TABLE No. 1.—For Design of Lattice Bars of Columns.

(This is probably the first table ever published for this purpose that is worked out in such manner that a draftsman can use it for ready reference. A copy of this table, mounted on stiff cardboard and strung ready to hang, will be mailed free to any reader upon request to *The Canadian Engineer*.)

1	2	3	4	5	6	7	8	9	10	11	12	13.
L Length in feet.	Size of Channels.	A. Area of Section sq. inches.	D. Distance C.to C. of rivets perpendicular to axis of column.	r.	$\sqrt{lR}$	x.	$\sin \pi \frac{x}{l}$	S allowable stress per sq. inch on long columns.	Sc − S1 stress per sq. inch due to bending of column. lbs.	Stress in each end lattice bar. lbs.	Stress in end lattice bar according to tests. lbs.	Size of lattice bars.
9'-0"	2-6"@8#	4.76	5¾"	2.34	46	3.32"	.096	13600	2400	1100		2¼"×5/16"
"	2-7"@9¾#	5.7	6¾"	2.72	40	3.9"	.113	14200	1800	1160	1170	"
"	2-8"@11¼#	6.7	7½"	3.11	34	4.33"	.126	14600	1400	1180		"
"	2-9"@13¼#	7.78	8¼"	3.45	31	4.76"	.139	14800	1200	1290		"
"	2-10"@15#	8.92	9¼"	3.81	29	5.34"	.156	14950	1050	1450		"
"	2-12"@20½#	12.06	11¼"	4.61	23	6.5"	.19	15350	650	1484		2¼"×3/8"
"	2-15"@33#	19.8	13¼"	5.6	19	7.65"	.221	15550	450	1870		2½"×7/16"
12'-0"	2-6"@8#	4.76	5¾"	2.34	61	3.32"	.073	12200	3800	1300		2¼"×5/16"
"	2-7"@9¾#	5.7	6¾"	2.72	53	3.9°	.086	12950	3050	1360		"
"	2-8"@11¼#	6.7	7½"	3.11	46	4.33"	.096	13650	2350	1420		"
"	2-9"@13¼"	7.78	8¼"	3.45	42	4.76"	.104	14000	2000	1600		"
"	2-10"@15#	8.92	9¼"	3.81	38	5.34"	.116	14300	1700	1760	1848	"
"	2-12"@20½#	12.06	11¼"	4.61	31	6.5"	.142	14800	1200	2030		2½"×3/8"
"	2-15"@33#	19.8	13¼"	5.6	25	7.65"	.165	15200	800	2600		2½"×7/16"
15'-0"	2-6"@8#	4.76	5¾"	2.34	77	3.32"	.058	10700	5300	1450		2¼"×5/16"
"	2-7"@9¾#	5.7	6¾"	2.72	66	3.9"	.07	11700	4300	1670		"
"	2-8"@11¼#	6.7	7½"	3.11	58	4.33"	.076	12500	3500	1770		"
"	2-9"@13¼"	7.78	8¼"	3.45	53	4.76°	.082	13000	3000	1930		"
"	2-10"@15#	8.92	9¼"	3.81	46	5.34"	.093	13650	2350	1940		"
"	2-12"@20½#	12.06	11¼"	4.61	39	6.5"	.113	14200	1800	2560	2480	2½"×3/8"
"	2-15"@33#	19.8	13¼"	5.6	32	7.65"	.133	14700	1300	3400		2½"×½"
18'-0"	2-6"@8#	4.76	5¾"	2.34	92	3.32"	.048	9350	6650	1510		2¼"×5/16"
"	2-7"@9¾#	5.7	6¾"	2.72	80	3.9°	.056	10700	5300	1700		"
"	2-8"@11¼#	6.7	7½"	3.11	70	4.33"	.064	11380	4620	1940		"
"	2-9"@13¼"	7.78	8¼"	3.45	63	4.76"	.068	12000	4000	2120		"
"	2-10"@15#	8.92	9¼"	3.81	57	5.34"	.078	12600	3400	2340		"
"	2-12"@20½#	12.06	11¼"	4.61	45	6.5"	.093	13650	2350	2680		2½"×3/8"
"	2-15"@33#	19.8	13¼"	5.6	39	7.65"	.11	14200	1800	3937	4077	2½"×½"
20'-0"	2-10"@15#	8.92	9¼"	3.81	63	5.34"	.07	11400	4600	2860		2½"×3/8"
"	2-12"@20½#	12.06	11¼"	4.61	53	6.5"	.084	12950	3050	3120		"
"	2-15"@33#	19.8	13¼"	5.6	42.8	7.65"	.10	13900	2100	4060	3973	2½"×½"

AUTHOR'S NOTE—Size and weights of channels referred to in Table 1 were taken from the Cambria Steel Company's handbook, as were also the distances back to back of the channels. The lattice bars for the smaller columns might be smaller, but it was assumed that 2¼" was the narrowest distance to take, due to punching and riveting, but different sizes may be substituted by designing the bars according to Equation 18. Sizes of lattice bars given in the last column of Table 1 were figured by Equation 18.