

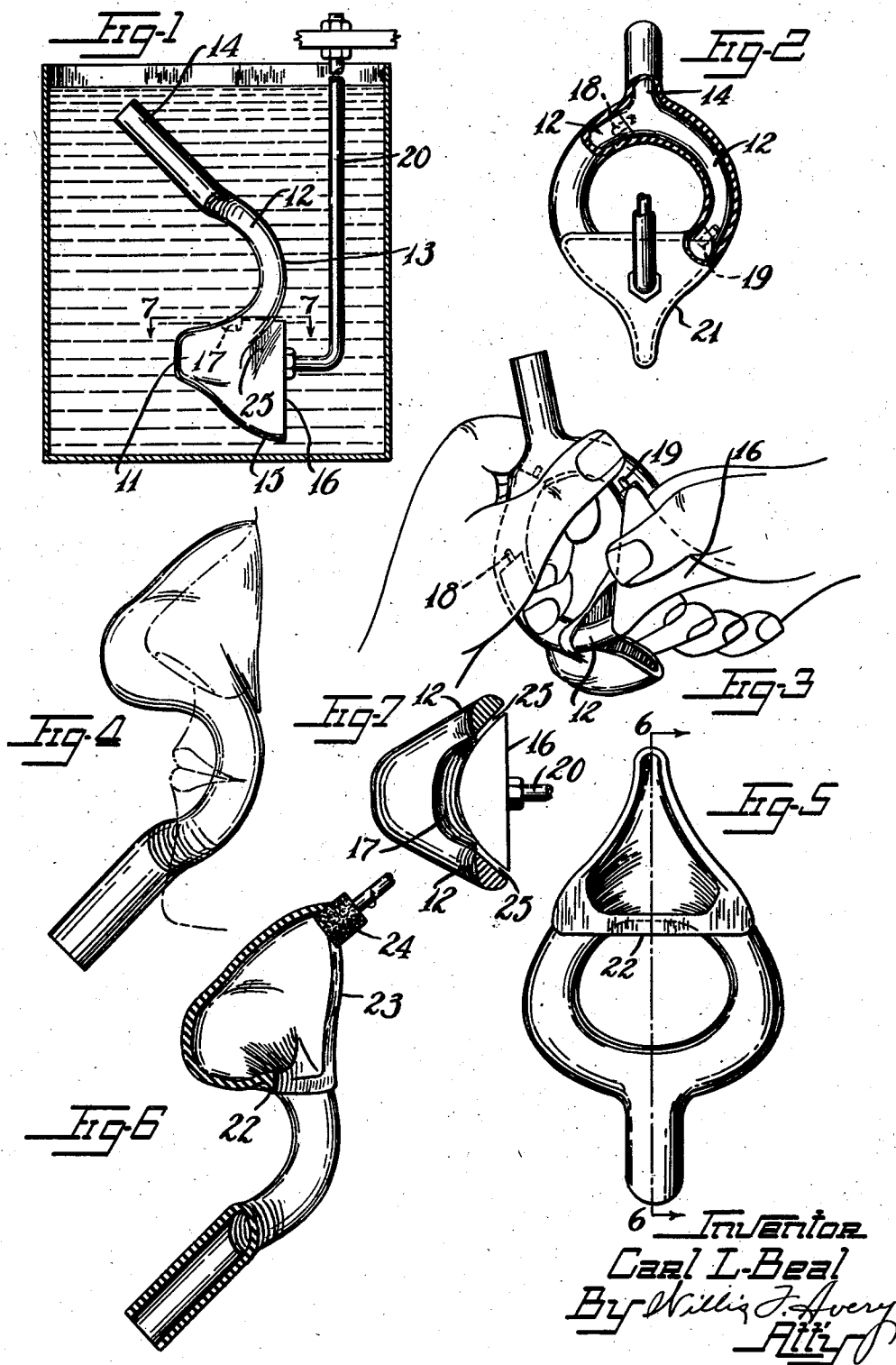
Oct. 6, 1942.

C. L. BEAL

2,298,101

METHOD OF MAKING RUBBER NASAL MASKS

Original Filed April 6, 1940



UNITED STATES PATENT OFFICE

2,298,101

METHOD OF MAKING RUBBER NASAL MASKS

Carl L. Beal, Cuyahoga Falls, Ohio, assignor to American Anode, Inc., Akron, Ohio, a corporation of Delaware

Original application April 6, 1940, Serial No. 328,329. Divided and this application March 29, 1941, Serial No. 385,797

4 Claims. (Cl. 18—58)

This invention relates to an improved deposition form and method for use in making rubber nasal masks of the type used, for example, by aviators for high altitude flying.

This application is a division of my copending application Serial No. 328,329, filed April 6, 1940.

This invention comprises a deposition form with certain novel structural features incorporated therein so that an improved nasal mask may be made efficiently, cheaply, and with a minimum of time. The mask produced is of one-piece integral construction.

Generally, the improved form which is the subject of this invention comprises a bulbous portion, two rod-like arms extending from spaced apart points on the bulbous portion and merging to form a ring-like structure, and a stem portion on the ring-like structure opposite to and projecting in a direction generally away from the bulbous portion. The form is coated with rubber by any of the usual methods such as by depositing rubber from an aqueous dispersion of rubber by the use of a coagulant solution such as any of those disclosed in U. S. Patent No. 1,996,090 granted to Edward A. Willson.

This invention can best be understood by reference to the accompanying drawing showing both the construction of the form and the principal steps in a preferred method of making a rubber nasal mask, as well as the rubber article so produced.

Fig. 1 is an elevation of the deposition form of this invention mounted on a support and immersed in a body of latex.

Fig. 2 is an elevation of the rubber coated form with a portion of the rubber broken away for clarity of illustration.

Fig. 3 is an elevation illustrating removal of the form from the rubber deposit.

Fig. 4 is an elevation in profile of the nasal mask.

Fig. 5 is an elevation showing the rear view of the nasal mask.

Fig. 6 is a cross-sectional elevation of the mask taken along line 6—6 of Fig. 5.

Fig. 7 is a cross-sectional elevation of the deposition form taken along line 7—7 of Fig. 1.

A deposition form 10 embodying the present invention comprises a bulbous portion 11, and two rod-like arms 12, 12 of generally semi-circular cross section projecting from spaced apart points on the bulbous portion 11. These arms merge to form a ring-like structure 13 lying in a concave plane. A stem portion 14 is provided on this ring-like structure 13 located opposite to

and projecting generally away from the bulbous portion 11. A fin-like portion 15 is located on the bulbous portion 11 and projects outwardly in a direction opposite the stem portion 14. The bulbous portion 11 and the fin-like portion 15 are provided with a backing portion 16 which serves to produce a flat back and is arranged so as to leave open spaces between the backing portion 16 and each of the rod-like arms 12, 12 for a substantial distance along the rod-like arms as indicated at 25, 25. These two open spaces are joined by a groove 17 in the bulbous portion 11 between the rod-like arms 12, 12 with the groove having an angular shoulder formed by the backing portion 16. The deposition form 10 consists of two elements separably joined, as with dowel pins, at two points 18, 19 on the ring-like structure 13 to give a unitary structure. These points lie in linear relationship with one of the points 18, located near the stem portion 14 of the form and with the other point 19 located near the bulbous portion 11 of the form.

The deposition form is mounted on a support 20 extending from the backing portion 16 for the dipping operation and is preferably mounted with the stem portion 14 up so as to lessen any danger of the form coming apart at the two joints 18, 19. The deposition form is coated with rubber, as by immersion in latex (Fig. 1) and the rubber is dried and vulcanized. The rubber is cut around the edge 21 of the backing portion 16 and this section of the rubber is removed. The form is then separated at the two points 18, 19 and the bulbous portion 11 with its attached portion of the ring-like structure 13 is removed through the hole produced by the cutting operation. The stem portion 14 with the remainder of the ring-like structure is then removed through this same hole. The nasal mask (Fig. 4) is finished by trimming the edges of the bulbous portion of the rubber deposit to the edge of the projecting portion 22 (Fig. 6) that is formed by the groove 17. The end of the stem portion is cut off and the portion of the mask that fits the face around the nose 23 is smoothed to a feather edge as by buffing with a buffing wheel 24.

The deposition form of this invention may be constructed of any usual material that is non-corrodible. These materials include porcelain, stone, aluminum, various metal alloys, and the like, with the preferred material being aluminum.

Although this invention has been described with particular reference to a preferred form and

to the resulting nasal mask produced therewith it is understood that the invention is not limited to this preferred embodiment but shall be unlimited within the spirit and scope of the appended claims.

I claim:

1. The method of making a rubber nasal mask comprising forming a hollow one-piece unitary rubber deposit comprising a bulbous portion with two tube-like portions projecting from spaced apart points on the bulbous portion by depositing rubber from a liquid rubber composition on a deposition form of the required shape, removing from the bulbous portion a generally triangular portion lying in a plane generally parallel to the plane of the projecting tube-like arms, and removing at least a portion of the deposition form through the resulting opening in the rubber deposit.

2. The method of making a rubber nasal mask comprising forming a hollow one-piece unitary rubber deposit comprising a bulbous portion with two tube-like projections projecting from spaced apart points on the bulbous portion and merging to form a ring-like structure, removing from the bulbous portion a generally triangular por-

tion lying in a plane generally parallel to the plane of the projecting tube-like arms, and feathering a substantial part of the edge so formed by the removal of the triangular portion.

3. The method of making a rubber nasal mask comprising forming a hollow one-piece unitary rubber deposit comprising a bulbous portion with two tube-like portions projecting from spaced apart points on the bulbous portion and merging to form a ring-like structure, removing a generally triangular portion at the back of the bulbous portion, and feathering a substantial part of the edge so formed by the removal of the triangular portion.

4. The method of making a rubber nasal mask comprising forming a hollow one-piece unitary rubber deposit comprising a bulbous portion with two tube-like portions projecting from spaced apart points on the bulbous portion and merging to form a ring-like structure, removing a generally triangular portion at the back of the bulbous portion, and feathering the entire edge so formed by the removal of the triangular portion.

CARL L. BEAL.