

No. 609,923.

Patented Aug. 30, 1898.

G. H. TUTTLE.

INHALER.

(Application filed Aug. 18, 1897.)

(No Model.)

Fig. 1.

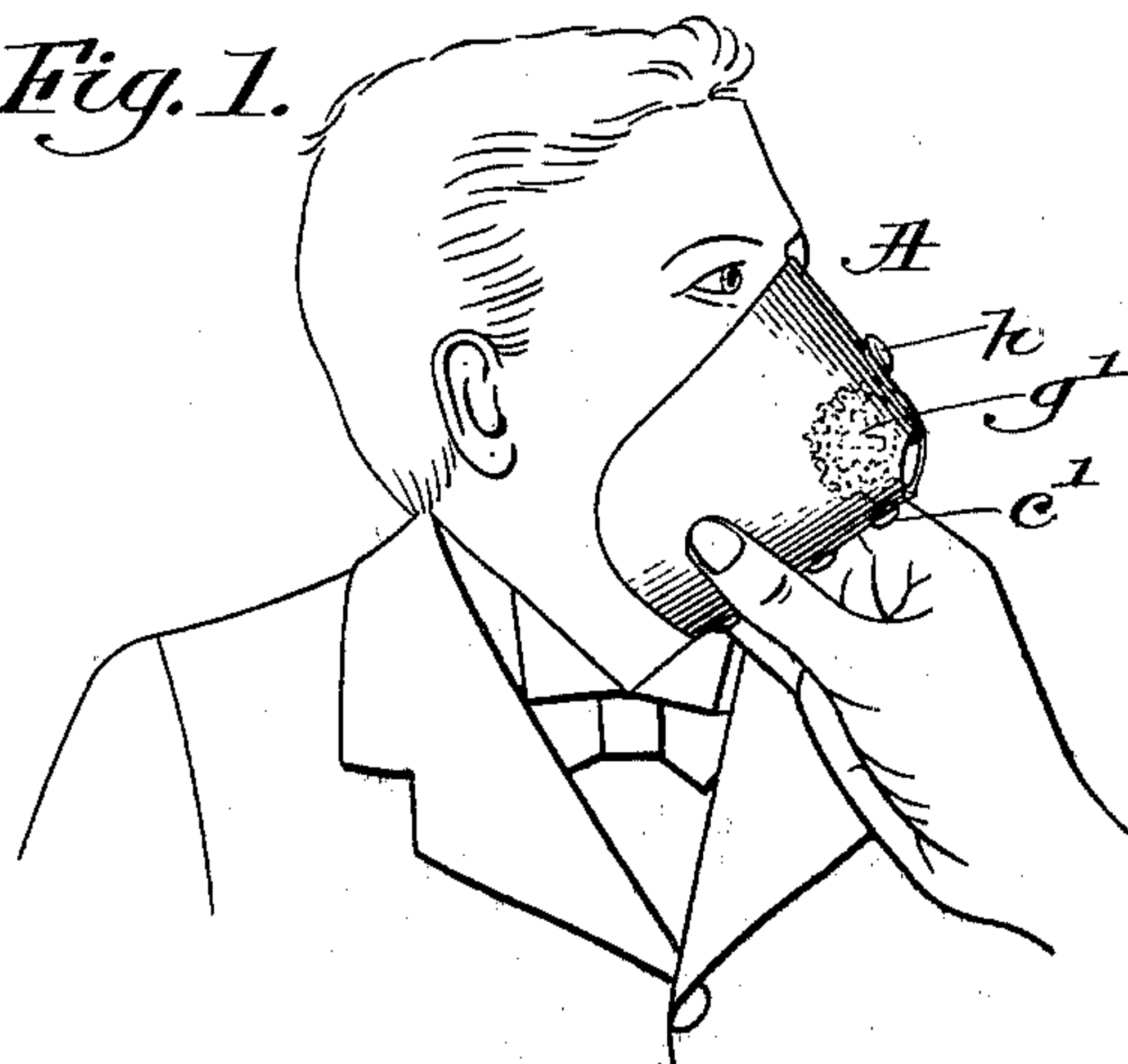


Fig. 2.

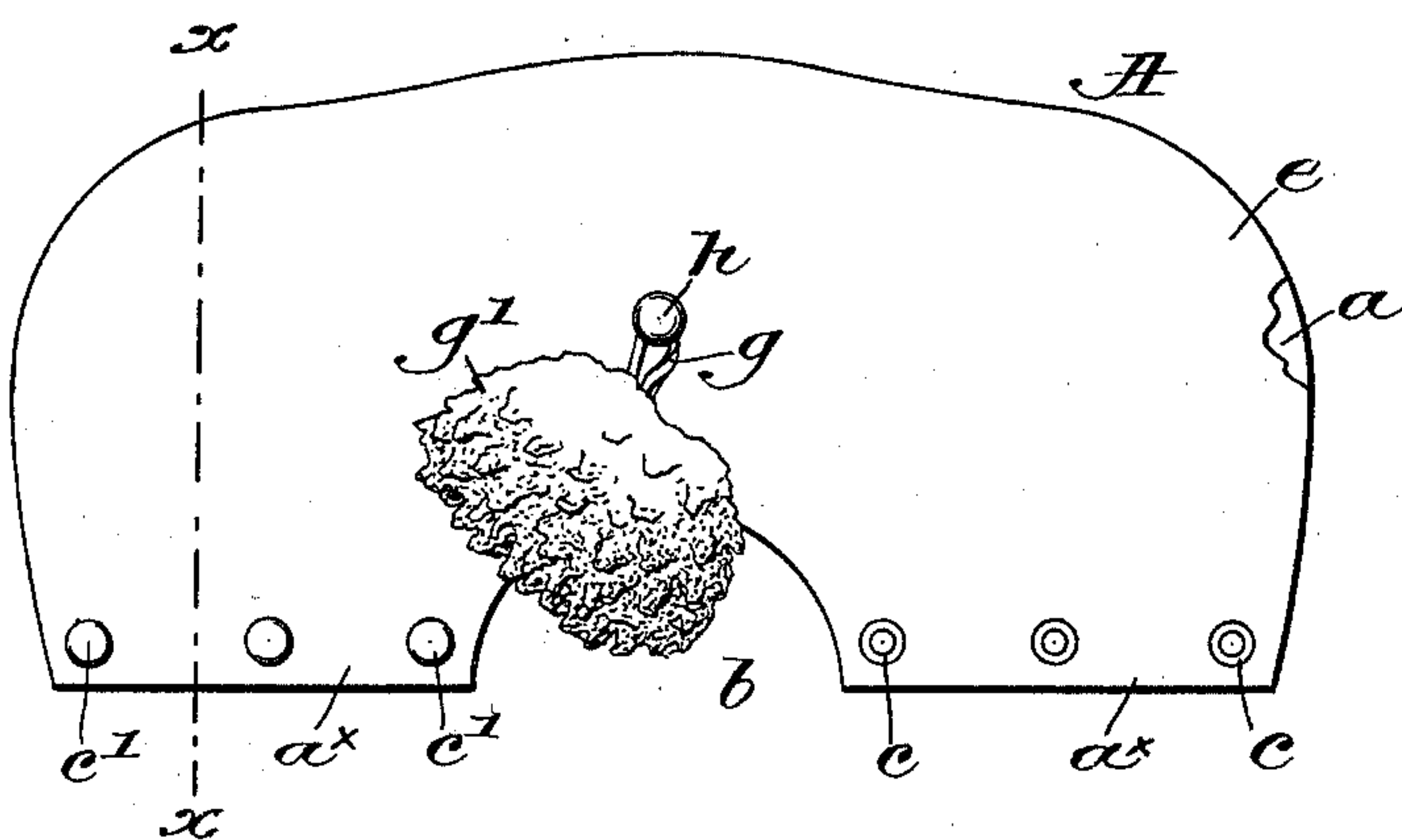
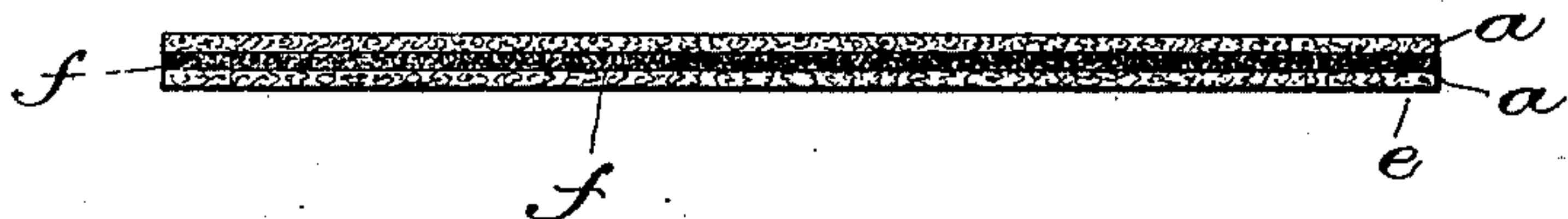


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE H. TUTTLE, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR OF ONE-THIRD TO FRANK H. WILLARD, OF SAME PLACE.

INHALER.

SPECIFICATION forming part of Letters Patent No. 609,923, dated August 30, 1898.

Application filed August 18, 1897. Serial No. 648,648. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. TUTTLE, of Cambridge, county of Middlesex, State of Massachusetts, have invented an Improvement in Inhalers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a novel inhaler for the administration of anesthetics and other medical agents—such as ether, chloroform, &c.—my improved inhaler being flexible and easily carried in a doctor's bag or pocket, it taking up but the minimum of room.

The inhaler to be herein described, it embodying my invention, is composed of a flexible textile substance, preferably felt, and this flexible substance is rendered ether-proof, and preferably the outer side of the inhaler is enameled, I preferring to use an enamel to finish the said surface.

The inhaler is held in working position by means of suitable fastenings, herein shown as of the ball-and-socket variety.

Figure 1 shows my inhaler applied. Fig. 2 shows it opened and laid out flat; and Fig. 3 is an enlarged section in the line x , Fig. 2.

All inhalers require two things—an absorbent to hold the ether or other anesthetic and a framework therefor; but so far as known to me in all inhalers heretofore the absorbent is distinct from the framework.

It is one of the main objects of the present invention to provide an inhaler which shall economize the ether and hold enough ether at one filling for a usual operation and yet be substantially complete in one single piece.

A main novelty of my invention resides in providing a composite fabric which in itself constitutes the impervious shell, framework, and absorbent surface, thereby materially simplifying the inhaler without loss of effectiveness, decreasing the cost of manufacture, increasing the surface of evaporation, and in connection with other features of the invention preventing the loss of any ether during the anesthetizing and affording a compact and complete inhaler convenient for the pocket and always ready for immediate use.

Referring to the drawings, more particu-

larly to Fig. 3, it will be seen that the composite fabric which composes the body of my inhaler A is made up of one or more layers, as a , of felt or other material extremely absorbent of ether, chloroform, and other anesthetics, part or all of this absorbent material being on that side of the fabric which is to constitute the inside of the cone presently to be described, and within the fabric the absorbent material thereof is provided with a coating or layer f of material which is impervious to the passage of ether, &c., such as gum-arabic or basic silicate, the outside of the fabric preferably having a surface-finish- ing coat e of flexible slightly rigid substance, such as celluloid, to prevent contamination by the hand, permit the inhaler to be readily washed, and give it form and desired rigidity and support. The inhaler A is cut from the composite fabric described into substantially the shape shown in Fig. 2, cutting out from the same at its shorter edge a notch b , preferably slightly larger than a semicircle, the longer edge being cut in a curved line approximately, as shown in Fig. 2, so as to conform in use to the contour of the face, as shown in Fig. 1. The two straight edges a^x at opposite sides of the notch b are arranged to overlap, so as to make a tight joint, there being provided slightly back from one of the edges a^x a series of headed studs c , and slightly back from the other edge a^x a series of cups, said studs and cups constituting one form of ball-and-socket fastening, so that the inhaler may be quickly rolled together for use into the shape shown in Fig. 1 and its overlapped edges a^x snapped together by the fastenings c c' , or the edges may be instantly pulled apart and the inhaler straightened out flat for insertion in the pocket or case.

The fastenings c c' are in a line approximately coincident with the diameter of the circular notch b before mentioned, so that when the fastenings are closed down on each other the inhaler A assumes the form of a truncated cone, as clearly shown in Fig. 1, requiring that the air shall all be inhaled through the restricted central aperture b and bringing substantially the entire inner surface of the inhaler within the direct influence of the heat from the breath of the patient.

It will be understood that the inhaler so far as described is in one integral sheet or piece of composite material, as explained, and it is not made up of a plurality of sheets fastened together or independent, but that the several layers are manufactured into one single fabric which when formed into the shape shown in Fig. 1 has, coextensive with its entire inner area, a surface highly absorbent of ether, &c., so that the ether instead of being carried in a compartment or on a separate evaporating-surface, such as a bunch of absorbent cotton or other means, is simply poured directly onto the inner surface of the cone itself, and the latter receives it in large quantities. Thereby the inhaler presents an unusually large extent of evaporating-surface and this is presented directly to the patient, the evaporation being further aided by the heat from the breath falling directly on the absorbent surface of the inhaler.

Secured adjacent the aperture *b* I provide a sponge or other suitable substance *g'*, which restricts the amount of air which may be received through the aperture and which may also receive ether and serves to catch any drops thereof which might otherwise drip therefrom when the ether is being poured onto the walls of the cone. This sponge is secured by a cord or fastening *g*, preferably elastic, to a button or stud *h* on the outside of the inhaler, so that it occupies a position, as shown in Fig. 1, loosely closing the opening and being automatically pulled forward with a constant pressure, so that the fastening *b* remains snugly bearing over the outer edge of the air inlet or opening *b*.

From the above description it will be evident that my improved inhaler provides in one single piece and in small and exceedingly compact form all the requirements called for in the use of such an instrument and that in addition thereto the inhaler is capable of receiving an unusual amount of ether on an extremely extended evaporating-surface, the latter being coextensive with the inclosed area of the inhaler exposed to the patient. On this account the effectiveness of the inhaler is superior, and also, because of its shape and structure, its convenience is much increased over all other inhalers with which I am familiar. I make no claim to novelty in respect to the conical form nor to the employment of a sponge, nor to an inhaler having its edges detachably fastened at one side, broadly considered; but so far as I am aware the only detachably-fastened inhaler heretofore suggested consisted of a stiff sheet-metal tube having a permanently tubular shape and within which a separate and entirely independent holder for the ether might be placed, the only reason for the detachable fastening of the permanently-curved inhaler being so that convenient access might be had for the removal and insertion of the holder for the ether.

The ball-and-socket fastenings are very

handy and convenient; but this invention is not limited to a fastening of only such construction, as any other usual or suitable fastening means may be employed instead.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An inhaler comprising a single piece of fabric having when in use substantially the form of a cone, said fabric being on its inner side extremely absorbent of ether, chloroform, and other anesthetics, and having intermediate its outer and inner surfaces a substance resistant to the passage of ether, &c., the outer surface of said fabric being hard, flexible, and slightly resilient, whereby the one piece of fabric is capable of automatically maintaining a permanent form and of receiving a large amount of anesthetic, providing at the same time an extended evaporating-surface therefor, while being impervious to the passage of the anesthetic through it from the inside out, substantially as described.

2. An inhaler having on its inner side an absorbent and evaporating surface for the ether or other anesthetic, on its outer side a coating rendering it slightly rigid and resilient, and intermediate said inner and outer sides a layer impervious to the passage thereof of the ether, &c., said inner side, outer side, and intermediate layer being formed integrally with each other in one fabric, substantially as described.

3. An inhaler in the form of a cone having a relatively small air-opening at its apex, and a sponge positively held at the extreme small end of the cone and into the said opening, thereby definitely closing the latter as desired, said cone having absorbent material for the ether throughout its entire inside area, substantially as described.

4. An inhaler consisting of a flexible and slightly-resilient material normally extending out flat in one sheet but capable of being rolled into the form of a truncated cone, and having when flat a notch in one edge approximately semicircular in shape, a short, straight edge a^x extending from said notch at the opposite edges thereof, said two straight edges being in line with each other and substantially in line with the diameter of said notch, said material having the remainder of its perimeter from the remote ends of said two short, straight edges a^x cut on a curved line to conform, when the inhaler is in its conical form for use, to the contour of the face, said inhaler being provided slightly back from its said short, straight edges with cooperating fastenings adapted to secure said edges together when overlapped for use in the said form of a truncated cone and adapted to be quickly unfastened for detaching said edges from each other when it is desired that the inhaler should assume its said normal flat form when not in use, said inhaler being made in one piece of fabric, said fabric being on its inner side extremely absorbent of ether, chlo-

roform, and other anesthetics, and having intermediate its outer and inner surfaces a substance resistant to the passage of ether, &c., the outer surface of said fabric being hard,
5 flexible, and slightly resilient, whereby the one piece of fabric is capable of automatically maintaining a permanent form and of receiving a large amount of anesthetic, providing at the same time an extended evaporating-
10 surface therefor, while being impervious to the passage of the anesthetic through it from the inside out, in combination with a stud secured to the outside of the inhaler, a sponge,

and securing means for said sponge fastened to said stud and adapted to extend over the
15 adjacent edge of said notch and hold the sponge into the opening of the inhaler when the latter is rolled into its conical form, substantially as described.

In testimony whereof I have signed my
20 name to this specification in the presence of two subscribing witnesses.

GEORGE H. TUTTLE.

Witnesses:

GEO. W. GREGORY,
MARGARET A. DUNN.