

688

187
23
173

The BAKER STEAM UNIT

for driving

All Stationary Shop Work—Electro-Generators

Marine Engines, *Main and Auxiliary*—Tugs—Power Boats

Cranes—Hoists—Winches

Railway Equipment—Road Building Machinery

Automobiles—Trucks—Tractors



MANUFACTURED BY

BAKER MOTORS, INC.

ERIE, PENNA.

High Pressure Steam

FOR more than half a century, the devices (Engines) for utilizing steam for power purposes have remained quite unchanged as to principle.

The Turbine has been developed in the meantime and adapted to certain fields successfully—but on the whole, the old reciprocating engines still outnumber all improved Steam Devices.

During this same period, the Electrical Generating Devices, (which are Intervening Devices,) have been invented and developed to a very high degree of perfection.

Incidentally the Internal Combustion Engine was conceived, developed and improved to a point of so-called near perfection today. A vast expenditure of time and capital was necessary in this connection. It was a troublesome, noisy and odorous thing when first used commercially. To develop this device, necessitated the simultaneous development of many other things in order to make the ultimate success of the main thing possible. Such accessories as the Carburetor, Magneto, Storage Battery, Starting Devices, etc., were pertaining factors.

The Electrical and Internal Combustion Devices have come forth out of imaginative genius—been developed through the laboratory and experimental stages, to the crudely commercial, at a tremendous cost—and from that to the highly refined and extensively commercialized products in use today.

crustation or scale. There is a reason. Will operate on bad water where all others fail. Circulation is extremely rapid and separation complete.

THE BURNER—The Baker High Efficiency Burner operates on Fuel Oil or on any oil down to 25-30 gravity. It positively will not clog or carbonize. It is simple and gives wonderful combustion without noise or odor.

When used with our automatics, the fire is turned up or down, according to steam requirements. In case of water supply being cut off, the fire is turned out entirely. The Generator cannot be burned in this contingency.

Our Water Level Indicator shows the exact level in the Generator night and day, without taking a drop of water or a particle of steam out of the Generator. You can sit in your office, one mile or five miles from your plant, and a Baker Automatic Indicator on your desk will show you exactly where the water level is in your Generator, and if your Generators are operated by a Baker High Efficiency Fuel Oil Burner, and the water level should go below "Danger," the fire will be cut off entirely without your attention, and that fire cannot be turned on again until water has been supplied to that Generator.

Let us quote on your replacements or new equipment for POWER — or for STEAM or FUEL OIL BURNERS.

THE BAKER PRODUCTS ARE GUARANTEED



—MANUFACTURED BY—

BAKER MOTORS, Inc. -:- ERIE, PA.

THE BAKER STEAM POWER UNIT

Consists of Rotary Steam Engine, Steam Generator and Oil Burner.

The Baker Power unit can be used universally wherever steam or power is needed, at a great cost saving both in operation and installation.

THE BAKER ENGINE

The Baker Engine is an application of high pressure steam made possible only by the Baker Valve.

It is a Rotary Confined Steam Engine having no dead centers, therefore, the effort is applied directly without intervening mechanisms.

The Baker Engine is superior in its even flow of power and its great starting torque.

THE BAKER VALVE

The Baker Valve is a special design of Rotary Valve. It is built integral with the main part of the engine and is so near a perfect balance as to be almost entirely free from friction. For instance,—this valve while operating 600 lbs. steam pressure can be thrown into reverse or any position with one finger applied to a 10 in. lever.

One valve will operate any number of cylinders from two to twenty-four. There are only three moving parts and the valve remains stationary except when reversed and then moves a quarter of one revolution. There is no valve gearing.

The Baker Valve can be applied to any reciprocating type of engine, effecting a saving steam and power.

THE BAKER STEAM GENERATOR

The Baker Steam Generator will deliver dry, superheated steam to the engine at all times and under every variable power condition. This Generator positively will not prime or lift water under any condition of throttle operation.

A firm guarantee is given with every generator.

THE BAKER OIL BURNER

This Burner is recommended in connection with all Baker Steam Generators. Complete combustion. *No noise* and positively no carbon trouble.

FOR more than half a century the application of steam as power has been confined to practically the same methods, a remarkable fact when we consider the refinement and progress in all other lines.

It is true, however, that there has been a vast amount of experimental work directed toward improvement in the steam field. This work has been carried on by Engine Builders, Schools of Applied Science and Research Bureaus and much of it has been with rotary engines.

The rotary engine, it was recognized, if once perfected, would far advance the application of power. It would give great starting torque as well as even torque in operation. It would transfer much of the dead or stationary weight of the engine into moving weight and form a vehicle for momentum.

Coincident with more recent efforts in this direction has been the world-wide consideration of the economy of steam, or, the quality of that steam. Fuel costs naturally have inspired this. The results is that High Pressure Steam has been closely studied. Note the following copied from Engineering Records.

“a pound of steam of 100-lb. gauge contains 1189 units of heat (B. T. U.); steam of 200-lb. gauge requires only 10 additional B. T. U., while steam of 500-lb. gauge contains but 21 B. T. U. more than steam of 100-lb. gauge. The heat required to raise steam at 500 lbs. pressure is but 2½% greater than that needed for steam at 100 lbs. pressure. The work capacity of steam at 200 lbs. pressure, however, is 30% greater than that of 100 lbs. steam, and a pound of steam at 500 lbs. pressure has available 70% more energy than steam at 100 pounds.”

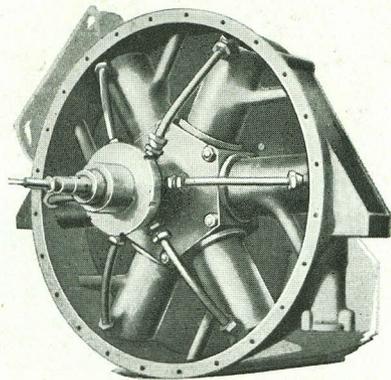
THE satisfactory answers to the Engine Problems, the Steam Problems and the Valve Problems are the now Internationally known Baker Patents. The Baker Patents accomplish the heretofore impossible, and do so by means of new and simple construction. This simplicity, connected with self-evident durability, brings about a new era in the use of steam as power.

Quietly, but methodically, and under the most exacting business management, the Baker Patents have been brought forth into commercial application, and, because of this thoroughness in the combination of technical and business administration, it is not surprising that Engineering and Manufacturing interests in the United States, Canada, France, Italy, Germany, England and Belgium, are giving sober minded consideration to "the greatest improvement in the application of steam as power that has occurred in the last fifty years."

The question naturally suggests itself as to why the Baker Patents are so valuable and represent such a stride in power progress. Analyzed, the Baker Steam Unit has less weight per horse power; higher efficiency under all conditions; most simple construction; longer life because it is built more rugged; more flexible than any other type of motor; and greater adaptability to a wider range of uses.

It will reverse with the throttle wide open; occupy less space than any other motor per horse power; produce more power per fuel dollar; use a low grade of fuel oil in the burner; cost less to install and less to operate and maintain; give greater economy; and operate under the most exposed conditions and in practically any position.

*Baker High Efficiency
Engine:*



Patented
Baker
High-Efficiency Steam Engine
Interior with Front Cover
Removed

Model 627

High Pressure Steam
250 to 800 Pounds.

Six Cylinders

Bore 3 in. Stroke 3 in.
Rating 20 to 30 H. P.

Diameter (Vertical) over all $23\frac{5}{8}$ in.

Diameter (Transverse) over all $23\frac{5}{8}$ in.

Weight Complete

Water Pumps attached 275 pounds

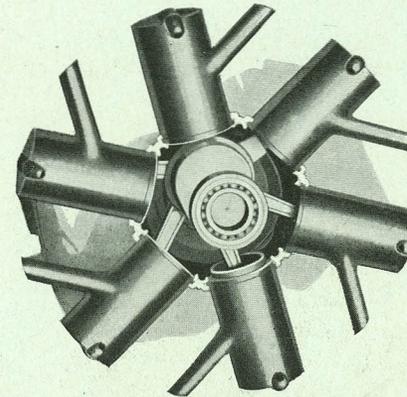


Lubrication is a Dual Pressure System, one-half the oil being delivered to valve, from there carried with steam and lubricates outer ends of Cylinders. The other one-half of the oil is delivered to Crank and Main Bearings and inside ends of Cylinders. This Lubricating System is positive as long tests have shown.

Baker Motors

There is only one moving Stuffing Box in Baker High Efficiency Engines, and that operates against Oil Pressure instead of Steam.

**SPEED FROM 0
TO 1800 R. P. M.**



Patented and Patents Pending

Baker

High-Efficiency Steam Engine

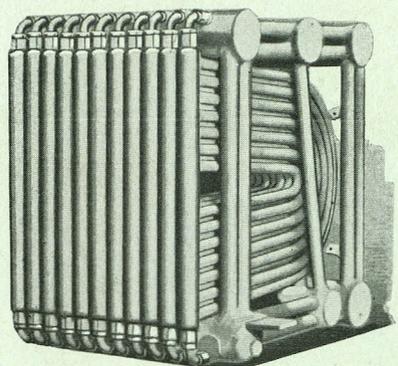
Piston Crank and Cylinder
Assembly

Model	Bore	Stroke	H. P.	Diameter		Weight	Speed	Price
				Vertical	Transverse			
627	3	3	20-30	23 $\frac{5}{8}$ in.	23 $\frac{5}{8}$ in.	175	0 1200	
628	3 $\frac{1}{2}$	3 $\frac{1}{2}$	30-40	26 in.	26 in.	250	0 1000	
629	4	4 $\frac{1}{2}$	40-60	32 in.	32 in.	(a) 325 (i) 600	0 800	
630	4 $\frac{1}{2}$	5	75-100	35 in.	35 in.	(a) 450 (i) 850	0 800	

NOTE:—(a)—Aluminum. (i)—Iron. Built in any size to 500 h. p. (Special Order), Price on application.

Baker High Efficiency Steam Generators:

These Generators are designed for a range of application to accommodate all Models of Baker Engines with full allowance for over-load and reserve.

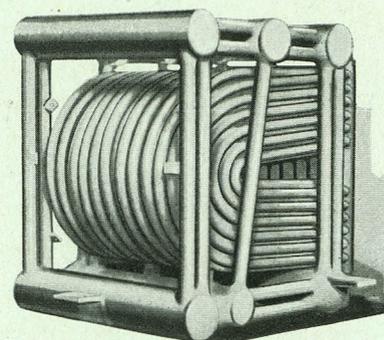


Patented and Patents Pending
Baker
High-Efficiency Steam Generator
Front View

The circulation is very rapid in all models of this Generator.

The separation is complete and dry super-heated steam is always available.

All sediment settles and must accumulate below the Fire Line, and the "Blow Off" easily freeing the Generator of mud and sediment since same does not become baked or encrusted. The fire does not strike the "Mud Base."



Patented and Patents Pending
Baker
High-Efficiency Steam Generator
Back View

The sections are made of special seamless tubing and the shape of the tube in the section readily indicates that the expansion simply elongates the loop and causes no thrust or "Draw" on the "Header" of the Sections.

The Sections are interchangeable and can, after long use, be inverted, placing opposite side of loops in the Fire.

We guarantee these Boilers to give satisfaction when used with Baker High Efficiency Oil Burners.

Baker Motors

The Baker Generator is a simple and remarkably small, but marvelous Steam Generator, and is adapted particularly to all high pressure steam generation, and uses, also to Domestic and Commercial Heating. Nearly perfect insulation keeps heat units confined to steaming.

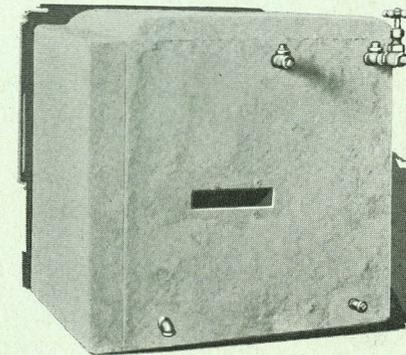
One Generator was placed on test for eighteen months, and every conceivable possible abuse was given it. The tubes, while empty, were heated cherry red on numerous occasions, and cold water then pumped into Generator and this without perceptible damage.



Model 527

To operate 20-30 H. P. Baker High Efficiency Engines

Weight 375 lbs.
 Tested to 3,200 lbs.
 To operate under 150-800 lbs.



Patented and Patents Pending

Baker
High-Efficiency Steam Generator
 Encased

NOTE:—Special shapes can be had where space is pre-determined and unalterable. For Marine use, a larger over capacity is allowed.

Model	Weight	No. Sections	Dimensions	For Engine Model	Price
527	375	11	19x22x28	627	
528	475	12	21x24x32	628	
529	600	14	26x36x36	629	
530	700	18	32x36x36	630	

All other sizes built to order. All tested to 3200 pounds Cold Hydraulic. Price on application.

Baker Low Pressure High Efficiency Oil Burners:

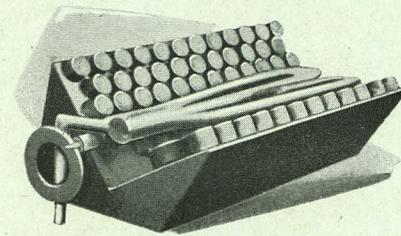
This burner is quite a departure from all other types.

In the Baker Burner we have positive and complete combustion and ABSOLUTE FREEDOM from usual carbon and clogging trouble.

The Baker Burner can't clog—that is an impossibility—and with the Electric pre-heater, it is only necessary to turn a switch, and in a few seconds turn on the fuel.

This Burner is connected by positive Automatic Controls with the Steam Generator and the unit operates accurately with little attention—always keeping the Steam Pressure within the high and low limits, for which the Automatics may be set in each case.

Fuel Oil or Kerosene is used.



Patented and Patents Pending

Baker

**High-Efficiency Low Pressure
Oil Burner**



Pilot Light:

The Baker Pilot Light operates with Kerosene and will maintain steam pressure for hours in most exposed conditions.

BAKER MOTORS, INC.

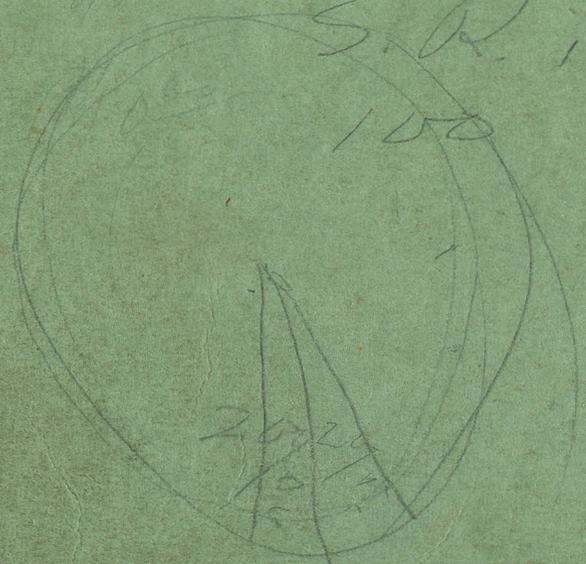
821 Commerce Building

ERIE, PENNA.

30

~~12400~~

~~45~~ S.R. 1



100

20720

109/10

$$\begin{array}{r} 26 \\ 8 \overline{) 208} \\ \underline{16} \\ 48 \\ \underline{40} \\ 80 \\ \underline{80} \\ 0 \end{array}$$