

drain the scows at the previous low tide an elevation of low tide of not more than 82 ft. would be expected. Inasmuch as elevations of high and low tide, as calculated from the tide tables, may vary at the erection site of the span plus or minus $2\frac{1}{2}$ ft., in order to be sure of floating off, a tide must be chosen whose elevation, as given by the tide tables, will correspond to a high-tide elevation of 94.5 ft. and a low-tide elevation of 79.5 ft., giving a range of tide of 15 ft.

Four or five days in succession, when the elevations and range of tide would be

Service at Toronto. These statements will be telephoned at about 11 a.m. and 11 p.m. respectively, with a prediction of the possible wind velocity. By barometric observations at the bridge site it can be estimated whether any threatening centres of low pressure, indicating string winds, at a great distance on the previous day, have moved more quickly or slowly than was expected. The appearance of the sky, the velocity and direction of the wind just before starting and the indications on an electric storm detector will also be well considered be-

The span on its journey to the bridge site will be towed and controlled by tugs, assisted by the westward current and influenced by the coexisting wind of unknown direction, but exerting a force of not more than 2 lb. per sq. ft. With tugs having a pulling capacity of 100,000 lb. in a 4-mile current, a velocity of the span of 4 miles per hr. can be produced relative to the water, and at the same time overcome the effect of a 2 lb. wind on the span. About 50 min. before high tide the span will be floated away from its erection site, with a westward current having

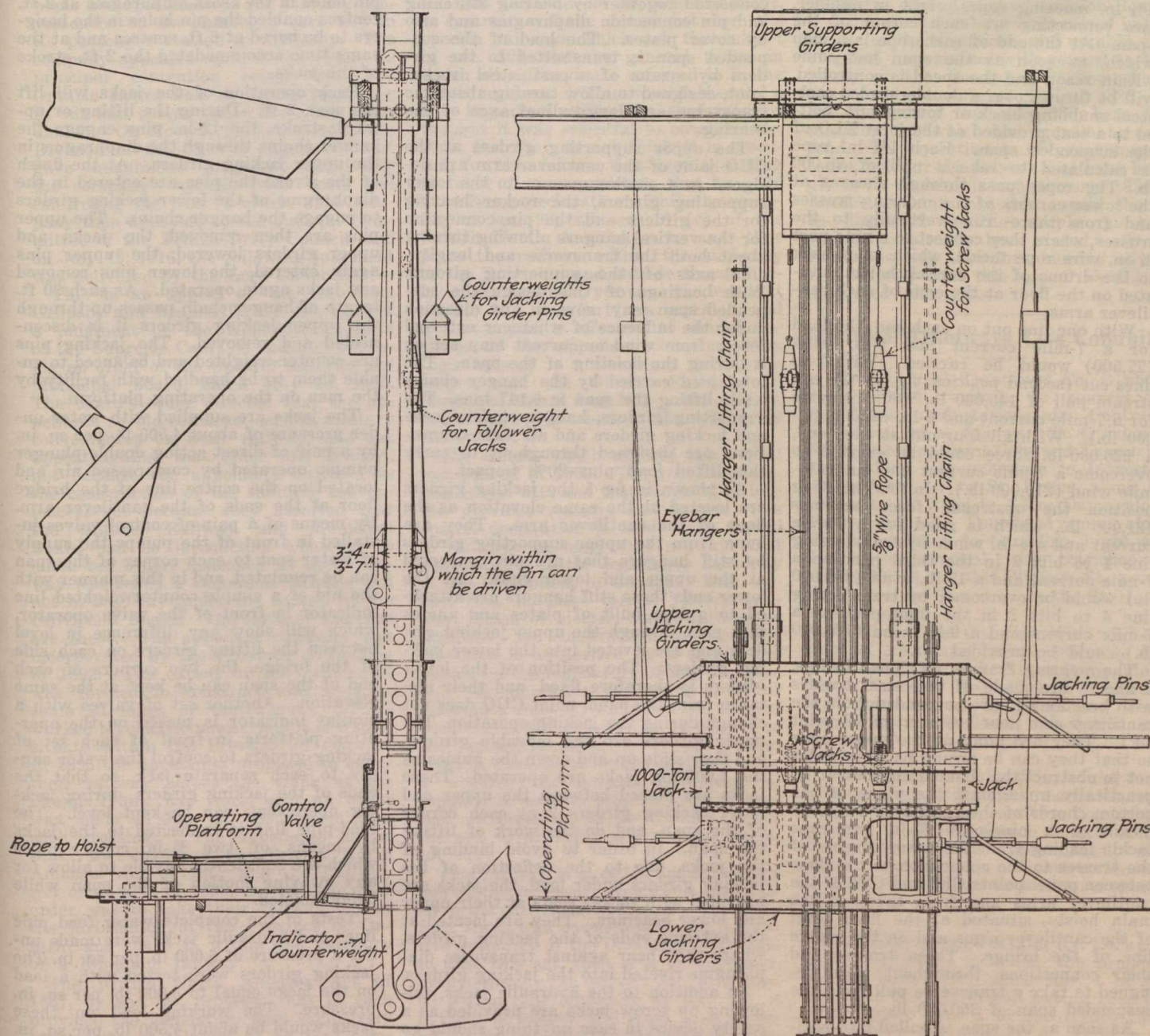


Fig. 5. Jacking equipment for hoisting suspended span, Quebec Bridge.

suitable for draining the scows and floating the span, occur at intervals of about two weeks time. The first favorable tide period, after the preparations for floating the span are complete, is about Sept. 12. If the weather conditions are not favorable during this period, it will be necessary to await the next favorable height and range of tide, and so on until suitable tide and weather conditions co-exist. A full daily statement of the meteorological conditions throughout the country giving the position of high and low pressure centres at 8 a.m. and 8 p.m. will be received from the Meteorological

fore deciding whether or not to start. It is estimated that any winds which will exert a greater pressure than 2 lb. per sq. ft. can be foreseen, and in that event no start will be made. The current velocity at the bridge site is a maximum, one hour before high tide, and is flowing westward at a rate of 6.3 to 7.3 miles per hr. in a direction which will carry the span toward the main bridge site. At high tide the current velocity is less by about 1 mile per hr. The change of current from a westward to an eastward direction, when the velocity is zero, occurs about 1 hr. after high tide.

a velocity of about 6 miles per hr. At first the tugs will be used mainly for guiding the span. While on its journey to the bridge site the rate of progress will be used mainly for guiding the span. While on its journey to the bridge site the rate of progress will be observed by means of a series of ranges placed 0.2 miles apart within 1 mile of the bridge and $\frac{1}{2}$ mile apart from 1 to 3 miles distant from the bridge. The span should arrive at the bridge with a velocity of current of about 4 miles an hr. With such a current and a wind velocity of not more than 2 miles an hr. the tugs will have