

(No Model.)

R. McD. SPENCER.

CAN AND CAN CLOSURE.

No. 412,134.

Patented Oct. 1, 1889.

Fig 1

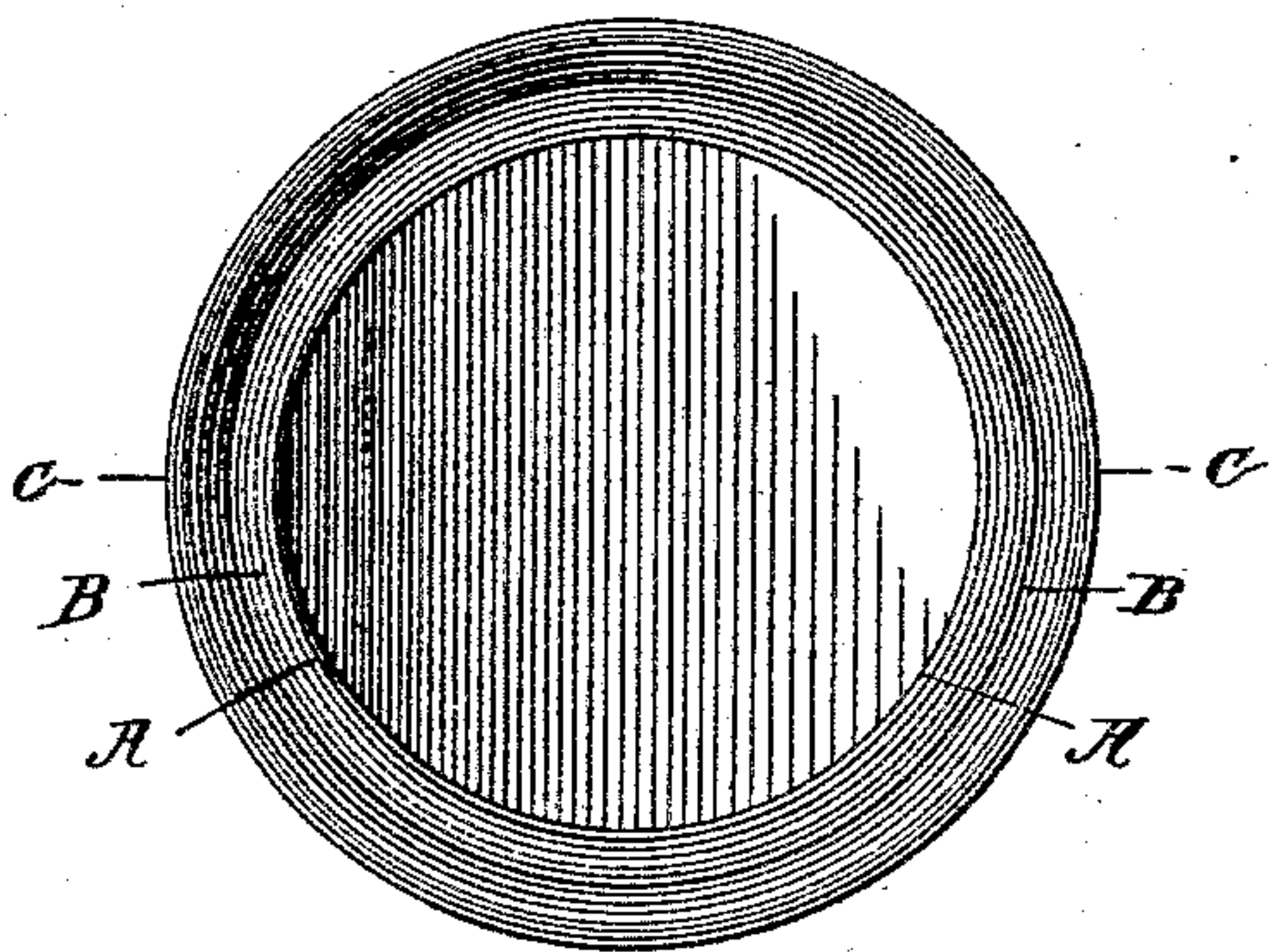


Fig 3

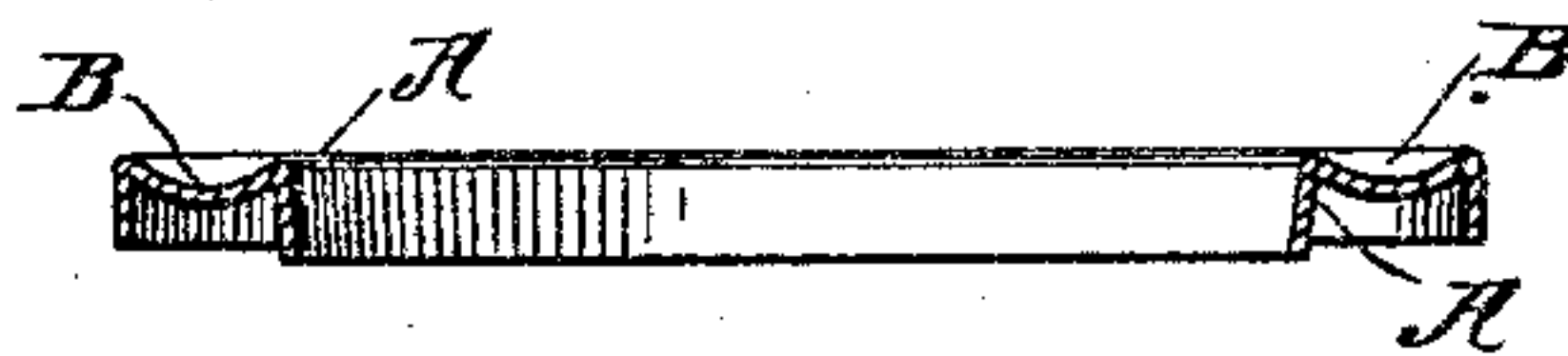


Fig 2

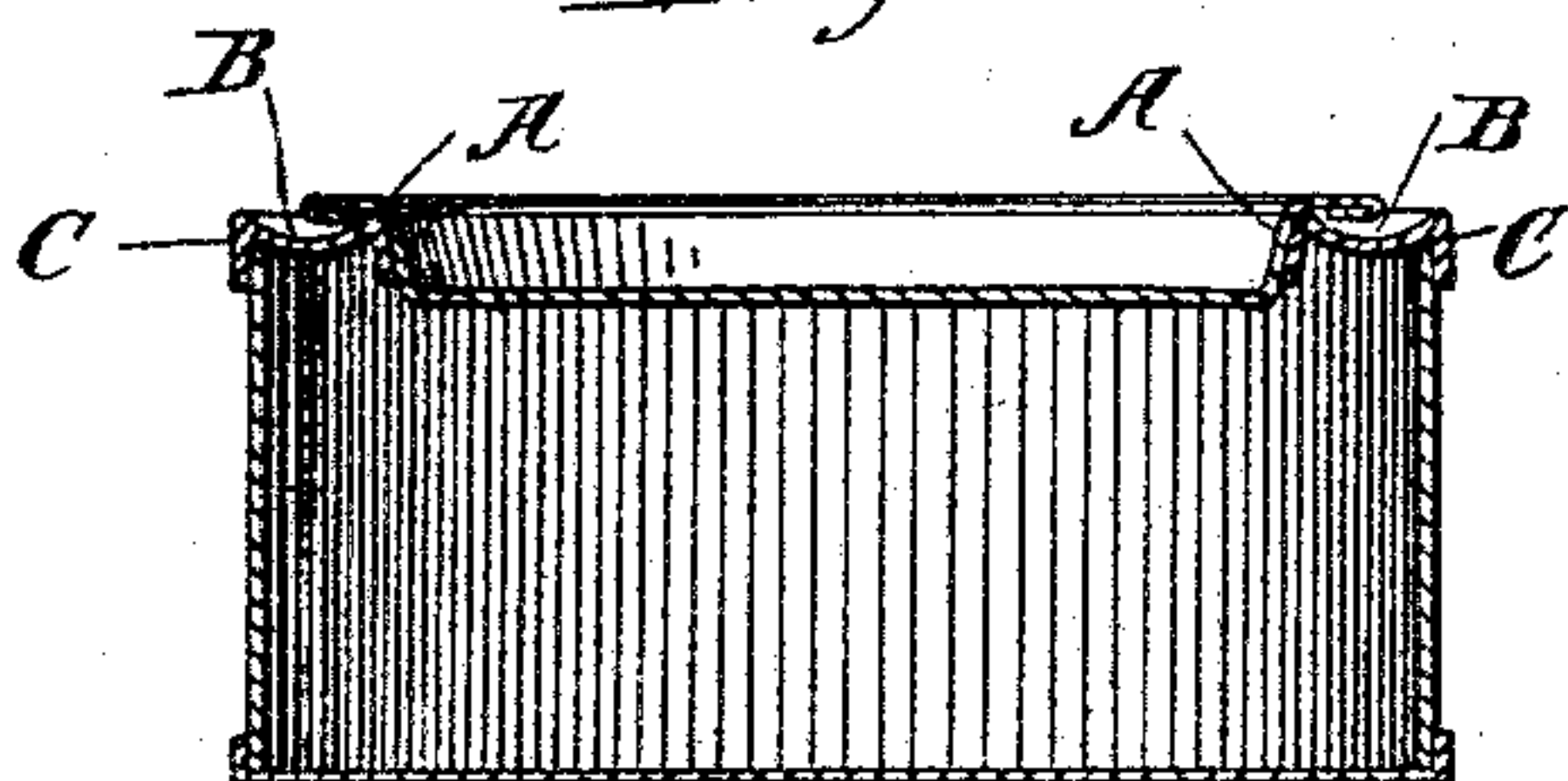


Fig 4

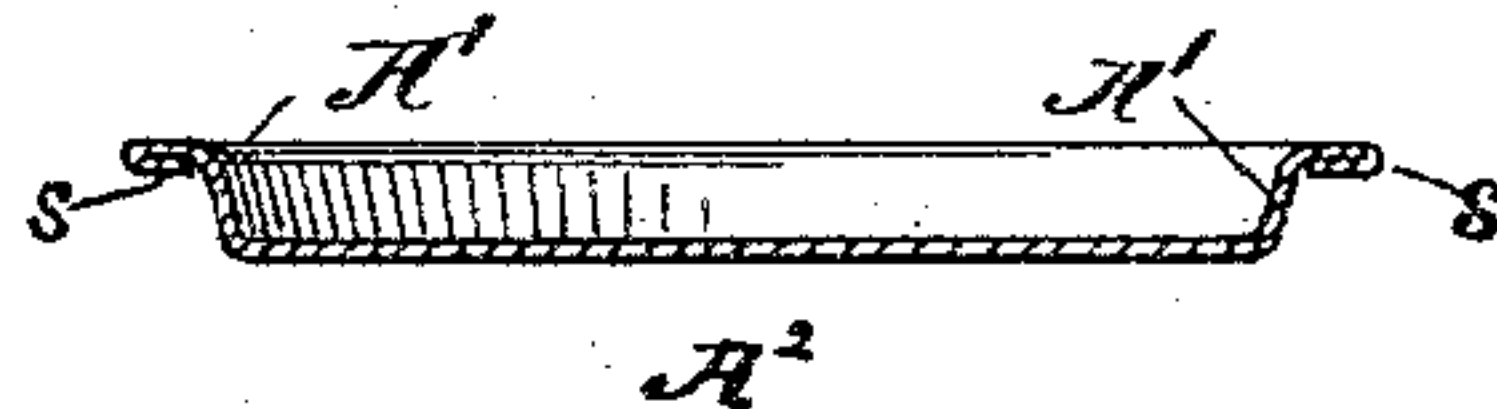
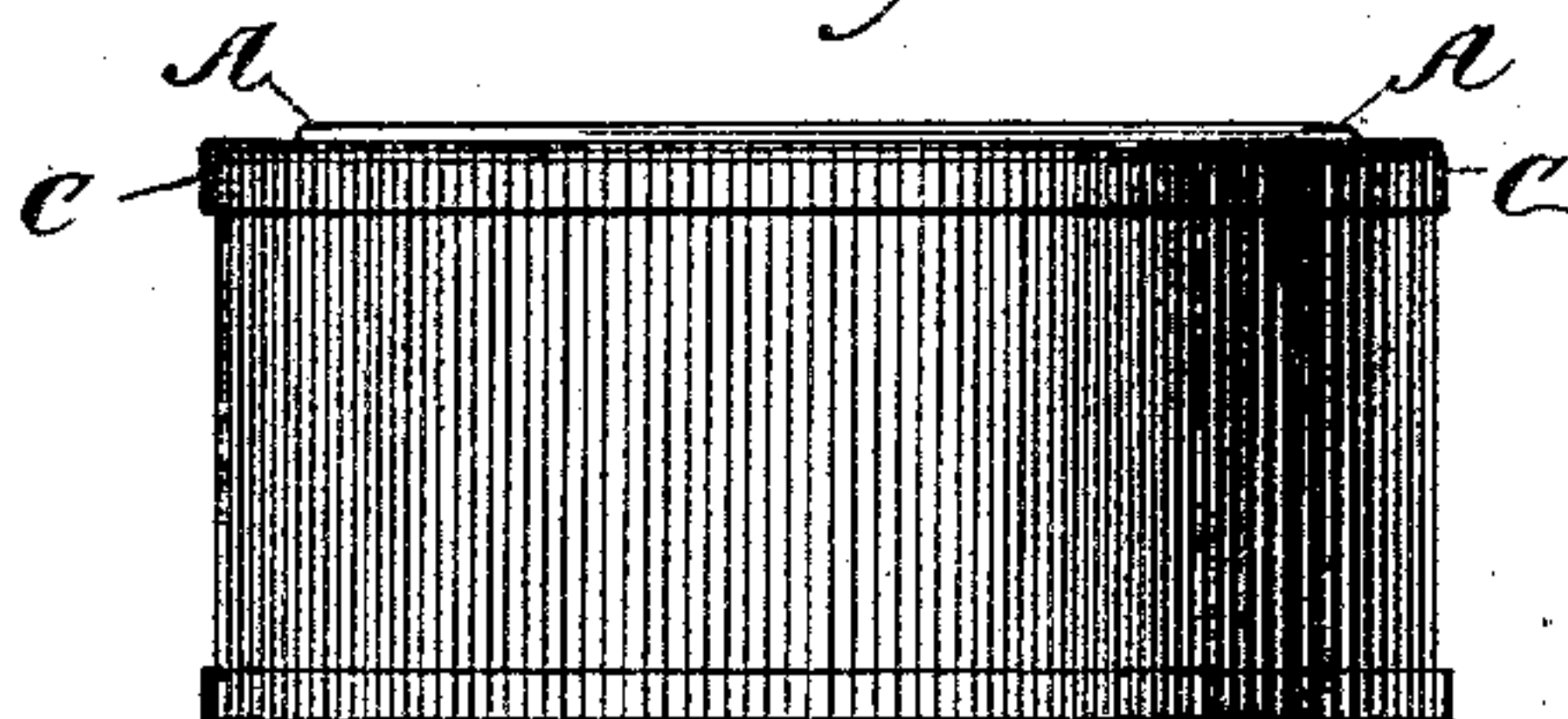


Fig 5



WITNESSES:

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CAN AND CAN-CLOSURE.

SPECIFICATION forming part of Letters Patent No. 412,134, dated October 1, 1889.

Application filed May 26, 1888. Serial No. 275,139. (No model.)

To all whom it may concern:

Be it known that I, RICHARD McDONALD SPENCER, a citizen of the United States of America, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Cans, Can-Tops, and Can Covers or Stoppers, of which the following is a specification; reference being had therein to the accompanying drawings.

My invention relates to improvements in cans, can-tops, and can covers or stoppers; and the object of my improvements is to construct cans, can-tops, and can-covers in such manner that the can-cover will safely retain its place in the can or can-top, and also in such manner that the can-cover may be conveniently and repeatedly removed and the can opened without injury to the can or to the can-cover. My manner of attaining this object is illustrated by the accompanying drawings, in which—

Figure 1 is a plan view of the can top and cover. Fig. 2 is a vertical central section of the can and of the cover when the can is closed; Fig. 3, a vertical central section of the upper part of the can when the can is closed; Fig. 4, a vertical central section of the can-cover. Fig. 5 shows a side elevation of a can with my improvements.

Similar letters refer to similar parts wherever they are used throughout the several views.

C C indicates the circular line at which the upper head or plate of the can is joined to the sides of the can or of the can-top—that is, the upper outer angle or corner of the can or of the can-top. The parts of the top of the can into which the can-cover is to be inserted are indicated by A A and B B. The latter B B is the part of the top of the can that extends from the upper outer angle C C to the ring or flange A A.

A A is a ring or flange extending downwardly from the part B B, and it is firmly attached at or near its top to the part B B. In my cans this ring or flange A A is made by turning down the material of the part B B; but it may be made separately and firmly joined to B B by soldering or by other means.

The ring or flange A A may be cylindrical in form; but for convenience in use I make it a very little larger in diameter at its upper part than at its bottom.

The part B B is firmly attached by soldering or otherwise to the sides of the can or the sides of the can-neck at C C.

The part B B may be curved and concaved, as represented in the drawings, or it may have greater or less curvature than is there represented, or it may extend directly from C C to the ring or flange A A without curvature; but its direction as a whole must be such that its junction with the ring or flange A A is lower than the upper outer angle of the can. The inner part of B B at its junction with the ring or flange A A should be as near the plane of the upper outer angle C C as it can be conveniently placed without danger of collapse of its material.

The can-cover is also made with a ring or flange A' A', (see vertical section, Fig. 4,) which, when the can is closed, fits closely into the ring or flange A A of the top of the can. This flange A' A', I make conical; and it may also be cylindrical without departing from my invention.

The can-cover consists of its plate or bottom A², its ring or flange A' A', and its bead s s. Its several parts are usually stamped from a metallic sheet in a single piece, and in that case it is of nearly uniform thickness throughout. Its uniformity of thickness is not essential; but it must be so made that the bead s s is sufficiently strong to bear the pressure of the point of a lever by which the cover is raised from the can by placing the point of the lever under the bead s s and using the upper outer angle or corner of the can C C as a fulcrum.

While I have shown a circular can and cover, my invention is applicable to cans of a circular, oval, or other suitable form.

My can being constructed as above indicated, when the cover is crowded with more or less force into the opening or cover-receiving aperture in the top of the can the outer surface of the ring or flange A' A' of the can-cover presses laterally against the inner surface of the ring or flange A A of the top

of the can, and the latter is more or less expanded and enlarged, especially at its upper part, thus increasing the lateral adhesion, as well as the closeness of the fitting of the two parts, and this whether the cover fits air-tight or not. When the cover is so crowded into its place, the inner part of the elastic material of B B is deflected downward, and the tendency of the material to recoil upward and away from the body or bottom of the can, and to resume its former position, adds to the lateral pressure and adhesion in proportion to the force employed. In addition to this, any force exerted on the general surface of the cover tending to crowd or draw the cover directly out tends also to move the adhering part of the can-top in the same direction, and the flexibility of the material permits both to so move to some extent and cause them to become crowded into smaller space, and their lateral adhesion is thus so increased that the can-cover is not in danger of being removed by accident.

My can, whether air-tight or not, is by this means rendered reasonably safe against being opened by accident in the usual course of business, yet the cover may be easily removed by a lever or pry applied at one edge of the cover, and thus the can may be opened as often as occasion may require without cutting or otherwise injuring the can or its cover.

With the can so constructed, the far greatest and the principal pressure from C C and from all parts of B B is when the cover is pressed into place not only exerted at or near the top of the ring or flange A A, but this principal pressure is exerted directly upon the upper part of the cover immediately below the bead s s, and such greatest and principal pressure continues to be exerted on the can-cover as long as even the lowest part of the cover remains in place; also, by the above construction of the can, the principal pressure being exerted where B B joins A A, and at points but slightly below the plane of the circle C C, the pressure from C C and from all parts of B B is exerted on the cover from like directions and in much the same manner as the pressure from the tire of a "dished" wheel of a carriage is exerted upon the hub, (the can-cover being likened in this comparison to a hub of exaggerated size,) and the pressure being to the limit of the strength and elasticity of the material more and more tense in proportion to the nearness of the inner edge of the part B B to the plane of the circle C C it holds the cover firmly in place.

In the construction of such of my cans as are intended to be frequently opened I give curvature to the part B B, as above mentioned, and thus place the parts of B B in such position that whenever the cover is pressed into the cover-receiving aperture the inner edge of the part B B is not only pressed downward, as above indicated, but its inner edge is pressed laterally toward its outer edge,

and this greatly increases the recoil and the continuous pressure exerted by the part B B upon the cover; also, by adding such curvature, the yielding and bending of the material, which, without such curvature, take place principally at and near C C, are distributed to various parts of B B and made to take place less abruptly, and thus the material is greatly protected from break and fissure, and its strength and elasticity are preserved.

I am aware that prior to my inventions cans have been so constructed that when the can-cover is fitted air-tight into the can's top the cover will in most instances retain its place, and yet can be easily lifted or pried out, and that prior to my inventions cans have been so constructed that the part of the can which in my drawings is between C C and the can-cover extends downwardly to the lower part of a ring or rim, into which the can-cover is fitted air-tight. Therefore I do not claim such a combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. A can-top having the annular piece extending inward to the can-cover-receiving aperture, curved downward and then upward between its outer portion and inner edge, but having such edge lower than its outer portion, and a can-cover fitting the cover-receiving aperture and engaged by the inner edge of the can-top, substantially as and for the purpose specified.

2. In combination with a can-top having an annular piece extending inward and downward from the edge of the can to the cover-receiving opening, so that its inner edge is below its outer portion and curved or concaved between such inner edge and the outer portion, the can-cover having the upwardly-extending flange or rim fitting the cover-receiving opening and held solely by the engagement of the can-top with the flange and plate of the can-cover, substantially as and for the purpose set forth.

3. In combination with a can-top having an annular piece extending inward and downward from the edge of the can to the cover-receiving opening, so that its inner edge is below its outer portion, and provided with a downwardly-extending flange or rim at its inner edge, the can-cover having the upwardly-extending flange or rim fitting the cover-receiving opening and held solely by the engagement of the can-top with the flange and plate of the cover.

4. In combination with a can-top having an annular piece extending inward and downward from the edge of the can to the cover-receiving aperture and provided at its inner edge with a downwardly-extending flange, the dish-shaped can-cover held solely by the engagement of the can-top with the flange and plate of the cover, consisting of a plate with an upwardly-extending

rim engaged by the inner edge of the annular piece and the downwardly - extending flange thereon at a point above the body or plate part of the cover and having on its upper edge an outwardly-extending bead or flange, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD McDONALD SPENCER.

Witnesses:

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A. MILLER.