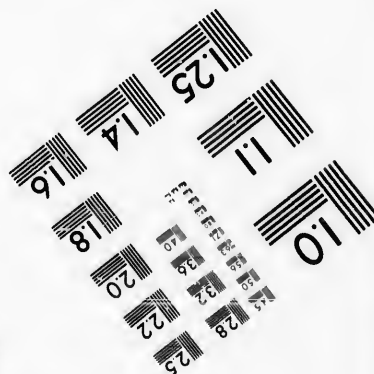
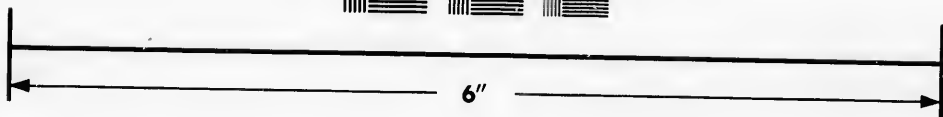
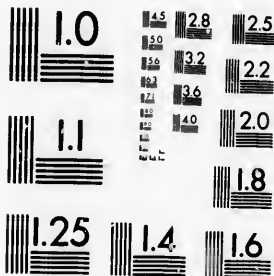


**IMAGE EVALUATION
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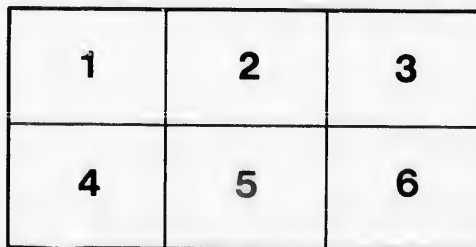
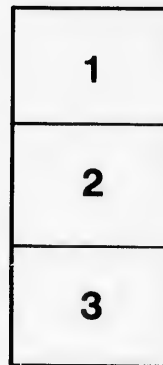
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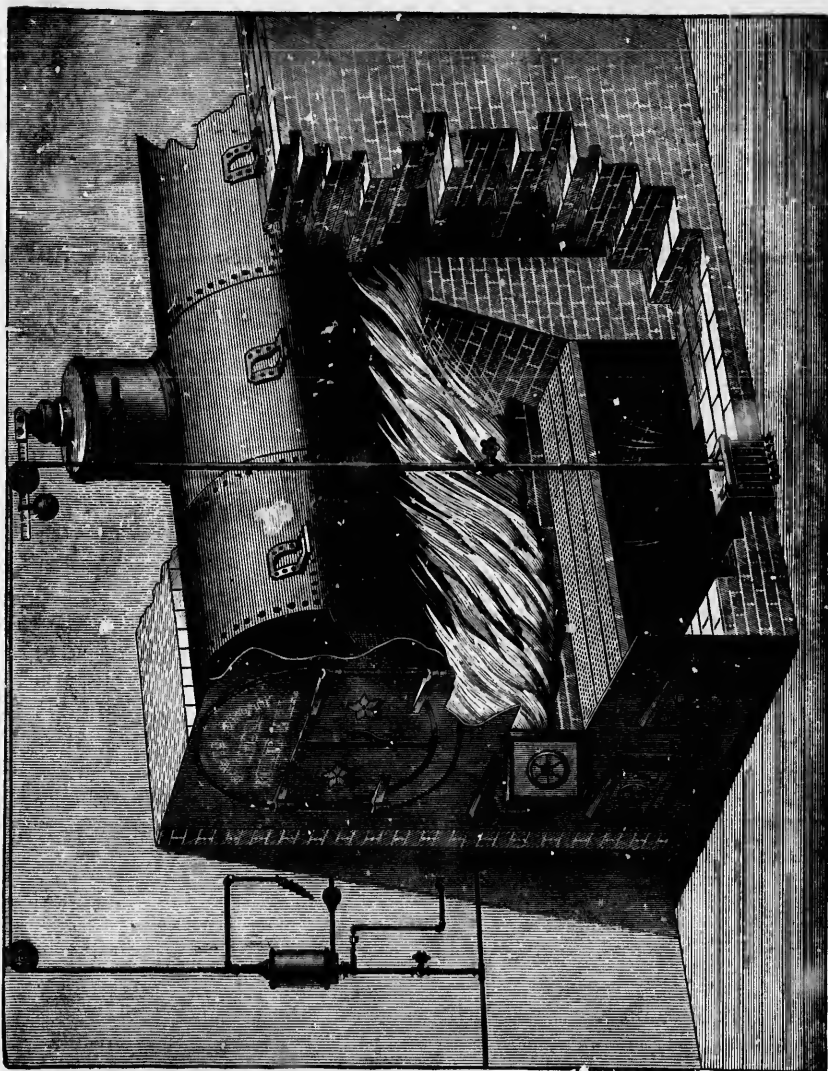
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LEADBEATER'S IMPROVED FURNACE

Or Air-Feeding Device.

Patented in U. S. July 17th, 1888,

In Canada October 3d, 1888.



Manufactured in U. S. and Canada, and for sale by

FRED'K LEADBEATER,

441 Twenty-Fourth Street,

DETROIT MICH.

Presented by.....Agent.

THE LEADBEATER IMPROVED FURNACE

Is adapted to the burning of all kinds of

WASTE COAL,

—SUCH AS—

HARD COAL SCREENINGS, SOFT SLACK, TAN BARK, SAW-DUST, COKE SCREENINGS and NOVA SCOTIA CLUM or SCREENINGS, and CAPE BRETON COAL.

Cheap Fuel.

On authority of Prof. T. W. Shaefer, Pottsville, Penn., 65% of all the coal mined is wasted at the mines. A few years ago he estimated 800,000,000 tons of screenings lying there in waste heaps. At the ports of delivery there is an additional large percentage of waste in the form of screenings. At Port Richmond alone is produced 40,000 tons of screenings yearly.

Combustion of Fuel.

To produce combustion of fuel requires oxygen, and the source of oxygen as a supporter of furnace combustion is atmospheric air. The exact composition of the atmosphere has been made the subject of experimental research, and from samples taken at different heights above the level of the sea, from nearly every quarter of the globe, analysis shows it to be essentially the same. In burning fuel under a boiler, a full supply of air must be furnished under the grates, the oxygen being used in supporting the fire, and it is a well-known fact that not one-third of the amount of oxygen required for perfect combustion passes through the body of fuel. This produces carbonic oxide gas, or what we smell so strongly from the common house furnaces, which usually passes away unconsumed and is lost. When cold air joins the gases above the fire, it takes so many units of heat from the flame, which reduces the temperature and proves a large loss in economy, as air must be raised to about eight hundred degrees Fahrenheit to produce combustion. While heating the air for combustion intensifies the chemical affinities between the air and the gases, the process offers another most effective means of diminishing the consumption of fuel, and of almost indefinitely increasing the intensity of the fire. It is simply a physical impossibility to get perfect combustion in a furnace without using air under the grate bars. Within the past two years a large number of different kinds of furnaces have been invented to pre-heat the air to a high degree before joining the gases, and thus save taking so many units of heat from the flame. The Leadbeater Furnace furnishes the necessary air through the fuel mixed with steam, which also mingles with air and is super-heated as it passes through the fire and forms what is called hydrogen water gas, the most thorough and most powerful heat known. The steam that is used creates a greater saving passing through the fire than can be produced by passing through the engine or any other form of use.

All parties ordering this Furnace will please give the length and diameter of boiler.

TESTIMONIALS AND REFERENCES.

Preston, Ont., Jan. 25th. 1889.

MR. F. LEADBEATER,
Detroit, Mich.

Dear Sir—We have three of your Patent Improved Furnaces under our boilers. We find them very satisfactory and economical and have pleasure in recommending them.

Yours truly,
ROBINSON, HOWELL & CO.,
Woolen Manufacturers.

Detroit, Mich., June 1st, 1889.

MR. F. LEADBEATER,
Detroit, Mich.

This is to certify, that I have had in use your Patent Improved Furnace Blower for about eighteen months. It has given me full satisfaction, and is a saver of more than thirty per cent. in fuel. I can highly recommend the same to all the users of steam.

Yours respectfully,
J. P. BENOIT,
Manufacturer of Steam Engines, Etc.

Detroit, Mich., May 31st, 1889.

MR. FREDERICK LEADBEATER,
Detroit, Mich.

Dear Sir—I have now used your Patent Improved Furnace Blower for the last six months and it has given me entire satisfaction. I have saved over thirty per cent. on my coal bill, and I highly recommend it to all steam users.

Respectfully yours,
LOUIS C. BROSSY,
Steam Dyer and Cleaner.

Detroit, Mich., April 6th, 1889.

To Whom It May Concern:—We have two of the Leadbeater Furnaces in our works, and are putting in one more. They have given us the best of satisfaction, burning hard coal screenings and soft slack mixed.

BAUGH STEAM FORGE CO.,
S. A. BAUGH, Supt.

Toronto, Ont., May 13th, 1889.

MR. FREDERICK LEADBEATER,
Detroit, Mich.

Dear Sir—We have had in use under one of our boilers for two years or more, one of your Blowers, which, during that time, has given us the best satisfaction and economy; so much so, that we have just ordered from you two more of your Improved Blowers. We use it in burning hard screenings alone, and find that we can keep steam equal to the best steam coal. We recommend it to all steam users as being the most economical and best mode of burning screenings.

Yours truly,
A. R. CLARKE & CO.,
Leather Manufacturers.

Montreal, May 23d, 1889.

FREDERICK LEADBEATER, Esq.

Dear Sir—In regard to your new Patent Furnace and Injector, put in by you, in one of our steam boilers, we have to say that it fully comes up to your representations, giving us more steam at less cost for coal. With it we have burned screenings, giving satisfactory results. We have tested it carefully and the result was 10 lbs. of water evaporated for each 1 lb. of coal consumed. We wish you to supply our three other boilers with the same appliances as soon as possible.

Yours faithfully,
THE GLOBE WOOLEN MILLS CO.,

Preston, Ont., May 10th, 1889.

MR. F. LEADBEATER,
Detroit, Mich.

Yours of the 8th at hand, will say that we have been using your Improved Furnace for the last six months. We find it very satisfactory. We are burning hard coal screenings instead of lump, which costs us \$4.50 per ton, and hard coal screenings \$2.35 per ton, making a difference of \$2.15 per ton on each ton of coal delivered into our engine room.

Very respectfully,
CLARE BROTHERS & CO.,

Montreal, Dec. 18th, 1889.

FREDERIC LEADBEATER, Esq. 441 24th Street.
Detroit, Mich.

Dear Sir—The Leadbeater Furnace which you put in three boilers belonging to the Montreal Water Works, have so far proved very serviceable, enabling us to keep up steam with coal of an inferior quality, and with which we had not been able prior to using your device, to keep up steam. I am just sending to your agent Mr. McLean, at Lowell, Mass., a copy of Mr. Kearneys report on tests of coal made with your apparatus.

Yours very truly,
B. D. McCONNELL,
Sup't M. W. W.

Montreal, Nov. 20th, 1889.

FRED'K LEADBEATER, Esq.

Sir—We take pleasure in certifying to the splendid results obtained in the using of your Patent Steam Blower, both for producing steam and saving fuel, and also for doing away with exhaust steam from the rendering tank. And will take great pleasure in showing same to any one you may refer to us. We remain,
Respectfully yours,

A. S. & W. H. MASTERMAN.

Montreal, Nov. 11th, 1889.

MR. FREDERICK LEADBEATER,

Dear Sir—We are pleased to be able to state that the Improved Furnace you attached to the boiler of the Steamship "Bonavesta," is a complete success.

Yours truly,
KINGMAN, BROWN & CO.,

These Furnaces are also used by the following establishments who cheerfully testify as to the great saving they effect:

CENTRAL MILLS	East Saginaw, Mich.	R. FORBES & Co., WOOLEN MILLS,	Hespeler, Ont.
POMEROY, KRUCE & KERN,	" "	LOWELL MFG. Co.	Lowell, Mass.
JOHN L. JACKSON,	" "	LOWELL ELECTRIC LIGHT WORKS,	Lowell, "
J. H. SHACKLETON	Saginaw City, "	THOMPSON & SAVAGE	Montreal, Can.
CHAS. APPELT & BRO.,	Detroit, "	CRAIG & SON ELECTRIC LIGHT WORKS,	Montreal, Can.
DAVID SCOTT	" "	CANADA PAPER Co.	" "
BATCHELDER & LONG	" "	BALMORAL HOTEL	" "
GLOBE TOBACCO WORKS	" "	ST. LAWRENCE SUGAR REFINING Co.,	Montreal, Can.
DETROIT WHITE LEAD WORKS, "	" "	MERCHANTS COTTON MILLS,	" "
D. S. FERRIN & Co.	London, Ont.	ROYAL ELECTRIC LIGHT Co.,	" "
W. STAHLSCHMIDT & Co.	Preston, "	ROBERT GARDNER & SONS,	" "
GUGGISBERG BROS.	" "	W. L. McLAREN	" "
ROBERT SNARR	TORONTO, "	J. M. FOSTER	" "
CHAS. REID & Co.	" "	WM. ANGUS & Co.	" "
TORONTO CABINET WORKS	" "		
STANDARD WOOLEN MILLS Co., "	" "		
BRAMM BROS.	Berlin, "		
JAS. T. HUBER & Co	" "		

