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HONEYWELL
HEATING SPECIALTY CO.
WABASH, INDIANA

THE
HONEYWELL
SYSTEM OF
HOT WATER
HEATING



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A man proves himself by his acceptance or rejection of the World's progress. The years bring new benefits. To ignore them is to deprive one's self of the best that life offers.

—D. Herbert Moore.



IN 1905, after much experimenting, the Honeywell System of hot water heating was finally perfected by our Mr. M. C. Honeywell, who was at that time in the contracting heating business. The following year the present company was formed to manufacture the Honeywell Heat Generator and other specialties designed by him.

The ideas advanced by Mr. Honeywell and the devices he had invented to accomplish the results sought, were soon brought to the attention of engineers and manufacturers connected with the heating trade.

Most of the experts were quick to appreciate the advantages of the most important discovery ever made in connection with hot water heating.

There were a few who could scarcely believe such simple changes would practically revolutionize the methods then in vogue.

The reports however from the fitters who installed the system were so flattering and conclusive, there could be no room for doubt or argument as to the merits of the Honeywell System of controlled hot water heating.

It was a proven success. It obtained more heat from a given quantity of coal and delivered it to the radiators quicker and more effectively than was possible under the old-style system.

Since its introduction, each year has shown a constantly increasing number of buildings equipped with this system. They are doing satisfactory service in all parts of the United States, Canada, England, and other foreign countries—in fact all over the civilized world. Thousands of architects are specifying the Honeywell System. Thousands of fitters are using the Honeywell in preference to the old-style methods.

To take care of our increasing business, in addition to the main factory at Wabash, Indiana, we have manufacturing branches at Montreal, Canada, and at Birmingham, England, to care for our foreign trade.

The
Honeywell Heating Specialty Co.
Wabash, Ind.

Hot Water Heating

Hot water as a medium for home heating has so far outdistanced all other methods that its superiority over steam, vapor, vacuum, or hot air heating is practically acknowledged by everyone who has given the subject intelligent consideration.

PRIOR to 1905, however, there had been little improvement in the methods of installing hot water heating plants. Mr. Honeywell found the boilers, radiators, pipes and fittings, used for hot water were practically the same as for steam heating. Engineers had not sufficiently considered the difference between steam and hot water. The systems were therefore not properly designed to secure the greatest amount of heat, with the minimum use of fuel in hot water heating. They were slow to heat up and not quickly responsive to changeable weather conditions. The phenomenal success of the plants installed in 1905, according to Mr. Honeywell's plans, proved beyond all question the truth of his theory—that the old system required **too much water** and the water did not circulate **fast enough**.

Far-seeing architects, heating contractors and house owners at once recognized the economy and high efficiency of the Honeywell System and used the various devices invented by Mr. Honeywell, when installing plants for hot water heating. Manufacturers are now making heaters and radiators that contain less water. Experienced heating contractors have abandoned the badly proportioned pipe and valve sizes.

In fact, in the past few years all leading heating engineers have directed their thoughts toward securing a quick, vigorous circulation of hot water, and to improve on the oversized, slow moving, uncontrolled and irresponsible hot water installations of the old type.

The unusual success of thousands of plants in all parts of the world installed with Honeywell Equipment has proved conclusively that the theory on which it was based was correct in every detail. The Honeywell System of hot water heating is the most economical and efficient ever devised. It provides a range of water temperature from 85° to 240° not to be found in any other system.

Most Heating Plants Carry Too Much Water

In a hot water plant, the problem is to transfer the heat from the coal to the water, and then to the air to be heated, with as little loss as possible. To do this a **LARGE** body of water will naturally take **MORE** **TIME** and **MORE FUEL** than a small body of water.

EVERYBODY knows that a tea kettle full of water heats more quickly than a wash boiler full.

Half a pound of coal will boil the kettle when it would not even warm the boiler.

Here is the Application:

Suppose we take a hot water heater and connect it to a system containing 100 gallons of water. Connect another heater of the same size to a system containing 150 gallons of water. Put 25 pounds of coal in each fire box and kindle the fire at the same time.

Which radiators will be giving off heat first?

In which system will the water deprived of its heat units first return from the radiators to the heater to absorb more heat units?

You can't expect the system with the extra barrel of water to absorb heat from the fire, carry it to the rooms, and return to the boiler as quickly as the other.

The old-style system was expected to accomplish results opposed to every known physical law.



Less Water—Less Fuel More and Quicker Heat

The Honeywell System not only reduces the quantity of water to be heated, but mercury pressure is applied so that the water circulates more rapidly and can attain a higher degree of heat without boiling than is possible in the ordinary hot water heating plant.

THIS is accomplished by the Honeywell method of small piping and the scientifically sustained mercury pressure of the Honeywell Heat Generator.

With the old style systems 212 degrees is the highest water temperature possible; while with the Honeywell a temperature of 240 degrees can be obtained, if necessary—an increased efficiency of about fifty per cent.

The Honeywell Heat Generator (more fully described on pages 20, 21, 22) is a small device containing a few pounds of mercury and connected to the expansion pipe for the purpose of controlling the expansion of water in the plant.

As the water is heated in the boiler, it expands and passes through the Generator. On its way it forces the mercury up into the tubes 21½ inches high, producing pressure on the water. This seals the entire system from the atmosphere, the pressure produced varying with the heat requirements of the building. It contains no valves or mechanical parts—simply two open tubes through which mercury and water circulate.

Single tube mercury appliances have been designed but are unsatisfactory, as they will not sustain a pressure. Mechanical devices—brass valves—for sealing a water system are not reliable, owing to their liability to rust and stick, as such valves frequently do, thus producing excessive pressure. Mechanical devices are dangerous and in some cities their use is prohibited by law.

The Honeywell Heat Generator is the only successful and absolutely safe device ever invented that allows pressure to be carried on a hot water system.



Mercury Won't Stick

DID you ever try to pick up a piece of mercury? If you did, you know how slippery it is, how it instantly responds to the slightest touch.

By its use in the double pipes of the Honeywell Generator, it stimulates circulation of the water with no possibility of clogging or sticking. With the mercury seal of the Honeywell Heat Generator and the Honeywell method of small piping, the water is caused to circulate very rapidly. It delivers the heat from the fire to radiators much quicker than the old-style, large pipe system with its sluggish unaided circulation.

Because of this higher velocity of the water, it is caused to pass over the heating surface of the boiler much oftener. Naturally the water absorbs thousands more heat units from the fire and less are lost up the chimney. Using the correct size of pipes and radiators means less water to heat and less fuel to heat it. The rapid circulation means one-half less heat wasted in transmission, and a higher average temperature in the radiators.

You have doubtless noticed how long it takes to warm the rooms by the old method in cold windy weather. Thousands of heat units have to be stored before the extra bulk of water is heated and begins its slow progress through the chilly house.

In the Honeywell System the ability to send the water temperature quickly to 240 degrees (as hot as steam) without the annoyance of boiling is an advantage that can hardly be over-estimated.

This temperature while scarcely ever needed, enables the owner who has installed a Honeywell System to actually keep his house warm and comfortable even in the most severe winter weather.



Meets All Requirements

Owing to its elasticity and wide range of temperature the Honeywell System is adapted to any climate.

IN a Honeywell System, the water even at a temperature as low as 85 degrees will circulate positively and rapidly through each and every radiator. This insures a mild balmy warmth especially welcome in the spring and fall, or whenever a low fire is needed; and is a distinct advantage over the old-style systems. The Honeywell System is desirable for cold climates because it will heat the water to 240 degrees if necessary—for mild climate because it will circulate through every radiator at 85 degrees to 100 degrees—for changeable climates because it will heat quickly and cool quickly, thereby operating with a minimum amount of fuel.

THESE ARE PROVEN FACTS

Read the testimonial from Mr. W. N. Rear, who lives in the far north, where the temperature frequently drops to 50 degrees below zero.

Every winter we have spells of weather when the temperature goes as low as 50° below zero. Since the Honeywell System was installed in my home three years ago, we have never had the least difficulty keeping the house at 70 and with a very small consumption of coal. The Honeywell is a great success. I am certain no other method is equal to it and most of the new residences here are now using your system.

W. N. Rear, Regina, Saskatchewan.



Notice what is said by this man from Florida, where they have no severe cold weather and where only a soft mild heat is required.

The Honeywell System installed in the Court House at De Land has proven very satisfactory. Even with the temperature of water in heater below 100, we get perfect circulation in every radiator.

Samuel D. Jordan,
Clerk of Volusia County,
De Land, Fla.



Observe how the Honeywell System operates where quick changes take place.

Our climate is such that during the winter most any kind of weather from mild to bitter cold can be experienced in a single day. Have had the Honeywell System in my residence four years and obtain with ease whatever amount of heat is necessary. It is possible to quickly obtain very high water temperatures to take care of sudden cold snaps, which is greatly appreciated after having had experience with an ordinary hot water plant.

Arthur M. Hood, Attorney,
Indianapolis, Ind.



Economy

FREQUENTLY persons who have installed a Honeywell System and observed how economically it is operated, ask us to explain why they secure so much more heat with a given quantity of coal than was possible with the old-style system of hot water heating.

It is due to the rapid and positive circulation which causes the water to take up from every pound of coal its full quota of heat units.

A simple experiment will illustrate. If you will fill a pan with water and set it on the stove, as the heat warms the water you will notice little globules of air or steam appear on the bottom of the pan.

These globules reduce the heating surface because the water does not touch the pan at that particular point. Wherever such globules appear the heat is transmitted to the water through them, and these globules are not a good conductor of heat. Now, if some method could be had to reduce their size and quickly remove them from the heated surface of the boiler, you can readily see that a larger surface would be exposed to the heat. In this way the heat units would be absorbed more rapidly by the water and consequently the water would become heated more quickly. Scientific experiments prove that where water is under pressure, as it is in the Honeywell System, the globules are compressed to a greater density and have a greater tendency to break away from the heating surface than when the water is open to the atmosphere, as in the old-style gravity system.



These globules live longer in the hot water flowing up to the radiators, displacing water equal to their bulk and causing it to become lighter. Water passing through the radiators loses its heat, condenses the globules and returns to the heater much heavier, thus the increased difference in weight of the outgoing and returning water greatly stimulates and increases the circulation.

This scientific heat saving is one of the many big reasons for Honeywell success.

A Great Improvement in Radiator Valves

THE Honeywell Unique Hot Water Radiator Valve (more fully described on pages 23 and 24) is one of the most important improvements ever made for hot water heating. It was designed especially for the small pipe Honeywell System and has been instrumental in making it superior to all others in both efficiency and sightliness.

It has been known for some time both in this country and abroad, that a superior circulation of water can be obtained through a hot water radiator if both flow and return are tapped at same end. In eastern Canada, where hot water heating is more generally used than in other parts, it is quite uncommon to find a hot water radiator connected with flow and return at opposite ends.

It is the practice of the Canadian and foreign radiator manufacturers to supply their radiators with what are known as twin or double tappings, at the bottom of one of the end sections. This, while an improvement over ordinary practice, is at best a cumbersome and unsightly method; open to the objection that the circulation through the piping, the same as with the ordinary double end connection, is stopped as soon as the valve is closed.

The Unique Valve combines all of the desirable features of a one-end radiator connection.

It is easy to install, can be connected to any size radiator, does away with all piping to the opposite ends and provides a positive circulation of the hot water. The valves and piping being at only one end of radiator improves its appearance, simplifies location and often allows a radiator of larger size to be set in a given space.

The absence of return piping saves cutting floors or weakening joists. Usually radiators are located in corners of rooms, and the Unique Valve fitted to the inside end is out of the way and reduces to a minimum the cutting of floors or carpets, a special advantage when installing a heating plant in an old house.

One-sixth turn of the handle opens or closes the Unique Valve.

Those who have had to turn the old-style valve completely around a half-dozen times will especially appreciate this advantage.

When radiator is shut off, the circulation of water continues unobstructed through the valve body and piping, effectively guarding against freezing of risers in cold weather and always having hot water ready to enter radiator as soon as the valve is open. Any, or all, of the radiators may be turned off without in any way interfering with the circulation of the water through the entire piping system.

The Unique Valve is well designed, well made and highly finished. It is an undoubted aid to the best possible working of a hot water system of heating.



Even Heat —No Fuel Waste

THE Honeywell Temperature Regulator keeps your home at any desired degree of heat. The thermostat attached to wall may be set to keep the temperature at any point between sixty and eighty degrees. The dampers on heater automatically and noiselessly open or close as required to maintain steady, even heat. It is far more reliable than your memory can ever be.

The Honeywell Regulator Never Forgets

It is on duty night and day — the little device thinks and acts for you. A degree lower or higher which would pass unnoticed by you is instantly detected by this sensitive device and the drafts regulated accordingly. By its use, changes in temperature are avoided, making it invaluable in illness or where there are very young children, where so much depends on steady, even heat.



If you are to leave the house all day and want it warmed for your return, set the clock for any desired time. It will release the heater drafts — then when the room reaches normal, 70 degrees, automatically readjust them.

At night the same plan can be followed with the result that the drafts are opened and your house warm by the time the family is ready to get up.

If you enjoy sleeping in a cool room, it's some consolation to know the dampers will be regulated in the morning with no attention on your part and the house comfortably warmed by the time you are ready to dress.

Besides being a great convenience, it saves many pounds of coal. The fire is kept just right for the proper heating of the house and **not an ounce of fuel is wasted.**

The Regulator was designed especially for the Honeywell System, but may be attached to any plant. Its satisfactory use has been amply tested under all conditions — hot water, steam or hot air heating.

The method by which it operates is extremely simple and fully explained on pages 26 and 27.

Won't Let the Water Boil

THE Honeywell Water Regulator is a device which prevents the water in the heater from boiling. It is not advisable to allow the water to boil in a hot water system as this necessitates replenishing the water supply.

There are few conditions under which the water will reach a temperature of over 240 degrees and boil in a Honeywell System. Our determination, however, to afford the user every convenience possible, led us to include the Honeywell Water Regulator as part of the System.



Suppose for illustration, you sleep with your bedroom windows open, and on a cold night before retiring you push back the lever in the Temperature Regulator and set the thermostat to open the dampers at six o'clock. You plan to have the temperature of the house 70° when you are ready to get up in the morning, say at seven—now at six o'clock the drafts would be automatically opened and the house start to heat up.

While it is not very probable, it might be possible for the water to rise to 240 degrees before the radiators had heated the chilly house to 70.

To provide against this contingency we place the Water Regulator on the heater to close the dampers and not allow the water to go above 240 degrees, regardless of room temperature, but as soon as the rooms are heated to 70 degrees, then the room Temperature Regulator automatically takes care of

the dampers and by opening and closing them maintains a steady, even heat.

While the Honeywell Water Regulator was especially designed for the Honeywell System, like all our devices it can be used on any hot water plant.

If used on the old-style open system the Water Regulator keeps the water at any desired temperature below 212 degrees. As previously explained water boils in such systems at 212 degrees, while in the Honeywell System it does not boil until it reaches 240 degrees.

The construction of the Water Regulator is explained on page 28.

Notwithstanding the many advantages possessed by the Honeywell System of hot water heating, owing to the saving of labor, pipe, fittings, and other materials, it actually costs less to install than the uncontrolled, old-style, large pipe, water-logged system.

THIS statement seems almost too good to be true, but it is a fact and has been demonstrated to thousands of owners when bids were received for installing the Honeywell System.

Next to economy, efficiency and sightliness the item of cost is important in deciding on a heating system, and your architect, heating contractor, steam fitter or plumber will verify our claim.

Nearly everyone connected with the heating business is familiar with and appreciates the merits of the Honeywell System of Hot Water Heating. They know if a plant is installed with the Honeywell devices and in the Honeywell way, it will give perfect satisfaction and cost less than other systems.

The remarkable growth of our business in recent years proves how quickly the intelligent heating contractor adopts new ideas after experience has demonstrated their value and recommends them to his customers.

We co-operate with the architects and heating contractors, and if your job is a difficult one to pipe, or is out of the ordinary, we will prepare plans, showing how the system could be used to best advantage in your building. The contractor thus has the advantage of our broad experience and engineering advice and you are doubly assured of a perfectly successful and satisfactory system. If your contractor will follow our plans and general instructions, we will absolutely guarantee the satisfactory operation of your hot water heating system.

In the past five years, we have prepared thousands of such plans without expense to the contractor or owner. In every instance where the plans have been followed, the plant has given perfect service.

There is no house too small—no building too large for a Honeywell System. Put it in your new house or your old one—connect it to any make of heaters or radiators—it will give you perfect satisfaction under all conditions. There are now so many Honeywell systems installed in all parts of the country that we can doubtless refer you to buildings so equipped in your immediate vicinity. If you are building or contemplate changing your present system of heating, write us and we will be glad to refer you to as many installations as you would care to inspect.

Honeywell Heating Specialty Co.
Wabash, Indiana

The Honeywell System



This unusually cold winter weather suggests a higher appreciation of the excellent Honeywell System of Hot Water Heating which Mr. A. F. Rising, plumber of this city, installed in my new home. The improvement in heating homes is keeping pace with the advance of civilization and comfort in other lines. I am glad to feel that I have the best to be had, and will always be pleased to recommend the Honeywell.

W. C. Hargrove,
Pres. First National Bank,
Pittsburg, Texas.

In 1907 Fitts & Mann Co. installed what is known as the Honeywell System of Hot Water Heating in my residence. The plant looks neat and attractive, its operation has been economical and satisfactory in every respect. I have no hesitancy in recommending the Honeywell to anyone who contemplates installing a plant for heating purposes.

W. C. Burke, City Engineer,
Oklahoma City, Okla.



In figuring out the radiation for heating plant in my residence, I failed to take into account the unusual amount of glass surface, and consequently was short on radiation when it came to heating the house.

After installing the Generator, the efficiency of the plant was increased at least one third, and I was able to heat the house with less coal in practically half the time it formerly took.

G. W. Van Meter
Van Meter & Schmitt, Architects,
Oklahoma City, Okla.



The Honeywell Hot Water System installed in my apartment building has proved entirely satisfactory. All that you claimed for it has been demonstrated.

The building contains 36 rooms, and we find that the rooms located at the extreme distance from the boiler are as well heated as those on the first floor near the boiler.

I am especially gratified to learn of the increased efficiency over the ordinary Hot Water System and the saving of fuel. The maintenance cost of the building is greatly reduced by the Honeywell System, and I can conscientiously endorse this as being the most modern, economical and satisfactory heating plant in this city. It is one of the best investments I ever made.

A. D. McMullen, Secy.,
Strevell-Patterson Hdw. Co.,
Salt Lake City, Utah.



of Hot Water Heating

The Dealer Writes Us

In the past few years, we have installed the Honeywell System of Hot Water Heating in a great many residences in this locality and they are giving splendid satisfaction.

We now have little difficulty in installing your method as they are becoming so common here that we refer a prospective customer to one who has the system in use. They are all satisfied and glad to recommend the Honeywell.

Whiteford Bros.,
Regina, Sask., Canada.

The Customer Writes the Dealer

The Honeywell Heating plant accomplishes all that was claimed for it. Yesterday with the thermometer 45 degrees below zero and the wind from the northwest, we did not push the heater and had every room in the house as warm as one could desire it. In fact, while sitting in the house in perfect comfort, it was difficult to imagine that the temperature outside was severely cold. You are acting wisely in advising your customers to adopt this method of heating. If the results are all as satisfactory as this one is, you will have no reason to regret keeping to this way of heating as you stated you intended to do.

A. Shaver,
Regina, Sask., Canada.



The Honeywell System installed in a central heating plant to take care of 19 houses is a great success. One day when it was 20 below zero and a high wind was blowing, we visited the plant and found all 19 houses heated to perfection. Some of the tenants were too warm and had part of the radiators shut off. People living in these houses told me it was the first winter in Pittsburgh they had been absolutely comfortable. The owner is more than pleased and intends to build new houses this season and use your system.

Harvey Lewis, Jr.,
Heating Contractor, Avalon, Pa.



In installing hot water heat in my residence and garage, I used the Honeywell System.

It has given perfect satisfaction and I had no difficulty heating the premises comfortably during the past winter which was the coldest Detroit has experienced in years. Comparing my experience with that of my friends, I am satisfied your system is the most efficient and extraordinarily economical.

Walter C. Hartman,
Pres. National Mfg. Co., Detroit, Mich.



The Honeywell System in the Nelson Public School is giving the greatest satisfaction. There are 102 radiators with a total of about 10,000 square feet of heating surface. The contractor who installed the system, according to your plans, was rather skeptical as to the results on so large a job. He now reports that the circulation is perfect in every radiator. As last winter was the most severe known in this district for many years, the apparatus was well tested.

S. S. Clark,
Heating & Ventilating Eng.,
Calgary, Alberta, Can.



The Honeywell System



We installed the Honeywell System of Hot Water Heating in the new City Hall, under the supervision of Mr. Chas. Lafond, Architect. We are pleased to say that it has proved satisfactory in all respects.

Chas. Hamelin & Sons,
Three Rivers,
Que., Can.

I was one of the first in this section to use the Honeywell System, and I wish I could show you how much I appreciate it and how much satisfaction it has given my clients.

In the Monastere de Precieux Sang, it was expected 7,000 feet of radiation would be required, but they have only 5,500 feet in use, giving entire satisfaction. What is more extraordinary is the situation of the building. It stands on a cape 300 feet above the St. Lawrence River,

facing it and exposed to all winds—no other building within one-fourth of a mile. They are more than pleased with the Honeywell System.

At St. Ambroise of Femme, Lorette, Quebec, the system was used and gave entire satisfaction. Services were held during construction. At St. Jean Baptiste School in this city there was an old system and one wing was always cold. I repaired the system, using Honeywell equipment, and succeeded in obtaining an equal circulation.

I have used it on 35 or 40 jobs so far and each and every one of them has proved a superiority over the old system and I cannot but highly recommend it. Fortunat Gingras, Quebec.

The Honeywell Hot Water System installed by Mr. Fortunat Gingras in our new monastery over a year ago gives us full satisfaction. Considering our situation, 300 feet above the St. Lawrence River on the very brow of a cape where the wind always blows strongly, experts placed our consumption of coal at 100 tons or more. The coal used last winter was only 65 tons. We, therefore, appreciate our heating system and recommend it.

Sr. Marie Reparatrice Dep.
Monastery of Precious Blood, Quebec.

We recently put the Honeywell System of Hot Water Heating in the Oxford Apartment building, built by the Lamb Field Co. This is one of four of the same style apartments built by this company, in all of which we have installed your system. It is working perfectly in all of them.

Barber Plumbing Co.,
Houston, Texas



of Hot Water Heating



A. E. Isley Residence

About two years ago we installed a Honeywell System of Hot Water Heating in the residences of State Senator Albert E. Isley and Rev. Father John Molitor. Both customers are well pleased. Senator Isley previously had used steam heat—he likes the Honeywell much better. You can refer to them in any way.

Bruner & Hardcastle,
Newton, Ill.



Rev. Molitor Residence

The results obtained from the Honeywell System installed in 16 country houses which we built at Sedgwick Farms have been indeed gratifying.

We have had several severe winters and in every case the operation of these systems, as installed from plans furnished by your company, have been absolutely perfect.

In the tests conducted on these plants by another engineer and myself, we noted that the circulation of the water was not only rapid, but it was possible to obtain a temperature of 220 to 240 degrees in a very short time.

The houses referred to above were of a very high grade, selling at from \$13,000 to \$30,000. We have so much faith in your system that we have specified the same in seven large houses which we are erecting this season.

Ashton S. Tourison, Jr., Engineer and Architect, Philadelphia, Pa.

We installed your system in the U. S. Weather Bureau building at Sheridan, Wyoming, about two years ago. The system originally was figured for steam and you will remember we had hard work getting the government to consent to the change. The plant has worked very satisfactorily. The thermometer was 26° below zero this morning, so I telephoned up for information and the reply was "Everything fine and comfortable." I have sold about 30 jobs this year, all your system, and they are giving good satisfaction.

W. H. Chapman, with Cooper & Cole Bros., Lincoln, Neb.

From the time we first made inquiry about your generator, we have used them on numerous hot water jobs. They have given us the utmost satisfaction and we are not having any further grief about our heating plants. We are exceedingly thankful that you have given this valuable invention to the public.

Wm. E. Fisher & Bro., Architects, Denver, Colo.

I installed a Hot Water Heating System according to plans which you sent me. I have been in the heating business 15 years and have never had any system act more satisfactorily than this one. I can say nothing too good for the Honeywell System and hereafter will install nothing else.

Ernest J. Standeven, East Aurora, N. Y.

All hot water systems installed according to Honeywell method and piping plans have given the utmost satisfaction. We have yet to hear of a complaint. We are indeed proud of this system and could not think of installing any other kind of a hot water apparatus.

The first system installed was placed in the writer's residence and has been the source of much comfort and pleasure. It has been inspected by many people since its installation. There are now in the neighborhood of 15 or 20 Honeywell Systems in buildings in this city, all of which are giving the utmost satisfaction.

W. F. Gernandt & Co., Fairbury, Neb.

The Honeywell Heat Generator

ALL practical authorities agree that in hot water systems a slight pressure on the water is desirable. It causes the water to circulate more rapidly and a higher average temperature is maintained in the radiators. Because of this quick circulation, more heat units are taken from the fire, less are wasted up the chimney, and hence a mercury sealed system is more economical than any other.

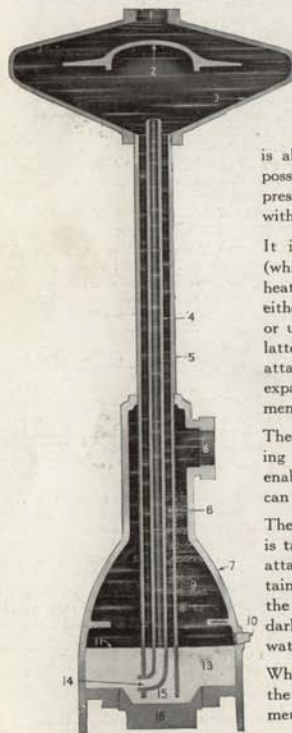


Figure "A"

The difficulty has been to apply the pressure with safety, to know positively that the pressure would never exceed the amount desired. This the Honeywell Heat Generator does, and it is the only successful device of its kind on the market that is absolutely safe. It is a physical impossibility to ever get more than 10-pounds pressure on a Hot Water System equipped with a Honeywell Heat Generator.

It is connected to the expansion pipe (which takes care of the excess water as heat is applied to a hot water system) either near the boiler, as shown on page 29, or under the expansion tank, and in the latter location, only when Generator is attached to old existing plant when expansion pipe does not extend to basement.

The sectional views on this and the following pages will explain the operation and enable you to understand why the pressure can never exceed 10 pounds.

The shell of the Generator is of iron and is tapped at the top (1) and side (6) for attachment to expansion pipe. It contains two pipes (4) and (5) through which the mercury and water circulate. The dark portion of the drawing represents water and the light portion mercury.

When the system is cold (see Figure A), the mercury (13) lies at the bottom of the mercury pot (7) about one inch in depth

and on a level with (11). Before the Generator can operate, all interior parts must be filled with water.

When a fire is started in the heater, the volume of water increases and expands into the Generator at (6) and causes the water (9) to press down on the mercury (13). This forces the mercury up into the circulating tube (4) and stand pipe (5). (See Figure B).

As the water continues to expand, the mercury will continue to rise in both tubes and lower to a corresponding extent in the mercury pot until it lies level with the inlet (14) to the circulating tube. (See Figure C).

At this time the mercury has reached the top of the two tubes. The water, having forced the mercury slightly below the inlet (14), passes into the circulating tube (4). Water, being over 13 times lighter than mercury, will pass very rapidly through this tube, constantly carrying small quantities of mercury with it.

When the water and the mercury reach the top of the circulating tube, the water passes up and around the deflector (2) and out through opening (1) to the expansion pipe and tank.

The mercury which is driven upward with the water in circulating tube (4) will not return through the same tube, but falls into the space (8) between it and the outer tube and drops back to the lower part (15) of the mercury chamber, thus raising the mercury level again and closing the inlet (14).

From the above description it is apparent that a positive circulation of the mercury upward through the circulating tube (4) and downward through the stand pipe (5) (as indicated by the arrows in C) is attained under all normal working conditions, thus positively retaining the mercury in the circulating tubes of the Generator.

It is also apparent that a 10-pound pressure will be produced and maintained and at the same time permit all excess water of

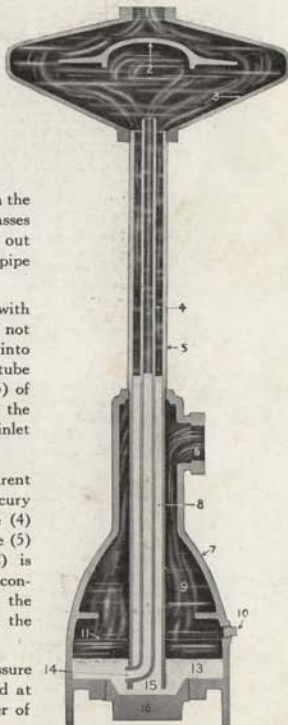


Figure "B"

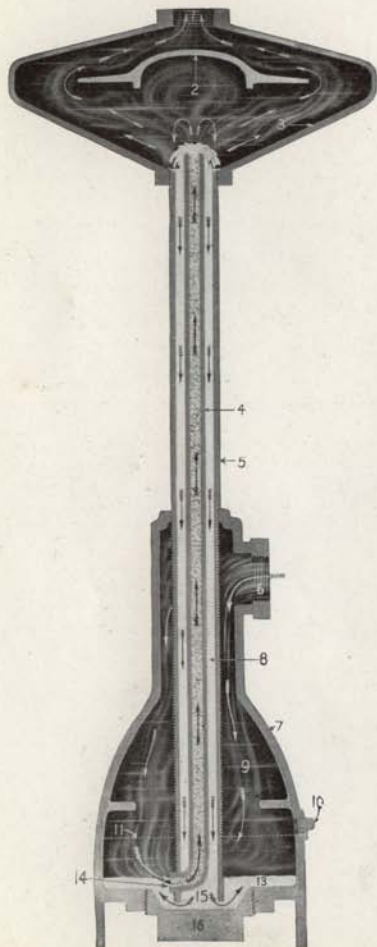


Figure "C"

expansion to pass freely to expansion tank.

When the water throughout the system cools and contracts, the exact reverse of the above operation takes place. The mercury will gradually lower in the tubes and rise in the mercury chamber; (Figure B). If the water continues to cool, the above action continues until the mercury will lie in the mercury chamber to a depth of about one inch as shown on Figure A.

When filling the system from city service, the rapid flow of the water at high pressure through the Generator will lift the mercury, forcing it upward to the separating chamber (3) where the deflector (2) will arrest the mercury, and the full flow of water will pass to the tank through the Generator unobstructed. The minute the city service pipe is closed the mercury will instantly drop into the bottom of the mercury pot (see Figure A) and will be ready for operation.

The Honeywell Unique Hot Water Radiator Valve

THE Unique Valve is designed to be connected to **only one** end of a radiator. By its use it is only necessary to extend the risers through the floors to the valve elbows. This avoids taking up flooring and cutting joists in order to extend return pipes to the other end of the radiator. The Unique Valve thus saves pipes, saves labor and saves weakening floor supports.

The valve, as will be noticed, has an adjustable elbow on each side, permitting connection to pipe from any direction. When attached to the radiator, a thin piece of metal extends through the first radiator section. This diaphragm causes the water entering through one side to rise in the first section, circulate across the top, down through the other sections and out on other side of valve. It also insures a most rapid circulation, as there are no conflicting currents of water in the radiator.

The X-Ray illustrations show the valve turned on and off and the arrow indicate flow of water. As you will notice, the construction of the valve is very simple and it cannot get out of order. The gate, which resembles a partly opened hinge, diverts the flow of water into the radiator on one side of the diaphragm and allows it to return on the other side.

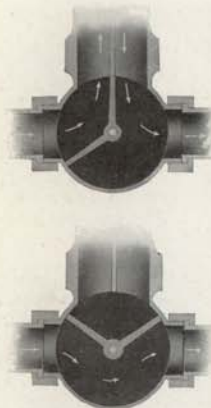
By a one-sixth turn of the valve handle the position of the gates is so changed that the openings to radiator are closed and a by-pass formed in the valve the full area of the piping, a feature that can hardly be over-estimated. The flow of water is then directly through the valve body and piping.

Small openings provided in the gates, allow sufficient water to flow through the radiator to prevent freezing even in the coldest weather, when the radiator is turned off.

The Unique Valve is adapted to any style of piping and the illustration (on page 25) shows some of the applications possible with this valve.

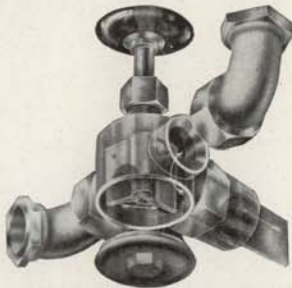


The Honeywell System



The illustrations at the left show sectional views of the Honeywell Unique Valve, open and closed. When the valve is open, one wing of the gate is in line with the diaphragm which extends into the first section of the radiator, the other wing stands at a point beyond the opening to one of the elbows. This diverts the flow of water, as indicated by arrows, into the radiator and the return flow passes out through the other elbow. When the valve is closed, the position of the wings is changed so that both openings to the radiator are closed and the water passes directly through the body of valve.

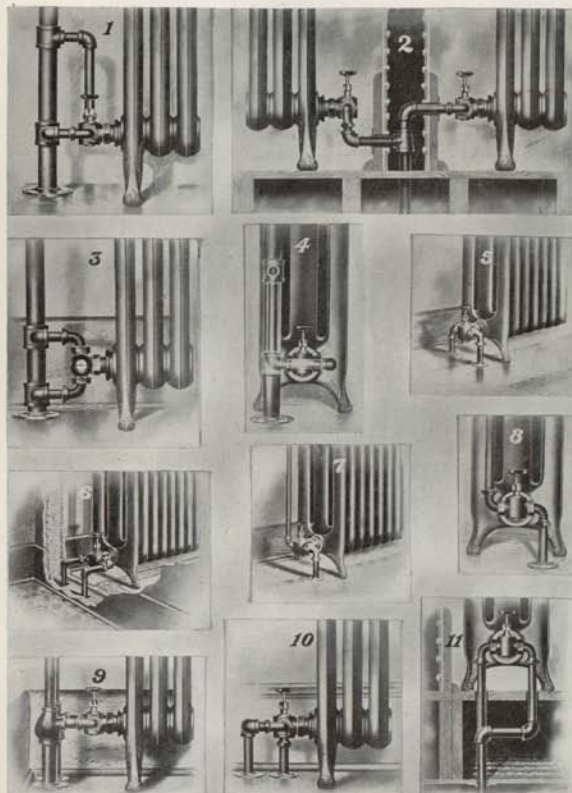
This by-pass is the full area of the piping so that the water flows through unobstructed, and a constant circulation is maintained in the pipes even if every radiator in the house should be turned off.



There is thus absolutely no danger of pipes freezing even where risers are concealed in outside walls. You can also see from the relative position of the gate why it is only necessary to give the handle a one-sixth turn to open or close the valve. Should it ever become desirable to increase or decrease the size of radiator, when the Unique Valve is used, the extra sections can be added or taken off very easily. There is no return elbow and pipe to contend with, no holes to make through the floor, or return pipe to extend.



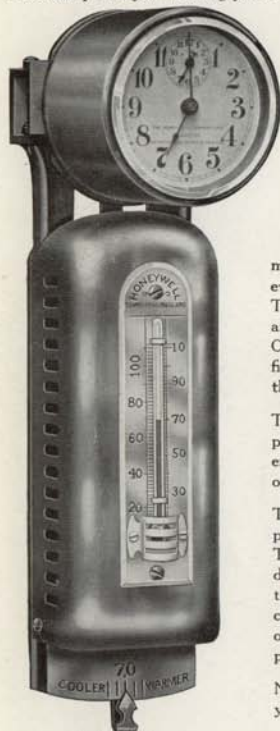
of Hot Water Heating



APPLICATION OF THE
HONEYWELL
UNIQUE HOT WATER RADIATOR VALVE

The Honeywell Temperature Regulator

THERE are two parts to the Honeywell Temperature Regulator—the Motor and the Thermostat. The Motor is placed in the basement of your home and is screwed to the ceiling directly over the front damper of your heating plant. The Thermostat is placed in one of your living rooms or out in the hall—and it is this sensitive, self-acting little device that keeps the temperature of your rooms at the degree of heat you most desire.



Thermostat
Two-thirds Actual Size

This Thermostat is small and attractive and will prove an ornament to any room, no matter how rich its furnishings. The greatest care has been given every detail and in refinement of mechanical construction it is everything that could be desired. The cover is of seamless drawn brass and is furnished in brush brass finish. On the front of the Thermostat is fitted an accurate and dependable thermometer.

The Honeywell Motor is small, compact and neat in appearance and is entirely unlike other motors in its operation. The operation of the Honeywell Temperature Regulator is very simple. The motor is the part of this little device that actually opens and closes the dampers for you. It is electrically controlled and unlike other motors, operates the dampers by means of a positive acting arm (or lever.)

Note the illustration on page 29, and you will see that chains are run over

pulleys screwed to the ceiling from the motor lever to the dampers, and when the temperature in your rooms changes a degree or two, this motor, set off by the thermostat, will either open or close the dampers as the temperature requires, when the telegraphic message comes through the wire from the Thermostat. When this message is received, the armature (placed right over the sprocket wheel) lifts up and the wheel turns slowly and noiselessly a half revolution—either closing or opening the dampers as is needed.

The movement or speed of the Motor which operates the dampers is controlled by an absolutely noiseless and positive acting governor, composed of multiple discs that govern its operation perfectly. This governor is contained in the little round compartment shown in cut at lower end of motor.

Motive power is furnished by a six-pound weight attached to one end of a strong chain, to the opposite end of which is attached a small hand weight. To set or rewind the power weight, it is only necessary to pull down on the hand weight and you have enough stored-up power to run the motor for several days.

There are no delicate parts in the Motor of the Honeywell Temperature Regulator, and we fully guarantee it for twenty years. With ordinary care this dependable little regulator—being so simple and strong in construction—will last a lifetime.

Two ordinary dry batteries (such as are used for furnishing power for door bells, etc.) are all that are needed to successfully operate the Honeywell Temperature Regulator.

The Honeywell Temperature Regulator comes complete with batteries, chains, wire and all parts ready to set up.

With every Honeywell Temperature Regulator, we send a post card to be filled out showing date of purchase. When this card is returned to us, we send you a written guarantee agreeing for a period of twenty years to replace any and all parts, except batteries, that may prove defective.



Honeywell Water Regulator

THIS device prevents the water in a hot water heater from boiling. When the temperature of the water reaches a pre-determined point, it automatically closes the dampers.

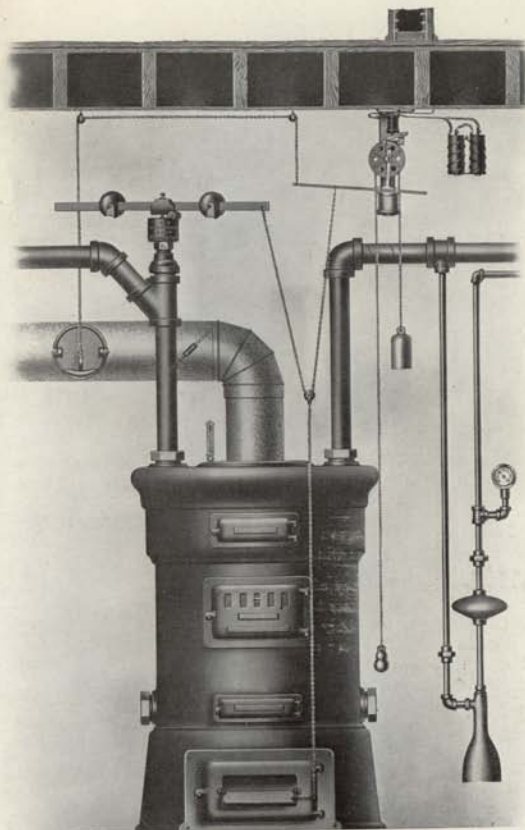
It can be set to close the dampers at any degree of water temperature between 120° and 240°. While especially designed for the Honeywell System of Hot Water Heating, where the water **does not** boil until the temperature of the water reaches 240°, it can be used successfully on any water heating system on account of its wide range of adjustment.

As will be noticed from the sectional view the construction of the Honeywell Water Regulator is very simple. There is nothing to get out of order, it requires no attention whatsoever and will last a lifetime. Within the Water Regulator is placed a substance which has a uniform ratio of expansion and contraction. This operates on a brass bellows—imparting motion to a lever to which the damper chains are attached.



To Explain—if the Room Temperature Regulator has been set for 70° and the Water Regulator, say at 220°, when the temperature of the water reaches 220°, it closes the damper regardless of the action of the Room Temperature Regulator. It will continue to open and close them, maintaining the temperature of the water about 220°, causing the boiler to operate at near its maximum efficiency until the rooms reach 70°, when the Room Temperature Regulator automatically resumes control of the dampers.

During ordinary winter weather, a water temperature of from 100° to 160° in the heater will maintain the rooms at 70°, but when starting the fire in a cold house or during a sudden cold wave the Temperature Regulator will open the draft damper and may keep it open until the water boils, before the room temperature reaches normal. With a Honeywell Water Regulator attached to the system, it is an absolute impossibility for the water to boil and its advantages will be appreciated by anyone who gives the subject careful consideration.



THE above illustration shows a hot water heater, to which are attached the Honeywell Heat Generator, The Honeywell Water Regulator and the Honeywell Temperature Regulator. The Thermostat of the latter of course is located in one of the living rooms above.

The Honeywell Heat Generator should be located in the basement near the boiler in new work, but when attached to existing systems it may be connected thirty inches or more below expansion tank on first, second or higher floors, providing expansion pipe does not extend to the basement. The Water Regulator can be attached directly to the heater or in a pipe angle, as shown in cut. Either Regulator may be used independently without the other, but the combination of both makes unquestionably the ideal method of controlling both the house and water temperature. Like our Heat Generator, in operation they are entirely automatic and once installed are good for a lifetime.

How to Improve Old Systems— Read Our Guarantee

If you have a hot water heating plant that is unsatisfactory, write us describing the trouble and possibly we can suggest a way to overcome the difficulty.

The defects in the old-style systems are usually an insufficient amount of radiation, lack of boiler power, too great a bulk of water or faulty piping. Frequently a radiator or two at the ends of long runs of pipe do not heat up properly, resulting in cold rooms, which may be the very ones you are most desirous of keeping warm. Often through error, heating contractors use pipes not suitable for the radiators to be supplied, causing improper circulation in parts of the system.

A Honeywell Heat Generator can be easily and quickly connected to the expansion pipe of any existing system of hot water heating.

Where the radiation is insufficient causing cold rooms; where the circulation is sluggish causing large fuel consumption; or where the water boils easily from quick firing, it will cure the trouble.

It will increase the efficiency of the plant from 25 to 50%. It will cause the water to heat up quicker in the morning. It will prevent the water from boiling during extremely cold weather, until a temperature of 240° has been reached, permitting a stronger fire to secure heat quickly. It will cause the water to circulate through the radiators that are slow to heat. It will materially reduce the fuel consumption.

Our Proposition for Curing Unsatisfactory Jobs

Attach a Honeywell Heat Generator of suitable size to the expansion pipe of any old-style hot water job and try it out for thirty days. If at the expiration of this period the architect, heating contractor or owner is not entirely satisfied with the results, the Generator may be disconnected and returned to us and we will cheerfully and promptly refund the purchase price, pay the fitter a reasonable amount for his time for fitting the Generator and bear all return charges.

Any plumber, or steam fitter, or heating contractor can supply you with a Honeywell Heat Generator and put it on your plant.

Honeywell Equipment is carried in stock by all leading boiler and radiator manufacturers, and by all jobbers of heating materials.

There is But One Straight Road to Success—That is Merit

If you have read this book carefully, we feel confident you will decide the Honeywell System is exactly what you want in your home.

We have told you that you can easily and at small cost install it in any new or old building. We have proved that it is more economical, more slightly, delivers heat to radiators more quickly and provides a range of water temperature not to be found in any other system. We have explained how its installation saves cutting floors, weakening joists, unsightly pipes and all danger from freezing. We have shown that your house can be kept comfortable even in the coldest weather with no possibility of boiling the water in heater—with no attention to dampers or drafts. We have demonstrated that every pound of coal is used to best advantage and that no matter how quickly the weather changes, your house is automatically kept at the desired temperature.

Consider what all these advantages mean to you—to the health and comfort of **your family.**

Think how pleased you would be if you had a Honeywell System in your home and knew that you were getting value received from every dollar's worth of coal burned.

If you are planning a new house or remodeling an old one it will solve your heating question.

Your architect, steam fitter or heating contractor can easily supply you with the Honeywell System of hot water heating. Honeywell equipment is carried in stock by the leading boiler and radiator manufacturers and by the better jobbing houses in heating material throughout the United States and foreign countries. If you have any difficulty in securing these appliances in your locality, advise us and we will be glad to assist you in getting the genuine Honeywell Equipment.

We will also be pleased to prepare plans for your heating contractor, without expense to you or him, if he has not had experience with the Honeywell system and does not know how the piping should be installed.

Our plans will be drawn to scale, showing how the system can be used in your home to best advantage. If installed as per our plans and general instructions, we will positively guarantee satisfactory operation of the Honeywell System of hot water heating.

Honeywell Heating Specialty Co.
Wabash, Indiana

“Knowledge without action
is an opportunity wasted.”
—Porter.