(*b.*) In all cases the internal steam pipes should be so fitted that the steam in flowing to them will pass over all the plates exposed to the impact of heat or flame.

(*c.*) Super-heaters or water jackets should, as regards inspection, be deemed to be the most important part of the boilers, and must be inspected inside and outside; those that cannot be entered (on account of their size) must have a sufficient number of doors through which a thorough inspection of the whole of the interior can be made.

(*d.*) Special attention should be paid to the inspection of super-heaters, as with high pressure the plates may become dangerously weak and not give any sound to indicate their state when tested with the hammer; the plate should, therefore, be occasionally drilled. Drain pipes must be in all cases fitted to super-heaters in which a collection of water in the bottom is possible.

(*e.*) Super-heaters that can be shut off from the main boiler must be fitted with a Government lock-up safety valve of sufficient size, but the least size passed shall not be less than two inches in diameter.

Sec. **28.** The areas of diagonal stays are found in the following way:—

Find the area of a direct stay needed to support the surface, multiply this area by the length of the diagonal stay and divide the product by the length of a line drawn at right angles to the surface supported to the end of the diagonal stay, the quotient will be the area of the diagonal stay required.

Sec. **29.** (*a.*) When the tops of combustion boxes or other parts of a boiler are supported by solid rectangular girders, the following formula, which is used by the Imperial Board of Trade, will be useful for finding the working pressure to be allowed on the girders, assuming that they are not subjected to a greater temperature than the ordinary heat of steam, and the ends fitted to the edges of the tube plate and the back plate of the combustion box:

$$\frac{C \times d^2 \times T}{(W-P)\,D \times L} = \text{Working Pressure.}$$

W=Width of combustion box in inches.
P=Pitch of supporting bolts in inches.
D=Distance between the girders from centre to centre in inches.
L=Length of girder in feet.
d=Depth of girder in inches.
T=Thickness of girder in inches.
C=500 when the girder is fitted with one supporting bolt.
C=750 when the girder is fitted with two or three supporting bolts.
C=850 when the girder is fitted with four supporting bolts.

(*b.*) The working pressure for the supporting bolts, and for the plate between them, shall be determined by the rule for ordinary stays.

Sec. **30.** The flat ends of all boilers, as far as the steam space extends, and the ends of super-heaters should be fitted with shield, or baffle plates, where exposed to the hot gases of the up-take, as all the plates subjected to the direct impact of heat or flame are liable to injury, unless covered with water.

Sec. **31.** Donkey boilers that are in any way attached to, or connected with the main boilers, or with the machinery used for propelling the ship, must be inspected and fitted the same way as the main boilers, and must have a water and steam gauge, and all other fittings complete, and as regards safety valves, must comply with the same regulations as the main boilers, and no safety-valve shall be passed less than two inches in diameter, except as hereinafter provided by the rules relating to the inspection of safety-valves.