

44/11/69

Specification
of an
Iron Screw Steam Lighter
for
Otto Eohl Esqr. Liverpool

Length between perpendiculars	85. - . feet
Breadth of Beam	20. 6.
Depth of Hold	9. 6
Draft of water loaded	8. -

General Description. Vessel to be flush ~~deck~~ decked fore and aft and rigged with one mast in the style of the flats in Liverpool river. Four water-tight Bulkheads, Accommodation forward for four men. Engines and Boiler placed right aft. Bulwarks 3 ft high above deck. Water-ballast midships.

Iron Work

Keel and Centre Keelson to have an internal plate. *Midship section shows a flat plate keel, which by gable C and Foot plate is secured to the 9/16" of keel which will also form centre Keelson, to be 20" deep x 7/16" thick, to be connected to Keel-
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to be 20" deep x $\frac{7}{16}$ " thick, to be connected to Keel-strake with double Angle irons $3" \times 3" \times \frac{7}{16}"$, to have double angle irons $3" + 3" + \frac{7}{16}"$ riveted to reverse bars and Centre Keel plate at top of floors and double angle irons $2\frac{1}{2}" + 2\frac{1}{2}" + \frac{3}{8}"$ at top edge. Two sliding Keels 12' 0" long + 4' 0" wide + $\frac{1}{2}"$ thick to be fitted in such a manner that their casings will form part of and be equal in strength to Centre Keel and Keelson.

Stern to be of bar iron $5" + 2"$ and connected to centre Keel strake by a scarp $4' 0"$ long.

Stern Post Inner and outer post forged in one piece with boss in inner part for screw shaft to pass through, inner post 6 + 3 outer 6 + 3

Frames spaced 21 inch apart of angle iron $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{8}$
Reverse Frames across the top of every floor of angle
iron $2\frac{1}{4} \times 2\frac{1}{4} \times \frac{5}{16}$ carried up to upper turn of bilge.
Floor Plates of plate iron 12" deep $\times \frac{3}{8}$ thick riveted to every
frame.

Deck Beams on each alternate frame of angle iron
 $5 \times 3 \times \frac{7}{16}$ connected to frames by knee plates 12" deep.

Deck stringer 18" wide by $\frac{3}{8}$ thick extending all round
vessel and connected to sheer strake by an angle
iron $3 \times 3 \times \frac{3}{8}$ a channel water way 15" wide to be
made all round the vessel and the inner side
to have an angle iron $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{5}{16}$ riveted to stringer.

Hatch Coamings of plate iron $\frac{3}{8}$ " thick extending along
bottom of beam 12" to 14" above deck. Thwartship
coamings 14" above deck midships

Keelsons, Centre Keelsons, see Centre plate deck, Banded
Keelsons of two angle iron $4 \times 3 \times \frac{1}{2}$ riveted back
to back and to reverse frames, double reverse
frames of plate iron $\frac{3}{8}$ " thick $\times \frac{5}{16}$ thick for Keelsons under
and riveted by Rules of Lloyd's Register. Nov 10/69
Hold Transoms of $2\frac{1}{2}$ " Round bars placed under
deck beams where required.

Shell Plating. Garboard strake $\frac{7}{16}$ and sheer strake
 $\frac{6}{16}$ thick all the rest of shell $\frac{6}{16}$ and $\frac{5}{16}$ as required.
Rivetting All longitudinal seams to be double from
keel to upper part of bilge vertical and horizontal
both double riveted as required by Lloyd's rules.

Bulkheads and Water Ballast. To have four water tight
bulkheads the forward and after ones made of
plate $\frac{1}{4}$ " thick stiffened with angle irons $2\frac{1}{4} \times 2\frac{1}{4} \times \frac{5}{16}$.
The two Bulkheads in midships to be arranged
for carrying water Ballast, made of plates
 $\frac{3}{8}$ " thick stiffened with angle irons $3 \times 3 \times \frac{3}{8}$ and
placed so as to hold a sufficient quantity of
water to bring the vessel to a proper bearing when
light. These Bulkheads to be carried up to

the top of hatch coamings in way of hatches, and
the space between them to be covered with an
iron hatch secured with screw bolts, so as to be
perfectly water tight. The remaining space
between these bulkheads from sides of hatches
to ship's side to be covered with iron plates, riveted and
made water tight under deck plating.

Coal Bunker. Iron Coal Bunkers at each side of Boiler $\frac{3}{8}$ " thick.
Bulwarks of iron $\frac{3}{16}$ " thick, all fore and aft standing about
3 feet above deck stiffened with A Stanchions as mentioned
in additional specifications.
Wood Work etc

Deck to be of good sound yellow pine $2\frac{1}{2}$ in thick free
from all objectionable knots, secured to deck beams
by galvanised screws, ~~bolts~~ bolts and nuts, Deck to be
carefully caulked and made perfectly water tight.

Rail of American elm 9×3 "
Ceiling Flat of floor and to upper turn of bilge to be ceiled
close with 2" yellow pine finish with a covering
board $2\frac{1}{2}$ " thick.

Accommodation to be provided forward for crew containing
sleeping berths, lockers, table etc neatly finished
in pine and finished any plain colour required
a neat companion and ladder supplied.

Winch one double geared steam with 5" cylinders to be
fixed forward complete and provided with a boiler.
Rudder To have forged iron frame covered with $\frac{3}{16}$ " plates
dia at head 3" inch heel 2" inch

Anchor & Chains. A complete set of Anchors and Chains of best
description and in accordance with board of
trade regulations for a vessel of her class and Lloyd's
class.

Steering Gear. A strong barrel steering gear aft with wheel
tiller and chain complete. A compass and
binnacle supplied.

Hatchways etc. One main hatch about 30 feet long by

✓ 8 ft wide divided into three portions by the two bulkheads as mentioned above, One smaller hatch forward, all hatches to be furnished with necessary covers cleats, battens, harpanlins etc.

✓ Galley An iron galley fitted up fore of funnel with cooking stove etc of suitable size for the accommodation of four men.

Water Tank a small iron water tank placed on deck fore side of galley to hold about 120 gallons.
Mast & Rigging. One mast of red pine standing about 45 feet above deck set up with wire rigging and fore stay and carrying boom & gaff with one main sail of No 2 Extra canvas, one stay sail of No 3 do. one fore stay running rigging of best hemp.
✓ Gear Two cork fenders, two life buoys, one lead line & lead & cwt. spare cordage, two hawsers $5\frac{1}{2}$ " & $3\frac{1}{2}$ " about 90 fathoms long, two heaving lines, all of best hemp.

Boat one small boat supplied.

Painting All iron work to receive ~~to receive~~ three coats of good oil paint, deck work two coats, Cabin two coats, finished any plain colour required.

Boiler To be a cylindrical tubular boiler 7'6" dia with two furnaces of 2'8" dia each, tubes $2\frac{1}{2}$ " - dia & 5'6" long, steam dome of suitable size. Shell of boiler of best Staffordshire boiler iron; furnaces above fire bars, back combustion chamber, and tube plates of Bowling or other Yorkshire iron; boiler to be made of sufficient strength to work at 60 lbs pressure per square inch and to be tested with cold water to a pressure of 120 lbs per square inch.

Decks To be running all fore and aft at each side of hatches of plate iron $1\frac{1}{2}$ & $\frac{5}{16}$ with an angle iron $3 \times 3 \times \frac{3}{8}$ in way of all fore and aft coamings.

Ulster Iron Works

Aberson Bason Belfast

October 15th 1869

Mac Shuainn Lewis

Foundation