

# THE Model Engineer And Electrician.

A JOURNAL OF PRACTICAL MECHANICS AND ELECTRICITY.

EDITED BY PERCIVAL MARSHALL, A.I.MECH.E

VOL. XIX. No. 385.

SEPTEMBER 10, 1908.

PUBLISHED  
WEEKLY

## A Steam Canoe.

By O. L. BICKFORD.



GENERAL VIEW OF MR. O. L. BICKFORD'S STEAM CANOE.

WE are indebted to a correspondent, Mr. O. L. Bickford, for the following interesting notes concerning his steam canoe. He tells us that he was prompted to send us these particulars as he had seen some correspondence on the subject of power-driven river skiffs in our recent issues, and he thought that perhaps his experiences might interest other readers. At first he had a boiler 14 ins. by 14 ins. specially made for the job, but this turned out altogether too heavy, weighing about 135 lbs., and was, of course, no use for his purpose. The canoe he bought, and also a No. 3 Stuart compound engine and an eight-burner intensive Primus stove. The usual fittings were employed, such as gauges, hand-pump, unions, etc., and the whole thing was connected up with motor pump tubing. The flash generator consists of 30 ft. of seamless steel tubing, at 3d. a ft.; the boiler and Primus stove, complete, weighing only

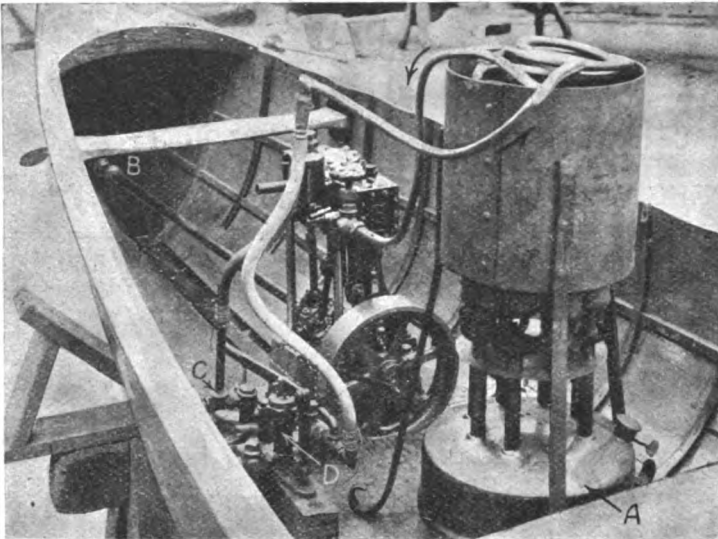
25 lbs. It is possible to keep up 70 lbs. of steam with engine running at 500 to 600 r.p.m., driving a 7-in. three-bladed propeller, the speed attained being 5 miles per hour. A force-pump with variable throw,  $\frac{1}{4}$ -in. bore, keeps up the steam at about one-eighth throw, the pump running at the same speed as engine. There is also an auxiliary hand-pump fitted for starting, sudden spurts, etc.

The canoe carries two passengers and an engineer, our correspondent taking these duties upon himself. If it may also be said, the same engineer frequently fills the position of quarter-master, and, with a paddle, occasionally back-paddles, so to speak, against the engine, to swing the canoe round almost right-angle corners on the River Cherwell.

For next year Mr. Bickford intends to fit a 2-in. by 2-in. single-cylinder engine (as he finds it more powerful at equal steam pressures), together with

a 14-in. locomobile steam car burner and a 10-in. two-bladed propeller. He recently tried the experiment of installing a  $1\frac{1}{2}$  h.-p. motor bicycle petrol engine, 2-in. by  $2\frac{1}{4}$ -in. stroke, air-cooled, but the

decided to drive it by electricity, so the hull was then given its finishing touches and hollowed out to give a flat bottom for the motor and accumulator, and then given a good coat of red enamel inside.



VIEW OF ENGINE AND WATER-TUBE BOILER FOR STEAM CANOE.

vibration set up made the seams of the canoe leak, and the noise was worse than the roar of the Primus stove. Besides this, the Thames Conservancy would not pass the job, as it kept catching fire, and so, Mr. Bickford concludes: "Steam is, after all, the best for me."

The foregoing interesting notes should serve as a very useful guide to other readers at present thinking of making some attempt in the direction of actual marine engineering on a small scale. We believe great possibilities lie in this direction, and the many advantages, both as regards facilities for working and managing such a craft, as well as others in the way of actual pleasure do not need to be emphasised to make them apparent. We shall most certainly look forward to hearing of Mr. Bickford's further results with as much interest as any of our readers.

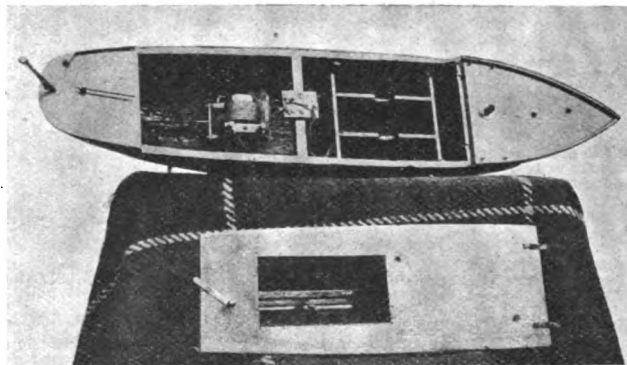
## A Model Electric Launch.

By G. P. PORTS.

THE following is a description of a small electric launch, which has occupied my spare moments during the past winter. The hull was carved from a piece of yellow pine dug out in the usual manner, and is 2 ft. 6 ins. long, 6 ins. beam, and 5 ins. deep. It was originally intended to be driven by steam, but as I failed to make a satisfactory engine out of a set of castings I obtained, it was put on one side for some time. It was then

The deck was cut from a piece of  $\frac{3}{16}$ ths-in. baywood, the beading being a narrow strip with the top rounded. The deck is in three pieces, and is supported by two cross-beams—one at the after end of the forward section and the other under the skylight. The middle section is removable to get at the motor and accumulator, it being fixed by two pieces of thin brass fixed to the underside, which slide under the forward portion into two grooves in the cross-beam, and a small catch, which is turned from the skylight.

The skylight was made from pieces of  $\frac{3}{16}$ ths-in. baywood (with the exception of the top, which was worked up from a piece of  $\frac{1}{2}$ -in. by  $\frac{1}{2}$ -in. mahogany) fixed together on the lock-corner principle, and well glued, and measures  $6\frac{1}{2}$  ins. long,  $3\frac{1}{2}$  ins. wide,  $2\frac{1}{4}$  ins. high at centre. The lights are fitted with thin glass made from old negatives,



SHOWING INTERIOR ARRANGEMENT OF MODEL LAUNCH.

each light containing two pieces fitted in grooves cut in the frames, and a thin strip of baywood glued over the joints, and each are hinged to top by two brass hinges, so that they can be raised and lowered to get to the starting switch, which is screwed to the crossbeam.

The motor was made from a set of castings obtained from a firm advertising in THE MODEL ENGINEER, and is wound for 4 volts, current being supplied by a 4-volt 9 amp.-hour accumulator. The latter is fitted in a light case made to fit the inside of the hull, which keeps it very firm, and can easily be adjusted by means of the wedges, which keep it in position.

The propeller was built up as described in THE MODEL ENGINEER handbook, "Machinery for Model Steamers," and is  $2\frac{1}{2}$  ins. diameter, the