United States Patent [19]

Dover

[11] **3,772,129**

[45] **Nov. 13, 1973**

[54] **LATHS FOR ROLLER SHUTTERS**

[75] Inventor: **Donald Henry William Dover,** Little Baddow, near Chelmsford, England

[73] Assignee: **Dover Roller Shutters Limited,** Witham, Essex, England

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[21] Appl. No.: **113,565**

[30] **Foreign Application Priority Data**

Feb. 9, 1970 Great Britain 6,171/70

[52] **U.S. Cl.** **161/43,** 52/309, 160/236, 161/44, 161/149, 161/159, 161/190, 161/213

[51] **Int. Cl.** **B32b 1/04,** B32b 3/10, B32b 15/08

[58] **Field of Search** 161/43, 44, 41, 53, 161/54, 99, 100, 108, 109, 110–114, 119, 149, 159, 160, 190, 213; 160/236, 232, 220, 133; 52/309; 264/45

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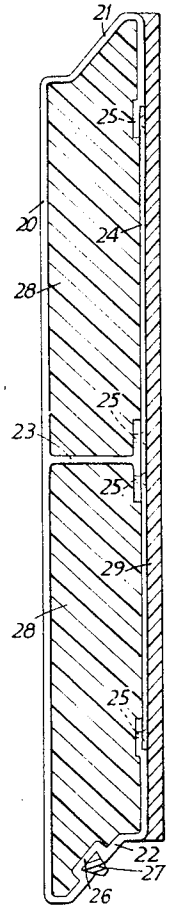
Primary Examiner—George F. Lesmes
Assistant Examiner—Lorraine T. Kendell
Attorney—Wenderoth, Lind & Ponack

[57] **ABSTRACT**

A lath for a roller shutter, in which a longitudinal extruded aluminium base member is provided against one major face of which is located a layer of foamed plastic insulating material. The other side of the base member is preferably coated with an insulating layer consisting of a microcellular elastomeric material.

2 Claims, 5 Drawing Figures



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2 Sheets-Sheet 1

FIG. 1.

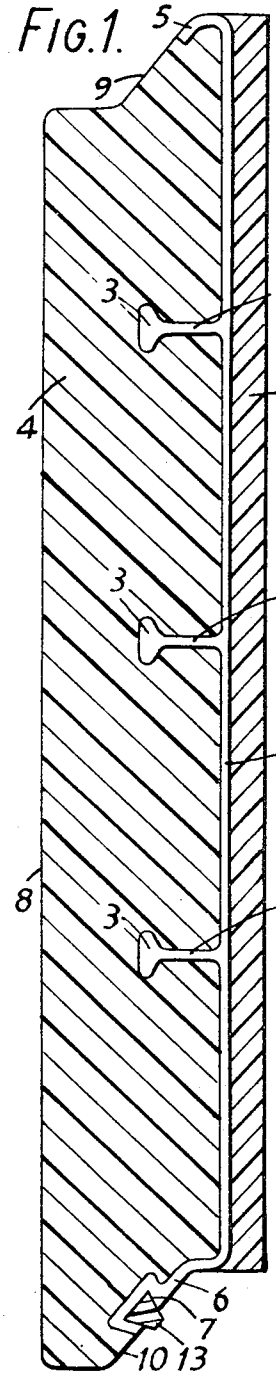
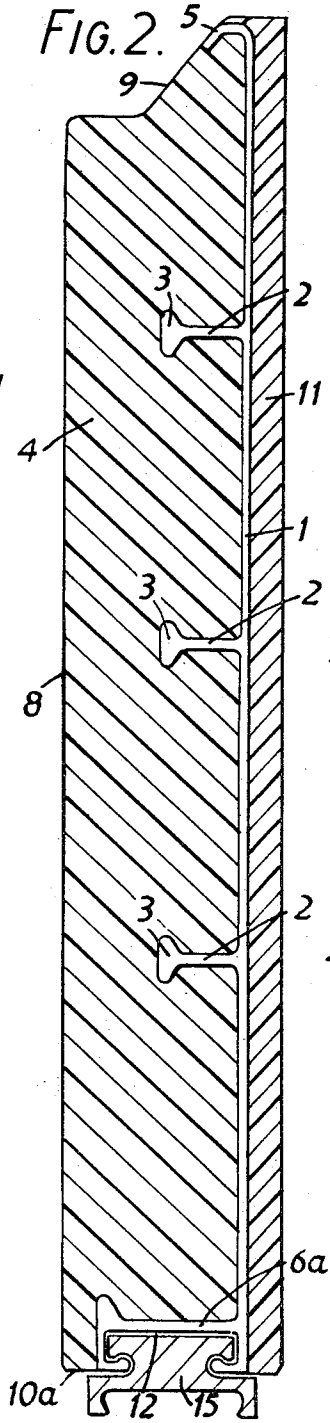


FIG. 2.



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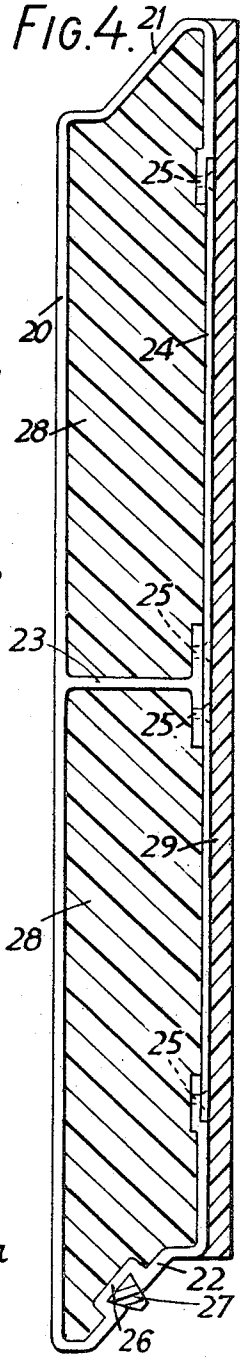
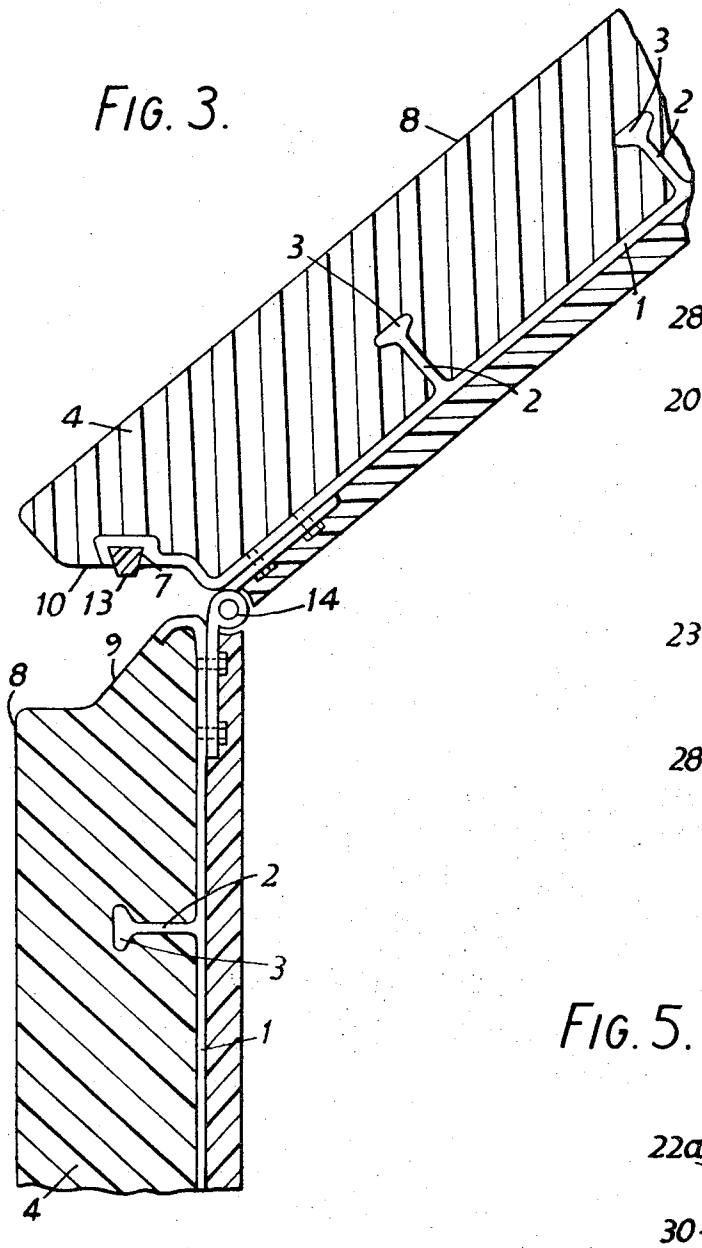


DONALD HENRY WILLIAM DOVER,
Inventor
By Wenderoth, Lind & Ponack
Attorneys

FIG. 3.



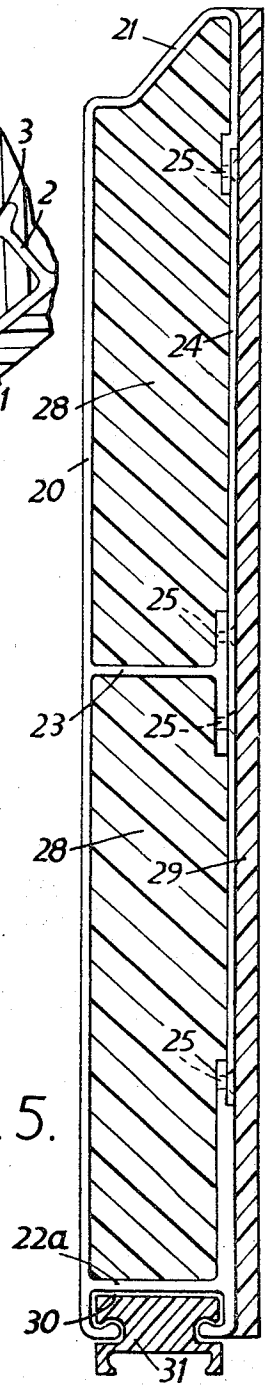


FIG. 5.

DONALD HENRY WILLIAM DOVER,
Inventor

By Wenderoth, Lind & Ponack

Attorneys

LATHS FOR ROLLER SHUTTERS

The invention relates to roller shutters particularly for use in providing a closure for an opening in a refrigerated vehicle, container or the like.

Roller shutters having metallic box section laths are described in co-pending Pat. application Ser. No. 110,065 of the present applicant. Such shutters provide a considerable improvement over earlier shutters in terms of rigidity, strength, ease of action and long life, but give rise to difficulties when used as closures for refrigerated stores or vehicles due to the heat flow through the laths.

It is among the objects of the present invention to provide improved arrangements whereby such heat flow may be checked.

The invention therefore provides a lath for a roller shutter, comprising a longitudinal metallic base member presenting two major faces, one of said faces having located thereagainst a layer of foamed plastic insulating material.

The base member is preferably extruded from aluminium. In one form, the layer of foamed plastic material is adhered to said base member and envelops anchorage members projecting therefrom. In another form, the base member comprises portions defining a box section, with said layer of foamed plastic material being disposed within the box section. The other major face is preferably coated with a thermal insulating layer consisting of a microcellular elastomeric material having a K value as defined below of not more than 0.45.

The K value is the thermal conductivity in BThU/ft²/hr/°F rise in temperature.

The upper and lower walls of each lath preferably present a non linear profile in a direction extending between the major faces.

The invention also comprises a roller shutter when constituted by laths according to the invention.

The invention is further illustrated in the accompanying drawings in which;

FIG. 1 is a sectional end elevation of a first lath according to the invention,

FIG. 2 is a sectional end elevation of a lath similar to that of FIG. 1 but having a slightly modified lower end,

FIG. 3 is a sectional end elevation of the lower and upper ends respectively of the laths of FIGS. 1 and 2 showing the manner whereby they are hinged together when incorporated in a roller shutter,

FIG. 4 is a sectional end elevation of a second lath according to the invention and,

FIG. 5 is a sectional end elevation of a lath similar to that of FIG. 4 but having a slightly modified lower end.

Referring first to FIG. 1 of the drawings, the lath shown comprises a flat longitudinal metallic base member in the form of an aluminium extrusion 1 having two major faces and three longitudinal ribs 2 on one face thereof, each rib having a head portion 3 embedded in a moulded mass of high density polyurethane foam 4. The foam mass 4 has a density of between 10 and 30 (preferably 20 to 25) pounds per cubic foot and a K value of not more than 0.4.

The extrusion 1 has upper and lower end flanges 5 and 6, the flange 6 having therein a dove tail recess 7 in which a sealing strip 13 is located.

The foamed mass 4 is shaped by the mould in which it is formed has a flat external surface 8 and stepped upper and lower side portions 9 and 10 respectively which terminate at the flanges 5 and 6.

The other face of the aluminium extrusion 1 is surfaced by a layer 11 of semi-flexible closed microcelluler polyurethane elastomer which is sprayed thereon and has a K value of not more than 0.45.

The lath shown in FIG. 2 is generally identical to that of FIG. 1 except in regard to the construction of the lower flange 6*a*. The lath shown in FIG. 2 is intended as the lowermost lath in a shutter and comprises a recess 12 in the lower wall 10*a* which receives a horizontally extending sealing strip 15 for engagement in the bottom of the opening in which the shutter is to be mounted.

As best seen in FIG. 3, the laths of the shutter are connected together by hinges 14 bolted to the extrusion 1. The hinges are preferably bolted to the laths prior to the spraying of the layer 11 which is subsequently cut along the hinge lines to permit relative articulated movement of the laths when the shutter is installed.

Referring now to FIG. 4 of the drawings, the lath there shown has a box section and comprises a front wall 20 with upper and lower walls 21 and 22 and an intermediate rib 23 connected to a rear wall 24 by counter sunk bolts 25. The walls 21 and 22 each have an inclined face extending from the front to the rear of the lath and terminating at the front and rear in a short horizontal. The wall 22 includes a dove tail section recess 26 in which a sealing strip 27 of neoprene is located for weather proofing purposes.

Internally, the cavities defined by the box section are filled with a mass of low density polyurethane foam 28. The foam mass 28 has a density of between 1.5 and 4 (preferably 2 to 3) pounds per cubic foot. The outer surface of the wall 24 and the flanges to which it is secured are covered by a layer 29 of the semi-flexible closed microcellular polyurethane elastomer which is sprayed thereon in a similar manner to the layer 11.

The lath shown in FIG. 5 is generally similar to that of FIG. 4 except in regard to the construction of the lower wall 22a. As with the lath of FIG. 2, the lath shown in FIG. 5 is intended as the lowermost lath in a shutter and comprises a recess 30 which receives a horizontally extending sealing strip 31 for an engagement with the bottom of the opening in which the shutter is to be mounted.

I claim:

1. A lath for a roller shutter comprising a flat longitudinal metallic base member having two major faces and terminating at each longitudinal edge in an end flange, a plurality of longitudinal ribs each having a head portion thereon extending from one major face of said base member, a mass of high density polyurethane foam having a density of between 10 and 30 pounds per cubic foot and a K value of not more than 0.4 molded onto said one major face of said base member, said mass having an external flat surface and inclined longitudinal stepped side portions terminating at the respective end flanges, said other major face of said base member having thereon a layer of semi-flexible closed microcellular polyurethane elastomer having a K value of not more than 0.45.

2. A lath for a roller shutter comprising a box section having a front wall, a rear wall, upper and lower walls extending between said front and rear walls, said upper and lower walls each having an inclined face extending

from the front to the rear of the lath, and an intermediate rib extending from the front wall and connected to the rear wall, the interior of the box section being filled with low density polyurethane foam having a density of between 1.5 and 4 pounds per cubic foot, the rear wall having a layer of semi-flexible closed microcellular polyurethane elastomer having a K value of not more than 0.45 on the outer face thereof.

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