PLAINTIFF'S EXHIBIT
ASI-1070

ARCO No. 2001 EQUATROL

FOR STEAM • VAPOR • VACUUM •
ANY TYPE AUTOMATIC HEAT

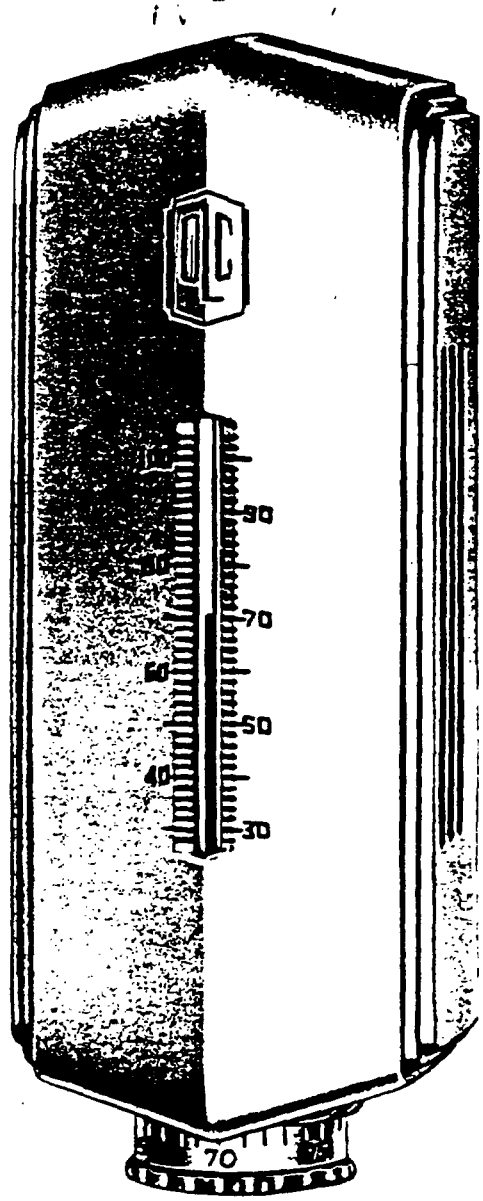
A.I.A. File No. 30 I 2
(June, 1

A *Different* THERMOSTAT

A *New* PRINCIPLE

USES BOTH ROOM AND RADIATOR
TEMPERATURES AS CONTROL FACTORS

PROVIDES CONSTANT FLOW OF WARMTH
W. H INTERMITTENT FIRING



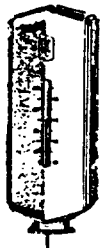
AMERICAN RADIATOR COMPANY
DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
40 West 40th Street, New York, N. Y.

03924

THE No. 2001 ARCO EQUATROL

The NEW Thermostat for accurate and uniform temperature control for Low-Pressure Steam, Vapor and Vacuum Systems

In the No. 2001 Equatrol there is now available. for the first time. a means of temperature control that masters the special requirements of automatic firing. It is so entirely different in design and principle of operation that it practically revolutionizes the generally accepted theory of heat regulation.



• INTERMITTENT FIRING PROBLEMS

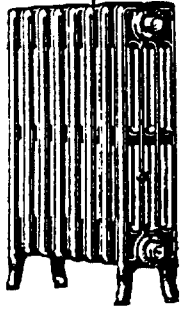
The advent of automatic firing created a new and serious control problem because the firing unit must operate intermittently and therefore is unsatisfactory if the "on" and "off" cycles are of too long duration. because during the "on" cycle the radiators get too hot and the room temperature overruns. and during the "off" cycle the radiators cool down practically to room temperature and the room gets too cool. particularly at the lower levels. The ideal objective is to keep the radiator temperature constantly at a point which will maintain desired room temperature with any given outdoor weather condition. To accomplish this result with intermittent firing. there must be more frequent cycles of firing than is generally the case with the ordinary room thermostat.

• PRESENT METHODS

Several methods have been devised for this purpose. Currently the most popular is an electric heater element placed in proximity to the thermostat. When the burner starts. the current flows through the heater and generates heat therein. This artificially raises the temperature of the thermostat to a point where it functions at its own set degree, but in reality it "anticipates" the actual room temperature and stops the burner before the ordinary thermostat is satisfied. This type of instrument has effected a considerable improvement over the ordinary thermostat.

• ARCO EQUATROL THE LOGICAL SOLUTION

The Arco Equatrol, however. goes a step further in that it uses the radiator itself as the anticipating or compensating factor. This enables the Equatrol to adjust itself automatically to any system in any weather. Because the instrument is affected directly by radiator temperature as well as room temperature, it maintains radiator temperatures within close limits—thus preventing fluctuations of room temperature. As the weather changes it automatically raises or lowers the radiator temperature. No manual adjustment, other than setting the room temperature at the desired point, is required.



• SIMPLIFIES WIRING

The Arco Equatrol is wired exactly as any ordinary low voltage thermostat. It can be used either in two or three wire circuits. There is only one standard instrument.

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How The Arco Equatrol Operates

The thermostat replaces the ordinary room thermostat, and is installed in the same manner. The capillary tube is run in the wall down to the floor and under the floor to the nearest radiator, preferably in the room where the thermostat is located. The four bulbs "b" are clamped on four sections of the radiator at the back, or in four locations between the fins of a convector, so as to obtain the average temperature of the radiator. The electrical contact points are in the thermostat. The contacts are wired to the firing device in the usual manner. The thermostat responds to both room and radiator temperatures.

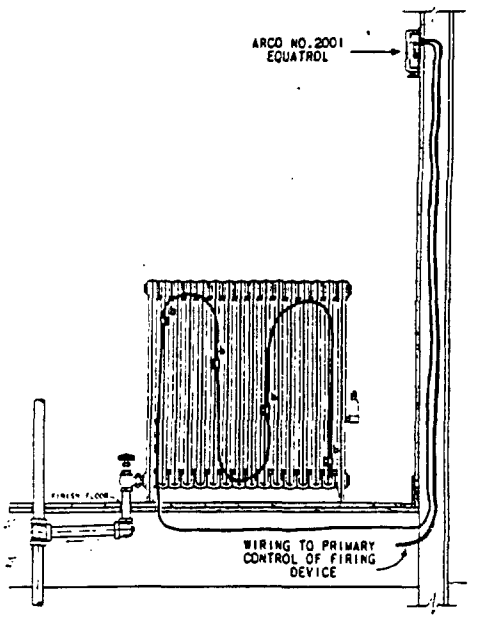
The Equatrol is regularly furnished with 20 feet of capillary tubing, but can be furnished with 35 feet on special order.

• THE LOGIC OF USING RADIATOR TEMPERATURE

Inasmuch as the ideal objective of control is to maintain a radiator temperature that will supply just the right amount of heat to keep the building at the desired temperature it is most logical that the actual temperature of the radiator itself should be included as a control factor. The Arco Equatrol does include the radiator temperature along with the room temperature as a controlling factor, and in so doing differs fundamentally from other room thermostats.

• THE EFFECT OF USING RADIATOR TEMPERATURE

The radiator itself is used to "anticipate." The radiator heats and cools at a rate faster than the room. Therefore the radiator bulbs of the Equatrol serve to turn the heat on and off sooner than if dependence is placed entirely on the room temperature. In fact the radiator bulbs alone can keep the radiator temperature in such close limits that the room temperature does not vary, and we have a steady, even flow of warmth from the radiators which are maintained at just the right temperature to heat the building to the desired degree.



Above is a one-pipe steam installation, but the Equatrol hook-up is the same for two-pipe or vapor systems.

The function of the room bulb of the thermostat is to sense a change in weather. When a change in weather occurs, the room temperature rises or falls a fraction of a degree and this causes the radiator bulbs to control at a lower or higher temperature. In other words, the Arco Equatrol automatically adjusts the radiator temperature in accordance with the weather as required to maintain desired building temperature.

• GENTLE, CONTINUOUS FLOW OF WARMTH

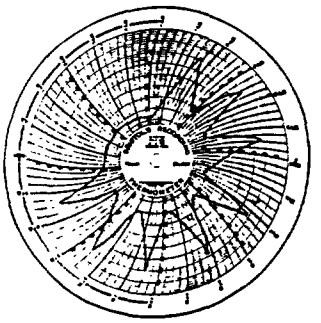
The net effect is a constant gentle regulated flow of warmth, both convected and radiant. The convected warmth maintains constant circulation of air in the rooms, thereby preventing air stratification and reducing the temperature difference between floor and ceiling. The prevention of stratification, the provision of a gentle flow of radiant warmth, the elimination of "cold 70" and overheating produce an indoor environment unequalled for comfort and health.

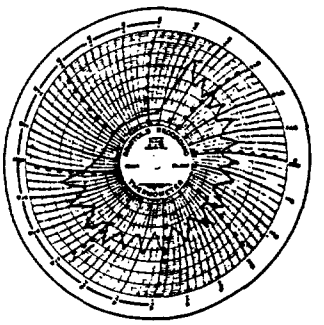
CHARTS INDICATING THE EVENNESS OF EQUATROL CONTROL

Radiator Temperatures

ORDINARY THERMOSTAT

This chart shows the wide variation in average radiator temperature with ordinary room thermostat control. Note that radiator temperature falls almost to room temperature on each cycle. This causes "cold 70." Note also that average radiator temperature rises to about 200 degrees on each cycle. This causes "overshooting."





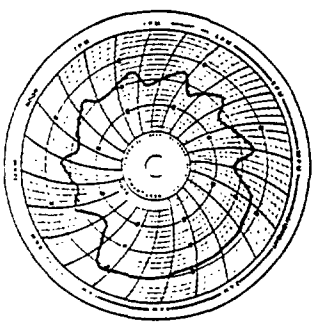
ARCO EQUATROL

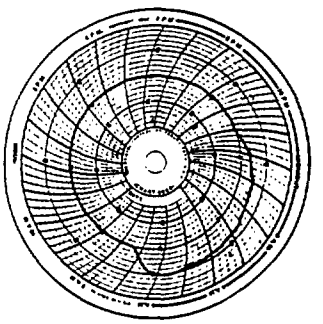
This chart shows how closely the radiator temperature is held by the Equatrol. The radiator stays warm —no "cold 70." It never gets too hot— no "overshooting." This precise regulation assures "warm feet and a cool head" by keeping the air moving and maintaining a constant, even flow of radiant warmth.

Room Temperatures

ORDINARY THERMOSTAT

This chart shows fluctuations in room temperature of several degrees with the ordinary room thermostat—even though the operating differential of the thermostat is one degree.





ARCO EQUATROL

This chart shows the absolutely even room temperature maintained by the Equatrol. This uniform control means absolute comfort at all times, without fuel waste in overheating.

The Equatrol is not just another thermostat. It marks a revolutionary advance in automatic heating. In combination with radiator heating and automatic firing, it produces an indoor environment which for comfort and health, cannot be approached by any other means.

Summary of Features

1. Attractive appearance—new, modern styling.
2. Universally adaptable. Can be used with oil, stoker or gas firing, on one or two pipe, steam, vapor or vacuum systems.
3. No special wiring or circuits or heater elements required. Wired exactly as any ordinary thermostat either two or three wire.
4. Automatically adjusts itself to any building, any system, any weather. Installer avoids expense of returning to job for adjustments.
5. Eliminates "overshooting" and "cold 70".
6. Maintains constant even flow of warmth.
7. Maintains air circulation and reduces temperature difference between floor and ceiling —keeps feet warm without overheating upper portion of body by preventing stratification of room air.
8. Increases firing efficiency; saves fuel.
9. Positive, snap action contacts — absolutely no fluttering — yet extreme sensitivity.
10. Generously proportioned silver contacts insure long, trouble free life.

SPECIAL NOTE:—The Equatrol is shipped complete ready to install, and regularly furnished with a 2 wire cable and 20 ft. of capillary tubing. If 3 wire cable is required for Series 20 connection,—with zone valve for instance,—the order should so state specifically. Capillary tubing can also be furnished in 35 ft. length on special order.

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