

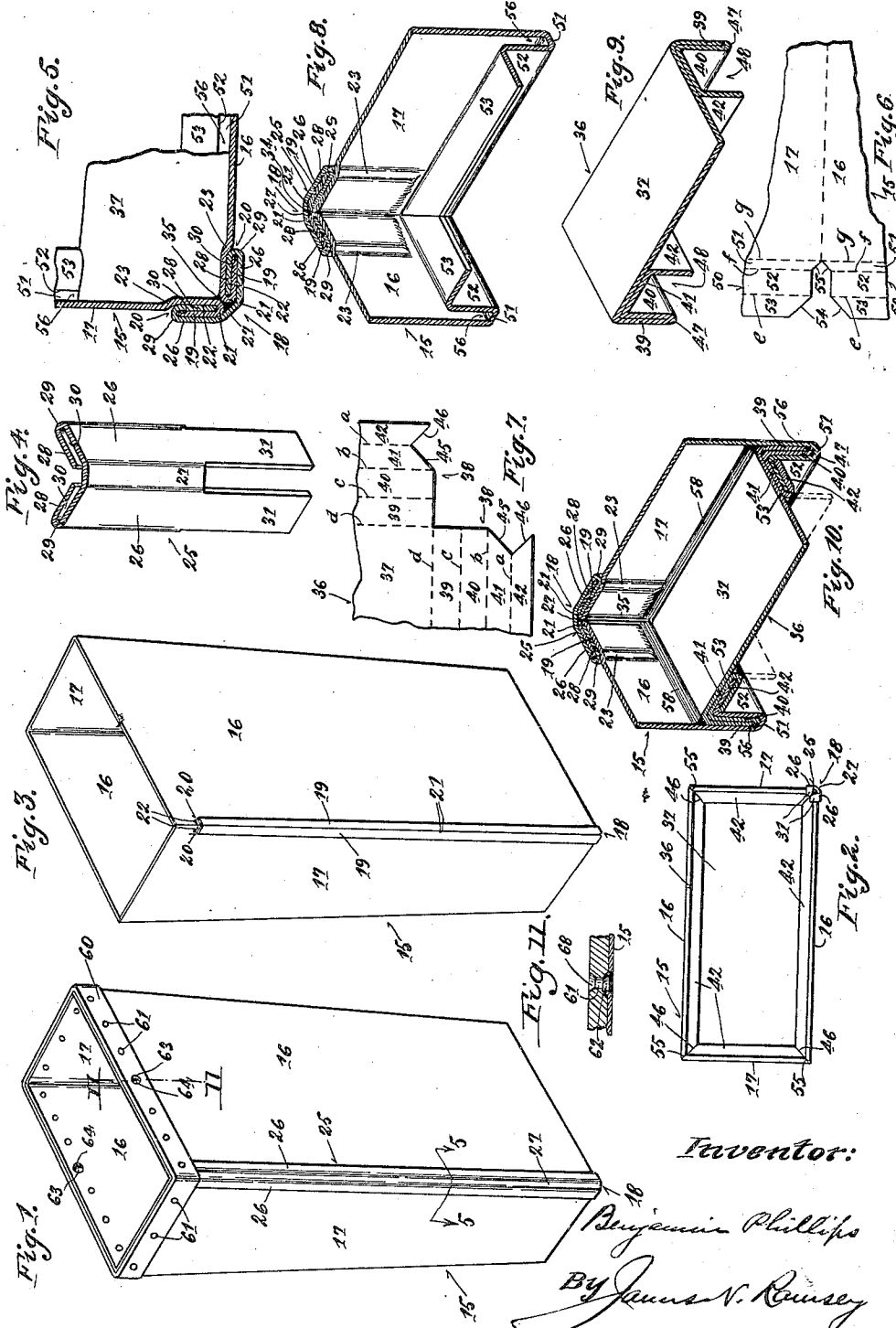
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ICE CAN

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## UNITED STATES PATENT OFFICE.

BENJAMIN PHILLIPS, OF CINCINNATI, OHIO.

## ICE CAN.

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*To all whom it may concern:*

Be it known that I, BENJAMIN PHILLIPS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and the State of Ohio, have invented certain new and useful Improvements in Ice Cans, of which the following is a specification.

My invention relates to ice cans for the freezing of ice in refrigerating systems, where the can is filled with water and placed in a freezing brine solution. The brine moreover exerts a powerful corrosive action on ferrous metals.

Heretofore, it has been the practice to employ ice cans made of sheet metal coated with a non-corrosive metal, such as zinc, in the form of galvanizing, known as galvanized iron. Also, they have not been so constructed as to avoid leakage through the seams due to corrosion after a period of use, which permits the brine to enter the interior of the ice can and destroy the purity of the water, delaying the freezing thereof. The cans heretofore made have had their joints held together by rivets. The brine rapidly corrodes the rivets causing the joints to open, shortening the life of the can. Another method that has been employed, is to secure the joints by welding. This has not been found to be satisfactory, in that the structure of the metal itself is changed at the weld. The difference in expansion and contraction between the metal at the welds, and the surrounding metal causes opening of the joints, thus permitting the brine to enter.

One of the objects of my invention is to provide an ice can so constructed as to be of great durability and have no obstructions on the outside thereof, so as to avoid interference with other cans placed adjacent thereto.

Another object of my invention is to provide a can constructed with interlocking seams at the joints, so as to be absolutely water-tight, and yet readily assembled and soldered.

It is another object of my invention to so construct the seams as to lend additional strength to the can, and also to form these seams in their relation to one another, as to require a minimum of solder, thus making a very economically constructed can. I refer more particularly to the vertical seams.

My invention consists in constructing an

ice can, having one or more vertical seams held together by a specially formed closure strip and so placed and formed as to leave a minimum of space to be filled by the solder.

My invention further consists in the manner of attaching the bottom of the can to the sides, whereby it is readily assembled and clinched together in a simple manner, and further to so construct the seams thereof as to form a rigid reinforcement for the body of the can.

My invention further consists in the parts, and combination and arrangement thereof, as herein described and claimed.

In the drawings:

Fig. 1 is a perspective view of my improved ice can.

Fig. 2 is a bottom view thereof.

Fig. 3 is a perspective view of the casing of the ice can, formed to shape, preparatory to assembling, showing the flanges for forming the vertical seams.

Fig. 4 is a perspective view of a portion of the closure strip for closing the vertical seams.

Fig. 5 is a horizontal cross section taken in a plane corresponding to the line 5—5 of Fig. 1, showing the manner in which the closure strip is applied to the flanges to form a water-tight seam, and also the manner in which economy is had in the use of solder in making this joint water-tight.

Fig. 6 is a plan view of one of the lower corners of the sheet forming the sides of my improved ice can, laid out in plane to show the contour of the lower edges.

Fig. 7 is a plan view of the bottom of one corner of my improved ice can laid out in plane to show the contour of the edges.

Fig. 8 is a perspective view of one of the lower inside corners of the ice can, with the bottom removed, showing the manner in which the lower edges are formed.

Fig. 9 is a perspective view of one of the corners of the bottom of the ice can, showing the manner in which the edges thereof are formed preparatory to assembling.

Fig. 10 is a perspective view of the lower inside corner of a completed ice can, showing the manner in which the bottom is placed in the casing, the seams interlocked and the solder applied.

Fig. 11 is a horizontal cross section taken on the line 11—11 of Fig. 1 showing the manner of securing the band to the casing.

My improved ice can comprises a casing 15, consisting of sides 16 and ends 17. The sides and ends may be formed of one or more sheets joined by vertical seams 18. I have 5 illustrated my improved ice can as having one vertical seam, but it is obvious that a seam can be made at all of the corners. The seam 18 is made as by having the edges of the sheet formed into flanges 19 parallel 10 therewith. The flanges and the portions of the sheet adjacent thereto form channels 20. The bottoms of the channels are formed by bends 21 which join the flanges to the sheet.

Depressions 22 form the inner walls of 15 the channels, and are connected to the main body of the sheet by double bends 23, which greatly add to the strength and rigidity of the sides. The depressions also form a means whereby the closure strip, hereafter 20 described, is held more firmly in place.

For closing the seam, a closure strip 25 comprises side walls 26 connected by an angular corner wall 27. Flanges 28 parallel to the side walls 26 are connected by bends 25 29 to form channels 30. The closure strip is adapted to be forced over the flanges on the casing of the ice can. The flanges 18 on the casing enter the channels 30 on the closure strip, and the flanges 28 on the closure 30 strip enter the channels 20 on the casing, thus securely joining the edges of the casing to form an interlocking seam.

The side walls 26 have extensions 31 on 35 their lower end for purposes hereafter described.

After the seam has been formed, a body of solder is run into the inside corner, filling up the space 34 formed between the angular corner wall 27 on the closure strip and the 40 bends on the casing. A fillet 35 is formed in the corner of the can by the solder, lending additional strength to the seam. The flat corner wall closely follows the contours of the bends 21 and a line tangent thereto, providing a stronger connection than if the side 45 walls of the closure strip were continued to meet at a sharp corner. The space occupied by the solder is therefore greatly reduced forming a very economical method of making 50 a water-tight seam.

The bottom wall 36 of the can comprises a main portion 37 having extensions 38 on the four edges thereof. Each of the extensions consists of down turned portion 39, up- 55 turned portion 40, horizontally turned portions 41 and a closure flange 42. The horizontally turned portions have miters 45 on each of their respective ends. The closure flanges have miters 46 on their ends. In 60 forming the edges of the bottom, the closure flanges 42 are bent downward on the dotted line indicated at "a" (see Fig. 7). The horizontal portions 41 are then bent on the dotted line "b." The upturned portions 40 65 are next bent back on the downturned por-

tion 39 on the dotted line "c." The downturned portion is then bent at right angles to the main portion 37 on the dotted line "d," the horizontal portions 41 contacting 70 the bottom of the main portion. The downturned portions and the upturned portions together form downwardly projecting flanges 47 on the extreme edges of the main portion. The flanges 47 together with the horizontal 75 portions and the closure flanges 42 form channels 48. The miters 45 and 46 on the horizontal portions and closure flanges respectively, permit them to lie in coincident planes.

Each of the sides of the casing are provided with extensions 50. Each of the extensions comprises a horizontal portion 51, 80 upturned portion 52, and horizontally turned flanges 53. The extensions are bent at right angles on the dotted line indicated at "e" 85 (see Fig. 6), to form horizontally turned flanges 53. The upturned portion 52 is bent at right angles to the flanges 53 on the dotted line "f." The horizontally turned portions 51 are bent on the dotted line "g" and 90 form a connection between the upturned portions and the sides of the casing. The portions 53 have miters 54 on their respective ends and the horizontally turned portions 51 have miters 55 on their ends permitting 95 them to lie in coincident planes. The horizontally turned portions 51 and vertically turned portions 52 form channels 56 along the lower edges of the casing and parallel thereto. 100

The bottom, formed as described, is placed within the casing and forced downward until the flanges 47 enter the channels 56. The upturned portions 52, and the horizontal flanges 53 on the bottom, enter the 105 channels 48 on the bottom wall. The downwardly depending closure flanges 42 are then turned over the horizontal flanges 53 on the casing and lie flat thereon, effectively locking the bottom in place. The coacting 110 channels and flanges form interlocking seams, providing an extremely rigid reinforcement for the bottom of the ice can. After the bottom has been locked in place, solder is run into the corners so as to form 115 fillets 58. After the bottom seams are closed, the extensions 31 on the closure strip are bent over the edges on the seam and soldered in place forming an additional means for 120 securing the closure strip and providing against its dislodgment. The solder and the interlocking flanges and channels, form extremely light weight and durable water-tight seams in the bottom of the ice can.

The upper edges of the tank are reinforced by a heavy metal band 60 held in 125 place by rivet 61. The heads of the rivet are preferably countersunk as shown at 68 on the outside of the band, and the heads of the rivets on the inside of the tank are pref- 130

erably countersunk lower than the surface as shown at 62. A body of solder is run into the cavity thus formed to preserve them against corrosion. This part of the tank, however, does not enter into the brine, therefore the corrosive action is reduced to a minimum. Holes 63 in the band coinciding with holes 64 in the sides of the casing, provide a ready means for grasping the ice can with suitable hooks and tackles, as is the practice to employ in refrigerating plants.

What I claim as new and desire to secure by Letters Patent, is—

1. An ice can comprising side walls, seams joining said side walls, a solder holding space in said seams and means to reduce said solder holding space, a channel on the inside of said side walls, a horizontal flange formed on said channel, a bottom wall, depending flanges on said bottom wall, a chan-

nel therein adjacent said depending flanges, one of said depending flanges received in said first named channel, said horizontal flange received in said second named channel and means for locking said depending flange and horizontal flange in said channels.

2. In an ice can, a seam, side walls, a bottom wall joined by said seam, said seams consisting of a channel formed on said side walls, a horizontal flange on said channel, a depending flange on said bottom wall adapted to enter said channel, a channel in said bottom wall adjacent said depending flange in which said horizontal flange is received, a second flange on said bottom wall adapted to fold over said horizontal flange whereby said first and second named flanges are held in said channels.

BENJAMIN PHILLIPS.