



PHOTO COURTESY OF BOB BOORMAN

THE SOUTH PARK'S TIFFANY REFRIGERATOR CARS

STUDY THE DETAILS

BY DERRELL "SOUTH PARK" POOLE
PHOTOS FROM THE AUTHOR'S COLLECTION
ILLUSTRATIONS BY THE AUTHOR

IN THE SPRING of 1880, the Denver, South Park & Pacific built its own refrigerator cars. The distance between Denver and the end of the line had become so great it was no longer feasible to transport perishables in boxcars carrying ice. At first, the railroad built five reefers but within a year the shops turned out another seven for a total of twelve. They carried numbers 505-511 and 555-559. An article in the July 5, 1880 *Rocky Mountain News* specifically referred to the cars as Tiffany

Refrigerators.

The Union Pacific bought the South Park and, on January 1, 1881, officially took over management. In 1883 they ordered fifteen 27 foot long cars from the Saint Charles Car Company. The cars adhered to the Tiffany patent. They arrived in the summer of 1883 and carried numbers 1050-1064. The *U.P. Journal* indicates a patent royalty payment of \$25.00 per car.

The Union Pacific renumbered all 27

South Park reefers in June of 1885. (A wreck on the Denver & Rio Grande had wrecked one 26 foot car but the shops rebuilt or replaced it.) The reefers became numbers 24000-24026, at least on paper, but reefers turned up in the late 1880s still in their original livery. Only after the railroad had reorganized into the Denver, Leadville & Gunnison in 1889 and maybe even after receivership did the shops actually repaint the cars and apply the appropriate numbers. It is difficult to pinpoint

Photo 1 (above). On February 2, 1901, a 26 foot Tiffany reefer was in a wreck at Washington Spur. A careful examination of the end shows a plugged induction vent and several small air jacket vents. Note the graphics just under the side fascia board reading TIFFANY SUMMER AND WINTER CAR, the Zang's Brewery poster, and the apparent lack of roof hatches.

the chronology because rarely do reefers show up in photos during the 1890s.

Within the first few weeks of 1899, the Colorado & Southern took possession of the railroad, including the refrigerator cars. All 27 had survived and the new company began to rebuild them at once. It also began to lose them. By 1909, and the introduction of composite frame reefers, the C&S had wrecked or scrapped all but thirteen Tiffany cars. By 1912, when the C&S renumbered its reefers, only three 27 foot cars and two 26 foot cars survived. All were gone after the following year.

THE APPLIED TIFFANY PATENT

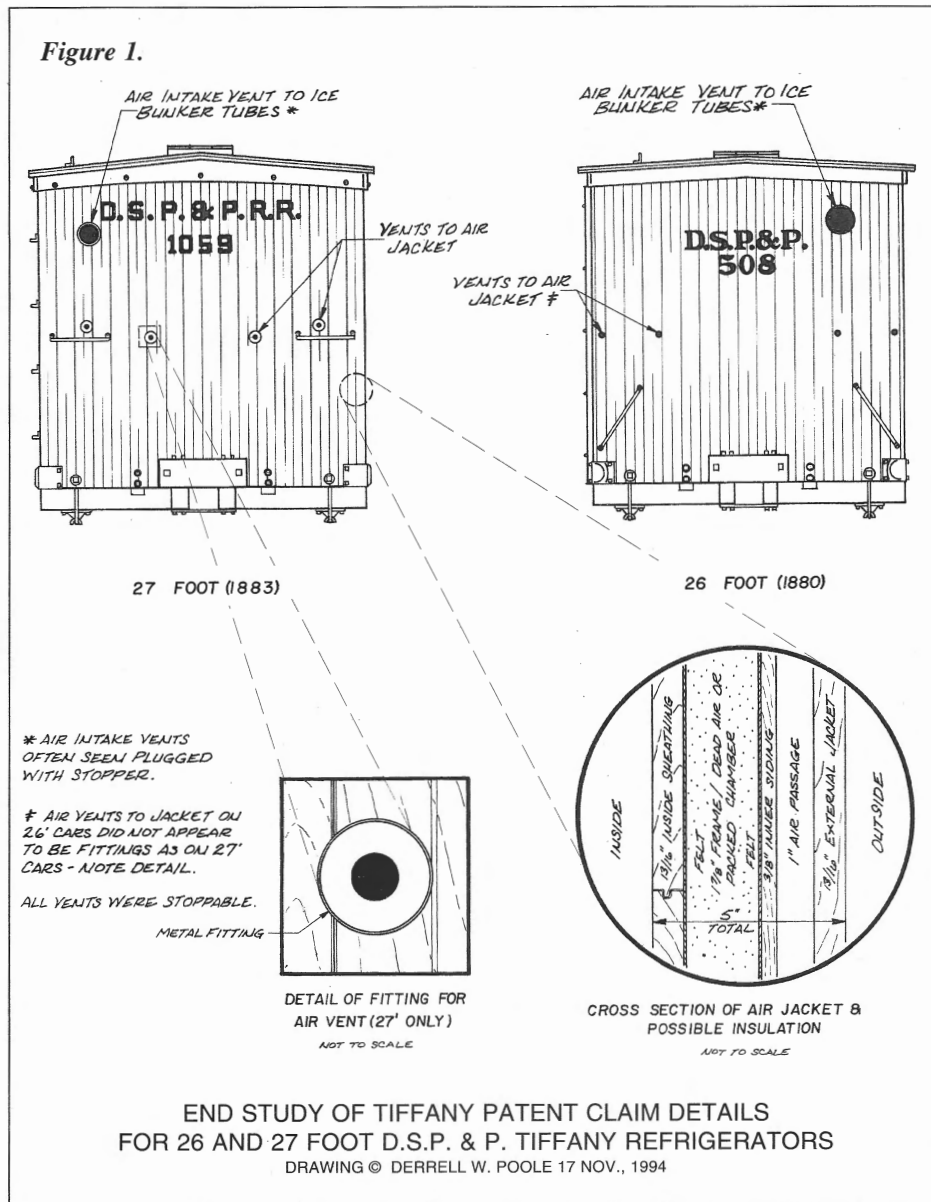
Perhaps no other car is as misunderstood as the South Park Tiffany Refrigerator. Serious historians always seem to engage in controversy about the cars. They debate about the position of the ice bunkers, whether they had roof hatches, and even whether they were true refrigerator cars.

The big debate concerns the existence of roof hatches and ceiling ice bunkers. Why? Because nearly every description of Tiffany reefers has included those features. Even Joel Tiffany's 1877 letter of patent went into a detailed description of a ceiling ice bunker with tubes in the bottom to chill fresh air as it passed into the car's interior. The air entered through large vents in the car ends. Hatches in the roof purportedly allowed ice loading. Photos showing large black "spots" on the car ends serve as evidence of the air induction vents.

But historians making such interpretations seem to have overlooked two very important points:

First, every description, even that in the letter of patent, took into account only standard gauge cars. Nowhere is there a description specific to narrow gauge Tiffany reefers. Most importantly, those same historians seem neither to have properly understood nor even recognized the claim of the patent.

A friend and patent attorney, Robert G. Hilton, examined the Tiffany patent. He found that, no matter how long or detailed the description, the claim was the only part of the filing actually to determine the purpose of the patent. He writes, "The remainder of a patent describes only what the inventor thinks is the best way to make



the claimed invention work. The Tiffany patent does not describe a narrow gauge car because Tiffany thought that the best way to make the claimed car was to make it standard gauge!"

Hilton points out the Tiffany patent has only one claim but several limitations. He continues, "For a claim to cover a device, every single limitation of the claim must be present in the device. For example, one limitation of the Tiffany patent claim is that the car must be a refrigerator car. If a car is not a refrigerator car, the Tiffany patent claim does not cover that car, even if all other claim limitations are present...."

So what was the Tiffany patent claim? It appears in the next to last paragraph of Tiffany's Letter of Patent (Order U.S.

Patent 193,357 from United States Patent and Trademark Office, Washington D.C. 20231):

"A refrigerator-car having its sides and top provided with an external jacket, forming horizontal air-passages extending the entire length of the car, said passages having openings at each end, provided with stoppers for converting the passages into dead-air chambers, in combination with dead-air or packed chambers constructed within and surrounding the body of the car, substantially as described."

In other words, a Tiffany was essentially a refrigerator with a rather elaborate and active insulation system. In addition to the large air ducts, it had vents in each end allowing air to pass down the length of the car beneath the outer siding.

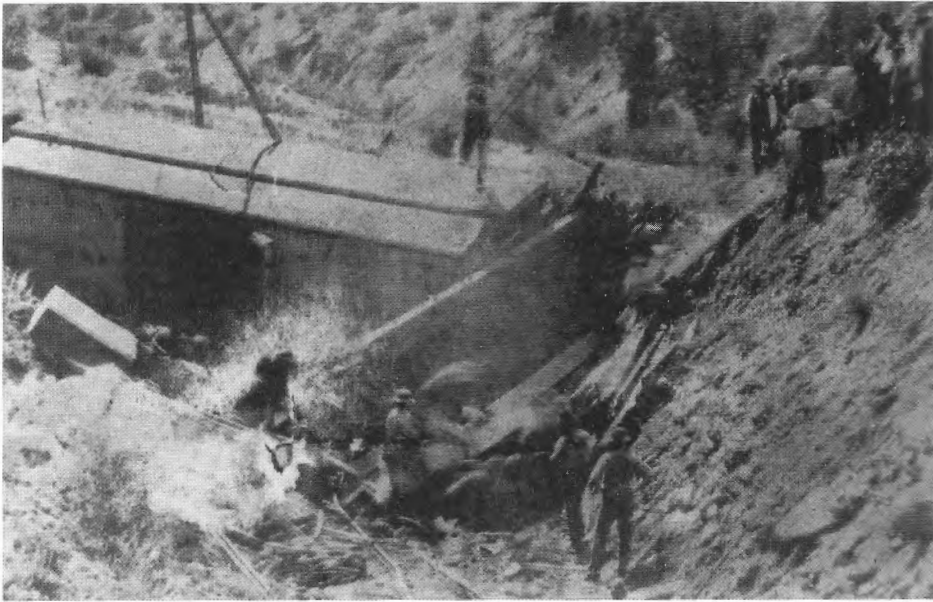


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Photo 2. This wreck occurred around 1890, well after the organization of the Denver, Leadville & Gunnison. It was severe enough to knock the doors open yet no evidence of a roof hatch is visible. The lettering is original, five years after U.P. renumbering. Another view of this car appears on page 166 of the COLORADO RAIL ANNUAL NUMBER 12.

Photos support the existence of those features on South Park cars. Every clear view where the ends of either 26 or 27 foot cars appear indicates the small end vents. Photo 1 illustrates the vents just above the grab irons. Also, the edge of a side door in

Photo 2 reveals the openings to let air pass through the closed doors. [The quality of the original negative is marginal; the openings appear as dim circles on the door edge and may fail to show up in print.—Ed.] As Hilton observes, the claim of the patent is

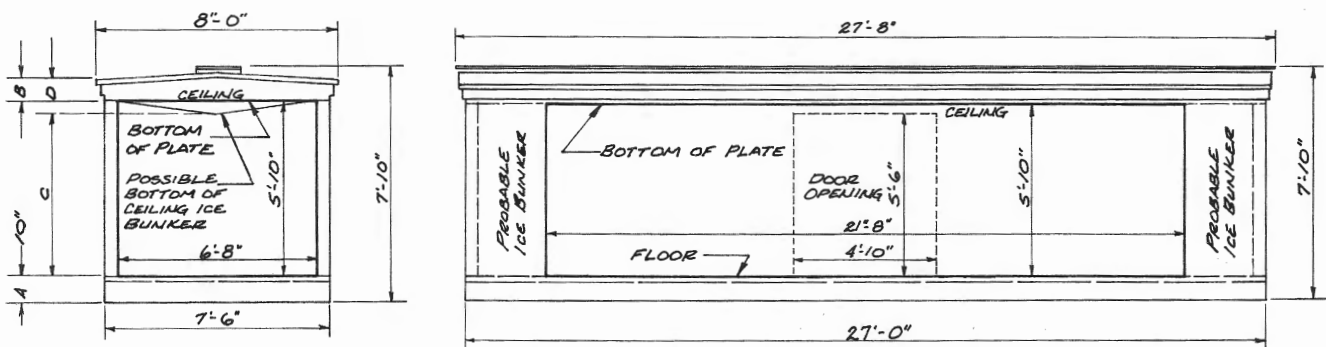
no help in determining the location of the ice bunkers.

We are sure the cars had some kind of ice bunkers because their registration was always as a refrigerator car and such markings even appeared on their sides. Also, the *Car Builders Dictionary* defined refrigerators as cars designed to carry perishables by having built-in icing facilities. Railroad inventories of 1894 list ice houses at Denver, Golden, and Como. Finally, the royalties applied to a patent limiting the use of its claimed device to refrigerator cars.

ROOF HATCHES AND ICE BUNKERS

So where were the ice bunkers? For years, modelers have scribed eight flush-mounted squares in the roofs of their narrow gauge Tiffany reefers to represent hatches. But it is doubtful the cars had ceiling bunkers because, among several views of reefer roofs, two beautiful and crystal clear photos by William Henry Jackson show no trace of a roof hatch, even under magnification. Photo 3 dates from five years after construction of the 27 foot cars. You might expect some warp between the hatches and the roof opening after so long in Colorado's rugged climate but no evidence of an opening appears!

Figure 2.



- A = DEPTH OF FLOOR (5" x 8" SIDE SILL + 2" x 7" FLOOR BOARDS).
- B = INSIDE CLEAR. ABOVE BOTTOM OF PLATE NOT INCLUDING CEILING SHEATHING. = 10³/₁₆" (SUBTRACT ¹/₁₆" FOR SHEATHING).
- C = ESTIMATED MINIMUM CLEAR. TO BOTTOM OF POSSIBLE "VALLEY" ICE BUNKER IN CEILING = 5'-4"
- D = MAXIMUM BUNKER DEPTH WITH RESPECT TO "C" ABOVE = 16³/₁₆". (IF THE CEILING BUNKER EXISTED THEN THE CEILING WOULD NOT HAVE BEEN AT THE BOTTOM OF THE PLATE AS SHOWN).
- PLATE = OR "HEADER" PER ERECTION DRAWING OF COMPOSITE FRAME REEFER # FOLIO #27.

INSIDE DIMENSION STUDY OF
27 FOOT TIFFANY REEFER
BASED ON 1903 SPECIFICATIONS
DRAWING © DERRELL W. POOLE 16 NOV., 1994

Photo 2 also is telling. A wreck caused enough force to knock open the reefer's side doors but the photo shows no suggestion of an open roof hatch. I conclude Tiffany reefers had no roof hatches. And, if they had none, how would you stock a ceiling bunker with ice? Maybe the bunkers were somewhere else.

Figure 2 shows the inside dimensions of 27 foot cars in 1903. (By then nearly all inherited reefers had undergone rebuilding.) If you subtract the inside height from the outside, slightly over 10½ inches remains at the inside top of the car. That assumes a minimum 5 foot 4 inch head clearance; I then imposed a valley pan on the end view drawing. Even though my drawing omits the air tubes from the bottom of the pan, a maximum depth of only 16½ inches remains.

How difficult would it have been to load such a shallow pan to any degree of

efficiency from inside the car? If the railroad insisted on loading ice from within, typically cumbersome whether in blocks or crushed, why were the cars too short to accommodate the height of an average man and the length of an average side of beef? The Saint Charles type reefers of 1898 were nearly a foot taller than a modern boxcar and they originally did have ceiling ice bunkers. So I also conclude Tiffany reefers had no ceiling ice bunkers.

CONCLUSION

It is impossible to state as fact that the ceilings of South Park cars had no ice bunkers yet circumstances strongly suggest it. I think the ice bunkers may really have been in the ends of the cars as in Figure 2. But do those 1903 specifications mean the C&S installed the end bunkers...or were they already there?

Note: My four part series on DSP&P and C&S refrigerator cars appeared in the October 1991 through March 1992 issues of the *Narrow Gauge & Shortline Gazette*. It examined the subject in detail. I had prepared a fifth part to address corrections and other issues but circumstances prevented its publication. This article covers the more important points of the "Lost Part Five".

CREDITS

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Photo 3. One of two very clear William Henry Jackson photos of Tiffany reefers 1064 and 1057 from about 1888 plainly illustrates the lack of roof hatches, even under powerful magnification. The location is Hairpin Curve at Alpine Pass below Woodstock on the western approach to the Alpine Tunnel.

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