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### Medibotics' Transparent Smart Face Masks: 9/1/2025

With the increase in airborne disease and air pollution, air-filtering face masks are increasingly important. The most common air-filtration face masks are passive filtration masks which do not have active ventilation mechanisms such as motorized air impellers. Passive filtration masks have some advantages. They tend to be relatively light-weight, inexpensive, and do not generate noise. However, passive filtration masks are almost universally opaque because transparent materials tend to be impermeable to

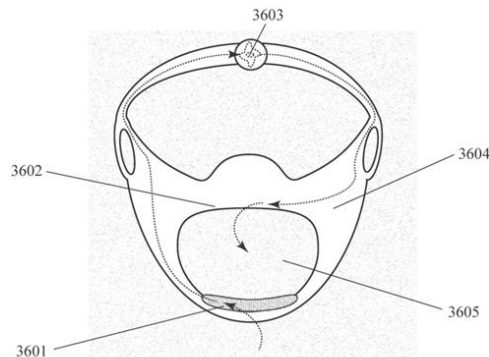


Fig. 36

airflow and thus aggravate the accumulation of carbon dioxide, humidity, and heat within the mask. Lack of transparency interferes with human communication which relies on viewing mouth expressions. This is especially true for interpersonal communication involving people who are rely on lip reading for communication.

There is a need for a smart mask with a transparent portion (at least over a person's mouth) which allows expressions to be seen and lips to be read, including a light-weight, quiet active air filtration system. Power conserving features, such as a sensor-adjusted airflow rate, can also enable longer battery life. This is the need addressed by the Smile-Through™ transparent smart mask.

\* **Problem:** With most air-filtering face masks, you cannot see a person's mouth and facial expression. Are they smiling or frowning? This hurts human communication and completely frustrates verbal communication for people who need to lip read. What to do?

\* **Solution:** A face mask with a transparent portion over the mouth.

\* **Follow-up Problem:** Most transparent material does not do well transmitting and filtering air. Also, it tends to "fog up" over a mouth.

\* **Follow-up Solution:** Have active air circulation through the transparent portion by including an air impeller in the mask.

\* **Follow-up Problem:** An air impellor on a person's face can be visually obtrusive and its noise can interfere with hearing if it is near an ear.

\* **Follow-up Solution:** Put the air impellor on the back of the person's head or neck.

\* **Follow-up Problem:** Since a person cannot see the back of their head or neck, they might mistakenly move the air intake near an environmental hazard (e.g. dust or liquid).

\* **Solution:** Put the air intake on the front of the mask and put the air impellor on the back of the person's head or neck, so that the air impellor receives air through the intake at the front and circulates this air through the transparent portion of the mask over the person's mouth. The result? Medibotics' U.S. Patent 12,397,181 "Pathogen-Filtering Transparent Face Mask with an Air Impellor on the Back of the Head or Neck."

Medibotics intellectual property for transparent and sensor-enabled smart masks includes the following:

- ◆ U.S. Patent [12/397,181](#) (patented) "Pathogen-Filtering Transparent Face Mask with an Air Impellor on the Back of the Head or Neck" filed on 2022-05-14
- ◆ U.S. Patent [11/471,711](#) (patented) "Smart Mask with a Transparent Mouth-Covering Portion and Impellor-Driven Air Filtration" filed on 2021-02-14
- ◆ U.S. Patent [11/465,001](#) (patented) "Smile-Through[™] Transparent Smart Mask" filed on 2021-08-21
- ◆ U.S. Patent [11/383,107](#) (patented) "Pathogen-Filtering Face Mask with Transparent Mouth-Covering Portion and Active Air Circulation" filed on 2021-12-09
- ◆ U.S. Patent Application 16/910,625 (abandoned) "Smart Mask with Adjustable and/or Sensor-Activated Protection from Airborne Pathogens such as COVID-19" filed on 2020-06-24
- ◆ U.S. Provisional Patent Application 63/088,664 (expired) "Smart Face Mask with a Transparent Mouth-Covering Portion Which Provides Good Oxygenation and Air Filtration for the Wearer" filed on 2020-10-07
- ◆ U.S. Provisional Patent Application 63/035,744 (expired) "Smart Mask with Automatically-Increased Protection Level In Response to an Environmental Health Risk" filed on 2020-06-06
- ◆ U.S. Provisional Patent Application 63/023,331 (expired) "Sensor-Enabled Smart Mask with Automatically-Increased Protection Level in Response to an Airborne Environmental Risk" filed on 2020-05-12
- ◆ U.S. Provisional Patent Application 63/017,718 (expired) "Maskcot[™]: Combined Shirt and Protective Face Mask" filed on 2020-04-30