

27906

20 AUG 1910

Custom House, Hull

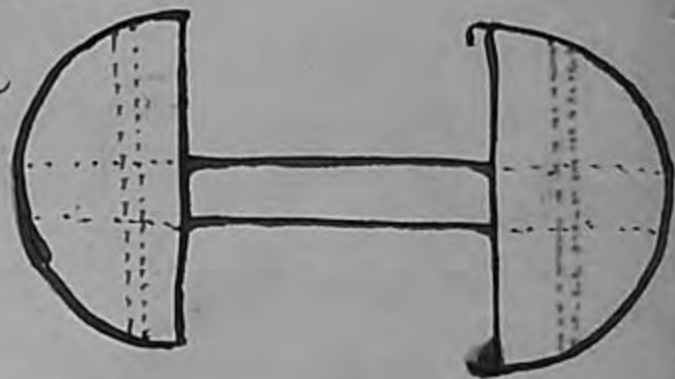
19 August 1910

Honorable Sir,

In continuation of my report (N^o 389)
 of the death of Mr. Norris, Preventive Officer,
 I would wish to refer more particularly to
 the question of the construction of the ladder
 the breaking of which directly led to this loss
 of life; and I have made this the subject of
 separate report both for the avoidance of
 delay in intimating the officer's death and
 also for convenience of consideration.

At the exact place in the ladder where
 the fracture occurred, wooden pins had
 been fixed through each side of the ladder,
 transfixing the rung at each ^{of its} ends, the purpose
 of this being to prevent the separation of
 the two sides of the ladder.

The rough illustration here
 shows a lateral section of
 the sides and one rung,
 and the red ink indicates
 the pin I refer to, and the place where the
 ladder broke.



Builders' ladders are, I am informed
 frequently constructed in this way with

acting Collector

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pins through every third or fourth rung; but it is evident that such a system of securing the sides together involves a weakening in another direction which is the more dangerous inasmuch as it may, as was the case here, fail to manifest itself at all until the strain has reached breaking point.

If ladders similarly constructed are in use in connection with launches at any other ports they may equally be a possible cause of accident involving injury to officers and expense to the Crown, and enquiry on this point might prevent the occurrence elsewhere of such a casualty as has happened here.

The forms of strengthening which, while serving the same purpose in the ladder as the pins I have referred to, are free from similar objection are (1) the horizontal iron bar fixed adjacent and parallel to the rung and secured on the outside by washer and nut (the hole bored through the side of the ladder for this bar passes through the neutral axis and does not appreciably weaken the ladder), and (2) the method of splitting the centre of the end of the rung and drawing in a wooden wedge.

Respectfully

Boad

Acting Collector

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To advising officer with reference
to reply replies to circular No. 114 B.

(Replies attached)

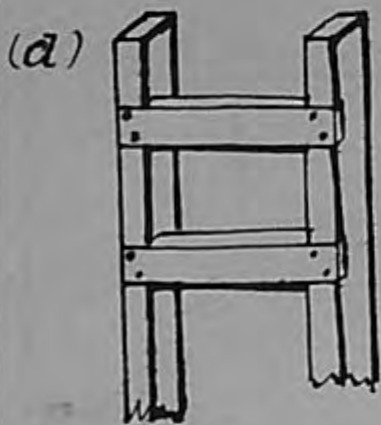
J.M.H.

Replies sent herewith J.M.H.

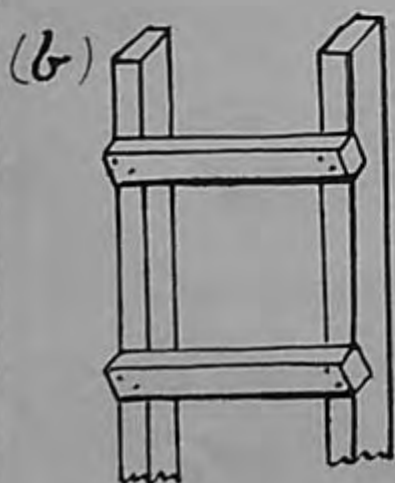
Honorable Sir,

There are eleven Ports at which
ladders are in use for boarding purposes,
and 21 ladders in all.

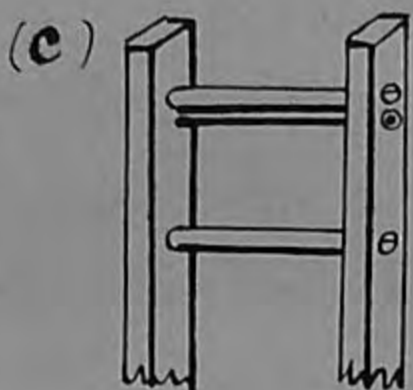
The ladders in use comprise five
distinct types or patterns viz:-



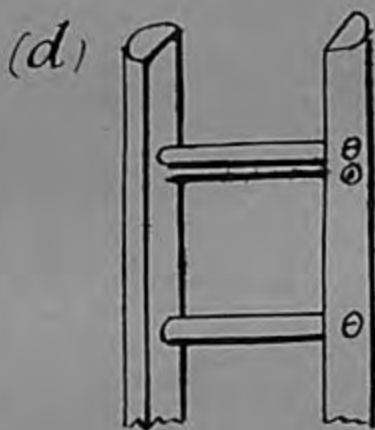
(a). Sides of square section, tie-bolted in one instance only, the rungs being also of square section, let into the sides and nailed.



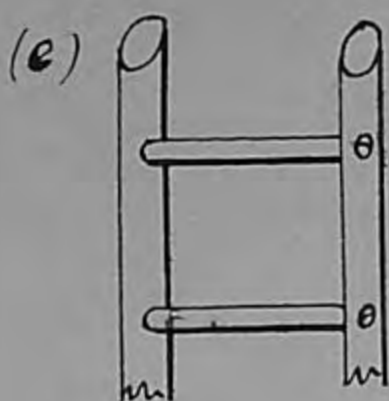
(b) Sides of square section without tie-bolts, the rungs being also of square section notched into sides & nailed.

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(c) Sides of square section and tie-bolted, rungs of round section and wedged at ends.



(d) Sides of 'D' section and tie-bolted, rungs of round section and wedged at ends.



(e) Sides of oval form without tie-bolts, rungs of round section wedged at ends.

Of the five patterns described those marked "c" & "d" are in my opinion the most efficient.

Ladders of the pattern "a" & "b" are not considered reliable, as the sides are weakened by the notching for the rungs, and too much reliance is placed on the nail fastenings.

Pattern "e" would make a good ladder if the sides were tie-bolted.

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I am of opinion that for use on vessels pattern 'c', would best meet the requirements, but at Ports where ladders of pattern 'd' are now in use, no change need be made until the time arrives to replace them when pattern 'c' could be adopted.

The distribution of the 21 ladders is as follows:-

<u>Pattern</u>	<u>Port</u>	<u>Number.</u>
'a'	Gravesend ✓	7. +
	Kings Lynn ✓	1. +
'b'	Falmouth ✓	2. +
	Southampton ✓	1.
'c'	Greenock ✓	2.
	Cork ✓	1. - Present ladders "strong"
	Weymouth ✓	1
'd'	Plymouth ✓	1
	Liverpool ✓	2
	Newcastle ✓	2.

In addition to the above there is one at Hull which is broken.

To summarise the matter, I recommend that your Honours approve of my preparing a sketch of 'c' pattern with particulars for printing and issue to all Ports for future guidance

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guidance in obtaining ladders, and that the present ladders in use at, Gravesend, Kings Lynn, Falmouth and Cork, be got rid of, and others of the type recommended for approval be obtained in their place.

Those at Weymouth, Plymouth, and Liverpool, also Newcastle to be used till they are considered worn out, and then replaced by others of "c" pattern.

A new ladder to be obtained at Hull of "c" pattern in lieu of the one that broke and gave rise to this discussion.

A. Harris
A.O.

57/12/1910

Waterguard Inspector

Any observations?

J.S. $\frac{21}{12}$

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H.M. Customs and Excise.

Principal dimensions and particulars to guide construction of portable ladders for Boarding purposes.

Ladders	Length in Feet.				
	10	12	14	16	18
Width inside at Top	ins 9½	ins 9½	ins 9½	ins 9½	ins 9½
-do- Bottom	12	12	12	12	12
Section of sides at Top	2½ x 1¼	2½ x 1¼	2½ x 1¼	2¾ x 1¼	2¾ x 1¼
-do- Bottom	2¾ x 1¼	2¾ x 1¼	2¾ x 1¼	3 x 2	3 x 2
Tie-bolts (Number)	2	2	3	3	3

The ladders to agree in form generally with the marginal sketch, also with the dimensions above stated.

The sides to be of Fitch Pine, or best selected Fir, free from objectionable knots and defects of any kind; the edges to be chamfered.

The Rungs to be of Ash, 1½ inches in diameter at the centre, tapered at ends to 1 inch diameter, bedded in white lead and wedged into sides of ladders, and spaced 8½ inches apart.

Tie-bolts to be of best wrought iron ¾ inch diameter, to pass through sides and clenched on iron rings.

Three coats of paint, (one priming) of approved colour, to be given each ladder when new, and at least one coat annually for preservation purposes.



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6th February, 1911.

Sir,

Launch Ladders.

The Board direct that in future all portable ladders for boarding purposes be constructed in accordance with the model plan shown in the attached specification.

As the existing portable ladders (7 in number) in use on the Thames do not conform to this pattern, they are to be replaced forthwith by others of the approved type, tenders for the supply being submitted.

I am,

Sir,

Your obedient servant,

(Sd.) A. J. DYKE.

The Waterguard Inspector,

London.