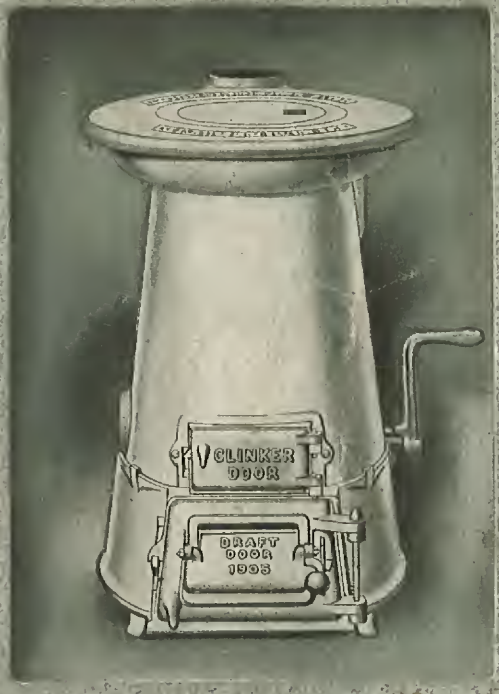
Ideal Water Heaters



AMERICAN RADIATOR COMPANY

AMERICAN RADIATOR COMPANY

GENERAL OFFICES:

282-284 Michigan Avenue, Chicago.

NEW YORK	104-108 West Forty-Second Street
BOSTON	129-131 Federal Street
PHILADELPHIA	1342 Arch Street
BALTIMORE	109 East Lombard Street
BUFFALO	Court and Franklin Streets
PITTSBURG	601-603 Hartje Building
CINCINNATI	213 West Fourth Street
ATLANTA	11 North Forsyth Street
INDIANAPOLIS	511 Lemcke Building
DETROIT	225 Jefferson Avenue
CHICAGO	282-284 Michigan Avenue
MILWAUKEE	126 Sycamore Street
ST. LOUIS	15th and Olive Streets
MINNEAPOLIS	229 Fifth Street, South
OMAHA	413-417 South Tenth Street
KANSAS CITY	313 East Tenth Street
DENVER	831 Fifteenth Street
DALLAS	343 Main Street
SEATTLE	1215-1216 Alaska Building
SAN FRANCISCO	1317 Gough Street
BRANTFORD, ONT.	Market Street
LONDON	89-90 Shoe Lane
PARIS	24 Rue de Mogador
BERLIN	35 Alexandrinen Strasse

Above we present a list of our Show rooms to which we cordially invite the calls of those who may desire to inspect samples of our products. They are also on exhibition in the stores of thousands of dealers throughout America and Europe.

Ideal
Water Heaters

Aids to cleanliness, agents of comfort, butlers of healthful living, economists of labor, preservers of water temper, silent servitors of domestic peace, faithful allies to human progress. . . .

AMERICAN RADIATOR COMPANY

Sales Branches and Warehouses Throughout America and Europe

Uses of IDEAL Water Heaters

HOT FAUCET WATER

(For Washings, Etc.)

Laundries
Bath Rooms
Pantries
Kitchens
Toilets
Lavatories
Wash Stands
Carriage Houses
Dairy Buildings
Milk Depots
Auto Garages
Barber Shops
Bathing Houses
Livery Stables
Private Barns
Bottling Concerns
Drug Stores
Dyeing Establishments
Laboratories
Cleaning Concerns
Small Factories

TEMPERING WATER

(To take out Chill, prevent Freezing, or for Heating Service)

Church Baptisteries
R. R. Water Tanks
Fire Extinguisher Tanks
Roof Storage Tanks
Fish Hatcheries
Paint Tanks (for dipping)
Water Works Buildings
Liquid Vats
Fire Engines
Stock Fodder Mixing
Farm Barns
Natatoriums
Restaurant Carving Tables
Bill Posting (paste pots)
Circus Cars (paste pots)

HEATING ENCLOSURES

(By Radiation)

Small Cottages
Greenhouses
Forcing Houses
Offices
R. R. Switch Towers
Seaside Cottages
Warehouse Weighing Rooms
Fruit Dryers
R. R. Fruit Cars
Vegetable Storage Houses
Ventilating Ducts
Acetylene Gas Houses
Barn Rooms
Small Stores
Railway Stations
Storage Rooms
Chicken Brooders
Chicken Hatcheries
Bowling Alleys
Fishing Lodges
Hunting Lodges
Golf Clubs
Yacht Clubs
Platform Stations

FLAT IRON HEATING

(Auxiliary to Laundry Heaters)

Private Laundries
Public Laundries
Public Institutions
Hotels
Restaurants
Dressmakers, etc.

And For Many Other Purposes

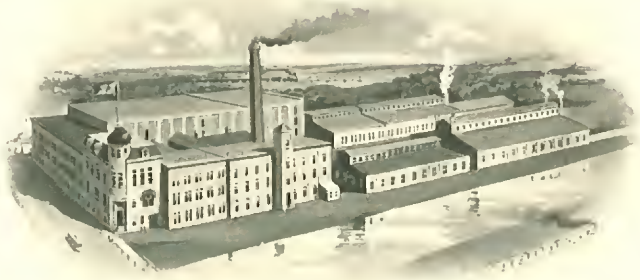
Where Ideal Heaters are Made.

Elmira Plant,
at Elmira, N. Y.

Michigan Plant,
at Detroit, Michigan.

Bond Plant,
at Buffalo, N. Y.
(Run by Niagara Falls Power)

Canadian Plant.
at Brantford, Ont.



A First Word.

A prominent statist once said that he could gauge the degree of the civilization of any people by the number of pounds of sugar and soap which they use yearly and by the way in which they treat their women. We believe that the same relative estimate of human progress could be proven of the residents of any community or nation by the number of Water Heaters which they use. These little water circulators are great civilizers and are the ready instruments for facilitating and lightening the amount of work necessary for cleaning and renovating, by supplying for the home and home-dwellers an ample supply of water, hot and plenty, at any time during the day or night and on all the floors of the house. Their use indicates very plainly the degree of progress attained in the home toward the maximum of cleanliness and comfort, with a corresponding minimum of household drudgery.

2000 years old. Roman Hot Water Heater. Original in Field Columbian Museum, Chicago

The Old Fashioned Way.

If we should make a few steps backward, we shall recall that in times past many people depended mostly on tea and other kettles, wash boilers and caldrons for a very limited supply of heated water for all purposes requiring its use in the home. Many a person who today bathes in the daintiest of porcelain with elegantly finished faucets by which a twist of the hand brings an ample supply of hot and cold water, mixed and tempered through spout or spray, can recall the time wherein the bath was frequently taken during the solitary hours in a wash tub beside the kitchen stove, and the water warmed and dipped from a copper kettle or tin clothes boiler. But these methods belong way back among the days when the tin foot-stoves and the copper warming pans were used to give people some degree of passing comfort. They were the passing modes which like the ancient fireplace, merely compromised with the terrors of winter in some limited part of the home.

As folks have increased in wisdom and prosperity, they have made larger demands on the idea of warmth and comfort. People have become accustomed more and more to expect the creature comforts in their homes all day long, and night time, too. With the rise of this idea, one of the most important expectations of the dwellers of modern homes is water, hot and plenty, from sun-up to sun-down, and during the night time hours as well.

Upward Steps.

This service is often met in varying measure by coils in kitchen ranges, in furnaces, in heating boilers. But inasmuch as this way of heating water deprives the stove or heater of just so much of its original capacity, and as the uses and term of firing of the cooking or heating apparatus does not always work in harmony with the demand for hot water, this combination idea (while better than the more ancient ways) cannot be recommended to those who really want the best methods. Heating water requires just so much fuel for so much service and the coil method cannot be said to heat the water without taking up its equivalent in the heat producing value of coal burned in the apparatus in which the coil is placed. It is often argued that these coils when applied to stoves and hot air furnaces are economical, saving the necessity for separate Water Heaters. But there are many times when the fire must be forced beyond the normal requirements for room warming just to heat the coil circulation. Then an abnormal fire is maintained for a minor service and fuel is wasted. In an independent Water Heater the fuel burned is graduated precisely to the service required with no waste of fuel. For correct method and additional reasons therefor, see illustration and text, page 15.

Independent Service.

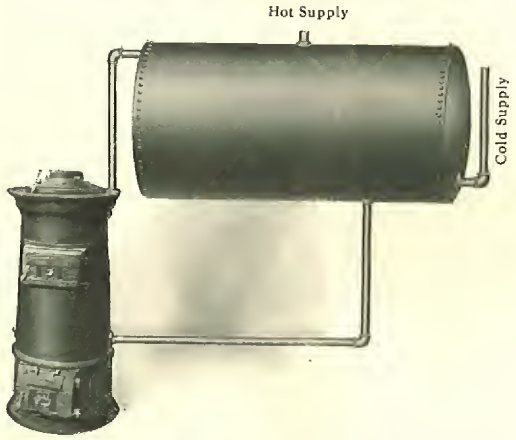
And so the IDEAL Water Heaters were brought out to better meet this demand for faucet supply of hot water in a method which is sure, positive, independent and ample for all needs. For many years they have continued to make a most excellent reputation for superior service. Those who need an independent supply of hot water service night and day for the various refreshing and cleansing purposes of the dwelling and its dwellers, can find no form of apparatus which can hold even with the several

highly perfected types embraced in the IDEAL lines described in this catalogue. Each of the lines shown in this pamphlet is superior for the service comprehended in its range of capacities.

The specific reasons for this broad claim are found in the features laid open to view in the following pages.

While these heaters find the largest measure of acceptance from houseowners for domestic purposes, they also serve a wide range of useful requirements in warming small buildings, parts of larger structures which require additional warmth in exposed parts, isolated quarters such as enclosed offices, and for tempering water and liquids for various purposes. A list of the special uses and small buildings for which the small IDEAL Water Heaters are adapted are set forth on one of the pages of this catalogue.

IDEAL Water Heaters enjoy by far the largest sales in the world, which is but the evidence that through their use more hot water, at less cost, is secured than from any other form of heater or apparatus.



IDEAL Junior Water Heater connected to large Horizontal Tank for Storage of Hot Water.

For Better Dish Washing.

A whole-souled country woman once defined happiness as a "stack of dishes, plenty of 'hot suds' and a good sink to 'dreen' them in." There is a great deal of cheerful philosophy in this definition—especially in the "hot suds."

In no other branch of household work is an ample supply of hot water so necessary as in that continuous performance in the kitchen-life—the washing of pots and pans, cutlery and dishes.

Good work in this line is not accomplished when the worker is compelled to wait for a meagre kettle of water to heat, or is delayed near the finish because there is not enough hot water to wash up the last pots and pans or enough to "rinse" the dishes thoroughly.

Every housewife has often experienced how quickly the dishes are disposed of when there is an abundant supply of hot water, and has also felt honest pride in seeing the stacks of brightly polished, gleaming dishes—which can best be made to appear so by liberal hot water rinsing and the consequent quick drying and polishing.

Really, with an ample supply of hot water from an IDEAL Water Heater and a fairly cheerful disposition, dish-washing becomes an ideal task when compared with the old-fashioned methods.

With an IDEAL Water Heater the cleaning, "dreening" and gleaming of dishes are quickly accomplished.

For Family Bathing.

The necessity of frequent bathing, as well as the enjoyment of it, is too well known to be here discussed. The essential feature is to have at all hours of day or night, especially where there are children in the family, an abundant supply of hot water, at the turn of a faucet. Nothing is more annoying, and at times harmful, than to be in readiness for the bath only to find the supply is nearly or entirely exhausted, and one is then obliged to wait until the insufficient kettle, boiler, coil or kitchen range-tank can be reheated.

Our foremothers, mothers and many women of this day have known the drudgery of keeping and cleaning house, and of bathing, by lugging water up and down stairs. There's a great difference between turning a stop-cock for hot water in toilet, dressing-room or bed-room on any floor, and lugging a fifty-pound bucketful up one or more flights of stairs—just the difference between work well-in-hand and drudgery.

Home-work cares seem to be endless. The great question is how and wherein can the strain and drudgery be lessened and made more convenient,—how to maintain the easier ways of doing things in the home equaling those which the modern business man expects in his office or store.

Those who have once experienced the comfort and economy of instant, bountiful faucet supply of hot water by IDEAL Water Heater service do not return to the old-fashioned makeshift contrivances.

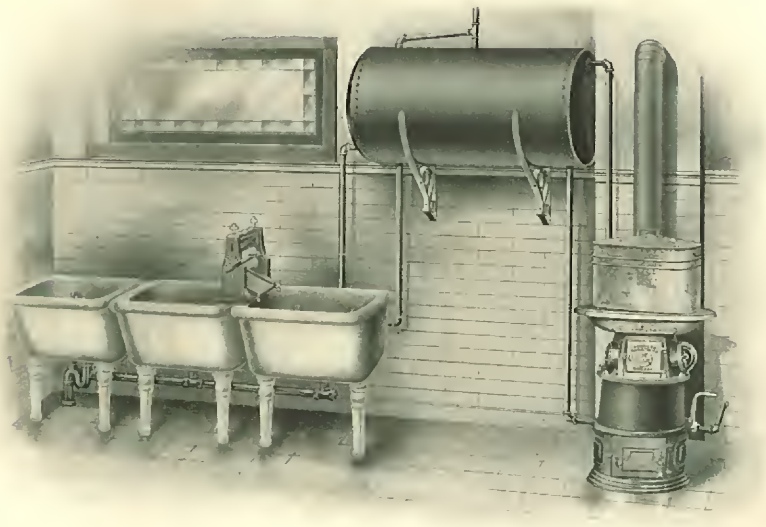
Nothing more enjoyable than a bountiful supply of hot water in the bath room—at the turn of a faucet—night and day.

For the Laundry, House-cleaning, Etc.

"Washday" has long been regarded as the bugaboo of housekeeping. Half of Sunday's rest has been spoiled by contemplation of the trials of Monday's washing. The old-fashioned way requires the makeshift heating of kettles and boilers of steaming water, spreading dampness and odors through the house. This, accompanied by much lifting and straining, with irksome delays in waiting for water to heat, is hardly conducive to maintaining a housewifely, happy disposition.

Cheerfulness and pride abound with the modern housekeeper, who enjoys doing her laundry work with the appointments now available. Water hot and plenty at a turn of the faucet is the solution of the vexing problem of wash-day, as well as of kitchen work, house-cleaning and domestic bathing.

The IDEAL Laundry Water Heater is a gem of utility for making sad-irons merry with heat, for heating water in tanks or boiling it in clothes-boilers, for putting up fruit in canning time and for furnishing water hot and plenty in the bath room, pantry, kitchen, toilet and other rooms.



IDEAL Water Heater supplies an abundance of hot water for laundry purposes.

Economical Cottage Warming.

We here publish a letter sent in to one of our customers in the Trade by a house-owner to whom he had sold a Hot Water warming outfit for a flat of six rooms for $175.00:

SIRS: I gladly give you this expression of my experience with the Hot Water apparatus you installed in the lower flat of the frame building occupied by me at 5904 Normal Avenue. The building is without cellar or stone foundation—the boiler is set on same level as the floors of the rooms.

Careful records were made both before and after the installation of the boiler in question, with the following results:

2 Stoves, with Oil Stove in severe weather		With IDEAL Water Heater	
8 tons coal, $6.50 per ton . .	$52.00	6 tons coal, $6.50 per ton . .	$39.00
12 gallons oil, 15c per gallon . .	1.80		
Kindling wood	2.00		
Total cost	$55.80	Total cost	$39.00

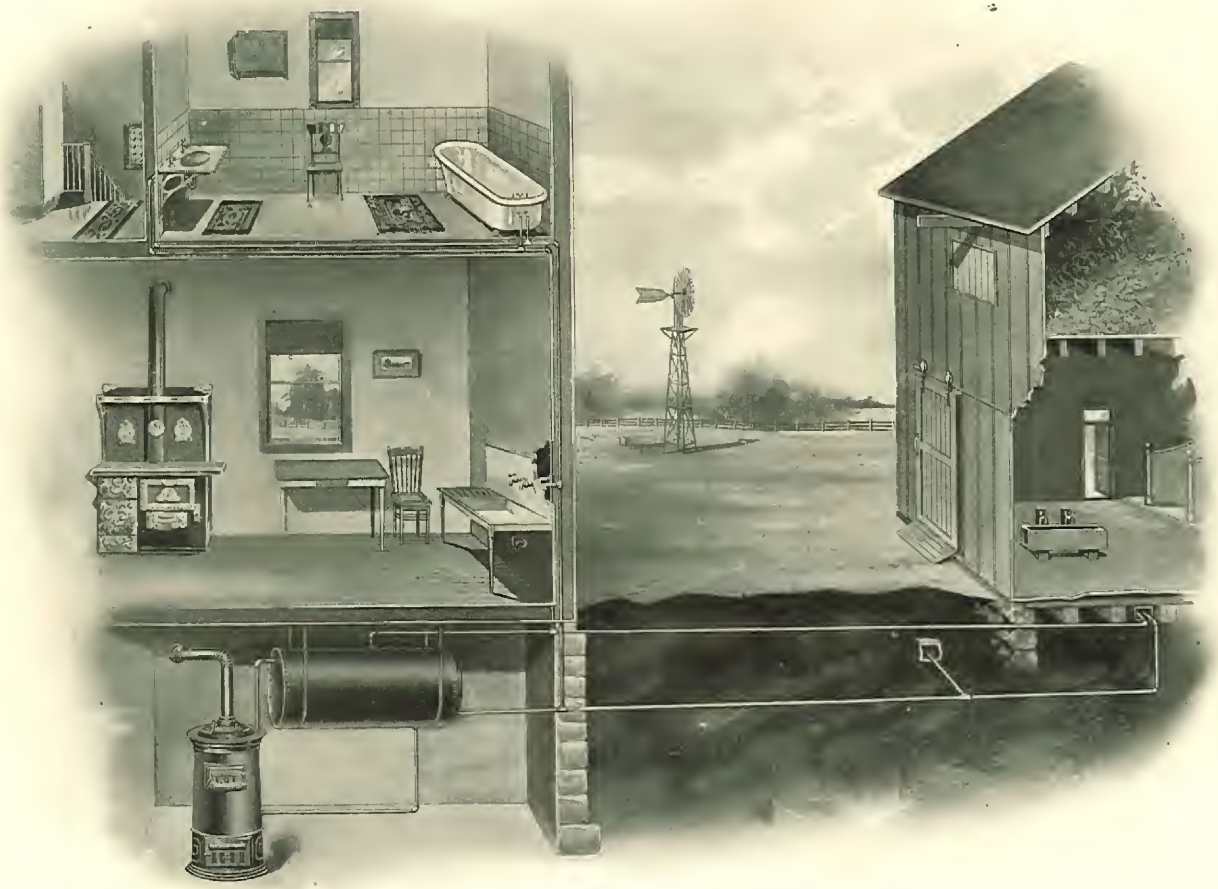
Value of fuel saved per year, $16.80. Per cent saving, 31.

It was never possible with the first method to get the temperature of the house over 70 degrees. On a day last winter when the outside temperature was 10 below zero, the temperature of the entire house was raised on test to 90 degrees. There was the further advantage of having with much less attention a constant fire during the entire season. The ash from the boiler fire is so fine that sifting is not necessary.

Yours truly,

W. S. KANDY.

The total cost of the outfit is not a fixed or general price for all houses seemingly of same size. The cost of the job complete must depend on the size and number of Radiators, the Heater and method of installation. In some cases the price of a six room job might be more—in some cases less. The cost of the outfit is mentioned only to indicate what was done in one specific instance and what relatively can be done in other flats or cottages.



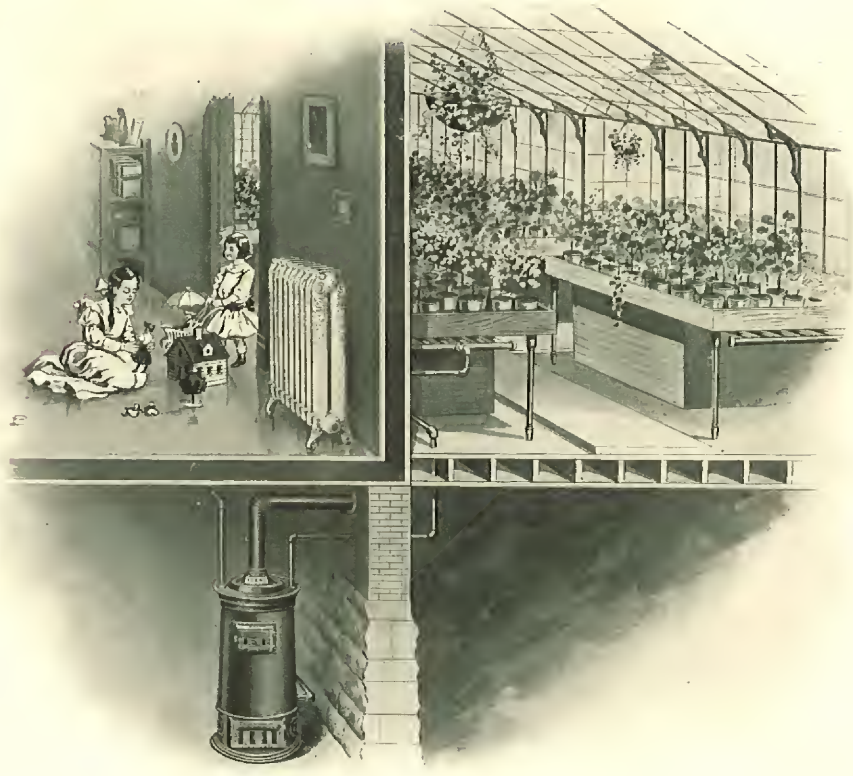
IDEAL Water Heater furnishes an abundance of hot water for domestic uses, stock fodder or other purposes, at minimum of fuel expense.

For Warming Greenhouses, Forcing Houses, Etc.

IDEAL Water Heaters are widely used by professional and amateur growers, in greenhouses, forcing houses, mushroom pits, etc.

"And it is my faith that every flower enjoys
the air it breathes."—Wordsworth.

Nature's highest endorsement is afforded by the universal experience, as it is conclusively shown that where Hot Water or Low-Pressure Steam is employed there is the highest increase in plant quality and production. Authorities state the improvements in plant life secured by use of these methods of warming show 20 per cent gain in quality and 15 per cent increase in quantity. In fact, these modern warming methods have now almost entirely superseded all other heating methods in plant culture. Similarly, that fact guarantees best conditions for human life from the use of hot water warming apparatus in the home.



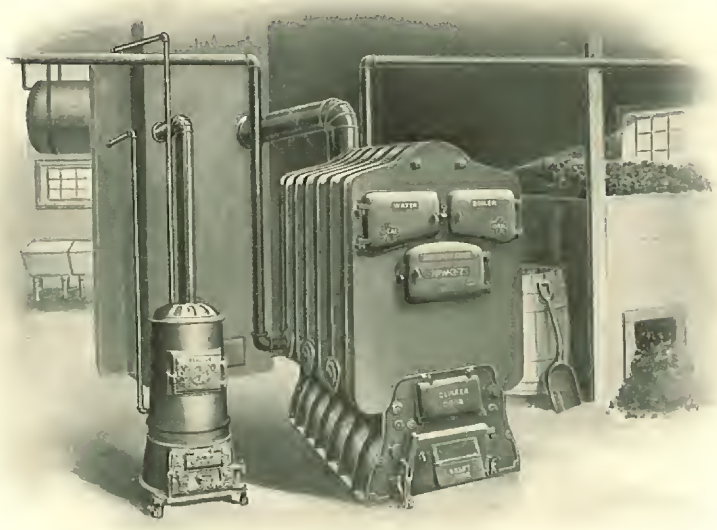
IDEAL Water Heater used for warming house conservatory, living-rooms, etc.

For Separate Heating and Hot Water Service.

Often a houseowner desires to insert a coil in the house-heating boiler for heating water for domestic purposes. In such cases, it is far better to invest the additional money (which would be required for more house-heating boiler capacity) in a separate IDEAL Water Heater.

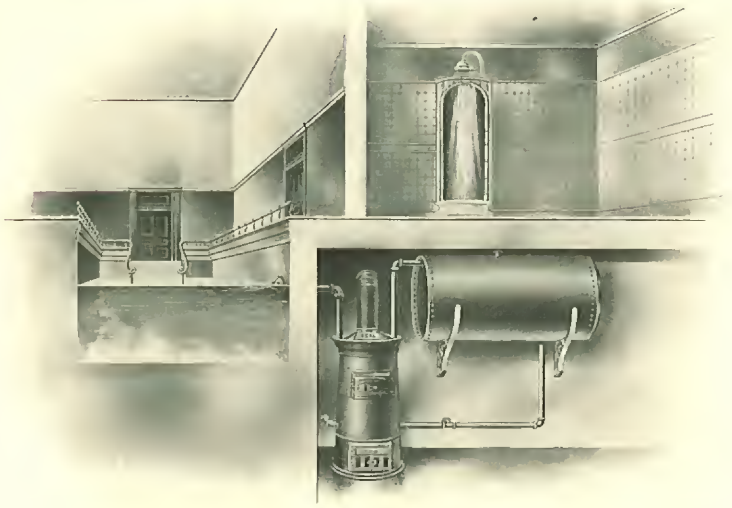
Heating water requires just so much fuel for so much service, and the coil method cannot be said to heat the water without taking up its equivalent in the heat-producing value of coal burned in the apparatus in which the coil is placed. It is often argued that these coils when applied to stoves and hot air furnaces are economical in fuel, saving the necessity for separate Water Heaters. But there are days of moderate weather when the fire must be forced beyond the normal for room warming, just to heat the coil circulation. Under that condition an abnormal fire is maintained for a minor service and fuel is wasted. In an independent Water Heater the fuel burned is graduated precisely to the service required and no waste of fuel.

An independent Water Heater is also desirable, as it can be used in summer when the heating apparatus is out of use.



For domestic water supply an independent Water Heater should be provided, and connected to an independent chimney flue, as shown.

For Barber Shops, Baths, Plunges, Etc.



IDEAL Water Heaters supply an abundance of hot water to bathing pools and shower baths.

Progressive barbers are popularizing their shops and adding materially to their income by installing baths, showers and plunges. These equipments for comfort and convenience assist much to attract the patronage of young men. It is merely another proof of Franklin's adage: "Keep your shop, and your shop will keep you."

We are also annually supplying many IDEAL Water Heaters for use in Societies, Lodges, Athletic and Golf Clubs and the like, where they not only form a strong attraction for the patronage of members but also yield a fair income to the organization.

IDEAL Water Heater supplies an abundance of hot water for barber shop, baths, etc.

Supplementary heating in a house where the hot air furnace is just about worn out and owner will not be cash-ready for a year or two to put in a complete steam or hot water outfit. See opposite page.

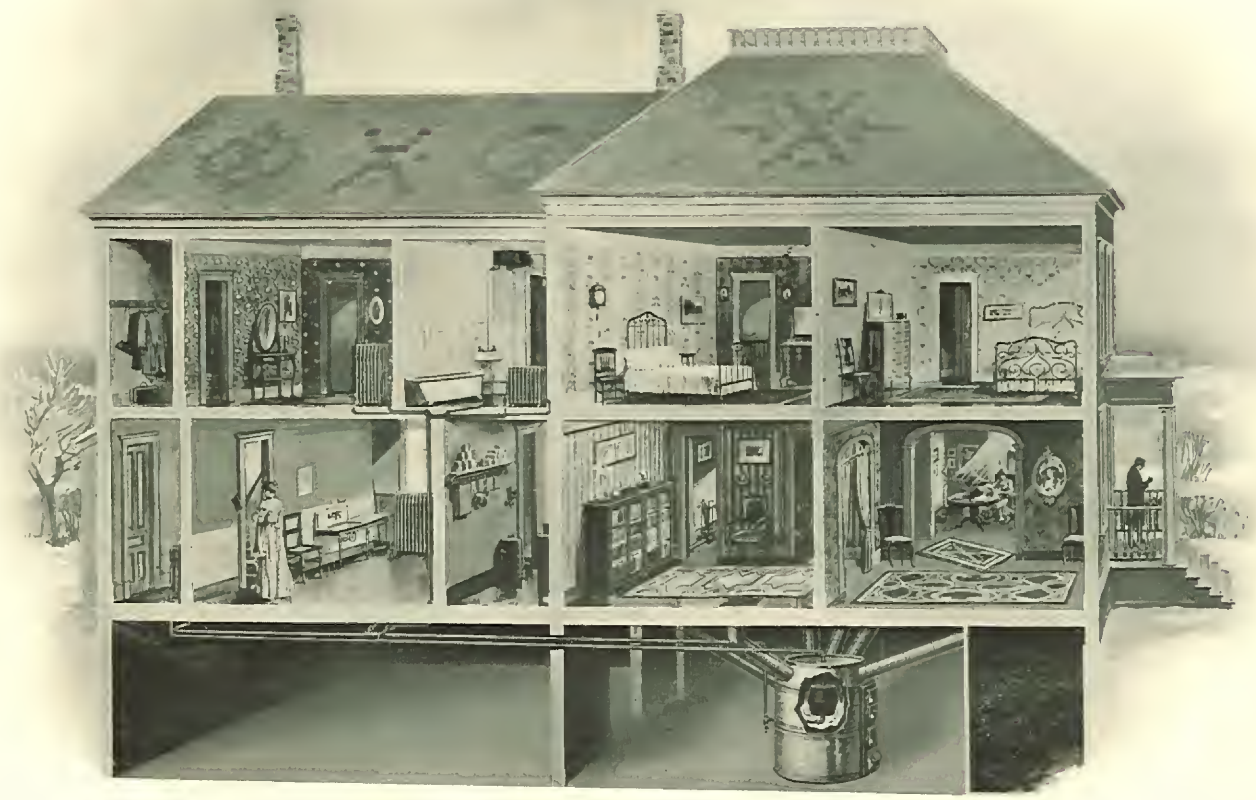
Supplementary Heating.

On the opposite page we show an adjustment of an IDEAL Water Heater to an average size home which is partially warmed by a hot air furnace and in which it is necessary to supplement the heating because of a lack of warmth in the distant or exposed rooms.

This method of supplementary heating can also be applied to old houses wherein the hot air furnace is about worn out, or to which a new wing is added, while the owner may not be ready to purchase a new, complete water-heating outfit. In this manner many an owner has started right by "bridging over" his heating needs and putting what money he can spare into a solid, permanent heating investment.

Thus by installing a small Water Heater as illustrated and connecting it to a few AMERICAN Radiators, the heating of the rooms in which they are placed is permanently settled. When the hot air furnace wears out or when the house owner is ready to invest the amount necessary, a new IDEAL Water Boiler can be erected in cellar with a complete outfit of radiation for all other rooms. And then the IDEAL Junior Water Heater can be disconnected and used for heating water for domestic faucet supply, etc., or otherwise disposed of at about its normal value. The Radiators and piping originally put in become part of the final heating outfit. Money judiciously expended is well invested.

If the building is equipped with an IDEAL Boiler and AMERICAN Radiators their cost is added to the real, permanent value of the property. Everyone expects to allow the full price for them. They are more valuable to the building than the veranda, bay window or any other feature of the house; they are of more importance than the lamps which are never lighted, vases which are never filled, books which are never read, etc., etc. In fact, a substantial, coal-economizing Steam or Water heating outfit is *the* one improvement which is not to be an expense, but is in every way to prove a dividend-paying investment,—dividends in comfort, in coal economy, in protection to family health, in household cleanliness, in convenience, in safety, in added rentability, in quicker salability.



An old hot air furnace with an IDEAL Auxiliary Water Heater added, using an outfit of four AMERICAN Radiators stationed in the exposed and distant rooms.
See description, page opposite.

Ideal Auxiliary Water Heater.

We herewith illustrate our small cast iron auxiliary Water Heater for supplementing the service of hot air furnaces by furnishing a limited circulation of heated water to a few radiators placed in rooms not satisfactorily warmed by hot air.

This method can be applied in cases where the hot air furnace has but a few years of durability remaining and the owner not ready to make a purchase of a new Hot Water heating outfit. A forward step of progress is made by adding one of these auxiliary heaters to the fire chamber of the hot air furnace and connecting to a few radiators placed in rooms requiring more reliable service. Thus the houseowner "bridges over" his heating needs until ready to purchase an entire outfit and the radiation and piping purchased for the initial improvement become a part of the complete outfit. The radiators first used can be increased or decreased in size if building is changed, for all AMERICAN Radiators are made on the unit or sectional plan and easily altered when necessary.

The method described on pages 18 and 19 is preferable, for with the purchase of an IDEAL Water Heater, the owner has a chattel which can be utilized in other ways or disposed of to better advantage than the auxiliary heater described. The service of the independent Heater is more reliable, while the cost of fuel is practically no more and the additional care-taking amounts to nothing.

IDEAL Boilers and AMERICAN Radiators introduced into homes or buildings are permanent investments. They are practically indestructible, and will endure as long as the building.

IDEAL Auxiliary Water Heater

They enable the *whole* investment to command a larger rental, if the owner becomes a landlord. They enable the owner to secure a higher price for the *whole* property, if offered for sale. They enable the owner to negotiate more advantageously, if property is pledged as collateral to a loan.

Illustration shows IDEAL Water Heater, radiators and piping, with valves so located that by closing them the radiation may be shut off, and the remainder of the outfit used for supplying hot water to bath and kitchen sink in summer weather.

For Warming the Heart of a Southern Home.

We do not mean to be understood as in any sense advocating the partial heating of residences, for an owner who has put $1000 or $100,000 in a residence does not get the full value of his investment unless the building is so comfortably warmed throughout that he can enjoy every nook and corner of it. Yet in the States having mild climate there are many house-owners who are not cash-ready to equip their homes with a complete Hot Water or Low Pressure Steam heating outfit. These owners feel the need of reliable heating particularly during those periods "when a Norther is blowing" and are willing during these irregular periods to seek the seclusion of the most used rooms of the home, provided only that this "heart" of the home is cozily, healthfully warmed.

An IDEAL Water Heater or Junior Boiler of suitable size will serve the purpose of genially warming the essential rooms, such as dining-room, kitchen, bath-room and nursery, but will only warm them under the condition that all doors leading into unheated rooms be kept closed.

The only advantage is that in this way the owner is making an investment in correct and durable heating apparatus, which shall last as long as the house stands. When the owner is ready to extend the heating plant to the other rooms, the material already bought can all be used again.

While the suggested plan is a comparatively good one, yet the houseowner who, from lack of capital, feels withheld from purchasing a heating plant outright should consider whether it is not more than justified — nay, he cannot neglect an opportunity to borrow the additional amount required, at the usual low rate of banking interest, when he takes into account the great dividends which his heating investment will bring. It ought to be an easy matter to decide between buying old-fashioned heating methods, paying a high penalty for their troublesomeness, wastefulness and short life, as compared with warming by Water or Steam.

IDEAL Boilers and AMERICAN Radiators should be made the very foundation-post of the home investment. Their savings will in time assist to pay for the finer furnishings.

For Warming Brooders, Forcing-Houses, Etc.

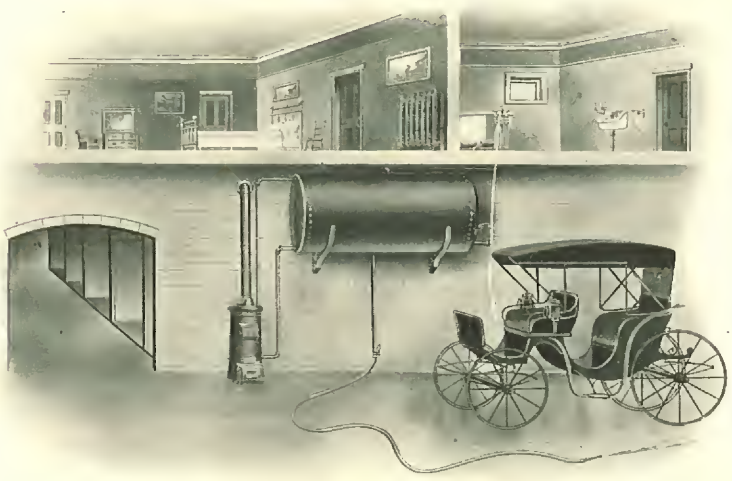
Scientists tell us there are reasons for the belief that the Egyptians knew the value of and employed some form of Hot Water heater for hatching chickens. It is certain, however, that all large modern breeders, to be commercially successful, rely upon low pressure steam or hot water warming for the uniform temperature in brooder houses, so important to the raising of chickens, squabs, etc. IDEAL Water Heaters are in large demand for this purpose because of their sure, simple, reliable and economical performance.

Equally important to the best and quickest propagation of vegetables, flowers, etc., in forcing-houses is the uniform, salubrious warmth produced by Hot Water or Low Pressure Steam heating methods. IDEAL Water Heaters are giving complete satisfaction in all such installations. Wherever records are kept, it has been demonstrated that these methods of warming show distinct gains in quality and quantity.

IDEAL Water Heater supplies an even, constantly maintained temperature to brooder houses as well as to forcing houses, mushroom pits or cellars, etc.

For Warming Barns and Liveries.

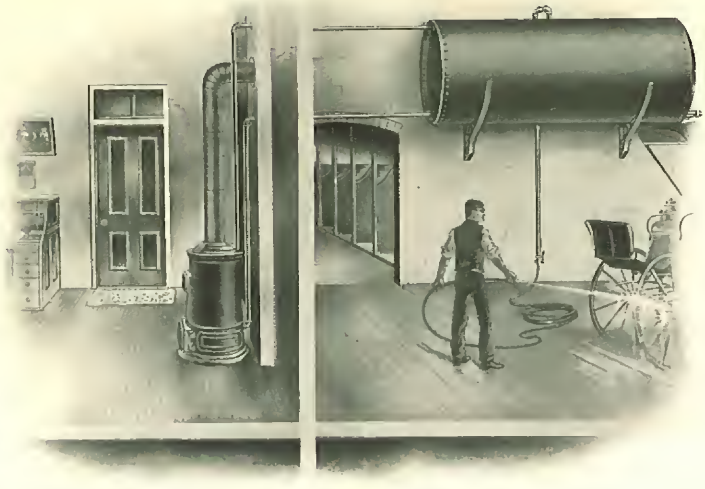
"Horses, like men, show when they are well kept," says Benjamin Franklin. An abundance of hot water, cheaply available at all times, is one of the greatest modern aids and conveniences in caring for horses. Also may be used for fodder purposes; for warming livery office or coachman's quarters and bathroom; for taking chill off the water used in washing carriages, cleansing harness, and for other stable purposes.



IDEAL Tank Heaters furnish hot water for coachman's living room, bath and for washing carriages, etc.

Those owners who have experienced difficulty in keeping their help contented will find that this aid to modern warming and the supplying of hot or tempered water will be appreciated by and enable employes to render an improved quality of service. This convenience has well proved to be an economy in the care of barn properties.

IDEAL Heaters make a minimum demand for fuel and caretaking—easier to run than a parlor stove.

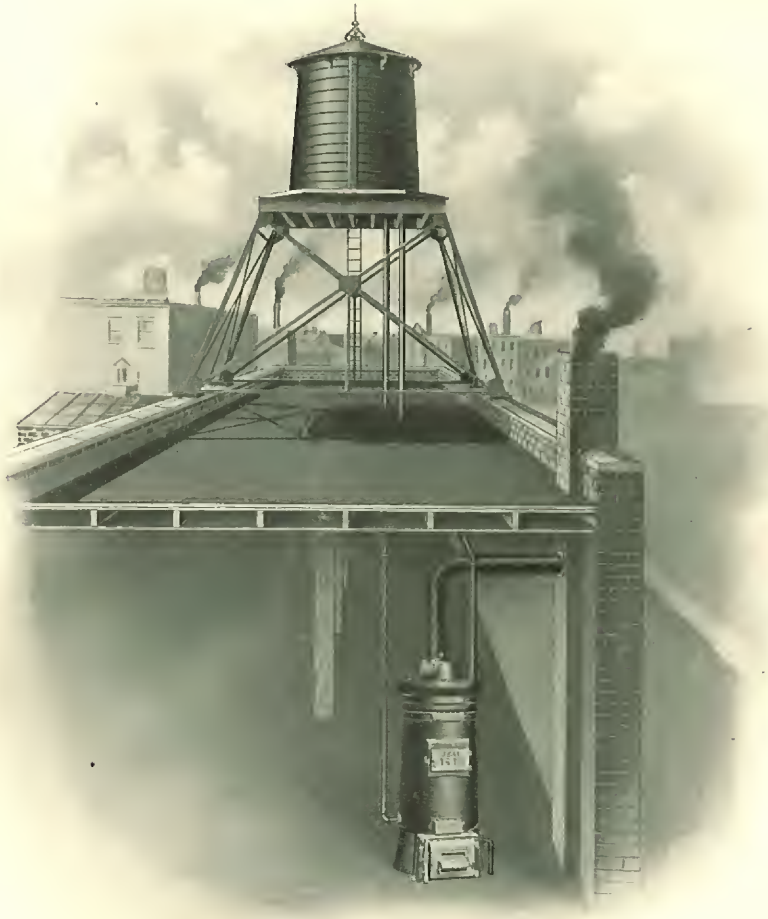


IDEAL Tank Heaters furnish an abundance of hot or warm water for livery stable use, fodder purposes, washing carriages, etc.

For Roof Water Tanks.

IDEAL Water Heaters are well adapted to circulating hot water through these tanks to prevent freezing, or any other purpose of similar character.

In many instances, the fire underwriters insist that roof tanks for fire protection shall be kept constantly open to prevent the formation of ice. IDEAL Water Heaters are used to excellent advantage for this purpose, requiring a minimum of attention, and at so little fuel expense, which is considerably offset by the lower insurance-rate saving.

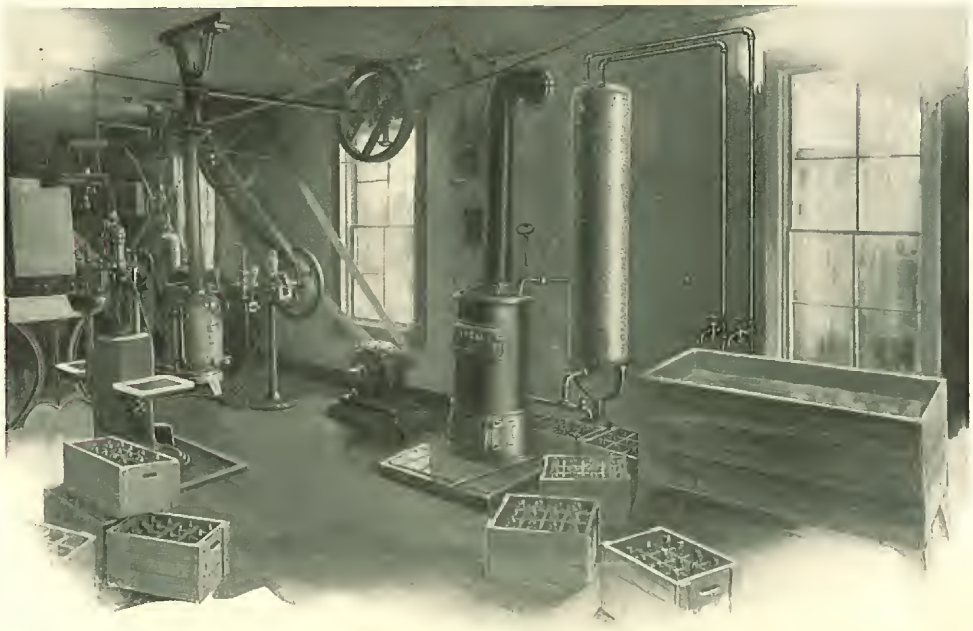


Showing IDEAL Water Heater in top floor—can be set in basement near coal bin, if desired.

For Bottle Washing.

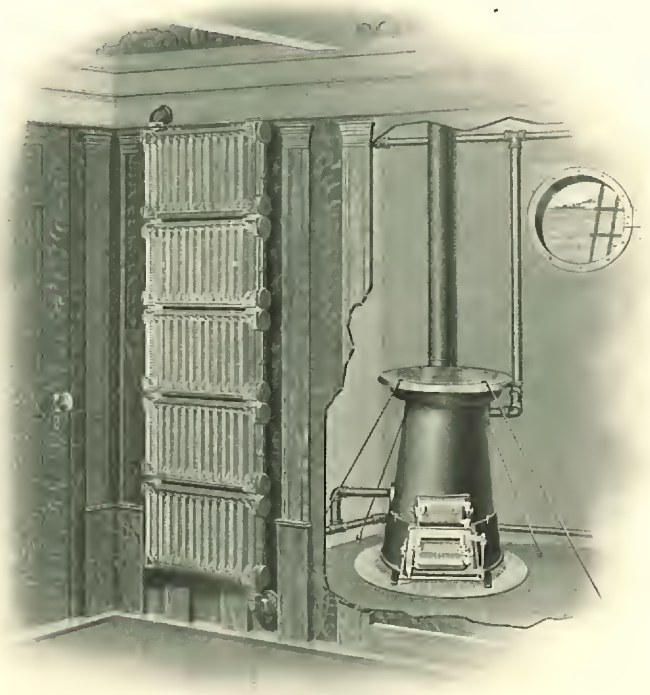
The IDEAL Water Heaters are "just the thing" for furnishing an ample, continuous supply of hot water for bottling establishments, or any other purpose where rinsing and cleansing are required.

As bottlers have told us, after first year's use: "Considerable time is saved us in the morning, for though the dampers of the Water Heaters are closed tightly for the night, still there is sufficient fire to afford us a goodly supply of hot water to immediately begin the day's work. No standing about the shop waiting for water to heat. Besides, while we do not rely upon the IDEAL Water Heater for other purposes than supplying hot water to the washing vats or stands, yet the Heater and the storage tank radiate sufficient warmth to at least take the chill off the room at the beginning of the day's operations."



IDEAL Water Heaters are extensively used where an abundance of hot water is required for washing bottles, dairy cans or the like, and for use in dyeing vats, stock fodder mixing troughs, etc., etc.

For Warming Ships' Cabins, Houseboats, Etc.



Showing IDEAL Arco Water Heater connected to AMERICAN Colonial Side Wall Radiators.

The comforts of longshore dwellers are being extended to those who "follow the sea," and, strangely enough, many of the highest, most enthusiastic testimonials we have received have come from the sea-farers, who have experienced the cozy warmth aboard ship, yacht or houseboat from use of IDEAL Water Heaters.

Then, too, and equally important, is the feature of safety. Kicking out a stove leg or the pitching over of stoves has often been the cause of a sailor's greatest fear—ship afire at sea. Hot water heating is therefore a protection as well as a means of comfort. The small space that Heater and Radiators occupy is also an important consideration, and as a rule they are placed in out-of-the-way positions or corners, not obtruding into or occupying the highly important spaces in the cabins, as do stoves.

Illustration shows how a small size Heater may be arranged to warm captain and mates' cabins. By using larger size of Heater, piping and Radiators may also be extended to warm the mess-room.

For Locomotive Water Storage Tanks.

As shown in the accompanying engraving the IDEAL Water Heaters are also well suited to circulate a continuous current of hot water through locomotive storage tanks, to prevent the water from freezing in the winter time and thus possibly to save awkward delays to passenger and freight trains, which is not infrequently the case. A supply of tempered water is also helpful in quicker, more economical expression from the locomotive.

> "The pipe which supplies the C. R. R. engines at the Barnegat water tank, was frozen up last Monday morning and the second train up could get no water for its boiler. Another engine had to be sent down from Lakehurst to bring the train up from Forked River, where it had stalled."
>
> —*Newspaper clipping.*

As the firepots are deep and commodious for fuel, and as very little warmth is necessary to keep the water in the right condition, frequent firing is not necessary. The fire can be attended to at stated intervals and the heater left to run automatically, producing a low and continuous degree of heat just sufficient for the purpose.

These heaters are also extensively used to heat water for storage tanks which supply hot water for cleansing and washing purposes, either for large stations or for any other building or connections wherein a constant supply of hot faucet water is required.

As shown by illustration, the Heater may be placed in tool house usually adjoining the Water Tank and thus by warming the tool house may be made to serve a double purpose.

IDEAL Water Heaters prevent freezing of water in railroad tanks.

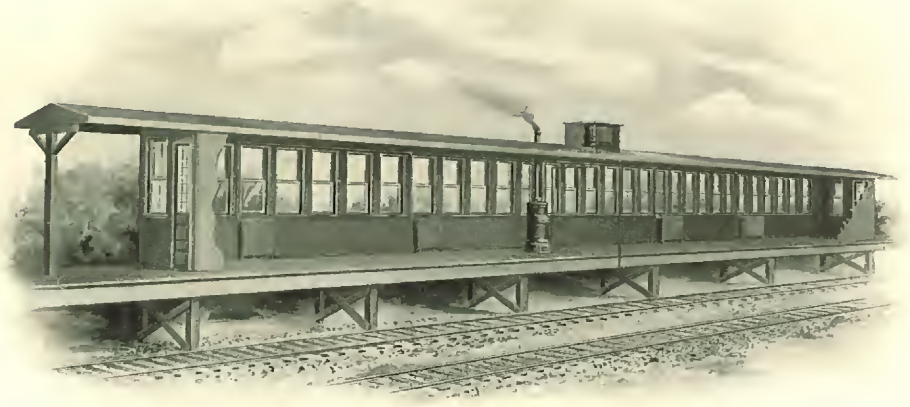
For Platform Stations and Heating Pits.

With the surprising growth of suburban train and interurban trolley service in all parts of the country, a keen sense of the importance of catering to the comfort of patrons has developed on the part of the managements. One of the chief directions in which this tendency has found expression is in Hot Water warmed platform stations, which wherever introduced meet with such hearty patronage-approval of the public.

This method of cozily warming railroad and trolley stations is not alone economical in fuel, but the resulting cleanliness and minimum of caretaking are worthy of serious consideration when applied to a dozen or a hundred stations.

Used in carbarn repair pits, in conjunction with AMERICAN Colonial Radiators for melting snow and ice from running gears of street cars.

These Heaters may also be used in small carbarns. This application provides a most efficient means for melting snow and ice from the running gear of the cars; far quicker action is secured and at less expense than by any other method.



IDEAL Water Heaters and AMERICAN Radiators are used to warm platform stations of rail, trolley and elevated roads.

For Small Railroad Stations, Etc.

IDEAL Water Heaters are well suited for this purpose as they are usually set up in the baggage room and the water circulation is then distributed to two radiators located at each exposed side of the waiting room and to one radiator in the ticket office, as shown in cut.

That hot water is the best and most economical medium for warming railroad properties was proven by an official of an eastern railroad, who found upon averaging the results obtained in over 200 buildings that the relative costs for fuel were as follows:

Class A—Stations and Offices which are well built, with Cellars

Hot Water, 46-100 cent per cubic foot of space heated.
Steam . . 59-100 cent per cubic foot of space heated.
Stoves . . 60-100 cent per cubic foot of space heated.

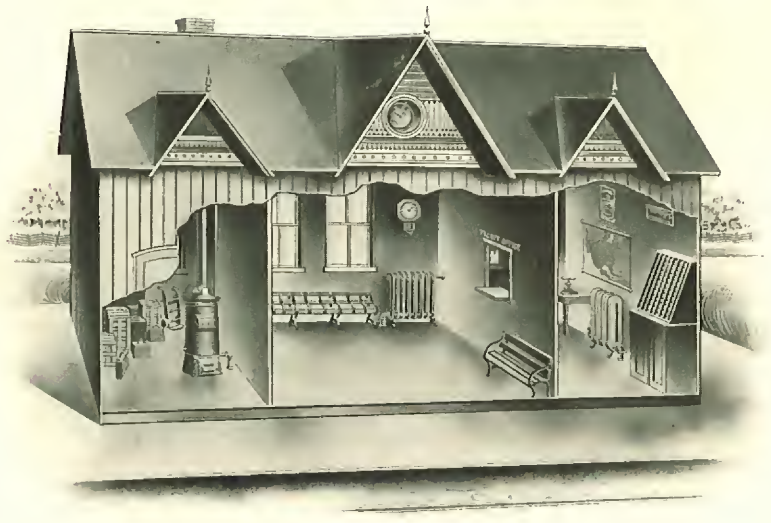
Class B—Stations and Offices which are well built, without Cellars

Hot Water, 69-100 cent per cubic foot of space heated.
Steam . . 66-100 cent per cubic foot of space heated.
Stoves . . 94-100 cent per cubic foot of space heated.

Class C—Poorly constructed Buildings, without Cellars, such as Switch Towers, etc.

Hot Water, 87-100 cent per cubic foot of space heated.
Hot Air . 1.38-100 cent per cubic foot of space heated.
Stoves . . 1.38-100 cent per cubic foot of space heated.

Note.—These figures, as we understand, do not include costs of repairs, nor of supplying missing parts of stoves, labor of annually putting up and taking downstoves, reblacking, etc.



IDEAL Water Heaters furnish a genial, uniform degree of warmth to railroad stations, cottages, small store buildings, etc.

For Interlocking Switch Towers.

The forms of warming apparatus herein described are particularly adapted to the needs of Railroad Interlocking Switch Towers.

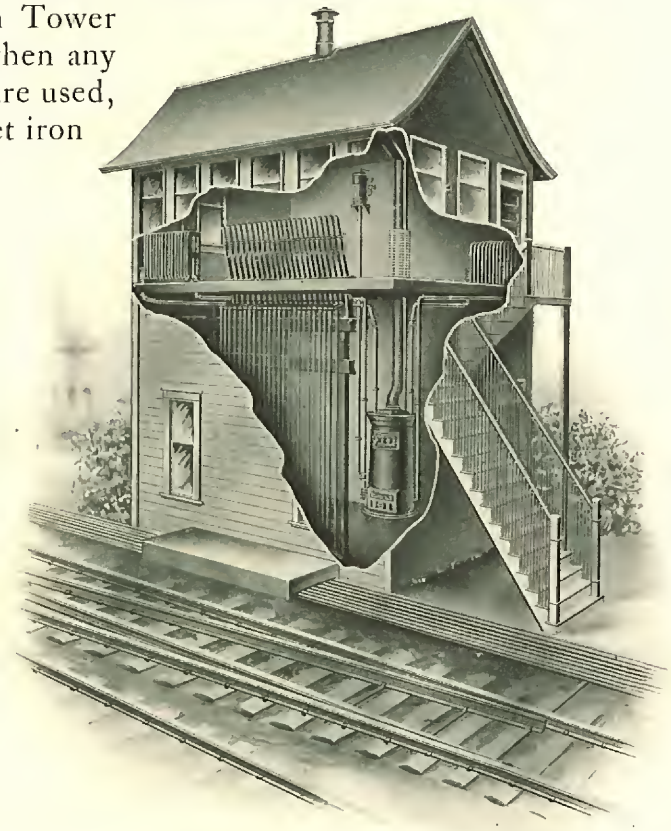
The personal comfort of the operators is of paramount importance. Everything which can be done within the limits of reason to make the employes who occupy these important positions more comfortable during the long hours of their vigilant watching and work, counts for the best possible results from these important mediums for controlling and directing traffic.

The apparatus herein described operate automatically, and inasmuch as the firepots are deep and commodious, fresh fuel is required but twice a day, or three times in coldest weather. It is only necessary to take up the ashes but once in twenty-four hours.

By the use of these improved appliances for warming, the machinery of the Switch Tower is kept far cleaner than when any other forms of apparatus are used, especially than when sheet iron stoves are used in the lever room.

As the Towers are uniformly warmed by the hot water circulation there is practically no expansion and contraction of the machinery which has a tendency to prevent the free and easy action of the levers and their connections.

The thoroughly uniform warming of the lever room prevents the formation of frost on the windows so that the view of the operator up and down the tracks is unobstructed.

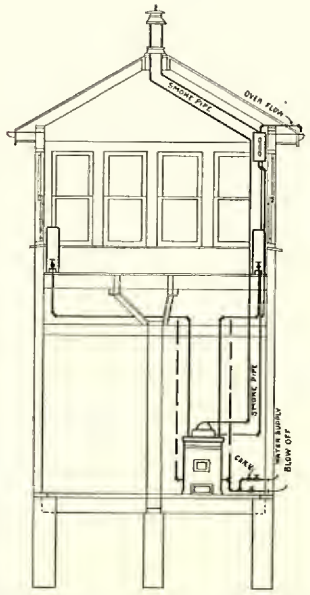


Interlocking Switch Tower

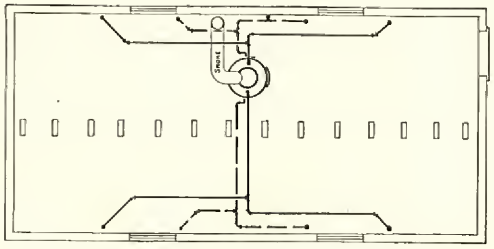
IDEAL Junior Boilers or Water Heaters are now used in warming Interlocking Switch Towers at points on the systems of the C. B. & Q., New York Central, Pennsylvania, Illinois Central, Grand Trunk and other Railroads.

For Interlocking Switch Towers.

The fire risk to the tower is greatly lessened where IDEAL Water Heaters are used. With the usual soft coal stove it is necessary every several weeks to take down and clean the smoke pipe. The presence of so much soot and the hot fire of a stove is a constant menace to the building. There is no occasion for a brisk fire in the IDEAL Heater, as the water is only required to be raised to 180 degrees to warm the tower in the coldest weather.



Cross-Section view of Tower, showing location of IDEAL Water Heater, piping and AMERICAN Radiators.



Floor Plan of Tower, showing location of Heater, etc.

Heaters and Radiators are compact in form and are placed in the out-of-the-way corners of the room. Where the usual air-drum stove is employed, the best space is inconveniently occupied; important space is thus saved by the Water Heater.

While the cost of warming one of the various properties herein referred to by the old fashioned methods may not be considered as burdensome, yet when the more satisfactory results to be secured by our improved systems are considered as applied to one hundred or more properties of the same class, the aggregate of results is bound to appeal to business instinct and judgment.

It is also the custom each summer to remove the air-drum stoves. This means an additional labor item, as well as the entailed expense for new stovepipe, replacing broken or missing parts, blacking, etc.

Features of Construction.

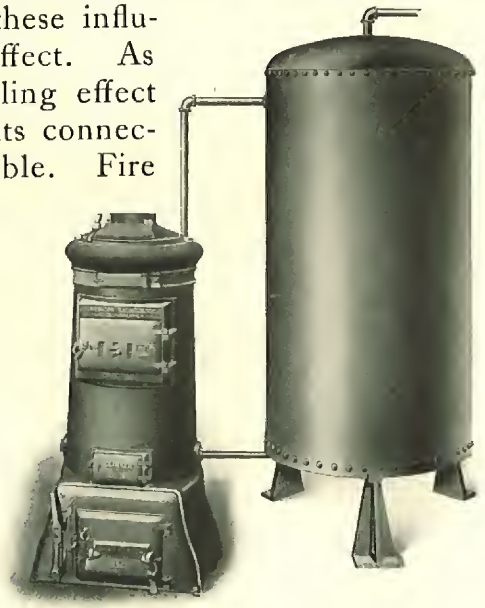
Of What and How Made.

The IDEAL Water Heaters are made throughout of cast iron from best selected brands.

That cast iron is superior to steel and wrought iron for this purpose is well evidenced by the fact that at the present time at least 95 per cent of the house-heating boilers and radiators used are constructed of cast iron, while only a few years ago practically all such products were made of wrought iron or steel. The superior qualifications of cast iron for this purpose have made such an impression in the experiences of property-owners and dealers that inside of the last 25 years the demand has almost completely reversed in favor of the cast iron productions, which naturally testifies to their superiority.

For heating water in quantities, especially, cast iron is far more durable, for it is not subject to the detrimental influence of rust which is particularly destructive to sheet iron or steel. The average life of a steel or wrought iron heater is very limited, while a cast iron heater is practically indestructible.

In localities where water is heavily charged with lime and other chemical properties, wrought iron or steel rapidly corrodes, while in the use of cast iron these influences have no appreciable effect. As rust has no weakening or scaling effect on cast iron, the heater and its connections are practically indestructible. Fire or water does not bring any corrosive action and 50 years would not be too long to state the average life of IDEAL Heaters. With an average amount of care taken to prevent too great an accumulation of dirt or sediment-deposits in the water ways, they should last for a century or more, for there is nothing in their construction which can cause them to play out.



Heater connected to Vertical Tank for storage of hot water, in supplying large apartment buildings, etc.

The IDEAL Water Heaters are very simple in construction, being made in a very few parts with reference to the best service and durability. Each Heater is provided with an ample amount of cored fire-to-water surface which offers free, unobstructed water ways for the rapid circulation up at the side and over the most intense heat generated by the combustion.

Tests.

All parts are thoroughly made, fitted and tested; with particular attention paid to the small parts which are necessary to their complete erection and maintenance.

All our Heaters are tested, before leaving our works, at upwards of 80 pounds hydrostatic pressure. They are made in a superior manner and guaranteed free from mechanical defects.

Principles of Circulation.

Heat induces a circulation and friction retards it. IDEAL Water Heaters are so constructed that every particle of water, from the moment it commences to absorb heat, expands and moves freely and rapidly straight up through the hollow castings of the Heater into the storage tank and hot water supply pipes beyond.

This idea of heat-promoted circulation is illustrated by the view of the "U" shaped vessel here shown with heat applied by the flame of a lamp. Just the instant heat is applied to the body of water it becomes lighter and ascends, inducing a circulation the rapidity of which depends on the intensity of the heat, the volume of the water and the frictional resistance of the sides of the vessel. This latter feature is carefully regarded in the construction of IDEAL Water Heaters so that there may be no "choking" of the heat currents and thus permit every pound of fuel consumed to give its best service to the volume of water necessary to be heated. It is the lack of this feature of large, unobstructed water ways which causes, through deposits of sediment, the choking of passage ways in coils, water back, gas heaters, etc., and their consequent "short-life."

Fuel-Holding Capacity.

This is an important feature.

The IDEAL Water Heaters are not magazine burners in the sense of providing a coal storage cylinder directly *over the fire*, but

they are such in the sense of holding an ample amount of fuel to reduce the necessity for feeding to the most practical conditions. In the so-called magazine-feed construction of water heaters the fuel storage tubes must necessarily take the place of the most effective water-heating surface. They also cut out a large proportion of such surfaces, the magazine tube depriving the fire at the point of feeding the fuel of about one-half of the area which should be active in producing combustion. The weight of the extra fuel also tends to crush down upon the center of the firebed, rendering an even combustion impossible.

The IDEAL Heaters are built so as to provide a full area of coal firing surface with which to promote a full and complete combustion with an ample amount of water surfaces directly over the fire to take up the largest measure of available heat units for transmission to the water circulation.

The IDEAL Heaters are all provided with an ample magazine for fuel in the depth of the fire-pot section and it is so arranged that the best natural effects are secured with the minimum of fuel consumed. Ordinarily it is not necessary to feed the fire more often than once or twice per day.

The IDEAL Water Heaters are adapted for all kinds of fuel, including hard and soft coal, coke, gas or wood. The ratings are based on burning hard coal and best results are thereby secured.

Clean Fire Surfaces.

These Heaters are so made that the inner fire surfaces are about fire-cleaning. That is, the soot and fine combustion particles are about destroyed by the flames and there are very few angles or top surfaces on which soot or ashes can lodge. Every precaution is taken to make them self-cleaning and thus to maintain the surfaces in the best condition to economically transmit heat to the water. A few minutes' time will brush the interior of an IDEAL Water Heater clean. It will stay so (with good fuel) a long time.

The accumulation of one-quarter inch of soot (which is a non-conductor of heat) requires 50 per cent more coal than is necessary when the surfaces are clean.

Erection and Operation.

Being made of a very few parts these Heaters can be erected ready for connection in an hour's time. All parts are fitted and threaded by special patented machinery, so that the various sections assemble precisely and easily.

Any person can successfully run one of the IDEAL Water Heaters. They require very little coal and very little attention. It is a simple matter to put in a few shovels of coal possibly once or twice a day (depending on service required). Less care than a parlor stove. Draft and damper doors are few and simple. The Heaters about run themselves. The independent, reliable, economical results obtained fully justify the small measure of care-taking necessary.

Connections and Grates.

The parts are put together by our time-tested, lathe-turned screw nipples. Made of the same iron as the Heaters proper, joints are not strained or loosened by the very slight expansion caused by heating the iron. Always water-tight and free from leaks. This is no idle theory,—thousands of these Heaters are in use throughout the United States, continuously proving the fact.

Ideal Lathe-turned Screwed Nipple.

The grates allow for liberal air space, at the same time the fingers of the grate bars are sufficiently close together to permit the use of pea or slack coal.

Shaker Bar connection, showing lugs at side which prevent accidental dumping of fire.

In the Nos. 0, 10 and 12 Heaters, shaking and dumping grates are provided. With the other sizes of Heaters, the rocking and dumping grates are used.

If the ashes are regularly removed, and the fire kept clean and bright, the very best results will be obtained.

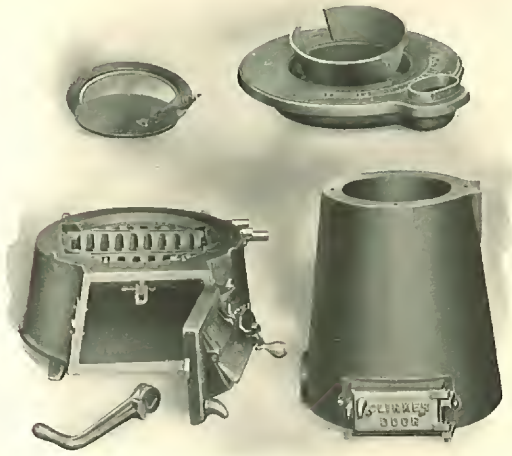
Ideal Arco Water Heater.

Made in Three Sizes

With Tank Capacity 85 to 225 Gallons

For List Prices and Measurements, see page 48.

Ideal Arco Water Heater and Parts.



Showing the few parts of which IDEAL Arco Heaters are composed.

Side View.

Popular with Particular Housekeepers.

Ideal Premier Water Heater.

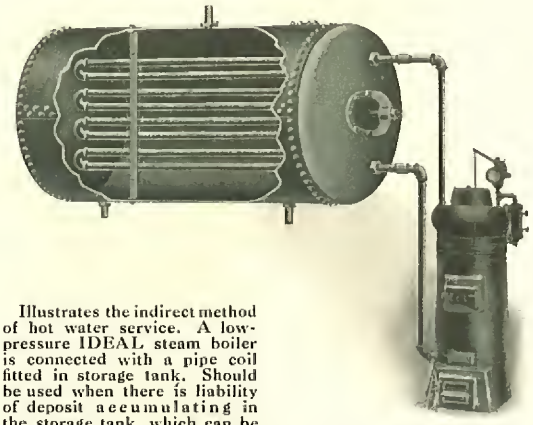
Made in Seven Sizes

With Tank Capacity 100 to 750 Gallons

For List Prices and Measurements, see page 48.

Ideal Premier Water Heaters and Parts.

No. 0 Heater.



Illustrates the indirect method of hot water service. A low-pressure IDEAL steam boiler is connected with a pipe coil fitted in storage tank. Should be used when there is liability of deposit accumulating in the storage tank, which can be readily removed through the man-hole. This method should also be used when the water is exceptionally soft and likely to cause discoloration.

Corrugated Fire-pot section.

Top view of Dome section.

Broken View.

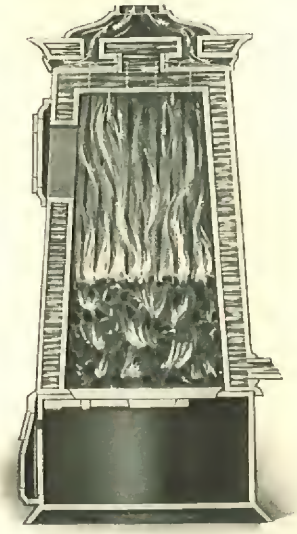
Ideal Junior Water Heater.

Made in Seven Sizes

With Tank Capacity 100 to 675 Gallons

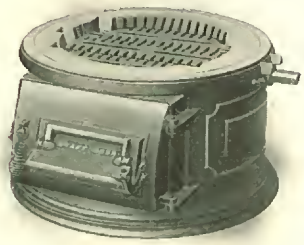
For List Prices and Measurements, see page 48

Ideal Junior Water Heater and Parts.



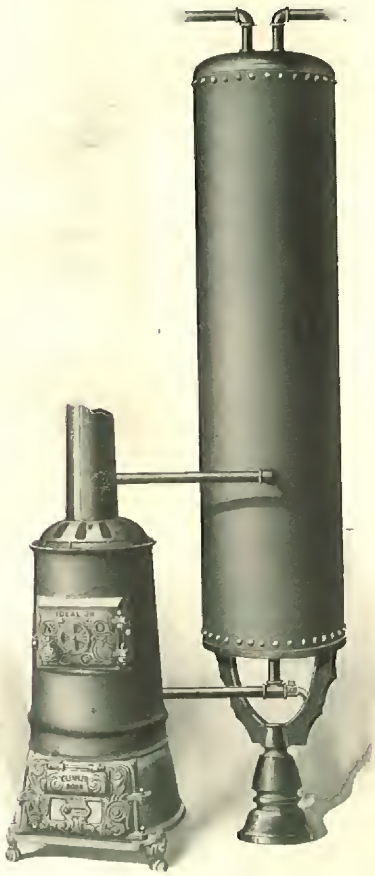
No. 12 Ideal Water Heater.

This form of Ashpit and Grate supplied only with Nos. 10 and 12 Water Heaters.



Ashpit and Grate.

Fire-pot section, showing the corrugated sides for increasing the surface.



Showing a No. 0 IDEAL Junior Water Heater connected to a kitchen range boiler.

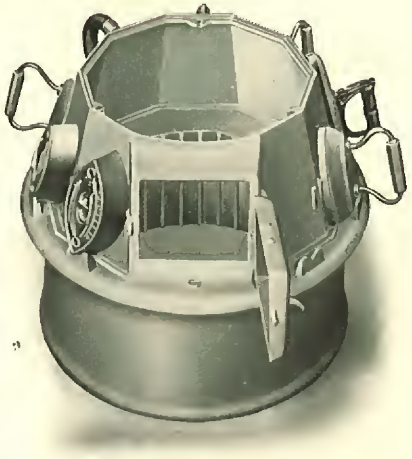
Ideal Laundry Water Heater.

Made in Three Sizes

With Tank Capacity 50 to 200 Gallons

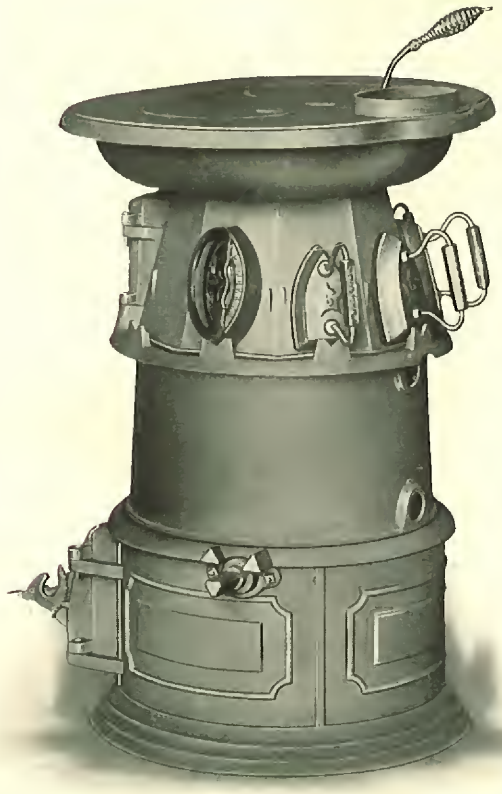
For List Prices and Measurements, see page 48.

Ideal Laundry Water Heaters.



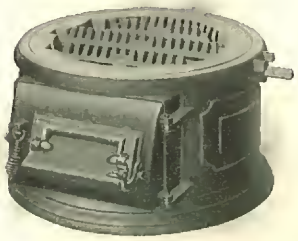
Pot Section, also showing Heating Surfaces for Nine Irons.

Top with Griddles removed showing Baffle Plates.



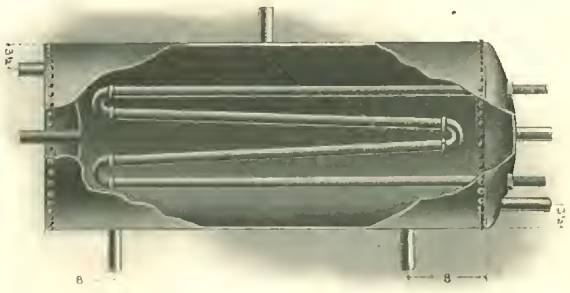
Side View.

Shaker Bar connection, showing lugs at side which prevent accidental dumping of fire. A feature of all IDEAL Water Heaters.



Grate Tilted for Dumping.

Steel Storage Tanks.



Showing locations of Tappings, Vertical or Horizontal

All tanks listed on page 47 can be furnished galvanized. Prices on application.

Orders for tanks with coils or in any way special, not subject to cancellation.

Regular tests run from 80 lbs. to 100 lbs. cold hydrostatic pressure. Higher tests or pressures can be given as work requires.

In ordering, state whether vertical or horizontal tanks are wanted. Unless otherwise ordered, tanks without coils, manholes or handholes will be shipped, and tappings located as per cut above. All openings tapped for 2-inch pipe and reinforced.

Coils

We can, upon special order, equip Horizontal Black Tanks with return bend coils, at extra charge, as per list below. Size of coil must be determined by heating contractor, who alone is familiar with all the conditions surrounding installation.

Prices are per lineal foot, and include necessary return bends and lock nuts, and provide for placing coil in tank.

Coil made of	1 in.	1¼ in.	1½ in.	2 in.
Black iron pipe with black return bends and lock nuts	$0.50	$0.60	$0.65	$0.85
Galvanized iron pipe with galvanized return bends and lock nuts	.60	.70	.80	1.10
Brass (iron pipe size) pipe with brass return bends and lock nuts	1.50	2.15	2.40	3.00
Tinned brass (iron pipe size) pipe with tinned brass return bends and lock nuts	1.90	2.70	3.10	4.45
Copper (iron pipe size) pipe with tinned brass return bends and lock nuts	1.95	2.80	3.15	4.60

It is advisable to have a manhole in head in all tanks containing coils. This should be remembered when figuring. Quotations will be promptly furnished on styles and sizes of coils other than above.

Special Note

The quality of the material used and the method of construction make these tanks first-class in every particular. Attention is called to the gauge or thickness of shells and heads employed in the manufacture both of the Storage and Extra-Heavy Storage Tanks. When these tanks are to be subjected to sudden or unusual pressure, as in the case where tanks are connected direct to City Pumping Station and the pressure is increased during times of conflagrations or the like, we can build tanks of greater gauge or thickness of metal, or it is recommended the system be equipped with Water Pressure Reducing Valve.

Storage Tanks.

Black Steel

Thickness of shell 3/16". Heads 1/4".
All seams single riveted.

Size Inches	Capacity Gallons	Weight Pounds	List Prices
18 x 36	40	200	$ 41.00
18 x 48	53	250	45.00
18 x 60	66	290	49.00
18 x 72	79	330	54.00
18 x 84	92	370	58.00
18 x 96	106	410	62.00
20 x 48	65	275	47.00
20 x 60	82	320	51.00
20 x 72	98	360	55.00
24 x 36	71	280	46.00
24 x 42	82	300	49.00
24 x 48	94	335	52.00
24 x 60	117	390	57.00
24 x 72	141	440	62.00
24 x 84	164	500	68.00
24 x 96	188	550	74.00
24 x 108	212	600	80.00
24 x 120	235	660	86.00
30 x 36	110	365	56.00
30 x 48	147	430	61.00
30 x 60	184	495	67.50
30 x 72	221	560	73.00
30 x 84	258	640	81.00
30 x 96	294	700	88.50
30 x 108	335	770	96.00
30 x 120	372	840	103.50
36 x 36	159	460	69.00
36 x 48	212	540	75.50
36 x 60	265	615	83.00
36 x 72	318	690	90.50
36 x 84	371	780	100.50
36 x 96	424	860	109.00
36 x 108	477	940	117.50
36 x 120	530	1020	126.00
42 x 60	360	740	103.00
42 x 72	432	835	112.50
42 x 84	504	925	122.00
42 x 96	572	1020	132.00
42 x 108	644	1120	142.00
42 x 120	716	1225	153.00
42 x 144	860	1425	175.00

Black Steel Extra-Heavy

Thickness of shell 1/4". Heads 5/16".
All seams single riveted.

Size Inches	Capacity Gallons	Weight Pounds	List Prices
18 x 36	40	260	$ 45.00
18 x 48	53	315	50.00
18 x 60	66	370	55.00
18 x 72	79	420	61.00
18 x 84	92	470	66.50
18 x 96	106	525	72.00
20 x 48	65	350	53.00
20 x 60	82	400	58.00
20 x 72	98	460	63.00
24 x 36	71	350	52.00
24 x 42	82	390	54.00
24 x 48	94	425	58.50
24 x 60	117	495	65.00
24 x 72	141	565	71.00
24 x 84	164	650	80.00
24 x 96	188	720	86.00
24 x 108	212	790	92.00
24 x 120	235	860	98.00
30 x 36	110	460	63.00
30 x 48	147	550	70.00
30 x 60	184	635	77.00
30 x 72	221	720	84.00
30 x 84	258	825	95.00
30 x 96	294	915	103.00
30 x 108	335	1000	111.00
30 x 120	372	1090	119.00
36 x 36	159	580	77.00
36 x 48	212	685	86.00
36 x 60	265	790	95.00
36 x 72	318	890	104.00
36 x 84	371	1010	116.00
36 x 96	424	1110	126.00
36 x 108	477	1215	136.00
36 x 120	530	1325	146.00
36 x 144	636	1530	166.00
42 x 60	360	950	118.00
42 x 72	432	1070	128.50
42 x 84	504	1195	139.00
42 x 96	572	1315	150.00
42 x 108	644	1455	161.00
42 x 120	716	1575	172.00

The above list prices include regular tappings and one handhole.
Extra handholes (3¼" x 4½") $5.00 each.
Manhole in Shell (11½" x 14½") $12.50 each. Manhole in Head (11½" x 14½") $15.00 each.

We illustrate the Heater connected to an upright storage tank, also to storage tank set horizontally. The Heaters may also be used with open wooden tanks of any size or design, in which case the flow pipe should be connected with the side of the tank, near the top, and return connection should be at the side, near bottom, or preferably, through the bottom of the tank. The Heater and the tank are generally supplied by direct pressure from city system of waterworks. When this is impracticable, water should first be pumped into a supply tank above and then conducted to the Heater tank, as shown in illustrations; or in case of the open tank, water can be pumped directly into it, but the water must be maintained at a level above that at which the flow pipe from the Heater enters the tank. Caution. With the closed tank, both Heater and tank must always be kept full of water. All valves and cocks between Heater and tank should be open before fire is started, and left open while the system is in operation. See important information on page 46.

Varied Capacities and List Prices.

The IDEAL Water Heaters are made in 20 forms and sizes ranging in capacities (for Tank water supply) from 50 gallons up to 750 gallons for *domestic* service.

Ideal Junior

No.	Height Inches	Diameter Inches	Diameter Fire Pot Inches	Smoke Pipe Inches	Outlets Inches	Capacity Gallons (See Note)	List Prices
0	31	18	10	5	1—1½	100	$ 38.00
10	35	21	12	6	3—1½	150	45.50
12	40	21	12	6	3—1½	250	62.00
20	43	23	15	6	3—2	300	71.00
22	47	23	15	6	3—2	400	90.00
30	43	27	18	7	3—2	525	114.00
32	47	27	18	7	3—2	675	148.50

Ideal Premier

0	31	18	10	5	1—1½	100	$ 38.00
101	33⅛	14¾	10¼	5	1—1½	200	53.00
121	41½	18½	12	6	3—1½	275	66.50
122	46¾	18⅝	12	6	3—1½	350	81.00
151	47½	20¾	15	6	3—2	450	100.00
152	55¼	22	15	7	3—2	600	129.00
	50⅛	24¼	18	7	3—2	750	164.50

Ideal Laundry

1-A	28	25 *	10	5	1—1	50	$ 30.00
2	33¾	27½*	12	6	1—1¼	120	41.00
3	34½	27½*	15	6	1—1½	200	53.00

Ideal Arco

10"	26⅝	23½*	10	5	1—1½	85	$ 35.50
12"	27½	25½*	12	5	1—1½	130	44.00
15"	30⅛	29 *	15	6	1—1½	225	57.00

* Height and diameter measurements (at extreme points) are approximately given to indicate amount of space Heater occupies.

No fire tools supplied with these Heaters. When a larger amount of service is required selections can be made from our regular lines of IDEAL boilers.

When soft coal is to be used, a size larger Heater should be selected than for hard coal.

The amount of radiation a tank heater will supply at manufacturer's established basis of rating can be estimated by dividing the tank capacity in gallons by 1.30, since it is generally accepted that a foot of radiation is equal to a tank capacity of 30 per cent more expressed in gallons, or 1.30 gallons.

NOTE—The ratings published in this Catalogue, which indicate the capacities of IDEAL Water Heaters, represent the size of storage tanks which experience has demonstrated can be supplied with hot water at temperatures to suit the average family requirements.

It should be remembered that to supply such average demands, there is but a small quantity of water drawn at a time, lowering the temperature of the water in the storage tank but a few degrees, and that it is the office of the Water Heater to replace the water withdrawn.

For definite or special requirements such as Barber Shops, Baptisteries, or to heat any specified amount of water to any number of degrees per hour, special Heater capacity should be provided.

From the List Prices stated, discounts are quoted to the Trade only.

Ideal Water Heaters

AMERICAN RADIATOR COMPANY