This invention relates to a supporting construction for a steam turbine and its condenser and it has for an object to provide apparatus of this character wherein supporting is effected in such a way that disturbances of the running clearances of the turbine will occur to a minimum extent.

In the patent to Doran, No. 2,064,640, granted December 15, 1936, there is disclosed and claimed a supporting construction for a turbine and condenser wherein these parts are carried by side girders supported at their ends; however, as the girders deflect and as they constitute parts of the side walls of the turbine, it will be obvious that the blading carried thereby may have its running clearances disturbed in relation to the turbine rotor, that is, as the middle of each girder is deflected downward it carries with it the stationary blades of the turbine which are attached to the side girders near the center of the span. The bearings for supporting the turbine spindle and also carried by the side girders near the ends of the span are deflected downward a lesser amount.

In accordance with the present invention, the base or supporting construction is arranged so that deflection causes less difficulty and the opportunity for disturbance of running clearances is correspondingly reduced.

These and other objects are effected by the invention as will be apparent from the following description and claims taken in connection with the accompanying drawing forming a part of this application, in which:

Fig. 1 is an isometric view showing a supporting construction made in accordance with the present invention;

Fig. 2 is a sectional view taken along the line II—II of Fig. 1; and

Fig. 3 is a side elevational view of the supporting construction shown in relation to a turbine and a condenser supported thereby.

Referring now to the drawing more in detail, in Fig. 1, there is shown a supporting construction including side girders 10, 10 and inner girders or structural members 11, 11, the ends of the inner girders 11, 11 being connected by cross girders 12, 12. Vertical plates 13 extend outwardly from the ends of the cross girders 12, 12 and are joined to the webs of the side girders 10, 10. Also, sealing plates 14 (see Fig. 2) cover the spaces between each inner girder 11, side girder 10, and the vertical plates 13.

In use, the ends of the side girders 10 are supported by any suitable means indicated generally at 15 and at 16, the upper part or cylinder cover 17 of the turbine is carried by the inner girders 11, and the condenser 16 has its inlet 19 suspended from the lower sides of the side girders 10 and the cross girders 12, the inlet of the condenser having sealing relation with respect to the lower edges of the plates 13 and the plates 14 being arranged to seal the spaces outwardly of the inner girders 11, inwardly of the side girders 16 and between the plates 13 at either side of the turbine.

From the structure described, it will be apparent that, as the span between supports, so far as the turbine is concerned, is considerably shortened, the side girders 11 being substantially the same length as the turbine, and as such supports are freed of the additional weight imposed by the condenser, the latter being supported from the girders 10, bending and deflection resulting in disturbances of blade clearances will be considerably lessened.

While the invention has been shown in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof, and it is desired, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What is claimed is:

1. In a supporting construction for a turbine and its condenser, side girders, means for supporting the ends of the latter, a pair of inner girders forming a part of the turbine side walls, cross girders connected to the ends of the inner girders, vertical plates extending from the cross girders and joined to the side girders, sealing plates covering the spaces disposed outwardly of the inner girders and inwardly of the side girders and between said vertical plates, and a condenser having its inlet connected to the side and cross girders as to be supported therefrom and having a sealed connected relation with respect to said vertical plates.

2. In a supporting construction for a turbine and its condenser, outer side girders; means for supporting the ends of the latter; a rectangular frame comprising side and cross girders; vertical plates for supporting the corners of the rectangular frame from the side girders; a turbine carried by the rectangular frame so that the side girders thereof constitute portions of the side walls of the turbine; a condenser having its inlet connected to the outer side girders and to the cross girders of the rectangular frame as to be supported thereby; and sealing plates for covering the spaces disposed outwardly of the side girders of the rectangular frame, inwardly of the outer side girders and between corner plates at either side of the rectangular frame.

HAROLD W. SEMAR.