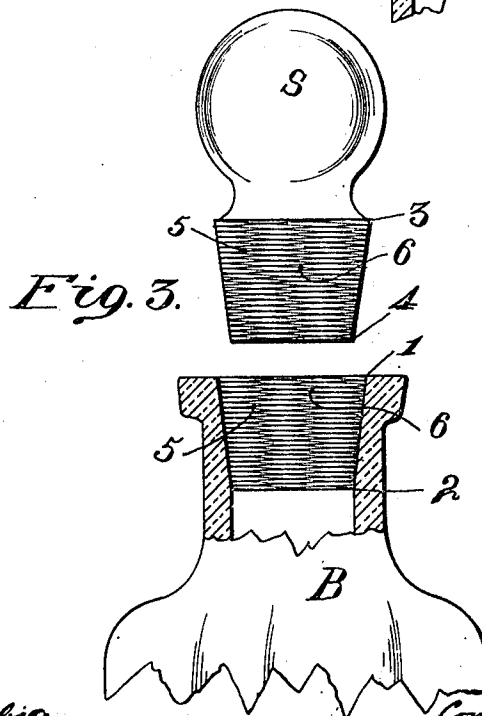
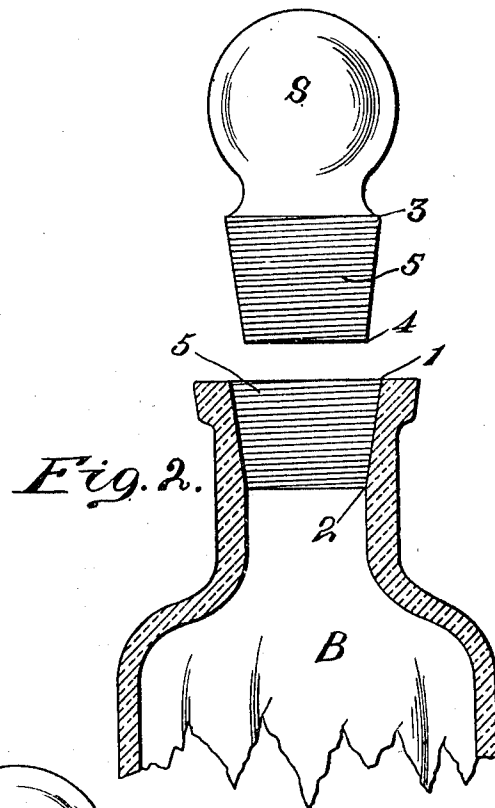
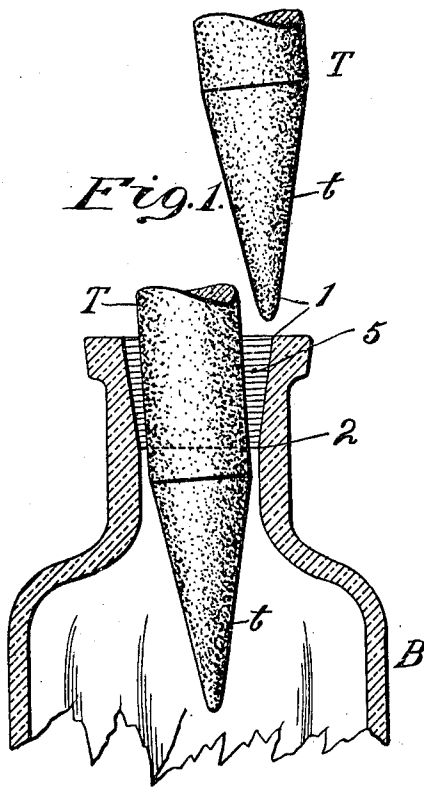


C. M. CONRADSON.
GROUND NECK OF BOTTLES AND THE LIKE FOR USE WITH CORRESPONDINGLY GROUND STOPPERS.
APPLICATION FILED JAN. 19, 1909.

953,123,

Patented Mar. 29, 1910.



Witnesses:
Harold H. Big
J. E. Nares

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UNITED STATES PATENT OFFICE.

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

GROUND NECK OF BOTTLES AND THE LIKE FOR USE WITH CORRESPONDINGLY-GROUND STOPPERS.

953,123.

Specification of Letters Patent. **Patented Mar. 29, 1910.**

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

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, have invented certain new and useful Improvements in Ground Necks of Bottles and the Like for Use with Correspondingly-Ground Stoppers, 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. 385,475, filed July 25, 1907, and on which Patent No. 911,809 was granted February 9, 1909, for a method whereby the present product is obtainable.

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 spi-

rally 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 make no claim herein in relation to the stopper of and by itself, as such stopper

forms the subject-matter of my application
Serial No. 516,133, filed September 3, 1909,
as a division of this present application.

What I claim is:—

5 1. A bottle or the like of glass or other
hardened plastic material having its interior
joint-forming surface ground uniformly
and spirally from edge to edge, whereby it
is adapted to be interchangeably mated with
10 stoppers having similar joint-forming sur-
faces.

2. A bottle or the like of glass or other
hardened plastic material having its in-
terior, joint-forming surface ground uni-
15 formly and spirally from edge to edge and
also reversely ground uniformly and spi-
rally from edge to edge.

3. In bottles and stoppers therefor, in-
terchangeably mated, joint-forming surfaces
20 each ground spirally and uniformly and
thereover ground spirally and uniformly.

4. In combination, a glass bottle and glass
stopper, the interior of the bottle neck and
the exterior of the stopper being uniformly

and spirally ground, such bottle neck and 25
stopper being interchangeable with other
ground bottle necks and stoppers of cor-
responding size and form.

5. In combination, a glass bottle and glass
stopper, the interior of the bottle neck and 30
the exterior of the stopper being each
ground uniformly and spirally in a plural-
ity of paths, and such bottle necks and stop-
pers being interchangeable with other simi-
larly ground bottle necks and stoppers of 35
corresponding size and form.

6. A glass bottle, the interior of the neck
of which is uniformly and spirally ground
for the purpose of receiving a similarly
ground glass stopper of proper dimensions 40
to form a tight joint.

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

CONRAD M. CONRADSON.

Witnesses:

F. E. NARES,

EDWARD S. BLACK.