

CLICK-IT TRAIN BRAKE

By Dave Renard, MMR

In the May 2007 issue of Railroad Model Craftsman, RMC, I described a turnout control mechanism employing an inexpensive ball point pen mounted in the fascia of a railroad layout. This same control device can be applied to raise a wire rod between rails to hold back a train or string of cars while performing switching moves on track which is not level. A simple click of the pen's push button will hold a train on the sloping track while a second click will release it. (See Diagram at bottom of Page)

The two positions of a ball point pen, extended or retracted tip, can be translated by a simple bell crank to extend or retract a stiff wire. Extended it will catch the axle of a railroad car truck and retracted below rail height will release the car.

In the RMC story, I described modifying the pen by shortening its length and the length of the internal ink tube. This is particularly useful when the turnout or track is close to the layout edge. The ball point pen can be used full length if the distance to the turnout, or in this case the train brake, is sufficiently long. But the following modifications would still be necessary.

The BIC pens which I used are all plastic except for the ink tip and the internal spring. Start by removing most of the pocket clip with a razor saw, but leave some where the clip is molded to the end of the pen. This stub of the pocket clip will keep the pen from pushing all the way through the mounting hole in the layout fascia. The pens I use are 5/16" in diameter and require drilling a 5/16" hole in the fascia to secure the pen for operation. Locate the position of the pen on the fascia so it points directly to the train brake location, drill the hole and insert the pen; it should fit snugly but be removable.

Open the pen body and set aside the spring from the ink tube. With sharp wire cutters, remove the tapered end from the brass tip. Use a pipe cleaner inserted into the other end of the ink tube to push out all of the ink through the cut tip and rinse the ink tube in lacquer thinner or turpentine to clean it. File the cut end of the brass tip with a jeweler's file and ream out the hole with a number 55 drill so that a wire can be soldered into the tip.

Determine where the train brake will come up through the track to meet the car axle and drill a 3/16" hole down vertically through the track, roadbed, and track base. I used a piece of 3/16" O.D. styrene plastic tubing to line the hole and it serves as a sleeve for the actuating wire which is .054" diameter steel music wire, available in most good hobby shops. Almost any combination of stiff steel wire and tubing, brass or plastic, can be used just so the wire slips easily through the sleeve without much slop. With the sleeve in place, drop a long piece of the wire temporarily through the sleeve so the wire can be located below the benchwork.

With the pen in place in the facia, measure the distance from the pen tip to the vertical actuator wire coming down from the track. Now cut a piece of .054" music wire to the length measured, remove the pen from the facia and disassemble. File one end of the music wire shiny and fit it into the brass tip of the ink tube at least 1/8" or more. Use a number 53 drill into the brass tip if the wire doesn't fit in easily. Carefully solder the rod into the brass tip. If it gets too hot, the plastic tube on the other end of the brass tip will soften and swell up. Let it cool and harden and file down to original diameter so that the spring will fit easily over the music wire, brass tip, and up to the spring holder on the plastic tube.

File any excess solder from the music wire rod, re-assemble the pen and click the end button to be sure the pen mechanism works as smoothly as it did originally. Correct any binding before proceeding. The plastic cone in the tip of the pen may need some reaming to accommodate the solder joint.

When the pen mechanism with the long wire attached works smoothly and reliably, you may use a very small amount of cement to fasten the pen body together. Then insert the pen into the facia mounting hole. The steel rod from the pen should nearly touch the rod dropping down from the track. They will each connect to the triangular bell crank.

The bell crank is a right triangle with each of the perpendicular sides of equal length, about 1.5". The bell crank can be made from 1/8" plywood (luan), styrene, .060" to .080" thick, or even brass plate. In the 90 degree corner, drill a hole for a pivot screw; near each of the corners of the hypotenuse, use a number 53 drill to create a hole for each of the two steel wire rods. The rod wires as well as the mounting screw should each be able to pivot in its hole.

The bell crank triangle will need to be mounted in a vertical position below the track as in the diagram. How it mounts may depend upon existing benchwork, but if there is clearance, a block of wood cemented to the underside of the track support is about the simplest method. One of the number 53 holes needs to be directly below the vertical actuating rod hole up to the track, and the other number 53 hole is closer to the same elevation as the tip of the ball point pen.

Find the best support and location for the pivot screw, fasten the bell crank to the block with several washers or a bushing between them, and then fasten the support block in place. The bell crank should pivot easily without much slop.

Start with the vertical actuator rod which should be longer than required for now. Place a 90 degree bend about 1/4" from one end, feed the rod up through the sleeve and slip the 1/4" right angle bend into the hole in the bell crank. With the bell crank as close as possible to the position shown in the diagram, mark a spot where the rod from the pen meets the other number 53 hole and bend the rod 90 degrees toward the bell crank. Cut off the rod about 1/4" from the bend and insert this end into the bell crank hole.

Now try pushing the button on the outside end of the ball point pen to determine whether the mechanism is raising and lowering the vertical actuator rod. Make any adjustments or corrections required for getting smooth operation. Sometimes only a slight bend in a wire is all that is needed.

With the pen button in the “out” position and the vertical actuator rod lowered, mark the rod at the rail top level, then push in the pen button to raise the rod, and cut off the vertical wire at the mark. Now test with a freight car truck to be sure the raised wire is as high as the axle. If the top of the rod is higher than the axle and lifts the car when the button is all the way in, then cut a little more off the top of the rod. If the rod isn't high enough to hold the axle, drill a new hole in the bell crank for the rod from the pen making it about 1/8” closer to the pivot screw.

I hope your Click-It Train Brake works as well as mine.

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