

KINGDON'S
Patent Quadruple and Compound Surface Condensing Engines

AND

NATURAL DRAUGHT BOILERS,

AS APPLIED TO

STEAM YACHTS AND LAUNCHES OF EVERY DESCRIPTION.

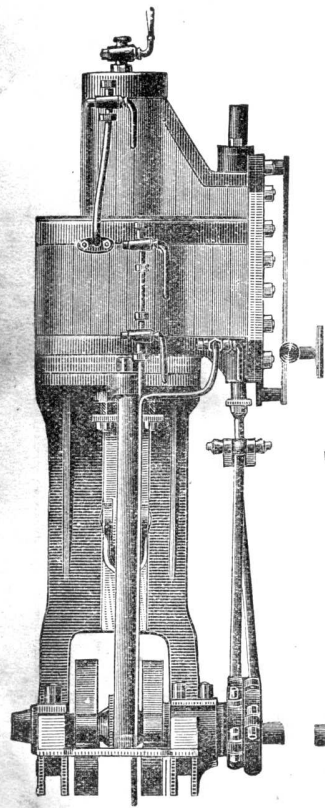
SOLE MANUFACTURERS AND PATENTEES:

SIMPSON, STRICKLAND & CO.,

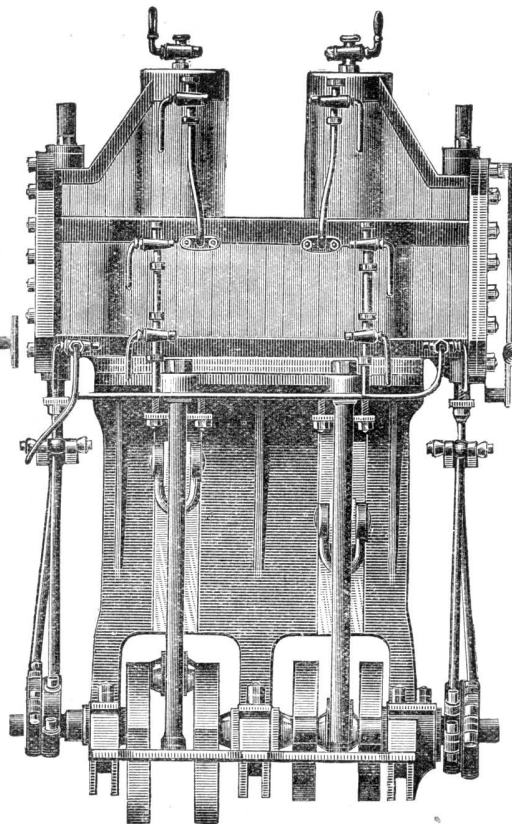
DARTMOUTH, ENGLAND.

—
1889.

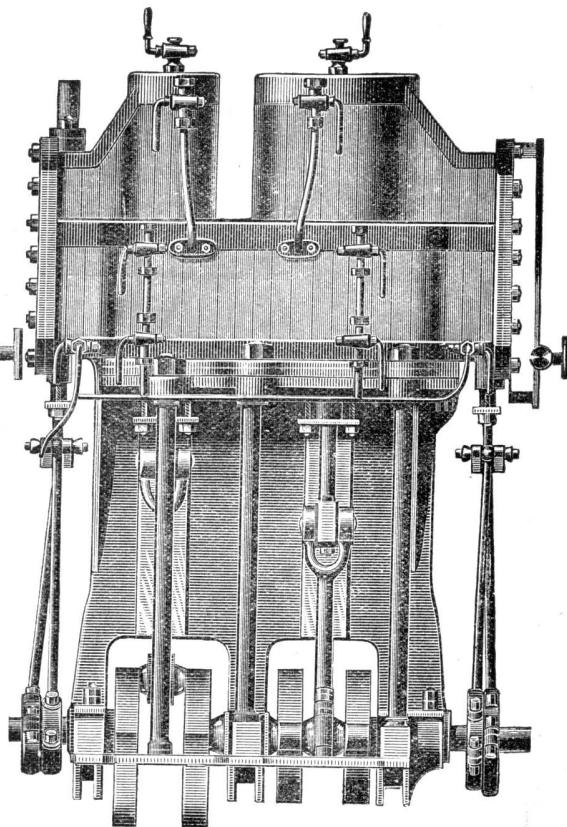
SINGLE COMPOUND.



DOUBLE COMPOUND.



QUADRUPLE EXPANSION.



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GENERAL REMARKS.

THE advantages of Compound Surface Condensing Machinery for Marine Purposes have long since been so fully recognised that the types formerly in use have been superseded by it in all Steamships of large size.

Owing, however, to many difficulties in the way of adapting Compound Surface Condensing Machinery for practical work on a small scale, the old-fashioned type of High-Pressure Engine has remained almost exclusively used for Launches of the smaller kind until late years, when the Engineering Firm of Messrs. SIMPSON & DENISONS, now SIMPSON, STRICKLAND & CO., of Dartmouth, turned their attention to supplying a long felt want, and introduced in 1880-1881 a simple form of Tandem Compound Surface Condensing Engine, with a Natural Draught Boiler, now known as the Kingdon's Patents, which are adapted for all kinds of Steam Vessels, and even to Launches of the smallest size. This type of machinery has, since the above date, so rapidly increased in favour that the old non-condensing type has now become as obsolete for Launches as for large Steamers.

QUADRUPLE EXPANSION.—Messrs. SIMPSON, STRICKLAND & CO., have successfully introduced and patented a still further improvement in small Marine Engines, and now build these on the Quadruple Expansion Principle, even from the smallest size with an 1 $\frac{3}{4}$ -in. H.P. Cylinder, and have obtained thereby greatly increased power for the same weight and coal consumption.

Messrs. SIMPSON & DENISONS, now Messrs. SIMPSON, STRICKLAND & CO., have for several years past made the manufacture of this class of Machinery their specialité, and have supplied a very large number of the Kingdon's Patent Engines and Boilers, with the most successful results, both for Mercantile and Yachting purposes, including orders from the Lords of the Admiralty for H.M.'s Navy, the Crown Agents for the Colonies, the Thames Conservancy, and for the Russian Government, in addition to many Firms and Yacht Owners in all parts of the world.

It is claimed by this Firm that Compound Surface Condensing Machinery WAS FIRST SUCCESSFULLY ADAPTED BY THEM to the requirements of small Launches, and the rapid way in which it has supplanted the old type is sufficient proof of its advantages.

DESCRIPTION OF THE PRINCIPAL DETAILS.

ENGINES.—These Engines are double-acting Tandem of the most simple and efficient type. They are Compound or Quadruple Surface Condensing, and are consequently far more economical than high-pressure ones. Being surface condensing there is no necessity for carrying fresh water. They can be made either double or single, *i.e.*, with either one double cylinder on one crank, or with two double cylinders on a double crank. Their simplicity is obvious, as one valve regulates the admission and emission of steam in both cylinders, and there are no more moving parts than in a single cylinder engine. (See Plate back of title page.)

With Quadruple type there are four cylinders arranged in two pairs, with a double crank; they have no more parts, and occupy the same space as the double compound.

The grade of expansion is directly proportioned to the area of the two or four cylinders, and there is far less loss of pressure between them than is the case in most compound engines, owing to the shortness of the passages, and the temperature of the steam being maintained during its passage through the valve by the live steam by which it is surrounded.

The steam is carried throughout about nine-tenths of the stroke in all cylinders, and consequently the effort on the crank is very uniform. Both pistons being on the same piston-rod, the strains on the crank shaft, due to an unequal amount of work being done in the two cylinders at different portions of the stroke, are entirely done away with.

The high-pressure piston-rod has annular grooves, which prevent any passage of steam from the high to the low-pressure cylinder on the up stroke,* and on the down-stroke the steam is required to pass from

* In no instance have we ever found any trouble with this form of piston-rod, or any leakage to take place between the two cylinders.

the bottom of the high to the top of the low, and consequently any steam which is carried through in the grooves is of no consequence, the principle on which it acts being, that the steam which passes the large portions of the piston-rod expands in the grooves, and is carried back by them into the cylinder in which the high pressure exists. Thus the necessity for, and the friction of, a high-pressure gland is done away with. The friction of the engine itself is much reduced by these arrangements, thus allowing a larger proportion of power to be exerted on the screw and the boat to travel faster.

The ground space occupied by these Engines is governed by the size of the large cylinder, and the height is much less than in the ordinary type of Tandem Engine. They are exceedingly easy to start or reverse, in consequence of the steam being carried throughout nearly the whole stroke. The above remarks apply to the Quadruple as well as the Compound Engines.

The advantage of these Engines as applied to Steam Launches is that they are SURFACE CONDENSING, and consequently far more economical, noiseless, and cleaner than the high-pressure type. They run equally well either in SALT or FRESH WATER, and using the same water again and again, the necessity of carrying fresh water is entirely obviated.

FEED AND AIR PUMPS.—The Feed and Air Pumps are fitted with metal valves, which are much more durable and less liable to get out of order than the rubber ones usually employed, and being self-acting the feed pump cannot stop working while the Engine is running. The air pump gives an almost perfect vacuum.

The bottom valve of the feed pump is formed with a long spindle, which is made a working fit in a hole bored in the pump plunger, which spindle, becoming coated with grease from the condensed water, causes sufficient friction to lift the valve at the commencement of the up-stroke of the plunger, keeps it open during the stroke, thereby leaving a free passage for the water, and closes it at the commencement of the down-stroke, compelling the water in the pump barrel to pass through the top valve. The bottom valve of the air pump is made in the piston which is allowed a small amount of vertical motion on the piston-rod, and is so arranged that, on the down-stroke, the friction of the packing against the bore of the pump raises it, thereby leaving a free passage through the valve, and on the up-stroke presses it down, and so closes the

passage, thereby compelling the contents of the pump barrel to pass through the top valve, which is constructed of metal.

These air-pumps, although driven at a high speed, will maintain a steady vacuum of from 25 to 27 in., and have in no case failed, or caused any trouble whatever.

Both pumps are driven direct from the cross-head of the Engine (so that all levers and weigh shafts are done away with), and will work perfectly at 400 or 500 revolutions a minute, which prevents the necessity of employing gearing or other means to reduce the speed of the pump, as is generally done in torpedo and quick-running launches. They are fixed in the framing of the Engine, so that there are no pipes projecting in the boat. The very large number of these pumps, now running in all parts of the world, have fully established their great superiority to all others for quick-running Engines using condensed water.

SIMPSON, STRICKLAND & CO. being the Sole Owners of the Patents, these Pumps cannot be obtained from any other Firm.

CONDENSER.—The Condenser in launches of the smaller sizes is formed of a solid drawn copper tube of D section, placed outside the boat, the ends of which are fastened into suitable metal castings passing through the skin, and is so made as to be stronger and less liable to injury than any other part of the boat. It is connected at the forward end with the exhaust pipe, and at the after end with the air-pump suction. No difficulty is found in maintaining a vacuum of 25 or more inches.

BOILER.—The Boiler is vertical, and, with the exception of the A & B sizes, has the *tubes entirely immersed*. It is so made that the diameter is practically equal to the height, and therefore has its centre of gravity nearly as low as a horizontal one, and has from its formation a very large steam space and water surface, which obviate all tendency to prime. The tubes, being proportionately smaller as the depth of water through which they pass is less, cause the products of combustion to pass off at a very low temperature, effecting great economy. The large size of the fire grate enables it to raise steam very quickly, and to sustain a full head with a VERY MODERATE NATURAL DRAUGHT, thereby saving an immense amount of wear and tear in the boiler, with an entire freedom from smuts, which are found so objectionable where a forced draught is used. From its formation it is very easy to construct and repair, and will carry a high pressure in proportion to its weight. The quantity of water in it is small for the power

developed, but from its shape a considerable alteration in the amount of water in the boiler can take place without materially affecting the water level. It is impossible for the boiler to get short of water without attracting attention, owing to the pump being self-acting. It will supply a good head of steam for an hour or more without firing. It is fitted with a water ash-pan, which prevents dust and dirt, and enables the fire bars to last many months. From the shape of these boilers the strains are so equally divided that no case of a cracked plate has ever been known to occur. It is also lighter in proportion to the power given out than ordinary launch boilers, and occupies far less space in the boat. The boiler is well adapted for burning wood; and all annoyance from spitting, and noise from the exhaust, is entirely obviated. Where exceptionally large power is required, and weight limited, a small fan blast can be fitted, with excellent results.

STEEL.—All the working parts of the Engines, and the Boilers, excepting the tubes, are constructed of best quality mild Siemen's steel.

SIMPLICITY.—The Engine has no more working parts than in a simple cylinder, or in the case of the double and quadruple Engines, a double cylinder high-pressure Engine.

CONSUMPTION AND SPEED.—Owing to the economy effected by the Natural Draught Boiler, as well as from the small quantity of steam used by Engines on the Kingdon's principle, the consumption of fuel is reduced to a minimum. As an example of this, a yacht's steam or four-oared gig such as is built by Messrs. SIMPSON, STRICKLAND & CO., for carrying in davits on board a yacht, and fitted with the Kingdon's Patent Single (A size) Machinery, weighing 7 cwt., has an approximate speed of eight miles on a consumption of about 8 lb. of coal per hour. A 50-ft. powerful Launch, suitable for sea or river work, fitted with Kingdon's Patent Quadruple (F size) Machinery, has an approximate speed of thirteen miles on a consumption of about 25 lb. of coal per hour, thus making the cost of fuel per day of ten hours, say 2s. 6d. (exclusive of lighting up). A Launch of the above size is frequently worked under the sole charge of one hand.

MAINTAINED SPEED.—Attention is particularly called to the fact that with this Surface Condensing Machinery, a constant speed is maintained over long distances, which is by no means the case with most launches, and from the small quantity of coal required, it is easy for a small launch so fitted to run over distances which could not be attempted in the case of High-Pressure Machinery.

23700 NO NECESSITY FOR CARRYING FRESH WATER.—The simple condensing arrangement, by an outboard pipe, which is fitted by Messrs. SIMPSON, STRICKLAND & CO., to all their launches, entirely obviates the necessity for using fresh water, which, in non-condensing engines, when used in salt water, often causes much inconvenience and expense. In the Kingdon's Patents the steam being condensed, and the same water used over and over again, there is no risk of injury to the boiler from "salting."

30071 N.B.—No case of injury, such as to prevent their working, has ever been known to occur to one of these outside condensers.

QUIETNESS AND CLEANNESS.—The excellent steaming qualities of the Kingdon's Patent Boilers, and the economy of the engines, renders the use of a steam jet unnecessary, and there is, therefore, a freedom from the noise and smuts which are so frequently a source of great annoyance, and all loss of fresh water from this cause is obviated.

QUICKNESS IN RAISING STEAM.—The Kingdon's Boiler raises steam from cold water in one-third the time taken in the ordinary horizontal type.

ADAPTED FOR BURNING WOOD.—It is excellently adapted for burning wood from the large fire-box and grate surface. (*Vide letter in printed description No. 2.*)

MACHINERY BUILT TO THE REQUIREMENTS OF THE BOARD OF TRADE AND LLOYD'S.—Messrs. SIMPSON, STRICKLAND & CO. make it a special object to supply the very best workmanship and material. And a Board of Trade Certificate for carrying passengers, or a Certificate of Class from Lloyd's, can be obtained if required, and arranged for at the time of ordering.

SPECIAL CONSTRUCTION.—Vessels and Launches of all descriptions are constructed by this firm in steel, wood, or iron, to meet special requirements, with raised cabins, deck houses, and fixed awnings for abroad. Launches are also constructed of Delta Metal, for hot countries.

STERN WHEEL, AND PADDLE.—Messrs. SIMPSON, STRICKLAND & CO. are prepared to give estimates for, and to build light draught, stern wheel, and paddle steamers from a length of 20-ft. and

from a draft of 6 in. upwards. The larger sizes are so arranged that each paddle wheel is driven by an entirely independent pair of engines. This arrangement greatly increases the steering and manœuvring powers, and renders a break-down from accident to the machinery practically impossible.

FRAMES.—In the case of Foreign Orders, where the cost of freight is of importance, any of these launches can be constructed of iron or steel frames galvanized, with keel, stem, and stern post. The frames are erected and properly marked before despatch, so that they can easily be planked up by native labour on arrival abroad. This method saves greatly in the cost of carriage, as the frames pack together in a very small compass, and include all necessary rivets for fastening the planking, keel, stem, and stern posts, teak or iron thwarts, with iron knees, cleats, fairleads and rudder, and all other necessary fittings, and are, in fact, complete launches in every respect, excepting the planking.

FITTED WITH ELECTRIC LIGHTING.—Electric Lighting has been fitted by Messrs. SIMPSON, STRICKLAND & CO. for a 30 ft. launch, with very satisfactory results, one of the smallest (A size) Kingdon's Patent Compound Engines, supplied from the boiler of the launch driving the dynamo requisite for 10 or 12 incandescent lamps of 20-candle power each, the small engine working entirely independently of the main engine. Sailing Yachts can be lighted with Electric Light supplied from the dynamo placed in the Steam Launch, and driven from her engine.

LIFE-SAVING AIR CASES.—The smaller sizes of open launches of from 20 to 40 ft. in length can be provided with air cases either of wood or copper, so as to render the boat unsinkable, after the system in use in Lifeboats and in H.M.'s Navy. The copper cases are strongly recommended on account of being better able to stand rough usage, as well as being tight in hot climates.

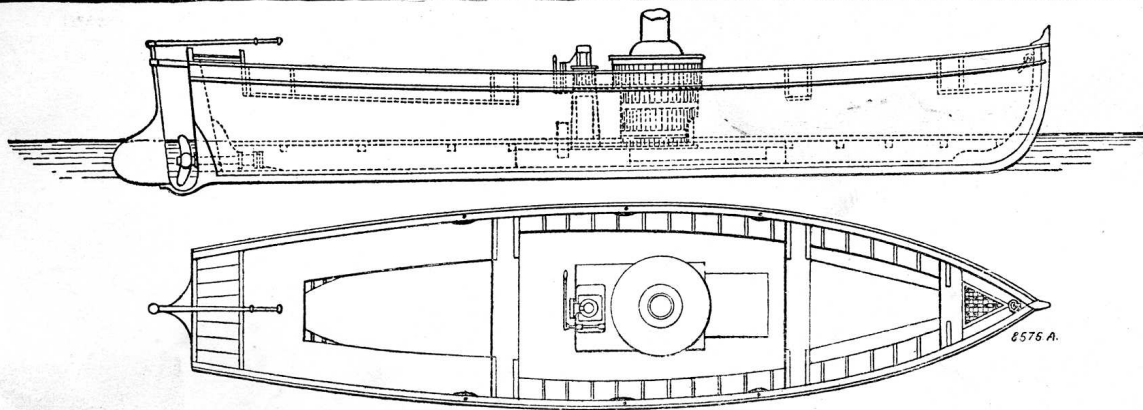
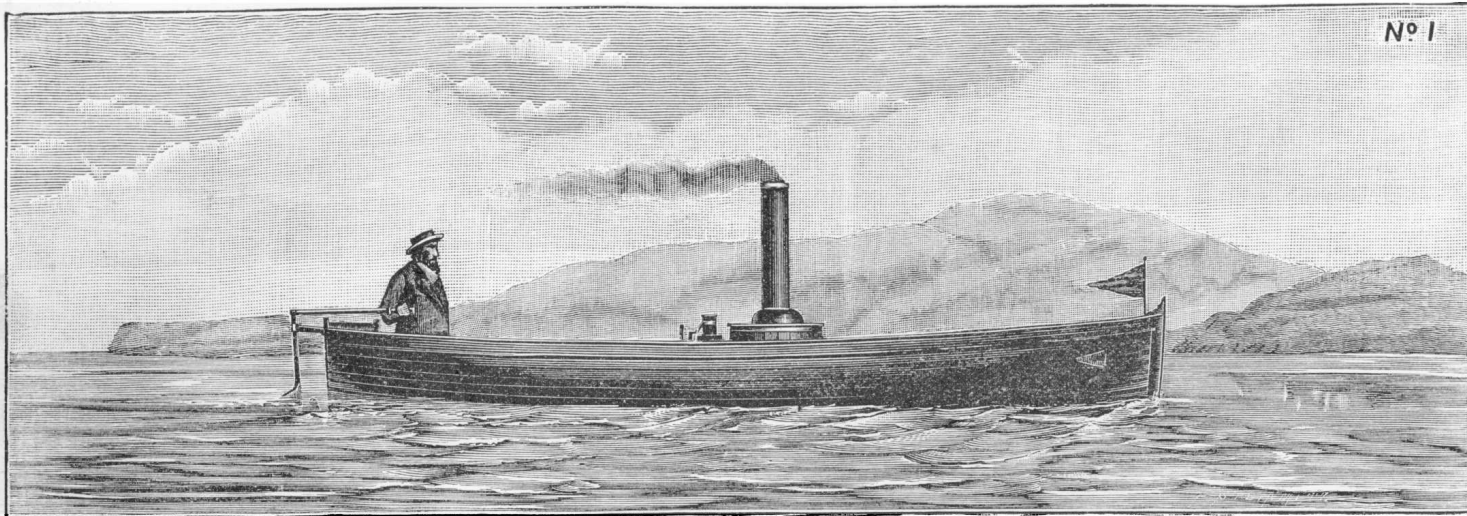
We are constantly designing and building launches of all kinds and descriptions for sea and river work at home and abroad, and HAVE SELECTED A FEW FOR ILLUSTRATION and description, in order to give intending purchasers some idea of the class of boats we build. We are, however, always pleased to send designs of boats for any purposes that may be required, and the enclosed designs can be altered and modified to almost any extent to meet customers' wishes.

We build Engines of standard patterns in all sizes, only A FEW of which are given in this catalogue.

The very rapid way in which the number of these Engines built annually has increased since their first introduction, is conclusive proof of their superiority to all other types of machinery for similar purposes, and the possession of the KINGDON'S Patents, which belong exclusively to our firm, enables us to construct engines giving a larger per centage of efficient power, for weight and space occupied, than can otherwise be obtained.

We are constantly making small improvements in the boats and engines, and it must be understood that we only turn out one quality of work, and that we spare neither expense nor trouble in making everything manufactured by us as perfect as possible. The prices are nett for payments, as may be arranged at the time of ordering; and, we feel sure, will be found lower than any others for the same class of work.

The prices given in this catalogue include boat complete, of the best workmanship and materials, with plain floorboards and bunkers; varnished and painted with three coats inside and out; with cleats, fairleads, rudder, tiller, rudder-posts, screw, screw-shaft, and stern-tube of gun-metal. Engines and boilers of the best workmanship and materials, lagged with hard wood and brass bands; all pipes of copper, and, unless otherwise specified, outside copper condenser. The whole fitted on board, and tried under steam here, and delivered in our yard, with steam up, ready for use. Packing and placing on Railway truck here, $2\frac{1}{2}$ per cent. extra.



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 1.—YACHT'S STEAM DINGHY.

SUITABLE FOR CARRYING IN A YACHT OF 40 TONS AND UPWARDS.

The Sketch shows a Yacht's Cutter, Carvel or Clinker built, in pine or mahogany, fitted with KINGDON'S PATENT COMPOUND SURFACE CONDENSING SINGLE ENGINE, with one High-Pressure and one Low-Pressure Cylinder, and KINGDON'S Patent Boiler. This is by far the smallest size of Compound Machinery now in the Market ; weight, $4\frac{1}{2}$ cwt.

Price in Pine	...	...	...	...	...
„ Mahogany	...	...	...	...	...
Machinery only	...	...	...	...	...

The Launch has been specially designed to meet the case of yachts of small size (of 40 tons and upwards) which cannot carry a launch of the ordinary kind, and so supplies a want long felt. On account of the lightness of the machinery, it can be easily removed from the boat in two or three minutes, or the boat can be hoisted in davits with it in, if preferred. A small cutter so fitted is found most useful for towing in calm weather, and tows with at least as much power as two four-oared gigs. The lightness and compactness of this machinery renders it especially suited where land portorage is required, as the heaviest portion can be slung on the shoulders of two men.

The boat shown opposite is 16 ft. \times 4 ft., speed about seven miles, but this machinery can be used for boats from 14 ft. up to 30 ft. for light river boats, the speed being considerably increased in the longer boats.

No. 2.—YACHT'S STEAM GIG.

Fitted with Single Compound Surface Condensing Engine "A" size, suitable for carrying on a Yacht of 60 Tons and upwards.

Length, 21 ft. ; Beam, 5 ft. ; Draught, 14 in. ; Speed, about 8 miles per hour. Carvel or Clinker built. Weight of Machinery, 7 cwt.

Price in Pine	...	...	...	...	...	...	...	...	...
" Mahogany	...	...	...	...	...	...	...	...	...
Machinery "A" size	...	...	...	...	...	...	...	...	...

The same Machinery is frequently fitted in Yacht's four-oared Gigs up to 24 or 27 ft. in length, the additional length giving increased speed. These steam gigs are chiefly supplied for yachting purposes, for carrying on board a vessel of 60 tons and upwards, for which a very large number have been supplied to Yacht owners in this country, as well as abroad, with the most satisfactory results. The Machinery is fastened by four gun-metal corner plates with screw bolts, so as to be removable with ease. If required, the boat can be arranged for hoisting in Davits with the Machinery in position, so that it can be lowered with steam up.

The compactness of the Machinery renders it easily stowed on deck, or even below. It may be mentioned that a Yacht of 60 tons carried a 21 ft. steam Gig with this Machinery on a voyage across the Bay of Biscay without inconvenience, although forced to lie-to for four days for bad weather.

A Launch of this kind will be found invaluable for towing purposes in the case of a calm, or for canal or river work. As an example of the power of the Machinery, it may be stated that a Yacht of 163 tons (yaw) was towed by her 21 ft. Steam Gig, as described, for distances of 20 and 30 miles at a time on the Thames and in the Caledonian Canal.

A 24 ft. Yacht's Gig (such as is ordinarily supplied by Messrs. SIMPSON, STRICKLAND AND Co.) has steamed unaccompanied from Dartmouth to Antwerp in charge of two men, who had never seen one of these Launches before the day they left here.

The following letter, received from the Captain of a Yacht carrying one of these 21 ft. Steam Gigs, gives an account of the practical working of these Engines under the rough conditions of exploring work in the rivers of S. America.

RIO DE JANEIRO, January 4th, 1884.

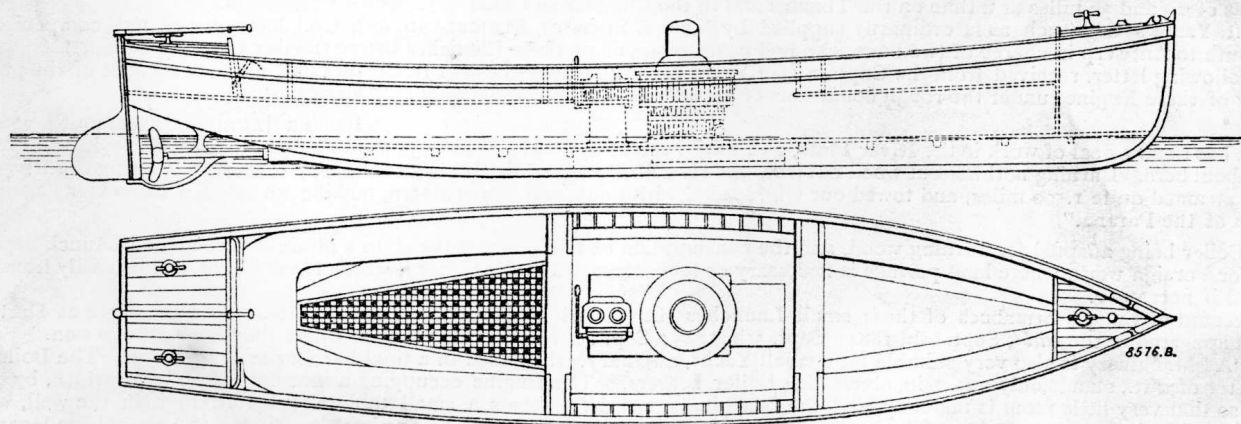
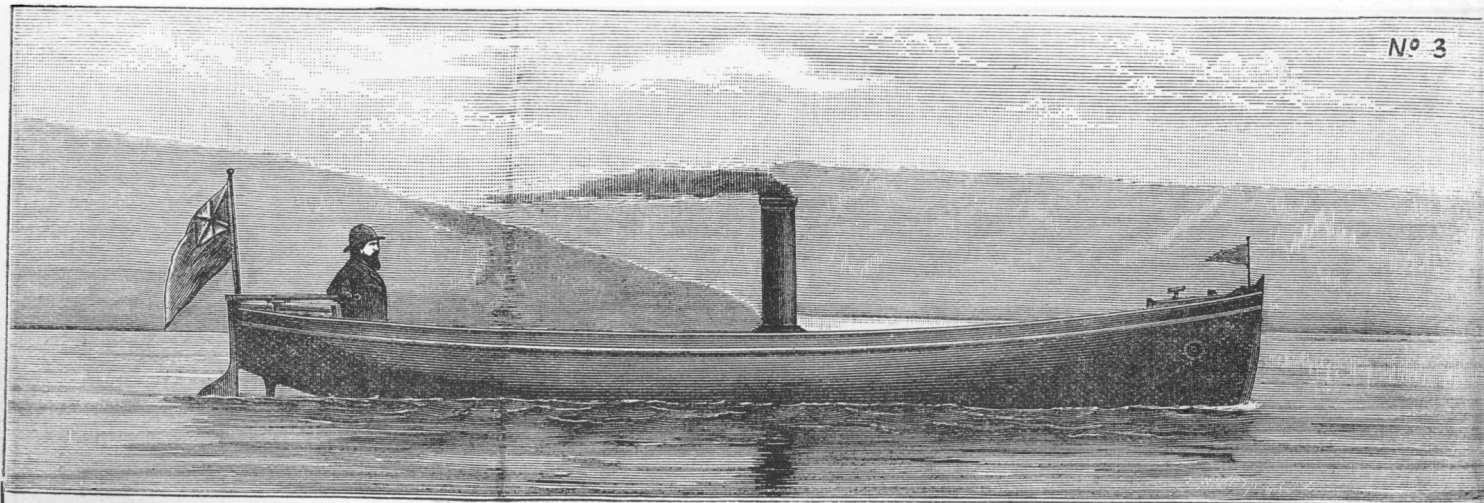
"She has done a deal of work in the River Plate, as I have been away from the Ship 30 days at a time in her, surveying all the small rivers about here. Burning nothing but wood cut from the river banks as required. I can safely say that since entering the River Plate she has steamed quite 1,500 miles, and towed our Gig, loaded with tents and stores astern, making an average three knots against the strength of the Parana."

The Boiler being adapted for burning wood, and the consumption of fuel being reduced to a minimum, renders a Launch especially suited for Foreign work, where land portage is necessary or fuel scarce. The Machinery, which is very light, can be easily transported overland if necessary.

An account of the performances of these small Launches (fitted with KINGDON'S Patent) in a Steam Launch race at Dartmouth Regatta appeared in the *Field*, Sept. 6th, 1884; Sept. 5th, 1885; Sept., 1886; and Sept., 1888, where they have always won.

The "A" Machinery is also very suitable for a small Yacht, auxiliary, when used in a tidal harbour or for fishing. The Boiler with a diameter of 2 ft., stands only 2 ft. 1 in. above the Boiler bearers. The Engine occupying a space of 1 ft. 6 in. in width, by 9 in. in length, so that very little room is taken up, and the Machinery cased in, forms a small table about 2 ft. high in the well, without interfering with the accommodation. The Engine being of sufficient power to drive a sailing boat (24 ft. 7 ft. 6 in.) about 6½ miles an hour.

An account of a "Small Auxiliary Yacht," fitted with this Machinery, appeared in the *Field*, February 27th, 1886. This Machinery is suitable for Gigs of from about 18 to 30 ft. in length.



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 3.—YACHT'S STEAM LAUNCH.

Fitted with KINGDON'S Patent Double $\frac{1}{2}$ A Engines, and Natural Draught Boiler, 2 ft. 6 in. wide, by 2 ft. 1 in. high; with two High-Pressure and two Low-Pressure Cylinders. Total weight of Machinery is 8 cwt.

The Sketch on the opposite side shows a Yacht's Launch of the following dimensions :—

Length, 27 ft. ; Beam, 5 ft. 8 in. ; Depth, 2 ft. 8 in.

Price in Pine					} either Carvel or } Clinker built.
„ Mahogany					
Machinery D $\frac{1}{2}$ A	{ Compound	...	...
	{ Quadruple	...	...

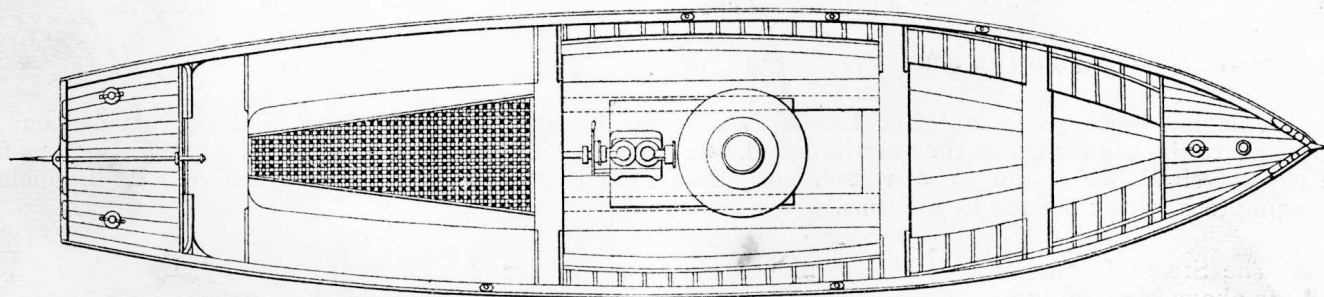
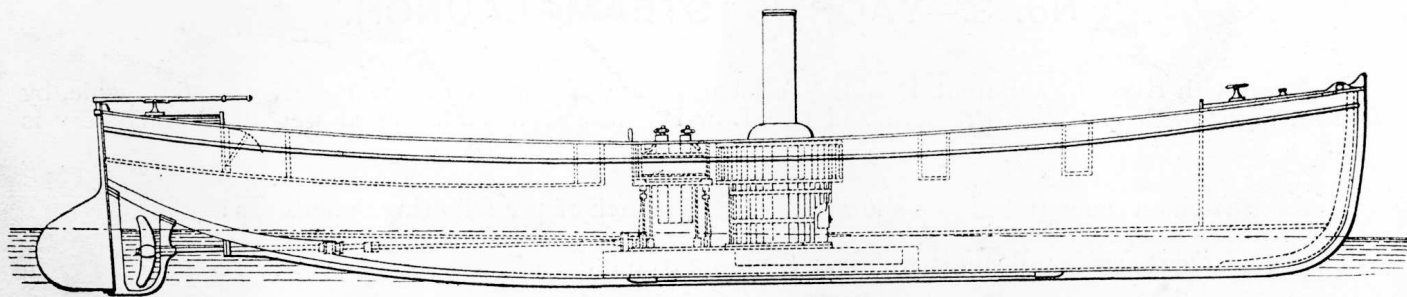
Speed about $9\frac{1}{2}$ miles an hour.

This Machinery is suitable for Launches of from about 20 to 35 ft. long, and of varying beams, according to the use for which they are intended. It has to a great extent superseded the Single Engines for the smaller sized boats, and we can confidently recommend it as being the best Machinery for Launches belonging to Yachts from 100 to 300 tons.

The Steam Launch Races at Dartmouth Regattas, 1887 and 1888, were won by Launches fitted with the above Machinery.

These Launches can be built either with a cut-away stern, as shown, or screw-in-well, if preferred, for the prices quoted above.

No. 4.



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 4.—YACHT'S LAUNCHES from about 23 ft. LONG and UPWARDS.

In consequence of the great success of the Double $\frac{1}{2}$ A size Machinery, we have introduced a new size, intermediate between the Double $\frac{1}{2}$ A and B.

This Machinery, which we call our A.B. size, is suitable for Launches of various kinds, from about 23 to about 33 ft. long.

Price of Boat, either Carvel or Clinker built, as shown, 27 ft. by 6 ft. beam, fitted with our A.B. Machinery, in—

Pine ...	...	...	...	...	...	...	...	...
Mahogany ...	...	...	...	...	...	...	...	...
Compound Machinery alone	...	...	...	...	...	...	...	...
Quadruple ...	...	...	...	...	...	...	...	...

The weight of this Machinery is about 10 cwt., and Launches fitted with it will be found very suitable for carrying on Yachts of from 150 to 400 tons, having a speed of about $9\frac{3}{4}$ miles.

Boats can be supplied for these with the same size Boiler, and a Single Engine, at a reduction of £25.

These Launches can be built either with a cut-away stern or screw-in-well, as preferred, for the price quoted above.

Compound Machinery and Launch, in Pine	...	...	...	...	...
Compound Machinery and Launch, in Mahogany	...	...	...	...	...
Compound Machinery alone	...	...	...	...	...
Quadruple	...	...	...	...	...

These Boats can be fitted when required with air cases of wood or copper, making the boat unsinkable, copper being strongly recommended.

30, GREAT ST. HELENS, LONDON, 6th Feb., 1885.

During the trial, were on board the "Minister of Marine," the Chief Engineer of the Navy, and the Manager of the Baltic Iron Shipbuilding and Engineering Company, St. Petersburg.

Yours truly, (Signed) A. ALLIMAN.

A single Engine with the same size boiler can be supplied at a reduction of £25.

No. 6.—MERCHANT VESSEL'S STEAM CUTTER.

A 30 ft. Steam Cutter, suitable for carrying with a large sized Yacht, or Steam Vessel of 400 tons and upwards, or for coasting work, fitted with KINGDON'S PATENT SINGLE COMPOUND SURFACE CONDENSING ENGINE, with one High-Pressure Cylinder, one Low-Pressure Cylinder, and KINGDON'S PATENT IMPROVED VERTICAL Boiler, E size.

The dimensions of Boat are—Length, 30 ft. ; Beam, 7 ft. ; Draft, 2 ft. 3 in.

Price in Pine	...	...	...	...	...	...
E Machinery alone	...	...	...	...	...	...

The Launch above described is somewhat similar in style to No. 5, but it is a larger and more powerful Sea Boat ; she is fitted with a single E set of Machinery, instead of a double B set.

The single Type, from its fewer moving parts and greater simplicity, with a somewhat lower price, is frequently preferred, especially for commercial purposes, or where a Launch is required by Steamships.

Three Launches, fitted with the E Single Machinery, are now in use with the Steamships of the Netherlands' India Steam Navigation Company, Limited, with excellent results. The following letter may be interesting, being the report received from the Engineer in charge, as to the practical results obtained from actual working on Foreign Service:—

HONG KONG, 27th December, 1884.

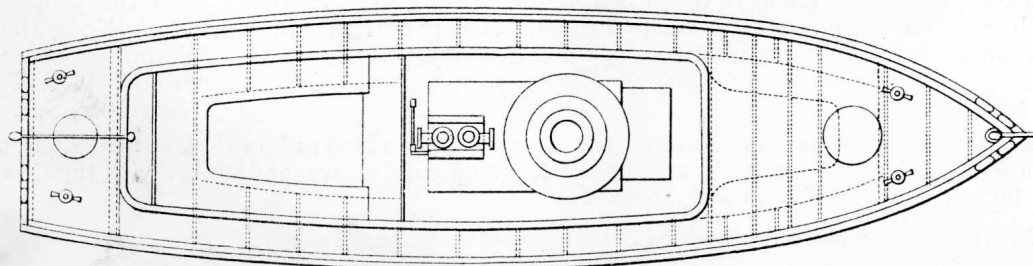
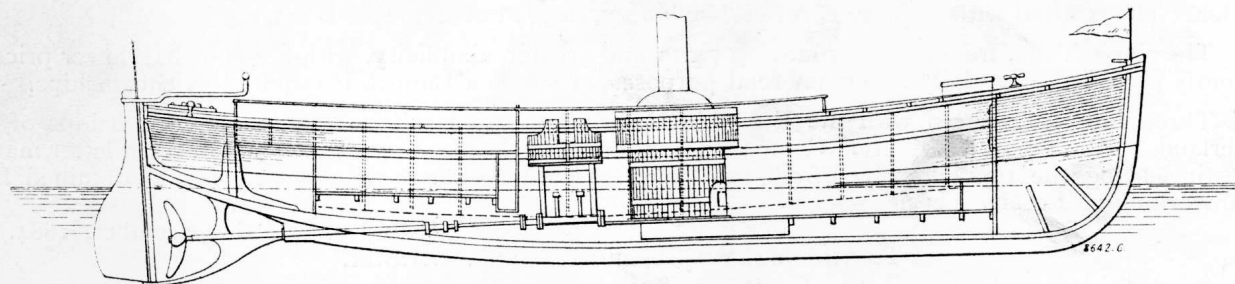
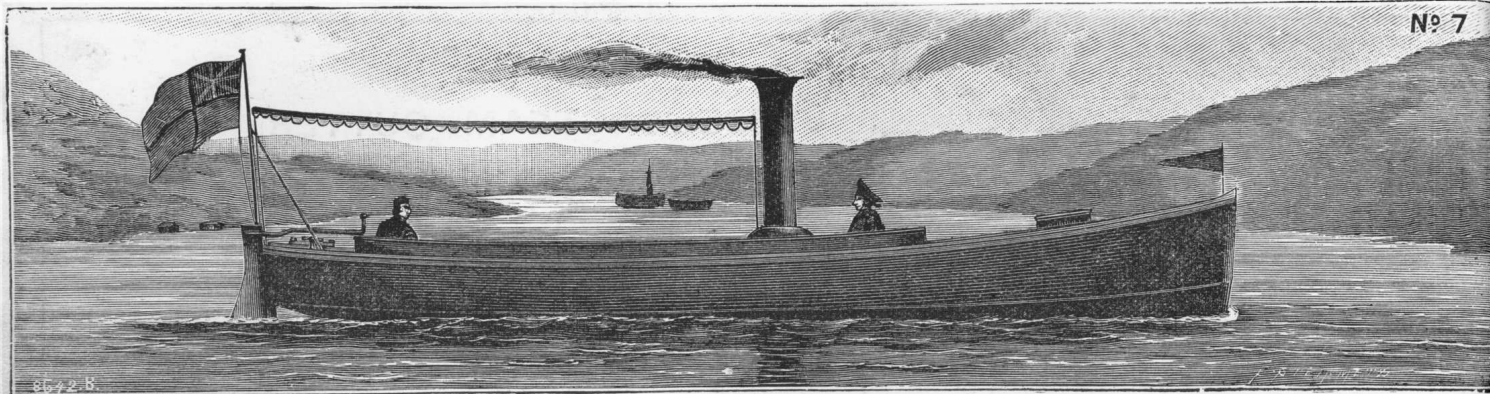
TO THE MARINE SUPERINTENDENT, N.I.S.M.

SIR,—I have much pleasure in reporting the abilities of the "Celebes" Launch. The Engines and Boiler are so complete and efficient in the construction, causing so little trouble, and the propelling power so good, that I have never seen anything to equal them. I may add that here in Hong Kong the Launch has been admired on account of its miniature compound principles.

I remain, yours obediently,
(Signed) A. RITCHIE,
Engineer, S.S. "Celebes."

The Machinery can be arranged so that the Engine and Boiler can be taken out together, or the Engine left in the Launch, and the Boiler removed, or the Launch can be arranged to lift with the Machinery in, so that she can be lowered from davits with steam up.

This sized Machinery is suitable for Launches of from about 25 to 36 ft. in length.



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 7.—MAN OF WAR'S STEAM CUTTER.

The Sketch shows a 30 ft. Service Cutter, as supplied to H.M.'s Navy, and built in the same manner with a double skin of mahogany, fitted with KINGDON'S PATENT COMPOUND SURFACE CONDENSING DOUBLE ENGINE, and KINGDON'S PATENT IMPROVED BOILER, D size, with dimensions as follows:—

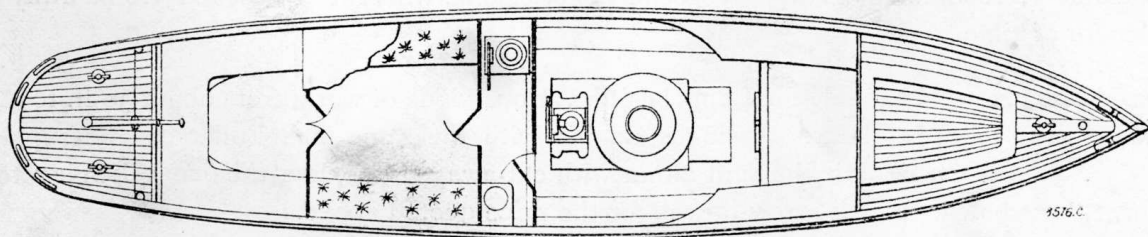
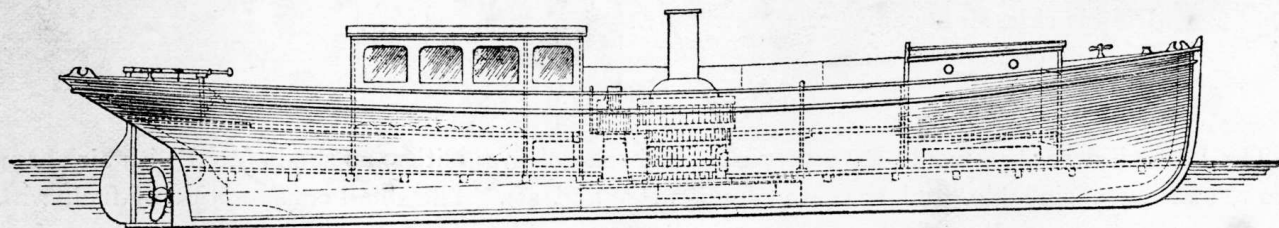
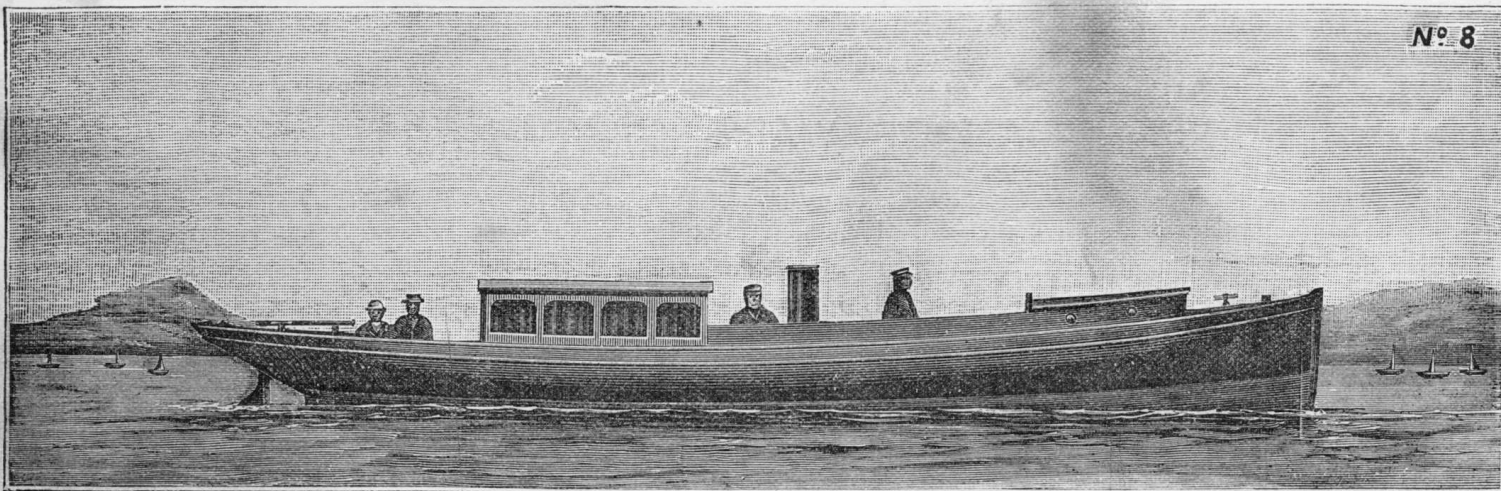
Length, 30 ft. ; Beam, 7 ft. ; Draught, 2 ft. 4 in. ; and are identical with those of a Cutter built by us for H.M.'s Yacht "Osborne."

The price being in—

Double skin Mahogany	...	...	...	...	...	...
Machinery alone, D size	...	...	...	...	...	...
Quadruple	...	...	...	...	...	...

The Launch described would have very powerful sea-going qualities, as she is fitted with air chambers, so as to render her unsinkable, and has also comings fore and aft. The small consumption of fuel, with the compound machinery, renders the Launch especially serviceable, where it is necessary to be away from the ship for any length of time.

This sized Machinery is suitable for Launches for various kinds of work, from about 30 ft. to 40 ft. long having speeds up to 12 miles per hour. A single Engine with the same size Boiler can be supplied at a reduction of £35. These Cutters can be built either with cut-away sterns, like the one belonging to H.M.'s Yacht "Osborne," as shown, or with screw-in-well for the price quoted above.



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SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

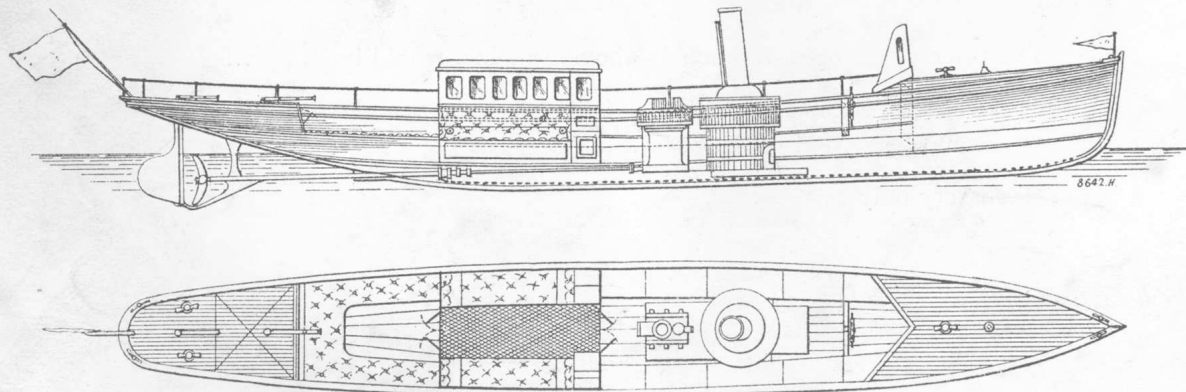
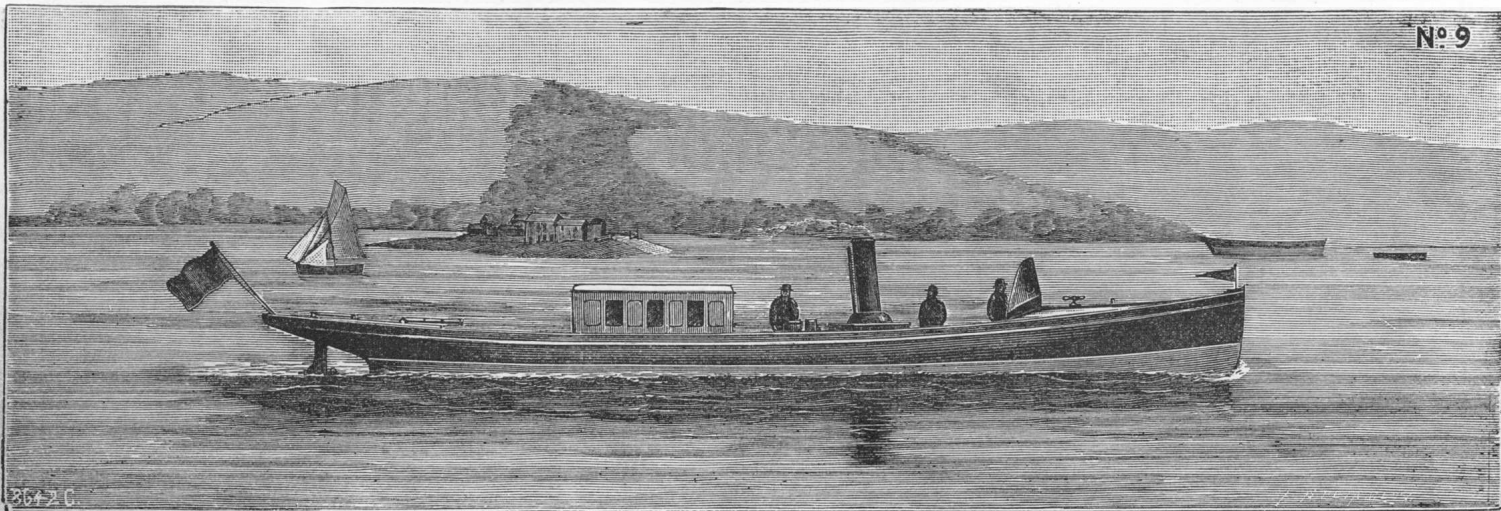
No. 8.—POWERFUL SEA-GOING LAUNCH.

The Sketch on the page opposite shows a Launch, 43 ft. by 8 ft., fitted on account of its great simplicity and cheapness with our single G size, KINGDON'S PATENT COMPOUND SURFACE CONDENSING Machinery. She has cabin aft, with w.c. and Lavatory, and is decked in forward to make fore-castle. This boat is a good and powerful sea boat, roomy and comfortable, and well suited for sea-fishing and shooting, at a very moderate price, having a speed of $9\frac{1}{2}$ to 10 miles an hour.

The price of an open Launch as above, in Pine, would be ...

Fitted with Cabins, as shown, including w.c., and cushions,
would be

Machinery only



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 9.—FAST AND POWERFUL LAUNCH, 50 ft. LONG.

The Sketch on the page opposite shows a fast and powerful Launch, suitable for sea and river work, fitted with KINGDON'S PATENT QUADRUPLE SURFACE CONDENSING ENGINES, and Improved Natural Draught Boiler, F size.

She is shown with cabin aft, and a screen forward to protect the steersman, which is removable in fine weather, or for river work.

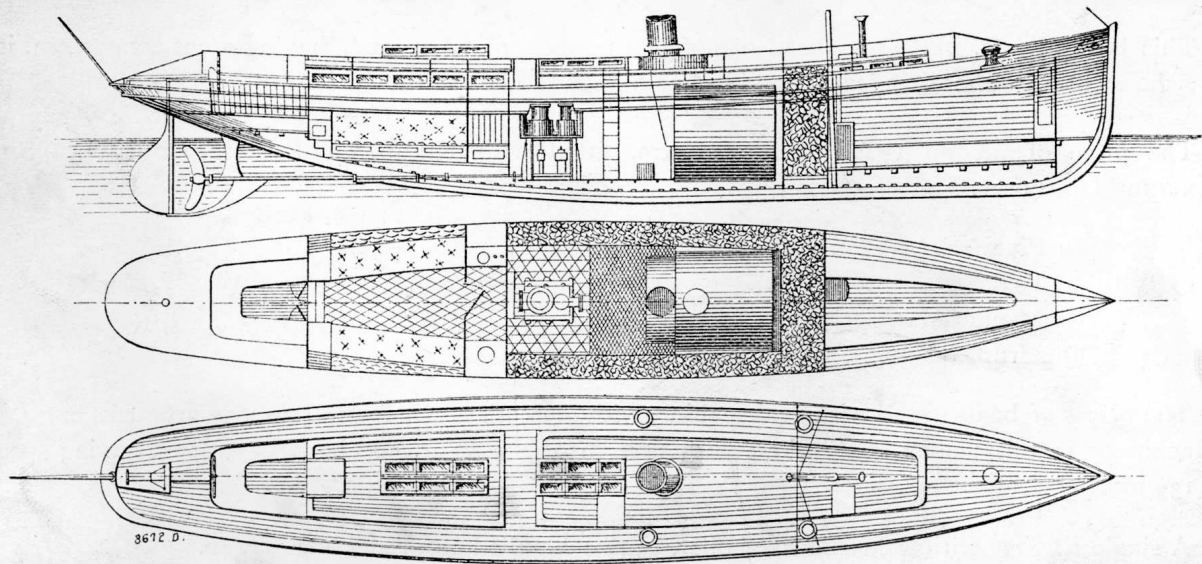
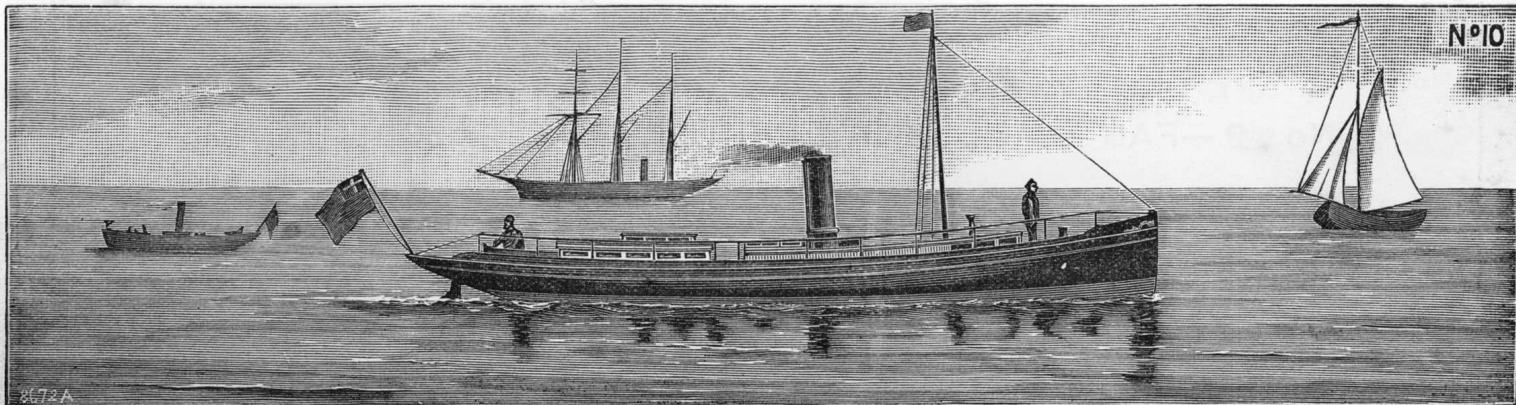
This boat is fast, having a speed of about 13 miles an hour, and, having a cut-away stern, is very handy; she will turn in her own length, and is also a good sea boat.

The price of an open Launch, as above, fitted with KINGDON'S PATENT COMPOUND SURFACE CONDENSING MACHINERY, F size—

In Pine	...	...	...	...	...	...	...
In Teak	...	...	...	...	...	...	...
Compound Machinery only, F size	...	...	...	...	...	...	...
Quadruple	..	..	..	...	...	...	...

The prices of boats fitted with teak cabins, with plate glass windows, from £30 upwards, extra. This size Machinery is suitable for boats of all classes, from about 40 ft. to about 55 ft. long, having speeds up about $13\frac{1}{2}$ miles per hour.

A single Engine, with the same size boiler, can be supplied at a reduction of £40.



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 10.—25-TON STEAM YACHT.

This Sketch shows a small Steam Fishing Yacht, decked, with well aft, capable of standing heavy weather.

The Boat is rigged with mast and sail, and fitted with KINGDON'S PATENT QUADRUPLE SURFACE CONDENSING ENGINES, and return tube boiler. This vessel has a large cabin aft; the accommodation for the crew being forward, and unusually large. The owner only requiring her in the day time.

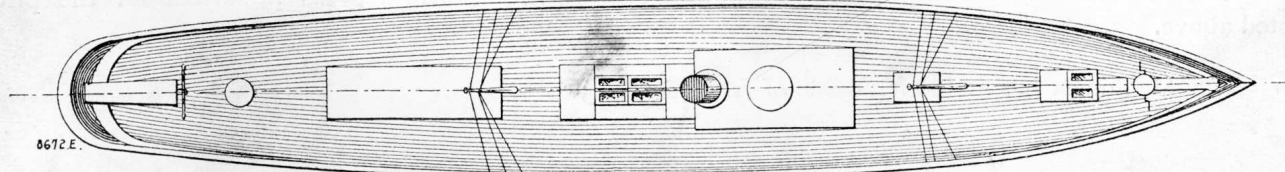
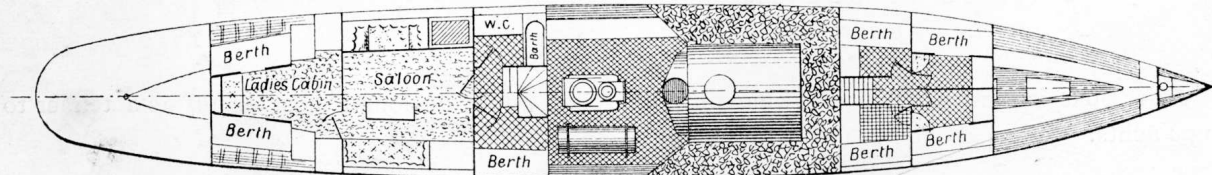
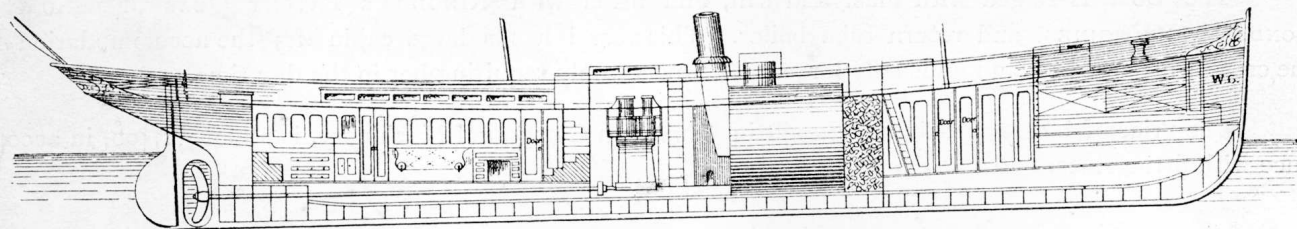
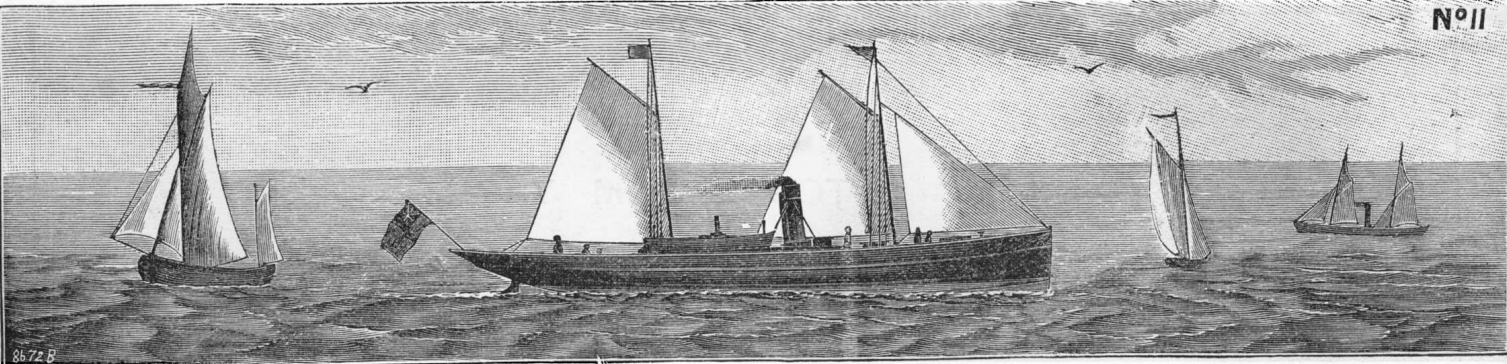
The price of boat approximately, built in Pine, with Compound Machinery, is about £1,400, in accordance with fittings, &c.

The price of Compound Machinery alone	...	..	...
„ „ Quadruple „	...	...	...

This Boat is well suited for towing purposes, and would be found most useful as a tender to large Sailing Yachts. Speed about 13 miles.

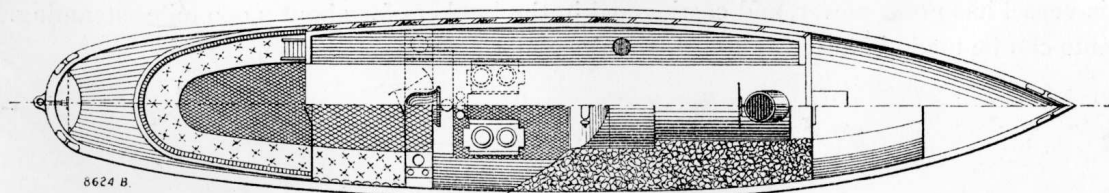
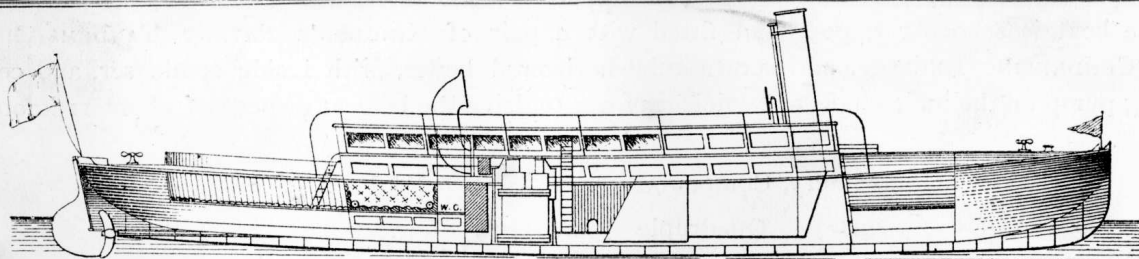
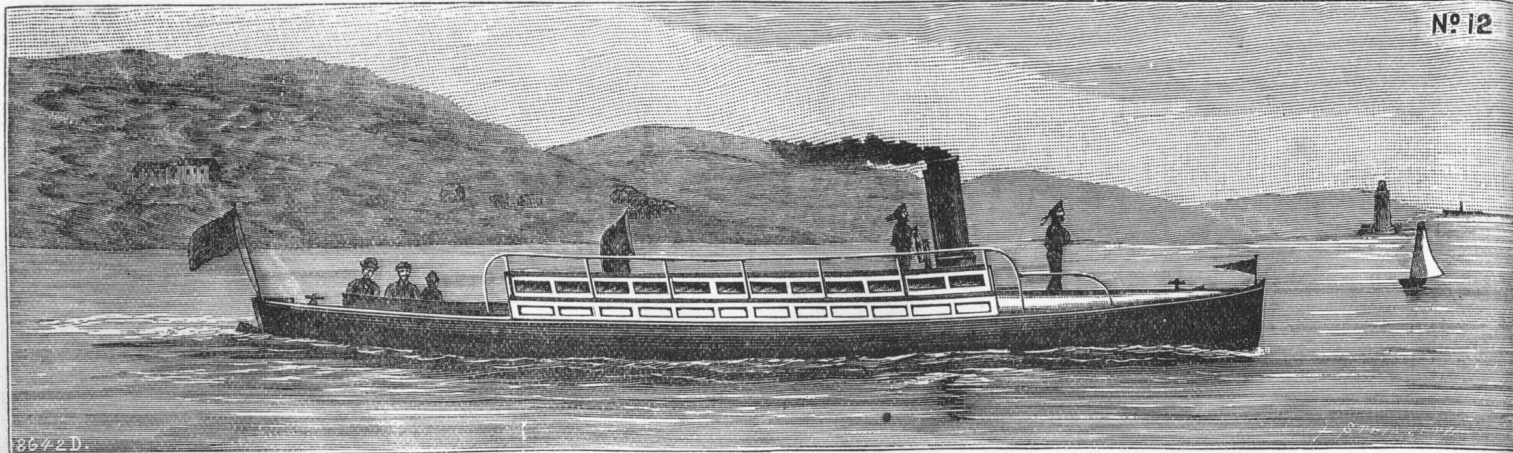
These Boats can be built with cut-away sterns, or with screw-in-well, as preferred, for the price quoted above.

This Machinery is suitable for Boats of from about 15 to 35 tons.



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

This vessel has great power, and carries coal in the bunkers for about 2,000 miles steaming. The cabin arrangements can be made in any way to suit requirements.



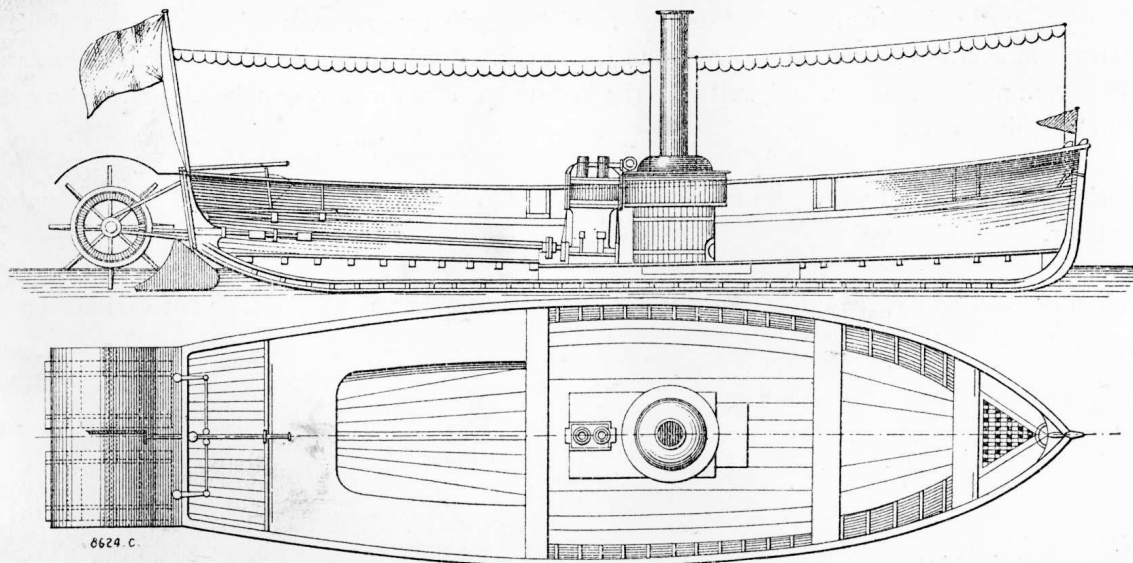
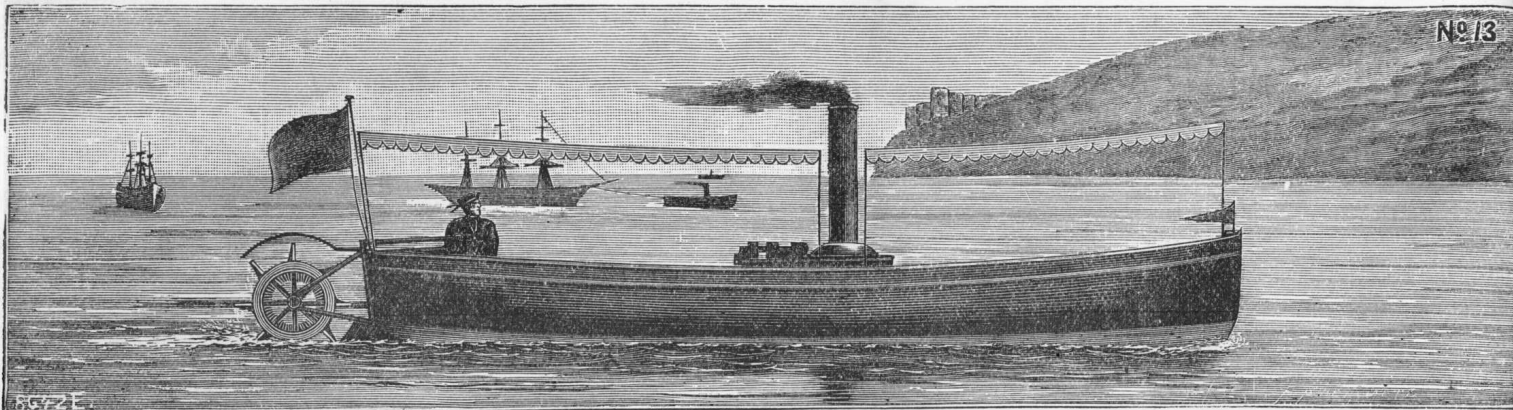
SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 12.—HIGH SPEED LAUNCH.

The Sketch on page opposite shows a high speed Launch, designed either for sea or river work. She is fitted with a locomotive boiler and forced draught, and has twin screws, each driven by a set of KINGDON'S PATENT QUADRUPLE ENGINES, and as shown; she has a turtle-back forward, with forecastle underneath, a cabin aft, with w.c., and a lavatory, and well aft; the arrangement, however, can be altered to any extent to suit customers' requirements.

The price of the boat as above, 60 ft. long, would be about £2,000, and the speed would be about 17 to 18 miles per hour.

We shall be pleased to give quotations for high speed Launches of all sizes, and of various descriptions.



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 13.—SMALL LIGHT DRAUGHT PADDLE BOAT.

This arrangement of machinery and wheels is suitable for boats of small sizes and powers; and we shall be pleased to submit plans of these boats, either with stern or side wheels, in answer to any inquiries.

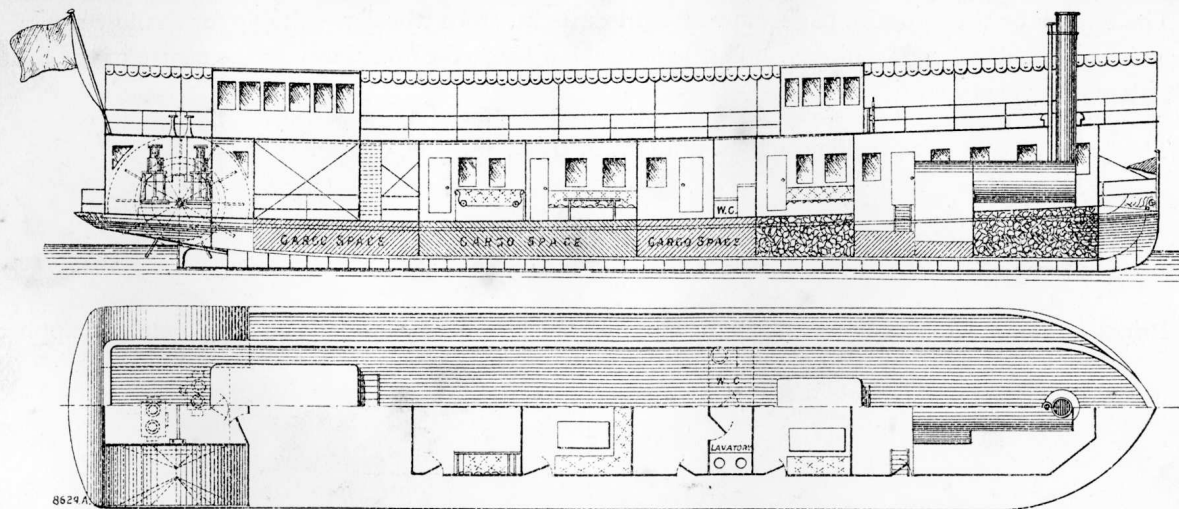
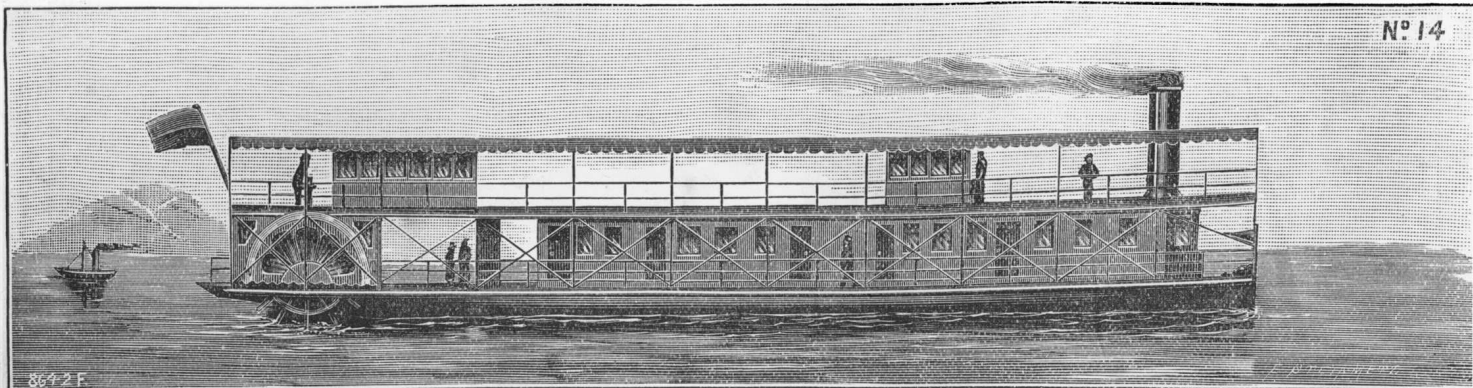
The Sketch on the opposite page shows a light draught, stern wheeler, suitable for shallow rivers. She is fitted with our double $\frac{1}{2}$ A Machinery. This arrangement keeps the machinery in the centre of the boat, and renders it very compact and light.

The price of a boat 24 ft. long, with a draught of 6 in., in Pine, or frames, is—

One built in Teak	...	...	...	...	...	...	...	...	...
Compound Machinery, with paddles	...	...	...	...	...	...	...	...	...
Quadruple	...	...	...	...	...	...	...	...	...

Prices of Boats like the above, but built in either steel, iron, frames only, or delta metal, on application.

Nº 14



SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 14.—STERN WHEEL PADDLE STEAMER, 110 ft. LONG.

The Boat illustrated on the opposite page is designed for carrying passengers and cargoes on shallow rivers.

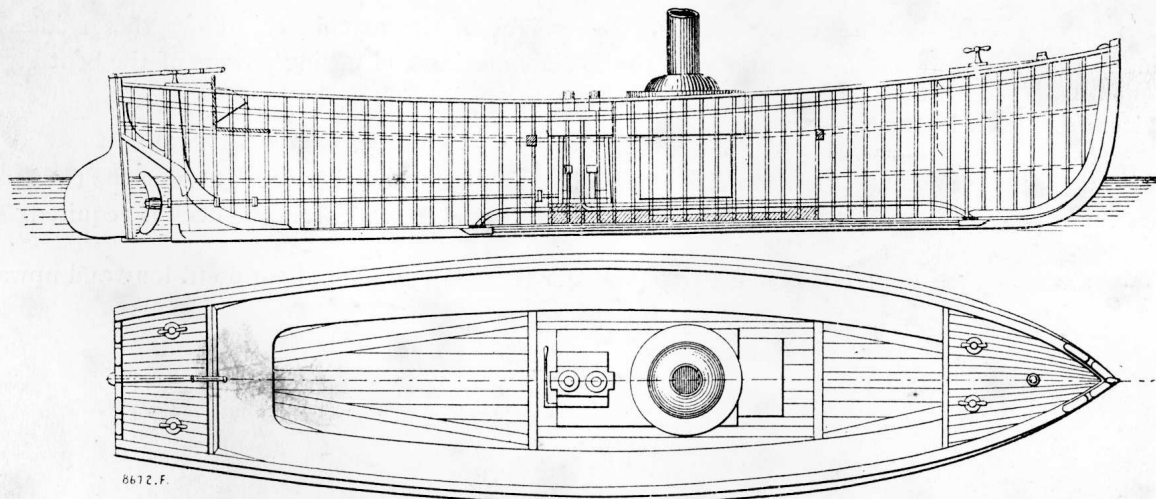
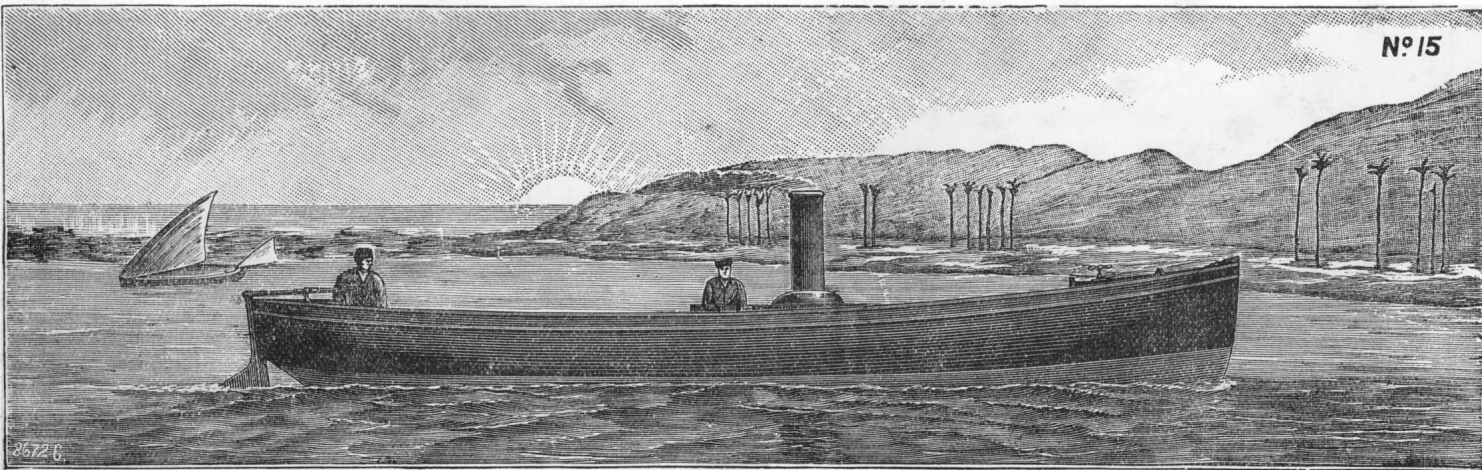
She is fitted with two pairs Compound or Quadruple Surface Condensing Machinery, having ample power for towing against a strong current, each engine driving one of the stern wheels.

This arrangement, besides greatly reducing the weight of the machinery, allows the paddles to be worked independently, and therefore greatly adds to the manœuvring and towing powers of the boat.

Prices on application.

This arrangement is suitable also for side wheels, in which case the boiler goes between the two Engines, and makes the whole very compact. The Engines can be arranged to work from the deck if required.

We shall be pleased to give Estimates and Plans for these boats, from about 60 ft. long and upwards.



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SIMPSON, STRICKLAND & CO., Engineers and Steam Yacht Builders, DARTMOUTH.

No. 15.—FRAMES.

The Illustration on the opposite page shows a boat put together with steel or iron frames, as erected in our works when ordered to be built in this way for planking abroad. It will be seen that the boat is complete in every respect except the skin, for which all the necessary fastenings are sent, and which can easily be put on by an ordinary carpenter, or even by native labour.

As the frames fit one inside the other, the whole boat can be packed in a flat box, thereby saving very largely in the cost of freight.

This mode of building has met with great approval, and can be adapted for any of the boats mentioned in this Catalogue. Tracings are sent with the boat showing all particulars. The prices of frames is approximately the same as those previously quoted for pine boats. We shall be pleased to quote for boats fitted up in sections on application.