

(No Model.)

G. W. BANKER.
VENTING DEVICE.

No. 577,410.

Patented Feb. 23, 1897.

Fig. 1.

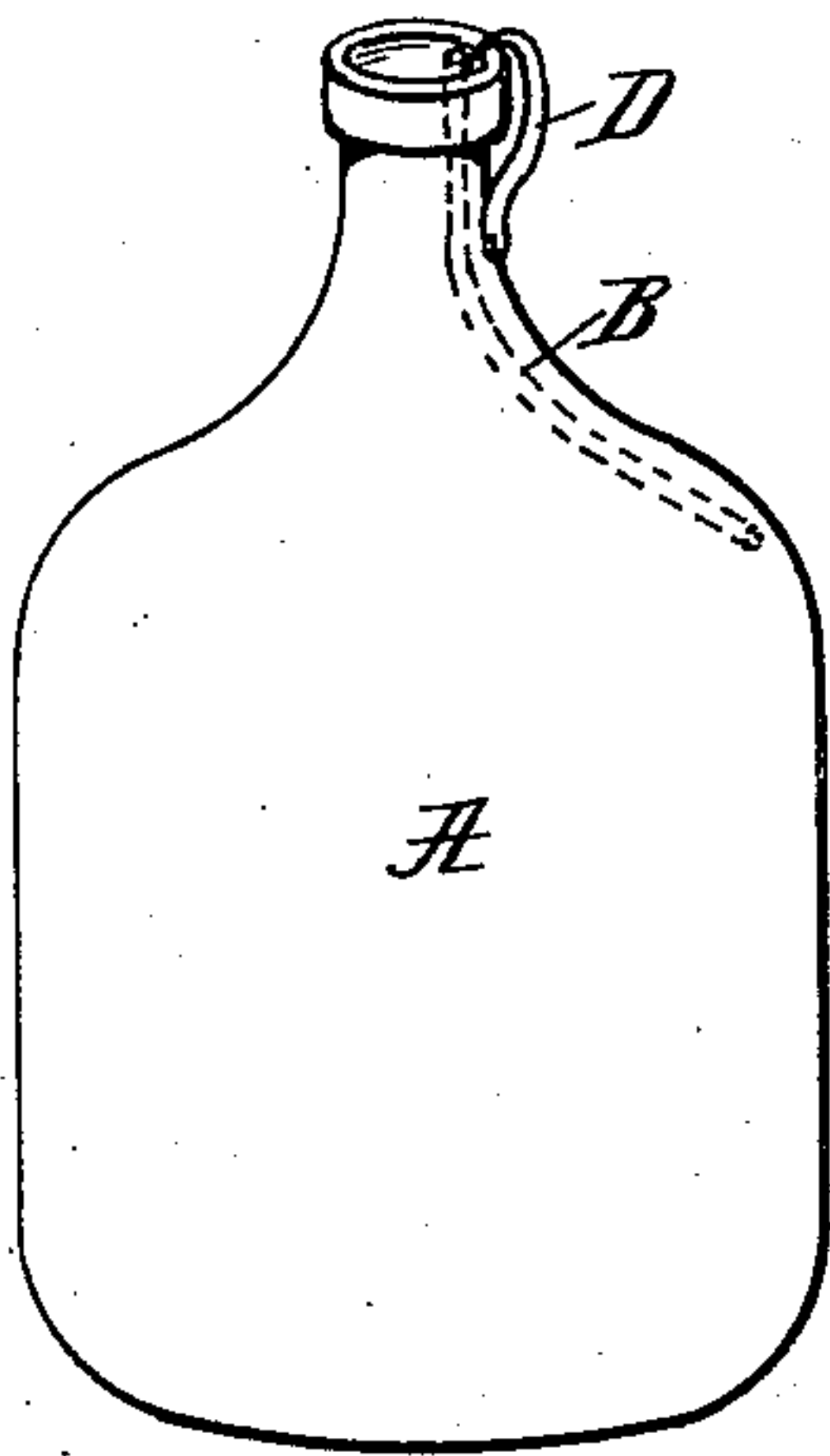


Fig. 2.

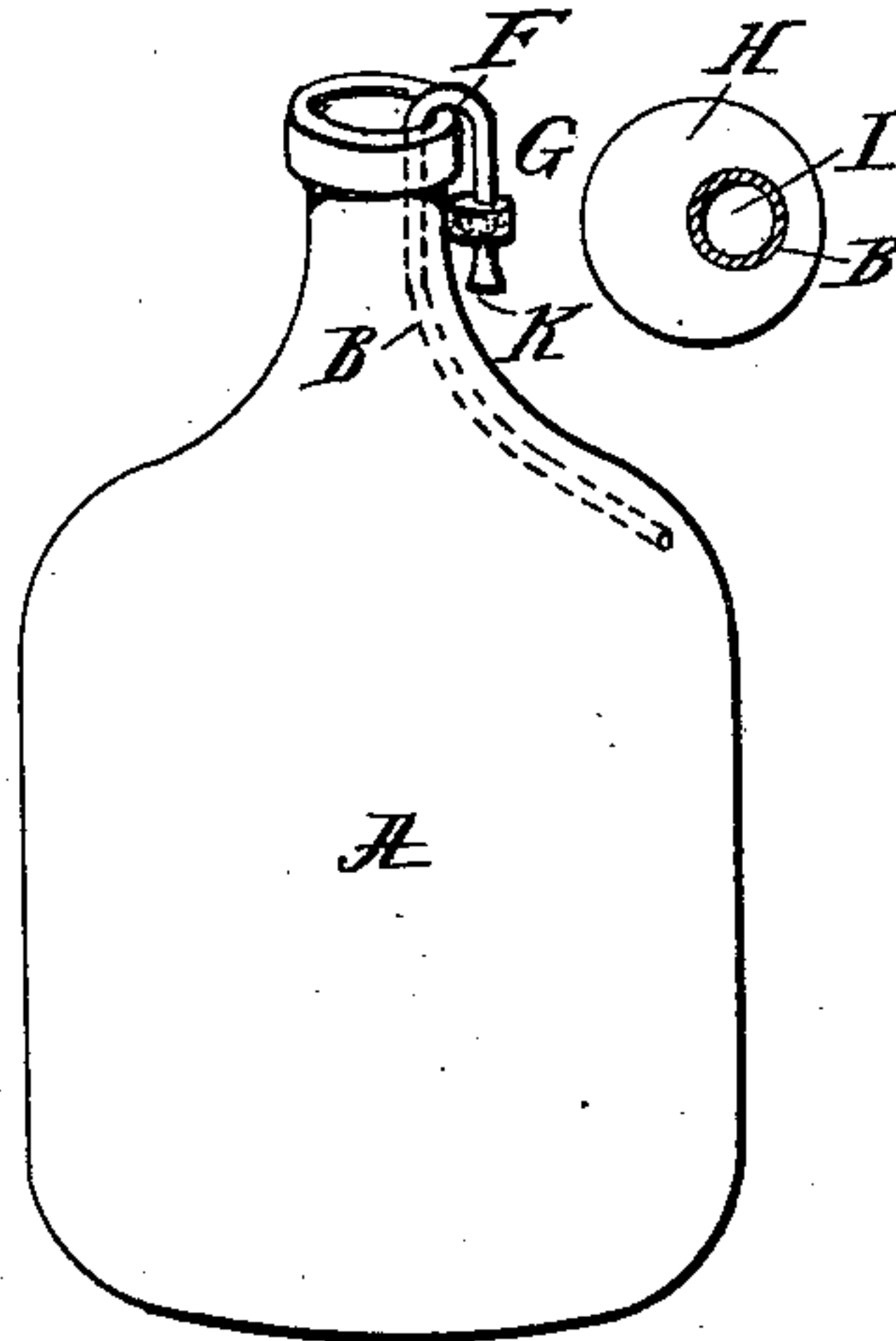


Fig. 6.

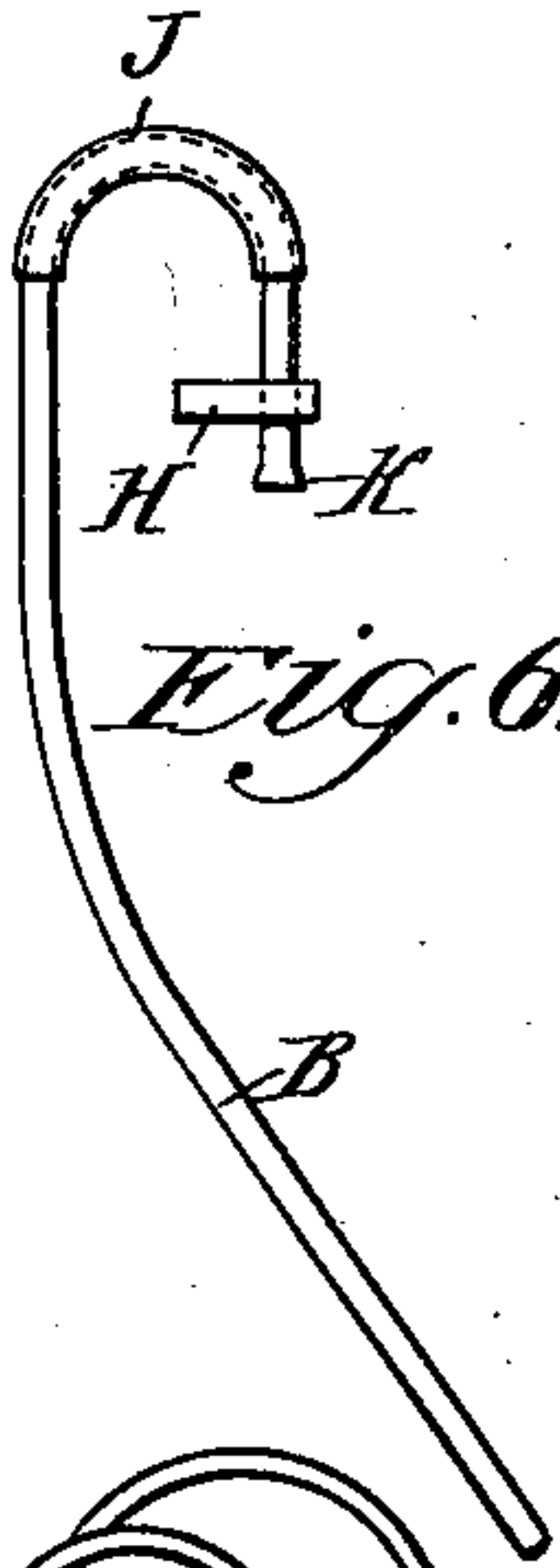


Fig. 3.

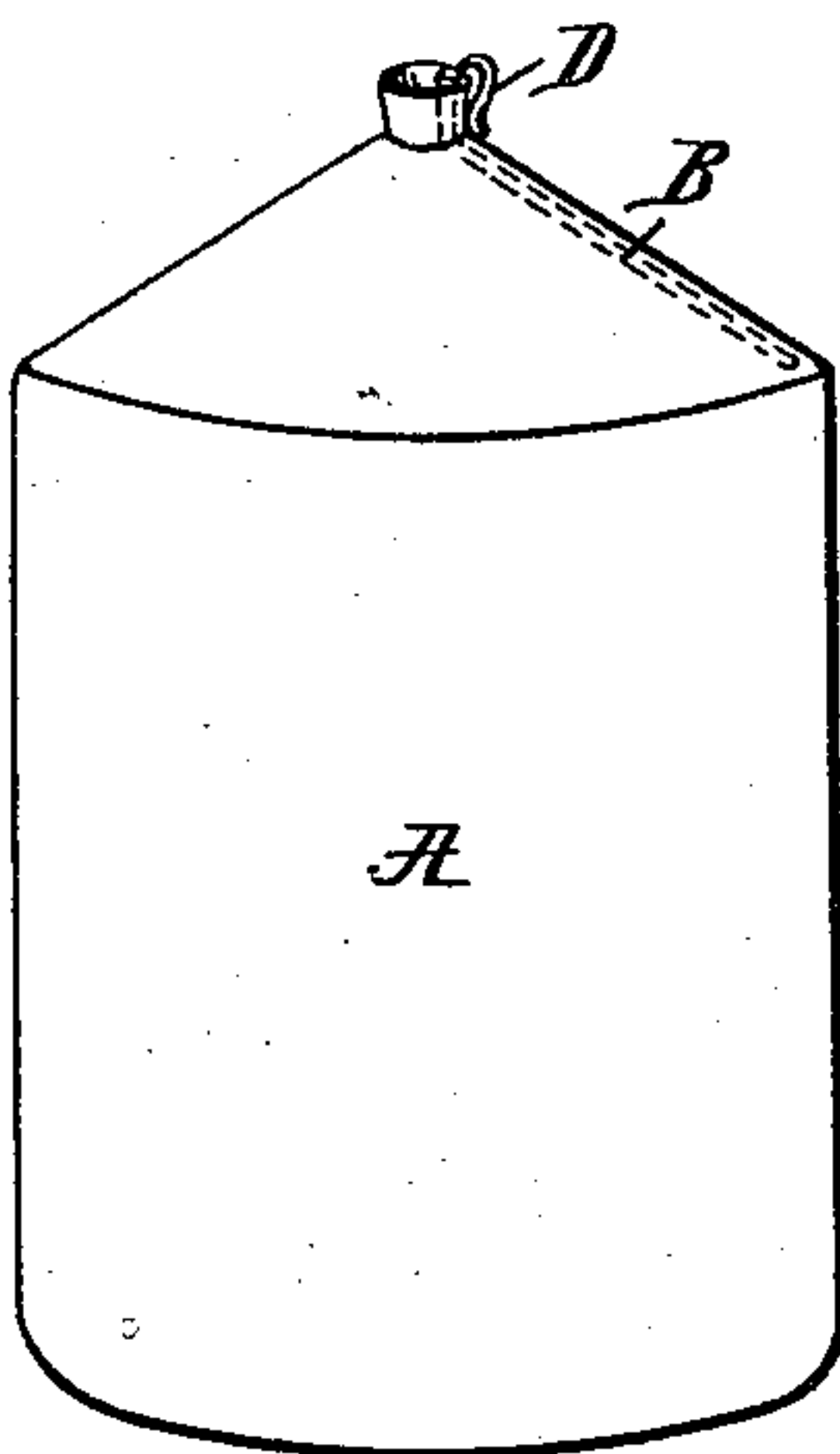


Fig. 4.

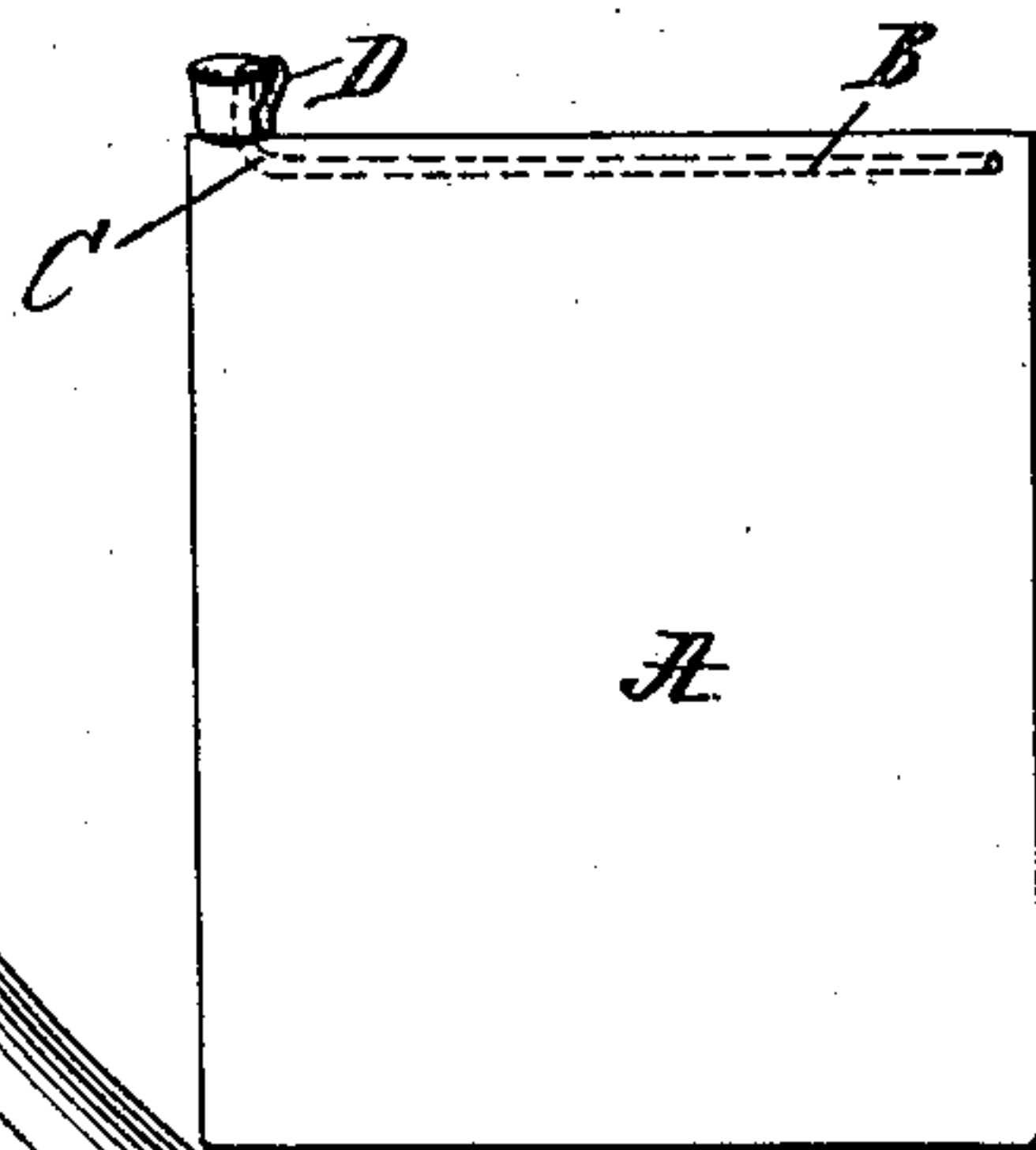
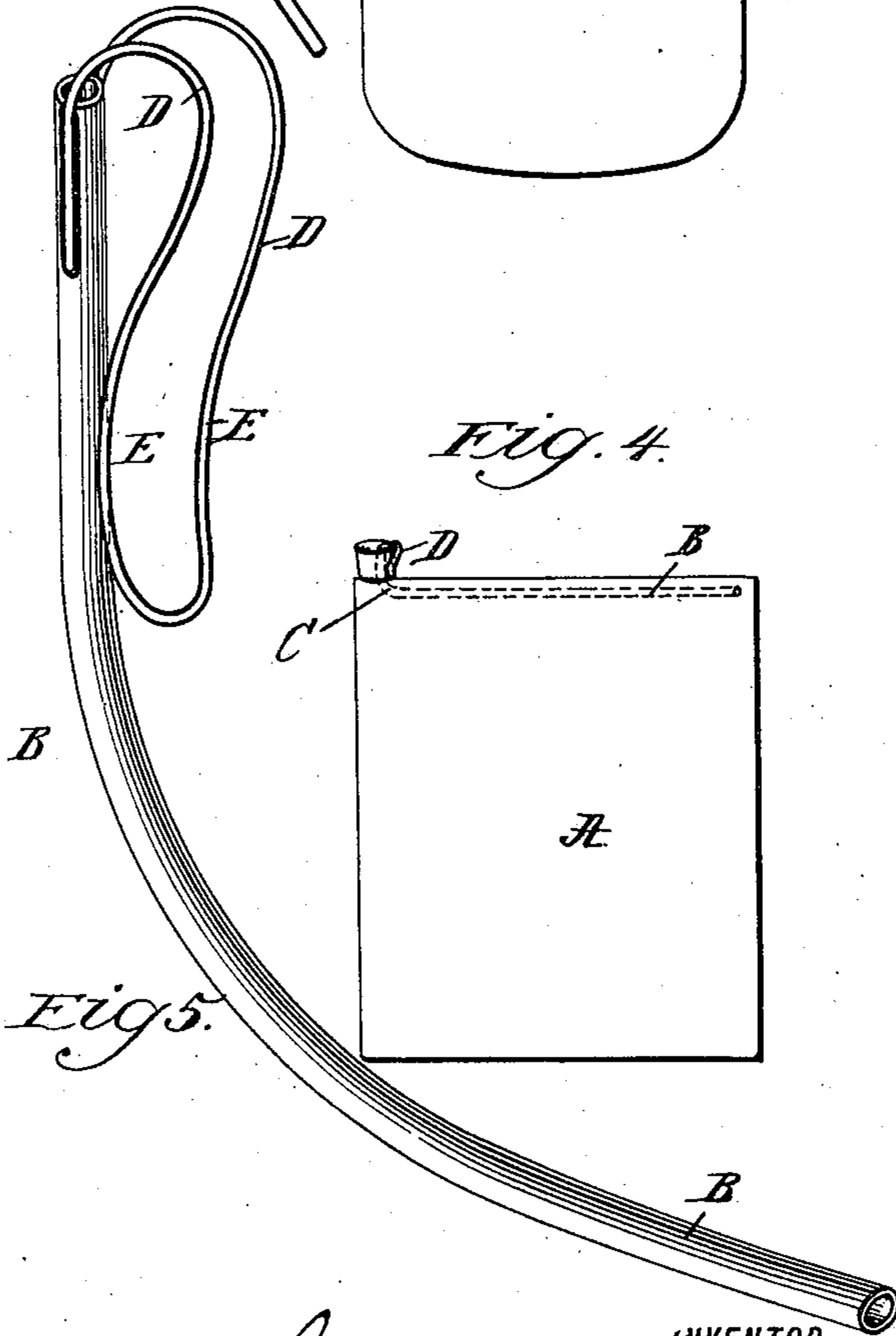


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE W. BANKER, OF AU SABLE FORKS, NEW YORK.

VENTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 577,410, dated February 23, 1897.

Application filed May 13, 1896. Serial No. 591,327. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BANKER, a citizen of the United States, and a resident of Au Sable Forks, in the county of Essex and State of New York, have invented a certain new and useful Improved Venting Device, of which the following is a specification.

My invention relates to a new and improved device for venting demijohns, carboys, cans, and similar vessels.

Many valuable and in some cases dangerous liquids are put up for the market in bottles, demijohns, carboys, metallic cans, and like receptacles. In emptying such vessels the liquid usually fills the delivery-spout or mouth thereof and thus tends by its outflowing to create a vacuum within the vessel, which can only be relieved by the periodical passage of a bubble of air from the outside through the mouth to the inside of the vessel, thus interfering with the flow of the liquid and causing its delivery in a very uneven stream, so that unless the receptacle or funnel into which the liquid is being poured is quite large spilling of it is almost inevitable, which not only occasions loss of the liquid and damage to surrounding objects, but also, in the case of acids and other chemical liquids, is attended with more or less danger of accident. Various devices have heretofore been invented to obviate this difficulty. Among them, and perhaps the only practically useful detachable device, are the so-called "vented faucets," which, although they accomplish the object quite well, are open to the following serious objections: They are quite expensive and complicated in structure and can only be applied to vessels the mouth or opening of which is of the right size to fit them, and inasmuch as different manufacturers ship their goods in vessels the mouths of which differ in size and shape it is obvious that a dealer in such goods, as well as the users, must be in possession of a large number of vented faucets of differing sizes, and in addition to the foregoing objections there are the more serious ones that they are difficult to clean and keep in operative condition because of their relatively complicated construction, and also it is impossible to empty

a vessel quickly by their use, because the major part of the mouth of the vessel is occupied or filled with the cork or other packing necessarily used to make a tight joint with the mouth of the vessel and with the metal tube which supports the packing. Consequently the delivery of the liquid is necessarily slow.

By my invention I provide an inexpensive, simple, and effective device which is adapted to use upon any kind of vessel having an opening or mouth of any size, and it may be used in conjunction with any kind of liquid.

In the drawings hereof, Figure 1 illustrates an elevation of a demijohn embodying one form of my invention. Fig. 2 illustrates an elevation of a slightly-modified construction. Fig. 3 illustrates an elevation of a conical-topped tin can with the invention applied thereto. Fig. 4 illustrates a flat-topped tin can with the invention applied thereto. Fig. 5 illustrates in elevation a view of the venting device detached from the can and enlarged. Fig. 6 illustrates the venting device when made of fragile material, and shows means whereby it may be strengthened at the place where fracture is most liable to occur.

A in all the figures represents a demijohn, bottle, carboy, metallic can, or other suitable vessel. I have not attempted to show the exact outline of these vessels, because they vary greatly, and their particular character or shape forms no part of this invention.

The venting device is composed of a rigid or substantially rigid tube B, so that it will maintain its proper position within the vessel. It is preferably curved or bent in such manner as desired to adapt it to be properly used in connection with vessels of different sizes and shapes. Ordinarily when curved substantially as shown in Fig. 5 it will fit vessels of all sizes and shapes; but sometimes, as, for instance, when the vessel is a flat-topped can, such as shown in Fig. 4, it is desirable to bend the tube somewhat sharply, as shown at C, so that it may when in position lie close to the upper surface of the can, so as to be out of the liquid when the can is tilted.

D is an elastic spring-like structure which is soldered or otherwise attached to the upper

end of the vent-tube B and is so bent or formed as to curve over outwardly and then approach the tube again, so as to provide a spring-like structure which will span over or
 5 bridge the material of which the neck of the vessel is made at one side of its mouth and will engage with spring-pressure against the outside of the neck, the venting-tube being on the inside, and thus hold the tube in po-
 10 sition. I prefer to make this tube-holding device from relatively stiff spring-wire, as clearly seen in Fig. 5, because if so constructed the two ends of the wire which are attached to the tube may be attached separately upon
 15 opposite sides of the tube, thus securing firm attachment, and when placed in position upon the neck of the vessel the two sides of the wire loop, as seen at E E, engage with the cylindrical sides of the neck and clasp it be-
 20 tween them, so to speak, furnishing support at two points. Instead of a wire, however, a flat piece of spring metal suitably bent into shape may be employed, or any other suitably-constructed device, so long as it bears
 25 the stated relation between the tube and the mouth or neck of the vessel, whereby the former is supported.

The tubes may be made of metal, rubber, celluloid, glass, or any other suitable material; but when the vessels contain acids or
 30 like corrosive liquids I prefer to make the tubes of material such as glass, which will not be injuriously acted upon by them, and inasmuch as the spring-holding device D cannot be soldered to glass and other means of
 35 attaching it would be inconvenient I employ the device shown in Figs. 2 and 6, in which the tube B is bent upon itself, as at F, so that a part of it, G, lies on the outside of the
 40 neck of the vessel parallel with a portion of the tube which is on the inside, and since there is no elasticity in this bent-over end of the glass in order to supply a device whereby it may be held in operative position I pass
 45 over the end of the tube a disk, preferably of rubber, cork, or similar material, (shown at H in Fig. 2,) in which I make a hole I eccentric to its center. Through this hole the tube B passes, and it will be observed that when
 50 the tube is in proper position by simply turning the disk its arc of greater projection will take a bearing against the outside of the neck of the bottle and will hold the tube in proper position. This action will be aided if the
 55 disk be made of cork, rubber, or other elastic material. Consequently, due care being observed, there is no danger of a degree of pressure being exerted which will fracture the tube.

60 In order to strengthen the tube at the curved part, (marked F,) where fracture is most likely to occur, I reinforce it by an external wrapping J, which should be of material not affected by the acids or chemicals contained
 65 in the vessel. I sometimes use an acid-proof

rubber sleeve or covering, because it not only strengthens the curved part of the tube but relieves it from shock in the event of its being pushed down quickly, so as to strike the upper edge of the mouth of the vessel. Wrap-
 70 ping with suitably-treated cord or woven material may, however, be substituted for the rubber, and also any suitable rigid covering, such as vulcabeston or other acid-proof cement, soluble glass preparations, &c., may be
 75 used.

In order to prevent the clamping-disk H from dropping off from the end of the vent-tube B, I sometimes slightly enlarge that end of the tube, as shown at K, Figs. 2 and 6. 80

The operation of the device is obvious. When it is desired to empty the vessel, the cork or stopper is removed and then my venting-tube is introduced at one side of the mouth or opening, and being adjusted, as described,
 85 is held in position by the clamping device. Now upon tilting the vessel in such manner that the vent-tube comes upon the upper side the liquid will flow out in an even, steady, smooth stream, it being impossible to form
 90 any vacuum within the vessel because the external air passes through the tube to the inside of the vessel as the liquid flows out, and if any of the liquid should get into the tube the pressure of the external atmosphere will,
 95 as soon as any tendency to form a vacuum has arisen, immediately expel such liquid back again into the interior of the vessel.

I do not limit myself to the special details of construction shown and described, because
 100 it is evident that modifications may be made therein without departing from the essentials of the invention.

I claim—

1. A detachable venting device comprising
 105 a substantially rigid tube adapted to enter the vessel, and a spring-holding device attached at or near the outer end thereof, adapted to engage with the exterior of the neck of the vessel, for the purposes set forth. 110

2. A detachable venting device, comprising a substantially rigid tube bent to conform to the shape of the interior of the vessel, in conjunction with which it is to be used, and a spring-holding device attached at or near the
 115 outer end thereof, adapted to engage with the exterior of the neck of the vessel, for the purposes set forth.

3. A detachable venting device comprising a substantially rigid tube, and a spring-hold-
 120 ing device attached at or near the outer end thereof, constructed and arranged to engage with the exterior of the neck of the vessel at more than one point for the purposes set forth. 125

4. A detachable venting device comprising a substantially rigid tube bent upon itself, so that when in operative position, it will be partly inside and partly outside of the neck
 130 of the vessel, and a rotary disk eccentrically

connected with said tube, for the purposes set forth.

5 5. A detachable venting device comprising a substantially rigid tube bent upon itself, so that when in operative position, a portion of it is inside and a portion outside of the neck of the vessel, means attached to the tube, and adapted to engage the exterior of the neck of the vessel, and reinforcing or strengthening

material located at the curve in the tube, for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 9th day of May, A. D. 1896.

GEO. W. BANKER.

Witnesses:

PHILLIPS ABBOTT,
E. SIMPSON.