Feb. 7, 1928.

1,658,121

G. M. GRAY ET AL

HUMIDIFIER

Filed Jan. 26, 1927

Fig. 1

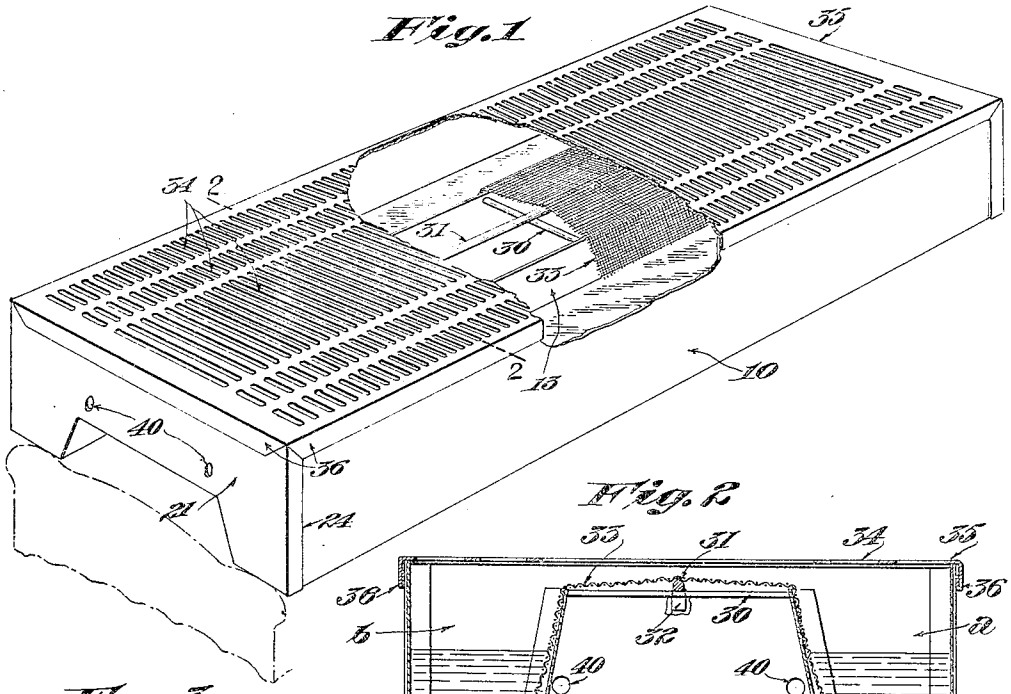


Fig. 2

Fig. 3

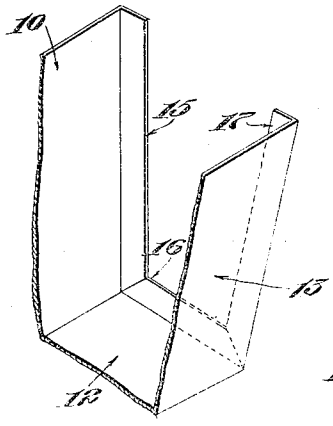
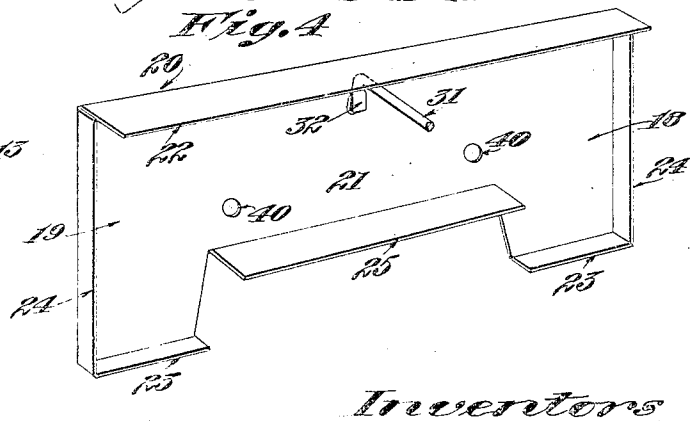


Fig. 4



Inventors

George M. Gray

Ezell T. Flint

By

Jas. H. Shumaker

Their Atty

Patented Feb. 7, 1928. 1,658,121

UNITED STATES PATENT OFFICE.

GEORGE M. GRAY, OF BROOKLINE, AND COLL T. FLINT, OF ARLINGTON, MASSACHUSETTS, ASSIGNORS TO PETER GRAY & SONS INC., OF CAMBRIDGE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

HUMIDIFIER.

Application filed January 26, 1927. Serial No. 163,784.

This invention relates to a humidifier for use with radiators, registers and the like and of that character in which the heated air from the radiator passes up through a fabric which is supplied with moisture by capillary attraction from a receptacle containing water.

The present invention has for its object to provide a simple, inexpensive and highly efficient construction of humidifier of this general character.

To this end, the humidifier is provided with two trough-like members of sheet metal spaced apart to leave an air passage between their upright walls, and connected at their opposite ends by tie members, preferably sheet metal plates, which are welded or otherwise secured liquid-tight to the opposite ends of the trough-like sheet metal members and form end walls for liquid receptacles or compartments.

The inner walls of the liquid receptacles preferably converge upwardly toward each other and preferably terminate below the level of the upper edges of the outer side walls.

The converging side walls are connected together by one or more cross rods and the end plates are also connected by one or more rods which extend between and longitudinally of the water receptacles.

The longitudinally and transversely extended rods serve to strengthen the apparatus and also form a support for the portion of an open mesh fabric which covers the space between the water receptacles, and has its free ends or sides extended down into said receptacles.

The sheet metal end plates are preferably provided with inturned flanges, for a purpose as will be described.

The apparatus will preferably be provided with a cover, as will be described.

The particular features of the invention will be pointed out in the claims at the end of this specification.

Fig. 1 is a perspective of a humidifier embodying this invention;

Fig. 2, a cross section of the humidifier shown in Fig. 1, taken on the line 2—2;

Fig. 3, a detail of one of the trough-shaped sheet metal members, and

Fig. 4, a perspective of one of the end plates.

Referring to the drawings, *a*, *b* represent two liquid receptacles, which are open at their upper ends and separated by a space *c*.

Each of the receptacles *a*, *b* is trough-shaped and provided with a substantially vertical outer side wall 10, a bottom wall 12 and an inner wall 13, which latter is inclined upwardly and outwardly from the bottom wall 12 and is preferably made of less height than the outer wall 10.

The walls 10, 12, 13 of the trough-shaped members are preferably provided with flanges 15, 16, 17 respectively, which are extended at right angles to said walls, as represented in Fig. 3.

The walls and flanges referred to are made in one piece and of sheet metal.

The sheet metal side and bottom walls of the receptacles *a*, *b*, have welded, brazed or otherwise secured to them end walls 18, 19, which form part of end plates 20, whose intermediate portion 21 serves as a time member to connect the receptacles *a*, *b*, together.

The end plates 20 are provided with top, bottom and side flanges 22, 23, 24, and the intermediate portion 21 is provided with a bottom flange 25 of greater width than the bottom flanges 23 of the end walls 18, 19 and located at a higher level than the bottom flanges 23 (see Figs. 1, 2 and 4) to stiffen the sheet metal end walls and also to provide the apparatus with end supports located between the liquid receptacles at a higher level than the bottom walls of said receptacles, so that in some cases the humidifier may be fitted over the central portion of the radiator.

The inner side walls 13 of the receptacles *a*, *b* are connected together by one or more cross bars or rods 30, which are welded to the inner side walls 13.

The intermediate portions 21 of the end plates 20 may be connected together by one or more longitudinally extended rods 31, which are provided at their opposite ends with bent fingers 32 which are welded to the said end plates.

The rods 30, 31 serve to strengthen the humidifier and also as a support for a fabric

33 having a relatively large or open mesh, and made of sufficient length to have its opposite sides or ends extend into and rest upon the bottom walls of the water receptacles *a*, *b*, so that the portion of the fabric which spans the space *c* may be supplied with liquid from the receptacles by capillary attraction, which liquid is carried off into the room by the heated air rising from the radiator and passing upwardly through the space *c*, through the wide meshes of the fabric 33, and through the openings 34 in a sheet metal cover 35 which is provided with side and end flanges 36 for engagement with the outer side walls 10 of the receptacles *a*, *b*, and the end plates 20, as represented in Figs. 1 and 2.

The humidifier herein shown, is capable of being placed upon radiators of normal width with the bottom walls 12 of the receptacles *a*, *b* resting on the radiator.

In cases where the radiator is sufficiently narrow, the humidifier may be supported by the inturned flanges 25 resting on the radiator. The upper portion of the radiator in such cases is extended into the space *c* between the liquid receptacles *a*, *b*.

The bottom flange 25 is made of sufficient length to contact with the inner walls 13 of the receptacles *a*, *b*, and serves not only to strengthen the end plates but also to support the inclined inner walls 13 at their ends, and further the ends of the flange 25 affords a means to which the inner walls 13 may be soldered, thereby strengthening the inner walls of the troughs to such extent as to enable them and the end walls to be made of relatively thin sheet metal and thereby reduce the cost of the apparatus.

By reference to Fig. 2, it will be seen that the longitudinally extended rod 31 is located above the cross bars 30 and rests thereon, and that its upper surface is at a higher level than the upper edges of the inner side walls 13 of the receptacles *a*, *b*, so that the portion of the open meshed fabric resting on the rod 31 slopes downward in opposite directions toward the receptacles *a*, *b*, which causes the liquid to crawl uphill from the receptacles and prevent accumulation of liquid to such extent as to drop down through the space *c* upon the floor or a carpet thereon, which if allowed to occur would injure the floor especially if of hard wood, and also injure the carpet if one is used on the floor.

From the above description it will be observed that a highly efficient humidifier which is light yet strong and capable of being readily handled as a unit may be produced at a minimum cost.

The intermediate portion 21 of the end plates may be provided with holes 40 for the passage of wires (not shown) by which the humidifier may be fastened to the radiator if desired.

What is claimed is:

1. In a humidifier of the character described, in combination, substantially trough-shaped sheet metal members spaced apart and open at their tops, end plates secured liquid-tight to the opposite ends of said members to form end walls of liquid receptacles and having an intermediate portion extended across the space between said members to connect said receptacles together, a relatively open mesh fabric extended across the space between said receptacles and having its ends extended into the latter, and a support for the portion of the fabric between the said receptacles, said support comprising a cross rod attached to the trough-shaped members, and a longitudinally extended rod attached to the said end plates and arranged at a higher level than the upper edges of the inner walls of said receptacles.

2. In a humidifier of the character described, in combination, substantially trough-shaped sheet metal members spaced apart and open at their tops, end plates secured liquid-tight to the opposite ends of said members to form end walls of liquid receptacles and having an intermediate portion extended across the space between said members to connect said receptacles together, said intermediate portion having its lower portion upwardly and inwardly bent to form a relatively wide flange to stiffen the said end plate and to support the inner walls of said liquid receptacles and to leave end openings between said receptacles, a relatively open mesh fabric extended across the space between said receptacles and having its ends extended into the latter, and a support for the portion of said fabric between said receptacle, said support being arranged at a higher level than the upper edges of the inner walls of said receptacles to cause the said fabric to slope downward from said support toward said receptacles.

In testimony whereof, we have signed our names to this specification.

GEORGE M. GRAY.
COLL T. FLINT.