To all whom it may concern:

Be it known that I, WILLIAM C. BUCKHOUT, a citizen of the United States, and a resident of Yonkers, in the county of Westchester and State of New York, have invented a new and Improved Concrete Wall Construction, of which the following is a full, clear, and exact description.

This invention relates to improvements in concrete wall constructions, an object of the invention being to provide a wall in which a minimum of concrete is employed and which will be quickly dried out by reason of the air circulation therethrough.

A further object is to provide a concrete wall having an interior drainage and ventilating system.

A further object is to provide a wall which can be constructed without forms of any kind and which will result in great economy over walls such as heretofore made.

With these and other objects in view the invention consists in certain novel features of construction, and combinations and arrangements of parts, as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings—

Figure 1 is a view mainly in vertical transverse section, but partly in end elevation;

Fig. 2 is a view in section on the staggered line 2—2 of Fig. 1;

Fig. 3 is a view in cross-section illustrating a vertical assemblage of cylinders and tubes; and

Fig. 4 is a perspective view of one of the vertical tubes.

In constructing my improved wall I use outside concrete slabs 1 which may be of any desired length and width and which have tongue and groove connections at their horizontal meeting edges, as shown at 2. These slabs are also formed with recesses 8 to receive the downwardly bent ends 4 of horizontally positioned reinforcing bars 5. These bars 5 are preferably of metal and not only operate to connect the slabs 1, but also serve as reinforcements for the wall structure. Between the parallel slabs 1, 1, 1, 1, 1, I provide a plurality of porous tubes constituting a continuous air channel which will now be described.

In the lower portion of the wall a relatively large horizontal pipe 6 is located which extends longitudinally of the wall and on this pipe 6 a series of vertical tubes 7 are coupled. These tubes 7 have tongues 8 forced laterally from their ends leaving recesses 8' which, when the tubes 7 are projected into the pipe 6, insure a free passage of moisture, yet provide a firm coupling between the pipes. On the upper ends of the vertical tubes 7 transversely projecting cylinders 9 are coupled. These cylinders 9 have central openings receiving the ends of the tubes 7 and they extend close to the inner faces of the slabs 1 and have closed ends 9'. By reference particularly to Fig. 2, it will be noted that a large number of these transverse cylinders 9 are employed and have a staggered arrangement and all of the cylinders 9 are connected by the vertical tubes 7 and all of the vertical series of cylinders and tubes communicate with the lower pipe 6 and with a similar horizontal pipe 10 located in the upper portion of the wall.

The pipes 6 and 10, tubes 7 and the cylinders 9 are of porous material and I may use cardboard as a material for constructing these parts, but, of course, do not limit myself to such material as other porous material might be employed.

In constructing the wall the slabs 1, 1, are positioned, the lower pipe 6 is located centrally between them and the concrete filling 11 is located between the slabs around the pipe and as the wall increases in height, the vertical tubes 7 and cylinders 9 are assembled.

While I use the term "concrete," it is obvious that this term is used in its broadest sense to include any cement or composition which may be utilized for the purpose and the concrete is supplied in a thin or liquid form so that it completely fills in around the tubes, pipes and cylinders, and said tubes, pipes and cylinders, by reason of their porous nature, take up the moisture of the concrete by capillary attraction and allow the moisture to drain out through the system. As a free circulation of air can be maintained through the system, the concrete wall quickly sets and even though the pipes, tubes 10 and cylinders may ultimately become more or less injured or decomposed, the concrete itself will be so set as to form the honeycomb effect desired and the wall will be maintained dry and free from moisture at all times by reason of the free passage of air therethrough. Furthermore, the wall can
be cheaply constructed by reason of the economy of cement or concrete used and because all wooden forms or other forms are dispensed with as the concrete slabs each act as forms and constitute a part of the finished wall. Furthermore, a wall of this kind can be constructed by anyone of average intelligence, not requiring skilled labor, and the pipes, tubes and cylinders can be cheaply furnished and will be vastly cheaper than the amount of concrete which they displace. If desired, suitable screens 12 may be located at the ends of the pipes 6 and 10 to prevent the entrance of mice or other animals.

It is obvious that my improved wall may be utilized in connection with any desired arrangement of columns and may be joined with walls at angles thereto in any approved form, but in all constructions of wall, it is my intention to utilize the arrangement of pipes, tubes and cylinders to economize material and to insure a perfectly dry wall at all times.

Various slight changes may be made in the general form and arrangement of parts described without departing from the invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

I claim:

1. A concrete wall construction comprising two parallel series of concrete slabs, reinforcing bars connecting the slabs, a concrete filler between said series of slabs, a plurality of connected hollow cylinders of porous material embedded in said filler, said cylinders having closed ends, vertical tubes connecting the cylinders, horizontal pipes communicating with said vertical tubes, and screens positioned across the ends of said horizontal pipes.

2. A concrete wall, comprising transversely positioned cylinders embedded in the concrete of the wall, said cylinders having closed ends and having openings in their central portions, vertical tubes, laterally projecting tongues bent from the tubes forming shoulders, said tubes positioned in the openings of the cylinders with their recessed ends projecting into the cylinders, and said cylinders and tubes constructed of porous material.

3. A concrete wall, comprising parallel slabs, said slabs having tongue and groove connections and having recesses therein, transversely positioned bars located in said recesses, transversely positioned cylinders between the slabs, longitudinal pipes in the upper and lower portions of the wall between the slabs, vertical tubes connecting the cylinders and the pipes, and a filling of concrete between the slabs and around the pipes, tubes and cylinders.

WILLIAM CORNELL BUCKHOUT.