

(No Model.)

A. T. KING.
BOTTLE STOPPER.

No. 284,561.

Patented Sept. 4, 1883.

Fig. 1.

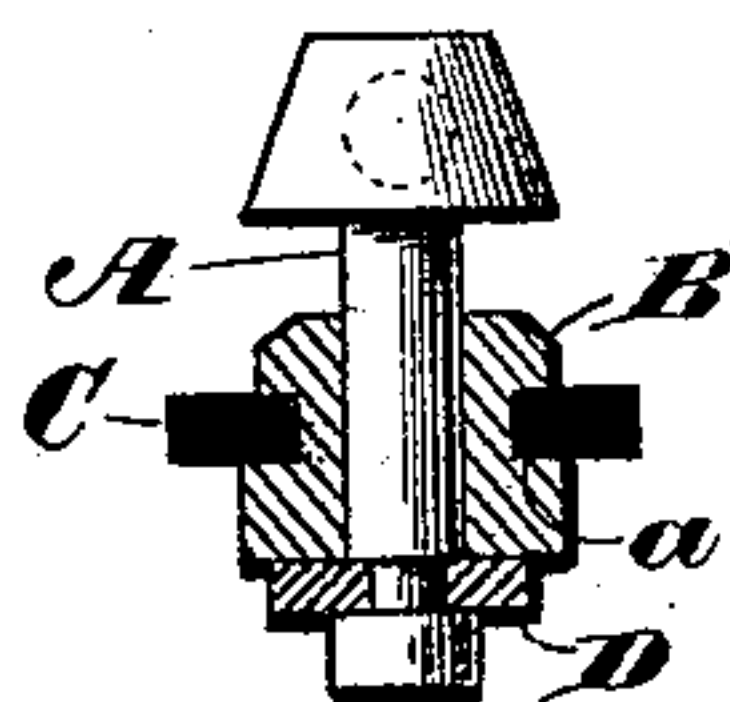


Fig. 2.

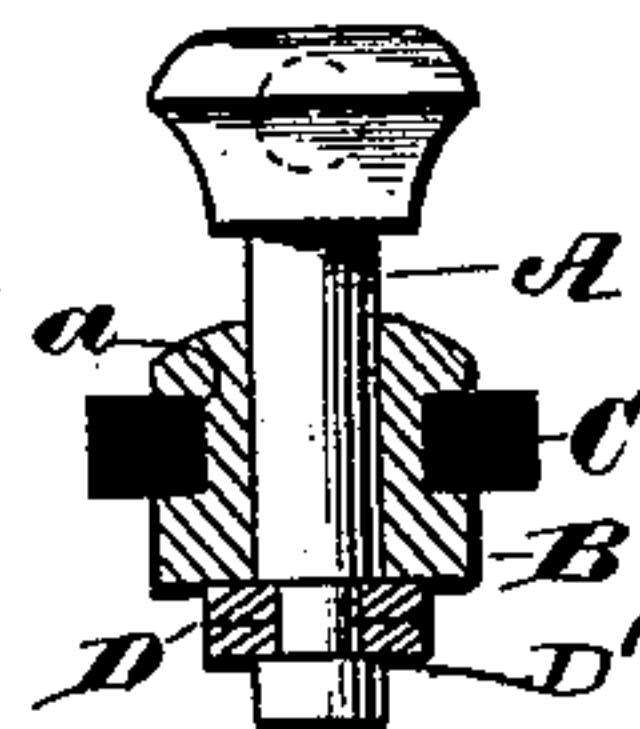


Fig. 3.

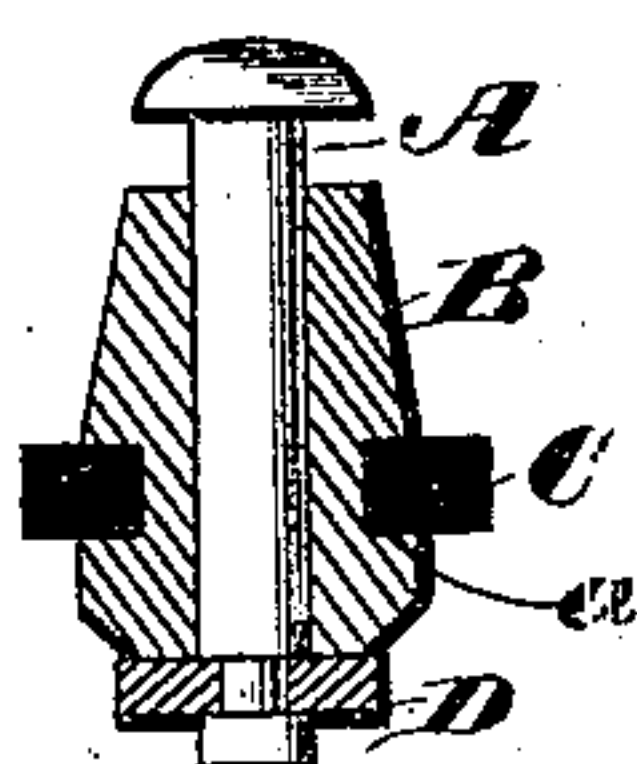


Fig. 4.



WITNESSES
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ALFRED T. KING, OF NOTTINGHAM, ENGLAND.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 284,561, dated September 4, 1883.

Application filed February 2, 1882 (No model.) Patented in England July 16, 1881, No. 3,102.

To all whom it may concern:

Be it known that I, ALFRED T. KING, a resident of Nottingham, England, and a subject of the Queen of Great Britain, have invented
5 new and useful Improvements in Bottle-Stoppers, (for which I obtained a patent in Great Britain, No. 3,102, dated July 16, 1881,) of which the following is a specification.

My invention relates to that class of stoppers which are held in the mouth of the bottle by the pressure of gas from within the vessel, and which, when the gas is allowed to escape, fall into the bottle; and it has for its
15 object the production of such a device that will readily adjust itself to its seat in the neck of the bottle, and as readily close the aperture for the escape of the gas, and which, also, can be operated to open the bottle with the minimum of pressure applied by the touch of the finger.

20 To these ends it consists of a stopper composed of a bobbin provided with a circumferential elastic ring and a central aperture, and a spindle free to slide in the aperture of the bobbin, and provided at one end with a
25 flexible disk or washer adapted to fit flush against the lower end of the bobbin, and having its other end weighted or heavier than the lower end, whereby the stopper is not only caused to be inverted when in the bottle and the latter
30 filled with aerated liquid, so as to enter the neck of the bottle with the right end up, but the washer or disk on the lower end of the spindle is drawn against the lower end or face of the bobbin immediately upon the reversal
35 of the stopper and before the latter is forced fully to its place in the neck of the bottle, so that the opening in the bobbin is instantly closed to prevent the escape of gas there-through.

40 Heretofore stoppers of the class to which mine relates have been made of a bobbin having a circumferential rubber ring and a sliding spindle with a valve at its lower end, broadly considered, and also of a bobbin with
45 a circumferential rubber ring and having its upper end weighted, but without the spindle and valve. For some reasons inherent in these stoppers themselves, they have not been accepted by the trade nor come into general use.

50 My stopper differs from those heretofore made in having the spindle of the bobbin

weighted at one end and provided at the other end with a flexible washer, by reason whereof, and by combining the parts as stated, I obtain the advantages not only of carrying the
55 stopper to its place in the neck of the bottle, but also of carrying the washer or valve to its seat against the end of the bobbin immediately upon the reversal of the stopper, and by the flexible washer fitting flush with a
60 broad surface against the base of the bobbin I effectually close and seal the opening around the spindle. Furthermore, less pressure than in the old form of stopper is required to open the bottle, there is no danger of bursting the
65 bottle, and the stopper can fit entirely below the mouth of the bottle, so that the spindle and other parts of the stopper will be protected and shielded from blows and knocks that might accidentally open the valve. 70

In the accompanying drawings, Figure 1 is a side view, partly in section, of my improved stopper; Fig. 2, a similar view of a modification; Fig. 3, a like view of another modification; Fig. 4, a view of the bottle with my stopper
75 applied thereto.

In the drawings, the letter B indicates the bobbin, made of ivory, bone, stone, or other suitable material, having a circumferential groove, *a*, in which is fitted a rubber ring, *c*,
80 of suitable thickness not to be turned up against the sides of the bobbin by the pressure of the gas in the bottle, and also a vertical opening, as shown, in which is fitted a spindle, *A*, of metal, ivory, bone, or other suitable
85 material. This spindle fits loosely in the opening, so as to play freely therein and leave a small space between it and the bobbin, and is provided at its lower end with a flexible or rubber washer, *D*, which may fit in a groove
90 in the lower end of the spindle, as shown, with a cap or button below it, or may be otherwise fitted thereto so as not to be easily drawn off. It is made of larger diameter than the spindle-opening in the bobbin, and so as to fit over
95 and effectually close the small space between the bobbin and spindle, and it is adapted to fit snugly against the broad base of the bobbin to close the opening therein, and also that the stopper may be directed with the weight
100 end up to enter and close the neck of the bottle. It will thus be seen that the weighted

end of the bobbin is made to discharge a two-fold function, and that better results follow than when the spindle is not weighted, or when the stopper only, without any spindle, is weighted.

5 Also, by providing the lower end of the spindle with a flexible washer adapted to fit flush and snugly with a broad surface against the base of the bobbin, the space between the bobbin and spindle and washer is effectually sealed against the escape of gas from the bottle. By pressing slightly on the top of the spindle with the tip of the finger, the spindle is pushed down, removing the washer from its seat and permitting the escape of the gas, and as soon as the pressure of the gas is thus relieved from beneath the stopper the latter will fall into the bottle. The thickness of the washer D is such that the washer will not double up under or against the bottom of the bobbin, which would interfere with the satisfactory working of the stopper. The comparatively broad and flexible face of the washer prevents one part of the edge from pressing more than another part, which might result in the seal being imperfect.

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If desired, a supplemental washer, D', either of the same or different material from the washer D, may be used beneath the latter, as illustrated in Fig. 2. This would give a greater degree of firmness to the washer D; but it is not necessary.

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When the stopper is in the bottle, it operates as shown in Fig. 4, with the cap of the spindle, when the bottle is filled, below the edge of the mouth of the bottle, so that in packing for transportation or in handling the spindle is shielded,

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and there is no danger of accidental opening of the bottle. This last advantage also results from the structure of my stopper, and renders perfectly practical the use of a stopper with an operating-spindle. Furthermore, if it becomes necessary to remove the stopper from the bottle by reason of wear and to replace it with a perfect one, it can be very readily done by inserting clasping-tongues, by means of which the stopper can be removed without detaching any of its parts. The stopper can be inserted in the bottle by a slight pressure of the finger on it, without the use of any tool.

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What I claim is—

1. A bottle-stopper composed of the bobbin B, having a vertical opening, *a*, and a circumferential ring, C, in combination with the spindle A, having the flexible washer D at its lower end, adapted to fit flush against the bobbin, and its opposite end heavier in weight, substantially as described.

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2. The combination, with the bottle E, of the stopper composed of the bobbin B, having a circumferential ring, C, and a spindle, A, having a flexible washer, D, at its lower end, and the other end heavier in weight and fitting below the mouth of the bottle when the bottle is filled, substantially as described.

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In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

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ALFRED THOMAS KING.

Witnesses:

HENRY WILLIAM GOUGH,
JOHN HENRY GOUGH.