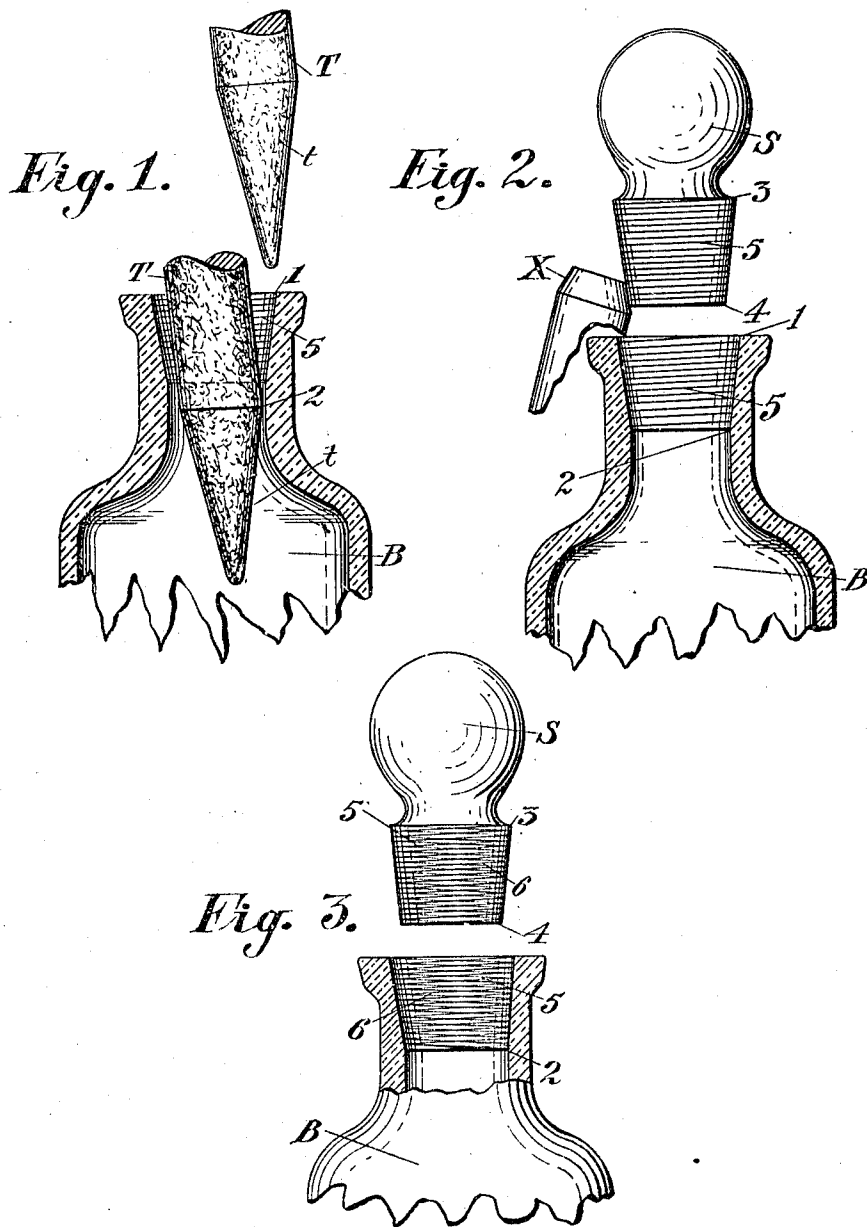


C. M. CONRADSON.
GROUND STOPPER FOR USE WITH CORRESPONDINGLY GROUND BOTTLE NECKS, &c.
APPLICATION FILED SEPT. 3, 1909.

953,124.

Patented Mar. 29, 1910.



Witnesses:

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UNITED STATES PATENT OFFICE.

CONRAD M. CONRADSON, OF MADISON, WISCONSIN, ASSIGNOR TO PRECISION GLASS GRINDING MACHINE COMPANY, OF SIOUX FALLS, SOUTH DAKOTA, A CORPORATION OF SOUTH DAKOTA.

GROUND STOPPER FOR USE WITH CORRESPONDINGLY-GROUND BOTTLE-NECKS, &c.

953,124.

Specification of Letters Patent.

Patented Mar. 29, 1910.

Original application filed July 25, 1907, Serial No. 385,475. Divided and application filed January 19, 1909, Serial No. 473,062. Divided and this application filed September 3, 1909. Serial No. 516,133.

To all whom it may concern:

Be it known that I, CONRAD M. CONRADSON, citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, temporarily residing in New York city, New York, have invented certain new and useful Improvements in Ground Stoppers for Use with Correspondingly-Ground Bottle-Necks, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to interchangeably mated, ground, glass bottle-necks and ground, glass stoppers therefor, although the invention is not limited to such structures of glass as distinguished from structures of other material susceptible of being formed with interchangeably fitting or mating joint-forming surfaces on bottle or like necks and on the stoppers therefor.

This application is a division of my application Serial No. 473,062, filed January 19, 1909. Said application was a division of my earlier application Serial No. 385,475, filed July 25, 1907, on which Patent No. 911,809 was granted February 9, 1909.

Referring to the accompanying drawings, Figure 1 is a view showing part of a glass bottle in vertical, central section, with a grinding pencil in two positions, and the interior joint-forming surface of the neck ground uniformly and spirally from edge to edge. Fig. 2 is a vertical, central, sectional view of the bottle portion shown in Fig. 1, with an interchangeably mated, ground, glass stopper in position for insertion; the joint-forming surface of the stopper being ground uniformly and spirally from edge to edge. Fig. 3 is a view similar to Fig. 2, except that the joint-forming surface of the bottle-neck and stopper are formed with intersecting or reverse uniform spirals from edge to edge.

Referring to the drawings, T shows the abrasive tool or grinding pencil for grinding the bottle-necks, in two positions, *t* being its actual grinding surface.

The joint-forming surface of the bottle B is conical, as shown from 1 to 2, and the therewith interchangeably mated, joint-forming surface of the stopper S is conical, as shown from 3 to 4. In Figs. 1 and 2, the interior joint-forming surface of the bottle-

neck is ground uniformly and spirally from edge to edge, as at 5. The joint-forming surface of the stopper shown in Fig. 2 is also ground spirally and uniformly as at 5. In Fig. 3, the joint-forming surface of the bottle-neck and also the joint-forming surface of the stopper are each first ground uniformly and spirally from edge to edge as indicated by 5, and are then ground uniformly and spirally but reversely over the underlying or initially ground spirals 6. The initial grinding is done by the inward grinding passage of the tool T. The secondary grinding is done in the reverse direction, by the outward passage of tool T. Generally, the doubly-ground surfaces shown in Fig. 3 are to be preferred, but the singly-ground surfaces shown in Fig. 2 are often sufficient.

The great advantage of this invention is that the bottle-necks and stoppers formed with uniform, spirally ground joint-forming surfaces, are interchangeably mated, a result new with me in the ground glass jointed bottle art. Prior to this invention, all ground glass jointed bottles and stoppers were ground together in pairs, and a stopper ground in one bottle-neck would not fit another bottle in which another stopper had been ground, and vice versa. Consequently, in the prior art, it was necessary, to prevent almost hopeless confusion, to tie each stopper and its bottle together for package, transportation and storage. Bottles and stoppers embodying my invention may be made separately, packed separately, and used without ascertaining whether they were ground together in pairs. All this is a matter of large economy and convenience in manufacture, in sale and in use. Moreover, my new bottles and stoppers are uniformly tight-jointed. In the prior art of grinding in pairs, particles of abrasive carried by water wandered at random between the joint-forming surfaces when the stoppers and therewith assembled bottles were turned to effect the grinding, with the result that there was such a complete lack of uniformity that a stopper ground in one bottle would not fit another bottle (and vice versa,) except by accident.

I do not herein make claims to either the ground bottle-neck or to the combination

thereof with the correspondingly ground stoppers, because the bottle-neck and combinations are claimed in my said application Serial No. 473,062, of which this application
5 is a required division; but in illustrating and describing this present invention or subject-matter I refer to the bottle-necks because they are complements of the stoppers claimed herein.

10 What I claim is:—

1. A stopper of glass or other hardened plastic material having its exterior, joint-forming surface ground uniformly and spirally from edge to edge, whereby it is adapted to be interchangeably mated with bottles
15 having interior and similar joint-forming surfaces.

2. A stopper of glass or other hardened plastic material having a joint-forming surface uniformly and spirally ground and also
20 reversibly ground spirally and uniformly from edge to edge.

3. As a new article of manufacture, an interchangeable glass stopper, the exterior of which is uniformly and spirally ground to
25 fit a similarly ground bottle neck of proper dimensions.

In testimony whereof I have affixed my signature in presence of two witnesses.

CONRAD M. CONRADSON.

Witnesses:

E. S. BEACH,
F. E. NARES.