

(Model.)

S. E. HEINEMAN.  
CAPSULE.

No. 464,121.

Patented Dec. 1, 1891.

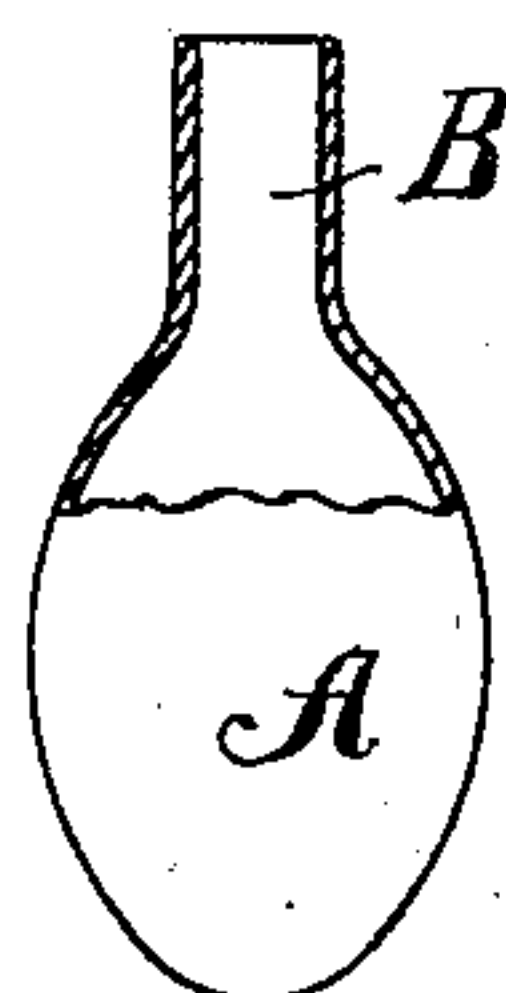


Fig. 1.

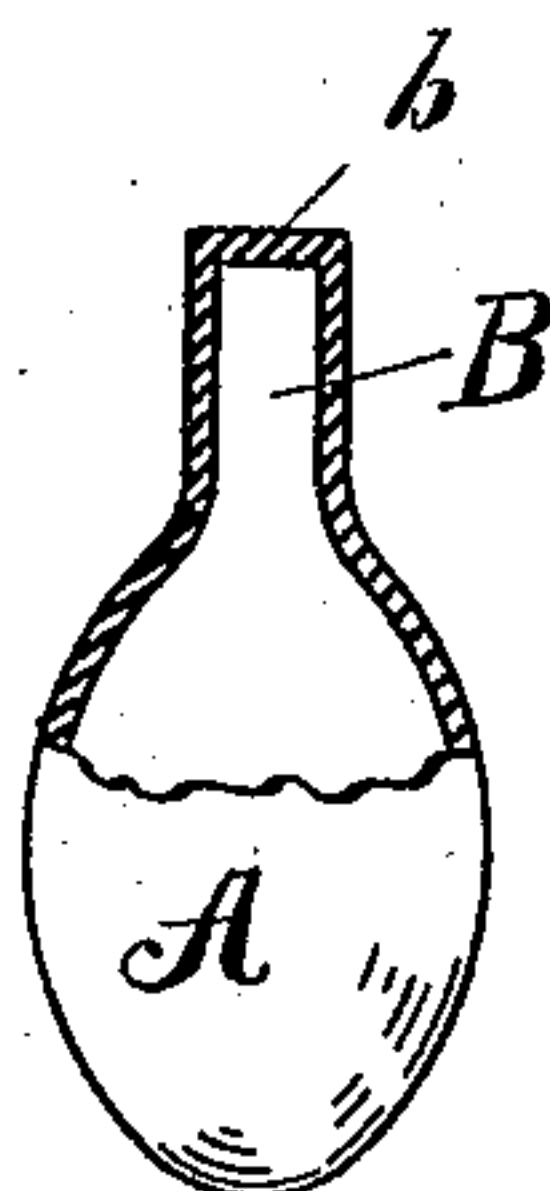


Fig. 2.

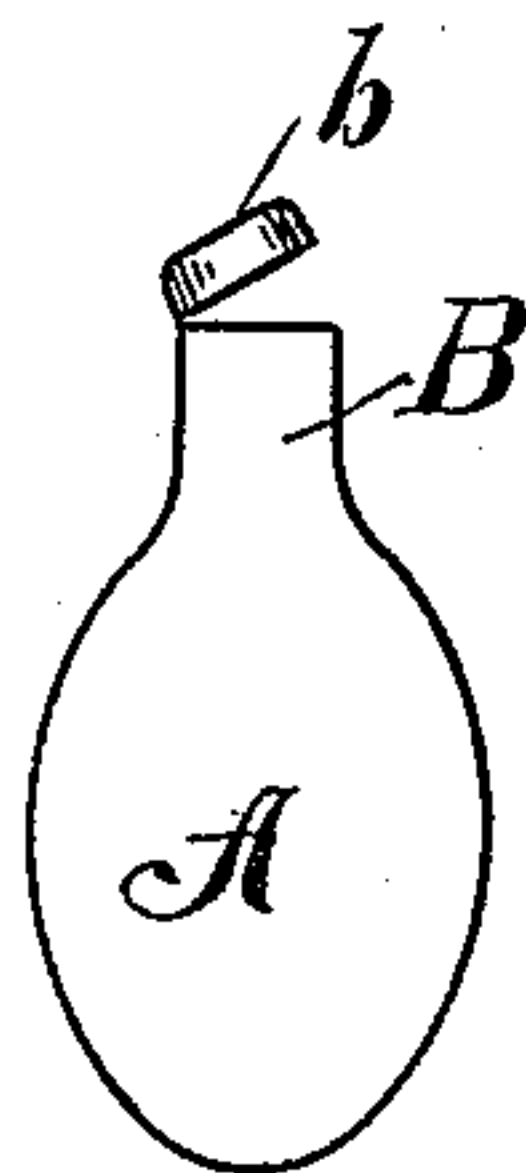


Fig. 3.

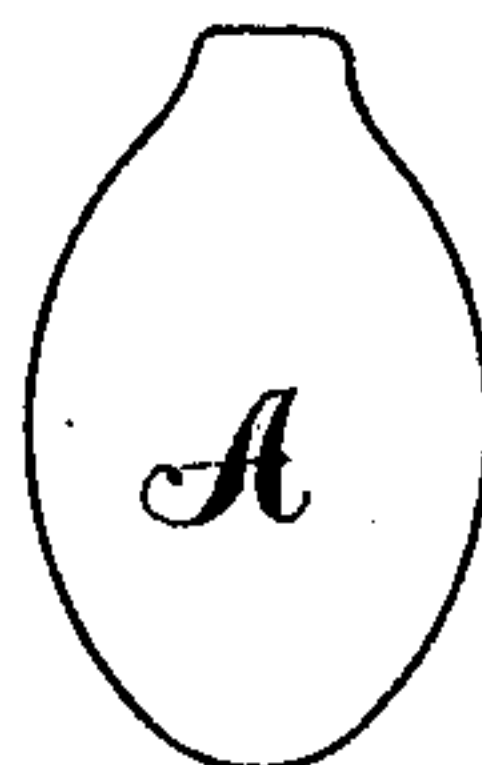


Fig. 4.

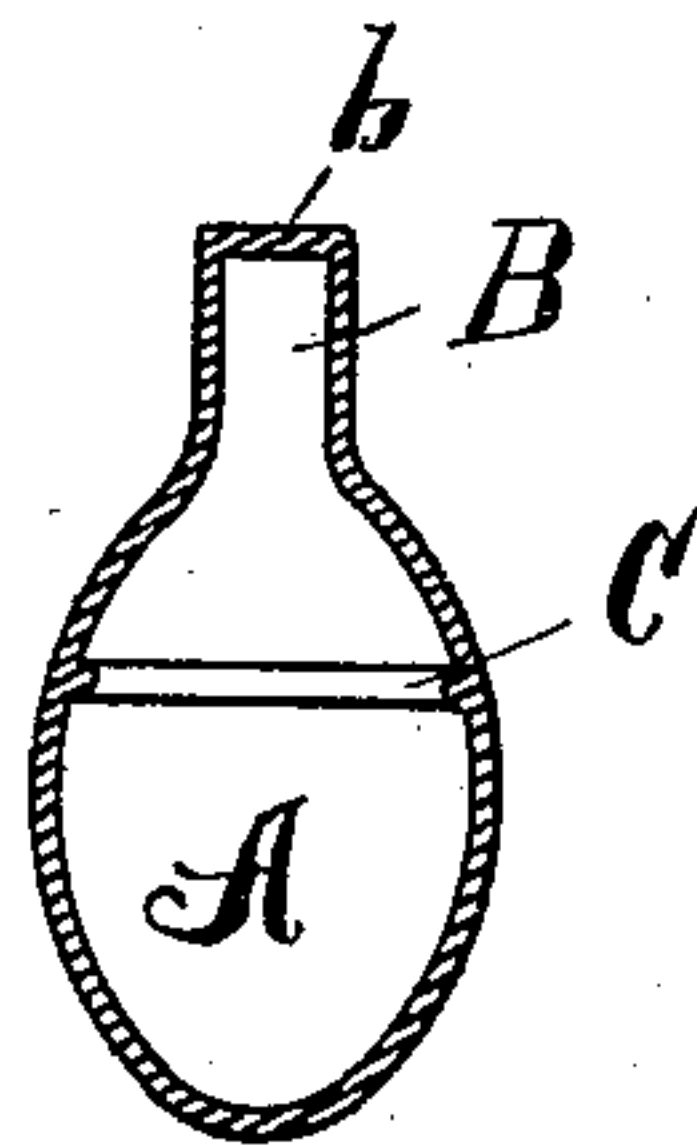


Fig. 5.

WITNESSES

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# UNITED STATES PATENT OFFICE.

SOLOMON E. HEINEMAN, OF DETROIT, MICHIGAN.

## CAPSULE.

SPECIFICATION forming part of Letters Patent No. 464,121, dated December 1, 1891.

Application filed April 21, 1890. Serial No. 348,796. (Model.)

*To all whom it may concern:*

Be it known that I, SOLOMON E. HEINEMAN, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Capsules; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

It is well known that many liquid medicines are disagreeable to the taste or injurious to the teeth. Because of this it has been common to provide filled capsules in which some of the liquid medicines were inclosed; but such capsules have heretofore been made without necks and they therefore had to be filled and sealed at the factory, and because of this many disagreeable and injurious medicines could not be taken in capsules since many of such medicines quickly dissolve the capsules and they therefore cannot be filled into the capsules until just before use. So, again, very frequently a druggist or physician is called on to put up some peculiar liquid prescription in capsules which is not found in filled capsules as supplied by manufacturing chemists to the trade, but he cannot comply with the request as he has not the facilities for sealing the capsule. Again, when the sealed capsules are used the dose cannot be varied, as is often necessary.

There are different methods of sealing the old-style capsule, or those that have no necks. One is to paste over the orifice a disk of any suitable material. Another is, after having placed the capsules in a series of holes located in a stick and after having filled them and temporarily sealed each one with a drop of suitable material to turn the stick upside down and immerse the ends of the capsules in the same material from which they are formed, whereby they are permanently sealed. The old-style capsule could not be sealed by applying a hot piece of metal to the orifice, as that would only enlarge the orifice and destroy the capsule.

My invention consists of a capsule with a permanently-projecting tubular neck which

may be sealed at its end when the capsule is empty to prevent the body from collapsing.

The object of my invention is to produce a capsule for liquid medicines which can be sold empty, which can be kept in a drug-store, physician's office, or elsewhere any length of time, and which can be filled and sealed by any person just before using the same, and as a consequence of this any-sized dose of any medicine can be taken at any time.

My peculiarly-formed capsule permits of the capsule being made and shipped in sealed form, so as not to be liable to breakage or collapsing, and when it is to be filled for use the sealed end can be removed and the filling done without the necessity of a skilled hand or any peculiar tool, and the neck furnishes the resealing material in such relation to the body of the capsule that, when melted down to seal the orifice, the capsule is left in a substantially perfect olive form.

My capsule can be sealed by applying to its neck a hot knife-blade or any hot piece of metal.

In the drawings, Figure 1 represents a partial vertical section of my capsule with the end of the neck unsealed. Fig. 2 represents a partial vertical section of my capsule with the neck sealed up. Fig. 3 represents a side view of my capsule, the sealed end of the neck being cut off preparative for filling. Fig. 4 represents a side view of my capsule when filled, the neck being melted down and sealing the orifice. Fig. 5 represents my capsule provided with a ridge around its body.

In my capsule A represents the body; B, the neck; b, the seal at the end of the neck; C, the ridge within and about the body of the capsule. The body and neck may be of any form that will permit the mold or olive to be withdrawn without tearing the capsule. The neck must be a permanent tubular projecting neck, and it must be of such a length, when sealed at its end and empty, that the sealed end may be cut off and still leave a sufficient length to be melted down to seal the orifice of the capsule, or when sold in empty but unsealed form the neck must be long enough to be melted down and seal the orifice.

The rib C has two functions. One is to stiffen and strengthen the body of the cap-



sule and the other is to mark the height to which the capsule is to be filled.

The process of manufacturing my capsule with its neck does not vary a great deal from the process of manufacturing the old style of capsule without the integral neck. In the old process the first step is to immerse the olive until the gelatine rises a short distance on the stem, forming a short neck. This short neck is then wholly removed, leaving none of it on the olive. The gelatine, however, at the opening is left sufficiently thick to present a good edge for the sealing material. Frequently, however, the gelatine at the edge of the mold proper is so thin as to curve and is liable to run back on the mold and the capsule is destroyed in attempting to seal it. In my process the first step is to immerse the olive until the gelatine rises on the stem and forms an extra long neck. After the capsule is cooled the second step is to twist it loose from the mold and to withdraw the mold, the neck being retained on the capsule. After the olive is withdrawn the end of the neck may be sealed, leaving still a long neck on the capsule. The capsule may be marketed for use either with or without this extreme end sealed, as above.

When the physician or druggist wishes to fill a capsule, if the end of its tube is sealed, he severs this sealed end, still leaving a long neck on the capsule. He fills the capsule and then with a warm knife-blade or other tool he melts down the neck. The melted gelatine

derived from melting down the neck follows down centrally of the tube and fills and closes its orifice without melting at all the gelatine at the bulb and without the use of any additional gelatine than that which composed the projecting neck.

What I claim is—

1. A capsule provided with a tubular neck integral therewith through which it may be filled, said capsule adapted to be subsequently closed by melting said neck material down over the opening, substantially as described.

2. A capsule having a tubular neck formed integral therewith, said neck sealed at its end to prevent collapsing, said neck being of a length sufficient to permit the severing of its closed end for filling and to leave enough neck material to again melt and seal the capsule, substantially as described.

3. A gelatine capsule provided with a rib arranged to indicate the height to which the capsule must be filled for a given quantity of medicine, substantially as described.

4. A gelatine capsule formed integral with a tubular filling-neck, and a rib arranged to indicate the height to which the capsule must be filled for a given quantity of medicine, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

SOLOMON E. HEINEMAN.

Witnesses:

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MARION A. REEVE.