Embodiments disclose neck gaiters and methods of making and using the same. For example, a neck-gaiter has a fabric tube and a pocket formed on an interior of the fabric tube. The pocket is configured to receive a filter therein.
NECK-GAITER HAVING POCKET FOR FILTER

FIELD

[0001] The present disclosure relates generally to neck-gaiters and in particular the present disclosure relates to a neck-gaiter having a pocket for a filter.

BACKGROUND

[0002] Masks are often used for protecting a wearer of the mask from airborne particles, such as dust particles, pollution particles, bacteria, viruses, etc., according to the filtration capability of the mask. Certain masks are particularly useful for substantially reducing airborne bacteria and viruses, such as flu viruses, e.g., the H1N1 virus, cold viruses, e.g., from being inhaled by the wearer. For example, N95 masks and respirators are recognized and being effective at filtering out bacteria and virus particles. The N95 designation is an efficiency rating that means the N95 filter blocks about 95 percent of particles that are about 0.3 microns in size or larger.

[0003] One problem with conventional masks, such as conventional N95 masks dust masks, pollen masks, etc., is that they are typically to be worn once and then the entire mask is disposed. Another problem is that conventional masks are typically secured over the wearer’s face using elastic bands that go behind the ears or an elastic band that goes behind the head and are uncomfortable. In addition, elastic bands usually do not exert enough force on the mask to prevent leakage around edges of the mask. Still another problem is that conventional masks are not aesthetically appealing and some people who are fashion conscious are apt not to wear a conventional mask for that reason.

[0004] For the reasons stated above, and for other reasons stated below which will become apparent to those skilled in the art upon reading and understanding the present specification, there is a need in the art for alternatives to existing masks, such as the types used for filtering out dust particles, pollution particles, bacteria, viruses, etc.

SUMMARY

[0005] Embodiments herein disclose a neck-gaiter, such as a neck-gaiter having a fabric tube and a pocket formed on an interior of the fabric tube, the pocket configured to receive a filter therein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a perspective view, illustrating a neck-gaiter having an interior pocket, according to an embodiment.
[0007] FIG. 2 is a perspective view, illustrating the neck-gaiter having an interior pocket containing a filter, according to another embodiment.
[0008] FIG. 3 is a perspective view, illustrating a neck-gaiter in an operative position, according to another embodiment.
[0009] FIG. 4 is a perspective view, illustrating a neck-gaiter in a non-operative position, according to another embodiment.
[0010] FIG. 5 is a cross-sectional view taken along the line 5-5 in FIG. 2, according to another embodiment.

[0011] FIG. 6 is an interior view of a neck-gaiter, showing a filter being inserted into or removed from a pocket of the neck-gaiter, according to another embodiment.

DETAILED DESCRIPTION

[0012] In the following detailed description, reference is made to the accompanying drawings that form a part hereof, and in which is shown, by way of illustration, specific embodiments. In the drawings, like numerals describe substantially similar components throughout the several views. Other embodiments may be utilized and structural changes may be made without departing from the scope of the present disclosure. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present disclosure is defined only by the appended claims and equivalents thereof.

[0013] FIGS. 1 and 2 are perspective views, illustrating a neck-gaiter 100, e.g., a tubular collar worn around the neck. For some embodiments, neck-gaiter 100 includes a fabric tube 110, such as a fabric cylinder, and a pocket 120 formed on an interior surface 145 of fabric tube 110. Pocket 120 is configured to receive a filter 130 therein, as shown in FIG. 2 using phantom lines. Filter 130 may be a dust filter, pollen filter, N95 filter, or the like. An N95 is a filter that blocks about 95 percent of particles that are about 0.3 microns in size or larger. N95 filters can substantially filter out, e.g., block, airborne bacteria and viruses, such as flu viruses, e.g., the H1N1 virus, cold viruses, etc.

[0014] For some embodiments filter 130 is a removable, disposable filter that is temporarily located in pocket 120, and thus may be termed a filter insert. For example, filter 130 is inserted into pocket 120 as needed and can be removed and replaced after use. For other embodiments, filter 130 may be considered as a portion of neck-gaiter 100 that is temporarily insertable into pocket 120 as needed and that can be removed and replaced after use.

[0015] Fabric tube 110 is configured to be received over a user’s head and is configured to hold pocket 120, and the filter 130 received therein, over a user’s nose and mouth when the neck-gaiter 100 is worn in an operative position, as shown in FIG. 3. Fabric tube 110 is further configured to be located around the user’s neck, e.g., below the user’s chin, when neck-gaiter 100 is worn in a non-operative position, as shown in FIG. 4.

[0016] The fabric of fabric tube 110 may be elastic, where the elasticity allows fabric tube 110 to hold pocket 120, with the filter 130 received therein, over the user’s nose and mouth when neck-gaiter 100 is worn in its operative position. That is, the elasticity allows fabric tube 110 to exert a force against the user’s face. The elasticity allows fabric tube 110 to stretch so that fabric tube 110 can be received over the user’s head and to recover to substantially its original size, for example, when positioned in the non-operative position, where fabric tube 110 is located around the user’s neck below the user’s chin (FIG. 4). The elasticity allows fabric tube 110 to be stretched into the operative position over the user’s nose and mouth (FIG. 3) from the non-operative position. The elasticity allows fabric tube 110 to recover (e.g., substantially) to its original size in the non-operative position when fabric tube 110 is removed from the face in the operative position and returned to the non-operative position.

[0017] For example, the fabric of fabric tube 110 may contain fibers that have an engineering extensional strain of about
35 percent. The engineering extensional strain is defined as
\((L_2 - L_1)/L_1\), where \(L_2\) is the stretched length and \(L_1\) is the
original unstretched length.

[0018] The fabric of fabric tube 110 may also be compliant
so as to allow fabric tube 110 to conform to a contour of a
user's face when the neck-gaiter is in the operative position,
as shown in FIG. 3. The compliance and/or elasticity of fabric
tube 110 act to reduce the likelihood of leakage around the
dges that commonly occurs with conventional masks.

[0019] The fabric of fabric tube 110 may be knitted, for
some embodiments. For example, the knit pattern of the fab-
ric of fabric tube 110 may contribute to the elasticity thereof.
For example, the knit pattern may be an interlock pattern,
including interlocking dial loops, e.g., formed with dial
needles, and cylinder loops, e.g., formed with cylinder
needles, such as shown and described in D. J. Spencer, Knit-
ting Technology, 3rd Edition, ISBN 1# 85573 331 1, Wood-
head Publishing Ltd., UK.

[0020] For other embodiments, pocket 120 is formed from
a fabric patch 140 that is attached to interior surface 145 of
fabric tube 110, e.g., using stitches 150, adhesive, hook-and
loop material, etc. As best shown in FIG. 5, a cross-sectional
view taken along line 5-5 of FIG. 2, filter 130 is interposed
between interior surface 145 of fabric tube 110 and an interior
surface 147 of fabric patch 140.

[0021] Fabric patch 140 may be of the same fabric as fabric
tube 110 and thus may be elastic, where the elasticity causes
fabric patch 140 to exert a force on filter 130 that acts to hold
filter 130 in place.

[0022] Fabric tube 110 may be formed from a rectangular (e.g., substantially rectangular) piece of fabric that is joined at
its ends, e.g., by stitching, to form a seam 155 (FIGS. 1 and 2).
Seam 155 may be substantially parallel (e.g., parallel) to and
may extend in substantially the same direction (e.g., the same
direction) as a central axis 156 (e.g., symmetry axis) that
passes through the center of fabric tube 110, as shown in FIG.
1. For some embodiments, fabric patch 140 may be attached
to interior surface 145 of fabric tube 110 before or after the
formation of fabric tube 110.

[0023] Fabric tube 110 has opposing ends 158 and 160 and
openings 162 and 164 at ends 158 and 160, respectively.
Opposing ends 158 and 160 may be substantially parallel
(e.g., parallel) to each other, and openings 162 and 164 may
lie in (e.g., may be intersected by) planes that are substantially
parallel (e.g., parallel) to each other. A cylindrical sidewall
166 of fabric tube 110 extends from end 158 to end 160 and is
connected to ends 158 and 160. End 158 and end 160 may be
respectively referred to as top end 158 and bottom end 160,
owing to their respective positions when neck-gaiter 100 is
in its operative position, as shown in FIG. 3.

[0024] For some embodiments, pocket 120 may be a side-
entry pocket having opposing openings 170 and 172 in its
sides and being closed at its top edge 174 and bottom edge
176, i.e., opposing top edge 174 and bottom edge 176 of
fabric patch 140 (FIGS. 1 and 2). For example, opening 170 is
located between a side 178 of fabric patch 140 and interior
surface 145 of cylindrical sidewall 166 of fabric tube 110,
as shown in FIG. 1, and opening 172 is located between a side
180 of fabric patch 140 and interior surface 145 cylindrical
wall 166 of fabric tube 110.

[0025] Pocket 120 is configured so that filter 130 can be
received through either of opposing openings 170 and 172.
That is, filter 130 can be inserted into pocket 120 through
either opening 170 or opening 172, as shown for opening 172
in FIG. 6, an interior view of fabric tube 110 of neck-gaiter
100. Filter 130 can also be removed from pocket 120 through
either opening 170 or opening 172, as shown in FIG. 6 for
opening 172.

[0026] Top edge 174 and bottom edge 176 of fabric patch
140, and thus of pocket 120, may be may be substantially
parallel (e.g., parallel) to each other. Opposing sides 178 and
180 of fabric patch 140 may be substantially parallel (e.g.,
parallel) to each other. Opposing openings 170 and 172 may
lie in planes (e.g., intersected by planes) that are substantially
parallel (e.g., parallel) to each other and that are substantially
perpendicular (e.g., perpendicular) to the planes in which
openings 162 and 164 of fabric tube 110 respectively lie (e.g.,
the planes that respectively intersect openings 162 and 164).
Top edge 174 and bottom edge 176 respectively face top end
158 and bottom end 160 of fabric tube 110 and may be
substantially parallel (e.g., parallel) to top end 158 and bot-
ton end 160. Sides 178 and 180 of fabric patch 140 and
openings 170 and 172 of pocket 120 may be substantially
perpendicular (e.g., perpendicular) to top edge 174 and bot-
tton edge 176 of pocket 120.

[0027] Note that pocket 120 can be thought of as a tube
formed on interior surface 145 of cylindrical sidewall 166 of
fabric tube 110 and having opposing openings 170 and 172.
Fabric patch 140 forms a portion of a wall of the tube and
interior surface 145 of cylindrical sidewall 166 of fabric tube
110 forms another portion of the wall of the tube.

[0028] Locating openings 170 and 172 at the sides of
pocket 120 for receiving filter 130 therethrough acts to pre-
vent filter 130 from being ejected from pocket 120 while
neck-gaiter 100 is being positioned in its operative position
or is being worn in its operative position. For example, locat-
ing an opening in the top of pocket 120, such as adjacent top end
158 of fabric tube 110, for receiving filter 130 therethrough,
may result in filter 130 being ejected from pocket 120 while
neck-gaiter 100 is being positioned in its operative position or
is being worn in its operative position.

[0029] Fabric tube 110 is independent of any other gar-
ment, such as a shirt, jacket, etc., worn by the user so that
neck-gaiter 100 can be worn independently of such a gar-
ment. For example, fabric tube 110 is not attached to nor is a
part of any other garment worn by the user. This allows
neck-gaiter 100 to be compact for easy storage, allows neck-
gaiter 100 to be removed from or to be donned by the user
without the user having to contend with the issues associated
with a garment, such as a shirt, jacket, etc., e.g., bulkiness,
overheating, difficulty of donning or removal, etc.

[0030] Neck-gaiter 100 and filters 130 are small enough
to carry easily in a briefcase or purse, for example. Unlike
conventional masks, neck-gaiter 100 is relatively fashionable
and can be worn as a part of daily apparel or carried sepa-
rately. Filter 130 is considerably smaller and less expensive
than conventional masks that need to be disposed of after each
use. That is, neck-gaiter 100 and a supply filters 130 is less
expensive and easier carry than a supply of masks. In addi-
tion, the fabric of fabric tube 110 and fabric patch 140 of
neck-gaiter 100, for one embodiment, may be softer than the
material of conventional masks, making neck-gaiter 100
more comfortable to wear than conventional masks.

CONCLUSION

[0031] Although specific embodiments have been illus-
trated and described herein it is manifestly intended that
What is claimed is:

1. A neck-gaiter, comprising:
   - a fabric tube; and
   - a pocket formed on an interior of the fabric tube;
   wherein the pocket is configured to receive a filter therein.

2. The neck-gaiter of claim 1, wherein the fabric tube is configured to be received over a user's head and is configured to hold the pocket, and the filter received therein, over the user's nose and mouth when the neck-gaiter is in an operative position;

3. The neck-gaiter of claim 1, wherein the fabric tube is configured to be located around the user's neck, below the user's chin when the neck-gaiter is in a non-operative position;

4. The neck-gaiter of claim 1, wherein the fabric tube is elastic, wherein the elasticity allows the fabric tube to hold the pocket, with the filter received therein, over a user's nose and mouth when the neck-gaiter is in an operative position;

5. The neck-gaiter of claim 4, wherein the fabric tube is complaint so as to allow the fabric tube to conform to a contour of a user's face when the neck-gaiter is in the operative position;

6. The neck-gaiter of claim 1, wherein the filter is a removable, disposable filter.

7. The neck-gaiter of claim 6, wherein the filter is selected from the group consisting of a pollen filter, a dust filter, and an N95 filter.

8. The neck-gaiter of claim 1, wherein the pocket is formed from a fabric patch attached to the interior of the fabric tube.


10. The neck-gaiter of claim 8, wherein the fabric from which the pocket is formed is elastic.

11. The neck-gaiter of claim 1, wherein the pocket has a side opening or opposing side openings.

12. The neck-gaiter of claim 1, wherein the fabric tube is independent of any other garment worn by the user.

13. A neck-gaiter, comprising:
   - a fabric tube having an opening at each of opposing ends thereof and a cylindrical wall connected to the opposing ends;
   - a pocket formed from a fabric patch attached to an interior of the fabric tube, the pocket having opposing side openings that respectively lie in planes that are substantially perpendicular to planes in which the openings at the opposing ends of the fabric tube lie;
   wherein the pocket is configured to receive a filter therein through either of the opposing side openings thereof.

14. The neck-gaiter of claim 13, wherein the fabric tube is independent of any other garment worn by the user.

15. A method of forming a neck-gaiter, comprising:
   forming an elastic fabric tube having an opening at each of opposing ends thereof;
   attaching an elastic fabric patch to an interior of the tube, wherein the elastic fabric patch forms a pocket on the interior of the elastic fabric tube and is configured to receive a filter therein.

16. The method of claim 15, wherein the pocket has a first opening lying in a plane that is substantially perpendicular to planes in which the openings at the opposing ends of the fabric tube respectively lie, and wherein the pocket has a second opening that is opposite the first opening of the pocket lying in a plane that is substantially parallel to the plane in which the first opening of the pocket lies.

17. A method of using a neck-gaiter, comprising:
   inserting a filter in a pocket formed on an interior of the neck-gaiter;
   positioning the neck-gaiter in a first position, wherein the pocket, containing the filter, covers the user's nose and mouth;
   wherein the neck-gaiter exerts an elastic force on the user's face to maintain the neck-gaiter in the first position covering the user's nose and mouth.

18. The method of claim 17, further comprises positioning the neck-gaiter in a second position so that the neck-gaiter is located around the user's neck below the user's chin.

19. The method of claim 18, further comprises removing the filter from the pocket.

20. The method of claim 17, wherein the filter is inserted in the pocket formed on the interior of the neck-gaiter through an opening in a side of the pocket.

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