

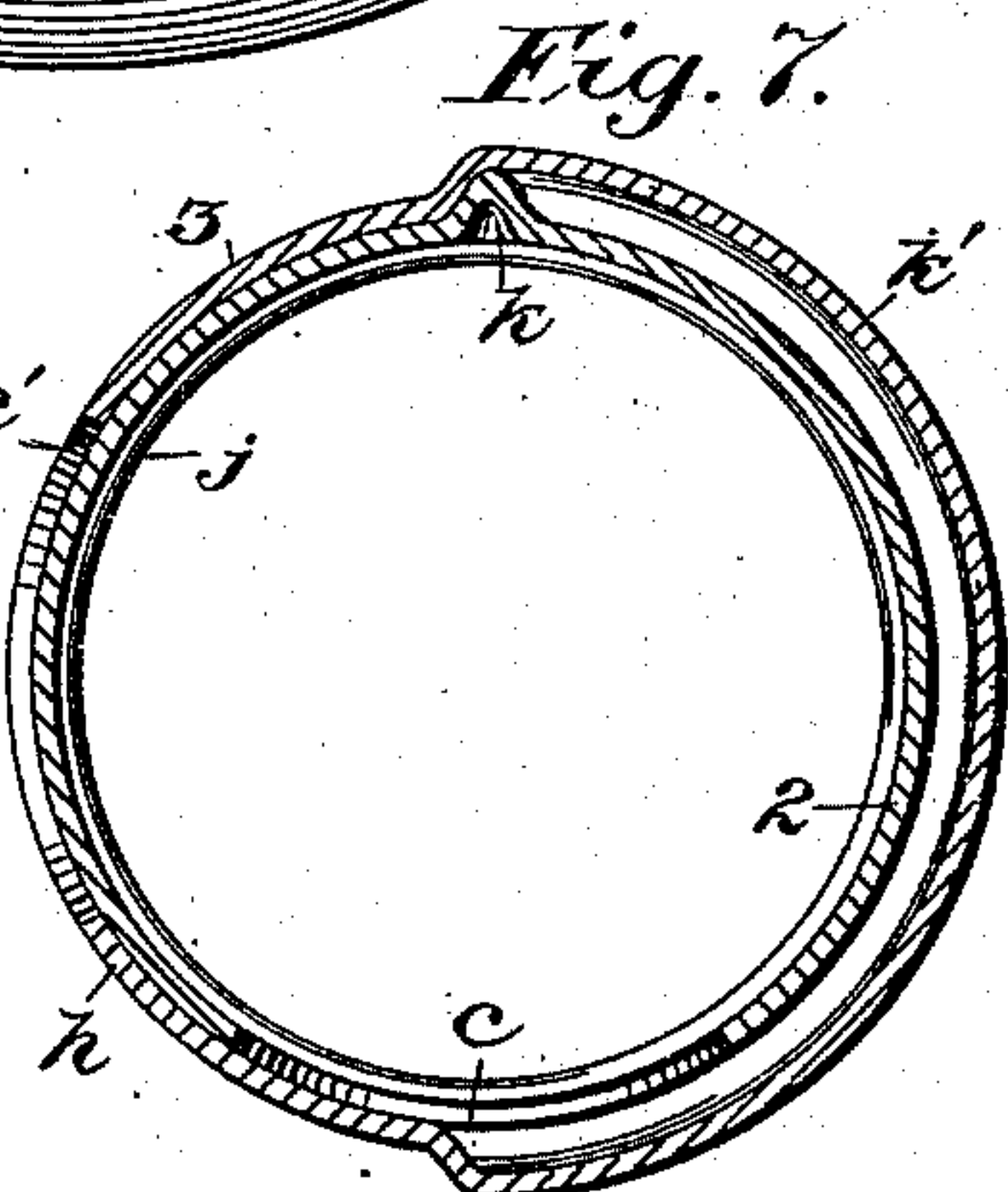
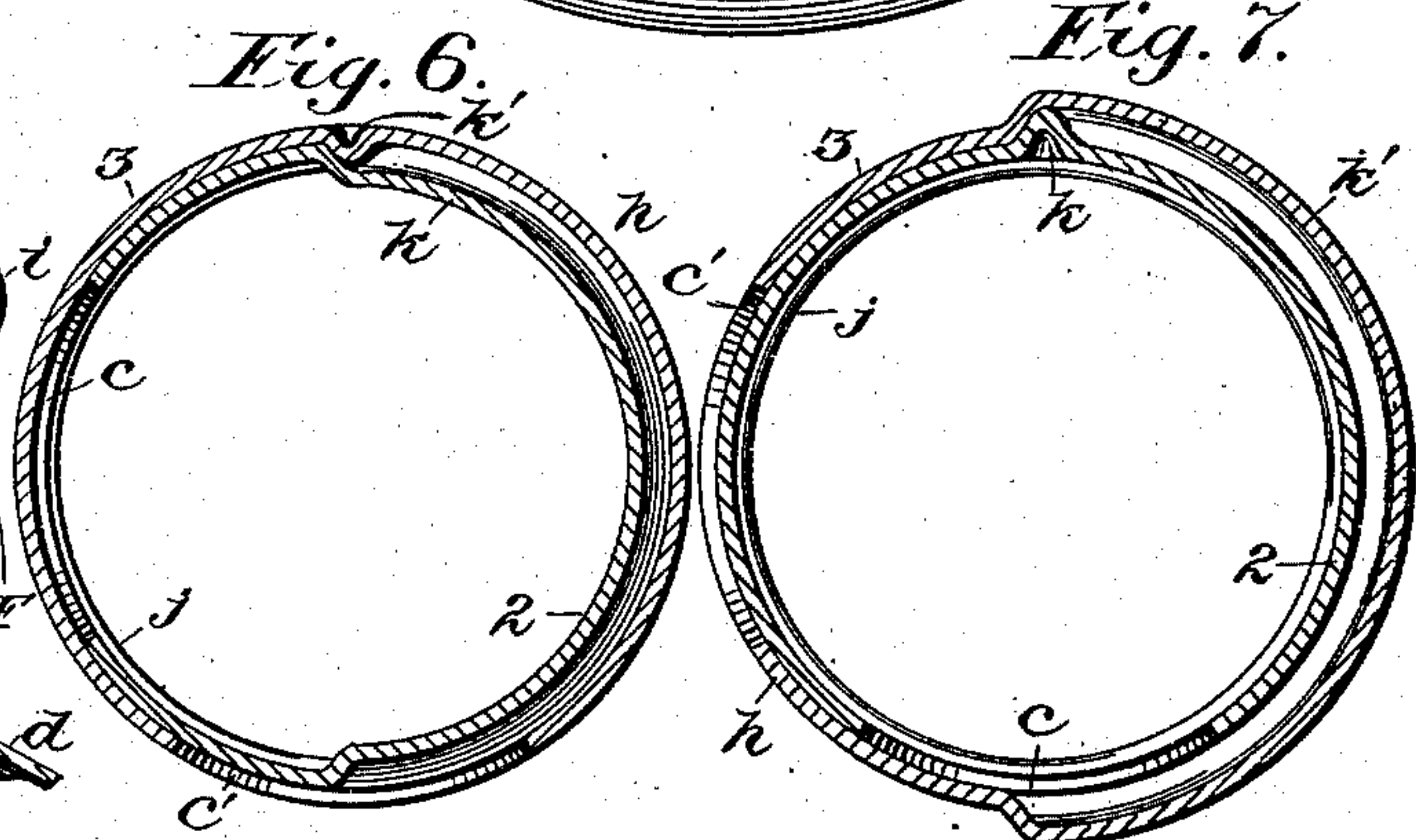
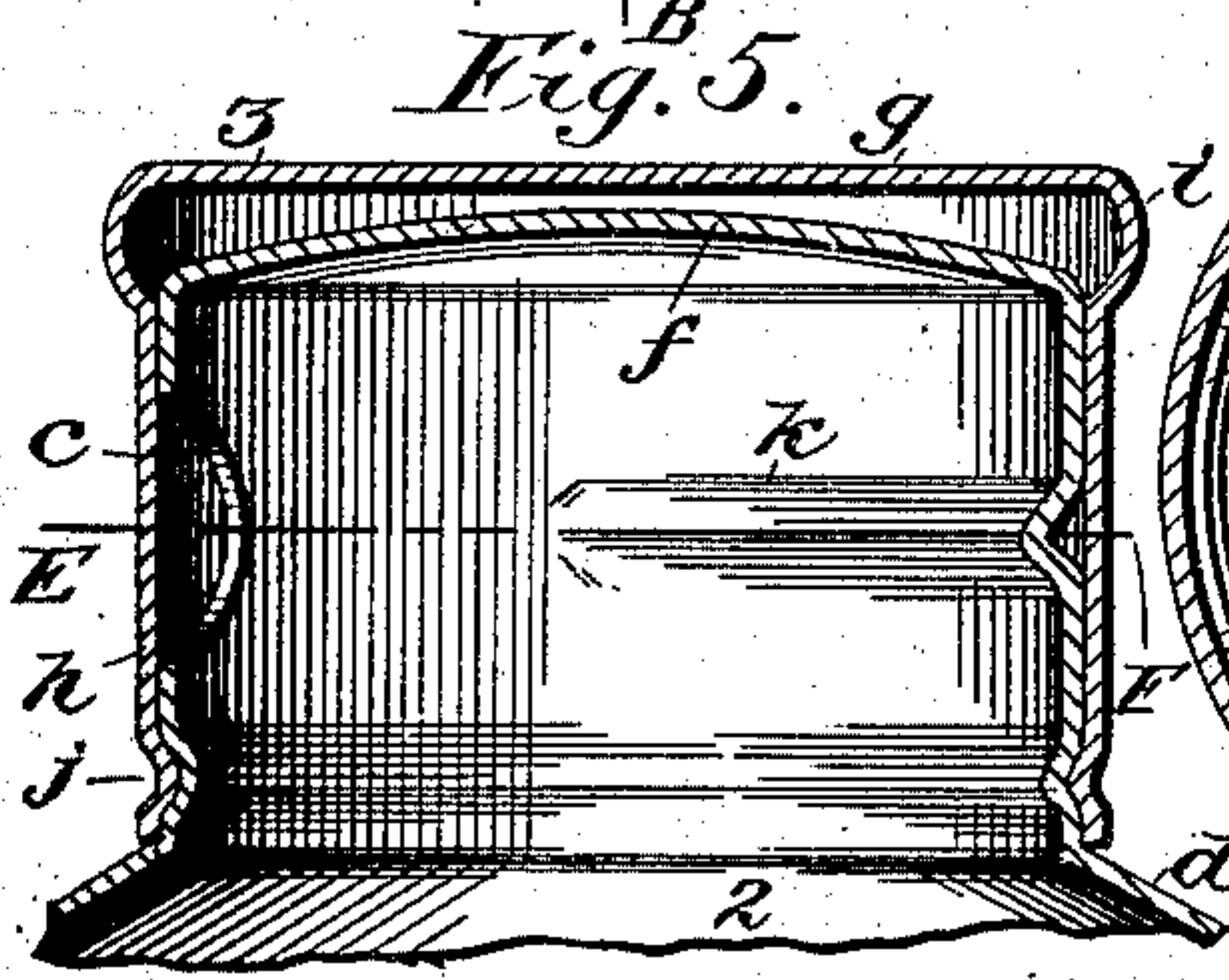
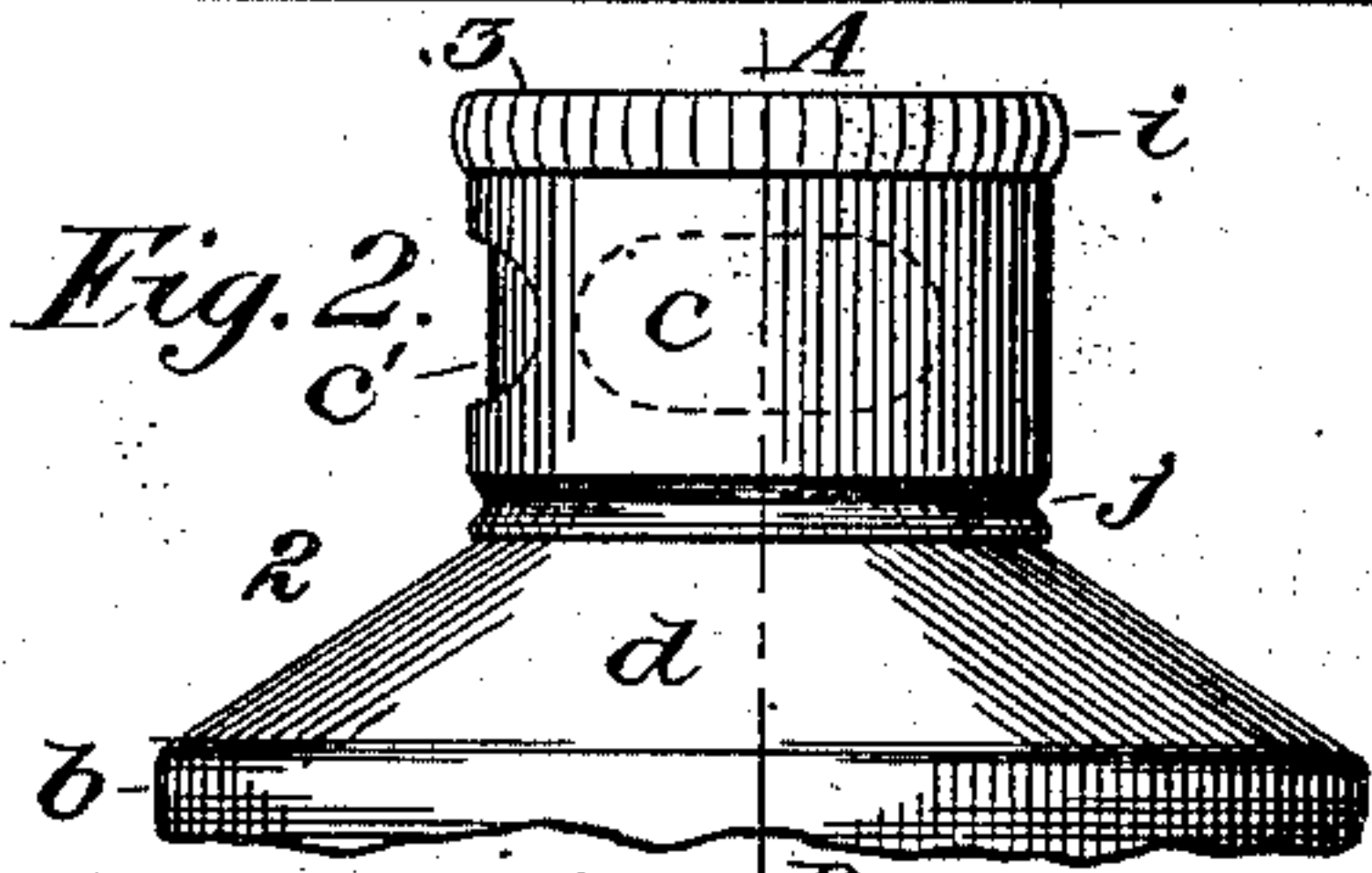
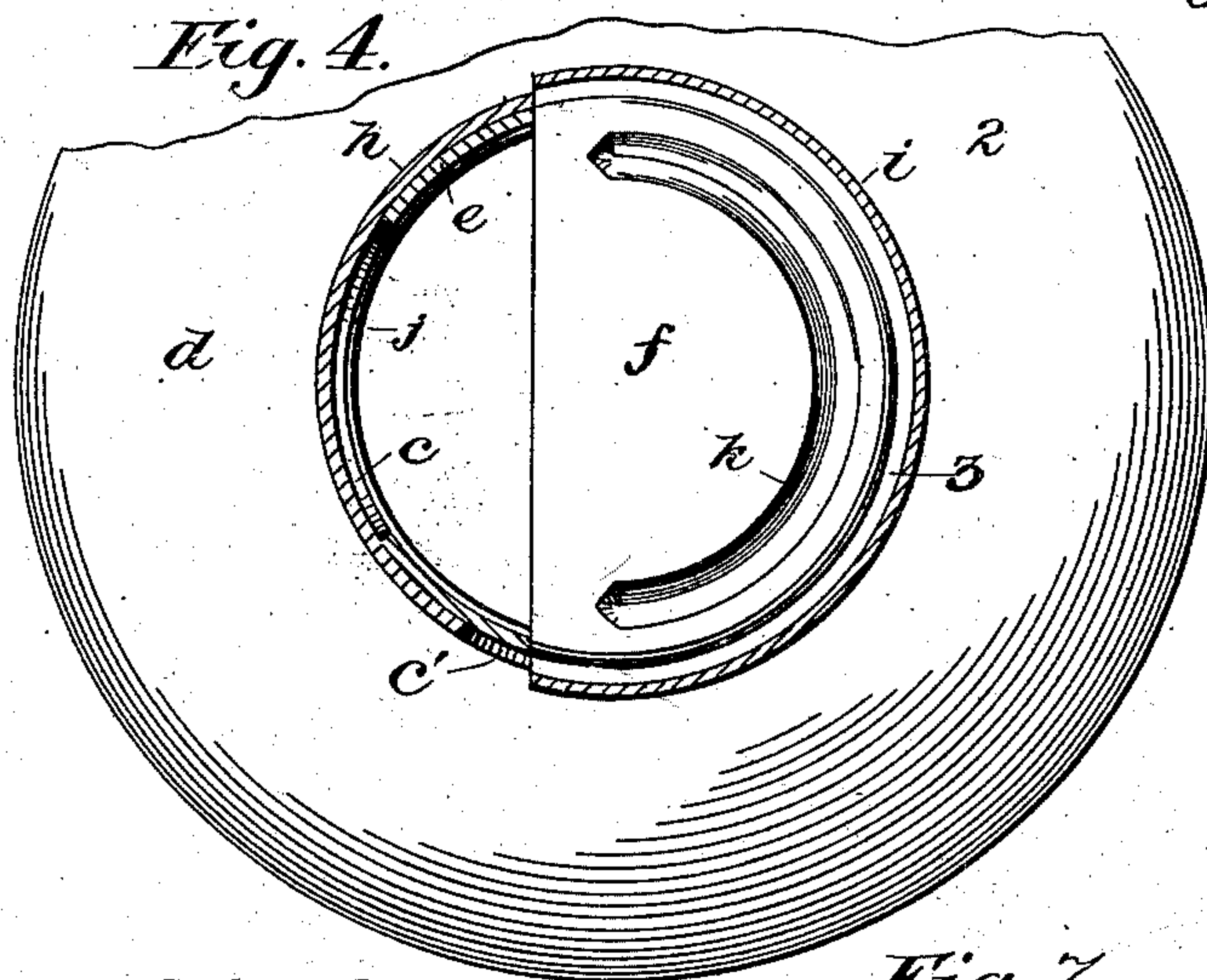
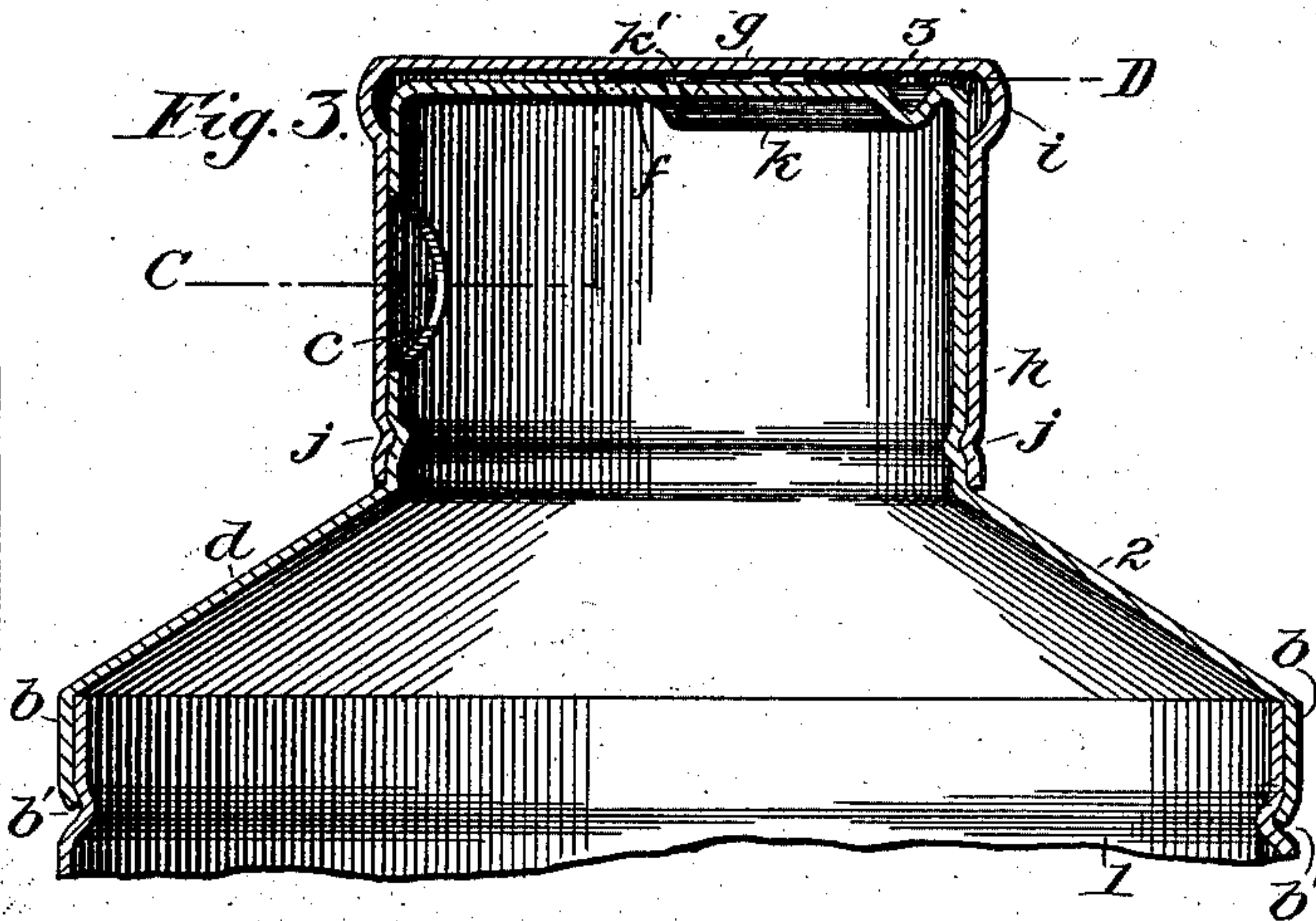
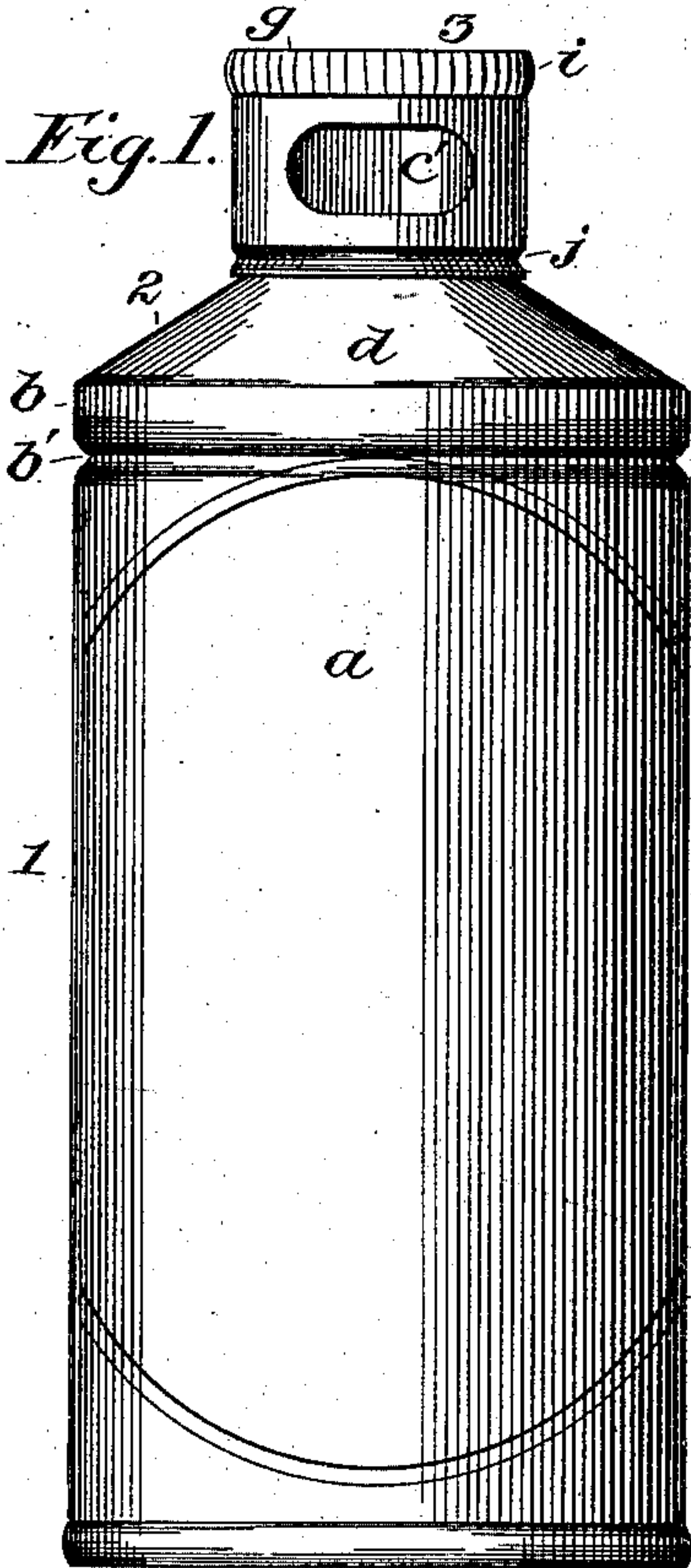
No. 749,671.

PATENTED JAN. 12, 1904.

H. J. S. HALL.
ROTARY CAP CLOSURE.

APPLICATION FILED JUNE 6, 1903.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY J. S. HALL, OF NEW YORK, N. Y.

ROTARY CAP-CLOSURE.

SPECIFICATION forming part of Letters Patent No. 749,671, dated January 12, 1904.

Application filed June 6, 1903. Serial No. 160,369. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. S. HALL, a citizen of the United States of America, and a resident of the borough of Manhattan, New York city, in the State of New York, have invented a new and useful Improvement in Rotary Cap-Closures, of which the following is a specification.

This invention relates primarily to the closures of receptacles used as original packages for tooth-powder and adapted at the same time for conveniently discharging the contents upon the tooth-brush and to be tightly closed so as to be free from liability to the accidental escape of the powder in traveling-bags and the like.

The improved closure is applicable, however, to any box, bottle, or jar for powders, liquids, or semisolids, and the term "box," as hereinafter employed, is intended to include any such receptacle.

The present invention consists in certain novel combinations of peculiarly-constructed parts hereinafter set forth and claimed. Its distinguishing objects are to adapt a rotary cap to be turned in either direction in closing the outlet of the box and at the same time to be stopped when the outlet is closed, so as to facilitate and insure securely closing the outlet, to wholly relieve the stop device of the strain due to resisting attempts to remove an externally-applied cap provided therewith, and to so form and locate a pull-resisting swivel-joint between the rotary cap and an inner cap or cover of the box that it shall materially assist in rendering the closure powder-tight when the box is closed.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 is a front view of a tooth-powder box, showing the improved closure open. Fig. 2 is a like view of the upper end of the box with the outlet closed. Fig. 3 represents a magnified longitudinal section on the line A B, Fig. 2. Fig. 4 represents a plan view with the closure in section in the broken plane indicated by the line C D, Fig. 3. Fig. 5 represents a longitudinal section through a modified closure. Fig. 6 represents a cross-section on

the line E F, Fig. 5; and Fig. 7 is a cross-section illustrating another modification.

Like reference letters and numbers indicate like parts in all the figures.

A tooth-powder box provided with the improved closure comprises three parts—namely, a body 1, which may be of any suitable material, such as sheet metal, paper, wood, or glass, a die-formed cover 2 of suitable sheet metal, as ductile tin-plate or brass, and a die-formed cap 3 of the same material as the cover 2. The body 1 is preferably provided in any approved way with a label *a*, Fig. 1, indicating the front of the box, and is filled at a tooth-powder factory, for example. The cover 2, carrying the cap 3, is then applied and by means of a depending marginal flange *b* or its equivalent is or may be inseparably attached to the body 1. Preferably the cover 2 is so inseparably attached, as is customary, by a circumferential joint, formed by interlocking said flange *b* with a groove *b'* in the body 1, as in Fig. 3, so as to render it difficult or impossible to refill the box when the original contents are exhausted in order that the trade-marks and other indicia of said original contents may not be misapplied. Such joint *b b'* is also preferably, as is customary, both powder-tight and tight as to movement, so that the normally concealed outlet-opening *c* of the cover is permanently located in front with reference to the label *a*, and the discharge of the contents upon a tooth-brush is thus facilitated. The other features of the cover 2 include a top portion *d*, of any preferred shape, a nozzle portion *e*, in which said outlet-opening *c* is formed and which is round in cross-section, and a preferably closed upper end *f* at the top of the nozzle *e*.

The cap 3 comprises a closed upper end *g* above the nozzle end *f* and side walls *h*, adapted to closely embrace the nozzle-walls *e*, said side walls *h* having an outlet-opening *c'*, adapted to be alined with the nozzle-outlet *c*, and preferably a milled rim *i*, by which to turn the cap 3. A swivel-joint *j*, formed in the side walls *e* and *h* of the nozzle and of the cap parallel to the lower edge of the latter serves to inseparably attach the cap 3 at all points

and effectively resist attempts to remove the cap by pulling it endwise. Such swivel-joint *j* is formed by a circumferential rib and a circumferential groove simultaneously formed in the respective parts and permanently interlocked with each other, but so as to permit the cap 3 to be readily rotated or turned by the fingers to open or close the box. By locating said swivel-joint *j* below the outlet-openings *c* and *c'* and at or near the lower edge of the side walls *e* of the cap 3 it is most readily formed before the cover 2 is attached and also serves in the most effective manner to prevent any leakage of powder at a point which it has been heretofore impracticable to fully protect without multiplying the parts and obstructing the rotation of the cap 3.

Stops *k* and *k'* to limit or control the rotation of the cap 3 are wholly relieved from strain due to attempts to remove the cap by said withdrawal-resisting swivel-joint *j* and are thus adapted to perform their distinctive functions with nicety and to be located, as preferred, either in the ends *f* and *g* of the nozzle and cap, as in the species represented by Figs. 1 to 4, inclusive, or in the side walls *e* and *h* of the nozzle and cap, as in the species illustrated by Figs. 5 to 7, inclusive, as may be preferred.

In either location of the improved stop device both stops *k* and *k'* are formed by indenting the sheet metal, and one of them is elongated in a plane parallel to that of said swivel-joint *j* and extends equally on both sides of the other stop when the outlet is open, so that the rotary cap 3 may be turned in either direction to close the outlet, the extremities of said elongated stop being located diametrically opposite each other, so that the cap when turned in either direction is stopped with its outlet-opening *c'* equally and to an ample extent out of line with the outlet-opening *c* in the nozzle. (Compare Figs. 4, 6, and 7.) In said species (represented by Figs. 1 to 4, inclusive) said elongated stop *k* is formed in the closed top *f* of the nozzle, and the other stop *k'* is formed in the top of the cap 3. In the species represented by Figs. 5 and 6 the elongated stop *k* is formed at the back of the nozzle and projects inward the same as in the species first named, the other stop *k'* being formed in the cap 3 diametrically opposite the center of the outlet-opening *c'* in the cap.

As illustrated by Fig. 7, the elongated stop in either of the arrangements of the stop device may be the stop *k'*, formed in the cap 3, and may project externally, if preferred, and other like modifications will suggest themselves to those skilled in the art.

Having thus described said improvement, I claim as my invention and desire to patent under this specification—

1. A rotary cap-closure comprising a nozzle round in cross-section provided with an outlet-

opening, and a rotary cap provided with an outlet-opening adapted to be alined with the outlet-opening first named, said nozzle and cap being also provided respectively with stops interlocked with each other, and one of said stops being elongated equally on both sides of the other stop when the outlet is fully opened, whereby the cap is adapted to be turned in either direction to close the outlet, and is stopped whenever the outlet is fully closed.

2. A rotary cap-closure comprising a nozzle round in cross-section provided in its side walls with an outlet-opening, and a rotary cap having side walls provided with an outlet-opening adapted to be alined with the outlet-opening first named, and having a closed upper end, said nozzle and cap being also provided respectively with stops interlocked with each other and one of said stops being elongated equally on both sides of the other stop when the outlet is fully opened, whereby the cap is adapted to be turned in either direction to close the outlet and is stopped whenever the outlet is fully closed.

3. A rotary cap-closure comprising a nozzle round in cross-section provided in its side walls with an outlet-opening, and a rotary cap having side walls provided with an outlet-opening adapted to be alined with the outlet-opening first named, said nozzle and cap being also constructed with closed upper ends and provided respectively with stops interlocked with each other and one of said stops being elongated equally on both sides of the other stop when the outlet is fully opened, whereby the cap is adapted to be turned in either direction to close the outlet and is stopped whenever the outlet is fully closed, and further provided with a withdrawal-resisting swivel-joint inseparably attaching said cap to said nozzle.

4. A rotary cap-closure comprising a box-cover having a nozzle round in cross-section provided with an outlet-opening, and a rotary cap provided with an outlet-opening adapted to be alined with the outlet-opening first named, said nozzle and cap being also constructed with closed upper ends and provided respectively with stops interlocked with each other and further provided with a withdrawal-resisting swivel-joint inseparably attaching said cap to said nozzle and located below said outlet-openings so as to obstruct the escape of the contents at the lower edge of the cap.

5. A rotary cap-closure comprising a box-cover having a nozzle round in cross-section provided in its side walls with an outlet-opening, and a rotary cap having side walls provided with an outlet-opening adapted to be alined with the outlet-opening first named and having a closed upper end, said nozzle and cap being also constructed with closed upper ends and provided respectively with stops interlocked with each other and one of said stops being elongated equally on both sides of the

other stop when the outlet is fully opened,
whereby the cap is adapted to be turned in
either direction to close the outlet and is
stopped whenever the outlet is fully closed,
5 and further provided with a withdrawal-re-
sisting swivel-joint inseparably attaching said
cap to said nozzle and located below said out-

let-openings so as to obstruct the escape of the
contents at the lower edge of the cap, substan-
tially as hereinbefore specified.

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Witnesses:

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