

angles outside, and two $8 \times 6 \times \frac{1}{2}$ -in. angles inside with the 8-in. leg vertical and cover plates $57 \times \frac{1}{2}$ -in. \times 9-ft. $0\frac{1}{2}$ -in., and two $13 \times \frac{1}{2}$ -in. plates 8-ft. $0\frac{1}{2}$ -in. long.

The double cross diaphragms at the ends were composed of two ribs, each made up of a web plate $42 \times \frac{3}{4}$ -in. by 7-ft. $6\frac{1}{4}$ -ins., extending from 1-ft. 6-ins. below the

the distance between the ribs being 1-ft. $8\frac{1}{4}$ -ins. The upper hangers fitted inside the protruding stubs which were braced by $21\frac{1}{2}$ -in. \times $\frac{3}{8}$ -in. plates 1-ft. 5-ins. long, riveted to the angles and connected to the bottom flange. The stress through the net section of the head for dead load was 11,400 lbs. per sq. inch, and the bearing on the pin 17,000 lbs. per square inch.

The centre diaphragm was made up of two $41 \times \frac{1}{2}$ -in. webs 7 ft. $4\frac{5}{8}$ ins. long connected to the girder by four $8 \times 8 \times 1$ -in. angles with rivets in double and quadruple shear, the web being heavily reinforced at the bottom to a total thickness of $4\frac{1}{2}$ ins. and stiffened with stiffener angles. Outside the girder web are short stiffeners with heavy fillers. The whole was fabricated to give a good square bearing on the bearing shoe plate.

Operation of Lifting the Span

The operation of lifting the span was accomplished in stages of 2-ft. 0-in. lifts.

The span being supported by the lifting links on pins in the lower jacking girders and the upper jacking girders resting on the hydraulic jacks in their low position, with the safety screws also in their low position, the upper jacking pins were introduced, engaging all holes having the same number in the lifting link and the same letter in the diaphragms.

The release valves being closed, the power was turned on slowly until the upper jacking pins were carrying the load and the lower pins cleared so that they could be removed. The power was then turned off, the fluid being prevented from flowing back by the check valves in the piping system. The lower jacking pins were then removed and the safety screws brought up close to the upper girder. The power was then turned on and the span slowly lifted the two-foot interval by the

hydraulic jacks, the safety screws following up hard all the time.

When a position had been reached, as indicated by the centre tell-tale, where the lower pins could be intro-

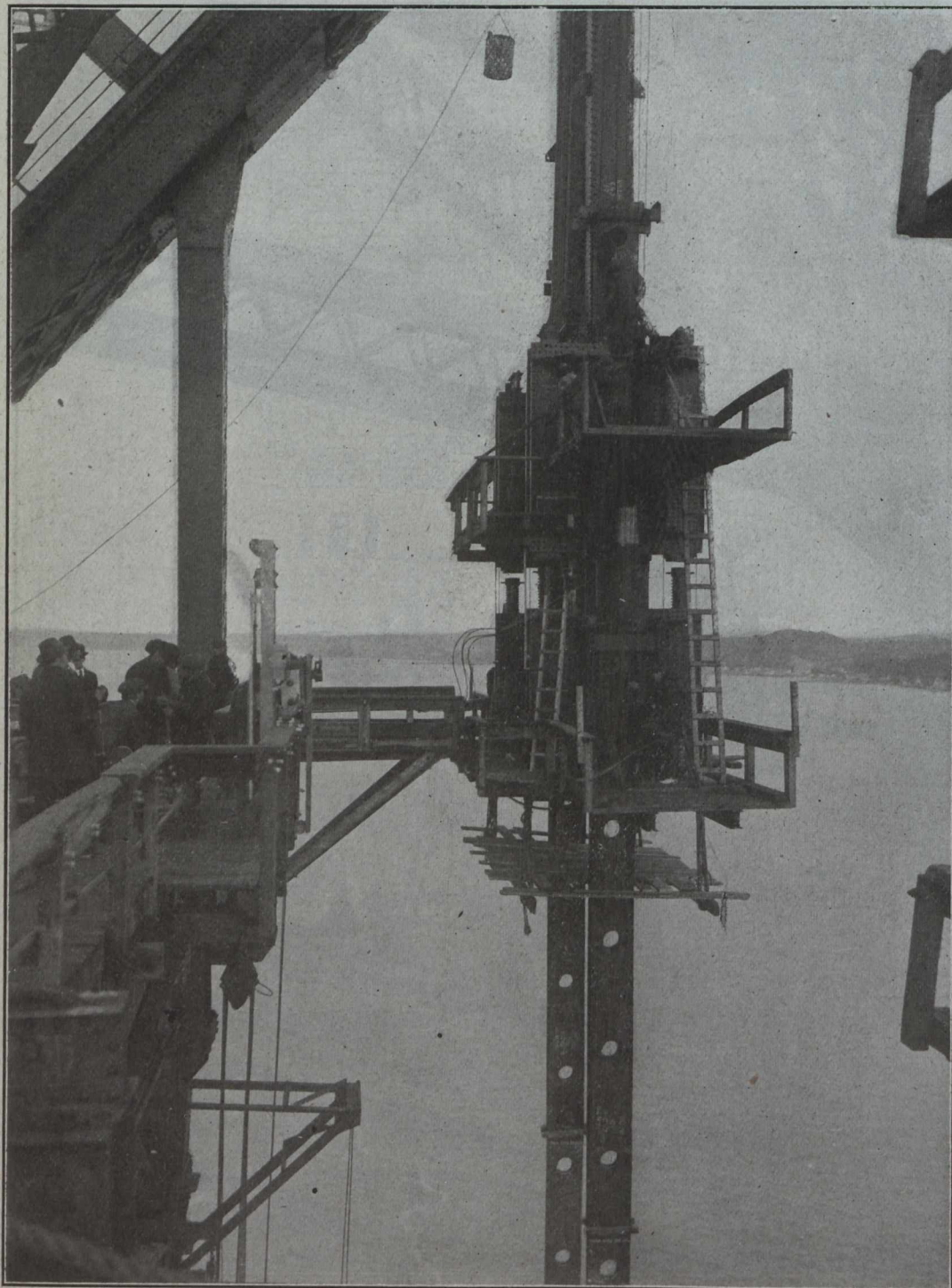


Fig. 7.—End Elevation of Jacking Equipment, Showing Hydraulic Jacks in Top Position, also Showing Safety Screws Not Quite in Contact with Lifting Girder. During Lifting Operations it was Intended that an Operator Should Attend to Each Safety Screw and Keep it Close Up Against the Lifting Girder ELG3

girder to 1-ft. $5\frac{3}{4}$ -ins. below the top flange and connected to the girder by four $6 \times 4 \times \frac{1}{2}$ -in. angles, the 6-in. leg connecting to the diaphragm. The bottom of the web was reinforced with pin plates to a thickness of $3\frac{3}{4}$ -ins.,