erection, took charge and directed the placing of the lifting pins.

It required forty minutes to get the lower leafs of the lifting chains to engage with the leafs of the lifting girder stubs, and the chains had to be lowered another two feet in order to comply with the Board's specification that the pins must be driven in the upper third of the slot, so as to ensure plenty of time for driving all four pins before the load would come on any one of them.

The silicon steel plates of the lowest lifting links were found to be warped, so that they would not readily slide between the plates of the lifting girder stubs. This was expected, however, as all rolled plates are somewhat warped, and provision had been made to contend with this difficulty by field methods rather than by shop methods. By means of wedges and crowbars the links were driven into the stubs, the wedges being hammered down between the bars and the platform around the stubs.

At 8.45 all four corners were ready for driving the lifting pins, and at a given signal these were driven simultaneously, and their caps screwed on, the work in all four corners being completed within two minutes of each other. A block and fall from the first joint of each set of links to the end post of the span was used in straightening and holding the lower link.

Slack water was at 8.42. The downstream tugs cast off at 8.40 and stood by to handle the scows. The link tackle was then cut loose, the workmen being hoisted in cages lowered from the cantilevers by locomotive cranes.

The key bearings were finally examined with the draft of the scows at 3 ft. 11 ins. outside and 4 ft. inside, and jacking operations were started after all men had been taken off the span. Col. Monsarrat and Mr. Davie were the last to leave.

The weight of the span did not bear upon the hanging chains until the last 6 ins. of the first 2-ft. lift, on account of the lifting pins having been driven in the top third of the 4-ft. 9-in. slot. The first strain came on the lifting links at 9.32. Jacking started at 9.10.

The scows rose higher and higher from the water as the links relieved them of the weight, and at 10.28, at the end of the second full lift, the scows floated free within a half minute of each other, and were captured by the waiting tugs and taken back to Sillery.

The third lift, which was really the fourth jacking operation after the connection of the span to the lifting chains, was delayed to give the men time for lunch, as they all had very early breakfasts, and it was not completed until 11.55 a.m. An hour of rest was then permitted, the men having been at work since 4 a.m. or earlier.

About 1 p.m. work was started on putting up the tackle for handling the links after they were no longer needed, and at 2.05 p.m. the fourth lift was started.

Follo	wing	IS	yesterday	atternoor	ı's	litting	record:
	Fourt	1	lift started	1 2 0 f	nic	had a a	2

rounn	mu	statteu	2.05,	ministreu	2.22	
Fifth	"	"	2.23;	"	2.39	
Sixth	"		2.39;		2.55	
Seventh	"	"	2.57;		3.16	
Eighth	"	"	3.16;		3.32	
Ninth		"	3.33;		3.50	
Tenth	"		3.51;	"	4.08	
Eleventl	1"		4.09;		4.25	
Twelfth	"	"	4.25;	"	4.40	



Fig. 10.—Electric Hoist on Cantilever Span Removes Lifting Links as Their Work is Completed

The remainder of the afternoon was spent in removing the mooring lines and putting the anchorage tackle into place for the night to anchor the span against possible heavy winds. The hydraulic jacks were left lowered and the safety screws hard up and all four pins in at each corner, pinning the lifting chains to both ELG2 and ELG3.

Thirteenth lift, 7.42; finished 8.01; time taken for lift, 19 minutes. (Note.—In all cases where reference is made in this article to "time of lift," it means the time of the complete cycle of operation of the jacks from the time the lift begins until the jacks are back at the zero, or (Concluded on page 266.)



Diagram Roughly Showing General Outlines and Principal Dimensions of Completed Bridge