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C. B. STRAUCH

2,057,397

NASAL INHALER

Filed March 5, 1935

FIG. 1.

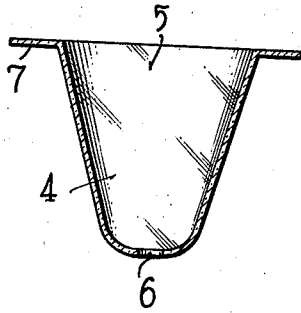


FIG. 2.

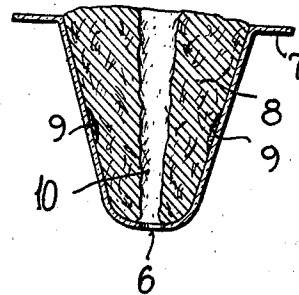
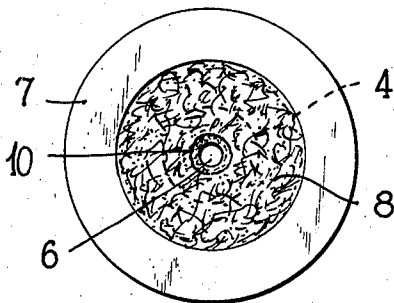


FIG. 3.



Inventor
Clauss B. Strauch,

By *Seymour & Bright*

Attorneys

UNITED STATES PATENT OFFICE

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NASAL INHALER

Claus Burkart Strauch, New York, N. Y.

Application March 5, 1935, Serial No. 9,395

1 Claim. (Cl. 128—198)

This invention relates to improvements of nasal inhalers adapted to contain medicament and to be inserted into the nostrils and to be held there by engagement with the nose for the period of time desirable to apply said medicaments.

Heretofore nasal inhalers have been devised, consisting of constructions using metal sheet, wire or hard rubber, noticeable and offensive on the face, apt to widen permanently the nostrils and to cause damage to the mucous membrane through the inherent stiffness of the material, of expensive structure necessitating repeated use which is medically objectionable even after such inhalers were cleaned with difficulty, and of such weight that only considerable pressure and friction leading to irritation and discomfort could hold the inhaler to the nose.

Object of my invention is to provide a nasal inhaler made of unoffensive or even transparent material; semiflexible and elastic; made so cheap and simple that it is to be used only once; and of such low weight that it is held in the nostrils without pressure or discomfort.

People using a nasal inhaler are generally afflicted with nasal irritation and infectious discharge. This condition increases greatly the disadvantages of the nasal inhalers used heretofore which pressed the sensitive tissues, became involved with the infectious secretions and were apt to carry germs and causes for reinfection in the crevices and cavities of the structure. My invention is especially designed for use in diseased nasal conditions where it will not irritate the sensitized tissues due to its smooth surfaces, elastic structure and easy weight; will eliminate necessity of re-use and harboring of germs on account of its low cost; and will not make the diseased condition easily apparent due to the unoffensive and even transparent material employed.

With the foregoing objects outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawing and more particularly pointed out in the appended claim.

Fig. 1 is an enlarged vertical sectional view of a preferred form of the outer shell of the device as produced in the course of manufacture of the nasal inhalers.

Fig. 2 is an enlarged vertical sectional view of the preferred form of the outer shell complemented by a filler of absorbent material provided

with an optional central passage for air. This view represents the finished nasal inhaler.

Fig. 3 is a top plan view of my improved nasal inhaler.

In the drawing, 4 designates the outer shell of the inhaler. It consists substantially of a cone or cup, which has an entrance 5, and an exit 6. The cup has in its preferred form a collar 7.

8 represents a filler of absorbent material, such as cotton or wool which is inserted into the shell 4 and preferably kept in its place by a glue 9. The filler can be provided by a central air passage 10.

The shell 4—7 as illustrated in the figures may be constructed of waxed paper, of cloth impregnated with any thermoplastic material such as paraffin or shellac, of metal foil or any other material which can be formed or pleated into a thin cone shaped shell.

It is an essential part of my invention to produce cup shaped shells as described from transparent material such as cellophane, sealing or unsealing, or preferably celluloid, by pressing and pleating the cone on dies with or without help of heat. Cellophane or celluloid of the thickness of cellophane used in several layers, is easily pressed and pleated between cold or hot dies to cup shape and will keep this shape aided by insertion of the filler and its fixation.

It is also a part of my invention to use a layer of non-transparent material as specified above in connection with one or several layers of transparent material in the manufacture of said shells for the purpose of improving appearance and protecting the non-transparent shell from the effect of any drugs to be used on the absorbent filler.

I prefer to carry out my invention by forming the shells of my inhaler from thin celluloid. This material, supplied in sheets or rolls of paper thickness, is led over a heated female die corresponding to its intended shape as shown in Fig. 1 and pressed and pleated into this die by a corresponding male die while it is softened by the heat. It was found practical to use celluloid in band shape, to preheat the celluloid to softness before it reached the dies and form and pleat it quickly between the dies into the cup shape. The exit 6 of the cone and the outer circumference of the brim 7 is punched out with the same or a subsequent operation. The finished shell of my inhaler, made as here described, represents a dainty cup shaped transparent shell, generally weighing approximately 1 grain ($\frac{1}{16}$ gram) and showing some firmly pleated folds. I prefer the inhaler in a round cup shape since it can easily

be bent into an oval shape similar to the nostrils. Without leaving this invention, the shape can also be pressed or pleated primarily oval or oblong.

5 The cup shaped shell of the inhaler has the purpose of giving form and shape to the filler 8, to keep the air passage 10 intact, to facilitate removal, and to prevent contact of the generally highly irritating volatile medicament with the sensitive mucous membrane.

10 The filler 8 provides a receptacle for the volatile medicament. In its preferred form as shown in Fig. 2 it consists of a fibrous material such as wool or cotton which is glued into the cup and provided with an air passage. It can also be held in its place by narrowing somewhat the entrance 5 of the cup which is easily done by forming or pleating this entrance narrower than the body of the cup or by attaching a perforated cover over the entrance 5.

20 The nasal inhaler described above can also be used with advantage to filter the air entering the nose, from hayfever-pollens, dust or poisonous gases. For this purpose the filler can preferably be constructed from glass wool, charcoal or fibrous material and is preferably arranged in the shell 4 loosely and without a central air passage.

25 For use, the filler if not supplied medicated will be impregnated with a volatile medicament as by dropping a few drops of such medicament

from a bottle upon this filler, and one cone thus prepared will be inserted into each nostril. The brim will prevent too deep insertion and facilitate removal of the appliance. The inhaler can be in its position during work, on the street and overnight and affords excellent means for prolonged effect of any volatile medicament.

5 In the first portion of this specification, I have set forth the advantages of the invention over the known systems and while I have disclosed 10 what I consider to be some preferred embodiments of the invention in such manner that the same may be readily understood by those skilled in the art, it is manifest that changes may be made in the details disclosed without departing 15 from the spirit of the invention as expressed in the claim.

What I claim and desire to secure by Letters Patent is:

20 An article of the character described comprising a substantially conical imperforate open ended tubular shell formed from thin cellulosic sheet material and being light, smooth, transparent and non-absorbent, the shell being provided at its large end with an annular flange extending outwardly away from the axis of the 25 shell, a filling of absorbent material positioned within the shell, and means securing the filling to the shell.

CLAUSS BURKART STRAUCH. 30