should not be less than two inches broad and ten inches long, and they should be bent until they break, or until the sides are parallel at a distance from each other of not more than (3) three times the thickness of plate.

(*m.*) When full allowance over iron is wished, the tensile stress of the plates not exposed to flame should be not less than 27 tons gross, or 62,000 lbs., and should not exceed 32 tons gross, or 72,000 lbs., per square inch of section, and 29 tons gross, or 65,000 lbs., should be the stress used in the calculation for cylindrical shells, if the plates comply with all the conditions as stated therein; but when the minimum tensile strength of shell plate is not less than 28 tons gross, or 63,000 lbs., and allowance is wished for the excess, then the case should be specially submitted for the consideration of the Chairman as to whether the stress in the calculation may be increased to 30 tons gross, or to 67,000 lbs., the tensile strength of furnace, flanging and combustion box plates may range from 26 tons gross, or 58,000 lbs., to 30 tons gross, or 67,000 lbs., to the square inch.

(*n.*) All plates that are punched, flanged or locally heated must be carefully annealed after being so treated.

(*o.*) The rivet holes in the furnaces and longitudinal seams of cylindrical shells should be drilled, but if it is wished to punch them and afterwards bore or anneal the plates in a proper furnace, the particulars of the punching and boring or annealing should be submitted to the Chairman for consideration before being done, but all punched holes should be made after bending.

(*p.*) In all cases where assent has been given by the Chairman for plates to be punched after bending, and then annealed, the maker of the boiler should stamp the plates with the words "punched after bending and then annealed," and in all cases where assent has been given for punching and afterwards boring plates the words "punched and then bored" should be stamped on the plates.

(*q.*) If the flanging plates and those exposed to flame comply with the foregoing conditions, the constants in these rules for iron boilers may be increased as follows:—

1. The constants for flat surfaces, when they are supported by stays screwed into the plates and riveted, 10 per cent.

2. The constants for flat surfaces, when they are supported by stays screwed into the plates and nutted, or when the stays are nutted in the steam space, 25 per cent. This is also applicable to the constants for flat surfaces stiffened by riveted washers or doubling strips and supported by nutted stays.

3. The constants for combustion box girders, 10 per cent.

(*r.*) When the furnaces are new, corrugated and machine made and practically true circles, the working pressure is found by the following formula, provided that the plain parts at the ends do not exceed 6 inches in length and the plates are not less than $\frac{5}{16}$ inch thick.

$$\frac{12,500 \times T}{D} = \text{Working pressure.}$$

T=Thickness in inches.

D=Mean diameter in inches.

(If the furnace is riveted in two or more lengths, the case should be submitted to the Chairman).

(*s.*) A greater compressive stress should not be allowed on tube plates than 10,000 lbs. to the square inch, which is that used in the following formula:—

$$\frac{(D-d) T \times 20,000}{W \times D} = \text{Working pressure.}$$

D=Least horizontal distance between centres of tubes in inches.

d=Inside diameter of ordinary tubes in inches.