

Build a swinging gate for easy access

An alternative to the duckunder

BY GARY HOOVER
PHOTOS BY THE AUTHOR

Anyone who has regularly used a duckunder to reach a layout's interior aisles will appreciate this swinging gate. It's designed as an easy way for people and trains to share a passageway with minimal interference.

Most model railroad designers avoid duckunders. If you're unfamiliar with the term, a duckunder is a place where people can pass beneath a portion of a layout. My experience is that any duckunder's clearance seems to decrease about a foot with every birthday! And regardless of how nimble you think you are, you'll eventually miscalculate and come up too soon – Ouch!

However, there are times when we cannot avoid having tracks cross an aisle. I've found my gate alternative is a simple solution that has proven to be derailment free for over 11 years.

Gate design and construction

On my Missouri, Kansas, & Quincy RR, two towns are joined by the swinging gate "drawbridge" shown in fig. 1. This double-track gate is hinged like a door, fig. 2, to clear the aisleyway except when trains are operating.

My gate is rugged, functional, and maintenance free, and it's attached to

Fig. 1 SWINGING GATE. A dead bolt locks the author's swinging gate closed so trains can pass smoothly across an access aisle.

one of the layout's 2 x 4 legs using standard door hinges. The top of the leg is tied into the layout's benchwork while the bottom is glued to the floor with construction adhesive. This provides a very rigid mounting post for the gate. A dead bolt locks it closed.

My gate has an L-shaped 2 x 4 frame with plywood gussets on either side for reinforcement. The pieces are joined with liberal quantities of countersunk 1 1/2" no. 10 flathead wood screws to make the assembly as rigid as possible. The drawing in fig. 3

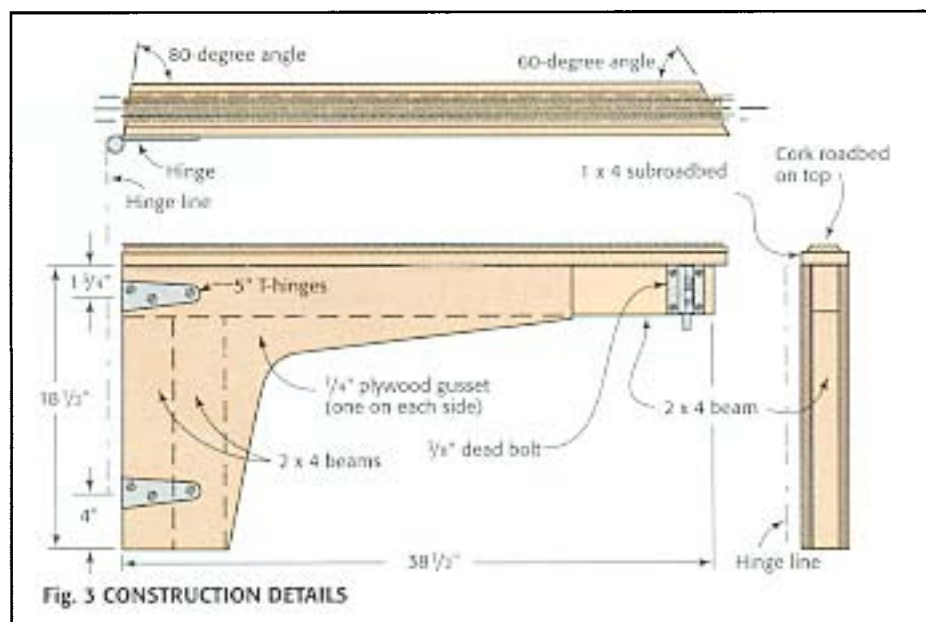


Illustration by Lee Vande Visse



Fig. 2 OPENING THE GATE. With the trains stopped, the gate can be easily opened and swung clear of the access aisle.

shows the overall dimensions I used, but every gate must be tailored to fit a specific location.

I also added some 1 x 3 guards along each side of the gate to protect the passing trains from misplaced elbows during operation and open houses.

Track alignment

Maintaining good rail alignment is critical at both ends of the gate, and the gap between the rails needs to be kept reasonably small. By angling the rail breaks, the movable (gate) rails move away from the stationary (layout) rails as the gate is opened. See fig. 4. On the other hand, the rail ends nearly touch when the gate is locked closed.

To obtain precise rail alignment and the smallest gaps possible, I locked the gate closed and laid my tracks across and slightly beyond it in continuous pieces, as if the gate would never be opened. I made sure both tracks were straight for about a foot or so leading into each end of the gate to eliminate any side pressure on the flanges.

I secured the tracks with plenty of spikes and then cut through each rail using a cutoff disk in a motor tool. A fine razor saw could also be used. The result is perfectly aligned track with a

gap only as wide as the thickness of the cutoff disk. Then I smoothed the rail ends and slightly beveled the inside corners of the railheads with a fine, flat file.

I installed a small nail and a screw as stops for the closed gate. Actually, either one would work fine by itself. A



Fig. 4 ANGLED BREAKS. The rail joints at both ends are cut at an angle so they move away from each other as the gate is opened.

dead bolt lock keeps the gate from accidentally being knocked open. My dead bolt's striker plate is adjusted so there's no movement in the gate when it's locked against the stops.

Maintenance

I've found my gate is almost maintenance free, except for the change in the rail gaps at the free end during the transition between seasons. The solution was to install short segments of seasonal "slip tracks" at the free end of the gate. I made these in two lengths – one for the warm months and another for the cold. Each slip track segment is connected to its gate track with conventional, unsoldered rail joiners. The "changing of the slip tracks" ritual happens twice a year and takes only a minute to accomplish.

Power feeders

Power is routed to the gate tracks with stranded wire as shown in fig. 5. I left a loop of wire so the gate could travel through its entire 90-degree arc without stretching the cord tight.

I haven't installed a safety interlock to automatically kill power to the gate and its approach tracks when it's open since my gate is the first thing to be closed and locked during operation. Even so, adding an interlocking circuit would be an easy task using a common microswitch and a relay.

Convenience

Compared to the inconvenience of hauling tools and materials through a duckunder, the low cost and relatively small amount of work necessary to build this gate is well worth the effort. ☐



Fig. 5 POWER FEEDERS. Loops of flexible wire carry electrical power between the layout and the bridge tracks.