July 19, 1932. A. H. BAER 1,867,546

QUICK FREEZE TUNNEL

Filed Oct. 16, 1930

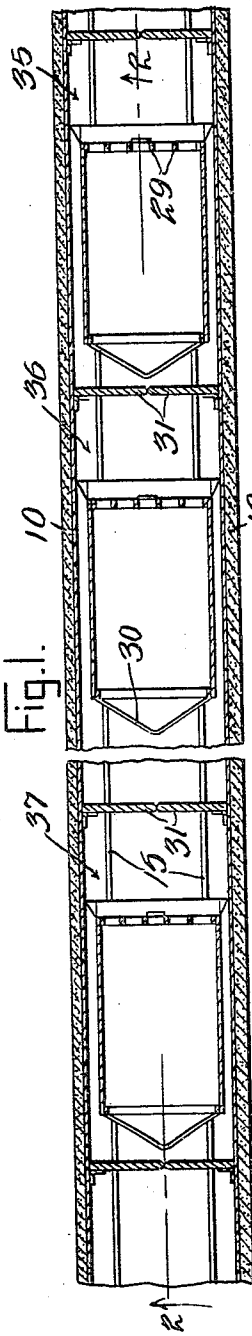


Fig. 1.

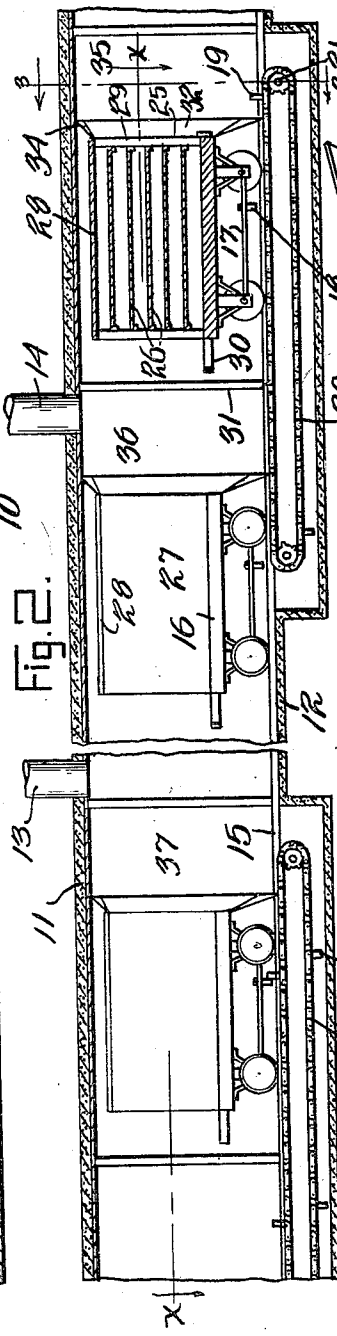


Fig. 2.

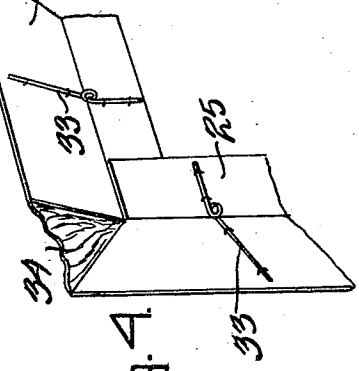


Fig. 4.

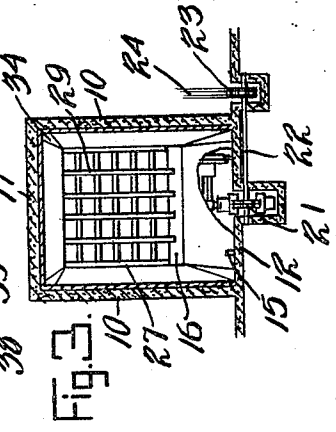


Fig. 3.

Inventor
Alvin H. Baer

By

Attorney

Patented July 19, 1932 1,867,546

# UNITED STATES PATENT OFFICE

ALVIN H. BAER, OF WAYNESBORO, PENNSYLVANIA, ASSIGNOR TO FRICK COMPANY, OF WAYNESBORO, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

## QUICK FREEZE TUNNEL

Application filed October 16, 1930. Serial No. 489,165.

This invention relates to refrigerating tunnels and to apparatus for conducting articles to be refrigerated through the tunnel.

An object of the invention is to provide a system which will be more economical in the use of refrigerated air and in which moisture laden air from the outside will be better avoided.

A further object is to provide a refrigerating tunnel system which may be operated with less effort on the part of the attendants and one in which it would be less necessary for the attendants to enter into the cold or refrigerating atmospheres in the several freezing chambers.

Further objects and advantages will become apparent as the description proceeds.

Referring to the accompanying drawing, which is made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a sectional plan view of the device,

Figure 2, a sectional elevation of the tunnel showing the conveying cars mounted therein,

Figure 3, a section on line 3—3 of Figure 2, and

Figure 4, a detail view showing air sealing wings mounted on the cars.

In the drawing numeral 10 indicates side walls of a tunnel and 11 the ceiling of the tunnel, these walls being made of any suitable heat insulating material such for example as cork-board. The floor of the tunnel 12 may be made of concrete having suitable heat insulating material incorporated therein. 13 and 14 indicate inlet and outlet connections for refrigerating air which is circulated through the tunnel. Obviously the air may be circulated in either direction although under most circumstances it will be preferable to have the cold air currents run in the opposite direction of travel of the cars containing the objects to be refrigerated. Within the tunnel are tracks 15 upon which trucks or cars 16 are mounted. Secured to a bar 17 beneath the truck is a depending pin or bar 18 for engagement by lugs 19 on a sprocket chain, belt or cable 20 for driving the cars. The chain 20 may be driven in any suitable way as by means of a sprocket or pulley 23 driven by a sprocket chain, or cable or belt 24. While the driving means are shown as located at the bottom of the tunnel, it is not necessary that they be so located. They may be placed overhead or at either side of the tunnel with suitable provision for engaging with the truck to drive it. The trucks or cars consist of wheel trucks of usual construction. Each truck will have built thereon a frame 25 within which there may be one or more shelves or trays 26 upon which the articles to be refrigerated will be placed. The platform of the truck and the side walls 27 and top 28 will be substantially closed against air leakage, although not necessarily air-tight. The ends of the frame may be provided with lattice work 29 to permit air to pass lengthwise of the trucks and over the articles contained on the shelves or in the trays. The forward ends of the trucks may be provided with pointed bumpers 30 for engaging doors 31 which are hinged to the sides of the tunnel and which open to permit the cars to pass through the tunnel but which automatically close after the cars have passed through. The trucks are provided with aprons on their sides and top and bottom to prevent cold air from passing around the trucks and to cause it to be directed through the shelves containing articles to be refrigerated. These aprons 32 may be hinged to the sides 25 of the frame and are provided with springs 33 to press their edges against the inner walls of the tunnel. The aprons may be located at any point along the side of the truck and preferably extend substantially at right angles to the sides of the trucks so that the truck may be readily moved in either direction. The aprons are resiliently held against the tunnel walls so as to prevent air from passing around them.

In operation assuming that the cars travel from right to left, i. e. in the direction of the pointed bumpers on their ends the cars will be loaded and pushed into the anteroom 35 from where they will be conveyed into the refrigerating room by means of the conveyor 20 in the manner described. As soon as the first

car has been carried entirely into the room the lug on the chain will have been disengaged from the lug on the car and the car will stop. The next car entering the room will push the one in front of it forward. Cold air entering through the pipe 13 and out through the pipe 14 will refrigerate the contents of the cars. The aprons 32 will prevent the air from passing around the sides of the cars and will direct it almost entirely through the shelves or trays containing the goods to be refrigerated or frozen. As new cars are pushed into the refrigerating room the foremost car will be pushed on to the outlet end of this room and as the contents become sufficiently refrigerated the cars will be conveyed into the anteroom 37. Lugs 39 on a sprocket chain 38 here engage the lugs on the cars and move the cars out to the positions at which they are unloaded.

By the use of my device it will be clearly seen that cold air is caused to travel only over the goods to be refrigerated and over the necessary containers for these goods. This makes it unnecessary to refrigerate and circulate large volumes of air, a large portion of which would not be utilized in the actual refrigerating work. This results in economy of power since it is unnecessary to have large fans with the resulting necessity of having larger motors to drive them. Moreover by the use of the conveyors it is unnecessary for the workmen to enter into the cold chambers. This not only avoids unnecessary labor but is also an economy in that there is less loss of refrigerated air for whenever the workman is required to enter a refrigerated chamber the frequent opening of doors will admit a considerable quantity of warmer air from the outside which will affect the temperature in the cold tunnel and also add additional refrigeration duty and horsepower. In addition there is considerable heat admitted by the workman's body that must be removed by the refrigerating system. The admission of considerable air from the outside will furthermore result in adding large amounts of vapor carried by such air which will later be deposited in the form of frost on the refrigerating surfaces used in cooling the air, requiring more frequent removal or resulting in a more rapid reduction of efficiency. By the use of the aprons moreover there is little loss of refrigerated air as the cars enter the refrigerating chamber.

It will be obvious to those skilled in the art that various changes may be made in my device without departing from the spirit of the invention and, therefore, I do not limit myself to what is shown in the drawings and described in the specification, but only as indicated in the appended claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. A refrigerating tunnel comprising walls of insulating material, trucks movable through said tunnel, said trucks having means thereon for preventing air passing around the sides of the trucks and to cause it to pass only through predetermined channels across the trucks, said means comprising wings resiliently mounted in the frame of the truck and adapted to be pressed against the inner walls of the tunnel, substantially as set forth.

2. A refrigerating tunnel comprising walls of insulating material, trucks movable through said tunnel, said trucks having means thereon for preventing air passing around the sides of the trucks and to cause it to pass only through predetermined channels across the trucks, said means comprising wings resiliently mounted in the frame of the truck and adapted to be pressed against the inner walls of the tunnel, said wings have flexibly connected end portions for engaging the corners of the tunnel to further provide against passage of air along the walls of the tunnel outside of the body of the trucks, substantially as set forth.

3. A refrigerating apparatus comprising a tunnel divided into a plurality of compartments, cars movable through said tunnel, means for circulating refrigerating air or gas through one of said compartments, means on said cars for directing the refrigerating air or gas through the contents of the cars and for preventing its passage along the sides and tops of the cars, and means for moving a car into the refrigerating compartment and then releasing it, the car being moved through the compartment by the car next following it, substantially as set forth.

4. A refrigerating apparatus comprising a tunnel divided into a plurality of compartments, cars movable through said tunnel, means for circulating refrigerating air or gas through one of said compartments, means on said cars for directing the refrigerating air through the contents of the cars and for preventing its passage along the sides and tops of the cars, and means for moving the cars into the refrigerating compartment and separate means for moving them after they have passed through the refrigerating compartment, substantially as set forth.

5. The combination with a refrigerating tunnel of trucks movable therethrough, said trucks having means for preventing air passing about their sides, said means causing the air to pass only through predetermined channels across the trucks, said means comprising wings engageable with the inner walls of the tunnel, substantially as set forth.

6. A refrigerating apparatus comprising a tunnel having cars movable therethrough, means for circulating refrigerating air or gas through the tunnel, means on the cars for directing the refrigerating air through the contents of the cars and for preventing

its passage along the sides and tops of the cars, and means for moving the cars into the tunnel, and separate means for moving them after they have passed through refrigerating compartments in the tunnel, substantially as set forth.

In witness whereof, I have hereunto set my hand at Waynesboro, Pennsylvania, this 14th day of October, A. D. nineteen hundred and thirty.

ALVIN H. BAER.