May 15, 1923. 1,455,582

W. W. FORD

METAL COVER FOR TANKS

Filed April 17, 1922 3 Sheets-Sheet 1

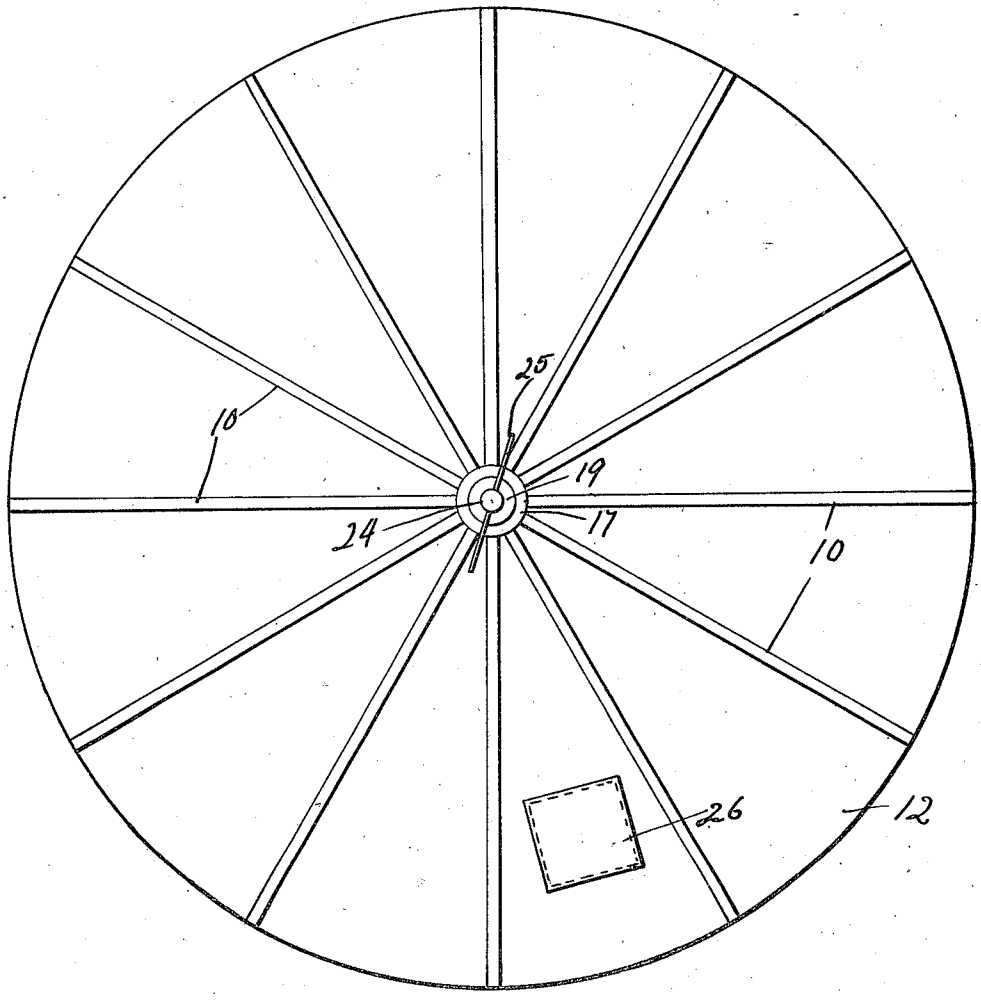


Fig. 1.

INVENTOR
William W. Ford
By W. W. Williamson Atty.

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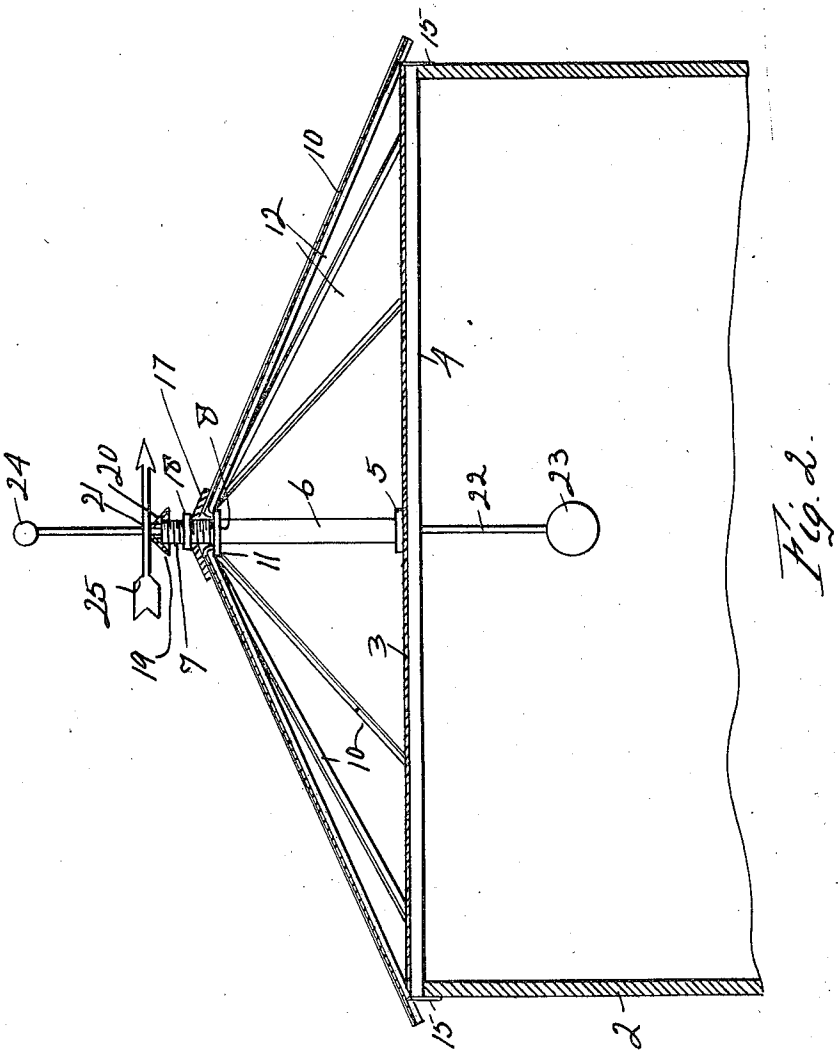


Fig. 2.

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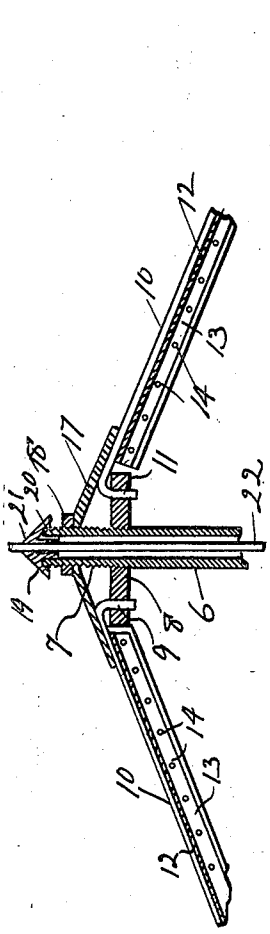


Fig. 3.

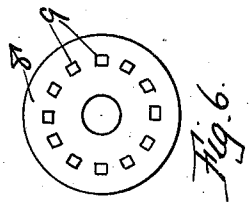


Fig. 6.

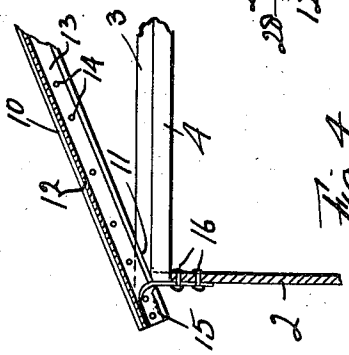


Fig. 4

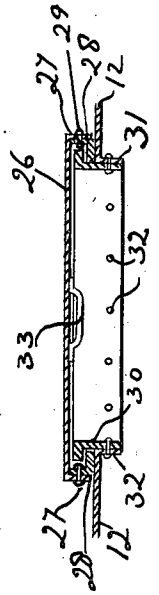


Fig. 5.

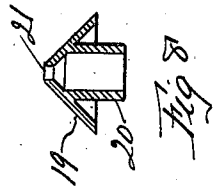


Fig. 8

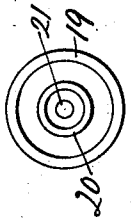


Fig. 7

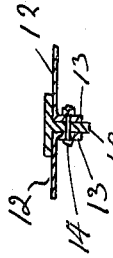


Fig. 9.

INVENTOR

By William W. Ford

W. W. Williamson Atty.

Patented May 15, 1923. 1,455,582

UNITED STATES PATENT OFFICE.

WILLIAM W. FORD, OF PHILADELPHIA, PENNSYLVANIA.

METAL COVER FOR TANKS.

Application filed April 17, 1922. Serial No. 553,843.

To all whom it may concern:

Be it known that I, WILLIAM W. FORD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in a Metal Cover for Tanks, of which the following is a specification.

My invention relates to new and useful Improvements in a metal cover for tanks, particularly such tanks as are used for the storage of water in elevated positions as on towers or the crude roofs of buildings, and has for its object to provide a combination of structural elements so arranged as to protect the different fastening devices from the severe actions of the natural elements.

Another object of the invention is to provide a metal cover that may be readily applied to tanks already in use and when in place cannot be dislodged by ordinary high winds.

Another object of the invention is to provide in combination with such a cover an indicator or signal that will indicate approximately the height of the water in the tank to a certain extent.

A further object of the invention is to construct a cover comprising a central tubular king post having a collar threaded on its upper end to which are connected radiating T-irons between which are secured segments of sheet metal underlying the flanges forming the arms of the T, a frusto-conical hood overlying the upper ends of the T-irons and segmental plates, said hood being held in place by a nut threaded on the king post and the whole surmounted by a cap.

A still further object of the invention is to provide a unique construction of trap door for such a cover.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains, may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawings forming a part of this application, in which:—

Fig. 1, is a plan view of a cover constructed in accordance with my invention.

Fig. 2, is a vertical sectional view thereof showing its arrangement in conjunction with a tank.

Fig. 3, is an enlarged fragmentary sectional view of the cover in the region of its apex.

Fig. 4, is a view similar to Fig. 3 in the region of the eaves.

Fig. 5, is a detail sectional view of the construction and mounting of the trap door.

Fig. 6, is a plan view of the perforated collar.

Fig. 7 is a bottom view of the cap surmounting the king post.

Fig. 8 is a vertical sectional view of said cap.

Fig. 9, is an enlarged detail sectional view of one of the T-iron ribs and adjacent segmental plates illustrating the manner of securing the parts together.

In carrying out my invention as here embodied, 2 represents a tank of any suitable or well known construction and made of wood, metal or any other suitable material the free end of which is covered by a top 3 disposed across the upper edge and preferably flush with the outer surface of the side walls and said top is generally supported by a beam 4 suitably supported by the side walls of the tank.

Fastened to the top 3 centrally thereof is a pipe flange 5 to which is attached the tubular king post 6 rising any desirable distance above the top 3 to provide a proper pitch for the cover. The upper end of the king post is exteriorally threaded as indicated at 7 whereby a collar 8 may be mounted thereon by threaded engagement therewith and this collar is provided with a plurality of perforations 9 arranged in a circle adjacent the outer circumference.

The reference numeral 10 denotes a plurality of T-irons each of which has a portion of its body flange cut away at its upper end and the arm flanges reduced and bent to produce a hook 11 for insertion in the perforations 9 of the collar 10 and when the upper hooked ends of said T-irons are connected to the collar they form radiating supporting ribs with their lower ends resting upon the tank top 3 but projecting beyond the circumference of said top or the side walls of the tank. In order to provide a close fit between the cover and the tank top and eliminate any space between these parts

as far as possible the said tank top 3 is grooved as at 11 to receive the body flanges of the T-irons.

Between the T-iron ribs are located the segmental plates 12 having the general outline of an acute triangle. The side edges of these plates are bent inwardly at right angles to form flanges 13 which abut the body flanges of the T-iron ribs and with the adjacent edges of the plates underlying the arm flanges of said T-irons and said plates are attached to the T-iron ribs by suitable fastening devices 14, such as rivets, bolts and nuts or their equivalent.

To the outer or lower ends of certain of said T-iron ribs, every other one or all of them, are secured brackets 15, said brackets also being fastened to the side walls of the tank by suitable fastening means 16. One of the arms of each of these brackets is secured to the body flange of a T-iron as plainly shown in Fig. 4 so that the fastening means for the brackets do not pass through the top of the cover and like the fastening devices for the segmental plates are protected from the weather.

On the upper end of the king post 6 is loosely mounted a frusto-conical hood 17 which forms the apex of the cover and bridges the space between the upper ends of the T-iron ribs and segmental plates so as to close this opening space and protect the connections between the different parts. This hood is held in place by a nut 18 threaded on the upper end of the king post and when said nut is jambed home the hood will be held in contact with the upper ends of the ribs and plates thereby preventing the accidental displacement thereof.

The king post is surmounted by the frusto-conical cap 19 having a sleeve 20 snugly fitting the bore of the king post and telescoping therein the said cap having a hole 21 for the purpose to be later described. By eliminating the hole 21 the king post will be closed so as to prevent rain, snow or any foreign matter entering the same.

In order to indicate the heighth of the water within the tank a rod 22 is mounted in the king post with one end projecting through the hole 21 in the cap 19 and the other end passing through the top 3 and beam 4. On the lower end of the rod is mounted a float 23 while the upper end carries any suitable ornamentation such as a ball 24. If found desirable a weather vane 25 may be journalled on the rod 22 above the cap 19.

In order to enter the tank I provide a trap door 26 having inturned sides or flanges 27 to each of which is secured an angle iron 28 by suitable fastening devices 29, such as rivets and one of the flanges of each of these angle irons projects inward and underlies the outwardly projecting flange of the angle iron frame 30 which frame is preferably rectangular in shape and fits within a hole formed in one of the segmental plates 12, the edges of said plate in the region of said hole being bent inward to form the inturned flanges 31 which are secured to the substantially vertical flanges of the frame by suitable fastening devices 32, such as rivets or their equivalent. Such a construction will permit the trap door to slide back and forth and in order to limit the movements of said door and at the same time provide means for actuating the same a suitable handle 33 is secured to the inside thereof which will contact with the end walls of the frame 30 to stop the trap door in either an open or closed position.

By constructing a metal cover in this manner all joints are so covered that any water will be shed therefrom and as practically all of the fastening devices are beneath or inside of the cover they are protected from the weather and therefore will not readily rust so that the life of such a cover will be greatly increased. Further all of the parts are so arranged that it will be practically impossible for high winds to lift the same from its fastenings.

With an indicator such as is herein illustrated and described the person attending to a tank of this character may readily ascertain by the position of the outer end of the rod 22 the level of the water within the tank so that when the water reaches a low level the additional quantity may be placed therein.

Of course I do not wish to be limited to the exact details of construction as herein shown as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is:—

1. A metal covering comprising in combination, a king post, a perforated collar having threaded connection with said king post, ribs of T-iron having hooked inner ends connected with said collar through the medium of the hooks entering the perforations thereof, plates located between said ribs and underlying the oppositely projecting arm flanges of said ribs, said plates having their side edges bent inwardly to form flanges coacting with the body flanges of the ribs, means for fastening said plates to said ribs, a frusto-conical hood loosely mounted upon the king post and overlying the upper ends of the ribs and plates, means for threaded connection with the king post to engage the hood and thereby hold said parts together, and a cap mounted on the upper end of the king post.

2. A metal cover comprising in combination, a king post, a perforated collar having threaded connection with said king post,

ribs of T-iron having hooked inner ends connected with said collar through the medium of the hooks entering the perforations thereof, plates located between said ribs and underlying the oppositely projecting arm flanges of said ribs, said plates having their side edges bent inwardly to form flanges coacting with the body flanges of the ribs, means for fastening said plates to said ribs, a frusto-conical hood loosely mounted upon the king post and overlying the upper ends of the ribs and plates, means for threaded connection with the king post to engage the hood and thereby hold said parts together, a cap mounted on the upper end of the king post, one of said plates having a hole therein with portions of the metal surrounding said hole bent inward to form flanges, a frame of angular cross section mounted within said hole so that its outer flange is spaced from the outer face of the plate, means for fastening said frame to the plate flanges, a trap door having inturned flanges, angle irons fastened to said flanges inside of the same, said angle irons having one of their flanges projecting inwardly and underlying the outer flanges of the frame whereby the trap door is slidably mounted on said frame, and a handle secured to the inside of the trap door whereby said door may be actuated, the said handle also contacting with the frame when the door is in certain positions to thus limit the movements of said door.

3. In a device of the character stated, the combination with a tank of a metal cover consisting of a tubular king post carrying a flange at its lower end for securement to the top of the tank, a perforated collar having threaded connection with the upper end of the king post, ribs of T-cross section having hooks formed from their upper ends to register with the perforations in the collar, said ribs radiating from said collar and inclined therefrom to a point beyond the outer edge of the tank, segmental plates secured to the body flange of the ribs and underlying the arm flanges thereof, brackets secured to the body flanges of certain of said ribs and underlying said segmental plates and further fastened to the side walls of the tank, a hood on the king post and overlying the upper ends of the ribs and plates, means for holding said hood in place and through the medium of said hood the ribs on the collar, and a frusto-conical cap at the top of the king post and having a sleeve telescoping therein.

4. In a device of the character stated, the combination with a tank of a metal cover consisting of a tubular king post carrying a flange at its lower end for securement to the top of the tank, a perforated collar having threaded connection with the upper end of the king post, ribs of T-cross section having hooks formed from their upper ends to register with the perforations in the collar, said ribs radiating from said collar and inclined therefrom to a point beyond the outer edge of the tank, segmental plates secured to the body flange of the ribs and underlying the arm flanges thereof, brackets secured to the body flanges of certain of said ribs and underlying said segmental plates and further fastened to the side walls of the tank, a hood on the king post and overlying the upper ends of the ribs and plates, means for holding said hood in place and through the medium of said hood the ribs on the collar, a frusto-conical cap at the top of the king post and having a sleeve telescoping therein, a rod having vertical movement passing through the king post, the cap thereon and the cover of the tank, a float carried by the lower end of said rod, and an ornamental device carried by the upper end of said rod, said rod acting as an indicating device to indicate the approximate level of the water within the tank.

In testimony whereof, I have hereunto affixed my signature.

WILLIAM W. FORD.