

E. M. WOOD.

Metallic Cans for Meats, Paints, &c.

No. 136,890.

Patented March 18, 1873.

Fig. 1.

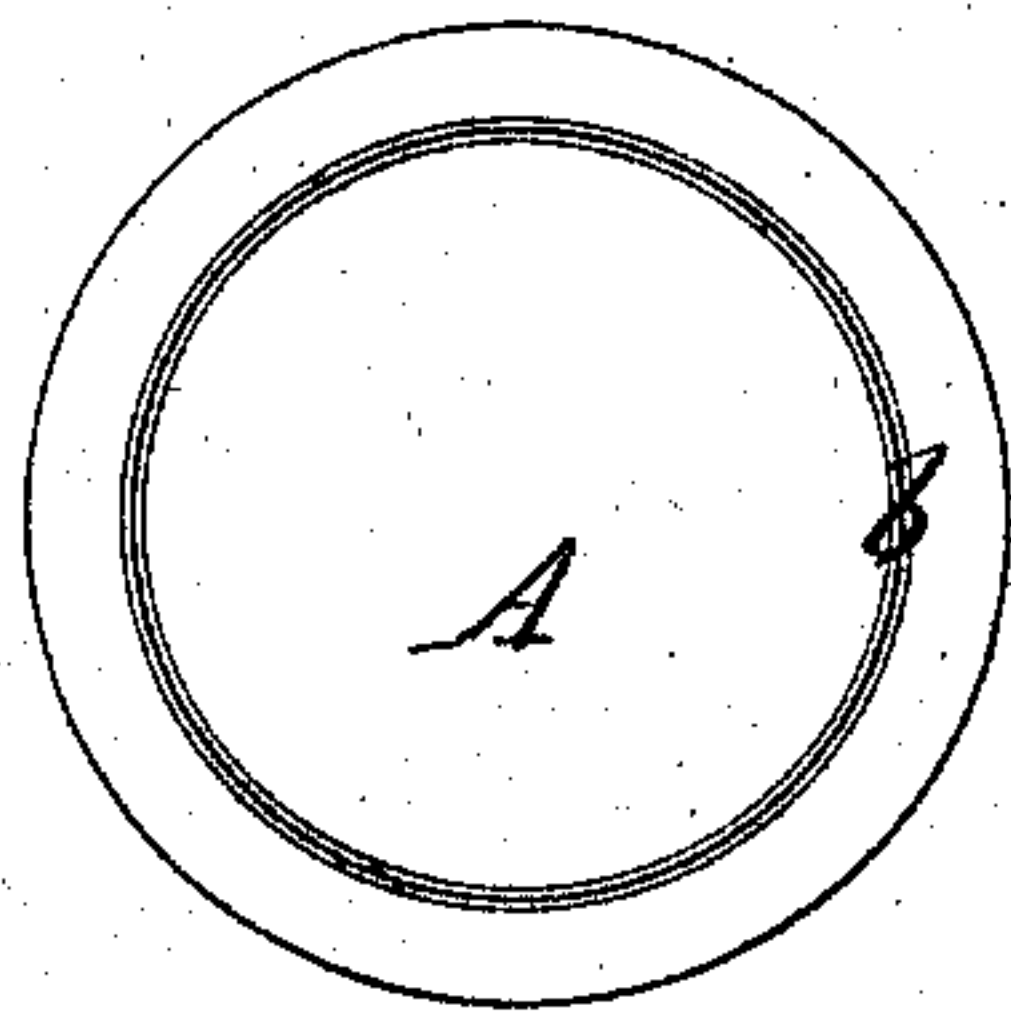


Fig. 2.

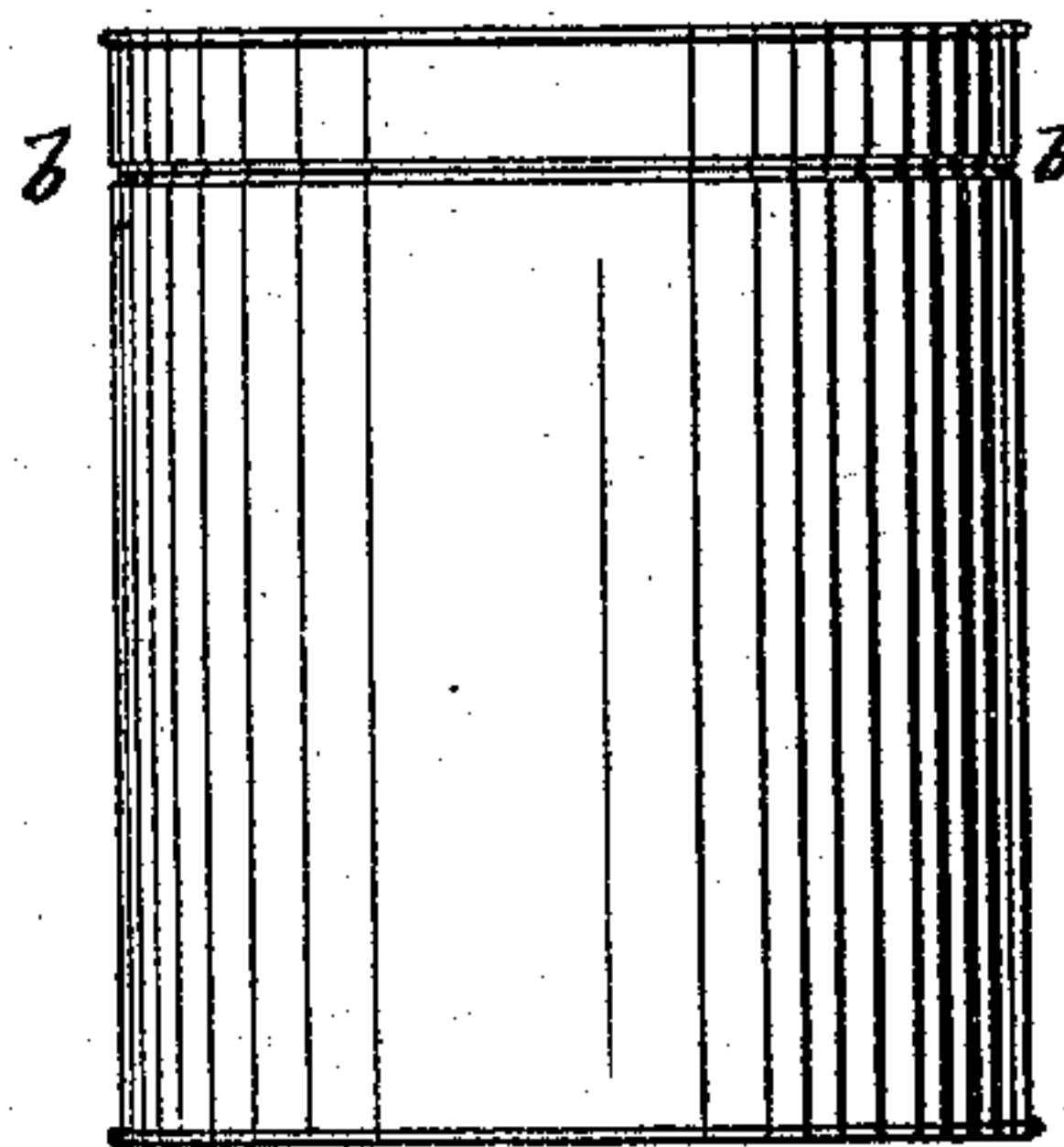


Fig. 3.

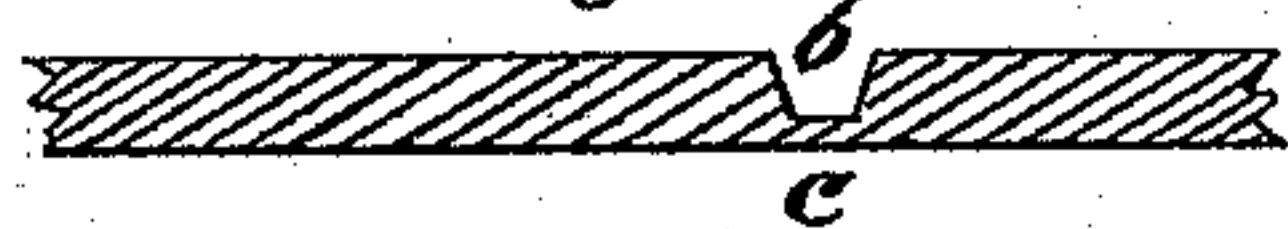


Fig. 5.

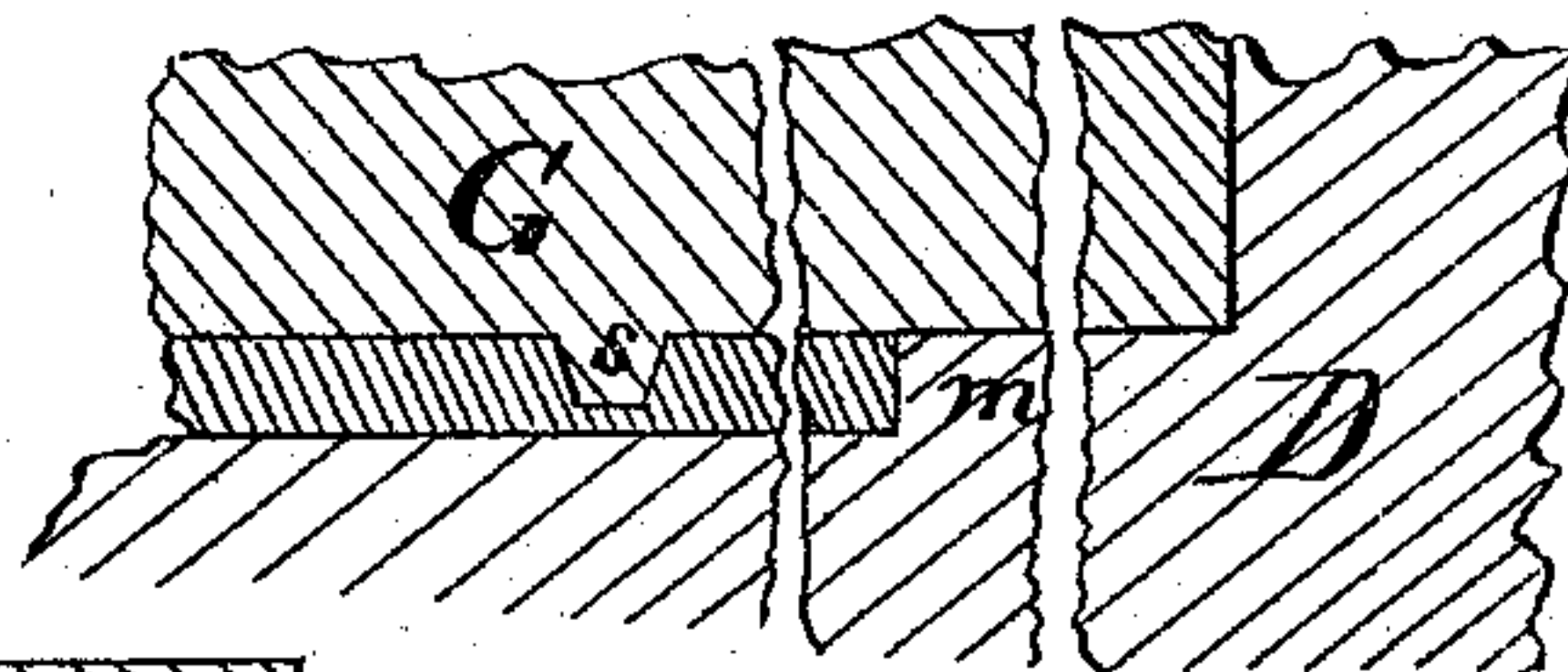
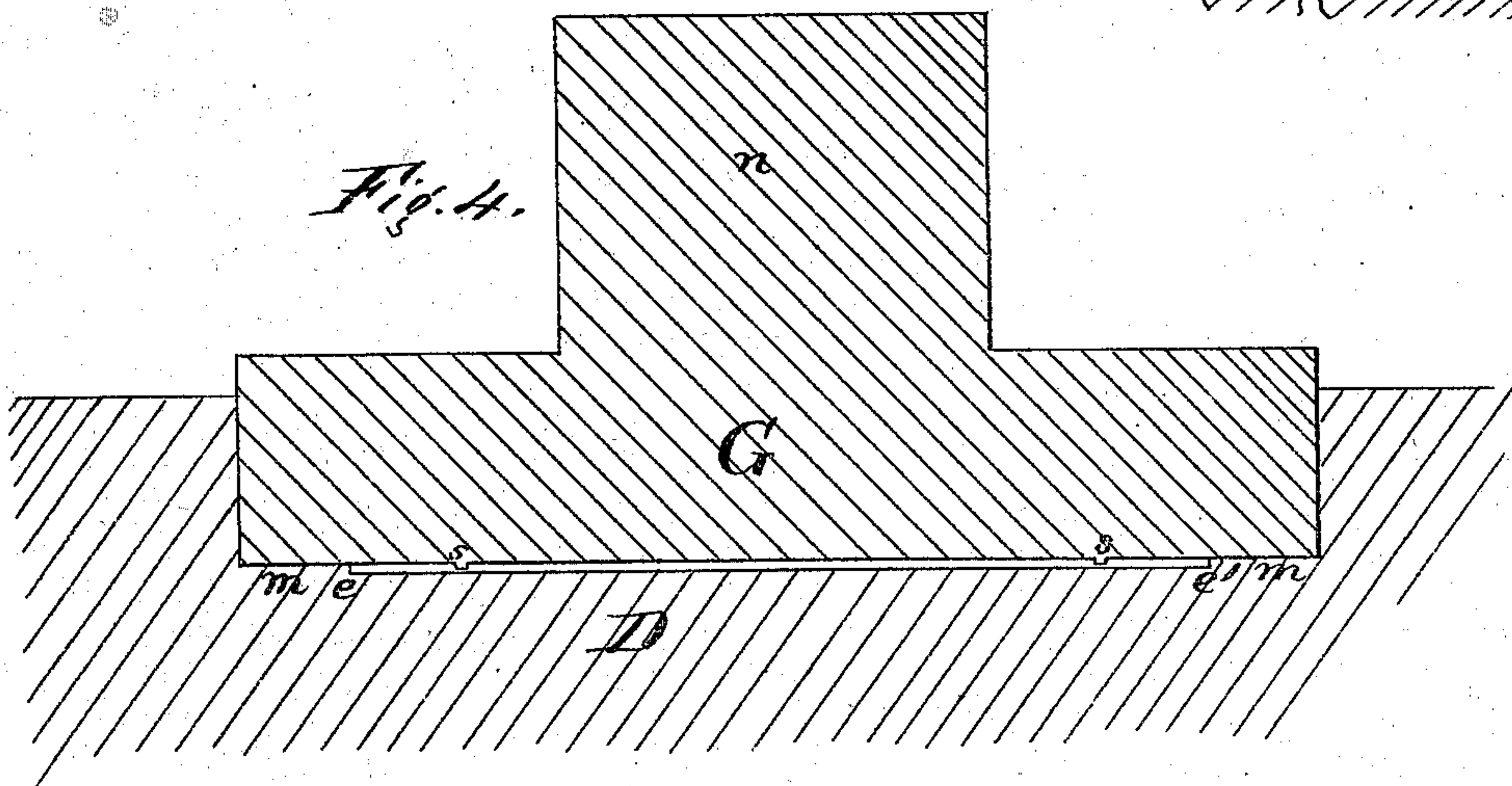


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

EDMUND MORTIMER WOOD, OF NEEDHAM, MASSACHUSETTS.

IMPROVEMENT IN METALLIC CANS FOR MEATS, PAINTS, &c.

Specification forming part of Letters Patent No. 136,890, dated March 18, 1873.

To all whom it may concern:

Be it known that I, EDMUND MORTIMER WOOD, of Needham, in the county of Norfolk and State of Massachusetts, have made an invention of a new and useful Improvement in Metallic Cans and other Vessels for containing Meats, Vegetables, Fruits, Paints, Drugs, Dye Materials, and other articles which require to be hermetically closed, and that the following is a full, clear, and exact description and specification of the same:

The objects of my invention are to enable hermetically-sealed vessels, such as cans, cases, boxes, and barrels, when made of strong sheet or plate metal, to be readily opened without the necessity of constructing any portion of them of a soft metal, or of constructing them with a projecting cap or head. To this end my invention consists of a vessel of plate-metal having its body (either at its side, bottom, or top) reduced or thinned in the line in which the cut is to be made for opening it; hence the cut may be readily made through such thinned portion, while the unreduced and consequently thicker portions of the metal at the sides of the reduced portion guide the cutting-edge. Moreover, as the effect of the reduction in a narrow stripe is to present the thin thickness of metal required for cutting, the metal of the side or top of the vessel in which such reduction is effected may be thick and strong, so that this system of construction enables a strong vessel to be made with the capacity of being readily opened by means of a slender-pointed knife; and as the reduction in thickness is made directly in the body of the vessel, (either its side, top, or bottom,) as distinguished from being made in a projecting head or cap, the cost of such a cap is saved, and the can or vessel can be packed in a less space than when it has such a head or cap.

In order that the invention may be fully understood, I will proceed to describe cans embodying it, and the means which I have employed with success to produce them.

Figure 1 of the accompanying drawing represents the top of such a can. Fig. 2 represents the cylindrical body of another such a can. Fig. 3 represents a fragment of the metal of the top of the can represented at Fig. 1, greatly enlarged. Fig. 4 represents a section of the

set of dies employed for producing the top of the can, represented at Fig. 1. Fig. 5 represents portions of the dies greatly enlarged, and with a fragment of the top of the can between them.

If the can is to be constructed so as to be opened by the removal of a part of its top, I construct such top, as represented at Fig. 1, of a plate of metal, A, reduced in thickness in a narrow ring stripe, *b* and *b*, Fig. 3, so that a groove is produced with a thin bottom, *c*, which can be readily pierced by the point of a knife, (even though it be slender,) and then cut by its edge in the line of the groove. The reduction of the metal may be effected in various ways, as, for example, by filing it away, or by turning it off in a turning-lathe, or by indenting or stamping it with a corresponding ridge tool. In case the plate of metal which is to be reduced is flat, as is generally the case when the can is to be so constructed that its top is to be opened, I prefer to effect the reduction by stamping the plate of metal by means of dies which I have devised for the purpose, and which are represented in section at Fig. 4. As the dies thus represented are adapted to operate upon round plates, the lower die D is a circular disk, having in it a circular cavity to receive the plate. A portion of this cavity, extending from *e* to *e'*, is of the diameter of the plate, or thereabout, so as to form a socket, in which it is received and held for stamping. This socket is surrounded by a ring fillet, *m*, of the thickness of the metal of the plate, or thereabout. The circular wall of the cavity rises above the top of the fillet, and forms a guide for the stamping-die G. The latter is constructed, by preference, with a shank, *n*, by means of which it may be secured in the slide or ram of a press or stamp, and it is formed to pass readily into the cavity of the hollow die. Its face is constructed with a projecting ring-ridge, *s*, corresponding with the size of the groove that is to be made in the metal plate.

In using these dies, the plate of metal is placed in the socket of the hollow die D, and is struck by the stamping-die. As the ridge *s* of the latter protrudes beyond the face of the die, it indents the metal, driving that which is beneath it sidewise, so that the metal is reduced in

thickness in the form of a ring-groove. The extent of reduction is controlled by the fillet m , which prevents the descent of the stamping-die after its face comes in contact with the fillet, and thus acts a gage for the extent of reduction. Hence the constructor of the dies can insure the reduction of the metal of the plate to the required thickness by the respective projections given to the indenting-ridges and the fillet or gage m . If the fillet at first be made too high either the opposite face of the stamping-die or the fillet may be reduced to permit the ridge to descend far enough to reduce the metal beneath it to the required extent. As the reduction is determined by the dies and not by the thickness of the plate of metal, the thickness of the reduced part will be always the same, however the thickness of the plates of metal may vary, provided the space between the faces of the dies be deep enough to receive the thickest metal of which the plates are constructed. In order to remove the stamped plate from the hollow die it is expedient to have the bottom of the die perforated, and a piston arranged to move upward through the perforation so as to expel the stamped plate. When the plates have been stamped cans are made up in the usual manner, using a stamped plate for the top which is to be opened.

If the metal is to be reduced in the form of a quadrangular groove, as may be expedient when the case is to have a square top or side, the dies must be made of the desired form—the indenting-ridge s being the counterpart of the groove to be produced.

If the can is to be opened by cutting around its cylindrical body, the metal of such body is reduced in a narrow belt or circumferential stripe, as at b , Fig. 2. The reduction should be effected before the top is applied to the can, by reducing the metal of the body in the line of the groove; and this may be done by means of the edge of a three-cornered file, or by turning off the metal in a turning-lathe; the body of the can being supported upon a mandrel during these operations.

I prefer, however, to produce the required reduction by means of a pair of rolls, one of which is movable toward and from the other. One of the rolls is a plain cylinder, and operates as a mandrel to support the body of the can, while the other is constructed with a projecting circumferential ridge, which, by means of a pressure-screw, is caused to indent the metal. The rolls are of smaller diameter than

the can, and are overhung their bearings so that the rim of one side of the can may be readily inserted endwise between the two while they are separated, and may then be gripped between them. The turning of the rolls and the operation of the pressure-screw effects the indentation of the metal in a ring-groove, and its consequent reduction at the bottom of the groove, leaving the residue of the metal of its original thickness, or thereabout.

The foregoing description is sufficient to show that the invention may be carried into effect in various ways, and that it is not restricted by the peculiar means employed to reduce the metal, or by the form of the groove produced by such reduction; the essential characteristic being, that the metal is reduced or thinned in the line in which the can or other vessel is to be cut open, so that it is thinner at that line than at each side of it; and that the reduction is made in a plate of the metal which forms part of the body of the vessel. In making up the can the groove produced by thinning the metal may be arranged either at the inner side or at the outer side of the can, as deemed expedient.

Having thus described my invention I declare that I am aware that the heads and bodies of cans and boxes have been grooved by swaging them so that the groove produced at one side of the metal is accompanied with a corresponding projection at the opposite side, but without any material reduction or thinning of the metal; and therefore I do not claim, broadly, a swaged or grooved can or case. I am also aware that vessels have been constructed with caps or heads projecting beyond their bodies, and with a portion of the metal of such head reduced in thickness so that it may be readily cut; and therefore I do not claim a plate-metal vessel having a projecting head thinned so that it may be readily cut.

What I claim as my invention, is—

A plate-metal vessel, having its body reduced in thickness in a narrow stripe along the line in which it is to be cut, the metal at each side of said stripe being thicker than at said stripe, as before set forth, such vessel being a new article of manufacture.

Witness my hand this 18th day of September, A. D. 1871.

Witnesses: EDMUND M. WOOD.

JAMES J. STORROW,

CHAS H. DREW.