

(No Model.)

J. H. J. HAINES.  
KNOCKDOWN PACKING VESSEL.

No. 393,899.

Patented Dec. 4, 1888.

Fig. 1.

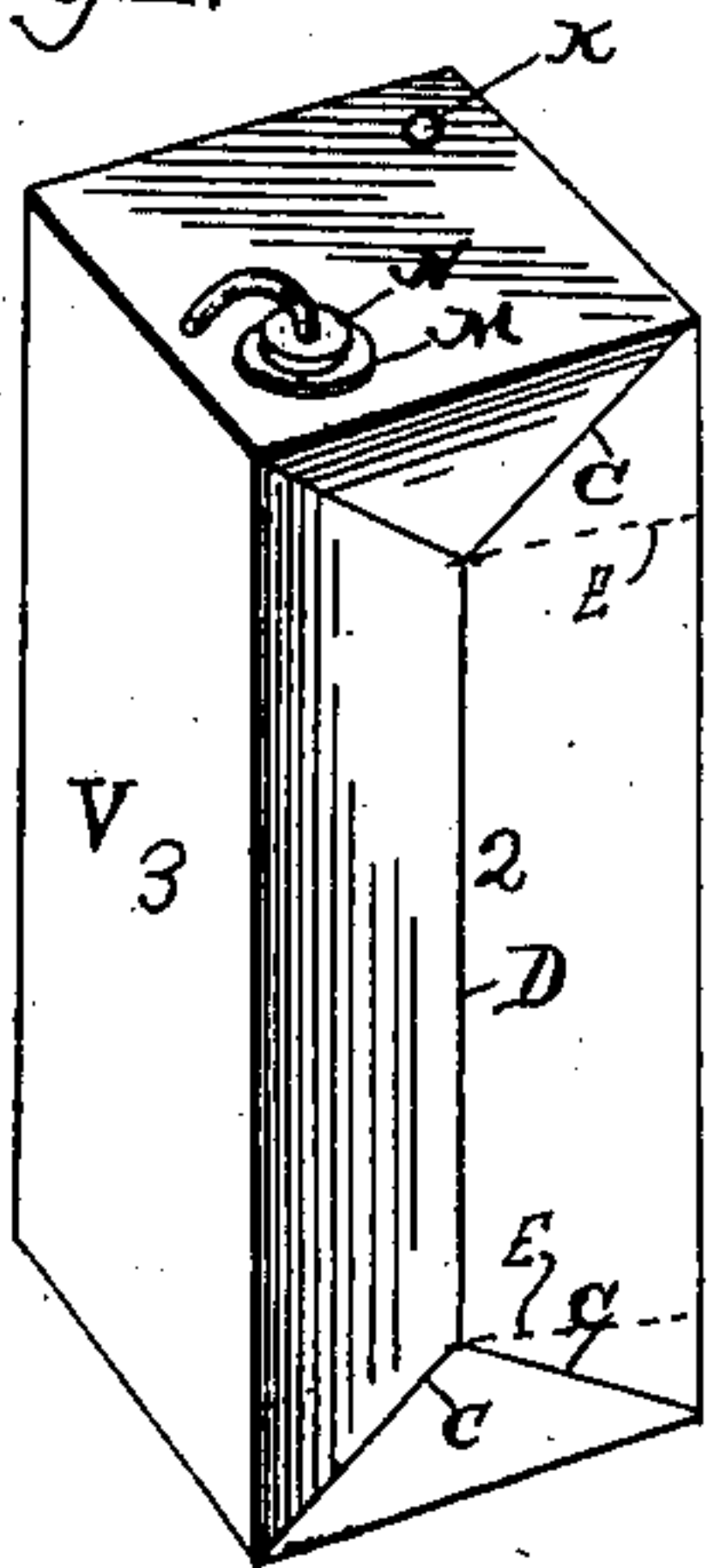


Fig. 2.

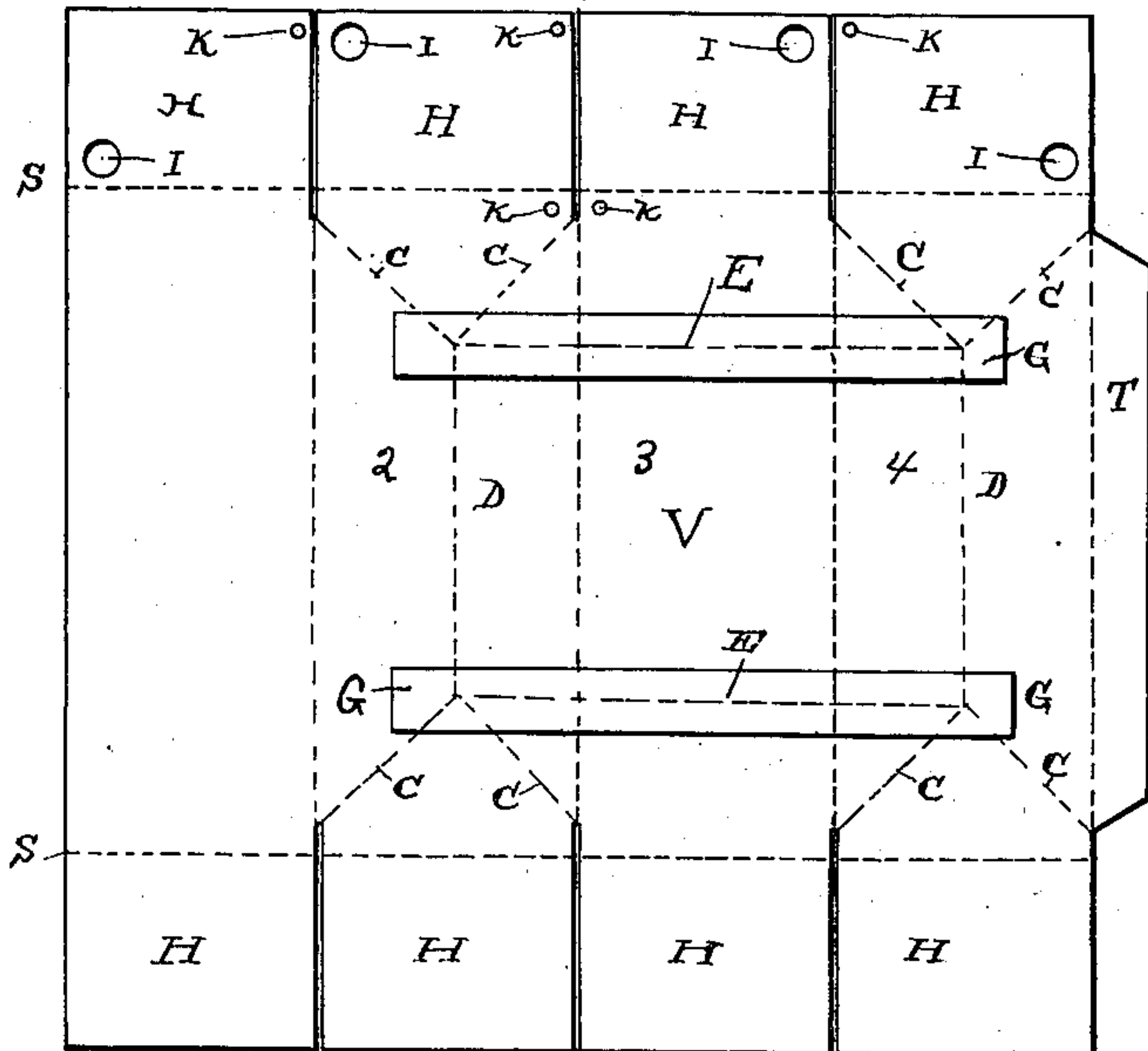


Fig. 3.

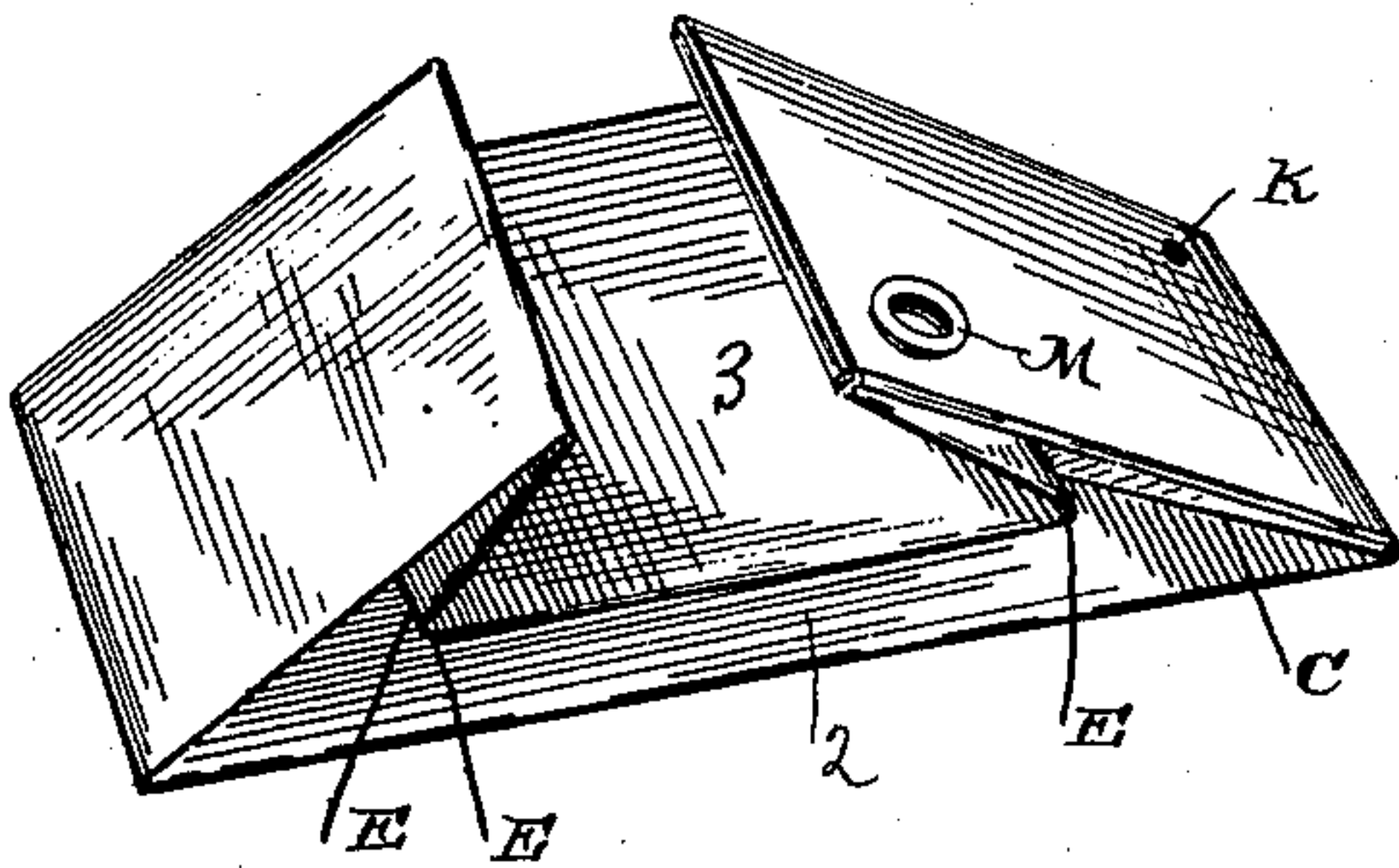


Fig. 5.

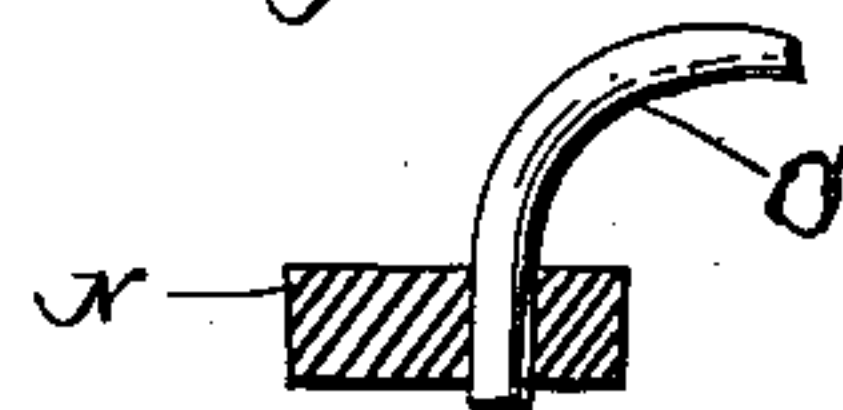


Fig. 4.

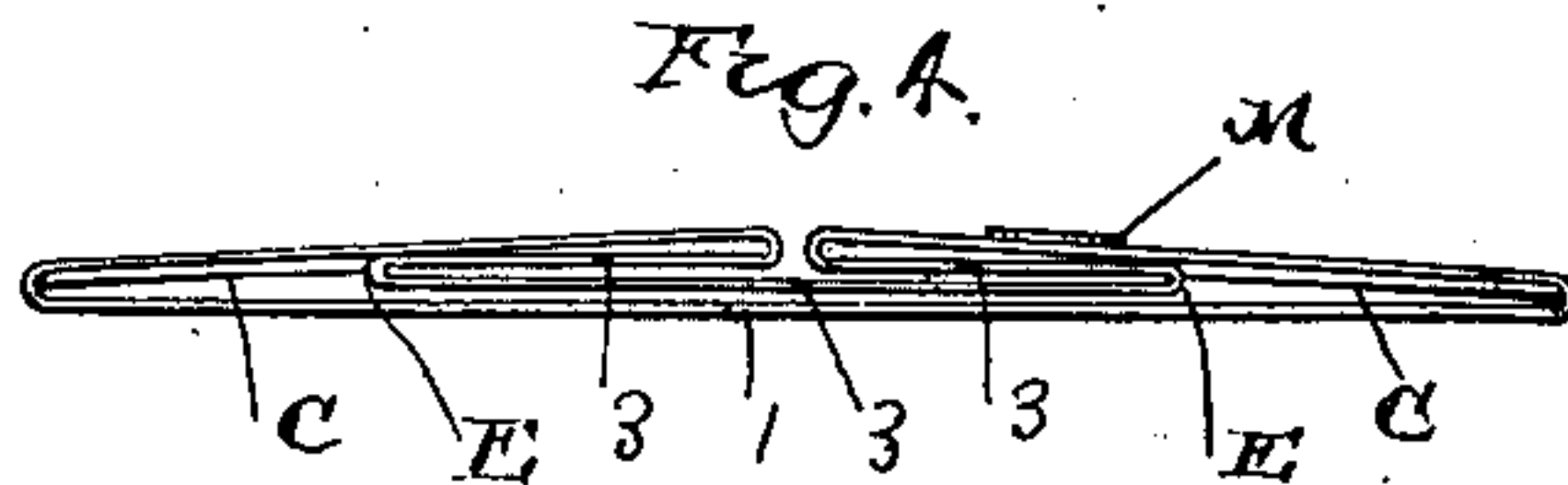


Fig. 7.

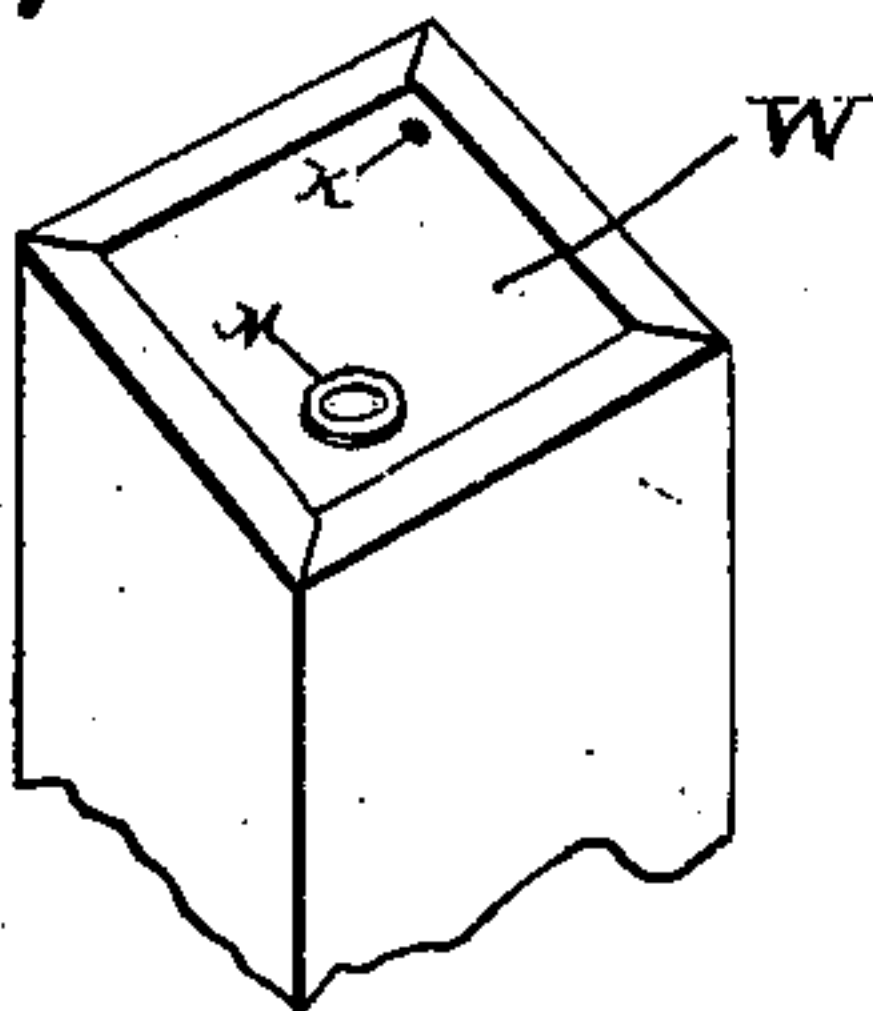
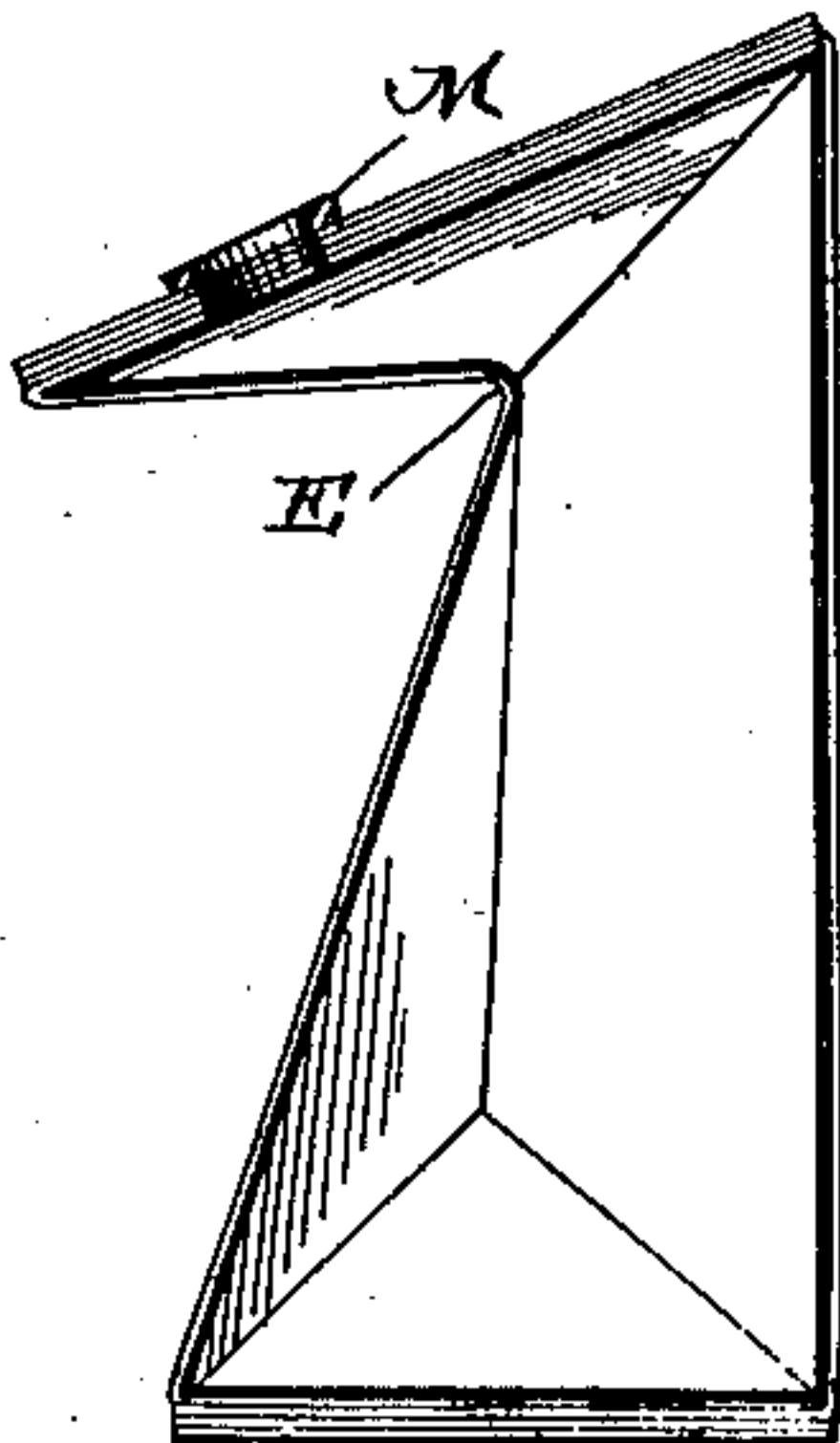


Fig. 6.



Witnesses,  
Via R. Steward.  
H. K. Capel.

Inventor,  
JOHN H. J. HAINES,

By his Attorneys

Truesdell & MacArthur.



# UNITED STATES PATENT OFFICE.

JOHN H. J. HAINES, OF FLUSHING, NEW YORK.

## KNOCKDOWN PACKING-VESSEL.

SPECIFICATION forming part of Letters Patent No. 393,899, dated December 4, 1888.

Application filed July 10, 1888. Serial No. 279,495. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. J. HAINES, a citizen of the United States, and a resident of Flushing, in the county of Queens and State of New York, have invented a certain new and useful Knockdown or Collapsing Packing-Vessel, of which the following is a specification.

The object of my invention is to furnish a collapsible, folding, or knockdown packing-vessel especially adapted for holding oils or oily materials, or any other substance, without danger of leakage and without exposure of the contents to the air. By suitably varying the interior coating, the vessel may be used for transportation of acids or liquids containing acids.

My invention consists, essentially, in the new article of manufacture hereinafter described and claimed.

In carrying out my invention I employ a flexible or elastic composition lining consisting, preferably, of a mixture of glue and molasses, which is applied to the plain surfaces as well as to the joints or crease lines of the box, and which forms an elastic or flexible lining unbroken and integral throughout the whole interior of the vessel.

My invention produces a packing-vessel especially adapted for use as a coal-oil can.

My invention consists, further, in the novel construction of vessel as made from paper, straw-board, or any form of pasteboard, or of wood veneer, or even from cloth. I prefer to employ as the material some flexible or pliable material, such as cloth or paper, though I do not limit myself in this case.

In the accompanying drawings, Figure 1 is a perspective view of a collapsible or folding packing-vessel embodying my invention and specially designed for use as a coal-oil can. Fig. 2 represents in plan the blank devised by me for making a can of the form hereinafter described. Fig. 3 shows the vessel as partially folded or collapsed. Fig. 4 shows the vessel when collapsed ready for transportation, in edge view. Fig. 5 is a vertical section of the cork or stopper. Fig. 6 is a cross-section through the vessel partially collapsed. Fig. 7 represents a modification in the manner of constructing the solid head for the vessel.

In order that the vessel may collapse or fold down into the form shown in Figs. 3 and 6, with its two heads and three of its sides lying flat upon the fourth side, I provide breaks, creases, or joints, as indicated in Figs. 1 and 2. Two of the sides opposite one another are provided with the diagonal breaks, joints, or creases C C, (shown in Fig. 1,) and with the vertical or central joint, break, or crease, D, joining the point of meeting of the diagonal creases or joints C. A cross break, crease, or joint (indicated by the line E) is located at a distance from the heads, the same as the junction-point of the creases or joints C, and extends clear across one of the sides of the box, as indicated, and partially across each of the two opposite sides having the diagonal creases or joints C C to the point of junction of such creases or joints.

By means of the creases or joints C C D each of two opposite sides of the box is permitted to collapse upon itself, while by means of the crease or fold E the two heads and side V may be folded down upon the fourth side in the manner clearly indicated in the drawings.

I use the term "joint" in this specification to signify the line upon which the smooth or plain surfaces of the vessel are united in a proper manner to admit of their readily folding down one upon the other. It is quite obvious that this jointing may be effected either by creasing the material or by forming the side walls in separate pieces and uniting these separate pieces by means of another piece of material.

The form of the blank from which the vessel is produced is indicated in Fig. 2, where the location of the crease or fold lines is clearly shown. The creases or joints may be made by a suitable die, or by any means known in the art of paper-box making. The blank which has the side portions, 1 2 3 4, is formed with a flap, T, at one end, which completes the structure of the sides of the box, at one point being suitably glued or fastened in a manner well understood.

The heads of the box—that is to say, both the top and the bottom of the same—are made solid by cutting the blank with the four flaps H at opposite sides thereof, so as to make at each end a solid head, owing to the fact that



there are four thicknesses of the paper or other material at such point.

To make a mouth for the can, I prefer to cut the flaps of the blank with openings (indicated at I) of suitable size, which will register with one another when the flaps are folded down upon one another to make the head. The opening may be strengthened with a ring or washer, M, of pasteboard or other suitable material, glued or cemented to the head.

The mouth of the vessel may receive a suitable stopper, N, provided with a nozzle, O, for use when the vessel is employed for holding coal-oil or other liquid. A vent is provided by means of a smaller opening, K, which I also prefer to construct by making suitable openings, K, in the flaps of the blank and in position to register when the flaps are folded down. A solid head might also be formed by making a separate head, W, of card-board, (indicated in Fig. 7,) upon which extensions of the four sides are folded down and to which they are glued or cemented. In this instance the flaps of the blank would extend outward only to the dotted lines S.

When the can is made from paper or card-board, a strengthening or re-enforcing strip, G, Fig. 2, may be applied at the point of union of the diagonal crease or joint lines C C, the vertical or central line, D, and the cross break-line E. The re-enforcing strip may be extended clear across the whole length of the line E, as indicated in Fig. 2, or, as will be obvious, the re-enforcing strip of cloth or other material may be applied to the whole blank. In the case of very thin paper or pasteboard this will be found to be desirable.

Instead of making the vessel from paper or from paper and cloth, it may be made from cloth alone.

The elastic inner coating is preferably applied after the construction of the can and covers the whole of the plain surfaces and extends across from one plain surface to the other over the line of the joints, creases, or folds of the vessel. The material which I prefer to employ to make the elastic interior coating consists of a combination of glue and molasses in any desired proportions, though I prefer to employ a composition consisting of one pound of glue and five or six ounces of molasses melted together in a suitable vessel. I do not limit myself to these exact proportions, since the proportions will vary according to the temperatures to which the vessel is liable to be exposed, the increase in proportion of molasses serving to increase the elasticity or pliability of the coating at low temperatures.

Instead of glue any similar material—such as gelatine or other animal or vegetable glutinous substance—may be used, and in place of molasses I may employ sirup, sugar, honey, or other saccharine material having similar effect in combination with the glue or gelatine.

It may sometimes be desirable to add a

slight quantity of bichromate of potash, in order to render the coating insoluble in water or watery substances. The coating may be applied by introducing into the can the melted mixture or composition and agitating the vessel, so as to distribute the coating over the entire surface, after which any superfluous material may be removed. The operation may be repeated to increase the thickness as often as desirable. The coating thus made and applied forms an elastic or yielding lining impervious to the action of oily material and forming an effectual seal, owing to the fact that it covers not only the plain surfaces of the collapsible vessel, but also extends across the joints or folds in the same.

The composition described is particularly adapted for vessels intended to hold coal-oil.

In order to prevent the interior surfaces of the vessel from sticking together when the vessel is folded, a little oil may be introduced after the construction is completed.

In the case of a vessel designed to contain chemical substances, such as acids, alkalies, or other chemical materials, such as deliquescent substances, I apply to the interior of the same a coating or elastic lining consisting of a composition of beeswax or paraffine with Canada balsam or balsam-fir, or Venice turpentine, in the proportions of about one pound of wax or paraffine and two to four ounces of the balsam-fir, or its equivalent. If balsam be used in excess, any acid in the vessel would be liable to act on the balsam so much as to impair the integrity of the elastic lining. An excess of balsam would also render the lining sticky. If there is a tendency of the surfaces to stick to one another when the vessel is folded—as, for instance, in hot weather—I introduce into the same a little glycerine and water mixed in equal proportions.

A small quantity of paraffine-oil or other suitable oil may be used in combination with the wax or paraffine and the balsam or Venice turpentine for rendering the wax or paraffine elastic and yielding.

It is obvious that my invention is not limited to any particular form of packing-vessel, provided that such vessel shall be a collapsible or folding one. Nor do I limit myself to the character of the lining, the only essential being that it shall be a yielding or pliable composition adapted to withstand the action of the contents of the vessel and applied over the interior plain surfaces thereof and across the joints or folds, such lining being integral throughout the whole interior of the vessel.

It will be seen that by my invention I produce a collapsible packing-vessel adapted to contain liquids and thoroughly reliable at all times, inasmuch as the pliable or yielding lining protects the joints or creases where the liability to leak occurs, as well as all other interior plain surfaces.

What I claim as my invention is—

1. As a new article of manufacture, a collapsible or folding oil-can having solid heads and



jointed side walls, the interior of said vessel being provided with a coating of yielding or elastic material impervious to oil, and covering the plain surfaces as well as the joints of the interior, as and for the purpose described.

2. A folding box or vessel of paper or other material having at two opposite sides the diagonal creases or joints C C, united by a middle crease line, D, and at one of the other sides a cross break or crease, E, to permit the latter sides to be folded when the heads are turned down upon the fourth side of the vessel.

3. As a new article of manufacture, a collapsible or folding packing-vessel having solid

heads and creased side walls, the interior of said vessel being provided with a coating of yielding or elastic composition, substantially such as described, which covers the plain surfaces as well as the crease lines of the interior and forms a lining complete or integral over the whole interior of the vessel, as and for the purpose described. 20

Signed at New York, in the county of New York and State of New York, this 9th day of July, A. D. 1888. 25

JOHN H. J. HAINES.

Witnesses:

WM. H. CAPEL,  
HUGO KOELKER.