WIRE SUSPENSION FOOT BRIDGE AT PLATT NATIONAL PARK.

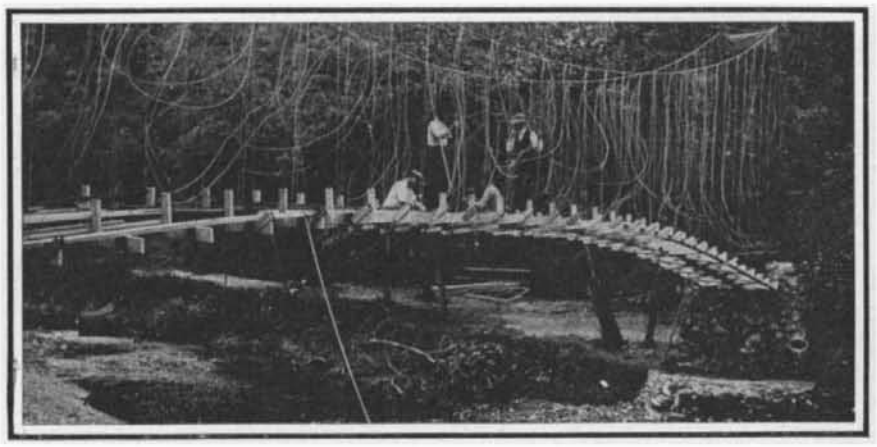
BY W. L. SALVAGE.

The accompanying cuts show the latest addition to the attractions of Platt National Park, Sulphur, Okla., in the form of a wire suspension foot bridge across Rock Creek, by which visitors have easy and safe access to the waters of its principal springs. The span is 112 feet, the width of roadway 3 feet in the clear, and the height above low water 24 feet. The towers consist of four 70-pound railroad rails each, set in concrete base and joined at the top by portal plates of boiler iron bolted through the flanges of the rails. These towers are set 3 feet in the concrete and have a net height of 27 feet to the top of the portal plate. Concave caps or "saddles" are fastened to the top of the towers to receive the supporting cables. The cables are ¾ inch Swedish iron with hemp center. The anchorage at the north end of the bridge, which is on a level with the floor, consists of a pit 5 x 12 feet and 7 feet in depth, at the bottom of which the cables are passed around 2-inch iron rods and secured by clips. This pit was filled with concrete of the proportions of 1-2-4 and was reinforced with a network of ½-inch iron rods at intervals of one foot, from bottom to top. The south anchorage consists of iron rods 1 inch in diameter and 6 feet in length, with welded eye to receive cable hook, threaded for 5 feet and supplied with six hexagonal nuts. These rods were set 6 feet into the solid rock of Bromide Cliff, the holes being filled with plastic cement mortar of the proportion of 1 to 2. At the north anchorage the cables are 9 feet apart at the surface, the distance to the top of the tower being 70 feet. At the south anchorage the cables are somewhat less, owing to the shorter distance to the fastenings. The width at the top of the towers is 6 feet. The width of the cables in the center of the bridge is 5 feet. Soldered to these cables at intervals of 3 feet are loops or "stirrups" of No. 8 galvanized wire, graduated in length from the ends to the center of the bridge so as to give a camber of 6 feet. Into these stirrups are placed floor beams 2 x 6 inches and 8 feet in length, upon which the superstructure of wood is supported. Drawn taut over the upper edges of these floor beams and fastened to iron rods in the concrete of the tower bases, are five No. 8 wires, placed as a precaution against an up-lift by the wind. Four planks, 2 x 8, with spaces of 2 inches, are laid lengthwise on the floor beams and upon these are three layers of inch floor boards, the first two layers placed at angles of 45 degrees and the last straight across, all layers having spaces for the free circulation of the air. The stringers are 2 x 8, dapped to 5 inches and strengthened by stays 2 x 4, 18 inches in length. On top of the stringers are the posts for the lattice, 2 x 4 and 36 inches in length. These are braced by 2 x 4 braces spiked to the end of the floor beams. On top of the lattice posts are caps 2 x 4 set on edge, on the top of which is the hand rail 2 x 6 with beveled edges. All dimensions are fastened by No. 40 spikes and all inch stuff by No. 10 nails. Lateral vibration is overcome by guy wires running from intervals of 28 feet on the bridge to anchorages on either bank of the stream. These and the supporting wires are adjusted by simply twisting them with an iron rod, care being taken to avoid kinks.

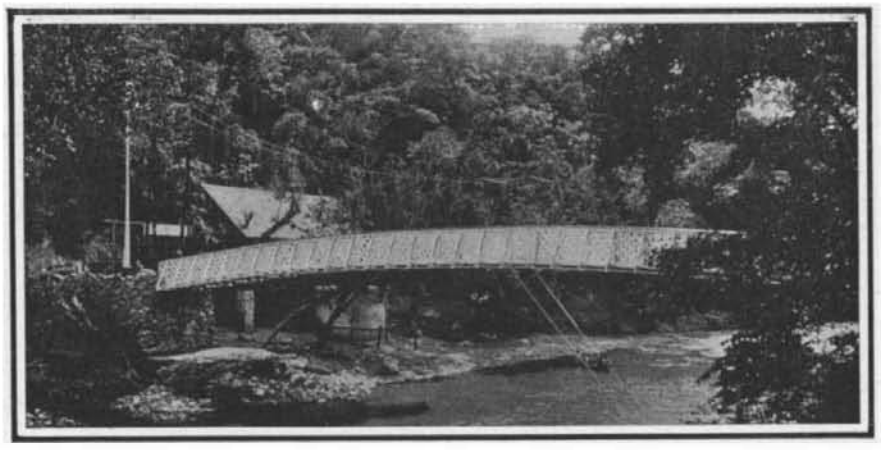
Total weight of bridge, 8,790 pounds. Bridge and twenty persons at 150 pounds each, 11,790 pounds. Safe strain on two cables, 64,000 pounds. Safe load on bridge, including the bridge itself, 11,860 pounds.

The bridge was designed by H. V. Hinkley, consulting engineer, Sulphur, Okla., and constructed by the government on force account, under the supervision of A. R. Greene, superintendent of Platt National Park. The estimated cost was $630, but the actual cost somewhat exceeded this amount.

The Bridge as Viewed from the North Bank. Note the Steel Rail Towers.



Attaching the Wire Suspenders to the Framework of the Floor.



The Completed Snspension Foot Bridge across Rock Creek, Platt National Park.

The Towers Consist of Fonr 70-Pound Railroad Rails Set in a Concrete Base.

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TESTING FOR HARDNESS.

BY J. F. SPRINGER.

What do we mean by the hardness of metals? A razor is hard—to that we all agree. And we say, thinking of such steel and of the diamond, that one thing is harder than another if it is capable of scratching it. This test has been in use for time out of mind, and if age is any guarantee of correctness, it ought to

(*Continued on page* 138.)

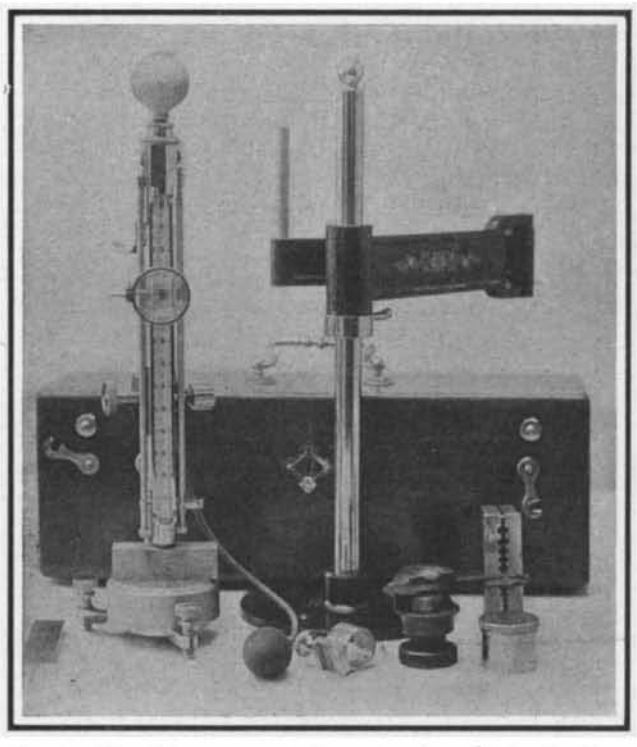

Fig. 1.—The Scleroscope, A New Instrument for Testing the Hardness of Metals.

Fig. 2.—The Rebound of a Pointed Weight Dropped on the Specimen Registers the Instantaneous Resistance of the Latter to Deformation.

TESTING FOR HARDNESS.