

In that case we should have the paper crowded with such advertisements as this :—

"The New Brunswick Tidal Motor Co. have now placed their EFREET POTS on the market. The quart size has stored up in it enough power to do the wash of a family of eight persons and costs only 10 cents. Attached to a revolving sweeper it will sweep a ten-room house every day for a month. It can also be applied to scrubbers, and if attached to blacking brushes, will polish two pairs of shoes daily for a year."

*To the Agricultural Community:*

The N. B. Tidal Motor Co.'s Efreet Pots will do a day's ploughing of two horses. Half gallon size 20 cents. It can also be applied to road vehicles, and instead of wearied horses we shall have tireless carriages. Half gallon size will drive a wagon 7 miles an hour for 10 hours."

HORACE J. SMITH.

On board S.S. "Britannic."

[The name "Efreet" is taken from the Arabian Nights stories, one of which tells of a fisherman finding a copper vase sealed with Solomon's seal; on opening it an obedient slave, an *Efreet* came forth, who served the bidding of the fisherman. We may add that an enterprising Nova Scotian informs us he is now carrying out experiments with a view to utilizing the enormous tides of the Bay of Fundy, which rise and fall in some places 40 to 60 ft., and which would produce a colossal power if it could be controlled without too much loss. THE CANADIAN ENGINEER will be proud to do its share to immortalize the name of any one who will construct a practical tidal motor, and will open its columns to contributions on the subject.—EDITOR.]

#### MICA BOILER COVERING.

Elsewhere will be found the advertisement of a new Canadian enterprise which bids fair to become an important industry. "The Mica Boiler Covering Company," which was incorporated in February of the present year, with headquarters at Toronto, was organized by a number of prominent Torontonians to acquire and work the patent rights granted for the manufacture of mica for boiler and steam pipe covering, cold storage insulators, fire-proof linings for safes, etc. Mica of course has long been recognized as among the most perfect of electrical insulators, if indeed it is not the best, but it is only now that it has been successfully adapted as an insulator of steam heat. Many attempts have been made to incorporate it with other non-conducting materials as a boiler covering, but it was only when it was used entirely by itself and unmixed with other foreign material that its extraordinary qualities were discovered. The covering as manufactured by the Mica Boiler Covering Co., and shown at their temporary premises at 2 Bay street, resembles a mat or mattress  $1\frac{1}{2}$  inches thick, with a lining on either side of galvanized wire netting, and on the outer with canvas. The mica, in an infinite number of flakes or films as thin as tissue, is sewn through and through to the wire and canvas with stout brass wire stitches from four to five inches apart. When completed, these mats, which can be made of almost any size or shape, form a perfectly flexible fireproof jacket, which besides its wonderful non-conducting qualities, is easily applied and as easily and quickly removed without injury. Experts claim this latter to be a very valuable feature, as it is often necessary to inspect the shell of the boiler or pipe, which in most cases cannot be done without destroying the covering, and in no cases without considerable loss and difficulty.

The following reports on the non-conducting qualities of the new covering, made by such a well known authority as G. C. Robb, chief engineer of the Boiler Inspection and Insurance Co. of Canada is important evidence of the value of the invention:

46 KING ST. W., TORONTO, 25th June, 1895.

*The Manager Mica Boiler Covering Co., Toronto.*

DEAR SIR,—The following is a result of a test made to-day of several boiler coverings. Five vessels of same dimensions and in as nearly as possible same circumstances had steam turned on and kept on for two hours, at pressure ranging from 55 lbs. to 60 lbs. per square inch.

The temperature of room was 90 degrees Fah.

The amount of water condensed was in :—

No 1—Covered with wood and air space.....	5 $\frac{1}{2}$ lbs.
" 2— " mica boiler covering.....	3 $\frac{1}{4}$ "
" 3— " magnesia boiler covering..	4 $\frac{1}{2}$ "
" 4— " asbestos cement .....	10 $\frac{1}{2}$ "
" 5—No covering .....	21 "

Of the amount lost by having no covering :—

The wood covering saved.....	72.6 per cent.
" mica covering saved .....	84.5 "

The magnesia covering saved .....	79.75 per cent.
" asbestos cement saved .....	51 "

The mica shows an absolute saving of 4.75 per cent. over the magnesia, and relatively is 23.5 per cent. better than magnesia; that is taking the magnesia as the standard, the mica covering will save 23.5 per cent. more than the magnesia covering.

Yours truly,

(Sgd.)

GEO. C. ROBB, Chief Engineer,  
The Boiler Inspection and Insurance Co. of Canada.

TORONTO, July 2, 1895.

*Manager Mica Boiler Covering Co., Toronto.*

DEAR SIR,—On the 27th June, 1895, tests were made of the non-conducting value of boiler coverings in the following manner, and with the following results:

Five iron plate boilers were erected in a room and connected to steam pipe, and fitted with drain pipe, so that the amount of water condensed in each could be accurately determined.

Each boiler was of iron plate, and all were of same dimensions, and placed in same conditions. The surface exposed by each was 19 square feet. One was left bare, one was covered with asbestos cement, one with magnesia, one with mica, and one with wood and an air space, as is usual on locomotives.

Steam was turned on and pressures kept up for six hours ranging from 55 lbs. to 75 lbs. The temperature of the air in the room averaged 93 degrees.

The water was drawn off and weighed at intervals, and the following shows the amount of water taken from each per hour:—

The uncovered boiler gave .....	12.54 lb. per hour.
The asbestos cement cover .....	3.98 lb. "
The wood cover .....	2.83 lb. "
The magnesia cover .....	1.85 lb. "
The mica cover .....	1.39 lb. "

With one hundred square feet of surface and one hundred hours of time, the saving effected by the mica covering would be 5,870 lb. weight of water in the form of steam; and allowing 8 lbs. of water evaporated per pound of coal, the saving in coal would be 733 $\frac{1}{2}$  lbs.

With a lower temperature in the room and a higher steam pressure the saving would be even greater.

The mica covering was the best non-conductor of those tried.

Heat and dampness do not seem to affect it, and vibration cannot disintegrate it, or cause the material to change its position.

The mica covering can be removed without injury to it, and replaced as often as may be necessary.

Its non-conducting property, its durability, and its portability unite in making it the most effective and convenient boiler covering on the market.

Yours truly,

(Sgd.) GEO. C. ROBB, Chief Engineer,  
The Boiler Inspection Insurance Co. of Canada.

"Magnesia," "asbestos," and wood lagging were selected to test with "mica" as being probably the best known coverings hitherto in use. Other materials used on steam pipes, but not suitable for marine or locomotive work, are used, but the Mica Co. considered it fairer to test those coverings with which it was likely to compete in all fields of work. The management already report most encouraging progress. The new covering has been tried with great success by such corporations as the Toronto Street Railway, Niagara Navigation Co. (steamers "Chicora" and "Cibola,"), Toronto Ferry Co., etc.

With regard to cost, it is satisfactory to learn that under a new process, the sole rights of which are controlled by the Mica Boiler Covering Co., the scrap mica is manufactured at a price which will enable the covering to be sold at a figure well within the means of every steam user.

#### MONTREAL PROVINCIAL EXHIBITION.

The fourth Quebec Provincial Exhibition will be held this year in Montreal from the 12th to 21st September.

From present indications there is every prospect of the forthcoming exhibition being more successful than its predecessors. Many prominent firms have signified their intention of exhibiting this year, and an encouraging feature is the fact that a number of gentlemen have voluntarily offered gold medals and money prizes to induce competition. The various committees have completed the revision of the different departments of the prize list, which will be issued very shortly.

Extra premiums are offered to the syndicates and inspectors of butter and cheese factories. The machinery and industrial departments have been carefully reorganized. There will be no charge for entry, space or power in the machinery departments, and the