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J. A. WYNKOOP.

HOUSE HEATING SYSTEM.

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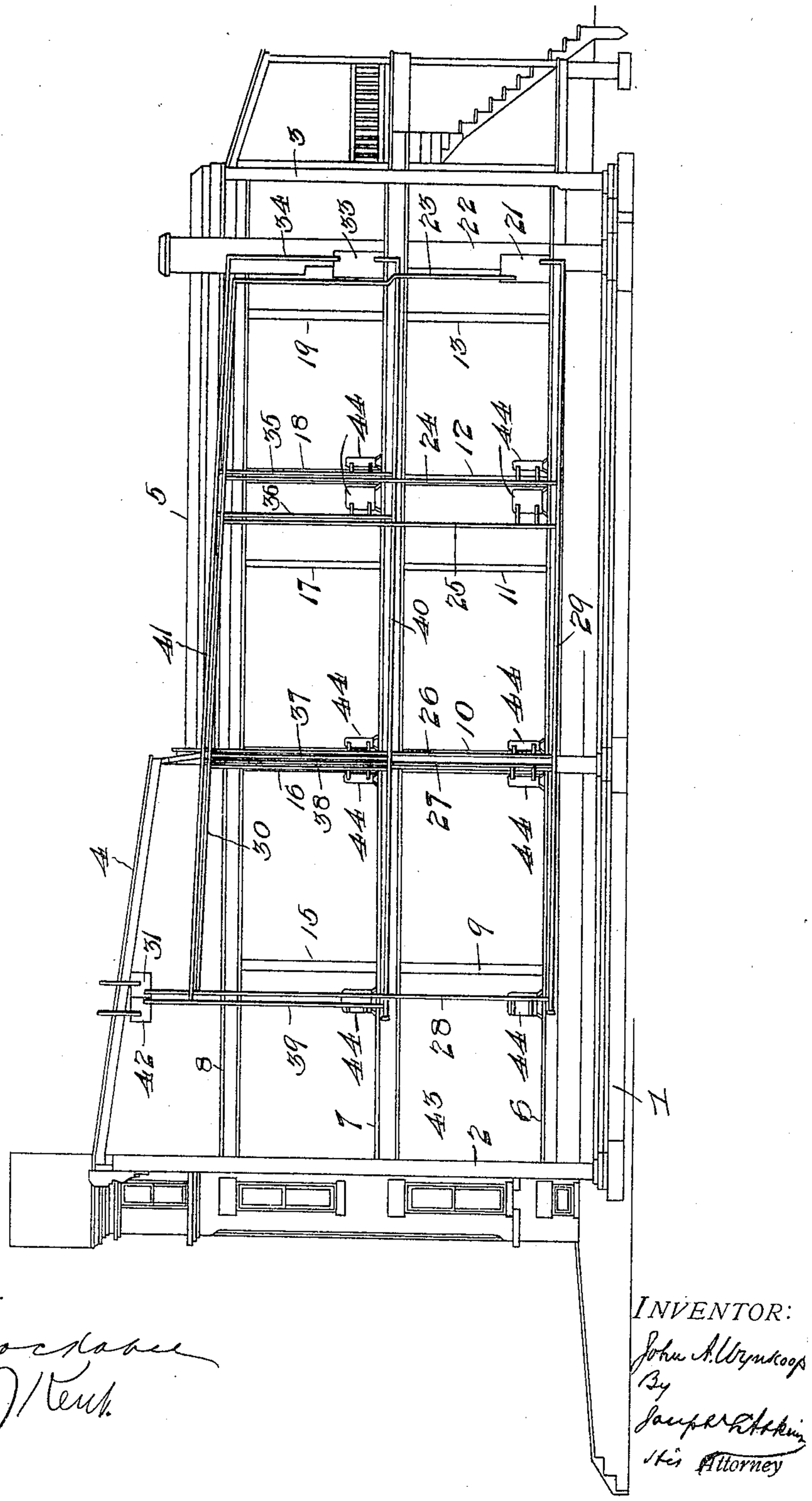

WITNESSES:

J. L. Morsbach

Frank D. Kent.

INVENTOR:

John A. Wynkoop

By

Jasper N. Adkins

His Attorney

UNITED STATES PATENT OFFICE.

JOHN ALBERT WYNKOOP, OF WASHINGTON, DISTRICT OF COLUMBIA.

HOUSE-HEATING SYSTEM.

No. 816,523. Specification of Letters Patent. Patented March 27, 1906.

Application filed May 12, 1904. Serial No. 207,627.

To all whom it may concern:

Be it known that I, JOHN ALBERT WYNKOOP, of Washington, District of Columbia, have invented certain new and useful Improvements in House-Heating Systems, of which the following is a complete specification, reference being had to the accompanying drawing.

The object of my invention is to produce a system of heating the different floors or subdivided horizontal apartments of a house by means of a circulatory system for each of said horizontal apartments or floors, and an independent generator or source of heat for each one of said circulatory systems located on the floor to be heated. I use the term "floor" in this specification as synonymous with "story." The circulatory system may be a system of pipes in which steam, hot water, or other fluid may circulate, and the generator or heater is intended to represent means of heating, and thereby setting up circulation of the fluid in the circulatory system.

My invention is designed to contribute to the practical divisibility of a house into completely segregated and independent compartments, rooms, or suites of rooms. The dividing of houses into apartments is much in vogue at present, but is confined largely to structures of considerable extent, owing in great measure to the difficulty of satisfactorily meeting and disposing of the heating problem in smaller buildings. In a large apartment-house, whose dimensions are such as to justify the expense, the problem is met by providing a common system of heating and one source of heat for the entire structure. This method, however, is available only when the revenue from the building is such as to justify the installation and operation of a large heating system and when the heating is included in the rental charge for each apartment. In small buildings there is always, of course, the alternative of employing the usual local heaters for each room, such as the ordinary stove or fireplace. This, however, is objectionable, owing to the uncleanliness of such devices and the difficulty of keeping them in operation. On that account attempts have been made to operate a single source of heat—as, for example, a furnace, hot-water heater, or steam-generator—located in the cellar of a building subdivided into apartments, the care of the heating apparatus being attempted to be provided for by agreement among the tenants of the various apartments. This plan has, however, been found to be wholly impracticable for a variety of reasons, of which the following are suggested.

If the heater in the cellar be subject to the manipulation and control of any one of all the occupants of a building, experience proves that it is apt to be neglected or one tenant wants it hot when another tenant wants it cold. Again, there is constant source of friction and dispute between tenants in respect to the expense of fuel. Moreover, an arrangement which would suit one tenant might not suit another, and even though one set of tenants might be satisfied with an arrangement made, if a vacancy should happen the existing arrangement might not suit the new tenant

If the attempt be made to place the control of a single heater with one tenant, aside from the difficulty of making such an arrangement the one tenant is disposed to consider his own comfort in particular, without especial reference to the comfort of the other tenants, and the result is that every tenant has a grievance.

So obvious and radical are the objections to the employment of a common heating system for a small apartment-house that the attempt has been made to meet the situation by subdividing the cellar and locating the heater of a heating system for each apartment in a separate subdivision of the cellar. Besides the wastefulness of such an arrangement the inconvenience to the occupants of all of the floors, and especially of floors above the first floor, is such as to tend to prohibit the employment of such an arrangement in practice.

Now by my invention the advantages of a steam or hot-water system of heating are made available for each apartment or separate subdivision of a building, each apartment is provided within itself with its own independent system of heating, and the necessity for providing any space for community of occupation is entirely dispensed with. In other words, a complete and perfect subdivision of space into compartments for human occupancy by horizontal partitions, as well as by the customary vertical partitions, is rendered practicable without any of the drawbacks incident to the modes of heating hitherto employed.

In the accompanying drawing I illustrate in a diagrammatic way and in connection

with the vertical section of a building representatively showing two floors a form of embodiment of my heating system.

Referring to the numerals on the drawing, 1 indicates the foundation of a building, 2 the front wall, 3 the rear wall, 4 the front roof-section, and 5 the rear roof-section thereof. The building is provided with a plurality of horizontal partitions, three of which are shown and indicated by numerals 6, 7, and 8, respectively.

9, 10, 11, 12, and 13 indicate the vertical partitions by which one floor defined between the horizontal partitions 6 and 7 is subdivided into a plurality of compartments or rooms constituting an apartment.

15, 16, 17, 18, and 19 indicate the vertical partitions separating the rooms of the apartment defined between horizontal partitions 7 and 8.

For convenience I shall designate the space defined between the partitions 6 and 7 as the "first floor" and that between the partitions 7 and 8 as the "second floor."

21 indicates the local heater or source of heat for the first floor, being a water-heater or steam-generator, which being located on the first floor is in operative communication for the discharge of its products of combustion with a chimney 22. With the heater 21 a circulatory system is in operative communication and consists, for example, of the usual vertical pipes 23, 24, 25, 26, 27, and 28 and the pipes 29 and 30 transversely disposed thereto and in communication therewith. The pipes 29 and 30 incline to drain toward the intermediately-disposed heater 21, the latter through the vertical pipe 23. They also both communicate, through the vertical pipe 28, with an expansion-tank 31, if the system require an expansion-tank, which may be conveniently located between the horizontal partition 8 and the roof-section 4.

33 indicates the local heater of the second floor, which also communicates with the chimney 22 and whose circulatory system, comprising vertical pipes 34, 35, 36, 37, 38, and 39 and transverse pipes 40 and 41, communicates, through the vertical pipe 39, with an expansion-tank 42, located, if it be employed, alongside of the expansion-tank 31. The angle of necessary inclination of the transverse pipes 29 and 40 is such as to permit of their being conveniently, economically, and operatively disposed in close juxtaposition to the horizontal partitions 6 and 7. It is more particularly with respect to floors above the first that the location of the return-pipe constitutes an important consideration and for whose accommodation provision must be made. Provision may be made for the accommodation of such a pipe, of which the pipe 40 is an example, by employing joists 43 of requisite width and disposition.

44 wherever that numeral appears indicates a radiator of any ordinary or suitable kind operatively incorporated with the circulatory system of which it forms a part, the radiator being, in effect, simply a local multiplication of the superficial area of the circulatory system.

It may be observed with respect to the operation of my system that the heater 21, as well as the heater 33, serves, through the instrumentality of its circulatory system, to heat at will any one or all of the rooms which constitute the apartment which it is designed to heat. Each heater is located exclusively within its own apartment, and each heater after the installation of the system affords a means of heating an apartment exclusively within the control of the tenant of the apartment. The transverse pipes 29 and 30, 40 and 41, respectively, are employed as a means to complete the circuit of circulation and should be limited in respect to their power of radiation and, if need be, capacity for condensation. In that manner the radiative power of each system is restricted to the interior of the apartment which it is intended to heat, where the vertical pipes of the respective circulatory systems, with their radiators, may be employed, in effect, exclusively as the radiating or heating factors of the whole system. If hot water be employed as the circulatory system, the location of the expansion-tanks above and at a point remote from the heating system proper tends to promote rapidity of circulation in the pipes of the circulatory system, and thereby to augment the efficiency of the system. Moreover, the heater may be incorporated with or used in conjunction with the cook-stove of the apartment, thereby confining the use of fuel and removal of ashes to the one room in which all the culinary operations of the apartment are performed.

What I claim is—

1. The combination with a plurality of apartments each comprising a plurality of rooms, of a source of heat in each apartment, circuits operatively communicating with the said sources of heat respectively, the upper pipes of all of said circuits being situated above said apartments, and vertical heat-distributing pipes arranged to heat the rooms of each apartment, respectively, operatively and independently communicating each with its respective circuit.

2. The combination with a plurality of apartments each comprising a plurality of rooms, of a source of heat in each apartment, circuits operatively communicating with the said sources of heat, respectively, the upper pipes of all of said circuits being situated above said apartments and the lower pipes thereof being located below the floor of the apartment to which it belongs, and vertical heat-distributing pipes arranged to heat the rooms of each apartment, respectively, op-

eratively and independently communicating each with its respective circuit.

3. The combination with a plurality of apartments each comprising a plurality of rooms, of a source of heat in each apartment, circuits operatively communicating with the said sources of heat, respectively, the upper pipes of all of said circuits being situated above said apartments and the lower pipes thereof being located below the floor of the apartment to which it belongs, and vertical heat-distributing pipes arranged to heat the rooms of each apartment, respectively, operatively and independently communicating each with its respective circuit and disposed within the partitions defining the rooms of the apartment to which it belongs.

In testimony of all which I have hereunto subscribed my name.

JOHN ALBERT WYNKOOP.

Witnesses:
MARY A. WILSON,
FRANK J. KENT.