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Specification of an ^{hull} iron paddle wheel steam tug fitted with a pair of side lever surface condensing disconnecting Engines, Two multitubular boilers, feathering wheels and Donkey Engine complete for the Harbour Commissioners of Wexford

Class

To be classed A at Lloyds for tug purposes and have Lloyds machinery certificate, also to be built under Board of Trade survey for a Passenger excursion or N^o 3 certificate, all fees to be paid by builders

Draught of water not to exceed 6 feet when in working trim with 15 tons of coal in bunkers.

Dimensions

Length between perpendiculars	108 feet
Breadth	18 " Gunwale
Depth	10 "

Keel & Stem

of the best crown iron $5" \times 1\frac{1}{2}"$, sternpost $5\frac{1}{2}" \times 1\frac{1}{4}"$ all properly scarphed & jointed

Frames

of angle iron $2\frac{1}{2}" \times 2\frac{1}{2}" \times \frac{5}{16}"$ spaced 21" apart throughout to be in one piece from keel to gunwale, and three frames on each side in way of shaft table to be strengthened with web plates 10" deep $\times \frac{1}{4}"$ thick having double angle irons on outer edge

Plating

of plate iron $\frac{1}{4}"$ thick, 9" deep at centre tapering to each bilge with 2 lumber holes in each

Reverse angle irons

on every frame $2\frac{1}{4}" \times 2\frac{1}{4}" \times \frac{1}{4}"$ and double under Engine to turn of bilge, and carried up to gunwale in paddle space.



Keelsons

To have a main keelson fitted down between Engine floors made of $\frac{1}{4}$ " plate with a double angle iron on top edge $3" \times 3" \times \frac{3}{8}"$ rivetted to the floors, Engine keelsons to be box shaped of height to suit Engines, sides of $\frac{1}{4}$ " plate and tops of $\frac{5}{16}"$ plates carried from bulkhead to bulkhead the whole length of Engine room, Boiler seating to suit boilers of $\frac{7}{16}"$ plate with double angle iron top & bottom $2\frac{1}{2}" \times 2\frac{1}{2}" \times \frac{7}{16}"$

Stringers

of plate iron $10" \times \frac{7}{16}"$ rivetted to gunwale angle iron which is to be $2\frac{1}{2}" \times 2\frac{1}{2}" \times \frac{7}{16}"$. To have a side stringer extending whole length of Engine room formed of double angle iron $3" \times 3" \times \frac{3}{8}"$ or a plate stringer in lieu thereof to suit boiler space

Plating

Garboard streak for half length amidships $\frac{3}{8}"$, at ends $\frac{1}{16}"$, shear streak for half length amidships to be $\frac{3}{8}"$, at ends $\frac{1}{16}"$, bottom under Engine to turn of bilge $\frac{9}{16}"$, remainder $\frac{7}{16}"$ thick

Rivetting

Keel, stern & stern post, butts of stringer plates and Engine keelsons, butts of garboard streak and all butts in Engine room to be double rivetted, butt straps in plating in all cases to catch the joints below & above and to be of equal thickness with the plate, the whole of the rivets to be of the best quality, placed the proper distance apart and finished slightly convex at the points

Caulking

all the joints & butts of outside plating to be faced fair caulked and made thoroughly tight, no filling up of any kind to be used at the butts



Coal Bunkers to be as large as possible & placed alongside Engines, to be of plate $\frac{1}{8}$ " thick, bottom plate 2'-0" up to be $\frac{1}{4}$ " thick stiffened with angle iron $2\frac{1}{4}" \times 2\frac{1}{4}" \times \frac{1}{4}"$ on each alternate frame & rivetted to it & to deck beams, to have cross stays in centre to boats side with hanging knees Floors of Elm or hardwood, bunker ports with grates & covers, & sliding doors in stokehole as required

Bulkheads one at each end of Engine room & one collision bulkhead forward made of $\frac{1}{4}"$ plate & well stiffened with angle iron $2\frac{1}{4}" \times 2\frac{1}{4}" \times \frac{1}{4}"$ spaced 2'-0" apart and fitted with brass sluice valves or cocks.

Deck beams of angle iron $4" \times 3" \times \frac{9}{16}"$ on each alternate frame to have an iron hanging knee rivetted to each beam & to the frames 12" deep, cabin deck beams $2\frac{1}{2}" \times 2\frac{1}{2}" \times \frac{5}{16}"$ & well stayed to floors.

Paddle beams of plate iron $\frac{3}{8}"$ ^{thick} & stiffend with angle irons all round $3" \times 3" \times \frac{3}{8}"$ to be 3'-0" deep at boats side and 10" at outer ends and well stayed with $3\frac{1}{2}"$ round iron stays with double plates at ships side, inside beams of plate 12" deep at centre & $\frac{9}{16}"$ thick and 30" at vessels side with double angle irons top and bottom $2\frac{1}{2}" \times 2\frac{1}{2}" \times \frac{5}{16}"$

Rubber To have a strong rubber of half round iron all round the vessel securely rivetted through the top streak & gunwale angle iron which is to be on top of stringer plates.



Breast Hooks Three in number $\frac{7}{8}"$ thick & well secured

Rudder Trunk of $\frac{5}{16}$ " plate

Rudder

of iron of suitable size & strength for dimensions of vessel, stock to be of forged iron turned at head $3\frac{1}{4}$ diameter plated with iron $\frac{5}{16}$ " thick, gudgeons and stops to be fitted extra strong, stuffing box at rudder head on deck.

Waterways

of the gutter description made of iron and cemented out, & to have a waterway plank of pitch pine carried all round to take deckends

Decks

over boilers extending from after paddle beam to boiler room bulkhead to be of iron, deck beams under iron deck to be $3" \times 2\frac{1}{2}" \times \frac{3}{8}"$ on every frame. Decks forward & aft of boilers to be of yellow pine $5" \times 2\frac{1}{2}"$ well seasoned & clean, fastened to beams with $\frac{1}{2}"$ iron screws, to be caulked and made watertight, to have 2 threads of oakum

Bulwarks

of iron $\frac{5}{16}"$ thick with $1\frac{1}{2}"$ round iron stays with centre palm, to have scuppers and water ports where necessary, height to top of rail 2'-6". Rails to be of American Elm $4" \times 2\frac{1}{2}"$ with rubber on top round stern of Greenheart.

Engine Combing

Combing of iron $\frac{1}{4}"$ thick & of sufficient height all round Engine & boiler hatches, boiler top & steam dome to be covered by neat casings of iron

Low rail & Stanchions

of English oak of sufficient strength with turned stanchions, to have hard wood rubber on top of rail, a second rail to be fitted at after part of vessel over stern creating



Lowing gear fitted abaft the funnel strong & complete with two patent slip hooks, strong standards and stays

Paddle boxes sides next to deck to be of iron $\frac{3}{16}$ " thick with angle iron stanchions, outside stanchions of Elm $5" \times 4\frac{1}{2}"$, sweeps of oak $4" \times 3\frac{1}{2}"$, cleading on top and sides $1\frac{1}{8}"$ thick feathered & grooved, to have Elm straps over each sweep, fender pieces on outside to be of oak $15" \times 2"$

Gangways one on each side aft of paddle box as required with iron doors.

Deck houses Two aft of paddle boxes of sufficient size & good strength, sides next deck of iron same as paddle boxes, one to be fitted as galley and one as common Water closet. Tops to be covered with canvas

Sponsons Fore & aft sponsons of American elm $14" \times 8"$ securely bolted to paddle beam ends, knuckle plates extra strong, gangway sponsons of American Elm $11" \times 5"$ to be supported with angle iron beams & knees to boats side, gangways to have iron plates on top to prevent boards washing up. To have rubler of Elm with convex iron plate on outside all round sponsons, to have projecting fender pieces on paddle boxes with iron stays, hanging fenders under sponsons if required.

Cant Timbers To have 2 forward & 2 aft inside of rail of English oak $8"$ square fitted into cast iron sockets & bolted through deck to special iron plates rivetted to deck beams, iron cleet on each two cast iron mooring bitts aft.



Awse pipes & Stern pipes. of cast iron properly secured in strong oak chocks.

Cant Hooks one on each gangway of good size securely bolted to paddle beam.

Winch

To have a strong steam Windlass or Winch capable of lifting anchor & constructed on English oak bitts 10" x 3½" with pall bitt 10" square all let down to cabin deck beams through special oak planks on main deck, Winch to have strong pawl plate & pawls and cast iron whelps on barrel for fleetting chain, also surging drums on spindle ends for working towing hawsers. Winch to be driven by steam power having a pair of Engines 6" cylinders 9" stroke, attached to main boiler by copper pipes, to be placed in such a position as may be agreed on

Companions & Skylights. To have one companion to each cabin of sufficient size to be neatly fitted, two skylights one forward & one aft, to have brass wire gratings tops covered with canvas

Cabin

After cabin plated & pannelled and neatly fitted, to have stateroom with bed, drawers, wash stand & sofa seat, pantry & water closet, leather covered cushions to seats, floor cloth to floor, one table with oil cloth cover, one cabin stove with galvanized funnel, comin & cover, brass handrail to stais and brass tips. Fore cabin to be fitted as per plan to be approved to have 2 staterooms with berths, lockers for crew, lamp room in fore peak with shelves, one table, stove & galvanized funnel with comin & cover.



Engine house To be of fine of sufficient strength planed and pannelled, Combings of Engine house to be of plate iron, Engine house to have square front with glazed sliding windows and door. To have platform at front part with iron polished handrail.

Locks & hinges on deck & in cabins to be of brass.

Steering gear To be fitted on bridge strong & complete with iron tiller abaft & spare tiller made to unship, Wheel of teak & brass mounted 4 1/2 feet diameter, patent worn barrel and chains &c complete, iron pipes along each side for wheel rods as far as cant timbers

Boats one dingy 12 feet x 5 feet with 2 oars, and one lifeboat with complete equipment as per Board of Trade requirements

Cathead of iron with blocks & fall to be fitted to work on either side

Davits To have one pair of iron boat's davits with blocks & falls complete

Mast &c one pole mast, gaff, color, staff, 2 boat hooks & wood or rope fenders for knuckle ends with cleets & chains, Standing rigging to be of wire, running rigging of Hemp or Manilla

Bridge To be carried across between paddle boxes over Engine house, deck of pine 4 1/2 x 3/4 laid on iron beams, to have double iron handrail all round & ladder to deck, Steering wheel fitted on bridge with screen all round. To have a



speaking tube fitted from bridge to engine platform.

Painting

The whole of the wood & ironwork to have 3 good coats of the best oil paint, cabins & deck work including engine house & sides of deck houses & bulwarks next to deck to be grained & varnished.

Cementing

The whole of the inside of bottom of vessel fore & aft to be cemented with best portland cement to turn of bilge.

Gilding

Name to be carved & gilded on paddle boxes & painted on bow & stern.

Outfit

1. Rodgers ^{2.30} patent anchors 3 1/2 cwt, 60 fathoms of ^{3/4} inch short link chain cable, ~~45 fathoms of 3/4 inch short link chain cable~~, 1 warp 40 fathoms of 6" Manilla, 1 warp 30 fathoms of 4 1/2" manilla, 2 heaving lines 20 fathoms each, 1 fib, 1 ^{trysail} ~~trysail~~, 1 Ensign, 1 Union Jack, 1 burgee, 1 colour bag, Wire rope rigging, 2 cork fenders, 1 Binocular glass, 2 copper mast head lights, 2 copper side lights, 1 Copper anchor light, 2 mops, 2 deck scrubbers, 2 paint scrubbers, 2 coir brooms, 1 hand brush, 1 dust pan, 2 wood deck buckets, 2 galvanized iron pails, 1 hand lead, 1 lead line, 1 cabin lamp & brass rod for same, 1 fore cabin lamp, 2 berth lamps, galvanized limber chain, 1 galv. water tank 80 gallons, 1 copper water dipper, 60 feet of leather or India rubber deck hose with couplings, 6 knives & forks, 6 table spoons, 6 tea spoons, 6 meat plates, 6 cheese plates, 6 soup plates, 6 dishes assort^d, 1 soup tureen, 1 soup ladle, 6 cups & saucers, 6 Tumblers.



6 wine glasses, 3 basins, 1 water jug
 1 saw, 1 axe, 1 chisel, 1 auger
 1 jack plane, 1 Marline spike, 1 cabin mat
 1 kettle, 1 frying pan, 1 teapot,
 1 coffee pot, 2 saucepans, 1 oval pan,
 1 cooks ladle, 1 tommonter, 1 cooking hearth
 fitted in galley complete with galvanized funnel
 Compasses, To have one pillar binnacle with
 brass top & lamps & 8" spirit compass fitted
 on bridge, & to have a brass tell tale compass
 fitted in after skylight all to be properly
 adjusted, 1 Patent W. C. in cabin, 1-10" polished
 brass bell with name engraved, 1 foghorn,
 1 forecastle ventilator, 1 copper bilge pump
 with gear fitted in forward & aft compartments as
 per Lloyd's rules, Life buoys, Life boats, signals.
 & all necessary fittings as required by Board
 of Trade for an excursion certificate.



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Engines

To be a pair of side lever surface condensing and disconnecting Paddle Engines of 80 Nominal Horse power, Equal to a driving power of $10\frac{1}{4}$ knots in ordinary weather.

Cylinders.

escape valve
indicator cocks

x

Two in number, one to each Engine, to be of hard close grained cast-iron & smoothly bored to a diameter of 28 inches & to be of sufficient length for a stroke of piston of 50 inches, to have escape valve & drain cock on bottom, nozzles for indicator cocks top and bottom, the exhaust steam to be carried to condensers by external copper pipes.

Cylinder covers

x

To be of cast iron finished bright, to have suitable tallow cup to each of brass, and ring bolts for lifting.

Slide Valves

Cuts off

x

To be of cast iron accurately faced & scraped each Engine to have a variable expansion valve adjusted to cut off at from $\frac{1}{10}$ th to $\frac{3}{10}$ ths of the stroke & regulated by lever from starting platform

Valve Casings

+

of cast iron made separate from cylinders & fitted with tallow cup on each

Pistons

Brass nuts

x

of cast iron with junk ring to be properly turned to suit cylinders, scraped & faced to a proper surface & fitted with Oldham's or Buckley's patent packing rings & springs, junk rings to be secured with iron bolts having brass nuts and efficient guards



Piston rods

to be of forged steel.



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Guide bars of cast iron, well secured to cylinders & fitted with brass oil boxes & lubricators.

Oil boxes

Connecting rods. Forged of best scrap iron & fitted with gun metal brasses.

Slide spindle & Eccentric Rods of best scrap iron of sufficient strength.

Eccentric sheaves of cast iron, those for main valves to be made in halves, securely bolted & accurately fitted to shaft with a proper clutch for driving ahead or astern, all to have strong straps of best brass.

Starting & Reversing gear of sufficient power & conveniently arranged with regard to the working platform, all the working eyes & pins to be thoroughly case hardened.

Case hardened

Disconnecting gear To have a disconnecting or wheel crank fitted to port engine on intermediate shaft with disengaging gear & lever arranged to be worked from deck.

Levers.

To be of best rolled steel plates $\frac{1}{16}$ " thick and of sufficient depth, with strong gudgeons of forged iron, & to have suitable guide quadrants at cylinder ends with brass guide plate on levers.

Shafts

To be of best forged scrap iron with a bearing at ship's side fitted on proper wrought iron brackets or tables outside of vessel. Shaft journal at engine to be not less than $7\frac{1}{2}$ " diameter, outer bearing not less than $8\frac{1}{4}$ " diameter & 16" long. The intermediate shaft to be at least $7\frac{1}{2}$ " diameter.

Gives



at journals, & to be sufficiently increased in diameter at part where disconnecting crank is fitted.

Crank pins

To be of forged steel 5" diameter secured in cranks with nuts

Cranks

To be of best forged scrap iron, & to be properly shrunk & keyed on to shaft

Bedplates

of good sound cast iron & of ample strength with recess in each for foot valves

Surface Condensers

one to each Engine of sufficient capacity, of good sound cast iron with Muntz metal tube plates & solid drawn brass tubes $\frac{3}{4}$ " external diameter \times 18 B. W. G., and to have a cooling surface in each of not less than 320 square ft. The tubes to be made tight on the condenser by screw glands, each condenser to be fitted with soda cock, drain cock, supplementary feed valve and vacuum gauge, to have a manhole door in condenser, and cleaning door in fore end as required

Air pumps.

one to each Engine of solid brass with cast iron head to be smoothly bored & fitted with brass bucket & head valve, having suitable guards & valves of bronze metal, Air valve on each, Foot valve to be arranged in bedplate screw to be accessible without drawing bucket to be of brass having brass guard with valves as above



Circulating pumps To be double acting & of cast iron with a solid brass chamber truly bored and fitted with brass plunger, valve seats & guards with Indiarubber valves, two air valves on each

Air & circulating pump rods To be of forged scrap iron and
Rods Cased cased with brass.

Feed pumps To be two in number of sound cast iron, of sufficient capacity with brass rams, and check valves worked according to best arrangement of Engines, & to be capable of supplying boilers with Engines working at full speed, spring relief valve on each.

Bilge pumps To be two in number with brass rams similar in size & construction to feed pumps and worked from opposite side to feed

Hotwells of cast iron fitted with air vessels and attached to air pumps, to be cemented to the side of vessel by pipes with delivery valves having brass seat, fixed above water line

Framing
Fitted Bolts The main framing, framing for Over tail Bars & slide valve gear to be of cast iron extra strong and accurately fitted to their respective positions, & secured with iron screw bolts turned & fitted where required.

Vacuum & steam gauges Two steam pressure & two vacuum gauges arranged to suit Engines & Boilers & put in convenient places with pipes.



Syphon Lubricators of brass to be attached to all the principal working parts of Engines with pipes to convey oil where required

Syphons-

Cocks

Packed plugs

All made of best brass & such as are above $1\frac{1}{4}$ " to have packed plugs with brass glands and bolts.

Pipes

Non return

Made of copper with brass flanges suitably applied & of sufficient diameter for their various requirements, the thickness from 9 to 15 wire gauge with faced joints where required; Bilge pipes of copper, All pipes passing through ship's side below water level to have a cock or valve against ship's side & no cock or valve to be fitted to ship's side below level of Engines or stokehole floor.

Bilge Injections To have a non-return valve fitted to each circulating pump with copper pipe to draw from bilges

Non return

Bearings

Gun metal

All bearings in Engines to work in best brass the main shaft journals & top & bottom ends of connecting rods in gun metal

Donkey Engine To have one double acting donkey engine 6" cylinder and 8" stroke, with ram, cocks, and valves of brass, and copper feed pipe steam & discharge pipes fitted to pump from bilge or sea into boiler or on deck.



Wheels

Wid

To be on the feathering principle & overhung on ship's side to be of diameter & strength sufficient for size of Engines. Centres to be of cast

Two Keys

iron of large diameter & securely fastened to shafts with two keys in each. To have two sets of arms & rims with inner rims on each side of vessel & to have 8 Americal elm floats on each wheel, all bushes & pins to have flanges of brass, and all moveable parts to work brass & brass. Eccentric standards of large diameter & breadth of bearing, Eccentric pulleys to be lined with brass. Arms, radius rods, Canting arms & brackets to be of the best forged scrap iron, Rims to be of the best crown bar iron, all to be secured with iron screw bolts.

Boilers

To have 2 cylindrical multitubular boilers not less than 8'-9" diameter by 10 feet long with 2 furnaces & with separate combustion chambers in each. To have a total heating surface of 1200 square feet measuring above level of grate bars, & to have a total grate surface of 50 square feet. Each boiler to have a large steam dome of sufficient capacity attached to boiler by a strong flanged neck piece. The boilers to be placed in vessel abaft the engines, having smoke box & funnel, small tubes to be 4" external diameter, stay tubes flapped into back tube plates & beaded over on fire box side and secured with nuts inside & outside at front tube plate. Furnace top plates to be in one piece & arranged so that the horizontal seams shall be below grate bars, tube plates furnaces, and all plates in combustion chambers, shell and back ends to be of Siemens-Martin steel and manufactured by the steel company of Scotland. Furnace front plate of steel in one piece and flanged to take shell & furnaces, all plates.



joining shell, combustion chambers, and domes to be flanged, & no angles used for joining plates.

Shell to be in two courses of plates and double rivetted in cross and circumferential seams. Ends to be each in two plates, lap jointed and single rivetted in cross seams. A cleaning space to be left in centre between each set of tubes and also between tubes & shell.

To have all necessary manhole & cleaning doors with compensating rings. The plating and staying of boilers to be made of sufficient strength & in accordance with Lloyd's Board of Trade rules for a working pressure of 45 lbs on the square inch, & to be tested by hydraulic pressure to the satisfaction of Lloyd's Board of Trade surveyors to 90 lbs, & by steam pressure to 50 lbs on the square inch before being put into the vessel.

The boilers to be properly fixed and secured in the vessel & the tops & back ends covered with an approved non-conducting composition.

It is understood
compos

Boiler fittings To comprise for each boiler one steam stop valve with brass seat &c, one brass feed check valve for Engines, & one brass feed check valve for donkey, one pair of spring safety valves, one blow off valve, one scum valve, one water gauge pillar with fittings complete, one pressure gauge, furnace bars, five doors, bridges, cast iron bearing bars and dead plates, damper and damper gear to be fitted in funnel as required. The steam domes above deck to be covered with a neat iron casing. To have a cock fitted to vessels side in stokehole for cooling ashes.



Stokehole floors. To be laid on proper cleavers, close planked and covered with wrought iron chequered plates

Funnel

To have one funnel of plate iron of sufficient diameter & length with all necessary bands, eyes, bolts &c & securely stayed with wire rope guys.

Tools.

The following tools to be supplied by

- ✓ 1 tallow box (tin or iron painted), 1 5" vice,
- 2 oil tanks with taps & sieves, 1 iron tallow
- ✓ Kettle, ✓ 2 tube scrapers, ✓ 6 tube brushes
- ✓ 2 engine room lamps, 3 hand lamps, ✓ 6 chisels,
- ✓ 4 oil feeders, ✓ 1 gauge lamp, ✓ 3 salt hammers,
- ✓ 1 hand hammer, ✓ 1 quarter hammer,
- ✓ 1 copper hammer, ✓ 2 salt shovels, ✓ 2 firing shovels
- ✓ 2 trimming shovels, ✓ 2 pickers, ✓ 2 rakes,
- ✓ 4 slices for cleaning boilers, ✓ 2 ash buckets,
- ✓ 2 piston handles, ✓ 1 shifting spanner,
- ✓ 1 box key & wrench, Blow cock key,
- ✓ 1 complete set of spanners & rack fitted,
- ✓ 1 salinometer & copper can, ✓ 1 Thermometer,
- ✓ Eyes, bolts & ropes for lifting cylinder covers
- ✓ Iron ladders for stokehole, stanchions and
- ✓ handrails between & also at Engines.
- ✓ 1 large steam whistle to communicate with
- bridge, ✓ 1 pair of copper vice grips, 1 ratchet brace
- ✓ 6 drills, 6 files (assorted), 4 spare pins for wheel
- ✓ radius rods, 2 spare crank bolts, 2 spare main
- ✓ bearing bolts, 4 spare piston bolts, 1 gib &
- ✓ cotter for connecting rod, 12 assorted float bolts
- ✓ 12 assorted wheel bolts, 12 assorted joint bolts,
- ✓ 3 dozen assorted washers, 2 10" iron ventilators for
- ✓ stokehole, 2 water buckets.



Trial trip

The engines on completion to be tried under steam at sea to the satisfaction of the Company's Engineer, The expenses of trial to be borne by the contractors.

Certificates

Lloyds Classification certificates for Hull and machinery and the declaration of Board of Trade Surveyors for passenger survey to be handed over by the contractors to the purchasers as soon after completion of vessel as practicable.

Finally.

Although not specially mentioned all the latest improvements in Hull & Engine work on boats of a similar size & kind to be taken advantage of, and boat and machinery to be finished to the satisfaction of Lloyds & Board of Trade Surveyors or of an inspector appointed by the Trustees, and she shall have all the fittings & furnishings necessary for the proper working of a boat of her size whether mentioned in the specification or not, and the boat generally to be fitted and finished in the same style as the Sugs built by us for the Clyde Shipping Co of Glasgow. In the event of any dispute arising as to the meaning of this specification, or in regard to the workmanship a skilled Arbitrator to be mutually appointed whose decision shall be considered binding by both, without having recourse to a Court of Law.



Signed *Wm Renoldson*
Chas Renoldson
Jas W Woud

See WHE

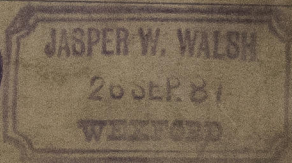
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Copy of
Specification

by
Aldred Survevor

- 4 Rod Rod Pins
- 1 Glass Colter Car Rod
- 4 Pinion Bolts
- 2 Trail Crank Bolts
- 2 Main Beam *etc*
- 2 Tail Bar Bolts

in Shale
Pins 40
Stems 43
Yarn 2 1/2"
Time 5-35
Grade South
Chain Link 16 1/2"



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