that nearly all engines built afterwards employed lead trucks. The age of the 4-2-0 had arrived.

In the next few years the single driver 4-2-0 became the standard American road engine. By 1840 some two thirds of engines in America were 4-2-0s, built by Baldwin, Norris, Rogers, Dunham, and nearly every other American builder. The typical 4-2-0 had outside cylinders, bolted to the smokebox, and drivers positioned either in front of the firebox for traction or behind for stability. Baldwin specialized in stable, behind the firebox engines, favored for passenger service, while Norris championed the other design, which proved excellent for freight and goods service. Norris began exporting 4-2-0s to Austria and other countries by the late 1830s, and in 1840 secured a sensational coup when a British railway purchased them for service up steep grades, where British built engines failed.

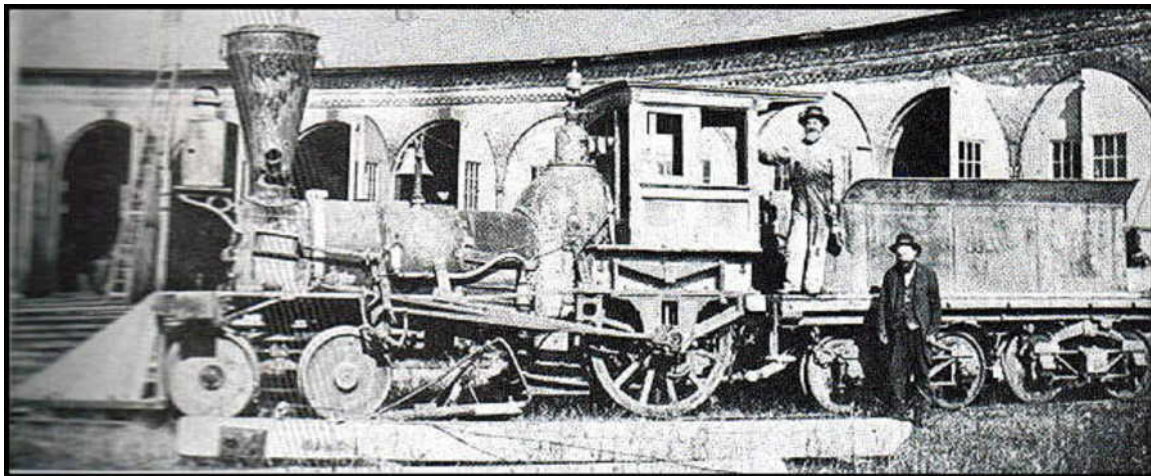


Replica of a typical Norris 4-2-0, Mt Clare RR Museum, Baltimore.

Many of the earliest engines had wooden frames, but Norris began using iron frames in 1836 and Baldwin introduced outside iron frames in 1839-40. One of these Baldwin engines survives - the "*Pioneer*" of the Chicago & North Western. Although commonly reported to have been built in 1836, its iron frame points to an ancestry of about 1842. Its history in Illinois began in 1848, when it was purchased second hand to build the Galena & Chicago Union. By the 1860s it was part of the C&NW, working construction trains. It was first displayed as a relic in the 1880s, and is the only surviving first generation '*single*' in the United States.



Baldwin's Pioneer as preserved today. (Photo by Don Nute)



'Singles' were the dominant form of engine well into the 1840s. In numbers and performance, the era of the main line 'single' lasted a bit longer than commonly assumed from production of new engines. The Cumberland Valley Railroad ran 4-2-0s exclusively until 1850, while the B&O and New York Central ran them in light service into the late 1840s. As late as 1845, Matthias Baldwin refused to build any other type. But the age of the single driver main line road engine was drawing to a close.

The 4-4-0 type engine was a logical improvement - in fact, an extension of the 4-2-0. A second pair of drivers provided a huge increase in tractive effort with minimal cost. The first examples were built in 1837, and by 1840 about twenty 4-4-0s were in service. During the 1840s the type rapidly came into favor, and even Baldwin was forced to build them after 1845. New England developed an inside connected 4-4-0, known as a "*stretch Planet*" while other builders favored outside connections. The 4-4-0 rapidly became the national engine, later called the '*American*' type.



Danforth Cook & Co 4-4-0 from 1850. (Photo by Don Nute)

The single driver locomotive did not disappear, but instead changed in form. One was for fast express engines that would race down the track at lightening speed. The other was a neat, compact and economical engine perfect for light service.

The Fast 'Singles' In The U.S.:

A mania for speed developed in the 1840s. The *"annihilation of time and space"* was realized in a single pair of giant driving wheels that dwarfed men who stood next to them. British designer Daniel Gooch created the first really good batch of single driver express engines for the seven foot gauge Great Western Railway in 1846, a line designed specifically to allow fast trains. Suddenly, sober mechanics were jumping out of their seats to design competing engines for their own *"narrow gauge"* roads and racing fever was on. The result would be an expectation of fast time as a regular event - unheard of ten years earlier.

The big racing years were 1846-53. Several designs were promoted on both sides of the Atlantic, and even on the Atlantic itself as fast express liners paddled their way furiously back and forth. In the U.S., Rogers built the giant 4-2-0 *"Licking"* in 1846, probably the largest 4-2-0 built. The *"Carroll of Carrollton"*, a high speed 'single' built in Baltimore by Ross Winans, was specifically designed to reach 60 miles per hour - and did. An even more audacious design was that promoted by British designer Crampton - a very low engine with a giant pair of drivers behind (and sometimes with the axle over) the firebox. Crampton engines were popular in France, and equally so in America. The *"Lightning"* was built by Schenectady as an exact copy of the design, while John Stevens designed his own take on Crampton's idea with several bizarre and wonderful 6-2-0s built between 1849 and 1853 for service in New Jersey (see background section to chapter 1).

Baldwin reserved its class letter *"A"* for high-speed 'singles' adapted in design from Crampton and French practice; they are normally 4-2-2s, with the truck up front, a supporting axle in the middle and the driving axle in the rear. A pair of Baldwin *"A"* class engines were built for the Pennsylvania Railroad. Notably the first specifically-built high speed railroad in the U.S., the Hudson River R.R. - built to compete with the popular steamboats using speed as bait - used conventional 4-4-0s, albeit racing ones. By 1853 racing fever was coming to a close; everyone sobered up and returned to building good normal locomotives.

Racing fever returned in 1880, this time among several lines running between Philadelphia and New York. Tracks were better and the technology was up to the challenge. The Pennsylvania Railroad employed British practice upon a high speed 4-4-0, No. 10, which was an engineering masterpiece and the first —

of several successful high speed '*eight wheelers*.' The Philadelphia & Reading teamed up with Baldwin to develop instead an "A" class high-speed '*single*' - the first in thirty years. The result was the wonderful and terrible 4-2-2, No. 501, Baldwin's 5000th locomotive (refer to Chapter 1). Baldwin actually anticipated this engine, in its deep olive green Baldwin livery, to be a mainstay of their 1881 catalogue. Test runs that spring indicated nothing but success; No. 501 scorched the ballast with ease, almost pleasure. But the P&R went bankrupt just before it entered service, and the repossessed engine was resold and sent abroad to sell Eames Vacuum brakes. The only lasting contribution of the engine was the term "*bicycle engine*" - the high driver and spoke trailing wheel resembled the high wheel bicycles of 1880.

The P&R got going again in 1895 and 1896 with a pair of 4-2-2 singles for their segment of the '*Royal Blue*' train - and they were now camelbacks and painted Royal Blue! The Baltimore & Ohio and Central Railroad of New Jersey used high drivered 4-4-0s instead. The 4-2-2s performed well, and ran fast, keeping their part of the '*Royal Blue*' on time. But increasingly heavier trains forced them into secondary trains, and they were rebuilt as 4-4-0s by 1903.

As much as the fast '*single*' concept is obviously from the British, nothing else about these engines remotely reflects the truly great '*singles*' built overseas. One wonders how a true '*Stirling*' would have performed on the track to NY - the best in the U.S. and certainly up to standards.

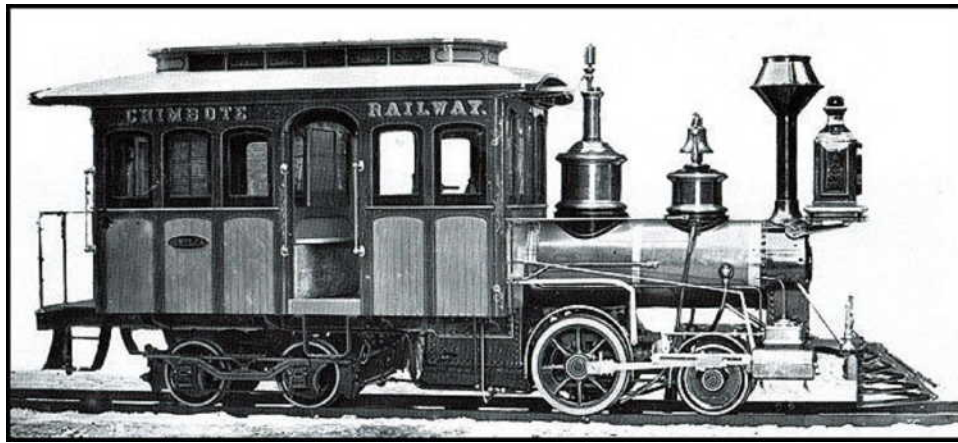
The '*Single*' Lives On - Small and Versatile lil' Beasts!:

The end of the racing '*Singles*' did not see the end of the usefulness of the '*Single*' in the U.S. Beginning in 1850, railroad managers and locomotive builders began to realize that a single driver locomotive was ideal for light service, usually on branch lines, secondary trains or commuter trains. A deliberately small engine would prove more economical to operate than a large road engine, more adaptable to branch line service, and more efficient than an aging first generation relic. As one railroader remarked in 1851, "*...much lighter engines than those now in use may be substituted for the passenger transportation and thereby effect a great saving both in point of fuel and road repairs...*" A number of single driver locomotives were built in the 1850s and 60s for this purpose, and in tank and tender versions. Basically, the 2-2-0 and 4-2-0 were simply modern versions of the older style 4-2-0, a proven design for light service. That they were built after 4-4-0s came into use is not unusual, they were just light engines.

The '*Single*' would also be perfect for inspection engines, where railroad "*brass*" could look over the line, and incorporated into passenger cars as "*steam motors*" - the first of several generations of self propelled railcars. The result was a small fleet of purposeful, well-designed '*Singles*', built over the next few decades, in a variety of forms, and by the best of builders. The following are some photos of various types that indicate the variety and ingenuity of the '*Single*' inspection car.

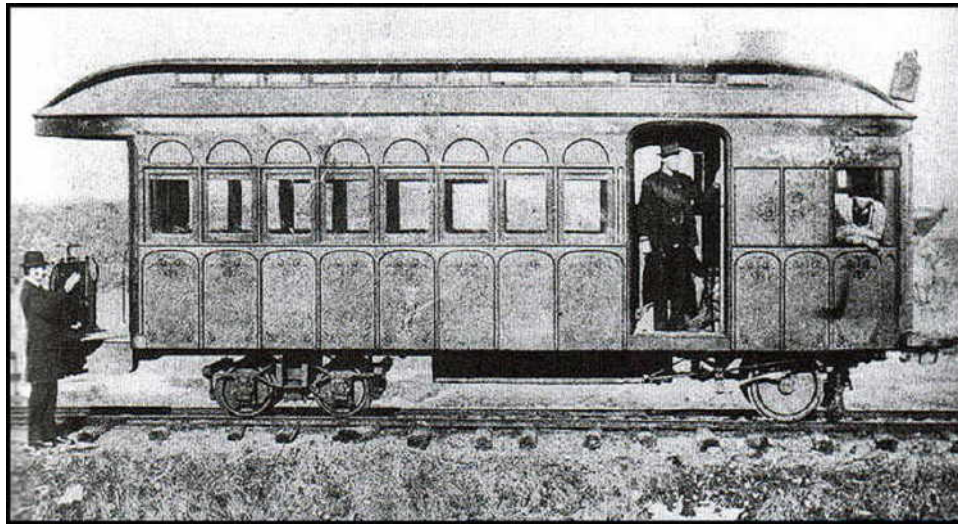
One of the most beautiful is the '*Emilia*' of the Baldwin works, 1875. Built for the Chimbote Railway as a 2-2-4T, she served as an inspection car to this small South American location. Please also check out Scot Lawrence's live steam adaptation of this locomotive, using an Accucraft Ruby!

[Scot Lawrence's live steam "*Angel*" - An Accucraft "*Ruby*" Adaptation](#)



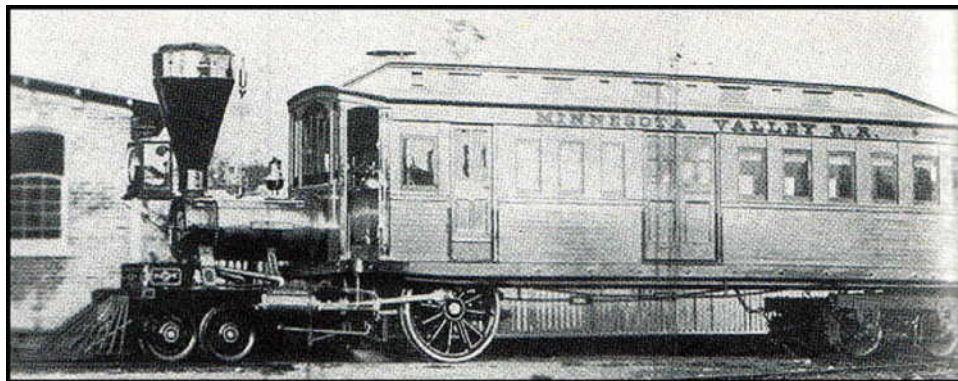
'Emilia', 1868

[See also John Clark's live steam 'Emilia':](#)

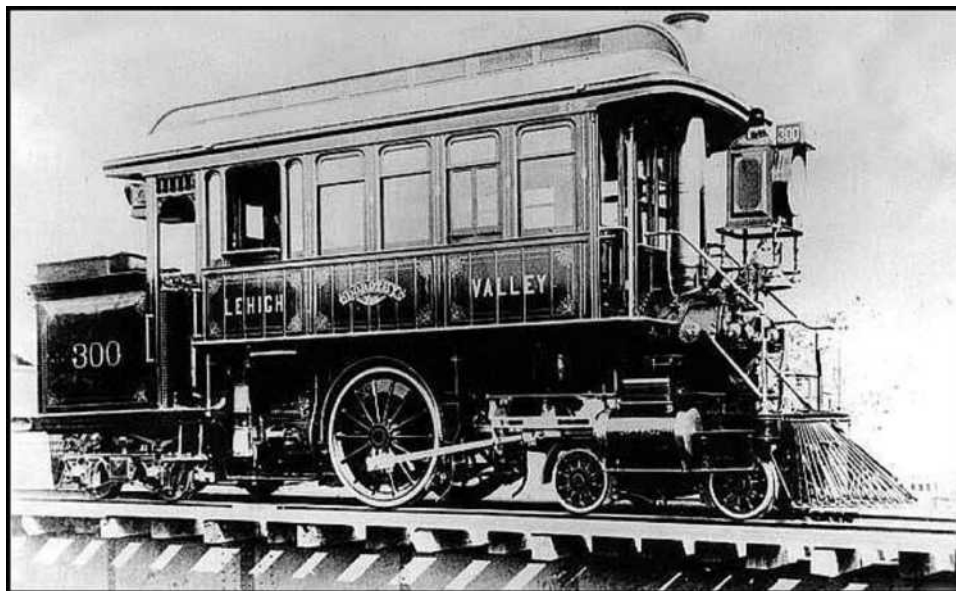


The Steam coach of the Grafton & Upton RR, Mass.

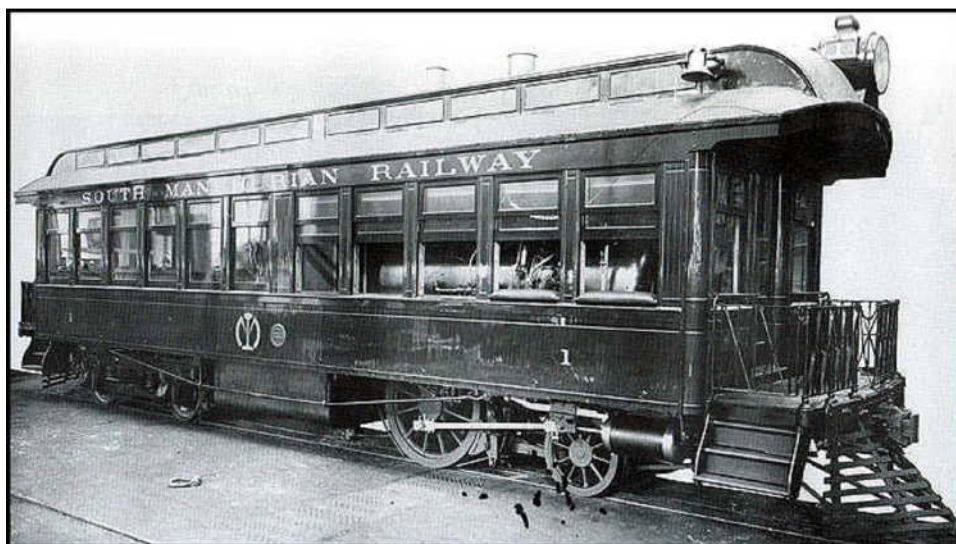
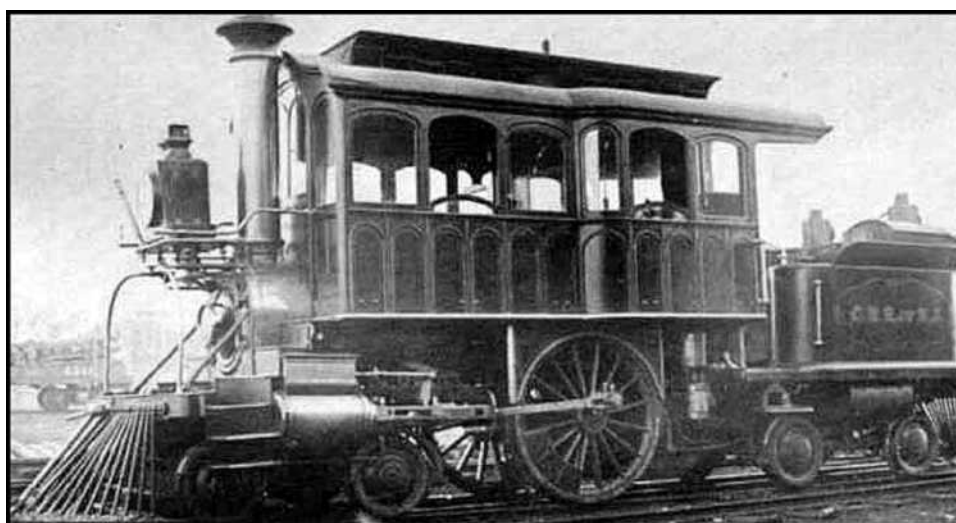
Minnesota Valley RR Steam coach, '*Shakopee*', built at the shops of the Columbus & Indianapolis Rwy, in Columbus, Ohio, by Master Mechanic W Romans in 1865.



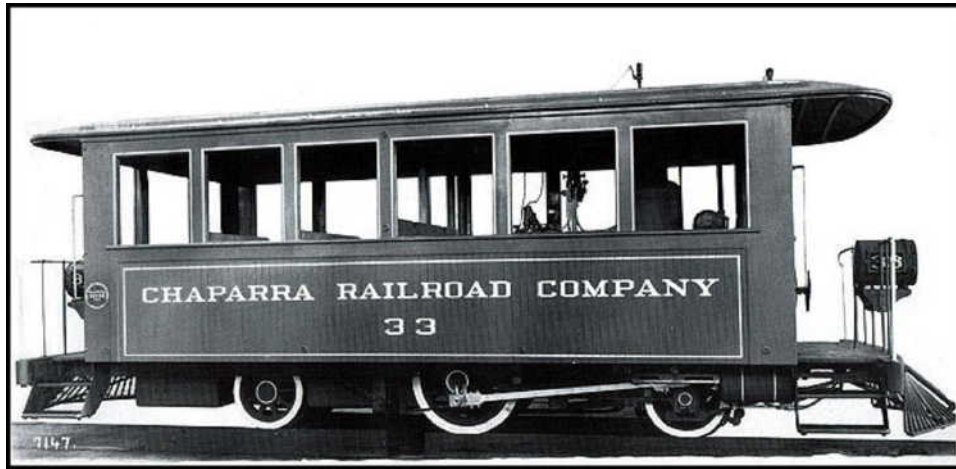
'Shakopee' of 1865



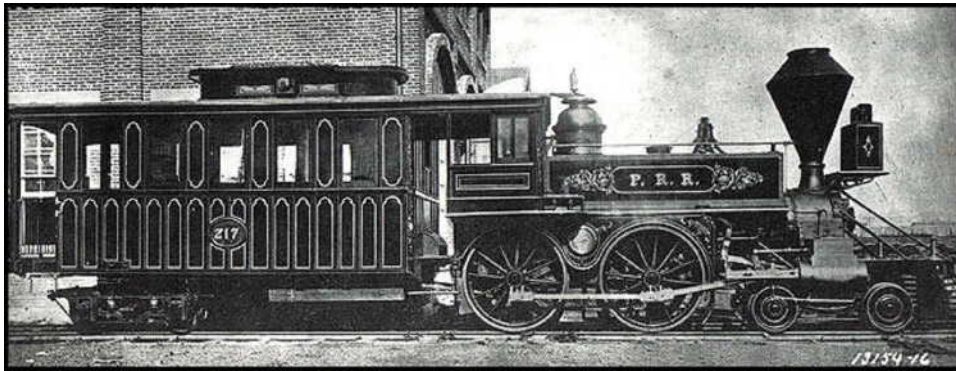
Lehigh Valley 4-2-4T Inspection Car



Baldwin's 1907 railcar, built for the South Manchurian Railway, China



Chaparra RR, #33, steam inspection vehicle with vertical boiler.

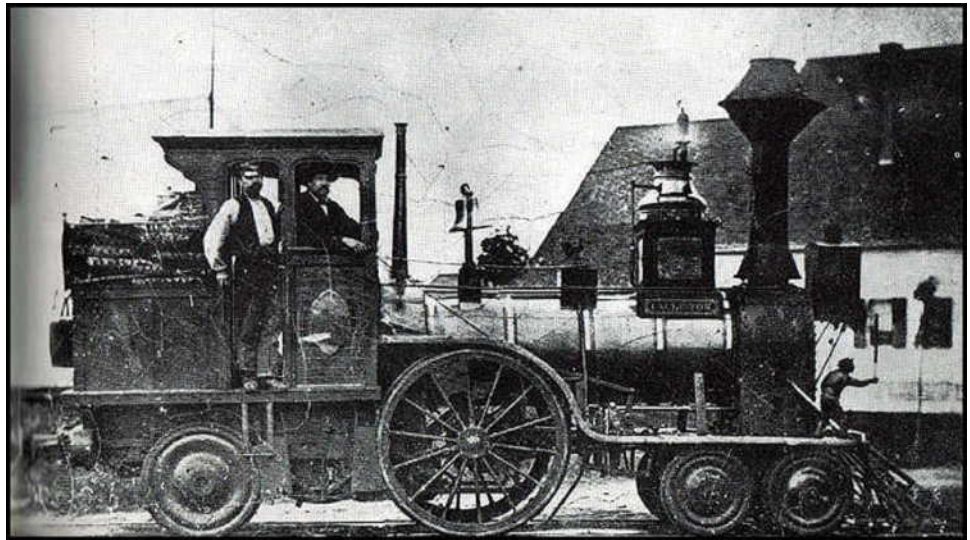


Finally a bit of an indulgence, not a 'Single', but a damn fine example of an steam coach is this Baldwin 4-4-4 of 1861.

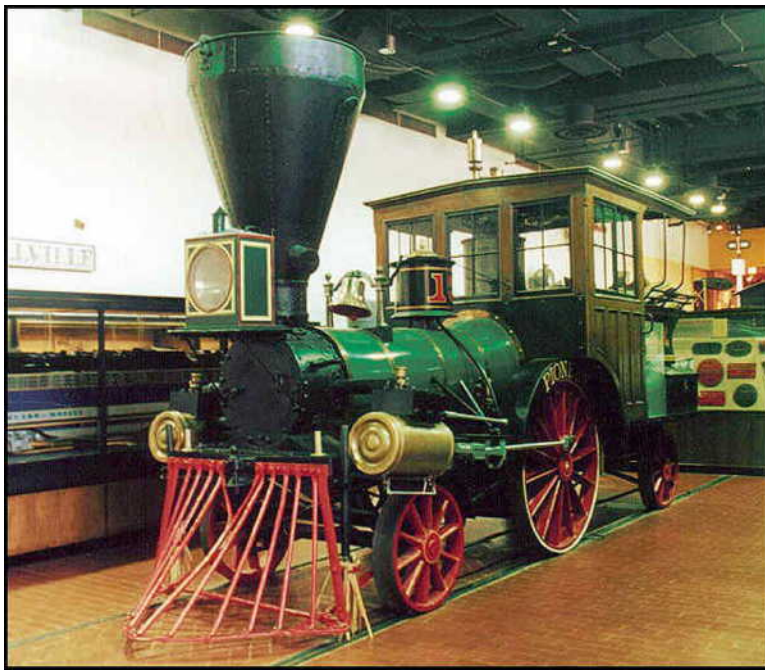
The Rigid Frame 'Single':

2-2-2's:

Remarkably, the earliest light Singles used rigid frames - built in New England, where the memory of rigid frame 2-2-0 'Planets' was held dear. In 1851, G.S. Griggs, master mechanic of the Boston & Providence Railroad, built a pair of inside connected 2-2-2 rigid frame tank engines for suburban trains on its Dedham branch - named "Dedham" and "Roxbury." They were in essence extended 'Planets', and won in competition a silver medal for Griggs, and favorable comment in the press. "Dedham" was later renamed "Uncle Tom" - the character of a popular abolitionist novel - and converted to a 4-2-2. It ran on the New York & Flushing Railroad well into the 1870s.



'Uncle Tom'



The Cumberland Valley 'Pioneer' of 1851; A rigid framed 2-2-2

and in passenger service until 1880, while *"Jenny Lind"* was rebuilt into an inspection engine in 1878. By good fortune *"Pioneer"* was saved as a relic in 1901, and survives today in the Smithsonian - not to be confused with the California 1843 Baldwin built 4-2-0 *"Pioneer"* preserved in Chicago.

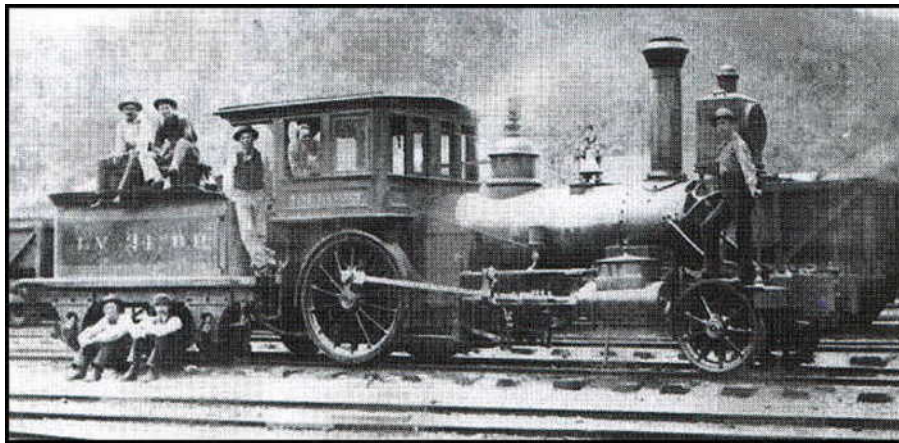
Recently two previously unknown 2-2-2 tank engines have been discovered off the coast of New Jersey, where they sank in a storm during delivery in the early 1850s. Sitting upright on the ocean floor, they are remarkably well preserved, and are protected by law to ensure their preservation. They are almost certainly Wilmarth engines, identical to *"Pioneer"*, but bigger - at 17-tons. The center driving wheels are fitted with blind, flangeless tires, allowing them to move easily over curved track, making them the largest rigid frame 2-2-2s built in the United States.

Mason's 'Pony' and the 2-2-0:

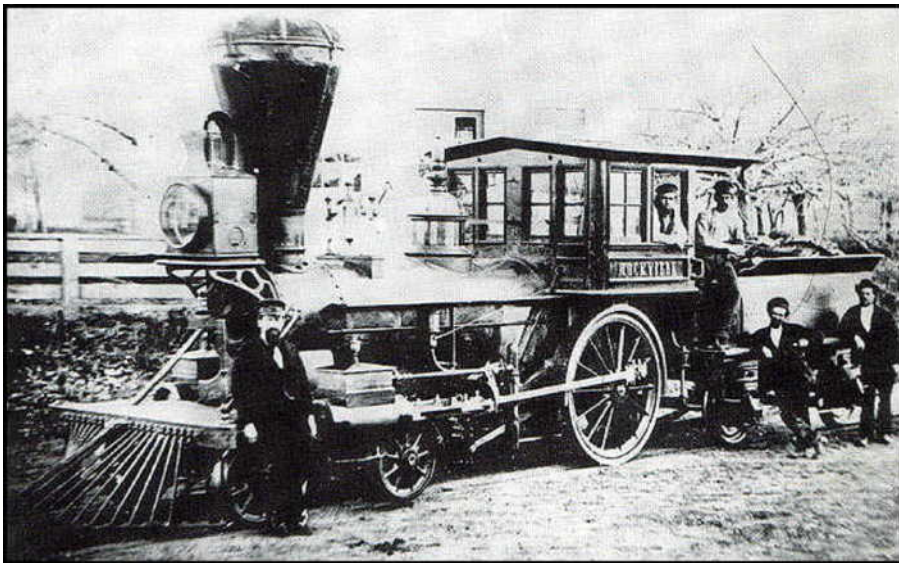
Another type of rigid frame single was the 2-2-0, a tender engine design called a *"pony engine."* The pony was a light locomotive intended for light service on branch, yard or commuter lines - a job ideal for single driver engines. The name *"pony engine"* is a generic, anthropomorphized name for the smaller iron horse. Light engines like switchers and such typically had names like *"Pony," "Baby Lilliput,"* and *"Little Giant"* etc. to recognize their size. Horses used to move cars in railroad yards; so naming the new shifter engine *"Pony"* was also common.

Several 2-2-0s were built by William Mason in Taunton Massachusetts. Mason may have liked to build eight wheelers - after all he perfected the classic 4-4-0 - but when a customer wanted a given type of engine, a savvy builder accommodated! Mason may well have taken to the challenge of building a *"better"* single as well. The first were a pair named *"Vixen"* and *"Vampire"*, built in 1861 for the Dubuque & Sioux City Railroad in Iowa, followed by the *"Rockville"* for the Rockville Branch Railroad, and the *"Lilliput"* for the Lehigh Valley. As built, they had spread axles for stability; with the lead axle placed forward of the cylinders, but the *"Rockville"* was later rebuilt as a 4-2-0.

At the same time another New England builder, Seth Wilmarth of East Boston's Union Works, built two outside connected 2-2-2 tank engines on speculation - *"Pioneer"* and *"Jenny Lind"*, the latter named for a popular Swedish singer who had taken America by storm during her triumphal 1850 tour. Both were bought by the Cumberland Valley Railroad in Pennsylvania, which was retiring its first generation Norris 4-2-0s. The little 12-ton tank engines performed well - the president of the railroad found them to be *"admirably adapted to our business"* and the CVRR bought a second pair from Wilmarth only a few years later. A photograph of one of them shows it as a 2-2-4 in the 1870s, but it may have been a 2-2-2 when built, similar to *"Pioneer."* *"Pioneer"* has had a long life - was burned in a roundhouse by Confederate forces during the Civil War, rebuilt in 1871,



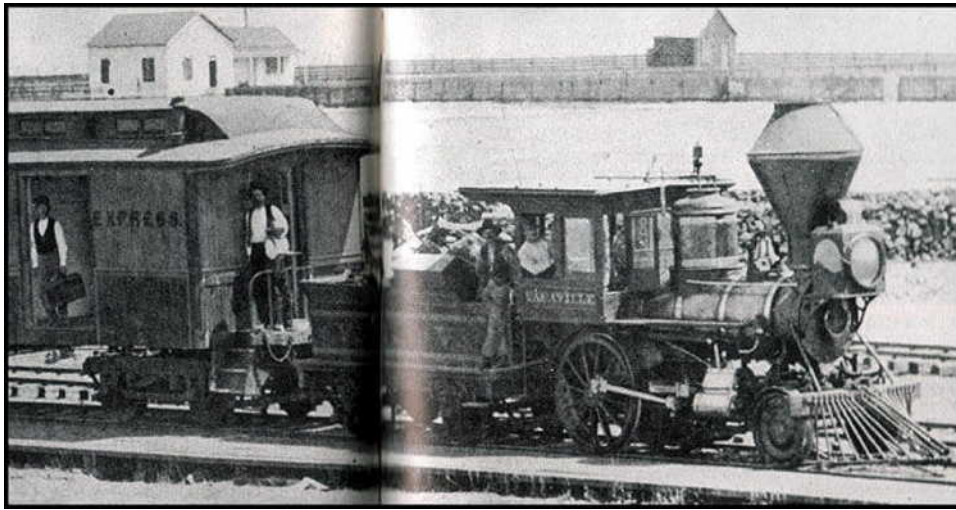
Mason Pony, 'Lilliput' 1862



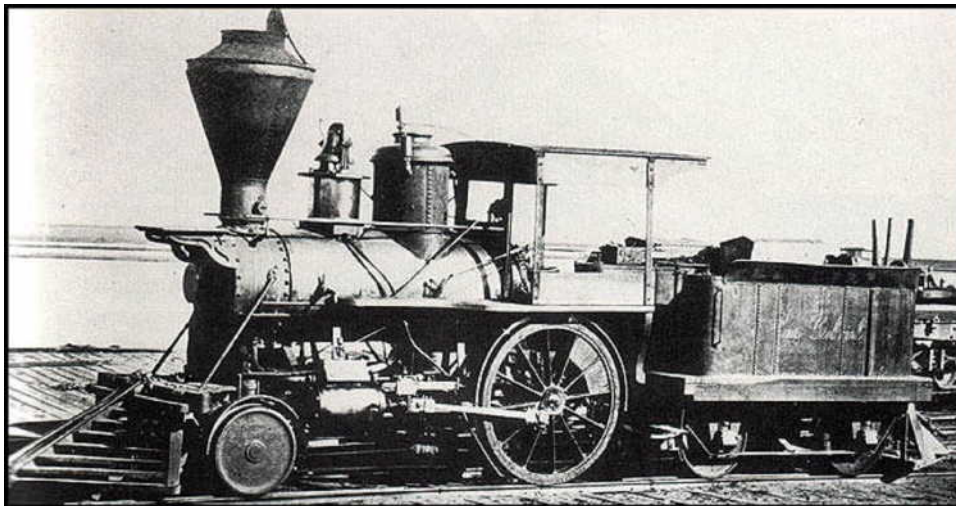
The rebuilt Mason Pony "Rockville" 1862, originally a 2-2-0, identical to "Lilliput", she was later rebuilt as a 4-2-0 for better tracking.

The Mason 2-2-0 design is an experiment, and as the Rockville shows, refitted with a four wheel lead truck. What were they used for? Well, Rockville Branch RR indicates a short branch line, lightly built, that would likely use a small engine for its marginal traffic, and suited for the unsubstantial roadbed. Refitting it with a four wheel truck indicates a use in road service, and especially where a more flexible design was needed for poor track. Because it was named "Rockville," a name of prominence, it was probably the main engine. The Lehigh Valley was ordering lots of engines from Mason, and big ones, so its probable they turned to Mason for a small engine for specific service in and among the heavy ones. It was a moderately large system and had lots of branch and service track where a modern, specially designed single could provide good service economically. Economics are important here - singles consumed less fuel than big road engines and could to the required work without being a elephant pushing a baby buggy, as one railroader said, and run on poor or light track without wrecking the line from their weight.

Another builder of 2-2-0s was the Vulcan Iron Works of far off San Francisco - a burgeoning industrial town on the Pacific. In the middle 1860s several 2-2-0s were turned out of its doors for light service on local railroads in the greater Bay Area. Bright and shiny with polished brass domes and fittings, elegant color schemes and beautiful pin striping, they must have presented a promising sight to their new owners. One was built from the onset as a steam motor with a passenger car built into it, while the others ran as tender engines. Another of these engines, renamed San Gabriel, helped build the first railroad line into Los Angeles in 1869.



The Vulcan 2-2-0 "*Vacaville*" of 1867, originally built for the Napa Valley RR. Note decoration and artwork on the headlight.



"*San Gabriel*" of 1868, built by the Vulcan Iron Works.

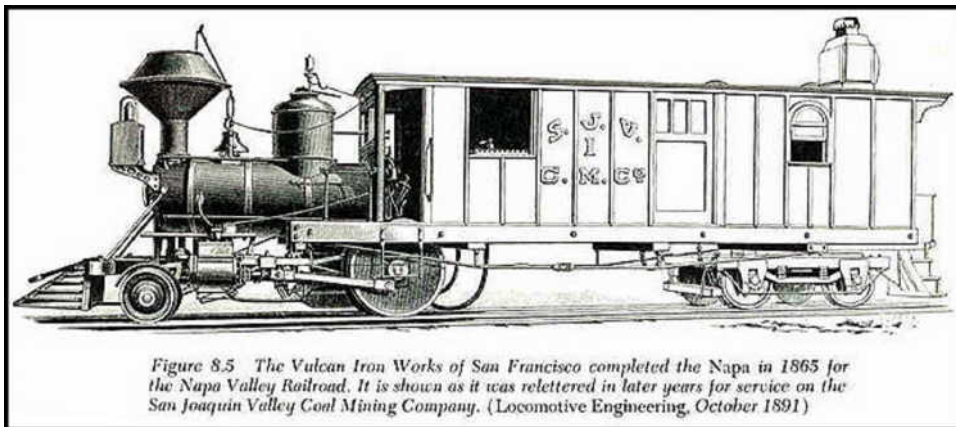
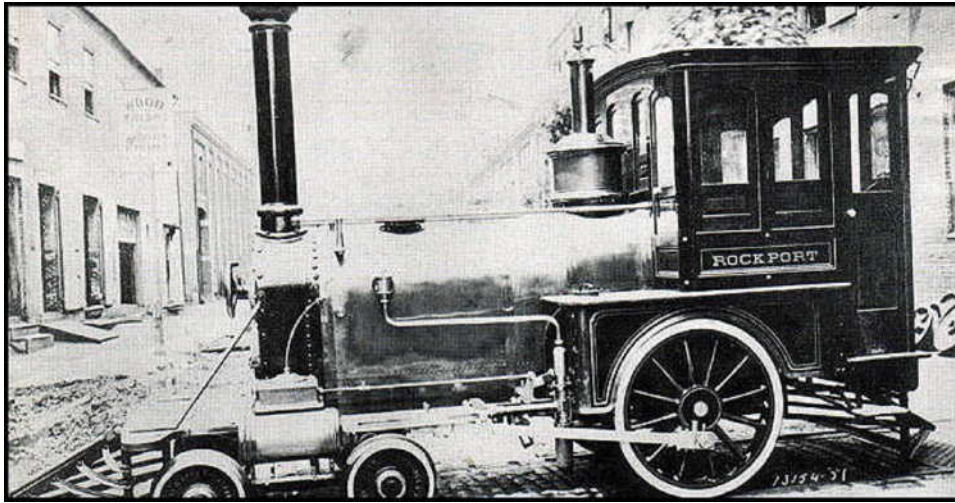


Figure 8.5 The Vulcan Iron Works of San Francisco completed the Napa in 1865 for the Napa Valley Railroad. It is shown as it was relettered in later years for service on the San Joaquin Valley Coal Mining Company. (Locomotive Engineering, October 1891)



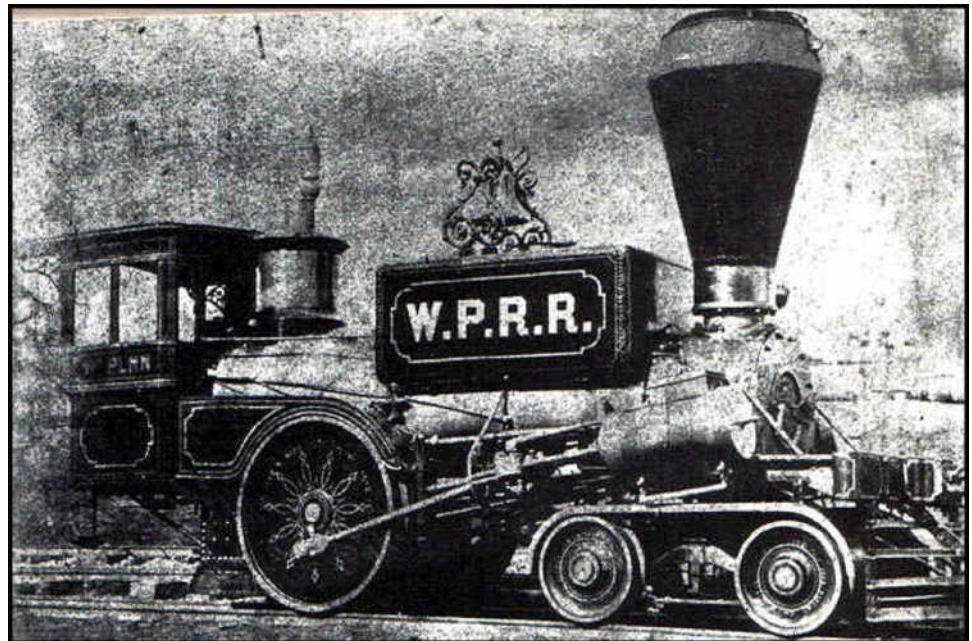
Baldwin's "Rockport" of 1868

Among the later Singles was a truly remarkable little 2-2-0 tank engine built by Baldwin in 1868 for the Rocky River Railroad, named "Rockport." Baldwin's "Rockport" is an unusual engine in many respects (a tank engine with the water tank underneath the boiler, creating a D shaped silhouette) so it might be written off as an oddball, but on second glance it becomes very neatly conceived. The Rocky River R.R. was only five miles or so in length,

without wyes or turntables, so the double ended engine could easily run back and forth with little trouble. The "Rockport's" light weight suited 30 lb rail, and light traffic - a shuttle engine for what was essentially a commuter run, Rocky River to Cleveland. The photograph indicates fitment of pilots to both ends of the loco for such shuttle type work.

While New England builders focused on rigid frame 'Singles', Mid Atlantic builders embraced the more flexible opportunities of truck engines. These designs recognized the practical advantages of the leading truck - after all, the basic 4-2-0 had proved itself over many years of main line service - why change a good thing? In the factories of Philadelphia, Paterson and even Lancaster, new 4-2-0, 2-2-4 and 4-2-4 tank engines would sally forth upon the railroad landscape. One Paterson builder, Danforth Cooke & Company, would excel and perfect the single driver tank engine.

One of these original first generation 4-2-0s - the "William Penn" of 1835 - was completely rebuilt as a tank engine in 1865 by the Norris factory in Lancaster, Pennsylvania. When new it hauled main line trains along the Philadelphia & Columbia Railroad, but by 1865 it was running on a five-mile short line from Strasburg. It was traded in to the local Lancaster Locomotive Works where it was sent west as a "new" tank engine for the first Western Pacific RR. Yet westerners considered its tank "unsightly" and hailed its removal. A tender was constructed and as such it ran for another thirty years, a coelacanth of locomotive design, serving as a shifter at the Sacramento Shops, then in a iron yard in Oakland, California in the 1890s.



'William Penn' of 1835

A similar design but with side tanks was promoted by Rogers, which built the famous "*Hackensack*" and "*Lodi*" in 1860 - the side tanks adding weight to the drivers and a long wheel base to add steadiness to the ride. It was built for a suburban line and admired at the time for its neat design, which used Rogers' fashionable walnut cabs in the Renaissance Revival style, beautiful spun brass dome covers and ornate scrollwork in gold leaf upon the tank sides.

Among the most interesting are very late 4-2-0s, built by Baldwin and Grant in the mid and late 1860s. Baldwin turned out the No. 7 for the West Chester & Philadelphia, a local commuter line, in 1864. It moved commuter trains alongside other Baldwin-built 4-4-0s for many years. The Grant engine was a substantial machine with an eight wheel tender, built for the Saint Louis & Iron Mountain as "*Bessie*", No. 17. It was fully finished as any first class Grant machine and one of many engines (including ten wheelers and tank shifters) built by Grant for the line. If anything, "*Bessie*" demonstrates what the 4-2-0 would have looked like had it remained the standard road engine.

Why a 4-2-0 in 1868? Hard to say, although it may represent again a very light engine for local or branch line traffic. "*Bessie's*" tender was large enough to haul fuel for a long distance, while the compact boiler could save fuel costs hauling only a few cars on a given branch. The basic "*light single*" concept, but adapted for longer distances than the Danforth tank singles, such as "*C.P. Huntington*." Maybe this suggests that the single was more sophisticated than generally imagined - that designers and engineers considered simple solutions of axle power vs. tonnage and saw the ongoing use of singles as a pragmatic form. The Danforth 4-2-4 tank engines were compact, light and very well designed for short distance runs common to most branch and suburban lines, while the "*Bessie*" is equally well adapted to light traffic on long distance branches.

So what does this all mean? I think only that the '*single*' found lasting use in given niches, and that as long as that niche remained, '*singles*' could survive, and even flourish. The engine served its purpose by hauling short trains economically; shifting in yards and performing other needed work efficiently and cheaply. That the Central Pacific RR re-boilered the "*C.P. Huntington*" in the 1880s is evidence the machine was considered worth the investment, and for many years it actually performed its intended work, pulling commuter trains on the Southern Pacific's system.

As evidence of the value of the '*Single*', the last new 4-2-4 tank engines were built by 1894. Several older 4-4-0s were rebuilt by T.J. Hatswell of the Flint & Pere Marquette Railroad and fitted with cowcatchers at both ends, extended smokeboxes, straight stacks and fully enclosed wooden cabs transforming them into beautifully designed and entirely modern 4-2-4T commuter engines.

The method here reveals itself as evolutionary niche marketing - the most suitable design for a given work. Most railroad historians look at design as an upward rise from "*primitive*" to higher forms - the crude wood burner giving way to the powerful Northern or articulated Big Boy. It's very much a perspective rooted in Social Darwinism, with value-laden descriptives implying a preconceived notion of fitness. But as we saw in the Mason master class, the value of any given engine was often directly related to its work assignment and fitness of design to that work. Thus the Mason Fairlie is a "*unit*" engine suited to shuttling along tracks with great efficiency in either direction, similar to the Danforth 4-2-4 tank - an engine right at home in either direction.

The Danforth Cooke Tank Locomotive

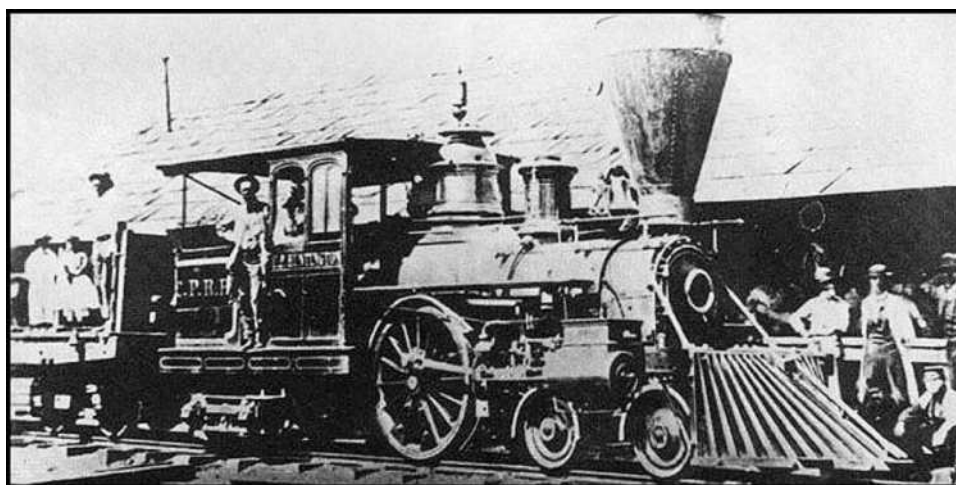
The Story of the C.P. Huntington and Her Sisters:

Danforth, Cooke & Company of Paterson New Jersey was the most successful and prolific builder of light tank '*Singles*.' Between 1855 and 1868, the company built nearly two-dozen '*Light Singles*' and reportedly attempted to patent the design. It was a singularly well thought out plan that featured the most progressive designs of the era, including spread trucks, link motion and wagon-top boilers. In the process, they created a neat, compact and elegant tank locomotive, which was thoroughly modern in all respects.

Danforth Cooke & Company was a respected builder, and their 17-ton tank singles reflected their characteristically careful craftsmanship and handsome style. Their customers ranged from the Atlantic to Pacific coasts. The first Danforth singles were built in about 1855 for the Macon & Western of Ohio, followed by the "*Reindeer*" in 1859 for another Ohio railroad, the Cleveland, Painesville & Ashtabula. "*Reindeer*" later became Lake Shore & Michigan Southern No. 190, and the LS&MS bought a second, named "*Gazelle*", in 1862. The Troy & Greenbush Railroad of New York State bought two in about 1860, and a year later the Hudson River Railroad bought a pair, named "*Monitor*" and "*D.T. Vail*." The Hudson River RR may have preferred fast 4-4-0s for express service, but found Danforth light tank '*Singles*' perfectly suited for its branch line service. It bought four more in the next two years, for a total of six engines of this type. The Central Railroad of New Jersey bought two variations of the Danforth design, 2-2-4s in 1863 and named "*Wren*" and "*Pewit*", with the leading truck placed behind the cylinders. The Middleburgh & Schoharie Railroad bought what is considered to be the last of the Danforth Singles built, the 4-2-4T "*Middleburgh*" in 1868.

Danforth's concept was to provide an engine that would efficiently replace worn out, elderly '*singles*' with a new design fully up to date in design, with new materials and the added incentive of being able to operate in any direction. The timing was right on the money - first generation '*singles*' were being scrapped, suburban lines being laid out, and the average car weight well within its hauling capacity. It would serve both rural lines and the burgeoning urbanism.

The most documentable example is the only surviving Danforth, Cooke engine from the Civil War era, the tank engine "*C.P. Huntington*", which was built for stock and purchased by the Central Pacific in 1863. It was one of a number of tank engines built by the company in an effort to promote light tank engines for branch line trains, and finished in a handsome style, which would reflect the company's skill.



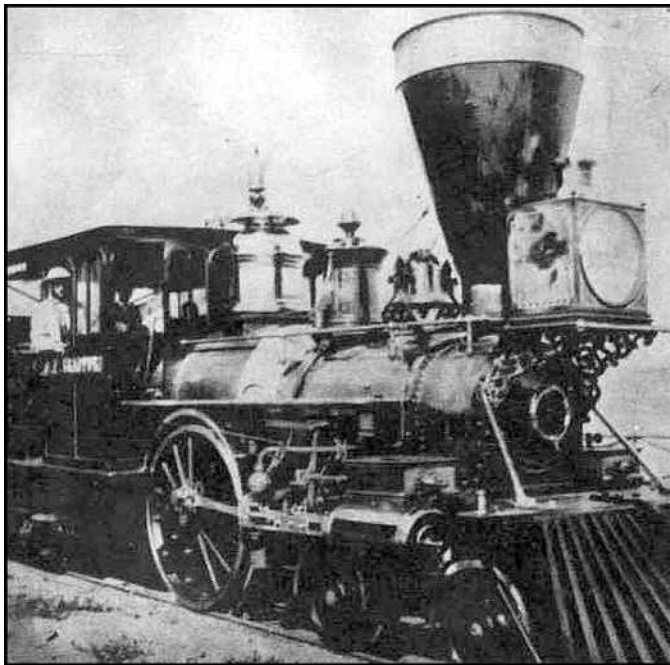
"C.P. Huntington" in her Original guise from 1863

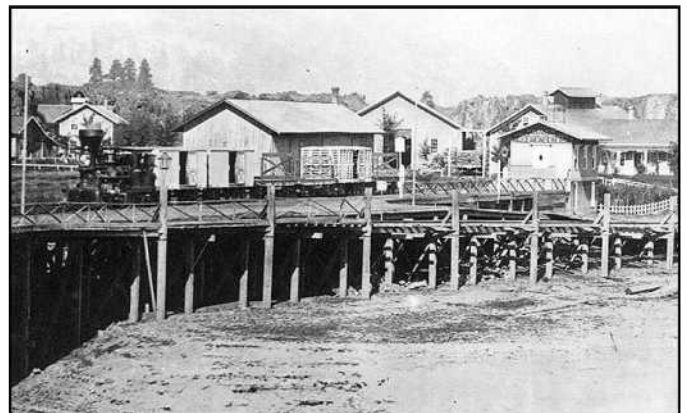
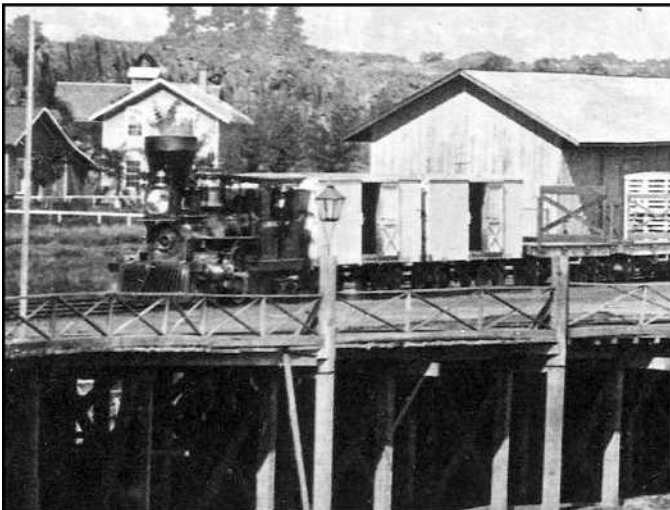
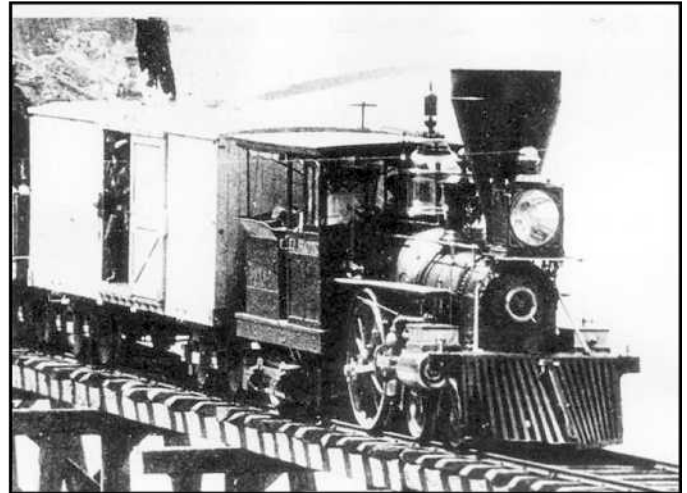
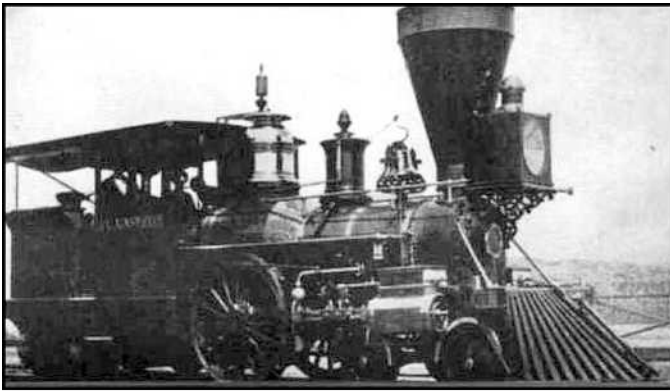
'Singles' West:

No less than five of these remarkable little engines traveled west, in the holds of sailing ships around the southern tip of South America en route to the far-off Pacific Coast. The first were a pair built in 1862 and delivered in early 1863 to Portland, Oregon. They were built for the Oregon Steam Navigation Company, a steamboat company founded in 1860 to run boats on the Columbia River. The Columbia was nothing if not rugged - whirlpools and rapids at two separate places required portage to move goods from one navigable part to another. The OSN purchased two existing horse powered roads, (plus two steam motors built in San Francisco for the previous portage owners) and upgraded them for steam. The Cascade Railroad was six miles long and located on the Washington Territory side (north) and the Dalles to Celilo Railroad was 13 miles long and located in Oregon, on the south side of the river.

The Danforth 4-2-4T engines, named "*J.C. Ainsworth*" and "*D.B. Bradford*", were perfectly suited to level grade portage lines only a few miles long. They were unique in primarily being assigned to freight service, and photographs show that they typically hauled trains of from four to seven cars. It's telling, however, that the next pair of engines they bought from Danforth were standard 4-4-0s.

Here is a selection of photos of the Danforth pair running on the OSN in the 1860s. Their design was basically identical to the C.P. Huntington as delivered:



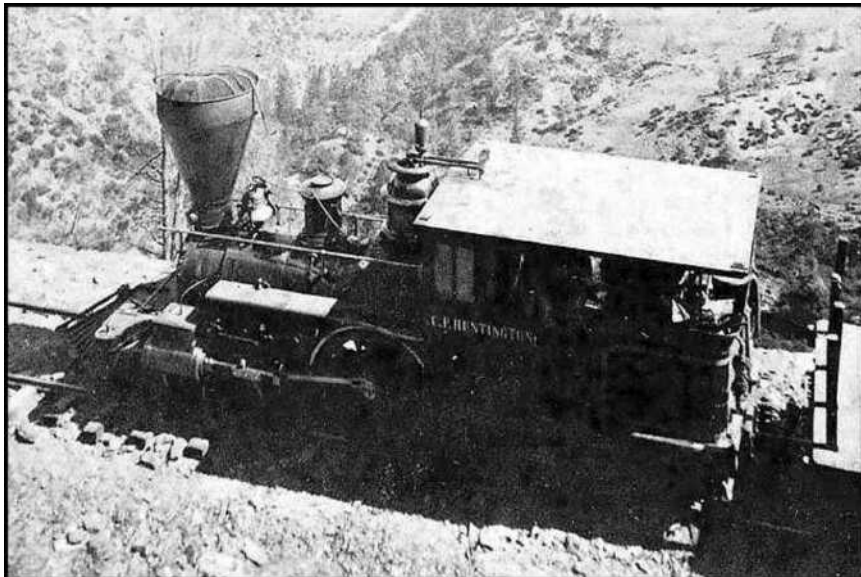


The other Danforth 4-2-4 tank engine was bought in 1863 for the Freeport RR, a short line set up to compete with the Central Pacific's line to stage and freight wagon connections for the gold and silver mines. Freeport R.R. was founded on the Sacramento River, a few miles closer to San Francisco than Sacramento itself. In theory its trains would load traffic earlier and gain advantage in traffic over the CP. Its parent company was the Sacramento Valley R.R., which was established in 1855 and ran five 4-4-0s - it was also rapidly being eclipsed by the CP, hence the last stand at Freeport. I suspect they got the single only because it was again a showroom model and instantly available. The Sacramento Valley and Freeport R.R.'s all were bought by the CP before long and the equipment pooled. The Freeport engine was later sold to the Union Coal Company.

The "*C.P. Huntington*" is the most famous of the Danforth Singles, and only surviving example. It was one of two purchased in 1863 by the newly founded Central Pacific Railroad for construction service in California. As Central Pacific No. 3, it was named after Collis P. Huntington, a prosperous California merchant, turned CP railroad director. Its sister engine, No. 4, was named "*T.D. Judah*", for Theodore Judah, the railroad surveying engineer and initial surveyor - and promoter - of the CP.

Unlike early narrow gauge lines, there was no "*special power*" concept for western railroads. The engines and construction tried to emulate established eastern practice, and in this regard the "*C.P. Huntington*" was way out of its element, as no suburban or branch lines existed to fit it properly. The Central Pacific needed big 4-4-0s for construction trains building track across the Sierra Nevada mountain range, not light tank engines. But in November 1863, the company was desperate for motive power when wartime conditions meant backlogs for delivery of larger engines. Two Danforth 4-2-4Ts, built either for stock or for a road, which defaulted, were available at the factory - CP management could get them right away, which is why they bought them. The rest of the CP engines were 4-4-0s, and a big Mason ten wheeler was not long in following. There was no time to evaluate operating conditions or needs! They needed the engines now, if not yesterday, to work construction trains. And that's it - that's why they bought them - no other reason.

After arriving at Sacramento in crates, the "*C.P. Huntington*" and "*T.D. Judah*" were reassembled and ready for service in April 1864. The "*Judah*" was the first to be completed, and may well have had the public's favor in deference to the engine's namesake. Both engines traveled along the newly built line performing what service they could - short local trains, light construction service, and shunting service at the railroad's Sacramento docks.

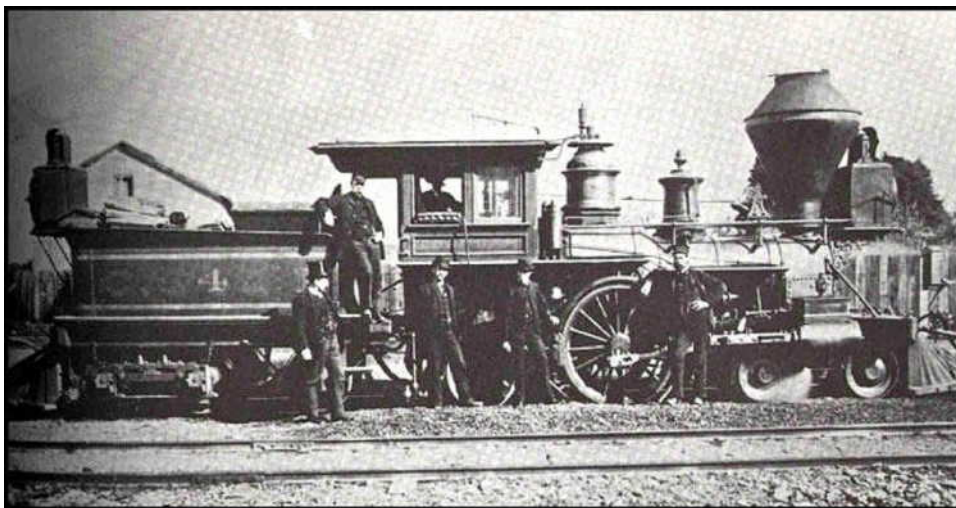
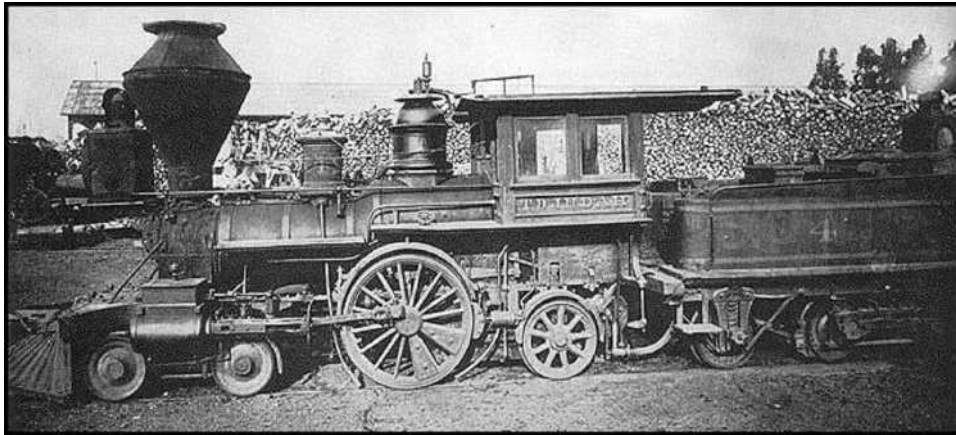


"*C.P. Huntington*" high in the Sierras. Note the originally long roof, which extended over the tender.

In June 1864 the "*Judah*" was running excursion trains to the Tivoli House and Smith Gardens, local Sacramento resorts, and a few days later hauled a "*fast train*" into Sacramento from Newcastle with passengers from Virginia City aboard its coaches. The "*fast trip*" took 17 hours. Photographs taken in the middle 1860s show that the "*Huntington*" was also a mountain climber, traveling high into the Sierras - a remarkable feat for a light engine. Yet by early 1868 both Danforth Singles were considered to be too light for shunting work in Sacramento.

In December 1868 the "*Huntington*" was involved in a near-fatal accident, which was nonetheless sticky. It was running trains on the Sacramento docks when a stevedore pushing a barrel on a handcart walked in front of the moving engine without thinking. Onlookers pulled him aside just in time, and he suffered only a minor concussion by his head striking the crankpin on the driving wheel. Unfortunately his handcart and barrel - filled with molasses - were destroyed on the cowcatcher, rendering the front of the engine a treacly mess.

The "*Judah*" and the Freeport engine were later rebuilt by Central Pacific master mechanic Andrew Jackson Stevens into 4-2-2 tender engines and eventually sold. The Freeport engine went to the Union Coal Company in 1888, and a year later the "*Judah*" went north to British Columbia's Vancouver Island, as the Wellington Colliery Company's "*Queen Anne*." It was finally scrapped in 1912.



The "*T.D. Judah*" converted into a 4-2-2 tender loco.

In February 1871 the "*C.P. Huntington*" was sold to a subsidiary company of the Central Pacific, called the Southern Pacific. The new road would build south through California and then turn east to an eventual connection with Texas. As Southern Pacific No. 1, the "*Huntington*" (it retained its name throughout its career) initially worked occasional construction service as well as local trains. Its career nearly came to an end in 1872 when it was demolished in a head on collision, but it was fortunately rebuilt in the SP's San Francisco shops in 1875 into its present appearance for suburban and commuter trains. In this role it ran long and well.



"C.P. Huntington" running commuter trains late in the 19th Century.

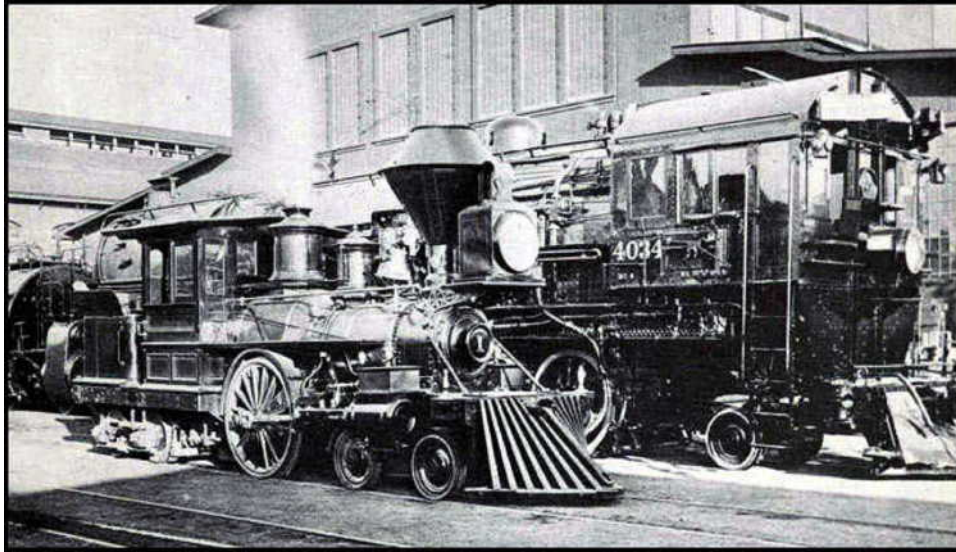
By 1891, its days were at an end. It was to have been renumbered SP 1001 that year, but there is no evidence this was ever done. Instead, it operated on work trains, pushing pile drivers, weed burners and other lowly duties. In the summer of 1900 it was ordered scrapped.

Here is where a miracle took place. Shop employees had long taken a fancy to the little engine, and hid it from sight. Deep in the SP's Sacramento Shops, it would remain safe from no-nonsense management, and non-existent on the books. It was impossible to scrap an engine that did not exist. By 1906 it was thought safe, and repainted for display inside the shops. But in 1914 it was again ordered scrapped, and mournful employees took the pioneer out to the bone yards. In the nick of time, a telegram arrived from the railroad's headquarters - don't scrap. The little engine would be perfect for display at the upcoming Panama-Pacific Exhibition, to be held in San Francisco in 1915. Joyful employees once again took the Huntington back into the safety of the shops, and now with the go ahead to completely refurbish her.



Refurbished in 1914, "Huntington" was made ready for a new life as corporate mascot!

The 1914 restoration created an icon - a traveling marketing symbol for the SP. As the official symbol of the railroad, the "*Huntington*" was regularly moved out - and often under steam - to sit for portraits next to the new giants of the railroad. No greater image of progress could be had than that of the "*Huntington*" next to a massive cab forward. In addition the engine appeared at fairs, and in the 1924 film "*The Iron Horse*" where it traveled down Hollywood Boulevard on a flatcar for the opening. Its last run under steam was in 1939 for the opening of Union Station in Los Angeles, and as recently as 1999 it was evaluated for operation by the California State Railroad Museum, which proudly displays the engine today, restored to its 1914 appearance.



"C.P. Huntington" steams for the occasion of the roll-out of SP's latest cab-forward!



...and again, next to a shining new 4-8-2!

The Four 'Looks' of the C.P. Huntington

Over the years, the "*C.P. Huntington*" has had four basic "looks" which can guide modeling the locomotive. The following sections will describe each, along with color schemes and details. Bear in mind that the engine was an evolving work, with different details added over the years. Yet the four looks will suit modeling well, and provide nearly everything needed to choose and build the Huntington in its various roles.

Before starting, it might be good to go over the smokestacks, which are distinctive.

The Central Pacific Stacks:

The stack seen today on the CP Huntington is one of two variations of the same stack - known as a large diamond or Stevens stack - used on the Central Pacific and Southern Pacific system. It was designed by Central Pacific Master Mechanic A.J. Stevens in 1871-72 and installed on all engines in the system. There were two variations, the long funnel type (same style as the stack offered by H-L-W for this project), and the shallow funnel type currently on the actual "*Huntington*." The stack was designed to burn both wood and coal. When the CP/SP railroad bought or gained control of an existing railroad, this stack was installed - it's a surefire giveaway for who's in control!

"*Huntington*" had both stack types at different times in its career, so both are correct. When new it had a narrow balloon stack, but this was probably replaced by 1872. The "*long funnel*" type was manufactured in the CP and SP shops and used in the 1870s. The shallow funnel style was designed in about 1880 and either made by locomotive builders to CP plans when delivering new engines to the CP/SP system, or made in the shops themselves.

Look #1 - The Danforth Cooke Color Scheme (and colors of the C.P. Huntington, 1963):

The "*C.P. Huntington*" and other Danforth singles were originally finished in the highly elaborate yet elegant styles of the 1860s.

The cab featured beautiful gothic arches above the windows, with carved wood acorns at the base of each arch, and the front of the cab had no less than five arches across the front doors and windows. The center arch was above a wood panel. Some of the cabs may have been varnished walnut, while others painted. The cab was three sided, with no back, and the roof extended over the tank. A funnel extended from the water hatch beyond the roof to allow refilling. The name "*C.P. Huntington*" was fixed into the name panel in raised brass letters.

The steam dome was entirely brass, with a Renaissance Revival shape common at the time, and brass was also used for feed-water pumps, cylinders and other elements. The boiler and perhaps also steam dome and cylinder jackets were silver grey Russia iron, with brass bands.

The cast iron bell bracket was in the Greek Revival style, while the cast iron headlight bracket was a profusion of scrolls. Both were painted and decorated with striping. Early photos of the "*Huntington*" show that it did not have a headlight bracket.

When new in the 1860s, the "*C.P. Huntington*" was a colorful sight. In the traditions of the time, the wheels were probably red, striped along the spoke and rims in gold and black. It's possible that the rear truck was red as well, which would have balanced out the color and created a neat effect. The rest of the engine was painted a deep wine red color, including the cowcatcher and tender frame. This is based on evidence from paint samples on the engine itself, and supported by photographs, which show details consistent with what we know of striping on wine.

The tank was striped in a broad gold leaf band, which wrapped around the tank from behind, at top and bottom, and connected at the front edge of the tank. Basically it was a panel stripe. Smaller stripes in color - perhaps red or green - shaded the gold stripe. The lettering "C.P.R.R." was in gold leaf and in Roman letters on each side. Three gold panel stripes were on each side of the tank frame.

A significant aspect of Danforth's color selection is the builder's location in Paterson, N.J., next door to two competing builders; Rogers L&M and New Jersey L&M. There are commonalities to the ornamentation of all three builders, who observed and adopted the best or most compelling elements, while also striving for individuality, in order to promote their product over the local competition. Since Rogers typically used green, Danforth used wine red.

A supporting element here is the old comments regarding the Western & Atlantic R.R.'s Danforth Cooke & Co. 4-4-0 "*Texas*" as brown, with blue (the same "*Texas*" from the "*Great Locomotive Chase*"). We know that the W&A was buying Indian red paint in 1860 for its locomotive paint shop, so the "*brown*" is very likely Indian red, which has a brownish tone. In reconstructing "*Texas*" from the Kurtz research and Meola research into the actual W&A archives, it appears that the railroad used Indian red in repainting "*Texas*" by 1862, and that it emulated the original Danforth scheme, indicating that in 1856 Danforth delivered the engine in a wine or reddish brown color. Both brown and wine were popularly combined with deep blue, which was stylish at the time, and the wheels and cowcatcher were American vermilion, akin to W&A practice.

The narrow balloon stack, smokebox and firebox were black, treated with a blacking mix made up of lampblack, linseed oil and other materials. For all of its working life, these parts would be black.

In 1871 the Huntington was repainted and refurbished at the Sacramento Shops for delivery to the Southern Pacific Railroad. Its colors at this time are not known, but probably copied the existing paint scheme of the engine. As such the "*Huntington*" would run for a year before its fate changed dramatically.

Look #2 - The C.P. Huntington as Rebuilt at San Francisco in 1875:

In 1872 the "*Huntington*" (as SP No. 1) was in a terrific smash up, a head-on collision with another engine. It was pretty much a complete loss. The other, larger engine was repaired immediately, but the "*Huntington's*" tiny remains were set aside at the SP San Francisco shops. It lay there for two long years, when it was finally rebuilt. Historian Larry Mulley has done research on this period of Southern Pacific history, and has discovered the following account of the "*C.P. Huntington's*" rebuild and new appearance.

In March 1875, SP Master Mechanic Wilson completely rebuilt the engine at the SP's San Francisco shops for commuter and suburban service in the San Francisco Bay Area. Aside from the stack, bell stand and cowcatchers, the "*Huntington's*" basic profile dates to this time.

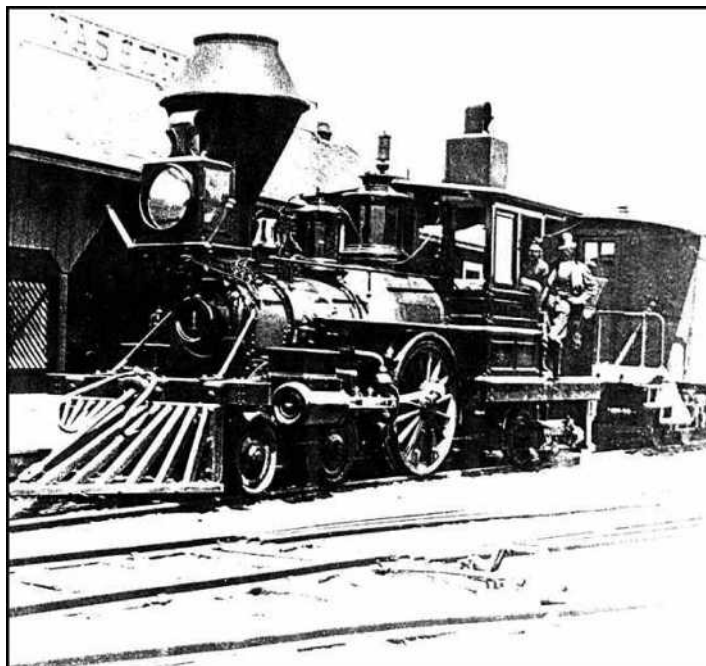
Wilson chose to remake the engine in its original basic form, as a 4-2-4T. He even built a new "*D*" shaped smokebox to match the destroyed original. Only the design of cab and steam dome changed substantially. When finally turned out, the "*Huntington*" had new cylinders, smokebox, cab, domes, and most of the boiler replaced - in fact only two or three plates from the original boiler could be used, along with the original wheels. In order to run in both directions, long wooden cowcatchers were fitted on both ends (this explains the deep frame on the back), with a pair of iron rods curving out and in again to protect the coupler pockets on the cowcatchers (like rock guards but evidently for commuter trains). A second headlight was mounted on the cab roof facing backwards. A Westinghouse air brake was mounted in the engineer's side along with an air tank and piping.

Second-hand parts from other engines included an ornate, Rogers-style bell stand, and the headlight brackets from a Schenectady engine that remain on it to this day. The stack was a large narrow diamond, with a taller base than the current stack. The SF Shops stack was similar, but not identical to the early large Stevens diamonds used on the CP/SP.

At this time, the "*C.P. Huntington*" was repainted an overall very deep brown, nearly black. This means the wheels, frames, domes, cylinder heads, cab, and so on - virtually the entire locomotive. The cylinders were covered in Russia iron, as was the boiler, with brass bands on the boiler as usual. The newspaper remarks that the colors were relieved by green glazing on some parts - perhaps the cab panels, or something like that. The stack and smokebox were the usual black, but the kicker is that the straight base of the large diamond stack was painted a "flaming red" which was apparently unusual given the reporter's comments. In fact the reporter also said that the dark colors were a strong contrast to the "*bright and gay*" engines coming in from the east; these engines can only be three new Schenectady's for the SP, which arrived in March-April 1875. Its great to know what the "*Huntington*" looked like, and that the Schenectady works still turned out a smashingly brilliant machine in contrast.

Red stack pipes were common in the east coast at this time, on the New Haven and such, but there is no record of the practice in the West beyond the "*Huntington*." They were usually used on straight stacks, but sometimes on diamond stacks, and only on the pipe below the diamond itself. The diamond section of the Huntington's stack remained the traditional black.

The name "*C.P. Huntington*" was in gold on the cab, the familiar "SP" monogram was on the tender (like today) and the mottoes "*Enterprise 1863*" and "*Progress 1875*" were in gold with neat striping on the lower cab panels - a tribute to the little engine. The front headlight had a landscape painted in the side. The little "*SPCo*" monogram on the tank was unique to the SP and some affiliates, and there's a story here. Crocker - one of the Big Four - began developing a posh resort in Monterey on the SP line just south of San Francisco, to lure the cream of San Franciscan society. Crocker deliberately designed the fast trains on the "*Monterey Run*" to be socially correct. He put the monogram on the tender to reflect the snob appeal of monograms on private carriages - creating an understated look. "*Huntington's*" quiet deep browns were right in sync with this understated elegance, and made it a very fashionable locomotive.



The "*C.P. Huntington*" after the 1875 rebuild.

Extract of the Newspaper Report:

Describing the 1875 Rebuild of the C.P. Huntington

"The engine has been rebuilt in the most thorough manner by Messrs. Wilson & Smith, and all the latest improvements in locomotives have been put on that go to make a first-class engine. With the exception of one or two plates in the centre of the boiler, it is entirely new, being built at the boiler shops of the company, by Mr. J. Kelshaw. There are also new cylinders, steam-chests, steam-pipes, dry-pipes, and indeed, nearly all the main parts of the engine, with the exception of the wheels and a few other items, are new, so that as she stands to-day, it is more as a new engine than one that has been simply rebuilt. One of the Westinghouse air brakes has been put on, but the position of the air drum, and the various pipes leading thereto tend rather to detract than otherwise from the looks of the engine, and the various pipes leading thereto, tend rather to detract than otherwise from the looks of the engine, giving it a clumsy and muddled appearance. It has been painted throughout in the most somber colors that could possibly have been thought of, without making it black altogether and looks in striking contrast to the gay and bright looking engines that come out here from the East. With the exception of the bottom part of the smoke stack, which, strangely enough has been painted a flaming red, the engine and tender is of a dark brown color, relieved at places by the brown having a greenish tint given to it."

"On the side of the cab is the name of the engine, C.P. Huntington, put on in gold leaf, and Mr. Wilson, the painter, has placed some very pretty designs directly underneath, with the words "Enterprise, 1863," and on the next panel, "Progress, 1875," intending to show the enterprise and indomitable energy that in 1863, began to work and fight its way onward, in spite of all the difficulties that obstructed its path, and now in the year of 1875, we can mark the extensive progress that has been made, and the great results that have been achieved in so short a time on this new line of road."

Look #3 - The 1888 Sacramento Rebuild:

In 1888 the Huntington was tired machinery, but still worth an investment of a new boiler. The engine was re-boilered in the Sacramento Shops, and given a new stack - the shallow large diamond that it has at the present time. It also received a new bell stand, but the rest remained the same.

Its 1888 paint scheme is unknown, but may have either been an overall reddish brown, or more likely black, which was adopted by the CP and SP in the middle 1880s. The running boards and top of tank may have been yellow ochre, for safety. Because it still had some commuter and light passenger service ahead of it, the familiar gold leaf monogram and lettering were reapplied.

In this guise it hauled passenger trains for a few more years before being sent to work maintenance of way trains and weed-burning service. In this service, the hallmarks and niceties of passenger maintain soon dwindled. As a tired old engine, the "*Huntington*" was cluttered with toolboxes, chains and frequently with white flags mounted on the smokebox to indicate it was running extra. Marker lights were also on the engine by this time. By the 1890s this was streaked with dirty and dust, the grungiest look had by the engine in its working life.

Look #4 - The 1914 Restoration:

In 1914 the "*Huntington*" was finally recognized as the beautiful engine it was. In the Sacramento Shops, crews took the fifty one year old engine down to its frame and refurbished, rebuilt and repainted every part so that it shone like new. The beautiful, colorful engine that rolled out of the shops as a result was the pride of the railroad. This scheme has been carried by the engine ever since, and the California State Railroad Museum has thoughtfully restored it to the 1914 period as such.



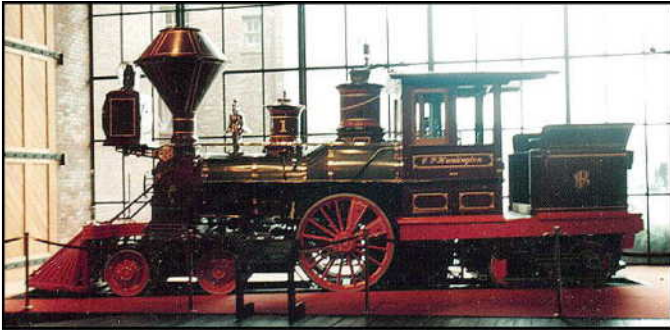
Prior to the construction of the California State R.R. Museum's new buildings, the old "*C.P. Huntington*" was lovingly sheltered outside.

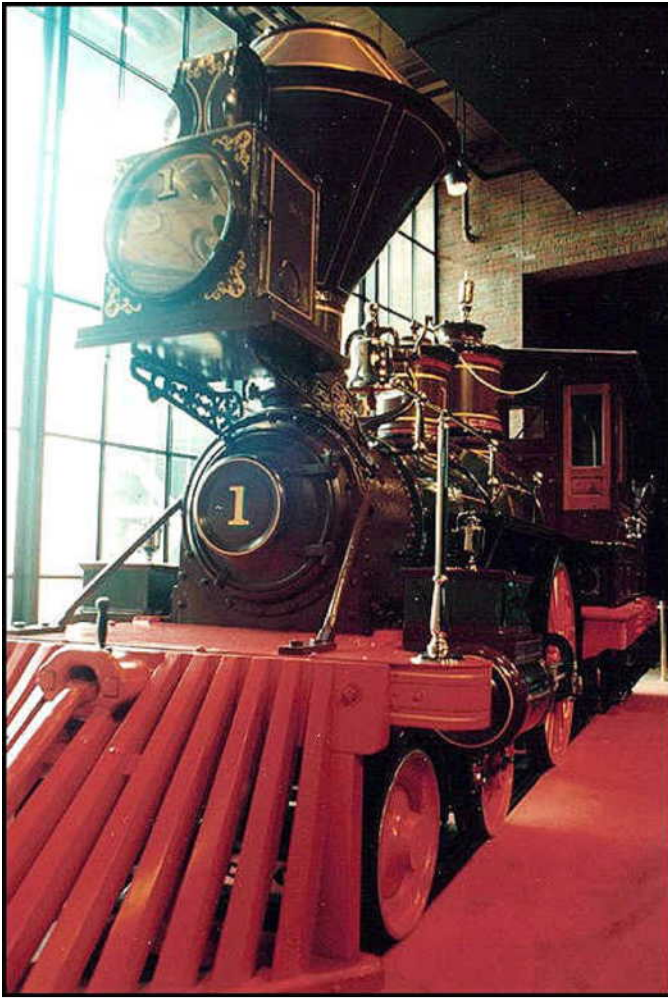
The "*C.P. Huntington*" was essentially restored to an appearance evocative of its original look, although it never actually looked like this in its working life. Basically it represents the Sacramento Shops forces' idea of an old timer, rather than an accurate restoration (in modern terms) of the engine to its in service appearance. This is not a criticism, but rather a note about not confusing the popular image of the engine with its original look.

The base color was - and is - a deep reddish brown, with gold, red and green stripes. The smokebox and stack were for the first time painted reddish brown as well, and striped accordingly. The wheels, pilot beam, cowcatcher and tender frame were painted red (even though the wheels alone were red originally), and the rear truck black, with white striping. The running boards and tender tank top were specified in the 1914 documents to be yellow ochre, indicating that the SP used this color previously for safety purposes where crews would be walking on dark nights.

The boiler and cylinders retained their Russia iron coverings, and the boiler had brass bands. Curiously, the handrail stanchions and other parts were nickel-plated. The airbrakes and other hardware were removed and the engine returned to a cleaner if less technologically complicated condition

The "C.P. Huntington" Last of the Danforth Cooke 4-2-4T's As Displayed at The California State R.R. Museum





Conclusion:

The "*C.P. Huntington*" is a fortunate survivor - purchased out of necessity by a railroad desperate for power, brought back to life after a devastating collision, and saved for the future by affectionate employees and modern preservationists. Today, it has a place of honor in the California State Railroad Museum, only a few yards from where it first came to life under steam, and where it was preserved for generations by the employees of the Southern Pacific Railroad. Looking at the engine gives a strong idea of what many considered to be the ideal light Single tank engine. The "*Huntington*" proved the faith of its builders with some 35 years of service in the role it was meant to fulfill.

C.P. Huntington's Curious Adventures

Notes By: Kevin Bunker & Randy Hees

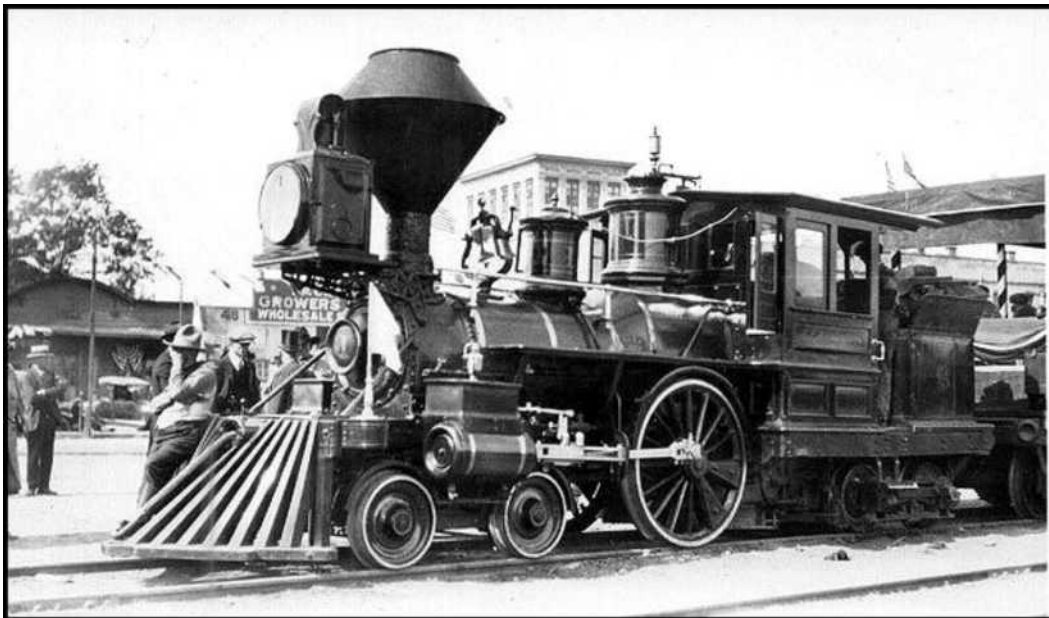
The Central Pacific RR and SP used both the "*C.P. Huntington*" and its more-modified ex-twin "*T.D. Judah*." in broader service on the CP network. In the case of "*C.P. Huntington*", it was known to have worked on the original Western Pacific RR, and also on the San Francisco & San Jose (immediate precursor to the Southern Pacific Railroad) and possibly on the California Pacific branch to Knights Landing as well - all relatively flat grade profiles except for the Hill on the SF&SJ through Colma. While on the SF&SJ/SP, it was fitted with a full rear pilot and Williams box-type headlight (the latter atop the cab roof) and air brakes plus train-line hoses for suburban back-and-forth running. I'll bet the CPH looked almost hilarious at speed *in reverse* with a one or two coach train. The "*T.D. Judah*" was a regular on the Oakland-Berkeley suburban trains and was also known to have worn a rear wood staved pilot and air brakes; it was later sold to Robert Dunsmuir and taken to British Columbia for construction train services and was scrapped in B.C. sometime in the 1920s.

The "*Huntington*" may not have been the only single used on San Francisco's Streets. There is an unconfirmed report (Railroad Gazette, March 12, 1886, p 180) that the "*William Penn*" may have been used on the Market Street Railroad in San Francisco, before coming to the Western Pacific RR. This makes sense, as the Market Street Railroad, the San Francisco & San Jose, and the Western Pacific had overlapping ownership, and the SF&SJ made an attempt to run steam trains down Market St. (it failed due to public outcry!). Also, there is evidence that the "*William Penn*" was shipped to California with the 4 Norris 4-4-0's ordered by the Western Pacific, but the "*William Penn*" isn't listed in the first Railroad Commissioner's inspection report... and it is one of only two WP locos which are assembled by the WP after arrival, the others were all shipped to Sacramento in their shipping crates after the CP purchased the WP. Strangely, the San Francisco papers are mute on the issue.

--Randy Hees--

One other interesting tidbit recently revealed about an early use of the "*C.P. Huntington*." It was taken into the heart of San Francisco about the same time that Leland Stanford and Charles Crocker became involved with the California Street Cable Railway, and was reportedly taken over hill and dale to work the California Street Extension Railroad in a short shuttle service from where grip cars ended their western-end runs to a new end of track about another mile west. Bear in mind that the California Street cable cars were of narrow-gauge, and that the extension railroad was, in the beginning at least, standard gauge. How it got onto the isolated extension railroad is a little mysterious, but presumably it was run into the City over the Market Street Railway tracks (from a junction with the SF&SJ at Townsend Street?) and thence it and its captive coach were separately loaded onto a heavy horse-drawn dray for a ride uphill through new streets to the CSERR.

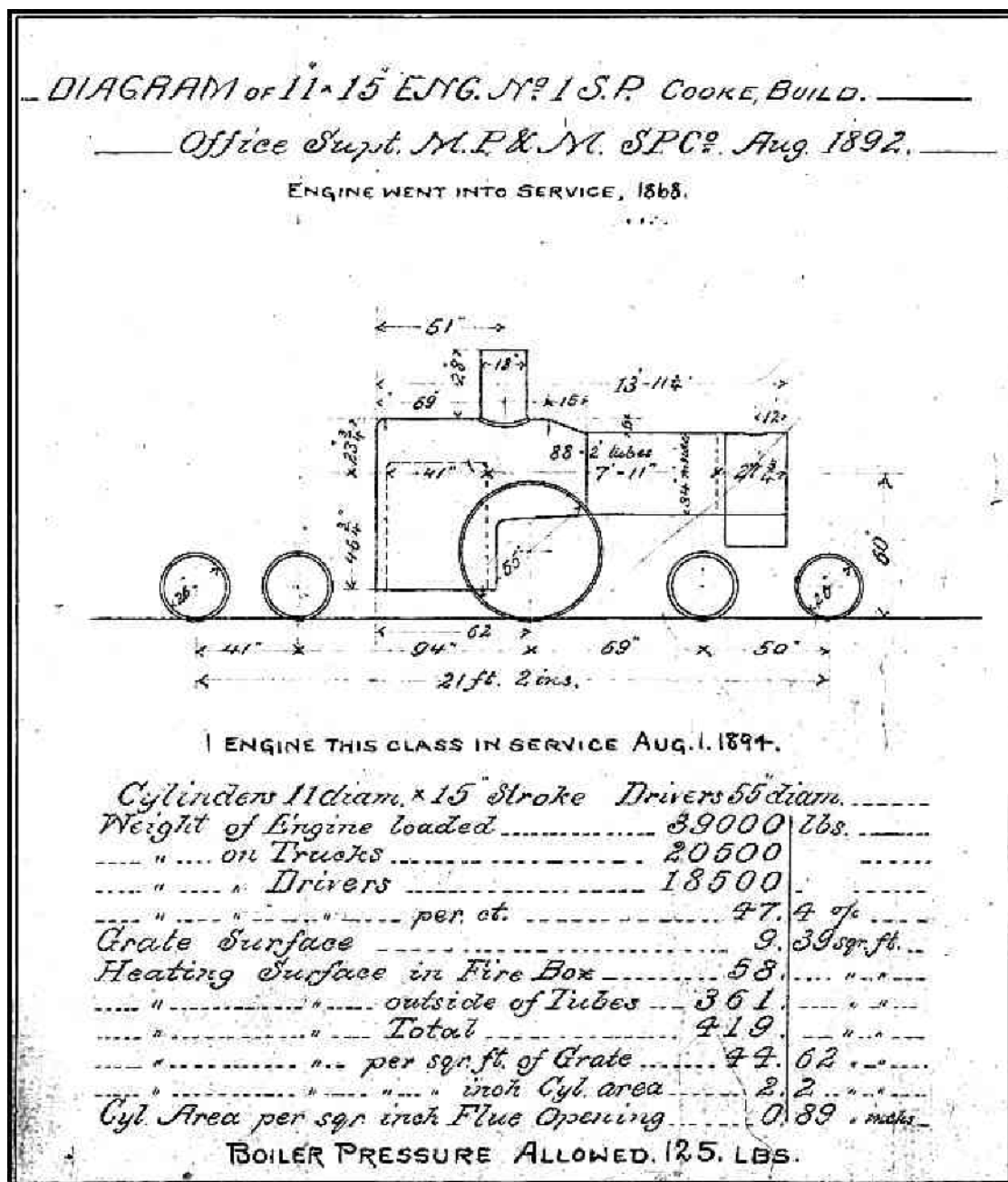
News reports describe the "*Huntington*" pulling a single day coach up and down through the sand dunes into newer suburban SF neighborhoods for a short period of time. The "*C.P. Huntington*" was in this service before it landing on the SF&SJ.



CP Huntington as seen at Sacramento in the '20s - dates from the celebration held as a Gold Rush commemorative event, and the locomotive hauled short excursions down the former Sacramento Valley RR (then the SP's "R Street Branch") to Brighton Jct. and back over the SP Stockton Division mainline from Brighton through Elvas Junction/Wye to the new SP Sacramento depot.

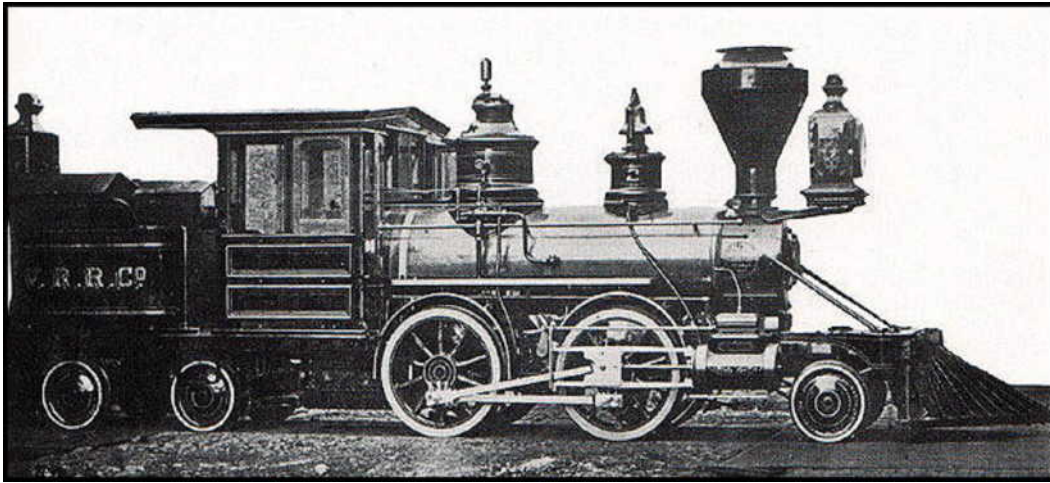
Here is a typical SP (San Francisco Headquarters) Motive Power Office official record card. Every class of engines and every unique engine on the system had a card like this at one time or another. After any rebuilding or significant change, a new card would be drawn reflecting the changes, and the old one struck from the records (although some precious few struck cards survive for *other* engines, in CSRM's collections of archived SP drawings). Let's just be glad this particular record card made it; I suspect an original linen (master) drawing may be in CSRM's archives. This drawing dates to August 1892.

--Kevin Bunker--



Just for the Heck:

Some of you were interested in building this 4-2-4T project in the form of a Forney type loco, such as a 2-4-4T. An outline drawing of this locomotive was presented in Chapter 1. Here is a photo of a real locomotive along the lines of what you were after:



Originally built as a 0-4-4T in 1877, this lil' Baldwin was rebuilt into the above later in the same year for the Californian, 'Visalia RR.'

Right, lets get onto finishing our 4-2-4T models...