
RULES AND REGULATIONS

RESPECTING THE INSPECTION OF

BOATS, LIFE PRESERVERS AND OTHER LIFE-SAVING APPLIANCES,

TO BE CARRIED ON

STEAM-BOATS OR OTHER VESSELS,

UNDER THE AUTHORITY OF THE

STEAM-BOAT INSPECTION ACT AND AMENDMENTS THERETO.

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AT THE GOVERNMENT HOUSE AT OTTAWA,

TUESDAY, the 2nd day of August, 1892.

PRESENT :

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

Whereas the Parliament of Canada at the last Session thereof, passed an Act 55-56 Victoria, Chapter 19, intituled "An Act to further amend the Steamboat Inspection Act," in which it was amongst other things enacted, by the 4th and 5th Sections thereof, that the Governor General in Council make such rules as are deemed advisable with respect to boats, life preservers, and other life saving appliances to be carried by Steamboats or other vessels mentioned in the said Act.

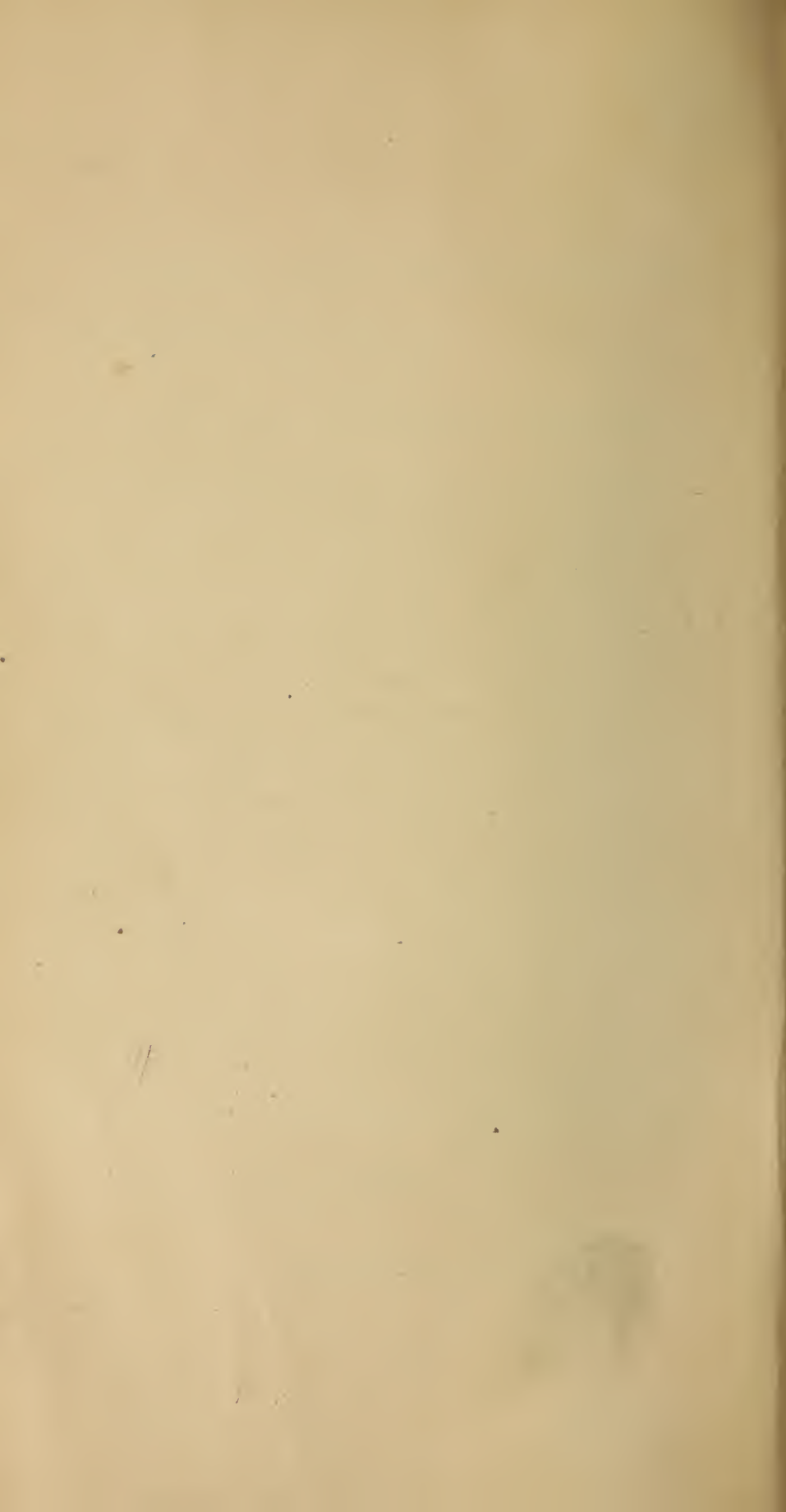
And whereas it was further enacted that the said Act shall come into force on and after a day to be proclaimed by Proclamation of the Governor in Council, and His Excellency the Governor General in Council, by a Proclamation, dated the 2nd day of August, 1892, has declared that the said Act shall be brought into and be in force on the fifteenth day of August, 1892. His Excellency under the authority conferred upon him by the 4th and 5th Sections of the above cited Act, and by and with the advice of the Queen's Privy Council for Canada, is pleased to make the following Regulations with respect to Boats, Life Preservers and other Life Saving appliances to be carried by Steamboats or other vessels mentioned in the said Act, such Regulations to be in force and take effect on and after the day succeeding the day fixed by the aforesaid Proclamation, as the day upon which the said Act 55-56 Victoria, Chapter 19, shall come into force in Canada.

(Signed) JOHN J. MCGEE,
Clerk of the Privy Council.

To the Honourable

The Minister of Marine and Fisheries.

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RULES AND REGULATIONS

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STEAM-BOATS OR OTHER VESSELS,

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STEAM-BOAT INSPECTION ACT AND AMENDMENTS THERETO.

Boats.

Sec. 1. The following provisions shall be observed with respect to boats to be carried on steamboats.

(a.) No steamboat with passengers on board shall proceed to sea from any port or place in Canada, or depart from any port or place, or ply on any of the Lakes St. John, Memphremagog, Ontario, Erie, Huron or Georgian Bay, Simcoe, or Superior, or on the River St. Lawrence, or on the Rivers Ottawa or St. John, or any lake or river in Manitoba, British Columbia, or the North-West Territories, or the District of Keewatin, which is at any point on the route of such steamboat, more than one mile broad.

(b.) Unless there are on board thereof, or attached to such steamboat, good, suitable, sufficient and properly equipped boats in good condition, each having not less than seventeen feet length of keel, and at least six oars and other necessary tackle, and sufficient capacity to carry not less than twelve adult persons, exclusive of the crew of such boat.

Which boats shall be in the following proportion to the registered tonnage of such steamboat, that is to say:—

At least one boat for every steamboat of less than fifty tons;

At least two boats for every steamboat of fifty tons and upwards, but less than (300) three hundred tons;

At least three boats for every steamboat of three hundred tons and upwards; and

(c.) If such steamboat is of the registered tonnage of one hundred tons or upwards to (300) three hundred tons, unless, in addition to the boats hereinbefore required, there is on board thereof or attached thereto,—

One good and sufficient life-boat capable of sustaining inside thirty persons, which life-boat may be considered of sufficient capacity if made of the following dimensions: Length of keel, twenty-two feet; breadth of beam outside, five feet six inches; depth from top of keel to top of gunwale at bottom of rowlock, two feet nine inches; or

Two good and sufficient life-boats, each capable of sustaining inside twenty persons, which life-boats may be considered of sufficient capacity if made of the following dimensions: Length of keel, eighteen feet; breadth outside, five feet two inches; depth from top of keel to top of gunwale, two feet two inches.

(d.) If such steamboat is of the registered tonnage of (300) three hundred tons or upwards to six hundred tons or upwards (when the life-boats may be increased to the satisfaction of the Inspector), unless in addition to the boats hereinbefore required there is on board or attached thereto;—

Two good and sufficient life-boats, capable of each sustaining inside thirty persons, or four good and sufficient life-boats capable of each sustaining inside twenty persons, each to be at least of the dimensions described in (c).

Sec. 2. Every life-boat shall be made of suitable metal, in thickness not less than No. 18 wire gauge, or of wood, and built whale-boat fashion, with a shear of about $\frac{3}{4}$ inch to 1 foot length from midships, rising equally to the stem and stern, with sufficient air-tight compartments in the ends and sides made of suitable metal or of wood, and so constructed as to be air-tight and serviceable, the air-tight compartments to have a capacity in cubic feet of one-tenth the capacity of the life-boat, which is found by multiplying the length and breadth outside and the depth inside from bottom of rowlocks or top of gunwale in feet, and by '6, the result equals the cubic feet required in the inside and outside compartments, about one-half of which should be on the outside; and dividing by 10, gives the number of persons the life-boat shall be deemed fit to carry. Solid cork may be used instead of air-tight compartments on the outside, 1.25 cubic feet of cork being considered equal to 1 cubic foot of air case.

(a) Zinc shall not be used in the construction of a life-boat or of her air-tight compartments, which must be of a metal approved by the Board of Steamboat Inspection, or by the Chairman.

(b.) The air tight compartments must be so distributed as to give the boat good buoyancy and stability; whether a part of the air-tight buoyancy apparatus should be under the thwarts, or whether it should be in the ends and along the sides, will be so long as an efficient life-boat is obtained, left to the option of the maker or owner, but the Inspector must be satisfied that the life-boat is efficient.

(c.) Spaces filled with or containing any material are not to be deemed air spaces.

(d.) A square stern boat is not to be passed as a life-boat.

(e.) Suitable life lines with sustaining buoys shall be securely attached to the sides or gunwales of the life-boats.

Sec. 3. The life-boats must be provided with the full complement of oars, one for each rowlock, and two spare oars, all securely lashed inside ready for use.

(a.) With two plugs for each plug hole, attached with lanyards or chains, and one and one half sets of thole pins or crutches attached to the boat by lanyards and ready to slip in place.

(b.) With a sea anchor, a rudder and tiller, or yoke and yoke lines, a painter of sufficient length to reach from the davits to the boat when in the water and to tow her, a bailer, a hatchet in each end of boat, and a boat hook, each attached to the boat with a good sound lanyard.

(c.) If the steamboat is plying at sea (on salt water) a vessel must be kept in each boat filled with fresh water, (and at least one life-boat must be fitted with a mast or masts, and sail or sails and proper gear for each), and an efficient compass and one gallon of vegetable or animal oil, and a vessel or apparatus of approved pattern for distributing it on the water in rough weather, and with a lantern trimmed with oil in its receiver sufficient to burn eight hours.

(d.) Means for detaching quickly the life-boat from the lower blocks of the davits must be provided, an ordinary fixed hook in the lower block should not be allowed, the boats davits must be strong enough and so spaced that, the boat can be swung out readily, so that the boat's chocks can be readily removed, and that the boat will not foul the ships sides in lowering when the ship has no list, and that the whole of the tackling, davits, falls, blocks, eye bolts, and apparatus are of sufficient strength to lower the boat with its full complement of crew and apparatus on board.

Sec. 4. Every boat shall be kept in good condition, water tight and ready for immediate use; when wood is used as fuel for heating the boilers of high pressure (non condensing) steamboats, the covers of such boats shall be made of wood covered with zinc; and every boat shall

have the name of the steamboat to which it belongs, and the name of her port of registry, legibly painted on her bows and stern :

Sec. 5. Every such steamboat shall be provided with sufficient means for lowering from on board safely and expeditiously the boats hereinbefore required to be on board of or attached to such steamboat ; and Masters of steamboats shall detail their crews and exercise them in lowering and handling the said boats, and life-boats at least once a week, alternately :

Sec. 6. Every such boat shall be hung in separate davits, with lowering apparatus complete and ready for instant lowering ; provided, that in any case where any such steamboat carries two life-boats, one of the other boats may be carried on the hurricane deck without davits :

Sec. 7. No steamboat employed chiefly in the carriage of freight, when carrying not more than twenty-five passengers, shall be required to have on board or attached to such steamboat more than two boats in addition to a life-boat.

Sec. 8. The Minister of Marine and Fisheries may authorise the use in individual, specified cases, of a greater or less number of boats, or of different dimensions from those hereinbefore specified, and upon such authorisation being granted, it shall be sufficient for any such steamboat to carry and be provided with boats of the dimensions specified in such authorisation :

Sec. 9. Steamboats confined to the navigation of the River St. John above Fredericton, the waters in the district of Muskoka, the County of Victoria, and the County of Peterborough, in the Province of Ontario, and the waters of the Ottawa river, and its tributaries above the City of Ottawa, or of lakes or rivers not exceeding one mile in width at any point on the route of such steamboat, and which are employed in the carriage of passengers, shall carry at least one good boat provided with four oars, and of sufficient capacity to carry not less than twelve persons besides the crew.

Sec. 10. Every steamboat employed in the carriage of passengers, and used only in the navigation of rivers or inland waters, other than the rivers and inland waters hereinbefore provided for, shall, if such steamboat exceeds one hundred and fifty tons registered tonnage, carry at least two good boats provided with four oars each, and of sufficient capacity to carry with safety at least twelve persons besides the crew ; and if such steamboat does not exceed one hundred and fifty tons and is not less than fifty tons registered tonnage, she shall not be required to carry more than one such boat ; and if such steamboat is less than fifty tons registered tonnage, she shall carry one good boat of the size and description, and provided in the manner approved of in each case by the Inspector.

Sec. 11. Every steamboat not employed in the carriage of passengers, and every steamboat to which the foregoing provisions of this section do not apply, shall at all times, when the crew thereof is on board, be provided with and have on board or attached to such steamboat in some convenient place a good, suitable and sufficient boat, or good, suitable and sufficient boats, in good condition and properly equipped, and provided with oars in sufficient number and other necessary tackle, and of sufficient capacity to carry all the crew of such steamboat, and with sufficient means for lowering such boat or boats from on board safely and expeditiously.

Sec. 12. The carrying capacity in the number of persons of boats shall be determined by multiplying the length of keel by the breadth outside, and by the depth from top of keel to bottom of rowlock in feet, and divide by 10, the quotient being the number of persons allowed to each boat.

Life-Rafts and Life-Buoys.

Sec. 13. Life-rafts must be approved by the Board of Steamboat Inspection before the number of persons they may be allowed to carry can be determined, provided that not less than three cubic feet of strong serviceable inclosed air-tight compartments, constructed so that water cannot find its way into them, shall be the amount of air space to each person carried on the raft.

Sec. 14. Approved buoyant apparatus must not require to be inflated before use, shall be of approved construction and marked in such a way as to plainly indicate the number of adult persons it can carry.

The buoyancy of such apparatus for the number of persons to be carried may be ascertained by dividing the number of pounds of iron it is capable of supporting in fresh water by 32.

Sec. 15. An approved life-buoy may be built of solid cork capable of floating in the water for at least 24 hours with 32 pounds of iron suspended from it; or—

(a.) A strong life-buoy of any other approved pattern and material, provided that it is capable of floating in the water for at least 24 hours with 32 pounds of iron suspended from it, and provided that it is not stuffed with rushes, cork shavings or other shavings, or loose granulated cork or other loose material, and does not require inflation before use. There must not be a less number than two life-buoys on each passenger steamboat carrying by law two boats, with good line of suitable length attached to each buoy and kept at all times ready for instant use.

(b.) The air cases for life-rafts are not to exceed the length approved by the Board (four feet), with hooked, hammered and soldered joints, or riveted, and if made of iron to be galvanized, to be substantially enclosed with wood to be close jointed.

The covering of the air cases in boats should be fastened with brass screws so they can be readily taken off to examine the air cases.

Collapsible boats may be used if approved by an Inspector, with the consent of the Chairman.

Sec. 16. No new pattern of or material in life-boats, life-rafts or life-buoys is to be passed unless approved by the Board of Steamboat Inspection.

Life Preservers.

Sec. 17. No steamboat carrying passengers shall proceed to sea from any port or place in Canada, or depart from any port or place, or ply on any of the Lakes St. John, Memphremagog, Ontario, Erie, Huron, Georgian Bay, Simcoe, or Superior, or on the River St. Lawrence, or on the Rivers Ottawa or St. John, or on any lake or river in Manitoba, British Columbia, or the North-West Territories, or the District of Keewatin, which is at any point on the route of such steamer, more than one mile broad, or shall navigate any bay or arm of the sea in Canada, unless she is provided with and carries on board thereof on every such voyage,—

(a.) Two hundred life-preservers (life-belts), if such steamboat is of the registered tonnage of two hundred tons and upwards; or (b) three life preservers for every five tons, if such steamboat is of less than two hundred tons registered tonnage.

Sec. 18. Every steamboat carrying passengers on rivers or inland waters other than the lakes and rivers provided for in the next preceding section, if of the registered tonnage of two hundred tons and upwards, shall be provided with and shall carry on board thereof on every voyage, not less than one hundred life preservers, and if of less than two hundred tons registered tonnage, such steamboat shall be provided with and shall carry on board thereof on every voyage fifty life preservers.

Sec. 19. Provided always, that the maximum number of such life-preservers required on any steamboat shall not exceed two hundred; but in any steamboat, as to which the boat capacity, and the number of life-preservers together, fall short of the number of passengers she is

allowed to carry by her certificate of inspection, such deficiency shall be supplied by a number of wooden floats, each equal in buoyancy to one cubic foot of seasoned white pine, equal to the number of passengers and crew not provided for in the boats, together with the life-preservers.

Sec. 20. No steamboat employed chiefly in the carriage of freight, when carrying not more than sixty passengers, shall be required to be provided with or carry on board on any voyage, more than one life-preserver for each passenger, and one life-preserver for each of the crew then on board of such steamboat.

Sec. 21. Every steamboat not employed in the carriage of passengers, and every steamboat to which the preceding Sections 17, 18, 19 and 20, do not apply, shall, at all times when the crew thereof is on board, be provided with a life-preserver for each one of the crew.

Sec. 22. Each of such life-preservers (life-belts) shall be capable of floating in fresh water for 24 hours with 15 pounds of iron suspended from it. It should be cut out 2 inches under the arm pits, and fitted and secured so as to remain securely in its place when put on, with shoulder straps and waist belt, or by other means approved by the Inspector. When any other material than solid cork is used for buoyancy it must first be specially approved by the Board of Steamboat Inspection, and the life-preservers (life-belts) shall at all times be kept in convenient and accessible places in the state rooms or on the deck of such steamboat, under cover and in readiness for immediate use.

Sec. 23. A cork jacket with shoulder straps and waist lines for fastening the same around the body, or such other description of life-preserver as the Governor in Council may approve, shall be the form of life-preserver to be used on passenger steamboats.

Passenger Barges, Towed.

Sec. 24. Any barge, boat, bateau, scow, or undecked vessel having passengers on board, towed by a tug, before being granted a certificate of inspection, must be equipped with a boat or boats, life-preservers, life-buoys, and life-rafts, or any or all of the equipment named herein in addition to the equipment named in section 9 of the Act of *The Parliament of Canada, intituled: An Act further to amend the Steamboat Inspection Act, and assented to on the 10th May, 1892*, to the satisfaction of the Steamboat Inspector who inspects her, who shall require her to be equipped with suitable life saving equipment for the waters on which she is to ply, as well as suitable private conveniences or closets for the use of the passengers.

(a.) The boats and boat equipment required must not be less than specified in section 1 (b) of these rules, and in order to have the capacity required to carry twelve adult persons with the crew, or seventeen persons in all, on 17 feet length of keel must be 5 feet beam, by 2 feet depth, the capacity being found by multiplying length, breadth and depth, and dividing by 10.

AMENDMENTS TO THE RULES
RELATING TO THE INSPECTION OF
BOILERS AND COMPASSES OF STEAMBOATS.

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RULES
RELATING TO THE
INSPECTION OF STEAMBOAT SHAFTS
AND THE
TESTING OF NEW ENGINES ON PASSENGER STEAMBOATS.

AT THE GOVERNMENT HOUSE AT OTTAWA,

TUESDAY, 16th day of August, 1892.

PRESENT :

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

His Excellency by and with the advice of the Queen's Privy Council for Canada, and in virtue of the powers conferred on him by Chapter 78 of the Revised Statutes, intituled "An Act respecting the inspection of Steamboats, and the examination and licensing of Engineers employed on them," and the amendments thereto, is pleased to approve of the following amendments to the Regulations with respect to the Inspection of Boilers and Compasses of Steamboats, and the new Regulations relating to the inspection of Steamboats' shafts and the testing of new engines of passenger Steamboats, which have been passed by the Board of Steamboat Inspectors.

JOSEPH POPE,
Asst. Clerk of the Privy Council.

To the Honourable
The Minister of the Interior.

AMENDMENTS TO THE RULES
RELATING TO THE
INSPECTION OF BOILERS OF STEAMBOATS.

Boilers.

1. Sec. 40, Part I., and Sec. 74, Part II., are hereby amended by adding ten per cent. to the result of the formula (b):—

$$\frac{90,000 \times T^2}{(L + I) \times D} = \text{Working pressure, where}$$

T = Thickness of plate in inches.

D = Diameter of flue outside in inches.

L = Length of flue or furnace in feet, or the length between the rings in feet, if it is strengthened by suitable rings or Adamson joints.

2. Sec. 36 (r) and Sec. 41 (a), Part I., and Sec. 75 (a), Part II., are hereby amended by using 14,000 instead of 12,500 in the formula :

$$\frac{12,500 \times \text{thickness in inches}}{\text{Mean diameter in inches}} = \text{Working pressure per square inch.}$$

3. Sec. 30, Part I., and Sec. 68, Part II., are hereby amended by adding thereto as follows:—

“ When a superheater is constructed with a tube subject to external pressure, the working pressure should be ascertained by the rules given for circular iron furnaces, but the constants should be reduced as thirty is to forty-seven :

“ If steel is proposed to be used in superheaters, the particulars should be submitted to the Board of Steamboat Inspection or to the Chairman, if the Board is not sitting, for consideration, but in all cases it should be discouraged for this purpose; this applies to the unshielded uptakes of all boilers, including ordinary vertical donkey boilers.”

AMENDMENT TO THE RULES
RELATING TO THE
INSPECTION OF COMPASSES ON BOARD STEAMBOATS.

Compasses.

Sec. 22, Part VII, is hereby amended by substituting for the word “ Inspector ” in the fifth line the words “ competent person,” and adding thereto the words “ of inspection,” after the word “ certificate ” in the last line.

RULES

RELATING TO THE

INSPECTION OF STEAMBOAT SHAFTS.

Shafts.

4. Main, tunnel, propeller and paddle shafts should not be passed if less in diameter than that found by the following formulæ, without previously submitting the case to the Chairman of the Board of Steamboat Inspection.

For compound condensing engines with two or more cylinders, when the cranks are not overhung :—

$$S = \sqrt[3]{\frac{C \times P \times D^2}{f \left(2 + \frac{D^2}{d^2} \right)}}$$

$$P = \frac{f \times S^3}{C \times D^2} \left(2 + \frac{D^2}{d^2} \right)$$

Where S = diameter of shaft in inches.

Where d^2 = square of diameter of high pressure cylinder in inches or sum of squares of diameters, when there are two or more high pressure cylinders.

Where D^2 = square of diameter of low pressure cylinder in inches or sum of squares of diameters, when there are two or more low pressure cylinders.

Where P = absolute pressure in lbs. per square inch, that is boiler pressure *plus* 15 lbs.

Where C = length of crank in inches.

Where f = constant from following table.

NOTE.—Intermediate pressure cylinders do not appear in the formulæ.

For ordinary condensing engines, with one, two, or more cylinders, when the cranks are not overhung :—

$$S = \sqrt[3]{\frac{C \times P \times D^2}{3 \times f}}$$

$$P = \frac{3 \times f \times S^3}{C \times D^2}$$

Where S = Diameter of shaft in inches.

D^2 = Square of diameter of cylinder in inches, or sum of squares of diameters when there are two or more cylinders.

P = Absolute pressure in lbs. per square inch, that is boiler pressure *plus* 15 lbs.

C = Length of crank in inches.

f = Constant from following table :—

TABLE.

| For two Cranks. Angle between Cranks. | For Crank and Propeller Shafts. <i>f.</i> | For Tunnel Shafts. <i>f.</i> |
|---|--|------------------------------------|
| 90° | 1,047 | 1,221 |
| 100° | 996 | 1,128 |
| 110° | 904 | 1,055 |
| 120° | 855 | 997 |
| 130° | 817 | 953 |
| 140° | 788 | 919 |
| 150° | 766 | 894 |
| 160° | 751 | 877 |
| 170° | 743 | 867 |
| 180° | 740 | 864 |
| For three Cranks 120° | 1,110 | 1,295 |

NOTE.—When there is only one crank the constants applicable are those in the table opposite 180°.

RULES

RELATING TO THE

TESTING OF NEW ENGINES ON PASSENGER STEAMBOATS.

In the case of new engines on passenger steamboats, Inspectors should see them tested while under way, with full steam, in order to assure as far as possible that no flaws in the several parts of the engine have escaped the examination made by the Inspector, as provided by Section 15 of the Act 49 Vic., chap. 78.
