One of our English contemporaries has recently given a very complete account of the Bernardos arc welding process, as operated at the tube works of Lloyd & Lloyd, in Birmingham. Arc welding and the Thomson process seem to occupy quite distinct fields. The arc method has its peculiar usefulness in connection with large work in which the electric arc serves simply as a means of communicating very intense heat at the particular point necessary. As will be seen from the articles in question, it is applied with great effect to the manufacture of tubes, and gas, steam and water fittings generally. Until its introduction the makers were dependent on a powerful blowpipe for doing this rather delicate class of work, but the electric arc from its great power and convenience, has proved to be immensely more effective than any form of blowpipe yet devised; in fact Lloyd & Lloyd report that the cost of the weld by this process is only one-fourth that which was usual when the blowpipe was employed. It will be noted that the Bernardos process is also widely different from the Collin system of arc welding, which has already been used in this country. Of the two it must be confessed that Mr. Collin's method is the most pleasing, since by the action of a magnet it converts a powerful arc into a blowpipe which can be handled so as to apply just the right amount of heat at just the point necessary. By the Bernardos process the arc is drawn between the metal itself and the carbon electrode. Inasmuch as the work forms the positive pole, the heat generated is very intense, but the process gives the impression of being less handy than the one just mentioned. It is certainly successful, and enables a class of work to be very readily done which would be impossible by any other process. For example, fittings 12 inches in diameter can be made out of 5-16 metal cheaply and rapidly, a feat which would be exceedingly difficult, if not impossible, to perform by other means. Apparently, arc welding has come to stay, at least in its application to certain classes of work.—*Electrical World.*

THE MONARCH ECONOMIC BOILER

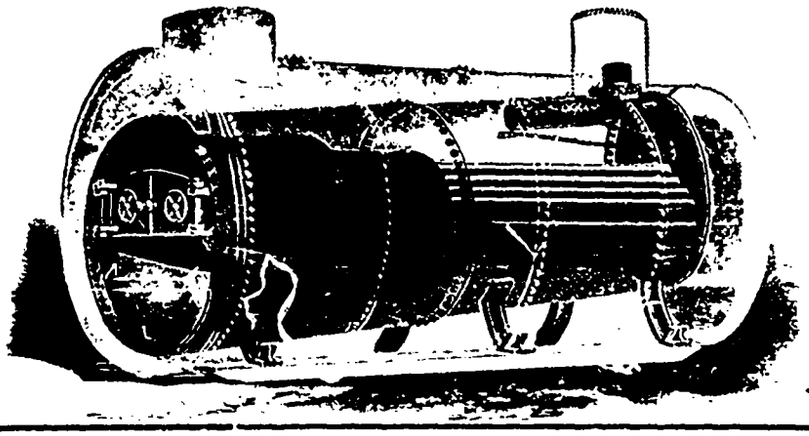
Patented Can. May 6, 1866; Feb. 10, 1887.
Patented U.S.A. Oct. 5, 1886; Aug. 23, 1887; May 8, 1888.

Is the strongest and most

Portable Boiler

in use, and its high economy in fuel makes it specially valuable to gold miners.

Tested evaporation 10.25 lbs. water per pound of ordinary Nova Scotia coal.



Manufacturers of

The Robb-Armstrong Automatic Engine,

The Hercules Engine, (For all purposes).
Saw Mill, Electric Machinery
BELTINGS,
PACKINGS, OILS, Etc.

Robb Engineering Co.
LIMITED,
Successors to
A. ROBB & SONS
AMHERST, N.S.

THE TORONTO CONSTRUCTION & ELECTRICAL SUPPLY CO., LIMITED.

Authorized Capital $250,000

OFFICE AND SHOWROOMS: 63 to 69 Front St. West, Toronto.

Branches at Winnipeg, Man.; and St. John, N.B.

ELECTRIC LIGHTING FOR MILLS AND FACTORIES

We are prepared to submit Estimates for Complete Electric Light and Electric Power Equipments for Mills and Factories.
We carry the Largest Stock of ELECTRIC AL SUPPLIES in Canada.

SOLE CANADIAN AGENTS FOR THE **THOMPSON-HOUSTON SYSTEMS** OF INCANDESCENT ELECTRIC LIGHTING.

Electric Street Railways, Electric Mining Apparatus, Electric Pumps, Electric Hoists, Power Generators and Motors, Direct Reading Watt Meters, Transformers, Incandescent Lamps and all General Supplies for Electric Light and Railway Plants.

THE "WOOD" ARC LIGHTING SYSTEM. (*Manufactured by the Fort Wayne Electric Company.*)

A Full Line of Electric Lighting and Power Supplies always in Stock. Write for Estimates.

W. R. BROCK, *President.* H. P. DWIGHT, *First Vice-President.* FREDERIC NICHOLLS, *Second Vice-President and General Manager.*

WHEN WERE YOUR

Boilers

Last Inspected?

ARE THEY IN SAFE

WORKING ORDER?

THE BOILER INSPECTION and Insurance Company of Canada.

SIR ALEX. CAMPBELL, K.C.M.G. PRES. (Lieut. Govr. of Ontario)
JOHN L. BLAIKIE ESQ. VICE PRES.

CONSULTING ENGINEERS.

G.C. ROBB. Chief Engineer. A. FRASER. Secy. Treas.

HEAD OFFICE TORONTO.

ARE YOUR

Boilers

GIVING THE

CREATEST POWER

AT THE

Least Cost?