

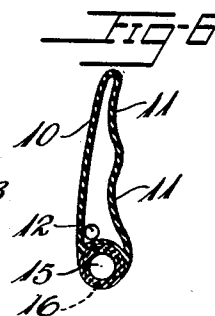
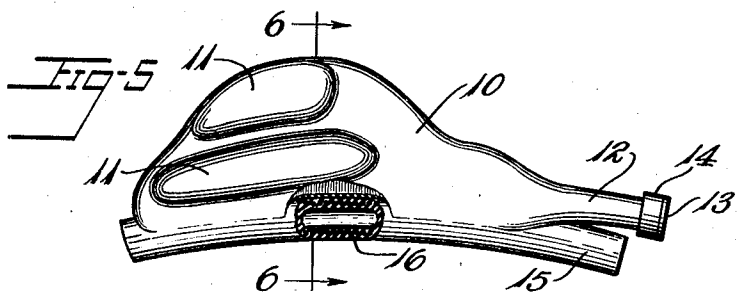
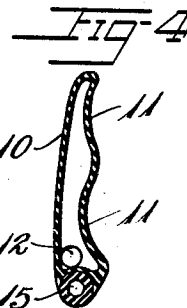
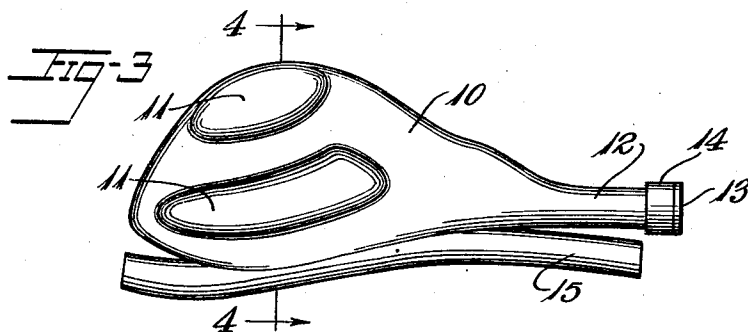
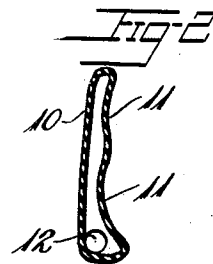
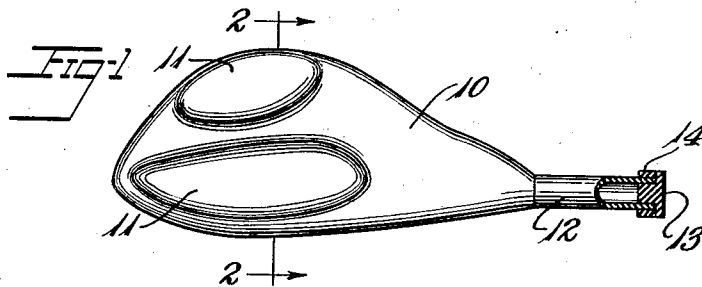
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2,179,964

SURGICAL PACK

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2,179,964

SURGICAL PACK

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4 Claims. (Cl. 128—148)

This invention relates to surgical packings and especially to an improved intranasal pack or splint especially adapted for postoperative use in nasal surgery and in the control of hemorrhage.

The problem of providing a nasal packing efficient from the point of view of the surgeon and at the same time reasonably comfortable and involving a minimum of pain for the patient is rendered difficult by a combination of several limiting factors which must be taken into consideration. Such factors include the sensitivity of the nasal mucosa to foreign material, the small size of the vestibule in comparison to the size of the nasal fossa, the irregular and intricate contour of the fossa, the variation in the contour and size of one fossa from that of its partner and from that of other nasal fossae, and the desirability of avoiding serious interference with nasal respiration.

Prior methods of nasal packing have varied greatly with each surgeon, but gauze protected by gutta-percha or rubber has been most commonly employed. In resection of the nasal septum, mechanical and absorbent splints have also been widely used, while gauze treated with petrolatum is commonly packed into cavities such as the maxillary antrum. The disadvantages of most of these methods of packing the nose are well known. Briefly, they are the difficulty of introducing the packing through the relatively small nostril, the uneven distribution of pressure, the occasional necessity of repacking the nose when bleeding occurs, the difficulty in removing the packing without hemorrhage, trauma and pain, and the congestion which blocks the nose during convalescence for varying periods of time.

The present invention, accordingly, has for its chief objects the provision of an improved nasal pack which will substantially eliminate the disadvantages of prior methods of packing, and which will more effectively control hemorrhage with considerably less pain and discomfort to the patient, and generally to provide a more efficient and more satisfactory surgical packing. More specifically, the invention aims to provide a pneumatic pack so designed as to be easily inserted in the nasal fossa, to apply pressure uniformly to all areas of the fossa, to permit natural nasal respiration, and to be easily removed, all with minimum discomfort to the patient. The manner in which these and other objects of the invention are attained will be apparent from the following description of the invention in which

reference will be had to the accompanying drawing, of which

Fig. 1 is an elevation, partially broken away for clarity of illustration, showing a nasal pack embodying features of the present invention;

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1;

Fig. 3 is an elevation showing a similar pack embodying a breathing tube;

Fig. 4 is a vertical section taken on line 4—4 of Fig. 3;

Fig. 5 is an elevation partially broken away for clarity of illustration showing a similar nasal pack embodying a reenforced breathing tube; and

Fig. 6 is a vertical section taken on line 6—6 of Fig. 5.

A nasal pack embodying the present invention in a preferred form comprises a generally triangular rubber bag 10 exteriorly shaped substantially to fit the gross contour of a human nasal fossa and being provided on its lateral aspect with molded indentations 11, 11 to fit the turbinate bones, while the medial aspect is smooth to lie against the nasal septum. Right and left packs, which are mirror images each of the other, are provided for packing corresponding nasal fossae. The walls of the rubber bag 10 preferably are thin and flexible, a wall thickness of around 0.010 inch being preferred, and the walls converge at one end of the bag to form a tube 12 of sufficient length to extend from the nostril when the pack is in use. The end of the tube 12 is sealed by a flanged plug 13 cemented in the end of the tube as more clearly shown in Fig. 1. The plug 13 preferably is formed of soft-vulcanized rubber which may be readily pierced by an ordinary hypodermic needle for inflating the bag 10 and which will automatically seal the puncture upon removal of the needle thereby retaining the inflating medium without the use of complicated valves. Preferably, although not necessarily, a tight-fitting rubber collar 14 of substantially the same thickness as the extending height of the plug flange is positioned outside the tube 12 against the plug flange to eliminate accidental pulls on the flange and also elastically to bind the tube 12 to the plug 13, thereby augmenting the adhesive union between those parts.

While the method of manufacturing the packs herein described forms no part of the present invention, it may be pointed out that such appliances are most conveniently and desirably made by immersing suitably shaped forms in a

liquid dispersion of rubber such as a suitably compounded natural rubber latex and depositing a coating of rubber upon the form by any well known method. Packs so made are especially satisfactory as the unmasticated latex rubber bags so produced are strong, tough, and capable of withstanding repeated sterilizations. More important, the bag walls may be made quite thin for easy inflation without danger of bursting.

In a modified pack, illustrated in Fig. 3, the longer edge of the generally triangular bag 10 may be formed with a longitudinal groove or indentation to receive a small breathing tube 15 extending the entire length of the pack, and which may be cemented or otherwise secured in place in the groove. In packs provided with such a breathing tube, it is desirable also to curve the longer side of the bag 10 inward toward the tube 15 as shown in Fig. 3 so that the breathing tube 15 and the tube 12 will lie in substantially parallel side-by-side relation at the point of emergence from the nostril.

In a further modified form of the invention illustrated in Fig. 5, a reinforcing element preferably comprising a coil of small gauge spring steel wire 16, such as 0.010 inch gauge stainless steel wire, is embedded within the walls of the breathing tube 15 to provide a desired degree of stiffness and rigidity for facilitating insertion of the bag into the nasal fossae without sacrificing the desirable flexibility of the rubber tube.

For securing a more regular exterior surface and for providing more secure anchorage of the breathing tube to the rubber bag, it is also preferred to coat substantially the entire assembled article as with latex or other rubber dispersion, to incorporate the breathing tube as an integral part of the appliance as more clearly shown in Fig. 5.

To use the pack of the present invention according to a preferred procedure, a hypodermic needle is inserted through the rubber plug 13, and the bag 10 is deflated by means of an ordinary hypodermic syringe. The needle is removed and the deflated bag is then rolled transversely into compact form and inserted through the nostril into the nasal fossa. The bag is then unrolled and placed in proper position, after which a suitable volume of air is injected into the bag by means of a hypodermic needle and syringe until the bag has been inflated a desired amount to press uniformly against all portions of the nasal fossa, the thin walled bag distending slightly under pressure to accommodate itself perfectly to varying contours of the nasal cavity. Upon removal of the inflating needle the opening in the plug 13 made thereby effectively seals itself and maintains the desired relatively slight pressure for long periods of time. At the proper time, the bag may be deflated and easily removed without the difficulties attending removal of prior packings. The breathing tube 15 permits the patient to continue normal nasal respiration while the packing is in place.

The pneumatic nasal pack described, therefore, attains to a high degree the objects hereinabove set forth.

While the invention has been described in considerable detail with reference to preferred constructions and materials, it is obvious that numerous modifications and variations therein may be made without departing from the spirit and scope of the invention as defined by the appended claims.

I claim:

1. A nasal pack comprising a pressure-distensible bag adapted to be positioned within a nasal cavity, said bag having a generally flat configuration and a roughly triangular outline and comprising thin, extensible rubber walls defining a single, uninterrupted pocket, one face of said bag being relatively plain and adapted to lie against the nasal septum, the opposite face of said bag having molded indentations adapted to fit against the turbinate bones, said bag terminating at one apex adjacent the base of the triangular bag in a tubular extension continuous with the said walls and disposed in substantial alignment with the said base of the triangular bag, said tubular extension being adapted to extend out from the nasal cavity through the nostril of a patient for convenient injection of fluid into the bag, said tubular extension being closed by a plug adapted to be punctured by a hypodermic needle for injection of fluid and to seal itself for retention of a substantial fluid pressure within the bag after the needle is withdrawn, said pack being adapted to be rolled transversely into compact form for insertion into the nasal cavity.

2. A nasal pack comprising a pressure-distensible bag adapted to be positioned within a nasal cavity, said bag having a generally flat configuration and a roughly triangular outline and comprising thin, extensible rubber walls defining a single, uninterrupted pocket, said bag terminating at one apex adjacent the base of the triangular bag in a tubular extension continuous with the said walls, said tubular extension being adapted to extend out from the nasal cavity through the nostril of a patient for convenient injection and withdrawal of fluid into and from the bag, said tubular extension being closed by sealing means adapted to permit ready injection and withdrawal of fluid to and from the bag and to retain a substantial fluid pressure within the bag after injection of fluid, and a flexible breathing tube integrally attached to the bag along the base edge thereof and extending at least the entire length of the bag, said pack being adapted to be rolled transversely into compact form for insertion into the nasal cavity.

3. A nasal pack comprising a pressure-distensible bag adapted to be positioned within a nasal cavity, said bag having a generally flat configuration and a roughly triangular outline and comprising thin, extensible rubber walls defining a single, uninterrupted pocket, said bag terminating at one apex adjacent the base of the triangular bag in a tubular extension continuous with the said walls, said tubular extension being adapted to extend out from the nasal cavity through the nostril of a patient for convenient injection and withdrawal of fluid into and from the bag, said tubular extension being closed by sealing means adapted to permit ready injection and withdrawal of fluid to and from the bag and to retain a substantial fluid pressure within the bag after injection of fluid, a flexible breathing tube integrally attached to the bag along the base edge thereof and extending at least the entire length of the bag, and a helical wire reinforcing element embedded within the walls of said breathing tube and imparting stiffness and rigidity to the pack for facilitating its insertion into a nasal cavity without destroying the flexibility of the breathing tube.

4. A nasal pack of the fluid-pressure type adapted to be positioned in a human nasal fossa, said pack comprising a pressure-distensible bag

5 having thin, extensible rubber walls defining a single, uninterrupted pocket, said bag being pre-formed with a generally flat configuration and a roughly triangular outline conforming closely to the gross contour of a human nasal fossa, the medial face of the bag being smooth and adapted to lie against the nasal septum, the lateral face

of the bag having molded indentations adapted to fit the turbinate bones, said bag terminating at one end in a tubular extension providing means for injecting and withdrawing fluid into and from the bag.

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