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Autor: Hoekstra, George M.
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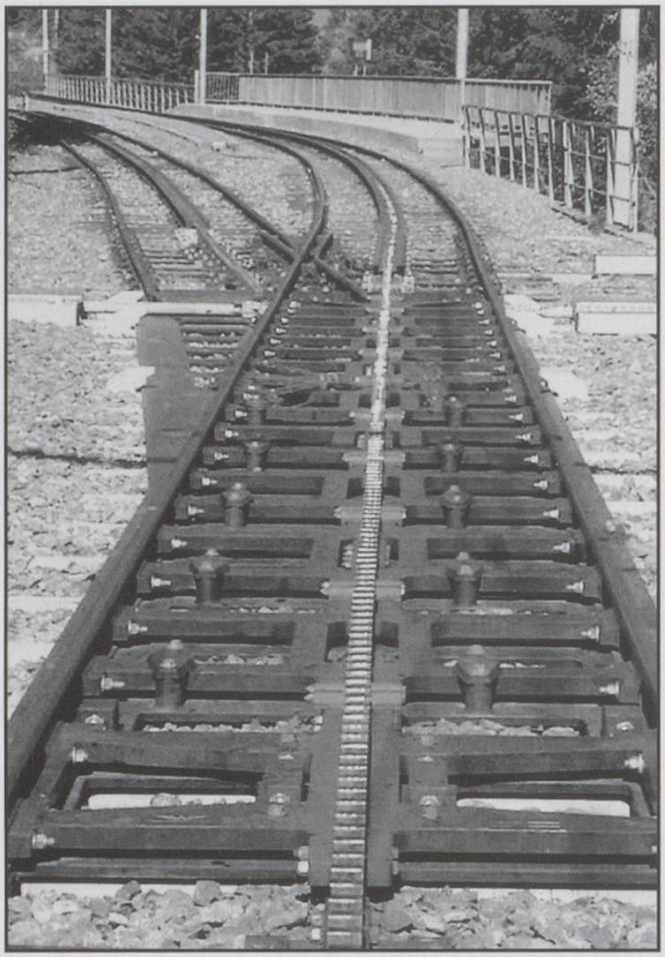
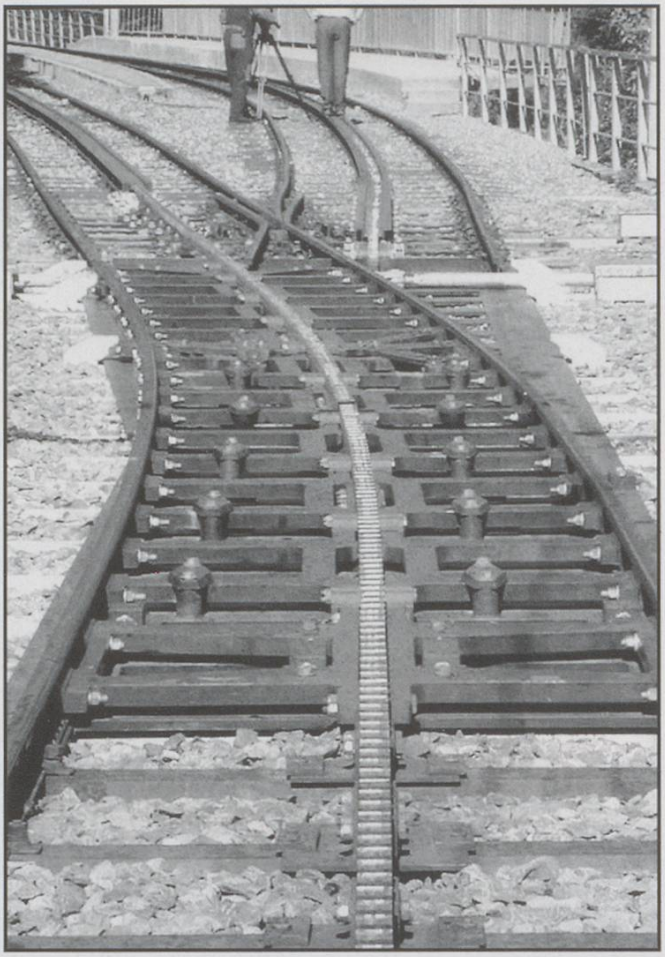
George M. Hoekstra

THE RIGI - A FLEXIBLE APPROACH

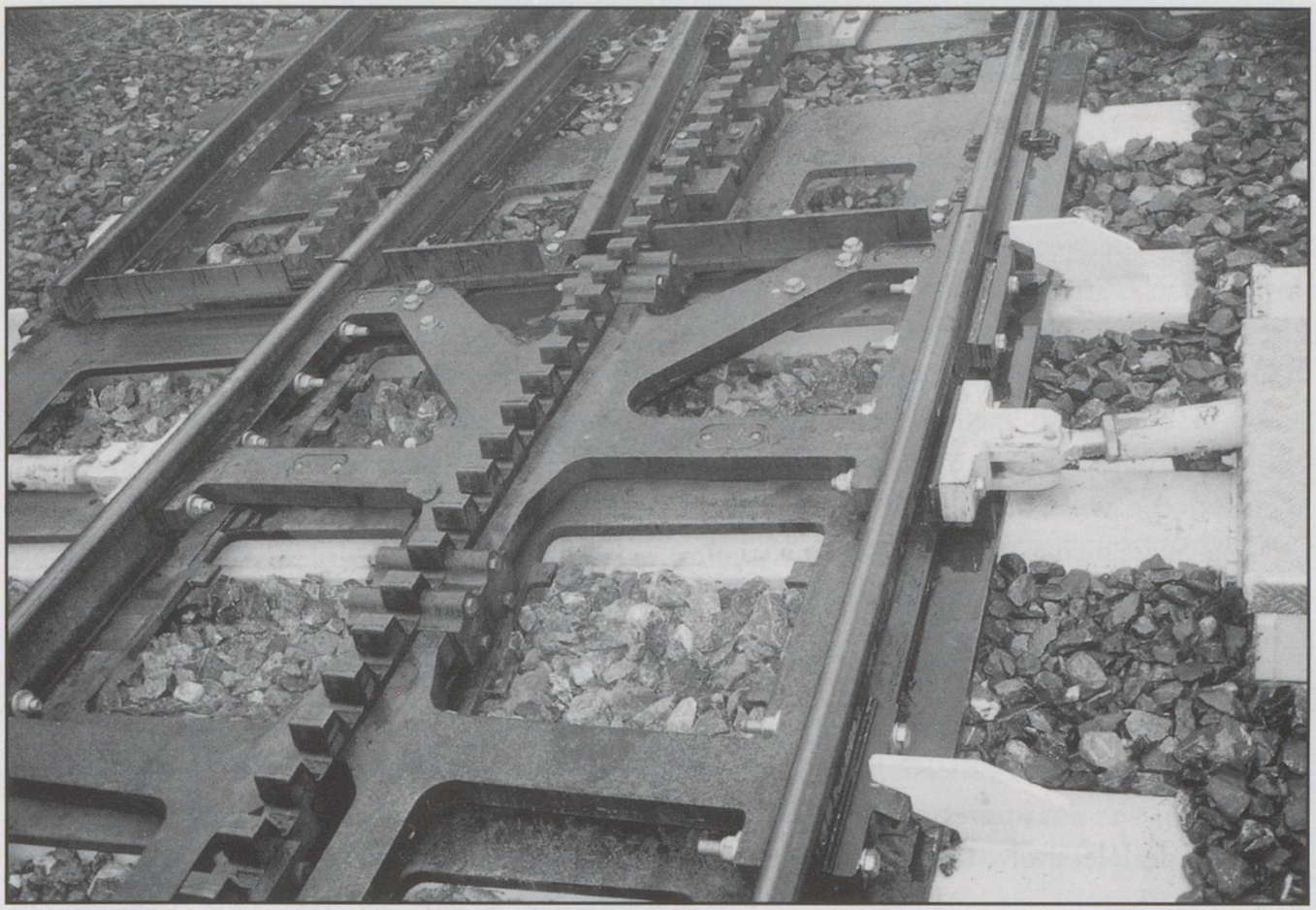




The flexible turnout in its two positions. It does take some getting used to, but it gives straight through track in both positions. *Photos: Rigi Railways.*

The railways of the Rigi have, as other railways in similar circumstances, always been on the lookout for new ideas to minimise the high costs of running a mountain railway. Rack railways and especially their complicated turnouts are expensive to maintain. They have many delicate components and so the buildup of ice and snow in winter can only be removed by hand. The complicated mechanism to move all the rack and rail parts is very prone to wear and tear and thus requires even more maintenance. Huge differences in temperatures (-20° at night to +60° in the sun) and the resulting expansion must be coped with. Speed has to be reduced to negotiate the turnout, and so on.

In 1988 the Rigi Railways had an idea. How about a one-part flexible turnout? Rail itself is flexible enough, as can be witnessed from the transport of long welded rails on a string of flatcars. Now if only the ends of the track could be pushed or pulled directly opposite one of the two or even three continuing tracks then it would be just like running on an uninterrupted track! Ideas are great, but to get something working you need partners with the necessary know how. So help was sought from the firms of "Verkehrs- und Industrietechnik AG" of Steinmauer, Switzerland (www.vtag.ch) and "Windhoff Technology" of Rheine, Germany (www.windhoff.de) as well as the Zürich Technical College's Institute of Traffic Planning "IVT'. (www.ivt.baum.ethz.ch) for the very technical calculations involved. By the way all the Internet sites mentioned above have some information about the RIGI VTW 2000 "Zahnstangenweiche" in German - happy surfing! Models were made, tests were conducted, prototypes constructed, more tests made and so



The actual ends of the turnout in detail, the track really is straight through. To the left the diverging track can be seen partially intertwined with the straight route. *Photo: GMH*

on. A special base for the track and rack was constructed, consisting of squares that have a slit at one end. These slits, when pushed closed, will bend the track components situated at the opposite side of the square. The problem of expansion was solved by inserting a second base fixed at the opposite end from the track ends and would thus expand in the opposite direction as the track itself, in other words the opposite expansions cancel each other out. Of course this is a greatly simplified description of the actual workings! Finally, after more than ten years of work, a fully working prototype turnout for the standard gauge Rigi Railways was installed at Rigi-First station below the summit on the 30th September 19990

It has been tested there for a year under normal winter and summer working conditions. All the tests were successful so the new turnout was presented to the press exactly a year later. Seeing the new style turnout in operation certainly takes some getting used to, but it works and the ride at speed over the turnout was totally smooth and made no more noise than that of riding on uninterrupted track. The Swiss Railway Inspectorate (BAV) gave the tests a free hand whilst conducting its own stringent tests and measurements on this revolutionary piece of equipment. It is hoped the official certification will be completed by the end of 2000. Further installations on the Rigi are planned and several other railways have expressed an interest as maintenance is greatly reduced and mechanical snow removal is possible. A great new innovative twist to a principle that has not seen many fundamental changes since Niklaus Riggenbach and the others made their inventions 129 years ago! The Rigi Railways website (www.rigi.ch) gives more information. For a real contrast and some nostalgia, visit the website of the oldest rack railway in the world. No, not in Switzerland, but on Mount Washington, USA (www.mountwashington.com)