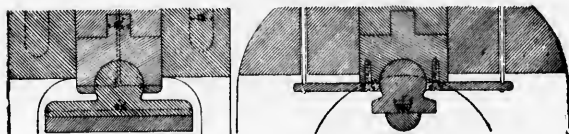


Beams	VIII	IX	X	XI	XII	XIII	XIV
l	69	204	198	204	201	201	204
d	5.125	14.875	14.875	14.875	14.875	14.75	14.75
b	5.5	9	6	8.6875	8.8125	6	6
Beams	XV	XVI	XVII	XVIII	XIX	XX	XXI
l	194	198	138	138	138	138	138
d	15	15	15.125	17.8	12.1	12	8.98
b	6.125	6.125	9	8.76	9.1	8.88	5.95
Beams	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII
l	162	186	132	144	210	210	210
d	15.6875	14.35	16.2	15.65	13.25	13.125	11.25
b	7.75	8.74	7.75	8.2	6.375	6.1875	6.34375
Beams	XXIX	XXX	XXXI	XXXII	XXXIII	XXXIV	XXXV
l	210	174	174	180	180	156	156
d	11.25	7.25	7.125	8.125	11.125	9.125	11.15
b	6.25	6.1875	6.21875	3.1	3.1	3.125	3.325
Beams	XXXVI	XXXVII	XXXVIII	XXXIX	XL	XLI	XLII
l	288	288	114	102	120	120	288
d	18	18	18	18	18	18	18
b	9	9	9	9	9	9	9
Beams	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX
l	120	120	288	120	120	150	150
b	18	18	18	18	18	15.1875	15.375
b	9	9	9	9	9	9.375	9.125
Beams	L	LI	LII	LIII	LIV	LV	
l	186	192	180	180	288	120	
d	15	15.12	14.85	15	17.5	17.5	
b	9.0625	9	9.05	9.05	8.875	8.875	
Beams	LVI	LVII	LVIII	LIX	LX	LXI	
l	120	180	180	180	138	186	
d	17.5	15	14.75	15	11.25	14.5	
b	8.9375	9	6	9	8.875	5.625	

The transverse tests were carried out with the Wicksteed 100-ton machine by means of a specially designed arrangement shown in the photograph on the opposite page.

By this arrangement the two ends are gradually forced downwards, while the centre is supported upon the saddle suspended from the lever of the machine. Thus the two halves of the beam are really equivalent to two cantilevers loaded at the ends. By means of a very simple device, the pressure can be increased so regularly as to ensure an absolute equality in these end loads.

Figures 1 and 2 show the device employed to keep the pressure on the ends of the beam always normal to the surface. The spherical



joint allows the bearing to revolve, and by means of the prismatic slot any form of bearing surface may be introduced.

The formula used in calculating the skin-strengths and co-efficients of elasticity have been deduced by means of the ordinary theory of flexure which is based upon assumptions which actual experience shows to be far from being true. These assumptions are:—