

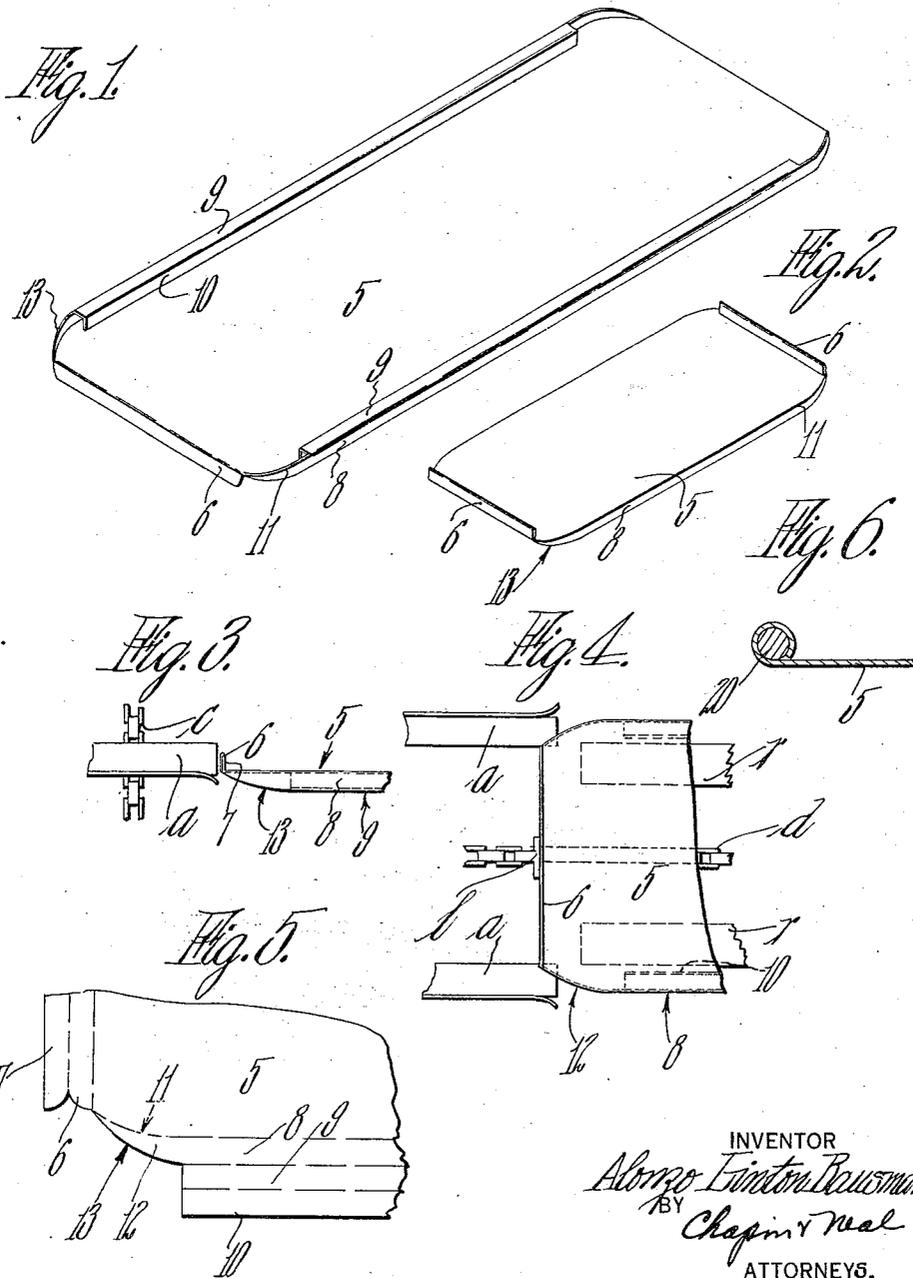
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A. L. BAUSMAN

PLAQUE BOARD

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# UNITED STATES PATENT OFFICE.

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## PLAQUE BOARD.

Application filed December 11, 1920. Serial No. 430,017.

*To all whom it may concern:*

Be it known that I, ALONZO LINTON BAUSMAN, citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Plaque Boards, of which the following is a specification.

This invention relates to improvements in plaque boards and, while the invention is capable of general application, it finds one advantageous use in connection with apparatus of the class disclosed in U. S. Letters Patent No. 1,123,934 granted on January 5, 1915, to Schrafft, Blake and Lorentzen.

In apparatus of this class, freshly coated candies are carried by a series of conveyers through a relatively long circuitous path to and along tables, at which are located packers who remove the candies from the conveyers and pack them for shipment. During the travel of the candies, they are cooled sufficiently to harden their coatings and generally the conveyers are enclosed and a cooling medium circulated within the enclosure to hasten the process.

The freshly coated candies are usually delivered from the coating machine, on plaques, such as waxed papers or the like, and these plaques are transferred from the delivery apron of the coating machine to plaque boards. The plaque boards are then slid into the cooling apparatus and carried therethrough by the various conveyers. Heretofore, these plaque boards have generally been constructed of wood and it has been necessary to construct them relatively thick to secure the necessary strength. The fact that the boards are thick and constructed of material which is a poor conductor of heat makes it more difficult to cool the candies.

This invention is concerned with the provision of a plaque board which is constructed of metal and can accordingly be made very much thinner than the wooden boards without sacrifice to its strength. The substantial reduction in thickness together with the choice of a material, which is a very good conductor of heat, permits very much more rapid cooling of the candies.

The object of the invention is to provide an improved type of plaque board, which

is of such design that it can be made up of relatively thin metal and yet be suitable in all respects for use in apparatus of the general class exemplified in the above-mentioned patent.

Other objects and advantages will appear in the following description and in the illustrative embodiment of the invention in the accompanying drawings, in which—

Fig. 1 is a perspective view showing the bottom of a plaque board which embodies the invention;

Fig. 2 is a perspective view, drawn to smaller scale, showing the top of the plaque board;

Figs. 3 and 4, are fragmentary side elevational and plan views, respectively, of the plaque board showing its relation with one of the conveyers of a cooling apparatus, such for example, as that shown in the above-mentioned patent;

Fig. 5 is a fragmentary plan view of the blank from which the plaque board is formed; and

Fig. 6 is a fragmentary cross-sectional view showing a modification.

Referring to these drawings, the plaque board is so designed that it may advantageously be made from a single piece of sheet metal by simple cutting and bending operations, as from a blank such as shown in Fig. 5. The plaque boards are usually, although not necessarily, of generally rectangular form, as shown. The main body of the plaque board is merely a flat, thin, sheet of suitable shape and area, upon the upper surface of which the plaques bearing the candies are placed.

In practice, these plaque boards are placed upon conveyers which carry them in vertical and horizontal paths and maintain them always in substantially horizontal position. The vertical conveyers usually consist of two sets of endless chains (one of which is shown at *c*) mounted to travel vertically and in spaced parallel relation. Each set of chains carries a series of angle irons *a* and each angle iron *a* on one chain lies opposite a corresponding angle on the other chain. The plaque board is moved endwise between the two sets of chains and is supported along one edge by an angle iron *a* of one chain and along the opposite edge by an angle iron

*a* of the other chain. The plaque boards are carried in horizontal paths by an endless chain *d* having a series of lugs *l* thereon to engage the ends of the plaque boards. The boards are supported upon fixed, horizontally disposed runways *r*. The chain *d* serves to remove a board from the angles *a*, of one vertical conveyer, by sliding it therealong and onto the runways *r*, and likewise to move the board into the angles of another vertical conveyer. A complete disclosure of the conveyers and the cooling apparatus may be had by reference to the above-mentioned patent.

In order to provide a substantial surface, other than the thin edge of the sheet 5, for engagement with the lugs *l*, end flanges 6 are provided at opposite ends of the board by upturning the ends of sheet 5 into substantially right angular relation therewith. These flanges, while very desirable for the described purpose, are also advantageous in that they stiffen the plaque board transversely, allowing it to be made of thinner metal than would otherwise be feasible, for the plaque board in practice supports a comparatively heavy load of candies and the sheet 5 might bend unduly without the flanges 6. Preferably, the flange is made of double thickness as shown in Fig. 3, by first doubling the portion 7 (Fig. 5) upon the portion 6.

In order to provide for the sliding of the plaque boards into and out of the vertical conveyers of the cooling apparatus, runners are formed along the opposite side edges of the board. These runners are preferably formed integrally with sheet 5 by bending the portions 8, 9 and 10 of the blank shown in Fig. 5, along the dotted lines. The portion 8 is turned downwardly at right angles to the body 5, then the portion 9 is bent inwardly at right angles to portion 8, and finally the portion 10 is bent upwardly at right angles to portion 9, meeting, or substantially meeting, the under surface of the body 5. These runners, aside from their function as such, also serve very effectually to stiffen the plaque board against longitudinal bending under the load to which they are in practice subjected. The runners also may coact with the runways *r*, to guide the plaque boards and prevent their displacement during their movement by the horizontal conveyers.

Instead of making the plaque board exacting square at its corners, which would necessitate exact alignment of the board with the angle irons *a* in order to insure their entrance, these corners are preferably somewhat curved or inclined as shown at 11. To permit of this construction, the runners, described, do not extend quite the entire length of the body 5, but terminate a short distance from each end thereof. In addition,

the blank shown in Fig. 5 is formed with a curved or inclined portion 12 which is bent downwardly at right angles to body 5 along the curved line which results in the curved ends 11. The lower edge 13 of the portion 12 forms a cam, so that, even if the angles *a* do not exactly align vertically with the runners of the plaque board, the board may nevertheless be moved into the vertical conveyers because it will be lifted by the cam surfaces 13 engaging the ends of angles *a* on longitudinal movement of the plaque boards. The curved surfaces 11 likewise constitute cams to shift the boards laterally in a similar manner if not correctly aligned horizontally with angles *a*.

When it is desirable to secure additional strength, a reinforcement may be placed within the hollow runners, as indicated at 20 in Fig. 6.

The plaque board described is important in that it is adapted for quantity production at relatively low cost. The boards are struck out readily from a single sheet of metal into a blank, which may be shaped up into the form shown by simple bending operations. Aside from this feature, the plaque board is light, and constructed with an economical use of material, which is intelligently distributed to afford the necessary strength for the intended service. The use of thin material and material which is a good conductor of heat is particularly desired in that it aids in rapidly cooling the candies, particularly their bottom coatings.

The invention has been disclosed herein, in an embodiment at present preferred, for illustrative purposes, but the scope of the invention is defined by the appended claims rather than by the foregoing description.

What I claim is—

1. A plaque board, comprising a relatively thin flat body portion of metal to support the candy laden plaques, having portions along two opposite edges turned downwardly and then inwardly therefrom to form runners, and a portion converging from each end of each runner to the under surface of said body portion.

2. A plaque board, comprising, a relatively thin flat body portion of metal to support the candy laden plaques, and having at opposite corners convergent portions forming cams, runners provided on the under surface of the body portion and extending along the side edges thereof between said convergent portions, a cam forming convergent portion to connect the lower surface of each end of each runner to the underside of the body portion adjacent its ends, and a flange bent from each end of said body.

3. A plaque board, consisting of a metal sheet having portions along each side turned downwardly and then inwardly therefrom to form runners to facilitate sliding of the

board, and having portions along each end turned upwardly to form abutments for engagement by conveying means, together with portions adjacent each corner which are so bent with relation to the body of the board to form cams for moving the board horizontally or vertically when conveyed into the desired position.

4. A plaque board, consisting of a one-piece sheet of metal having a portion along each side edge bent downwardly, then inwardly, and then upwardly toward the body of the sheet to form runners upon which the tray may be readily slid, and flanges at each end formed by upturning the ends of the sheet, and inclined portions provided to connect the lower surface of each end of

each runner to the lower surface of the body of the sheet at the ends thereof.

5. A plaque board, comprising, a relatively thin flat body portion of metal to support the candy laden plaques, and having at opposite corners convergent portions forming cams, runners provided on the under surface of the body portion and extending along the side edges thereof between said convergent portions, and a cam forming convergent portion to connect the lower surface of each end of each runner to the underside of the body portion adjacent its ends.

In testimony whereof I have affixed my signature.

ALONZO LINTON BAUSMAN.