

G. H. PAINE.
METAL BOX.

APPLICATION FILED MAY 16, 1908.

933,847.

Patented Sept. 14, 1909.

FIG. I.

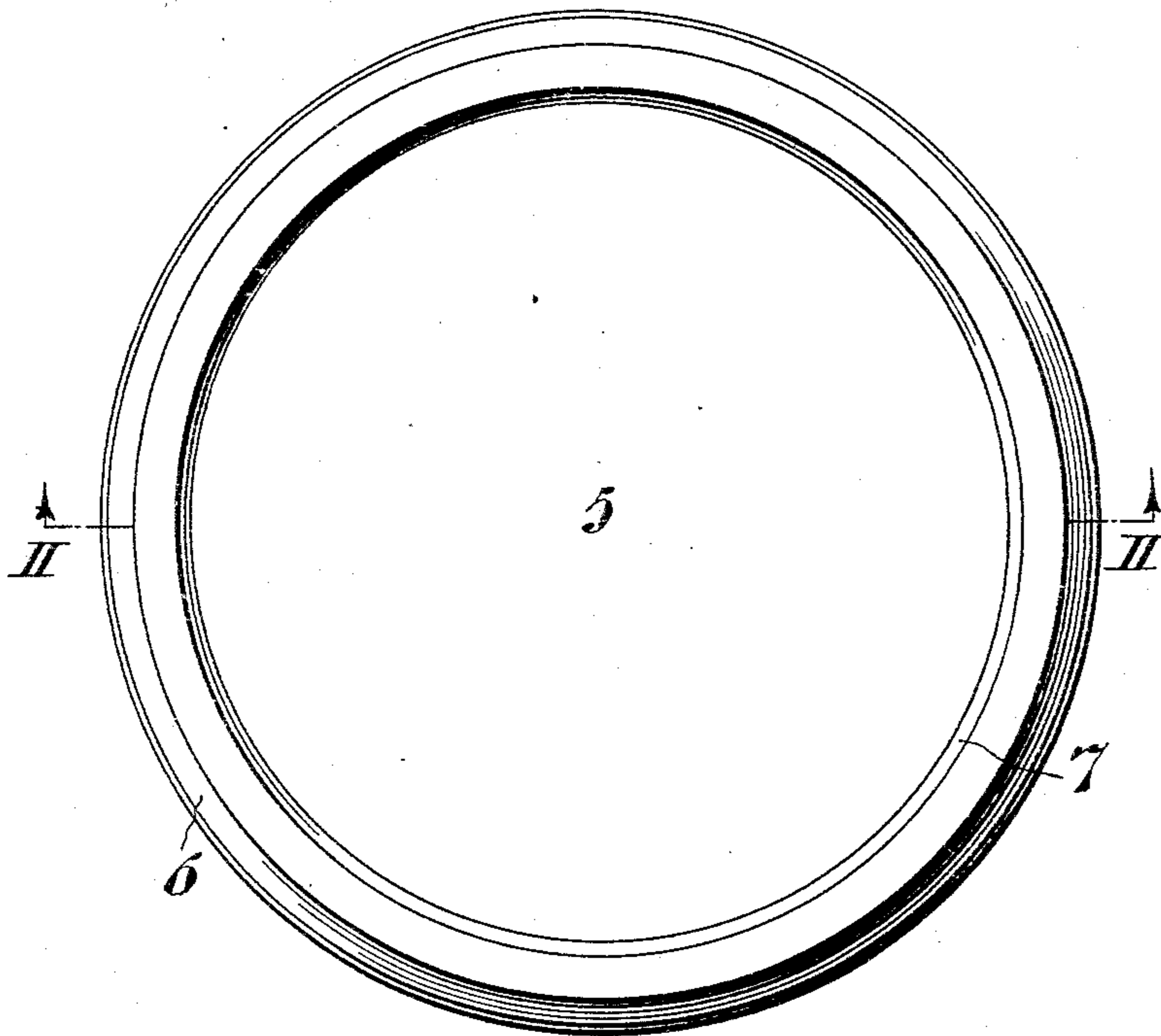
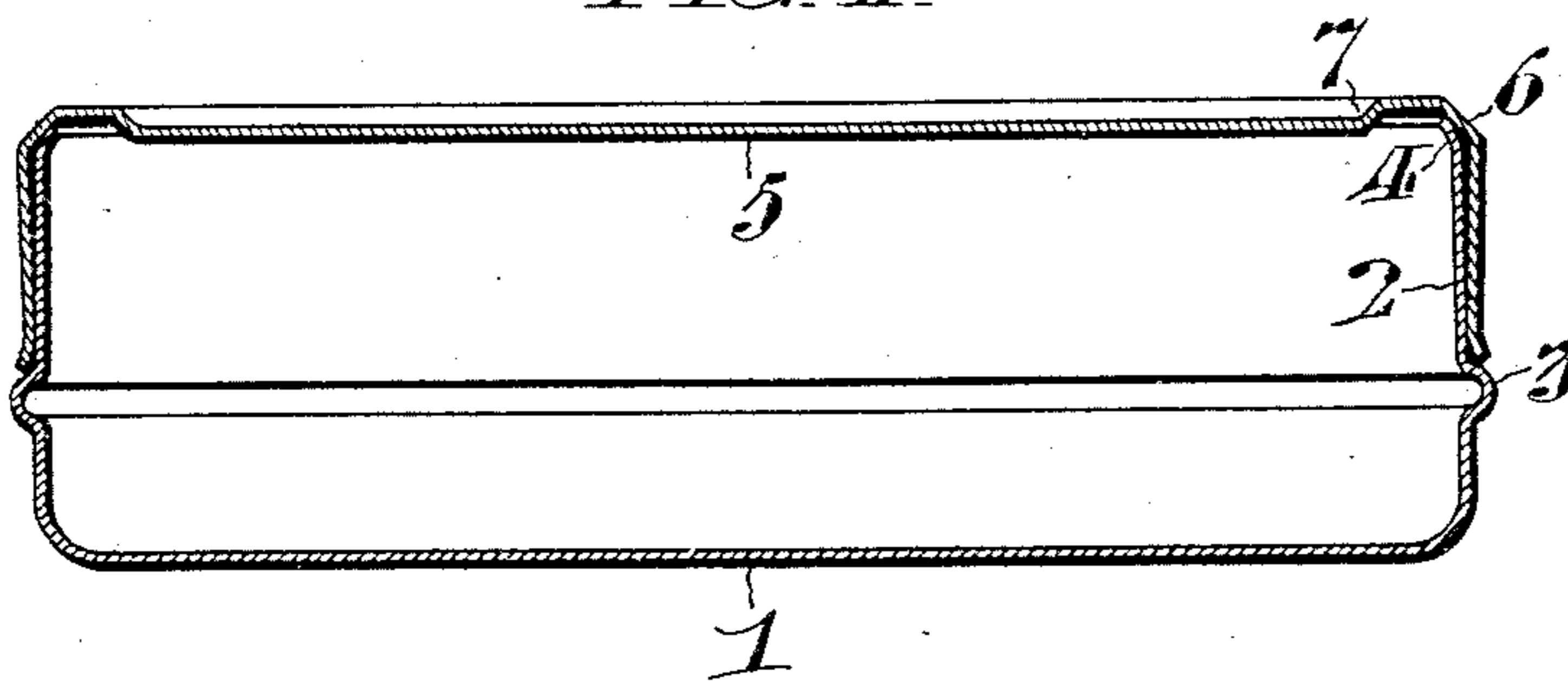


FIG. II.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE H. PAINE, OF PHILADELPHIA, PENNSYLVANIA.

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933,847.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed May 16, 1908. Serial No. 433,193.

To all whom it may concern:

Be it known that I, GEORGE H. PAINE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented
5 a certain new and useful Improvement in Metal Boxes, whereof the following is a specification, reference being had to the accompanying drawings.

In said drawings, Figure I, is a top or
10 plan view of the lid of a box embodying my invention. Fig. II, being a vertical central section on the line II, II, of Fig. I.

The object of my invention is to provide
15 a box cover of such a character as to form a close joint with the box, but which shall be readily removable.

As is well known, the lids of metal boxes,
such for instance as blacking boxes, when fitting with the desired tightness, are liable
20 to stick fast, thus preventing the ready opening of the box.

By the device about to be described, I so
organize the parts that when sticking does occur, it is only necessary to press the lid
25 forcibly toward, instead of away from, the box, the immediate result of pressure applied in this direction being set free the engaging surfaces to an extent sufficient to permit their ready separation.

Referring to the drawings 1, represents
30 the box, whose side 2, is approximately cylindrical in form, though preferably with a slight inward taper, which is exaggerated somewhat in the drawing. The side is preferably provided with an external project-
35 ing rib 3, to form a seat for the lower edge of the box lid. The upper periphery of the side of the box is arched inwardly, as indicated at 4, so as to form a distinctly con-
40 verging surface, on the exterior of the side at its top. The inherent stiffness of the metal of the box is greatly enhanced by the arched configuration at the upper edge, so that under normal conditions of use, the
45 edge is substantially rigid as against compression. The lid 5, has an approximately cylindrical side which is provided with an inwardly inclined surface 6, preferably located as shown, at the region where its
50 side portion merges into its approximately horizontal top portion. This inclined inner surface of the lid is so located as to lie adjacent to the arched upper surface of the side of the box when the lid is in a normally
55 closed position. If desired, the interior por-

tion of the lid of the box may be dished slightly as indicated at 7. The configura-
tion of the lid is such that the structure is relatively elastic at the region of its depend-
ing rim, so that while it will yield radially 60 outward, it will return to its former position when released, this capacity being enhanced by the inward dishing of the top of the lid.

As thus constructed, the mode of opera- 65
tion is as follows:—When the lid is placed upon the box, in a normally closed position, a substantially tight joint is formed be-
tween the proximate surfaces of the sides of the box and lid. Under these circum- 70
stances, the lid may adhere with such closeness as to stick when an attempt is made to open the box. Should such be the case, downward pressure is forcibly applied upon
the top of the box lid, as for instance, by the 75
foot of a person standing thereon. The effect of this pressure, is to cause a wedging action from within upon the rigid abutment
formed by the inclined region 6, of the box lid, by reason of the fact that the inclined 80
surface at this region is forced farther down upon the incline surface 4, of the box, than is characteristic of the normally closed position. The result of this wedging action is
to pry the entire depending side of the box 85
lid outward, so as to free it slightly from contact with the proximate surface of the box, whereupon, the lid can be immediately removed before the side springs back again
into adhesive relation. The arched config- 90
uration of the top edge of the box affords an abutment sufficiently strong to resist crushing, so that a very considerable amount of
pressure can be applied without distorting the parts, the action being that of a true 95
arch, owing to the circular form of the top and the inward convergence at the upper edge. Owing to the elasticity of the metal
in the side of the lid, the necessary amount of spreading to free the proximate surfaces 100
does not permanently distort the side of the lid, and when the latter is replaced, it will fit upon the box with the normal tightness.

Having thus described my invention, I
claim:— 105

The combination, with a box lid having a depending elastic rim provided with an inwardly inclined surface at the juncture of the rim and top; of a box having a rigid rim provided with an inwardly arched abutment 110

extending around its upper edge and adapted to engage said inclined surface; the overlap of the rim of the lid with relation to the side of the box, being of such extent as to permit
5 normal closing without operative contact between the abutment and the inclined surface of the lid; whereby when the lid is pressed toward the box beyond the position of normal closing, the rim of the lid may be tem-

porarily expanded to permit removal of the 10 lid, without permanent distortion.

In testimony whereof, I have hereunto signed my name, at Philadelphia, Pennsylvania, this fifteenth day of May 1908.

GEORGE H. PAINE.

Witnesses:

JAMES H. BELL,

E. L. FULLERTON.