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— Specification for a Channel  
Steamer, without but intended to be ultimately  
fitted with Bessemer Saloon. —

Rec. 9/1/74  
H

24/4/74.

— Principal dimensions. —

Extreme length at load water line	<sup>ft. ins</sup> 350" 0
Breadth extreme exclusive of Paddle Boxes	40" 0
Draught of water Forward	4.6
" " Aft	4.6
Tonnage	2474 <sup>44</sup> / <sub>94</sub> .

This Ship is to be built and engined in all respects to the entire satisfaction of her Designer - M<sup>r</sup>. E. J. Reed C. S. - and is to be inspected throughout the construction by him and such officers as he may appoint.

The Hull to be built fitted and made complete with Cabins, Store rooms, Luggage room, Appliances for getting the luggage in and out of the ship and properly stowing it, Anchors Cables, Capstans and other appliances and Gear of every description necessary for working, stowing, and securing the anchors & cables, Water, Oil, and all other Tanks of every description.



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- The details of the Ship's Construction  
to be as follows

Keel -

To be formed as shewn on the Midship Section - The Vertical Keel plate to be continuous throughout the whole length of the ship 25" deep &  $\frac{1}{2}$ " thick - To be secured over the 5" frames & connected to the flat Keel plates by short angle irons  $3\frac{1}{2} \times 3 \times \frac{1}{2}$ ". Two continuous angle irons  $3 \times 3\frac{1}{2} \times \frac{1}{2}$  to be worked on the upper edge of the vertical Keel plate - The Butts of the Vertical Keel plate to be secured with double butt straps each  $\frac{5}{16}$ " thick treble chain riveted & their length to be  $16\frac{1}{2}$  times the diam<sup>r</sup> of the rivets.

The flat Keel plates to be worked in two thicknesses as shewn in the midship section the lower strake to be  $\frac{5}{8}$ " thick and the upper strake  $\frac{1}{6}$ ".

The vertical Keel plate to be in lengths of from 20 to 24 feet & to extend from one extremity of the ship to the other, the ends to scarp with and be riveted to the forgings of the end posts.

At the Butts of each of the Flat Keel plates Butt straps  $\frac{5}{8}$ " thick to be worked the whole width of the plates they connect, the butt straps to be treble chain riveted, and their length  $16\frac{1}{2}$  times the diam<sup>r</sup> of the rivets.

End Posts -

Forgings to be worked at the ends of the Ship, to be made of the best hammered scrap iron and to be well scarped and connected to the Keel.



### Long Frames.

To be three in number on each side of the ship - To be continuous throughout the whole length of the ship. The continuous plates to be secured over the 5" Frames and connected to the Bottom plating by short angle irons  $3\frac{1}{2} \times 3\frac{1}{2} \times \frac{1}{16}$ . The dimensions of the plates forming the longitudinals to be as follows -

	plates	a. Irons.
1 <sup>st</sup> from the Keel	$25\frac{1}{2} \times \frac{1}{16}$	$3 \times 3\frac{1}{2} \times \frac{1}{16}$
2 <sup>nd</sup> " " "	$24 \times \frac{1}{16}$	$3 \times 3\frac{1}{2} \times \frac{1}{16}$
3 <sup>rd</sup> " " "	$13\frac{1}{2} \times \frac{1}{16}$	$3 \times 3\frac{1}{2} \times \frac{1}{16}$

The plates to be worked in from 20 to 24 feet lengths and connected at the butts by double butt straps  $\frac{1}{4}$ " thick treble chain riveted.

The continuous angle irons to be in 36 ft lengths and carefully strapped at the butts.

### Transverse Frames.

The transverse frames to be spaced 2 feet apart, to consist of an angle iron  $3\frac{1}{2} \times 3\frac{1}{2} \times \frac{1}{16}$  worked continuous from the upper Deck Stringer on one side of the ship to the same height on the other side and a reverse bar  $5 \times 3 \times \frac{3}{8}$  worked continuous from the lower deck Stringer on one side to the same height on the other except at frames which carry the 10 inch beams where the reverse Bars will be continued to the upper deck stringer.

Every third frame throughout the whole length of the ship except in the Engine room to be made of greater depth as follows, The outer angle iron to be  $3\frac{1}{2} \times 3\frac{1}{2} \times \frac{1}{16}$  worked continuous from the upper deck stringer on one side of the ship to the same height on the other.

Floor plates  $\frac{1}{16}$ " thick to be fitted between



the longitudinals and of the same depth with single angle irons on the upper edge  $3 \times 3 \times \frac{3}{8}$ " worked between the longitudinals.

Above the 3<sup>rd</sup> longitudinal reverse angle irons  $5 \times 3 \times \frac{3}{8}$  to be fitted to the height of upper deck stringer except at the extremities where the deep Reverse Bars will be worked above the 2<sup>nd</sup> longitudinal, and will be stopped at the lower deck stringer, a flat plate  $6 \times \frac{3}{8}$ " to be worked over the reverse frame angle irons as shewn in the section, Scarphing  $2' 6"$  over the Reverse frames on each side - The butts of these plates to be well connected by treble riveted butt straps & the Butts to be properly shifted.

In the Engine rooms and in their vicinity these deep frames to be worked  $\frac{1}{2}$  feet apart.

The short angle irons connecting the floor plates with the longitudinals to be  $3 \times 3 \times \frac{3}{8}$ .

The Reverse frames to be reduced at the extremities as follows -

For a length of 30 feet from each end to be  $3 \times 3 \times \frac{3}{8}$   
The next 30 feet to be  $4 \times 3 \times \frac{3}{8}$ .

The deep frames at the extremities to be reduced in depth.

The framing above the lower deck at the curved ends of the upper deck to consist of Angle irons  $5 \times 3 \times \frac{3}{8}$  and Reverse Bars  $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$  spaced  $\frac{1}{2}$  feet apart, and between every two of these frames are intermediate Angle iron  $3 \times 3 \times \frac{3}{8}$ .

These frames are to be turned at the heels & connected to the lower deck plating, to be connected to the upper deck stringer by short



angle irons  $3 \times 3 \times \frac{3}{8}$ .

The angle iron frames & Reverse frames to be worked as may be directed in wake of the Paddle Boxes and additional support given to the side plating.

Bottom  
Plating }

The Bottom plating worked lap jointed with liners fitted between the frames and outer strakes and the laps to be double chain riveted from the Keel to the upper part of the turn of the bilge & above this height to be single riveted except the lower edge of the Sheer strake and the side plating for 25 feet before and abaft the paddle shafts which will be double chain riveted.

The plating ending on the posts & the Butts of the bottom plating to be treble riveted. All butts and edges of bottom plating to be chain riveted. The plates to be worked in lengths of at least 10 feet and the lengths to be increased at the ends of the ship if necessary to obtain a good shift of Butts. The Butts to be in the middle of the openings between the frames and two strakes to be worked between every two opposite Butts.

The plating ending on the posts, & in any part where it is likely to be chafed to be increased in thickness or doubled.

The thickness of the plates to be as follows -

	For a length of 235 feet amidships	At the extremities
Outer Keel plate	$\frac{3}{8}$ "	$\frac{3}{8}$ "
Inner	$\frac{9}{16}$ "	$\frac{9}{16}$ "
The 6 Strakes next Keel plates	$\frac{9}{16}$ "	$\frac{1}{2}$ "



Remaining Strakes to upper deck	$\frac{1}{2}$ "	$\frac{1}{16}$ "
Doubling Strake	$\frac{1}{2}$ "	$\frac{1}{2}$ "

The side plating at the curved ends of the upper deck to be  $\frac{3}{8}$ " thick worked flush with single riveted edge strips on the inside between the frames, to be connected to the lower deck plating by a  $3 \times 3\frac{1}{2} \times \frac{3}{8}$ " angle iron & to be efficiently connected to the side plating.

The side plating in wake of paddle shafts to be doubled.

All butt straps to the outside plating to be of the same thickness as the plates they connect - The breadth of the double riveted Butt straps to be  $1\frac{1}{2}$  times the dia<sup>r</sup> of the rivets and the fibre of the iron to be in the same direction as that of the plates - All Butts of outside plating to be planed and very carefully fitted and caulked.

Bulkheads.

To have transverse watertight bulkheads as shewn on the profile fitted between double frames. The lower strake of plating to be  $\frac{3}{8}$ " thick and the remainder  $\frac{1}{16}$ " stiffened with vertical angle irons  $3 \times 2\frac{1}{2} \times \frac{3}{8}$ " placed 30" apart.

The edges and butts to be lap jointed and single riveted.

Partial Bulkheads to be fitted abreast the Bessemer Saloon spaced and formed as shewn in the profile and section sheet. To be of  $\frac{1}{16}$ " plates connected by single angle irons  $3 \times 2\frac{1}{2} \times \frac{1}{16}$ " on the inner edge to the inside plating of Bessemer Saloon space and connected to the lower deck stringer by  $3 \times 2\frac{1}{2} \times \frac{3}{8}$ " angle irons.

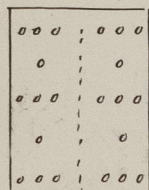


Inside  
Plating in  
Bessemer Saloon  
Space.

Plating to be worked on the inner edges of the partial Bulkheads to extend from Engine room bulkhead to Engine room bulkhead and to be connected at the lower part to the second longitudinal - to be  $\frac{3}{16}$ "<sup>th</sup> thick worked lap jointed.

Riveting.

To be stiffened by Angle irons  $3 \times 2\frac{1}{2} \times \frac{3}{16}$ " worked vertically & spaced about 3 feet apart. The Rivets to be of the best quality and generally to be in diameter from  $\frac{1}{8}$ " to  $\frac{1}{4}$ " greater than each of the plates they connect.



The Butts of all the principal longitudinal ties where watertightness is not required, such as the vertical Keel plate longitudinals, deck stringers and ties to be treble riveted thus -

Bilge Pieces.

Bilge pieces to be worked for a length of 100 feet amidships between the two Paddle wheels.

To be placed and formed as shewn on the section and to taper towards the ends, to consist of two  $\frac{3}{8}$ " plates riveted together at their outer edges and secured to the bottom plating by two  $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$ " angle irons, the space between the two plates to be filled up with light fir.

Upper deck  
Stringer.

The upper deck stringer to be 42" wide and  $\frac{3}{8}$ " thick for about 166 feet of the vessels length amidships connected to the side plating by double continuous angle irons  $\frac{1}{2} \times \frac{1}{2} \times \frac{3}{16}$ ". Beyond this where the upper deck is no longer worked out to the full breadth of the ship - This stringer plate & angle irons to be worked down to meet and be efficiently attached to the lower deck plating which is to be strengthened at this part of the ship and also by continuing the double



sheer strake past the point of junction of the upper deck stringer with the lower deck plating. The doubling plate to be 30" wide and  $\frac{1}{2}$ " thick throughout.

The ends of the upper deck where they leave the side and curve towards the middle of the ship to be strengthened by a stringer plate 18" wide and  $\frac{1}{4}$ " thick connected to the side plating by  $3 \times 3 \times \frac{3}{8}$  angle irons & scarphed with the stringer worked along the side of the ship.

$\frac{1}{4}$  inch deck plating to be worked inside the stringer & connected to it by edge straps as shewn on the upper deck plan.

Lower Deck  
Stringer

A continuous lower deck stringer to be worked of the following dimensions - Throughout the space occupied by the Bessemer Saloon to be in width as shewn on the Section sheet and  $\frac{1}{4}$  thick. Through the Engine & Boiler rooms to be 30" wide and  $\frac{3}{8}$ " thick efficiently connected in a manner to be approved by Mr Reed with the stringer plate in the saloon space & with the plating at the ends of the ship which is to be  $\frac{1}{4}$ " thick and arranged as shewn in plan. The Angle irons to connect this stringer with the bottom plating, to be  $3 \times 3 \times \frac{3}{8}$ " and a continuous angle iron to be worked on the upper side at the inside of the frames  $3 \times 3 \times \frac{3}{8}$ ".

In the engine & boiler spaces the stringer is to be supported by Bracket plates  $\frac{1}{4}$ " thick stiffened by angle irons  $3 \times 3 \times \frac{3}{8}$  and spaced



4 feet apart.

Upper Deck  
Beams.

The upper deck beams to be of bulb iron  $9\frac{1}{2} \times \frac{1}{2}$  with angle irons  $3 \times 3 \times \frac{3}{8}$  over engine and boiler rooms, the remainder to be of bulb iron  $7 \times \frac{3}{8}$  with angle irons  $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{16}$ , to be turned down at the ends to form knees  $2\frac{1}{4}$ " deep for the  $9\frac{1}{2}$ " beams and  $1\frac{1}{2}$ " deep for the  $7$ ". The beams to be spaced as shewn in the profile & plans.

Lower Deck  
Beams.

To be of bulb iron  $6 \times \frac{3}{8}$  but to be increased to  $7 \times \frac{3}{8}$  where shewn on drawings with a single angle iron  $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{8}$ . At the extremities where the heads of the frames turn inwards the beams are to be connected to them by a scarf 2 ft long.

Beams to Flats.

Beams to flats in Hold to be of angle iron  $5 \times 3 \times \frac{3}{8}$  reduced at the extremities to  $4 \times 3 \times \frac{3}{8}$  as Mr Reed may direct.

Half Beams  
&  
Carlings.

To be generally of the same size & depth as the adjacent beams.

A deep longitudinal carling to be worked on each side of the Bessemer Saloon as shewn in the Section.

Pillars.

A hollow cylindrical pillar to be worked under each upper deck beam through the engine and boiler rooms of 5" external dia<sup>t</sup> and the iron to be  $\frac{1}{4}$ " thick. Outside the Boiler rooms the pillars between the upper and lower decks to be  $3 \times \frac{3}{16}$  & the beams at the extremities of the lower deck to be properly supported by pillars  $3 \times \frac{3}{16}$ .

Rudders.

A Rudder to be fitted at each end of the ship formed as shewn on the profile. The



frame to be forged solid in one piece to be 10" in diam<sup>t</sup> at the head and the lower pintle 4". The heel to be sided 5" and the back of the Rudder to be tapered.

The frame to be plated over with  $\frac{1}{4}$  plates & to be filled in between the plates with light Fir, stop cleats to be fitted as directed.

Engine and  
Boiler Bearers

To be fitted in accordance with the Engineers plan.

Upper Deck  
flat. -

The upper deck flat to be of yellow pine  $3\frac{1}{2}$ " thick. The strake next the gutter waterway to be of hard wood.

Lower Deck  
flat.

The Lower Deck flat to be of yellow pine  $2\frac{1}{2}$ " thick in the Cabins, at the Bitts Capstan stoppers and Ring Bolts where it is to be of 3" teak.

Plats in Hold  
Deck Houses  
&c

The flat of the passenger Cabin below the lower deck to be of 2" yellow pine. The flat in the Luggage hold to be of  $2\frac{1}{2}$ " Red pine.

The Flats of Deck houses on the Sponsons & Cabins between paddle Boxes to be of 2" yellow pine. The top of the Cabin between the paddle Boxes to be formed of 2" yellow pine.

The Bridges between the paddle boxes to be 3" yellow pine.

Capstan. -

A Patent Capstan of a suitable size for the Chain Cable to be fitted on the lower deck, with capstan bars and all other necessary appliances complete. Efficient means to be adopted for keeping the spindle



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watertight - Additional plating, and —  
strengthenings to be fitted to the Deck &  
the spaces between the beams to be fitted in  
with solid wood carlings.

Riding Bitts  
Deck & Bow  
Stoppers -

To be fitted of a size and strength  
suitable for the Chain Cable. Wood carlings  
to be fitted between the beams & the deck  
in wake of these fittings to be otherwise  
strengthened.

Anchors -

To have two 26 cwt Martins, one 22  
cwt Martins, one 6½ cwt Common Anchors,  
one 5¼ cwt Common Anchors.

Cables and  
Hawsers }

To have 150 fathoms of 1½ chain cable &  
the following quantities of the best tarred  
Manilla rope.

90 fathoms of 10"  
90 " " 7"  
90 " " 4"

Boats -

The following Boats to be supplied  
stowed and fitted complete with all necessary  
sails, masts and gear of every description,  
and to be in number & description as follows -

2 Cutters 24 ft  
1 do 27 "  
2 Life Boats 28 "  
1 Tolly 18 "

Pumps -

To have two 4" & two 5½" Downtons pumps  
with pipes of Copper or Lead, to lead from  
the pumps into each compartment, all working  
gear for the pumps to be supplied complete,  
fitted and stowed; the pipes to be cased.

All necessary Lift pumps to be provided



Sluice  
Valves }

Watertight  
doors }

Painting  
&  
Cementing

and fitted. Non-return valves to be fitted to the pumps where required.

A metal sluice valve worked from the upper deck to be fitted at the lowest point of each watertight Bulkhead & elsewhere if required.

Watertight doors of the most approved pattern worked also from the upper deck to be fitted where directed.

The whole of the ironwork inside and out to have three coats of paint. The inside of the Ship Cabins & Deck work to be finished in colors or grained.

The bottom to be coated with protective and antifouling compositions; on the inside of the bottom the iron plates to be coated with fresh Portland or other approved cement of sufficient thickness to cover the rivets and prevent the bilge water from lodging on the edges of the plates.



Bessamer Saloon Steamer



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