A. K. PRUDEN.

WINTER HOG WATERER.

APPLICATION FILED JULY 29, 1918.

1,341,070.

Patented May 25, 1920.

2 SHEETS—SHEET 1.

FIG. 1

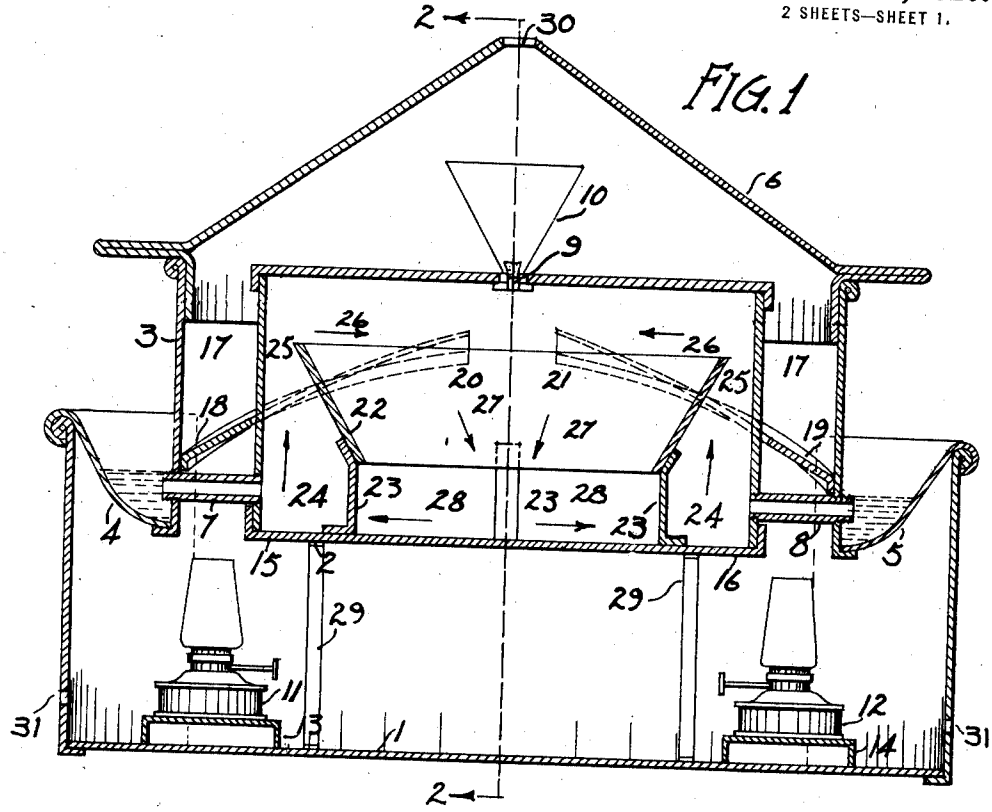
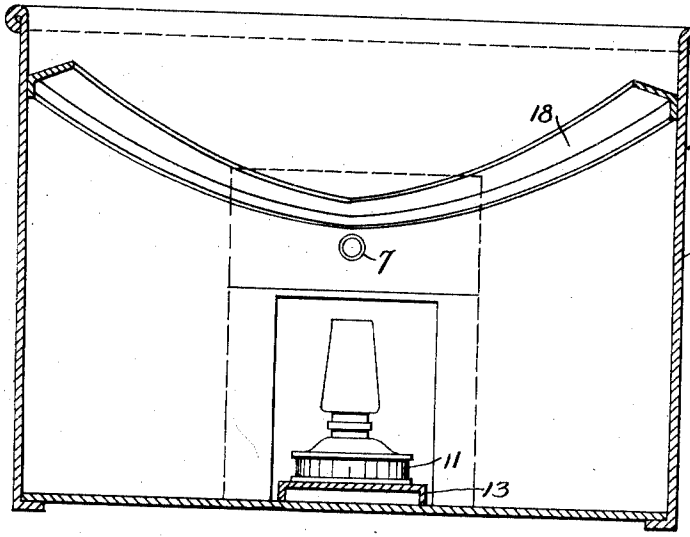


FIG. 2



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2 SHEETS—SHEET 2.

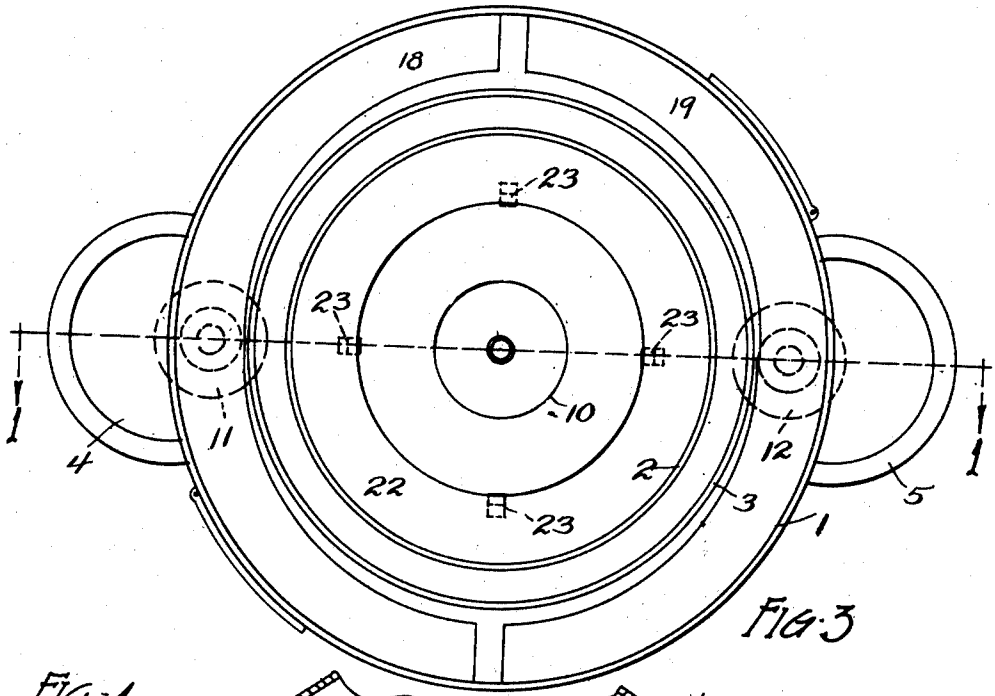
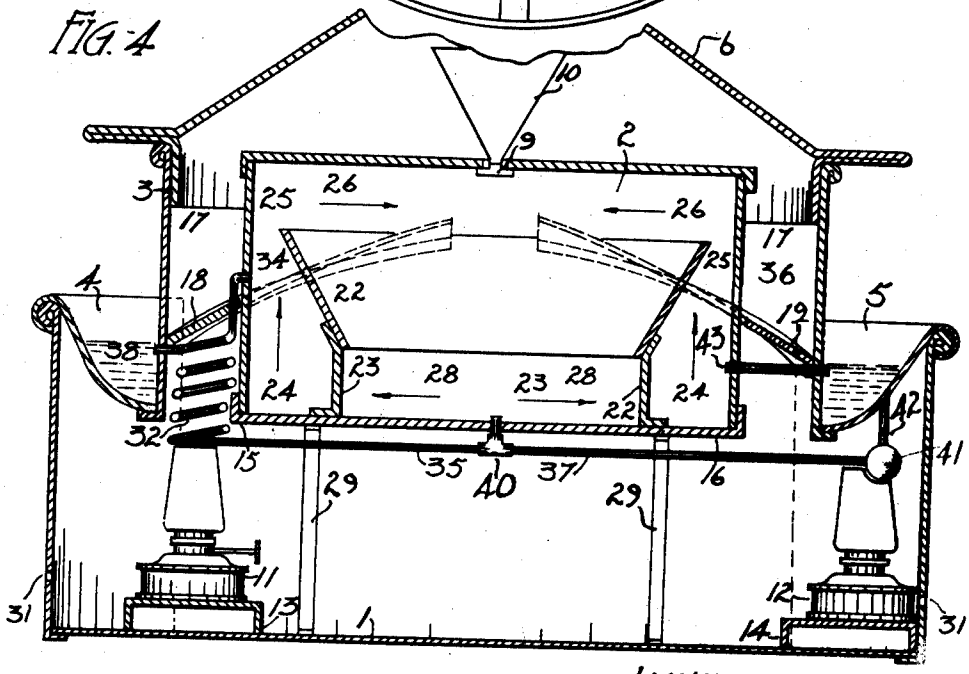


FIG. 3

FIG. 4



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UNITED STATES PATENT OFFICE.

ALLAN K. PRUDEN, OF ST. PAUL, MINNESOTA.

WINTER HOG-WATERER.

1,341,070. Specification of Letters Patent. Patented May 25, 1920.

Application filed July 29, 1918. Serial No. 247,342.

To all whom it may concern:

Be it known that I, ALLAN K. PRUDEN, a citizen of the United States, residing at St. Paul, county of Ramsey, State of Minnesota, have invented new and useful Improvements in Winter Hog-Waterers, of which the following is a specification.

One object of my invention is to provide in a winter hog waterer improved means for preventing the water therein from freezing during extremely cold weather.

Another object of my invention is to provide in a winter hog waterer, having an inner water tank, heating means and means associated therewith for deflecting the heat from said heating means so as to substantially surround the inner water tank.

Another object of my invention is to provide improved means for insuring a circulation of water in the water tank, one method of which includes a separator placed in the inner tank to guide the moving flow of water.

With these and incidental objects in view the invention consists of certain novel features of construction and combination of parts, the essential elements of which are hereinafter described with reference to the drawings which accompany and form a part of this specification.

In the drawing Figure 1 is a section taken on the line 1—1 Fig. 3, Fig. 2 is a section taken on the line 2—2 Fig. 1 with the part 2 omitted, and Fig. 3 is a plan view of the water tank in Fig. 1, but with the cover removed, and Fig. 4 is a view similar to that shown in Fig. 1 but having an additional means of heating the water.

As shown in Fig. 1 the hog waterer consists essentially of an outer casing 1 carrying therein the water tank 2 surrounded by an outer wall 3.

The casing 1 carries two drinking troughs 4 and 5 positioned diametrically opposite to each other, a cap 6 is provided to cover the water tank and the outer shell 3.

The water tank 2 communicates with the drinking troughs 4 and 5 by pipes 7 and 8 respectively, and an aperture 9 closable with a pipe plug and provided with a funnel 10 makes the filling of the water tank 2 a simple matter, as it is only necessary to close up, by suitable caps, the pipes 7 and 8, remove the plug from the aperture 9, fill the tank to the required amount, insert the plug in the aperture 9 and then remove the caps from the pipes 7 and 8, the delivery of water to the troughs 4 and 5 being of the well known fountain type.

Suitable lamps 11 and 12, carried on bases 13 and 14, provide direct heat onto the troughs 4 and 5 respectively, also to the portions 15 and 16 of the tank 2, and the pipes 7 and 8.

A considerable portion of the heat of the lamps will travel upwardly through the annular space 17 between the tank 2 and the outer shell 3; but the heated air and products of combustion will be deflected by the deflectors 18 and 19 carried by the outer shell 3, so that the heat will thus be carried to the points 20 and 21 surrounding the tank 2 with the heated air and products of combustion, but allowing a certain amount of the heated gases to pass up through the space between the deflectors and the wall of the water tank 2; this insures a substantially uniform temperature around the entire outer surface of the water tank 2.

A separator 22 of a general shape of a frustum of a cone is supported by legs 23, and is so positioned that the heated water passing upwardly in the direction of the arrows 24 will travel through a constricted annular opening 25 horizontally and downwardly in the direction of the arrows 26 and 27 and backwardly in the direction of the arrows 28 to the hottest portion of the tank the circulation thus being continuous.

By means of this separator the circulation is so arranged that the water is passing at its highest speed through the annular opening 25 along the outer wall of the tank so the flow through the body of the tank is slow and uniform and the entire mass of water is continuously in motion with a temperature as nearly uniform throughout its mass as the nature of the device will permit.

Suitable feet 29 support the water tank 2 on the floor of the outer casing 1 and the cover 6 has an aperture 30 therein to allow the products of combustion to pass therethrough after they have been deflected around the inner tank 2 so as to give up as great an amount as possible of the heat carried by the products of combustion, suitable apertures 31 are provided for allowing air to be admitted to the lamps 11 and 12 to support combustion of the fuel.

In the modification shown in Fig. 4 a coil 32 is provided in conjunction with the lamp 11, the coil connecting by the pipe 35

and T 40 with the lower part of the tank 2 and at its other end at 34 at the upper part of the tank 2. The heat from the lamps will thus force a circulation of water through the tank 2 as the hot water from the coil will enter the tank at 34 and leave at 40.

A tap is taken off of the trough 4 at 38 to replenish the trough in the usual manner.

On the other side of the tank I position the lamp 12 near the outside wall and directly under a rail L 41 which connects by the pipe 37 to the T 40 and by the pipe 42 to the trough 5, a pipe 43 connects the trough 5 with the main tank 2 both for the purpose of supplying the trough through the so called vacuum fountain system and for the purpose of circulating water through both the trough and the tank.

By this means I am able to heat the trough 5 positively and directly and on account of the rail L being positioned directly over the lamps I get a rapid forced circulation through the trough 5 and into the tank 2 so that I am able to have two drinking troughs in the same hog waterer, one of them supplying warmer water than the other and each assisting the other in circulating water through the main tank.

While I have described my invention and illustrated it in two styles, I do not wish it understood that I limit myself to this construction, as it is evident that the application of my invention may be varied in many ways within the scope of the following claims.

Claims:

1. In a winter hog waterer the combination of a water tank, an outer shell surrounding said water tank and spaced therefrom leaving an annular passage way therebetween, heating means positioned adjacent to said annular passage way, a deflector positioned in said annular passage way and adapted to deflect heat from said heating means to partially encircle said tank, a hollow frusto-conical separator positioned within said water tank having the smaller end thereof below the larger end to determine a circulation of water within said tank so water in said tank will be deflected toward the outer wall thereof as it rises between said wall and said separator.

2. In a winter hog waterer the combination of a water tank, a heating means associated therewith, a heating coil having one connection with the upper portion of said water tank and having another connection with the lower portion of said tank, and positioned above said heating means, and a deflector for deflecting heat around said tank and a hollow frusto-conical separator positioned concentrically within said tank to deflect water rising between said separator and wall of said tank toward said wall.

ALLAN K. PRUDEN.