

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

Bridgeport Swing Span Bridge
Spanning the Tennessee River
Bridgeport Vicinity
Jackson County
Alabama

HAER No. AL-8

C. N. Beasley, Photographer, L&N Railroad Company, October 1980

AL-8-1 - General close-up view of the swing span bridge in the close position, looking upriver. The pivot/center pier is positioned in the center of Tennessee River. Note: Each arm of the continuous swing span acts as simple spans. The total span over four (4) supports is partially continuous-- the middle panel at the center pier is continuous for bending moments, but discontinuous for shears.

AL-8-2 - Aerial view of the entire bridge crossing the Tennessee River looking up river. The swing bridge, when open, permits river navigational traffic to ply the river. Construction of a replacement bridge, to be located 93.27 feet down river, has now started.

AL-8-3 - A general elevation view of the entire railroad bridge crossing the Tennessee River with the center/pivot pier of the 364' - 0-1/2" swing bridge positioned in the center of the river. With the bridge in the open position, navigational river traffic can continue down river by going through a 145-foot horizontal opening on each side of the pivot pier, provided the opening provides the necessary clearance required. Note: The two (2) middle supports on the center/pivot round pier.

AL-8-4 - Close-up view under the track at the center/pivot pier showing the system of distributing girders which transfer all the load of the swing span, both dead, live load, wind, etc., onto the circular drum, thence to the rim bearing 40 20-inch diameter wheels. Note: The track timber ties supported on the bottom truss chord of the swing span truss.

AL-8-5 - Detailed view top of center/pivot pier. The swing span revolves on a cylindrical drum, supported by 40 20-inch diameter steel wheels running on a circular track, the truss loads being delivered to the drum by a system of distributing girder. Note the circular gear anchored to the top pier. Two (2) powered pinion gears, electric driven, turn the swing span bridge on the 25'-5" diameter circular track as the wheels and drum rotate.

AL-8-6 - Detail of center of swing span rotation. Forty (40) rods radiate out from a center cap stand (like spokes on a bicycle) and hold 40 20-inch diameter wheels onto a rim bearing circular track on which they roll when swing span is opened and closed.

AL-8-7 - Showing partial side view of swing bridge in open position. The operator's house is in the center of the truss bridge, directly over the center/pivot stone masonry pier. Note the two (2) center supports with the truss loads being delivered to the drum by a system of distributing girders. The swing bridge revolved on a cylindrical drum supported by rollers running on a circular track on the center/pivot pier.

AL-8-8 - Close-up view of a pin-connected joint where eye-bar and built-up members are connected with a single pin. This joint is at the apex of a small secondary truss added in each subdivided panel to help support the bottom chord. The vertical member shown is referred to as a hanger (or floorbeam hanger) and carries direct tension loads only.

AL-8-9 - 45-Degree view of one (1) arm of the swing span bridge in the open position. The view shows the continuous bottom chord of the truss. The vertical post and diagonal web members that frame into this bottom chord are connected with single steel pins at each panel point (or joint). The timber track ties, supporting the track, span from truss to truss bottom chords (16'-0") and are supported thereby.

AL-8-10 - Detailed view of one (1) arm of the swing bridge cantilevering out from the center/pivot pier on which the entire span is balanced at its center when in the open position. Both arms of the span have equal length. Note that the members are pin-connected at their connections (joints).

AL-8-11 - Close-up view showing portion of continuous bottom chord of truss with other web members and posts of the truss connected thereto at a joint by the use of a large steel pin. Note: The timber ties supporting the track (not shown but above) span transversely from truss to truss which are on 16' -0 centers.

AL-8-12 - Detailed view of one (1) end of the swing span, supported on a rest pier, with the span in the closed position and in the train operational mode. Note the end truss bearing where a steel wedge is in the driven position to complete the end bearing arrangement. The wedges are power-driven through the machinery crank arms shown, thus forcing the ends of the swing span truss upward. Note: The top of the old stone piers has been encased with a concrete collar to hold stone masonry together and strengthen truss bearing points.

AL-8-13 - A 15-degree sideview of the swing span bridge in the open position, with the 364' - 0-1/2" swing span balanced on the center/pivot pier where the two (2) center supports deliver their loads onto a system of distributing girders, circular drum and rim bearing support wheels. The pier is circular and of stone masonry construction.

AL-8-14 - Showing partial side view of swing span in closed position. The two (2) arms act as simple spans, a small amount of negative bending is accommodated by the continuous top and bottom truss chords due to a continuous condition. Note the inclined end post of each of the simple spans, the operator's house, center/pivot pier and the pivotal pole-line pole placed atop of bridge.

AL-8-15 - Detail of middle panel at pivot pier and above the two (2) center supports. The middle panel chords (not shown) were made strong enough to provide for the full bending moment with the span open and arms swinging. The middle posts support the operator's house. When closed, the bridge acts as two (2) separate simple spans, except a small amount of negative bending is accommodated due to a continuous condition.

AL-8-16 - A 30-degree "barrel shot" taken at track level showing operator's house in center of swing span and the track with timber ties. The ties are transverse (90-degree) to the track with each end resting on the bottom chord of the steel swing span truss, thus providing their support with live loads being transferred to the swing span truss bridge.

AL-8-17 - Close-up view of portion of swing-span truss showing members and their pin connections at joints. The vertical member (hanger) shown is a portion of a small secondary truss added in each subdivided panel to help support the bottom chord. The track timber ties span the distance (16'-0") center to center of trusses, rest on the bottom chord and support the track. Note: Several of the members shown are eyebars.

AL-8-18 - A "barrel shot" looking down the track and through the 114'- 8-1/2" south thru truss approach span, showing pole line supported across top of steel superstructure. The 364' - 0-1/4" swing span over river has been used by various Railroads for a period of 90 years.