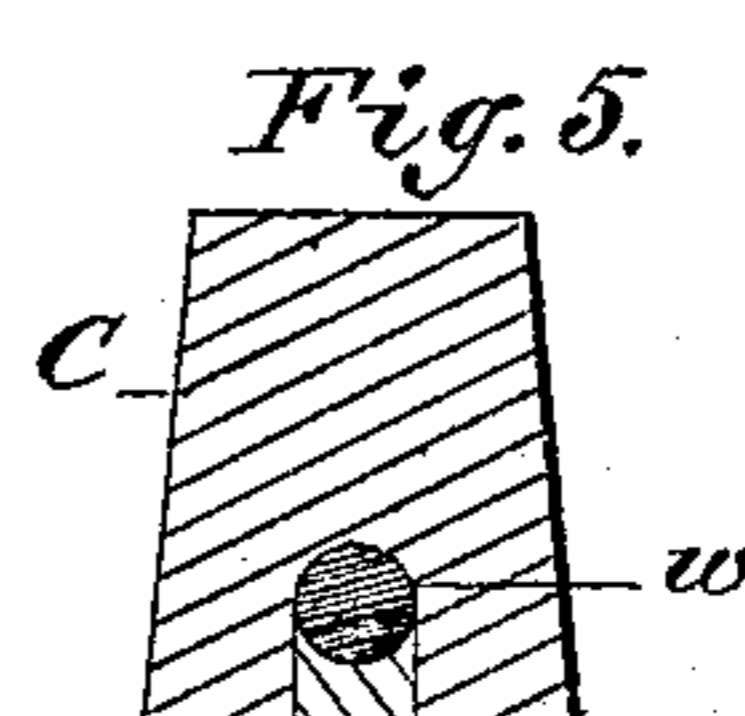
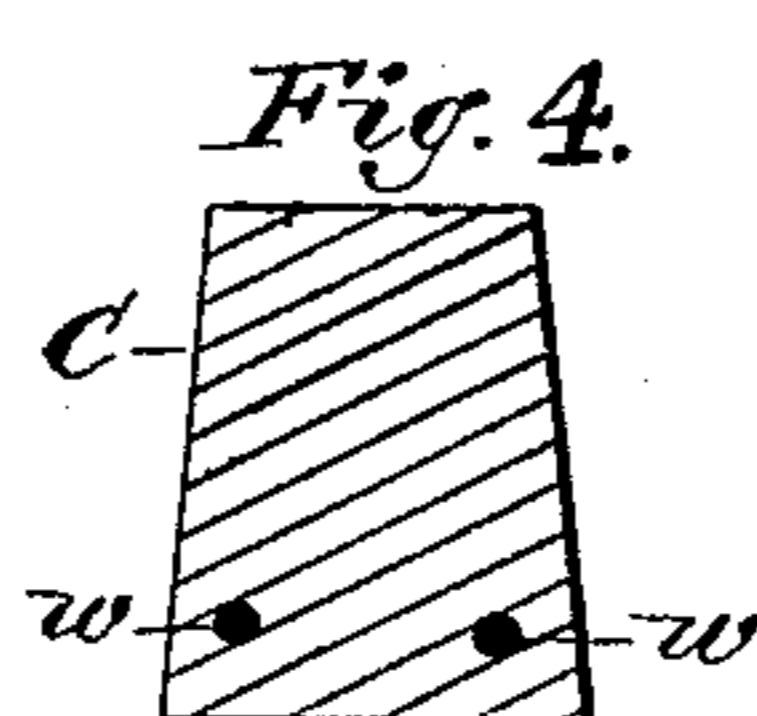
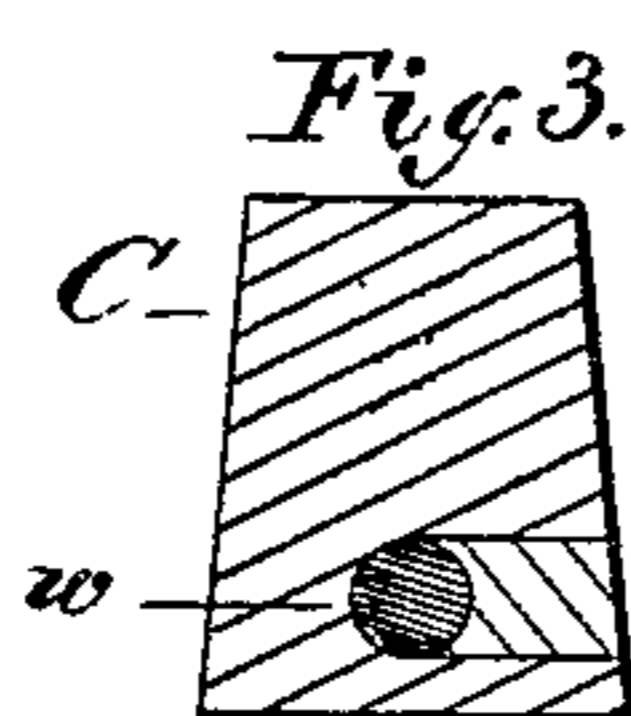
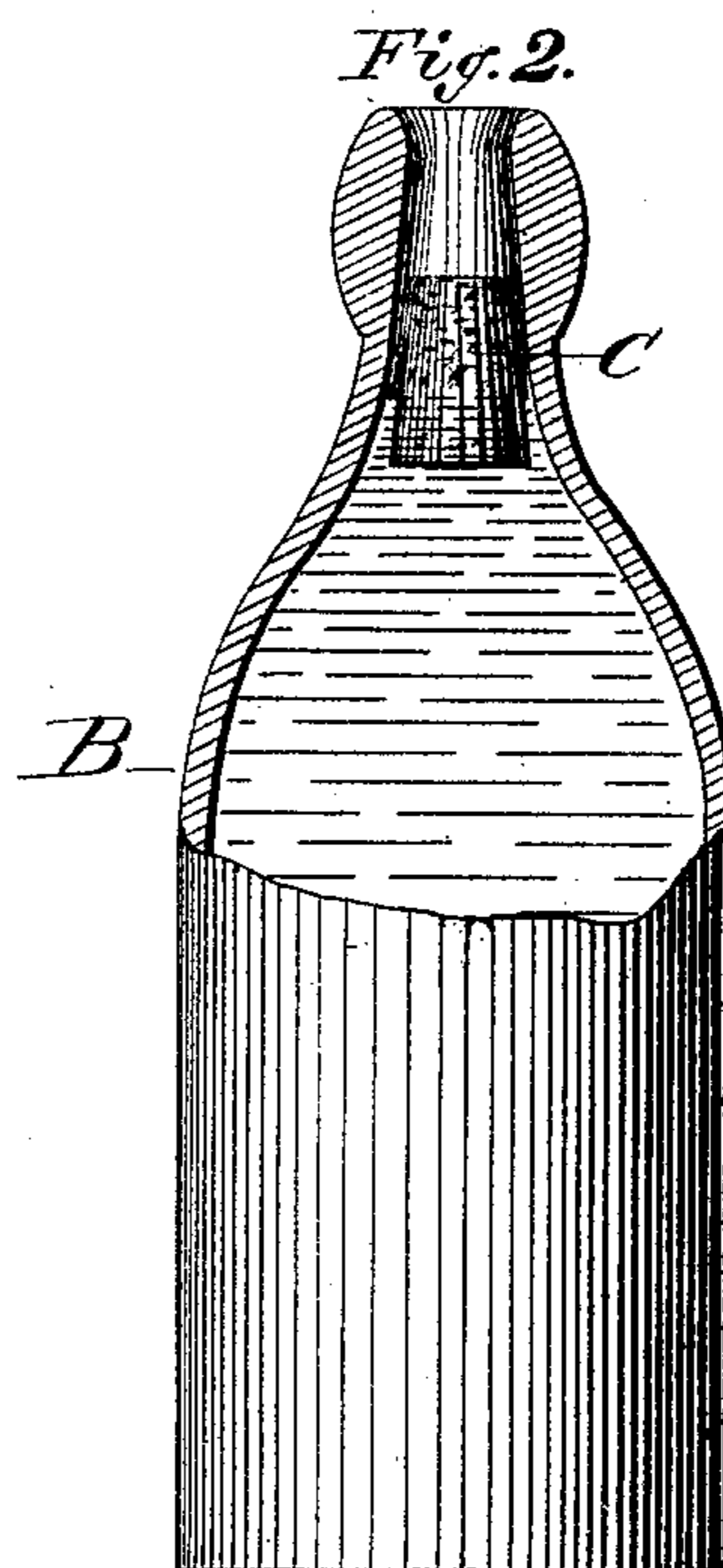
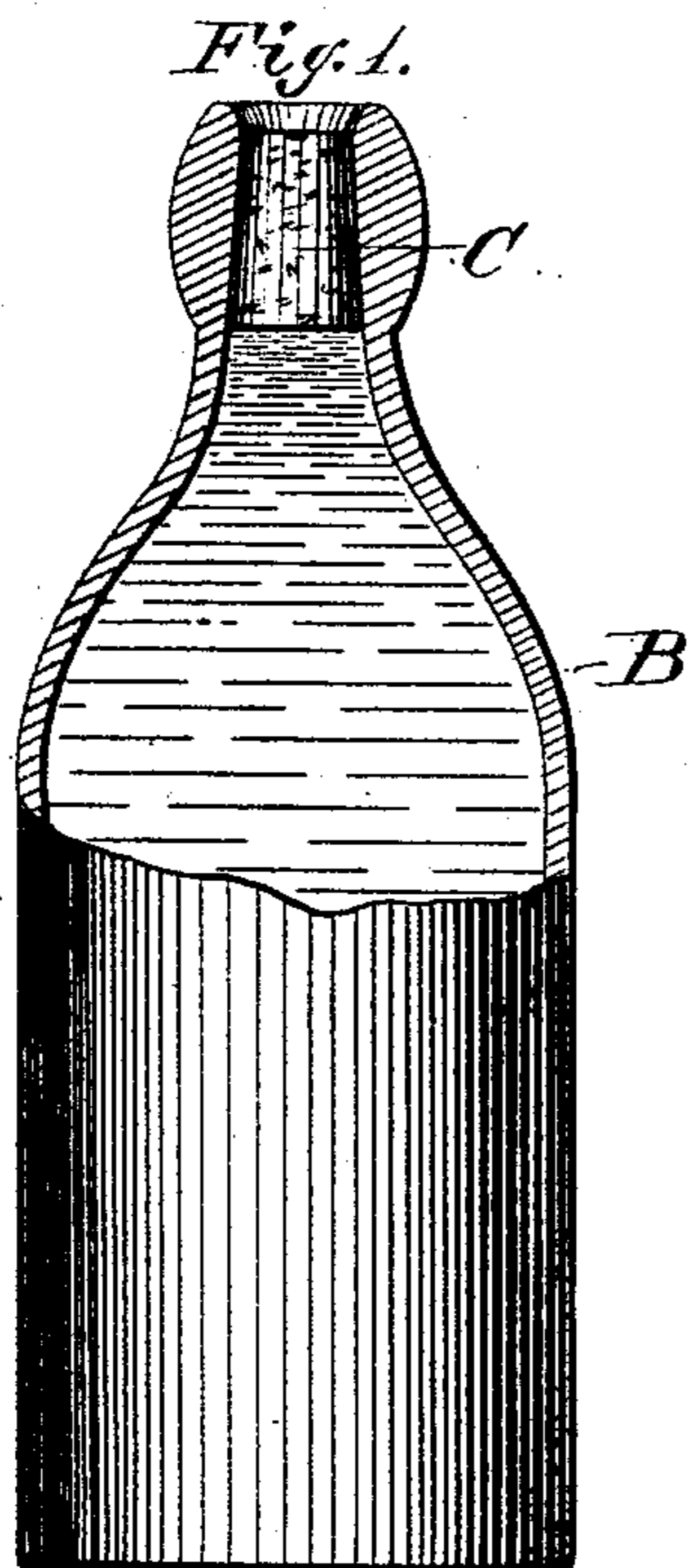


P. HAYES.
Bottle-Stoppers.

No. 147,002.

Patented Feb. 3, 1874.



WITNESSES:

H. H. Dodge.

INVENTOR:

*Patrick Hayes,
by Dodge & Son
Attys.*

UNITED STATES PATENT OFFICE.

PATRICK HAYES, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN BOTTLE-STOPPERS.

Specification forming part of Letters Patent No. **147,002**, dated February 3, 1874; application filed December 15, 1873.

To all whom it may concern:

Be it known that I, PATRICK HAYES, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Bottle-Stoppers, of which the following is a specification:

My invention relates to stoppers for bottles used for soda water, or other effervescing fluids; and the invention consists in applying a weight to one end of the cork in such a manner as to cause the latter to float with its small end uppermost, and at the same time secure the weight from contact with the fluid, as hereinafter explained.

Figure 1 is a side elevation of a bottle with a portion in section, showing the cork in position to close the bottle. Fig. 2 is a similar view, showing the cork in the act of closing the bottle. Figs. 3, 4, and 5 are sectional views of corks, showing the manner in which I apply the weight.

Various plans have heretofore been devised to produce stoppers to close soda and similar bottles from the inside; but many, if not all of them, are too expensive for general use, while many of them use metal that is brought into direct contact with the liquid, which, in many instances, is objectionable.

My invention has for its object the production of a cheaper article than any heretofore produced, and in which the metal shall be protected from contact with the liquid. To do this I simply take a cork of suitable size and embed within its body, near its larger end, a small weight of any suitable character, the weight being light enough to permit the cork to float in or on the liquid, as shown in Fig. 2. By inserting the weight near the larger end it overcomes the greater buoyancy of that end, due to its greater volume, and consequent greater displacement of the liquid, and thereby causes the cork to float with its smaller end uppermost, ready to enter the tapering throat of the bottle from the inside, as represented in Fig. 2.

The weight may be inserted in several different ways, either by boring a small hole into the cork C from one side, as shown in Fig. 3, then inserting therein a shot or other small weight, *w*, and then plugging the hole with cork, wax, or any similar substance; or, as shown in Fig. 5, the hole may be made from the end instead of the side, the result, of course, being the same; or, by using quite

small shot, or similar weights, as represented in Fig. 4, the cork *c* may be simply punctured with an awl or similar tool, and the weights *w* forced in, the cork closing behind them, thus holding them securely in place, and excluding the liquid from contact therewith. In such case the punctures might be made from the upper or smaller end of the cork, so that when the cork is forced up into the mouth or neck of the bottle these punctures will be the more effectually closed by the compression of the cork, and, as the liquid would be below the cork, it could not possibly enter them. Even when made in the sides, the pressure of the liquid and gases being against the lower end of the cork will tend to press them shut, just in proportion to the pressure applied.

The method of using the cork is as follows: It is compressed and forced into the bottle while the latter is empty, and, as the bottle is filled, it will float on the surface until the smaller end enters the neck, as represented in Fig. 2, when the pressure of the gas will immediately force it up into the neck until the bottle is securely closed, as represented in Fig. 1.

To empty the bottle of its contents the cork is pushed back into the bottle by a stick or other suitable device, and the bottle being turned with its mouth downward the cork floats upon the liquid away from the neck, thus permitting the contents to be poured out the same as in any other bottle, the cork being retained ready for use whenever the bottle is again filled.

The great advantage of this cork is its exceeding simplicity and cheapness, and the exclusion of the metallic weight from contact with the liquid.

I am aware that weighted corks and stoppers of various styles have before been used for the same purpose, and, therefore, I do not claim such, broadly, or irrespective of their construction; but

What I do claim is—

A cork, *c*, having a weight, *w*, embedded therein, as set forth, whereby the cork is caused to float with its small end uppermost, and the weight is preserved from contact with the fluid.

PATRICK HAYES.

Witnesses:

JOHN WOODS,
WILLIAM HAYES.