

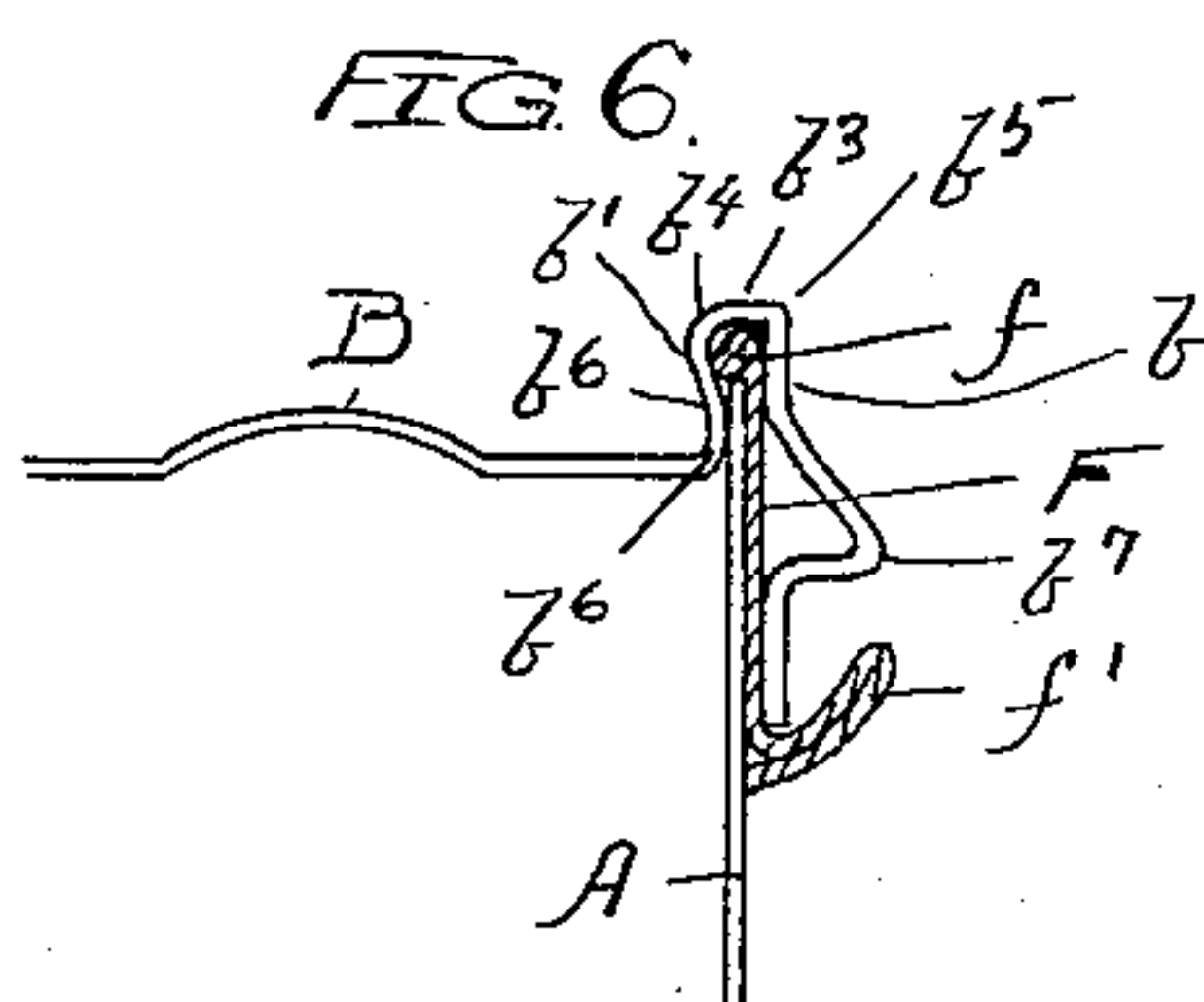
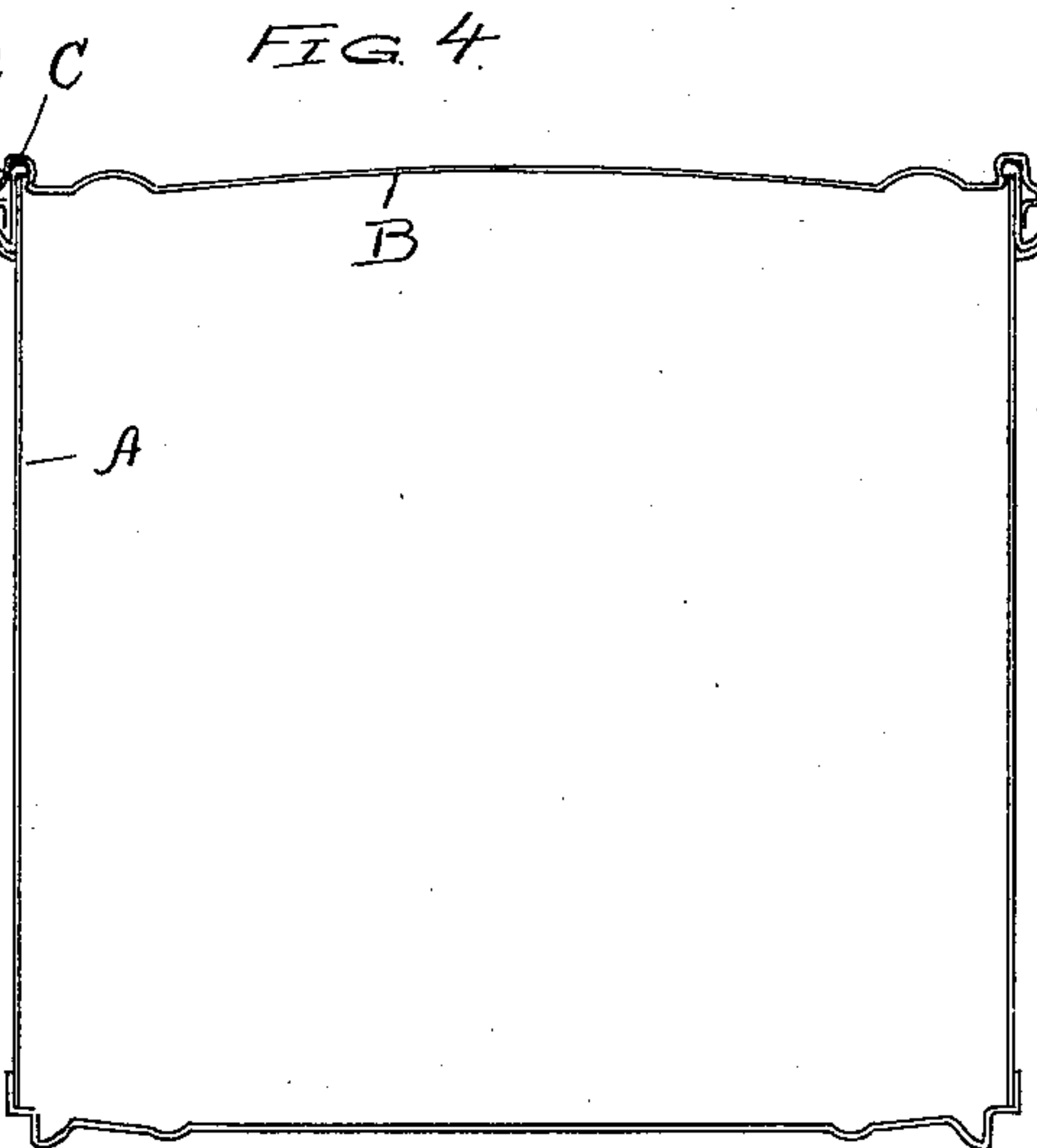
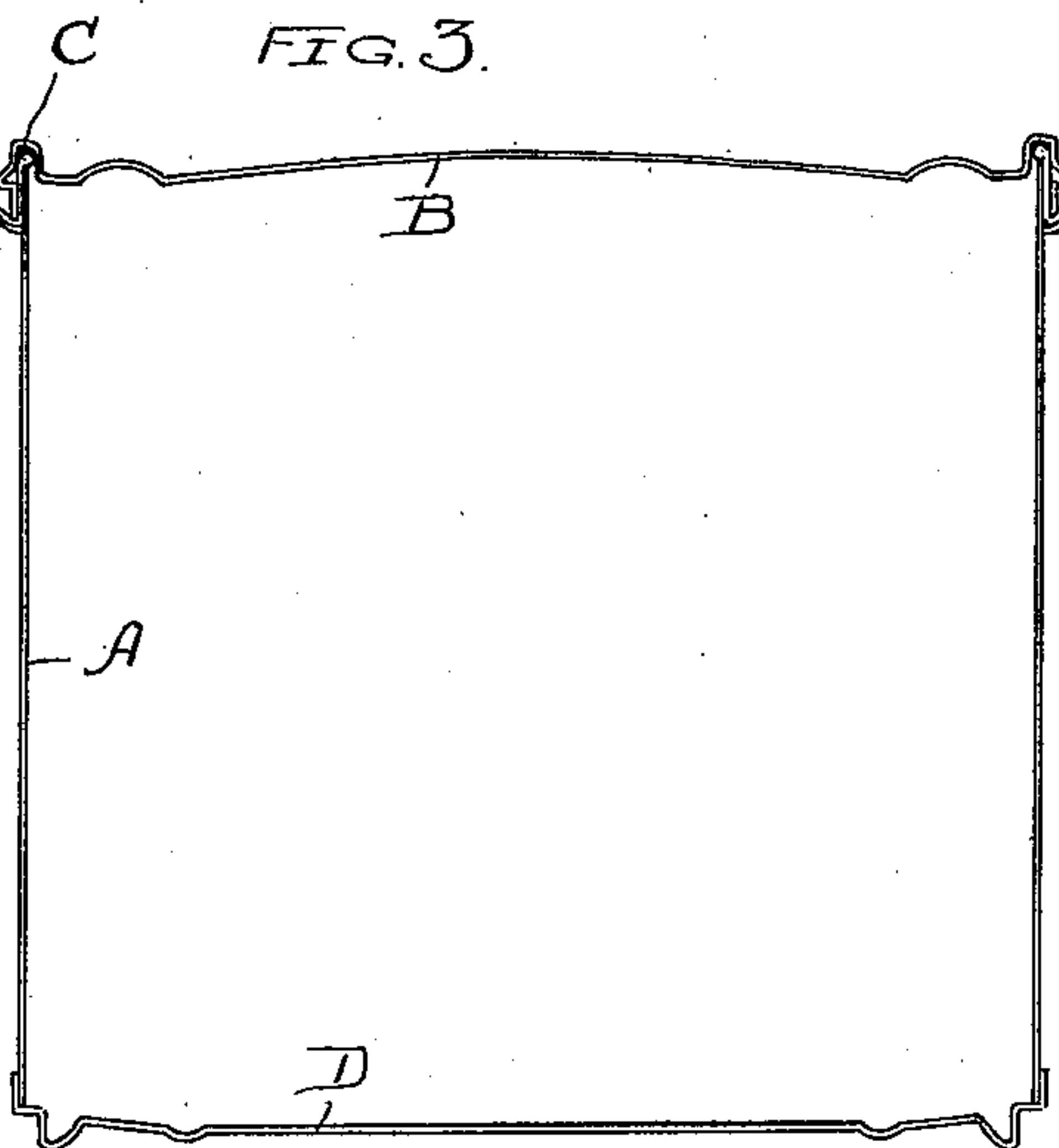
No. 618,518.

Patented Jan. 31, 1899.

E. NORTON.
SHEET METAL CAN.

(Application filed Oct. 7, 1897.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN NORTON, OF MAYWOOD, ILLINOIS, ASSIGNOR TO THE NORTON BROS., OF CHICAGO, ILLINOIS.

SHEET-METAL CAN.

SPECIFICATION forming part of Letters Patent No. 618,518, dated January 31, 1899.

Application filed October 7, 1897. Serial No. 654,335. (No model.)

To all whom it may concern:

Be it known that I, EDWIN NORTON, a citizen of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sheet-Metal Cans, of which the following is a specification.

My invention relates to improvements in sheet-metal cans or vessels, and more particularly to improvements upon the sheet-metal can or vessel shown and described in the pending application of myself and Bernard H. Larkin, Serial No. 649,696, filed August 27, 1897, and in which the cover is secured to the can-body both by a vacuum or atmospheric-pressure seal and by a mechanical seal, consisting in crimping an inner upright flange on the can-cover outwardly under and against an inwardly-projecting roll or shoulder at the upper end of the can-body, and in which the can-body has an externally-projecting shoulder to serve as a fulcrum for prying off the cover of the can.

The object of my present improvement is to remove certain defects or objections in the can shown and described in said application and to perfect the same and adapt it for use for preserving fish, meats, fruits, vegetables, or other articles requiring perfect hermetically-sealed vessels for their preservation.

One objection or difficulty experienced with the can shown and described in said application, Serial No. 649,696, is that sometimes the pressure exerted upon the packing-ring interposed between the cover and the can-body would shear or press off a thin annulus or portion of the packing and force it into the can, where it would remain as a deposit on top of the goods in the can, thus injuring the same either in quality, appearance, or salability. By my present invention I overcome this difficulty by a peculiar construction of the annular channel or receptacle in the cover for the packing in connection with the roll or shoulder on the can-body, with which it coöperates.

In the can shown and described in said application, Serial No. 649,696, the externally-projecting shoulder or fulcrum on the can-body for prying off the cover is formed by making an integral fold in the stock of the

can-body itself. This occasions two objections or difficulties, especially in cans designed for holding hermetically-sealed food products, viz: First, the sharp fold formed in the stock of the can-body itself is liable to cause slight cracks or breaks in the stock, which may sooner or later develop into pinholes or fine leaks, so that the cans cannot be as safely relied upon to be perfect or absolutely hermetically tight with that certainty and uniformity in every instance which is necessary or desirable in cans used for putting up hermetically-sealed food products, because in such cans a very few—say five or six—leaky or imperfect ones out of one thousand would render that construction of can unfit for such use and impracticable, as is well known to those skilled in the art, and, second, the sharp fold in the body of the can forming the fulcrum leaves a crevice on the inside of the can-body right at the point where the stock is bent or folded, and the tin coating of the tin-plate consequently stretched, tending to give an opportunity for the acids of the food or other products in the can to attack the iron or steel plate from which the tin-plate is formed by coating it with tin, which action is liable to injure the quality, flavor, appearance, or salability of the goods. These two objections or difficulties in the can of said application I overcome or remove in my present invention by providing the can-body at its upper end with a seamless ring, having at its upper edge an internal roll or fold which fits or hooks over the upper end of the can-body and constitutes the inwardly-projecting roll or shoulder for the can, which seamless ring fits outside the can-body and is itself provided with the externally-projecting fold to serve as the fulcrum for prying off the cover. By this means the stock of the can-body itself is left entirely smooth and unfolded, so that the can has a smooth interior surface and so that the stock of the can-body is entirely free from sharp bends or folds which might be liable to cause leaks. The seamless ring also avoids any unevenness caused by the side seam of the can-body in the can of said application, and thus gives a smoother, better, and more perfect seat for the packing between the cover and can, and also for the metal-to-metal con-

tact between the inner flange of the cover and the shoulder or roll at the mouth of the can when said inner flange is forced or crimped out under and against the same.

5 The nature, construction, and operation of my improvement will be more fully understood by those skilled in the art by reference to the accompanying drawings, which form a part of this specification.

10 In said drawings, Figure 1 is a side elevation of a can embodying my invention. Fig. 2 is a central vertical section showing the cover separate from the can and ready to be applied thereto. Fig. 3 is a similar section
15 showing the cover sealed and secured to the can-body by the vacuum or atmospheric seal and before the cover is mechanically sealed or secured in place. Fig. 4 is a similar section showing the cover sealed and secured on
20 the can both by the vacuum or atmospheric-pressure seal and by the mechanical seal. Fig. 5 is an enlarged detail sectional view of the cover to more clearly show the particular construction of the annular channel or seat
25 for the packing, and Fig. 6 is an enlarged detail sectional view of the finished and sealed can to better show its construction and operation.

In the drawings, A represents the can-body;
30 B, the cover; C, the rubber, cement, or other packing inserted between the cover and the can-body; D, the bottom of the can, and F the seamless ring.

The can-body A may be and preferably is
35 of a plain, smooth, cylindrical form, as illustrated in the drawings, having the customary side seam *a*.

The cover B has an outer upright flange *b*, which fits outside the can-body, and an inner
40 secondary flange *b'*, which is also substantially upright or at right angles to the plane of the cover. Between the flanges *b* *b'* is the annular channel or seat *b²* for the packing C, the horizontal flange *b³* forming the upper
45 wall or bottom, so to speak, of the annular channel or groove *b²*. The inner corner *b⁴* of the channel *b²* is made curved or rounding, while the outer corner *b⁵* thereof is made substantially square and preferably about as indicated in Figs. 5 and 6. The packing C may
50 preferably be originally placed chiefly in this outer corner, as indicated in Fig. 5. When the packing C is compressed between the cover and the roll or shoulder at the upper
55 end of the can-body, this enlarged outer corner *b⁵* gives room for the compressed packing, and thus prevents any danger of the thin edge or ring of the packing being forced down into the can. The inner flange *b'* of the cover
60 B has an outwardly-projecting bend or crimp *b⁶* in the finished or sealed can, which projects under the inwardly-projecting roll or shoulder at the upper end or mouth of the can-body, and thus mechanically seals and
65 secures the cover on the can, as will be hereinafter more fully explained. The outer flange *b* of the cover is provided with an ex-

ternally-projecting bend, fold, or shoulder
b⁷, which coöperates with the external shoulder or fulcrum on the can-body in opening
70 the can or prying off the cover. The external flange *b* of the cover preferably projects below this external shoulder *b⁷*, so as to give greater depth to this external flange of the
75 cover, and thus enable the cover to be more straightly, squarely, and properly guided home on the can-body in the operation of instantaneously forcing the cover home by the
80 suddenly-restored atmospheric pressure in making the vacuum or atmospheric-pressure seal of the can. In this operation of forming the vacuum or atmospheric-pressure seal unless the cover is properly guided and moved
85 to place squarely and truly the vacuum-seal will not be perfectly and properly formed.

The bottom or lower head D of the can is or may be of substantially the same construction as that shown and described in said application. It has an external flange *d* and
90 an annular bead *d'*.

The seamless ring F is provided with an inwardly-projecting fold or roll *f*, which fits
95 over the upper end of the can-body A, and thus forms or constitutes the inwardly-projecting roll or shoulder at the mouth or upper end of the can-body. As the ring F is seamless, the shoulder or roll *f* is likewise of course seamless, and thus affords a smooth and perfect bearing not only for the packing C, but
100 also for the metal-to-metal contact between the outward crimp or bend *b⁶* in the inner flange *b'* of the cover and the under or lower part of said roll or shoulder *f*. The seamless ring F is further provided near its lower edge with
105 an exteriorly-projecting fold or shoulder *f'*, which serves as the fulcrum for prying off the cover by inserting any suitable instrument between said fold, shoulder, or fulcrum *f'* and the external shoulder *b⁷* on the outer
110 flange *b* of the cover B, as will be readily understood from the drawings. The seamless ring F is soldered to the can-body and serves to materially reinforce and strengthen the same, and thus better adapt the can to with-
115 stand both the external or atmospheric pressure due to the vacuum or atmospheric-pressure seal of the can and also any internal pressure that may be due to the cooking or
120 processing of the contents of the can while it is in a hermetically-sealed condition.

In operation or method of use after the can is filled the cover B is loosely placed thereon, the air is then exhausted from the can by
125 placing it within the receiver of an air-pump, the cover is then hermetically sealed and secured to the can-body by suddenly restoring the atmospheric pressure, thus instantaneously forcing the cover home on the can-body and compressing the packing C between the
130 cover and the inwardly-projecting roll or shoulder *f* at the upper end or mouth of the can-body. The cover B is then mechanically sealed and secured to the can-body by forming the outwardly-projecting bend or crimp

5 b^6 in the inner flange b' of the cover B, as
 illustrated in Figs. 4 and 6, thus mechanic-
 ally securing the cover on the can and me-
 10 chanically holding the packing C in a com-
 pressed form. The cover is thus sealed and
 secured to the can by a double seal, the vac-
 uum or atmospheric-pressure seal and a me-
 15 chanical seal. The can is opened by placing
 a suitable instrument between the external
 fulcrum f' on the can-body, or, rather, on the
 seamless ring which is secured to the can-
 body and forming a part thereof, and the ex-
 20 ternal shoulder b^7 on the outer flange b of the
 cover.

15 I claim—

1. In a sheet-metal can or vessel, the com-
 20 bination with a can-body of a seamless ring
 fitting outside the can-body and having an
 internal roll or shoulder at its upper edge fit-
 ting over the upper end of the can-body, and
 an externally-projecting fold or shoulder at
 25 its lower edge to serve as a fulcrum in pry-
 ing off the cover, and a cover having an outer
 flange provided with an external shoulder
 to cooperate with said external shoulder or
 30 fulcrum on said seamless ring, said cover
 having also a secondary inner flange bent or
 crimped outwardly under and against said
 internal roll or shoulder at the upper edge of
 said seamless ring, substantially as specified.

2. The combination with a can-body, of a
 seamless ring secured to the can-body and
 35 provided at its upper edge with an inwardly-
 projecting roll or shoulder, and a cover hav-
 ing an outer flange and a secondary inner

flange bent or crimped outwardly under and
 against said internal roll or shoulder on said
 seamless ring, said seamless ring being also
 provided with an outwardly-projecting fold
 or shoulder near its lower edge, and the outer
 40 flange of said cover having also an outwardly-
 projecting shoulder and a straight or cylin-
 drical portion below said shoulder, substan-
 tially as specified.

3. In a sheet-metal can or vessel, the com- 45
 bination with a can-body of a seamless ring
 fitting outside the can-body and having an
 internal roll or shoulder at its upper edge fit-
 ting over the upper end of the can-body, and
 an externally-projecting fold or shoulder at 50
 its lower edge to serve as a fulcrum in pry-
 ing off the cover, and a cover having an outer
 flange provided with an external shoulder
 to cooperate with said external shoulder or
 55 fulcrum on said seamless ring, said cover
 having also a secondary inner flange bent or
 crimped outwardly under and against said
 internal roll or shoulder at the upper edge of
 said seamless ring, said cover having an an-
 60 nular channel or seat for a packing between
 its said outer and inner flanges provided
 with a curved or rounded inner corner and a
 square or enlarged outer corner, and a pack-
 ing in said receptacle or seat, substantially
 as specified.

EDWIN NORTON.

Witnesses:

H. M. MUNDAY,
 EDMUND ADCOCK.