cold air directly into the smoke flue through damper, P. With these provisions, complete control is obtained over the fire, and the automatic regulation has been found so reliable that the float are adjusted for a given temperature, the temperature of the heated air is regular to a degree, as long as a good fire is kept up, and there is no material change in the weather. The floats or rods may be set to give any required temperature by the methods usually employed. In pyrometric regulators for stoves, etc. As the expansion and contraction of the water takes place slowly, the action upon the fire is in consequence gradual and not sudden, as in pyrometric arrangements where metallic rods connected with the dampers are expanded by the heat of stoves or fires. The loss of water from the vessel, F, by evaporation is supplied as often as necessary in order to keep the regulators to a uniform action.

The claim is for the arrangement of the two sets of floats operating the valves, M, O, and damper, P, and the open vessel, E, in combination with a circulating hot water apparatus, as set forth.

The heating of buildings by hot water is far more healthy than by hot air. Commodore Stockton, J. Kirkbride, M. D., and John Fallon, Esq., Philadelphia, also Dr. Buttolph of the New Jersey Asylum, Trenton, have these furnaces in operation, and have used them for some time with increasing satisfaction.

Mr. Tasker in a letter to us invites the criticism and attention of architects, builders, and citizens to this improvement, and says—"House warming may now be summed up as follows: make up a fire once a day, (morning) set the regulator by the scale and the furnace will take care of itself and the family into the bargain, until bed time."

The patent has been engaged for years in manufacturing different kinds of house-heating apparatus. The firm is Morris, Tasker & Morris, 68 South 3rd Street, Philadelphia, where this furnace is sold. The firm is always prepared to estimate for warming of buildings of any size—both churches, hospitals, and private dwellings, and from whom more information may be obtained by letter.

The annexed figures represent an improvement in hot water furnaces for heating public and private buildings, greenhouses, botanias, etc., for which a patent was granted to Thomas T. Tasker, of Philadelphia, Pa., on the 8th of December last.

Figure 1 is a sectional view through the furnace from front to rear, and figure 2 is a front view of the furnace showing the regulator. Similar letters indicate like parts.

The invention consists in a mode of regulating the temperature of the furnace by hot water apparatus by self-adjusting valves and dampers of a peculiar arrangement. One evil that has been experienced in all hot water arrangements for heating apartments, is the unequal heat and circulation from the variations in the fire from hour to hour and from day to day; and another is the over-heating of the water causing it sometimes to boil and generate steam and straining the joints of the tubes by too great expansion. These are effectually guarded against by the arrangements for controlling the draft through the furnace, the construction and operation of which are as follows—

In the furnace, the walls of which are composed of tubes, D, of a triangular form in the cross section, and so arranged that by the meeting of their edges as seen at C, the inner surface of the walls are even, and the outer surface presents a zigzag line in the cross section. These tubes are connected by main tubes, D, D, which convey the heated water to the circulating system of tubes, E. B, whence the water is supplied by pipes, B, to the open vessel, E, and thence down through vessels, G, to the headers, H B. In the vessel, E, are three floats, H, H, and I. To the floats, H, H, are connected metallic rods, K, K, which take hold of short rods, L, L, attached to the draft valve, M, and connected with the float, I, is a rod, N, which takes hold of a valve, O, above the fire, and also hold of a damper, P, placed at the end of the fire, E, which enters the smoke pipe, S, S, S.

As the temperature of the water in the open vessel, E, rises, it expands and carries up the floats, H, H, which through the rod, K, operate to close the draft valve, M, and check the fire, and the float, I, operates through the rod, N, to open the valve, O, and also the damper P. When fire is thoroughly ignited it is often difficult to check it as quick as necessary by shutting the draft below, and though the admission of a draft of cold air above the fire has a tendency to check it, yet under some circumstances it may for a while increase it, and it is therefore provided for the admission of