

ing that the material has complied with the required tests, and also with number or identification marks by which they can be traced to the charge from which the material was made.

7. *Test Certificates.*—Test certificates shall be furnished to an Inspector of Machinery by the maker of a receiver, showing that all plates used in the construction of a receiver have passed the prescribed tests, and that the tests were satisfactorily carried out in the presence of an independent authority, such as a Board of Trade Surveyor, or surveyor of an approved classification society, or in the presence of the test-house manager of the manufacturer of the material: Provided that in the latter case the Chief Inspector of Machinery may refuse to accept the certificate of manufacturers of steel who in his opinion are not well known. Test certificates shall also be furnished for stay-bars, rivets, and other material in cases where there is any reason to doubt the quality.

8. *Drawings.*—The owner of a receiver, or other person at whose request the first inspection of a receiver is made, shall, not later than the date of making application for such inspection, forward to the Chief Inspector of Machinery a drawing of the receiver containing all such dimensions and other particulars as may be necessary to enable the Chief Inspector to determine whether the regulations hereof have been complied with.

In order to avoid questions arising after receivers have been constructed, makers of receivers should, when practicable, arrange to furnish the Chief Inspector of Machinery with drawings and particulars before the construction of the receivers is commenced.

The drawings should show all the principal dimensions of a receiver and its mountings; a fully-dimensioned longitudinal section and end view of the receiver; details of riveting and (or) welding of the seams; radii of curvature of dished ends and fillets of flanges; position, number, and size of stays; particulars of material; dimensions of inspection openings or manholes; dimensions of safety-valves and their levers or springs; intended working-pressure and hydraulic test; internal cubic capacity and works number of receiver; and name of person for whom receiver is being made. All drawings shall be accompanied by the fee prescribed to be paid for the examination of the drawings, or the fee may be paid into the Public Account, and in that case the bank's receipt for the fee should accompany the drawing.

9. *Drilling and Punching of Rivet-holes.*—All rivet-holes must be drilled "fair," and, as far as possible, they should be drilled in place. After the plates have been drilled the burrs should be removed and the facing surfaces of the plates cleaned, and the sharp outer edges of holes removed also. Rivet-holes in plates not more than $\frac{3}{8}$ in. thick may be punched not to exceed $\frac{1}{4}$ in. less than full size, and then drilled or reamed to full size with plates, butt straps, and ends bolted into position. Such holes when finished must be true, clean, and concentric.

10. *Autogenous Welded and Brazed Seams.*—If a receiver has a diameter not exceeding 20 in., and a length not exceeding three diameters, and if the working pressure required does not exceed 100 lb. per square inch, the seams of the receiver may be welded by the autogenous welding process, either the oxyacetylene process or the electric-arc process; or the seams may be riveted and brazed, or welded and brazed: Provided that the restrictions of this rule shall not apply where a riveted butt strap is fitted over the weld.

11. *Annealing of Plates.*—All plates which have been welded, dished, flanged, or locally heated are to be afterwards annealed.

12. *Steel Stays not to be Welded, and Annealing of Stays.*—No steel stays are to be welded. If plus threads are desired, the ends of the stay-bars may be upset, or the bars may be drawn down in the central portions from bars originally of the size of the ends. In either of these two cases the bars must be subsequently annealed throughout.

13. *Riveted Cylindrical Shells: Formula for Working-pressure of the Shell.*—For riveted cylindrical shells of steel receivers the maximum working-pressure per square inch to be allowed shall be calculated from the following formula:—

$$\text{W.P.} = \frac{t \times S \times J}{C \times D}$$

where t is the thickness of the shell-plates in thirty-seconds of an inch (riveted shell-plates are not to be less than $\frac{6}{32}$ in. thick);

S is the minimum tensile strength of the steel shell-plates in tons per square inch;

J is the percentage of strength of the longitudinal seams calculated by the methods described below;