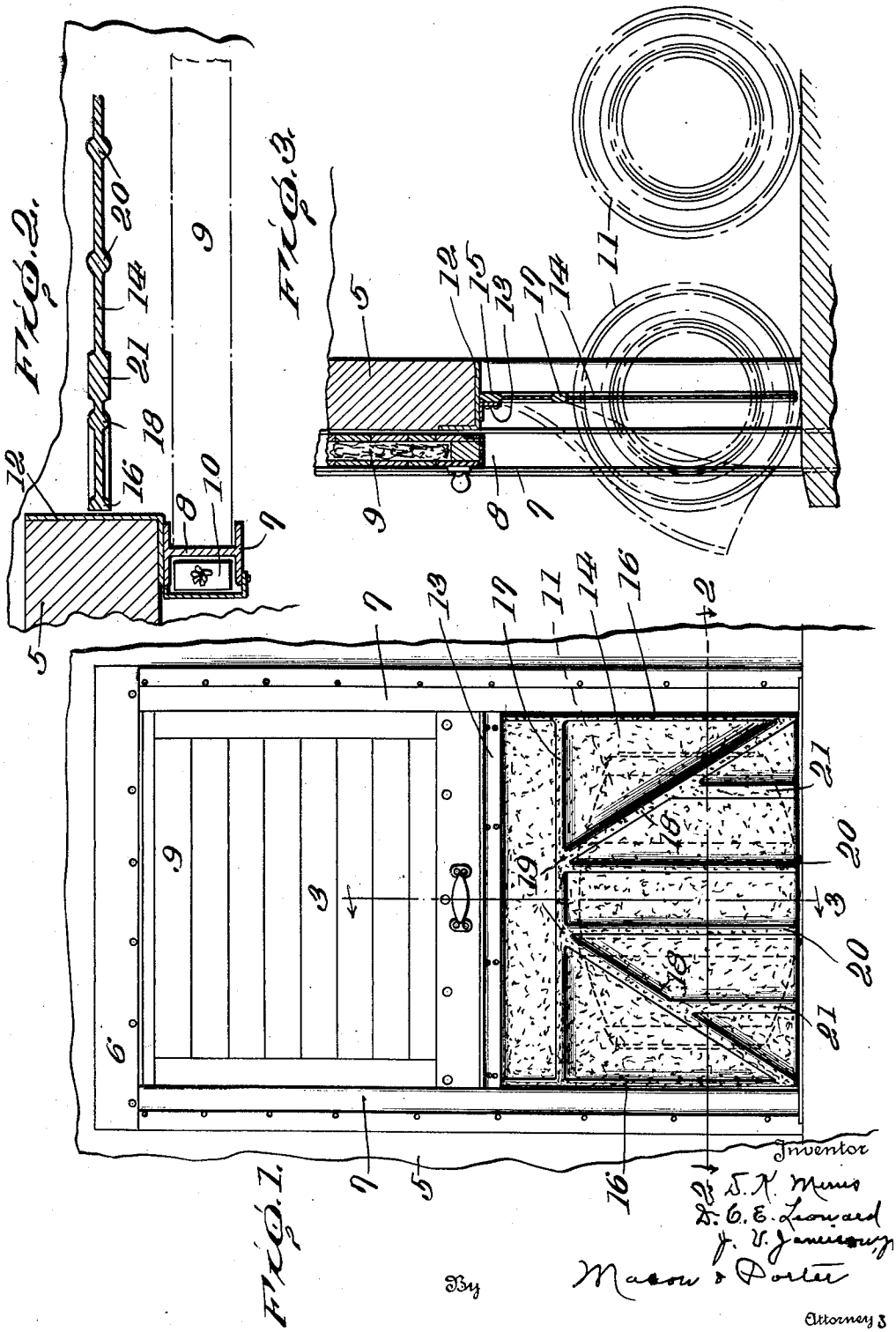
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FLEXIBLE CURTAIN FOR DOORWAYS

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FLEXIBLE CURTAIN FOR DOORWAYS

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5 Claims. (Cl. 156—10)

The invention relates to new and useful improvements in a flexible curtain for doorways, such for example as a doorway leading to or from a refrigerated or air-conditioned chamber.

It is a common practice in connection with refrigerated chambers in breweries, cold storage warehouses, packing plants and other commercial air-conditioned structures, to provide a doorway through which the packages of merchandise are passed, and to maintain said doorway closed by means of a suspended flexible curtain. Such curtains as heretofore used are subject to wear in the region where the curtain is flexed and soon becomes destroyed. Then again, the curtains as heretofore manufactured are likely to warp and become bowed so that they do not properly close the opening. Stiff closures have been hingedly supported in openings for closing the same, but these stiff closures are apt to injure the packages of merchandise which contact therewith to effect the opening of the passage.

An object of this invention is to provide a flexible curtain for the above purpose which is provided with flexible ribs formed integral therewith and disposed so as to take the wear incident to the contact of the packages with the curtain.

A further object of the invention is to provide a curtain of the above type wherein the projecting ribs are so disposed as to maintain the curtain in the plane of the doorway for closing the opening when free from contact with the passing packages.

A still further object of the invention is to provide a flexible curtain of rubberlike material which is relatively thin and light in weight so that it may be readily moved through the contact of packages moved by gravity, whether said packages are heavy or light in weight.

A still further object of the invention is to provide a rubberlike curtain of the above type which is provided on its inner face with integrally formed ribs extending transversely, longitudinally and diagonally on the lower portion of the curtain for contacting with the packages and for maintaining said curtain in the plane of the doorway when out of contact with the packages.

The essential features of the invention, the manner in which it may be used, and the advantages thereof will be more particularly explained in connection with the accompanying drawing, in which:

Figure 1 is a front elevation of the invention in connection with a cold storage door, the latter being shown in open position.

Figure 2 is a section taken on the line 2—2 of Fig. 1.

Figure 3 is a section taken on the line 3—3 of Fig. 1.

As shown in the drawing, there has been illustrated more or less diagrammatically the wall 5 of a cold storage chamber provided with an opening forming a doorway through which packages of merchandise may be passed into or out of said chamber. Associated with the opening, preferably at the inner side of the chamber, is a rectangular door frame 6 which may be made of any suitable material but which is preferably made of steel members riveted and bolted or welded together. As illustrated, this frame is provided with I beams or channel members 7 which form vertical guideways 8 in which a door 9 is slidably mounted. The door is balanced by counterweights 10 to facilitate the opening and closing of the same. This door is so constructed as to serve as an efficient insulator when closed. The door, however, for closing the opening forms no part per se of the present invention and further description thereof is not thought necessary. The opening or doorway through the wall which may be permanently closed by said door 9 is also closed when the door is open by a flexible curtain 14. Extending across the upper side of the doorway is an apron or frame member 12 having an angle bar or the like 13 secured thereto from which the flexible curtain 14 is suspended in any suitable way.

The flexible curtain is preferably molded from pure rubber without any fabric therein. It may, however, be of synthetic rubber or other materials which are rubberlike and which can be readily flexed and which have high heat insulating value. The curtain is rigidly secured to the bar 12 and is so dimensioned and positioned as to lie in the plane of the doorway when free from lateral forces, and in effect closes the doorway.

The upper edge of the curtain is provided with a thickened rib 15 which facilitates the attachment of the curtain to the bar 12 so as to make a very durable support for the curtain which will not break loose when the curtain is flexed back and forth for the passage of packages through the doorway.

Extending transversely across the curtain a short distance from the upper edge thereof is a rib 17. This rib is formed of the same material as the curtain and is preferably integral therewith. This rib as illustrated is disposed so that it is just above the points of contact of packages with the curtain as they are passed through the

opening. The packages as illustrated are in the form of kegs or barrels which may be rolled through the doorway or passed therethrough on end or in any other suitable way. Instead of kegs, any shaped package of merchandise may be passed through the doorway, and when it contacts with the curtain, the curtain will flex and move so as to permit the package to pass, and then the curtain will drop at once when released by the moving package so as to again close the opening.

The curtain is also provided with diagonal ribs **18** and vertical ribs **20** and **21**. These ribs are similarly made from the same material as the curtain and are integral therewith. If desired, the rubber forming these ribs may be vulcanized at the surfaces so as to give to the ribs a wearing resistance without unduly affecting the flexibility of the curtain. The ribs are preferably placed on both sides of the curtain, although from certain aspects of the invention they may be applied to one side only, that is, the side which receives the greatest wear incident to the contact of the moving packages therewith. They are disposed so that the package will contact solely with the ribs. When a keg **11** contacts with the curtain, as shown in the drawing, the metal hoops will not contact with the body portion of the rubber curtain but will only make contact with the projecting ribs. The ribs **18** extend diagonally from the lowermost corners of the curtain to the rib **17** and merge into said rib. The ribs **20** also merge into the rib **17** at the points **19**, and the ribs **21** merge into these diagonal ribs. The ribs may be otherwise placed, but this is the preferred arrangement.

With the ribs arranged vertically and diagonally as shown in the drawing, packages of any usual shape and contour will contact with the ribs, and the ribs will slide over the package so that the wear, as noted, is taken by these ribs. This enables the curtain to be made relatively thin so that the package, whether it is heavy or light, can readily flex the curtain even when said package is moved by gravity or inertia. The curtain can be constructed so that it will readily open and close to permit the passage of kegs, for example, even though the kegs be empty; and when the kegs are filled, the curtain is still of sufficient durability as to withstand the wear of the heavy kegs contacting therewith. The same is true of any other type of package which passes through the doorway. Preferably there are strengthening ribs **16** at the vertical edges of the curtain, and these ribs extend all the way to the upper edge of the curtain.

The portion of the curtain which is flexed by the passing of the package to the greatest extent is that portion above the rib **17**. This portion does not contact with the package, and therefore it may be relatively thin so as to be readily flexed. The curtain remains closed at all times except when it yields temporarily to allow the packages of merchandise to pass through the opening. Thus it is that the curtain provides an effective insulator which prevents exchange of heat between the outside and inside of the chamber. When the package strikes the curtain, the ribs **20** act as soft yieldable buffers which ease the shock on the package and prevent any possible injury thereto. These ribs immediately resume a straight line position as soon as the package passes and serve to restore the curtain to a vertical plane and maintain the curtain in the plane of the doorway for completely closing the opening. This restoration of the curtain to its initial closing position is aided by the ribs **17** which straighten out any lateral bowing of the curtain by the passing package. The diagonal ribs also follow the contour of the package as it passes and in straightening out serve to restore the lower corners of the curtain to their initial position in the plane of the doorway. The curtain is not only very flexible and pliable, but it has a high insulating value and is not affected by moisture or by differences in temperature, and is practically indestructible. Further, it is so light in weight as to allow the passage of empty kegs and packages of light weight.

While it is preferable to make the curtain of pure rubber and form the ribs integral therewith, it is understood that other materials may be used without departing from the spirit of the invention as set forth in the appended claims. It is essential, however, that the materials used shall be of such character as to permit the curtain to readily flex when engaged by heavy or light articles and which shall resist the wear incident to the frictional contact of passing packages.

We claim:

1. A flexible curtain adapted to be suspended in a doorway for closing the same and movable through contact of a package therewith to permit the package to pass through the doorway, said curtain being relatively thin and of rubber-like material and having integrally formed projecting ribs disposed at widely spaced intervals and extending from the lower portion of the curtain in an upward direction so as to take the wear incident to the contact of the package with the curtain as it passes through the doorway, said ribs serving to return and maintain the curtain in the plane of the doorway when released.

2. A flexible curtain adapted to be suspended in a doorway for closing the same and movable through contact of a package therewith to permit the package to pass through the doorway, said curtain being relatively thin and of rubber-like material, the upper portion of said curtain intermediate the side edges thereof being of substantially uniform thickness so that it may be readily flexed, the remainder of said curtain having formed integrally therewith projecting ribs disposed so as to take the wear incident to the contacting of the package with the curtain as it passes through the doorway.

3. A flexible curtain adapted to be suspended in a doorway for closing the same and movable through contact of a package therewith to permit the package to pass through the doorway, said curtain being relatively thin and of rubber-like material, the upper portion of said curtain intermediate the side edges thereof being of substantially uniform thickness so that it may be readily flexed, the remainder of said curtain having formed integrally therewith projecting ribs disposed so as to take the wear incident to the contacting of the curtain as it passes through the doorway, said ribs extending all the way to the lower edge of the curtain and having the surface portions thereof vulcanized so as to give to the ribs a wear resistance without unduly affecting the flexibility of the curtain.

4. A flexible curtain adapted to be suspended in a doorway for closing the same and movable through contact of a package therewith to permit the package to pass through the doorway, said curtain being relatively thin and of rubber-like material and having a transverse rib spaced

from the upper portion thereof, the curtain above said transverse rib and between the side edges of the curtain being of substantially uniform thickness, said curtain having ribs extending from the lower side edges thereof diagonally upward and terminating in said transverse rib, said curtain having also spaced ribs extending from the lower edge thereof upwardly and terminating in the diagonal ribs and transverse rib, said ribs operating to take the wear incident to the contact of the package with the curtain as it passes through the doorway and also serving to return and maintain the curtain in the plane of the doorway when released.

5. A flexible curtain adapted to be suspended in a doorway for closing the same and movable through contact of a package therewith to permit the package to pass through the doorway, said curtain being relatively thin and of rubber-like material and having ribs disposed at widely spaced intervals and extending from the lower portion of the curtain in an upward direction so as to take the wear incident to the contact of the packages with the curtain, said ribs being vulcanized so as to give the ribs a wear resistance without unduly affecting the flexibility of the curtain.

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