(No Model.)

C. O. NIENDORFF.

BOTTLE STOPPER.

No. 524,971. Patented Aug. 21, 1894.

Fig. 1.

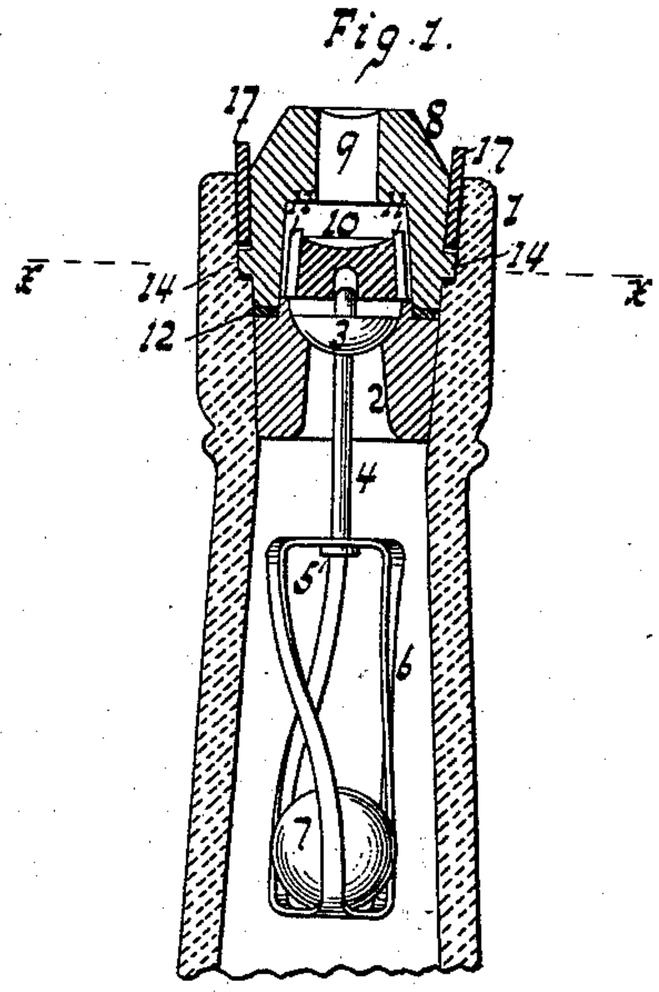


Fig. 3.

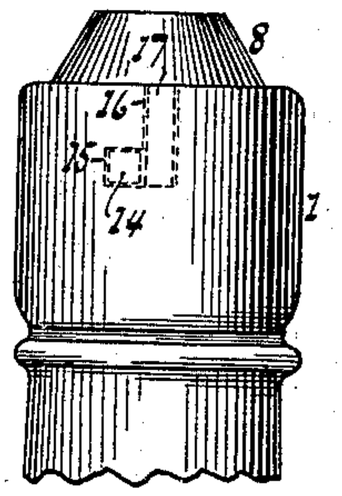


Fig. 2.

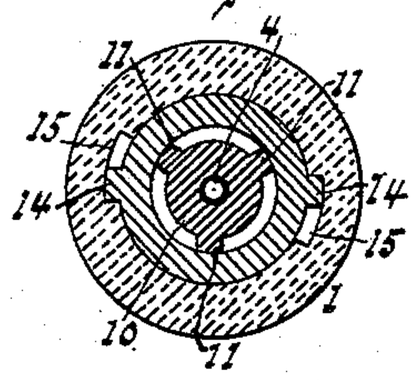


Fig. 5.

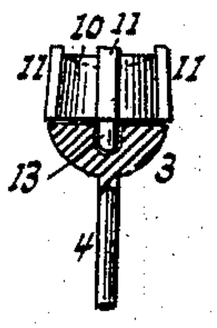
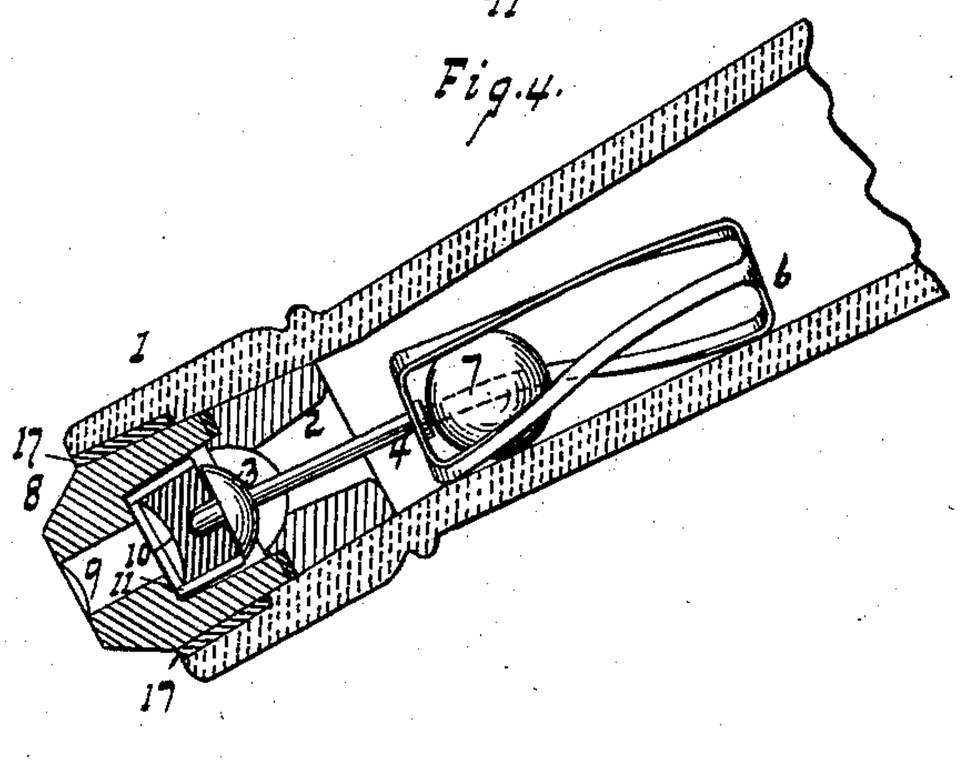


Fig. 4.



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UNITED STATES PATENT OFFICE.

CARL OTTO NIENDORFF, OF NEW YORK, N. Y.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 524,971, dated August 21, 1894.

Application filed May 24, 1894. Serial No. 512,364. (No model.)

To all whom it may concern:

Be it known that I, CARL OTTO NIENDORFF, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

The object of this invention is to provide a bottle stopper which is adapted to be fixed in the bottle neck and which while allowing the bottle to be emptied, will prevent refilling of the bottle, and to this end the invention consists in the novel features of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a sectional elevation of the stopper with the valve closed. Fig. 2 is a section along *x x* Fig. 1. Fig. 3 is a side elevation of a bottle neck. Fig. 4 is a view similar to Fig. 1 with the valve open. Fig. 5 shows a modification.

Into the bottle mouth or neck 1 is inserted or fitted a valve seat 2 consisting of a tube or shell. This tubular plug 2 forms a seat for the valve 3 and at the same time allows the liquid to flow therethrough from the bottle when the valve is off the seat.

The valve has a stem 4 which at its lower end is headed as at 5 so that the cage 6 the side bars of which are preferably drawn or rifled can rotate and also swing and slide loosely on the stem but will be prevented by head 5 from dropping off. In the cage 6 is a traveling weight such as a sphere or ball 7.

Into the mouth 1 is sealed or immovably secured a nozzle composed of a plug or stopper 8 having an outlet 9 below which is secured or placed a shield 10 preventing the insertion or passage of a wire or tampering instrument to the valve 3.

The bottle being tilted the weight 7 will roll or travel along the cage 6 while the cage will turn around or spin so as to give the ball a free run along the neck of the bottle and said ball will strike stem 4 and knock valve 3 off its seat in case such valve had any tendency to stick, and the liquid from the bottle flowing through the tubular plug or seat 2 can flow about shield 10 and out through the passage 9. The bottle being returned to the upright position the weight 7 will drop or shoot to the bottom of cage 6 and the valve 3 will come into closing position on its seat. The cage 6 swinging loosely on stem 4 will not cause the valve to be twisted or to sit awry or crooked on its seat even if the bottle does not stand in an exactly vertical position.

The shield 10 it is noticed is secured or guided by ribs or lugs 11 in the stopper so as not to close the passage through the latter for the outflow of liquid, but said shield obstructs the passage for any tampering tool. A washer or diaphragm 12 inserted between the stopper 8 and valve seat 2 will form a packing or prevent the passage of any liquid between the outside of the seat and the inner wall of the neck 1.

The shield 10 can be made to serve as a guide for keeping the valve in a central or approximately central position in its movement, either by the upper part of stem 4 entering a seat or hollow in the shield (Fig. 1) or by the shield having a stud or stem 13 entering a hollow in the valve (Fig. 5). The latter arrangement may be preferred as the shield 10 is strengthened by the stud 13 while the hollow or cavity in the shield will weaken the latter.

An efficient way of securing the nozzle or stopper 8 is by means of bayonet joints, and after the lugs 14 on stopper 8 have entered the transverse groove branches 15 the vertical groove branches 16 on the inside of the neck can be closed by keys or stems 17 which after being forced into the groove branches 16 as seen in Fig. 1 are cut or broken off (Fig. 4) or not allowed to project above the neck 1 or cemented or fixed in place so as to be incapable of withdrawal and to prevent the removal of stopper 8.

The bottle it is understood is filled with the required liquid before the seat 2 with valve 3 and stopper 8 are inserted.

The shield or guard 10 can be fixed in the plug or stopper 8 at such a height as to allow the valve to move from its seat a sufficient distance, or the shield 10 may be made slidable with the valve, the inner part or channel in the plug being tapered or arranged so that on inverting the bottle the shield will not slide clear up to the outlet 9 so that the latter will not be closed. By allowing the ribs 11 to project slightly above the shield 10

the latter will be prevented by said projecting ribs from sliding clear up to outlet 9.

What I claim as new, and desire to secure by Letters Patent, is—

1. A bottle-stopper consisting of a nozzle adapted to fit the mouth of the bottle and having an internal chamber, a shield arranged in said chamber, a valve-seat adapted to fit the neck of the bottle below the nozzle and shield, a valve seated on the valve-seat, a spindle or stem depending from the valve, a weight-cage suspended from the spindle or stem, and a weight adapted to travel along the cage, substantially as and for the purposes described.

2. The combination with a bottle, of a valve provided with a spindle, a guide for the valve and a cage or housing connected to the spindle and provided with a traveling weight substantially as described.

3. A bottle-stopper consisting of a nozzle adapted to fit the mouth of a bottle and having an internal chamber, a shield arranged in the said chamber, a valve-seat adapted to fit the neck of the bottle below the nozzle and shield, a valve seated on the valve seat, a spindle or stem depending from the valve, a weight-cage rotatably mounted on the spindle or stem and movable longitudinally thereupon, and a weight adapted to travel along the weight-cage, substantially as described.

4. The combination with a bottle, of a valve seat consisting of a tube or shell, a nozzle provided with a longitudinally sliding shield, and a valve protected by said shield substantially as described.

5. The combination with a bottle, of a valve provided with a cage or housing, and a weight made to travel in the housing, said cage being rotatably secured to the valve and having its side bars drawn or rifled so that the travel of the weight will tend to rotate the cage substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CARL OTTO NIENDORFF.

Witnesses:
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E. F. KASTENHUBER.