Title: INTERNAL DEFLECTOR FOR RESPIRATORY MASK

Abstract: The "Internal Deflector for Respiratory Mask" is a one piece plastic deflector held in place by two adjustable mounting screws. It is designed to fit inside of a respiratory mask (CPAP). The deflector prevents a direct flow of air/gas into the mask user's airways without inhibiting or impeding the set flow or pressure of the device. The shape is consistent; the size varies slightly and is determined by the size of mask it is to be installed in, e.g. small, medium, large. The deflector has an adjustment screw allowing for quick minor wearer adjustments. This deflector greatly reduces the irritation and discomfort of the interior of the mouth and nostrils associated with the use of respiratory masks. This deflector is specifically designed to require no modification, to the respiratory mask, for installation, use or removal.

1. DEFLECTOR
2. #2-56 SELF LOCKING NUT
3. #2 x 6" MACHINE SCREW
4. #8-32x5/8" NYLON SCREW
5. #2 FLAT WASHER
INTERNAL DEFLECTOR FOR RESPIRATORY MASK

Technical field

The following invention is related to the medical field of respiratory illnesses and the treatment and control of such illnesses; in particular, the arrest and control of sleep apnea through the use of continuous positive air pressure (cpap) machines.
BACKGROUND ART

In the art of the treatment of breathing disorders during sleep (sleep apnea), it is a common practice to implement the use of continuous positive air pressure (cpap) machines and related equipment. One such part of this equipment being used is a respiratory (cpap) mask. With this equipment outside air/gases are pumped into the respiratory mask at higher than atmospheric pressure to control sleep apnea. The respiratory masks, for this treatment, currently being manufactured are of such design that the flow of air/gas into them is directed into the mouth and nostrils of the wearer. This flow of air/gas into the airways causes irritation and discomfort to the wearer. This invention alleviates this condition.
Disclosure of the invention

This invention is a plastic deflector installed inside respiratory masks. The deflector is installed without modification to the mask. The deflector is held in place by up to two (2) mounting bolts and hardware. The deflector is designed to prevent the flow of air/gas from directly entering the mouth and nostrils of the mask wearer. The design of the deflector is such that, upon installation, there is no need for additional adjustment of the air/gas volume or pressure required. Installation of the deflector greatly reduces the discomfort and irritation of the airways of the mask user.

The deflector is of specific shape (fig. IA) and constructed of high impact shatter resistant plastic approximately 3/32" thick. There is one 3/32" mounting hole located in each of the upper corners (fig. IA). There is one 1/8" hole centered in the bottom of the deflector (fig. IA) threaded for a #8-32 machine screw, this screw allows for minor wearer adjustments. The shape is consistent; the size varies slightly depending on the size of mask being installed in, e.g. small, medium, and large.

The mounting hardware consists of two (2) size #2-56 x 1" bolts, six(6) size #2-56 self locking nuts, four (4) size #2 flat washers all of which are quality stainless steel. The adjustment screw is of the size # 8-32 X 5/8" and is constructed of nylon material. The mounting bolts are secured to the deflector using one (1) size #2 flat washer and one (1) size #2-56 nylon locking nut (fig. 2A). The adjustment screw is threaded thru the deflector (fig. 2A). The deflector is secured inside the respiratory (cpap) mask by inserting the mounting bolts thru the mask auxiliary gas ports located on either side of the valve frame (fig.3A) and securing with one size #2-56 nylon locking nut on each side of
Disclosure of the invention (cont.)

the mask and one (1) size #2 flat washer between the mask port and nut on the outside of the mask (fig. 2A).

The deflector has the option of using only one mounting bolt to allow for the use of an auxiliary port for the introduction of additional oxygen and or gases. This is accomplished by removing one (1) set of the mounting hardware bolt and nut.

The shape and mounting of this deflector are specifically designed so that no modification of the respiratory mask is necessary for installation or removal.
BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1A. Front view showing deflector shape, location of mounting holes and the location of the adjustment screw hole. Without mounting hardware or adjustment screw.

Figure 2A. Side view of the deflector shown with mounting hardware and adjustment screw in place.

Figure 3A. Side view showing orientation of deflector to respiratory mask.

Figure 4A. Front view showing orientation of deflector to respiratory mask.

Figure 5A. Overall view of deflector assembly.
CLAIMS

1. A deflection device of specific shape (fig. 1A) and mounting hardware (fig. 2A) for installation inside of a respiratory mask (fig. 3A) to ease, reduce or eliminate the flow of air/gas directly into the respiratory mask user's mouth and nostrils.

2. A deflector, as in claim 1, wherein the mounting of said deflector may be accomplished using one or both of the mounting bolts.

3. A deflector, as in claim 1, wherein the deflector is designed with an adjustment screw (fig. 2A) allowing for minor wearer adjustments.

4. A deflector, as in claim 1, wherein installation and removal does not require modification of the respiratory mask.

5. A deflector, as in claim 1, does not inhibit nor impede the flow of air/gas and does not require adjustment to the air/gas volume or pressure, before, during, or after installation.

6. A deflector, as in claim 1, has the option of being mounted by one bolt only, to allow for the use of one of the auxiliary ports for the introduction of additional oxygen/gases into the mask.

7. A deflector, as in claim 1, is easily, simply and quickly installed and removed by the mask user without specialized training.

8. A deflector, as in claim 1, wherein the mounting of such deflector is accomplished thru the use of the respiratory mask auxiliary ports only.
FIGURE 1A.

1. DEFLECTOR
2. 3/32" MOUNTING HOLE
3. ADJUSTMENT SCREW HOLE-THREADED #8-32
1. DEFLECTOR
4. #2-56x1" MACHINE SCREW
5. #2 FLAT WASHER
6. # 2-56 SELF LOCKING NUT
7. #8-32x5/8" NYLON MACHINE SCREW
FIGURE 3A.

8. DEFLECTOR ASSYMBLY
9. RESPIRATORY MASK
10. VALVE BODY
11. FLOW TUBE
FIGURE 4A.

8. DEFLECTOR ASSYMBLY
9. RESPIRATORY MASK
FIGURE 5A

1. DEFLECTOR
2. #2 FLAT WASHER
3. #2-56 MACHINE SCREW
4. #2-56" MACHINE SCREW
5. #2 FLAT WASHER
6. #2-56 SELF LOCKING NUT
7. #8-32x5/8" NYLON SCREW