United States Patent

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[15] **3,696,474**

[45] **Oct. 10, 1972**

[54] **LACING LOCK FOR HOOD**

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[73] Assignee: **The United States of America as represented by the Secretary of the Army**

[22] Filed: **Dec. 17, 1970**

[21] Appl. No.: **99,171**

[52] **U.S. Cl.**.....**24/266,** 2/84

[51] **Int. Cl.**.....**A41f 1/00,** A41d 3/02

[58] **Field of Search**.....24/266, 129 B, 129 R, 117, 24/121, 129; 2/84, 202

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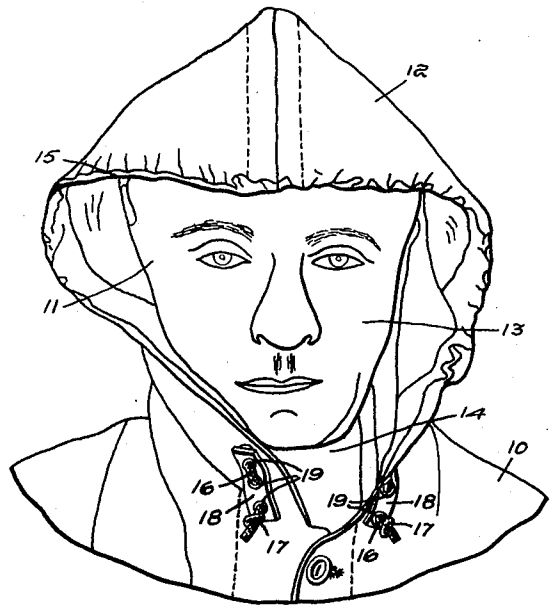
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[57] **ABSTRACT**

A lacing lock for the lacing of a garment hood to facilitate adjustment of the size of the hood opening and maintenance of the adjusted size regardless of head movements.

7 Claims, 4 Drawing Figures



PATENTED OCT 10 1972

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SHEET 1 OF 2

Fig. 1.

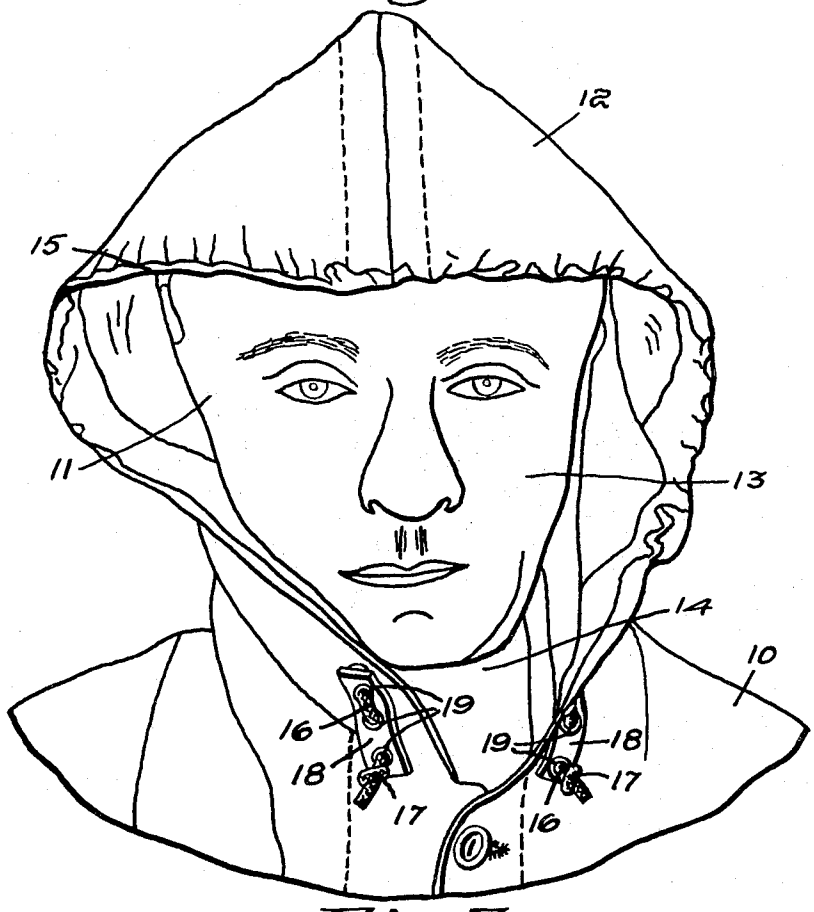


Fig. 3.

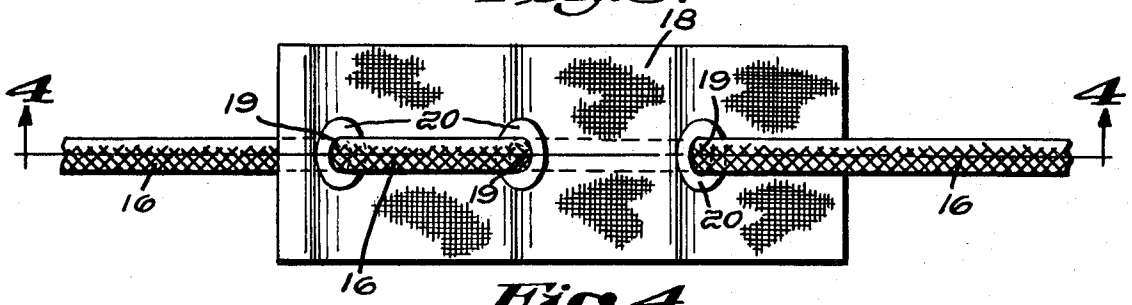
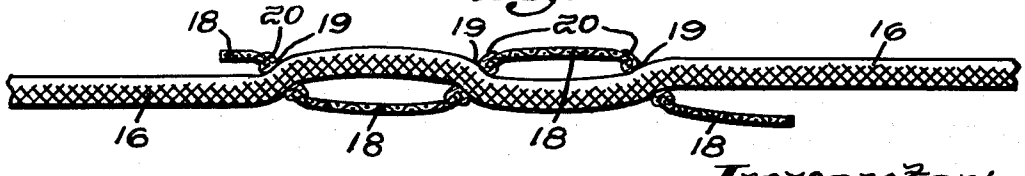
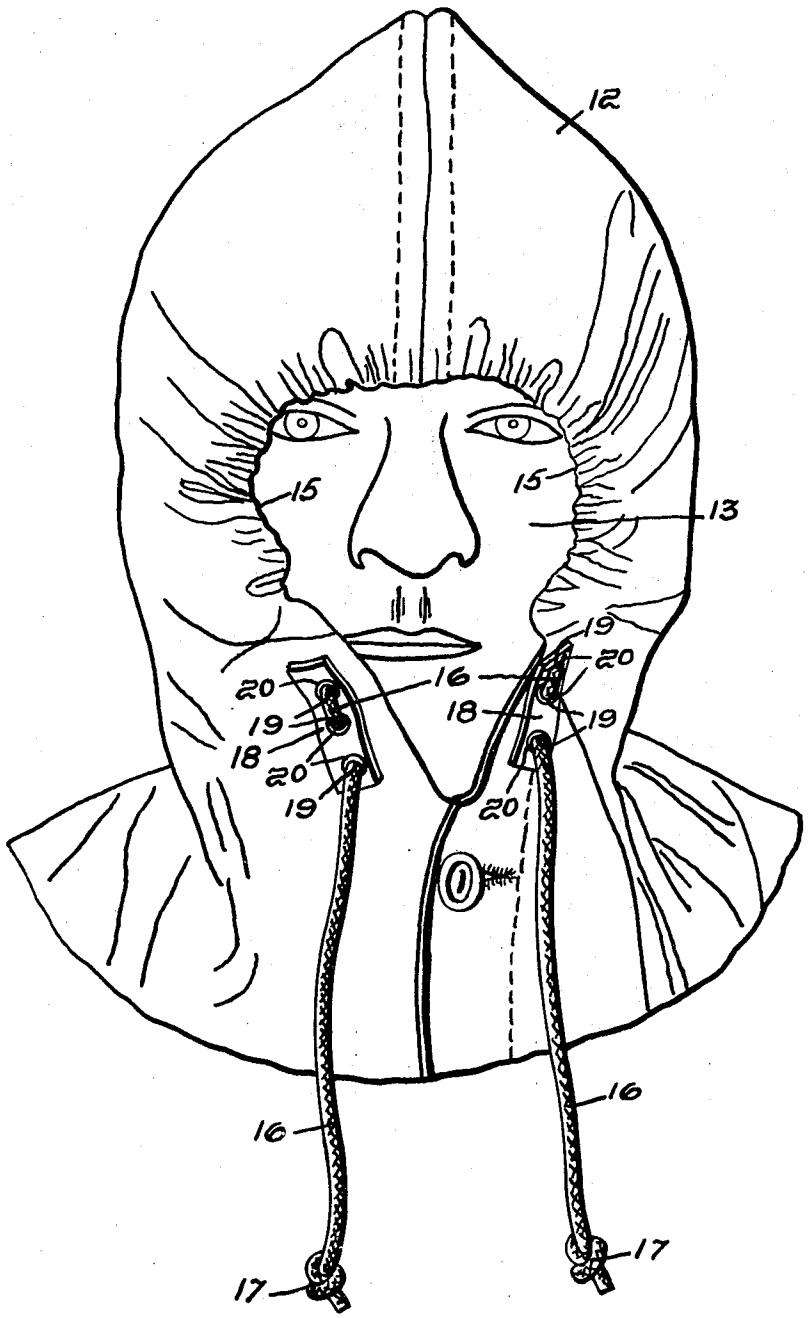


Fig. 4.



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Fig. 2.



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LACING LOCK FOR HOOD

The invention described herein may be manufactured, used, and licensed by or for the Government for governmental purposes without the payment to me of any royalty thereon.

This invention relates to a lacing lock for a flexible garment hood which comprises a lacing slidably disposed about the periphery of an opening in the hood. More particularly, the invention relates to a lock for the lacing which makes possible the locking of the hood at any desired opening size up to the maximum size without any necessity for the lacing to be tied to prevent expansion of the hood opening as the result of the normal movements of the head and neck. The frictional interaction of the lacing and the lock accomplish this result.

In the making of flexible garments having hoods adapted to substantially inclose the head and neck of the wearer of the garment while forming an opening therein, adjustable in size, through which the face of the wearer is partially exposed, it has been customary to provide a lacing slidably disposed about the periphery of the opening for adjusting the size of the opening. It has also been customary for the wearer of the garment to adjust the size of the opening and then tie the lacing beneath his chin in order to maintain the size of the opening at the adjusted size. This has resulted in considerable discomfort to the wearer in addition to the disadvantage of the slowness with which it has been possible to adjust the size of the opening and then tie the lacing so as to maintain this opening size. Untying of the tied lacing to permit opening or readjustment of the size of the opening has also been time-consuming.

It is, therefore, an object of the invention to provide a non-tying lacing and at least one locking device therefor for providing ease of adjustability of the size of the opening in a flexible garment hood provided with a lacing slidably disposed about the periphery of the opening of the hood.

It is also an object of the invention to provide a locking device which makes possible easy locking and unlocking of the hood lacing so that the lacing can be slidably moved about the periphery of the opening, even with gloved hands, with a minimum of effort and consumption of time by the wearer of the hood-containing garment, while still providing for maintenance of the hood opening size at any selected size adjustment in the absence of readjustment thereof by the wearer.

Other objects and advantages will be apparent from the following description of the invention, and the novel features will be particularly pointed out hereinafter in connection with the appended claims.

In the accompanying drawings:

FIG. 1 is a plan view of a hood and the head of a wearer of the hood, taken from the front, showing the lacing and a lacing lock on each side of the hood near the base thereof, with the hood fully opened.

FIG. 3 is a plan view of the hood and the head of the wearer of the hood of FIG. 1, but with the lacing drawn through the lock on each side of the hood enough to gather the hood in about the head of the wearer to such an extent as to leave only a small opening in the front of the hood so that only a small portion of the face of the wearer of the hood will be exposed.

FIG. 3 is a plan view of one of the lacing locks, with a lacing laced therethrough, separated from the hood.

FIG. 4 is a longitudinal section of the lacing lock and lacing taken along the line 4—4 of FIG. 3.

In the illustrated embodiment of the invention, a flexible garment 10 is shown broken away at the shoulders of a wearer whose head 11 is partially enclosed in a hood 12, which is attached to the top of the garment and is shown wide open at the front thereof, exposing the face 13 and neck 14 of the wearer to a large extent in FIG. 1, but to a relatively small extent, in the case of the face, and scarcely at all, in the case of the neck, in FIG. 2. The such is provided with an edge 15 at the front thereof forming an opening adjustable in size and of irregular, but generally round, shape so that, when the hood is relatively closed, only a small, generally round portion of the face of the wearer is exposed. A cord lacing 16 is slidably disposed about the periphery of the hood opening within a doubled portion of the fabric or other flexible material of which the hood is constructed which may have a seam formed therein to provide a tunnel or passageway for the lacing to slide in as the hood opening is reduced in size by pulling the two ends of the lacing downwardly with a grasping and pulling action on knots 17 by the hands of the wearer. The edge of the hood near the base thereof is also provided with a flexible lacing lock 18 on each side of the opening so positioned that the lacing slidably disposed about the periphery of the opening in the hood may be readily laced through at least three eyelets 19 in the lacing lock so as to leave the free ends of the lacing and knots 17 outside of the hood and available to be grasped with the hands, whether gloved or not, and pulled downwardly, as shown in FIGS. 1 and 2. The eyelets are preferably reinforced with grommets 20, which may be formed of metal or plastic. The lacing lock 18 may be formed of any flexible material obtainable in strip or sheet form, such as webbing, e.g., nylon or cotton webbing, leather, or may even be the exterior layer of the material of which the hood is constructed if such material is sufficiently strong and has a weight per square yard of at least 6 ounces. A plastic film may be used for the lacing lock, but it would need to be a very tough film since the pulling of the lacing through the eyelets applies considerable stress on the edges of the eyelets or grommets and in turn on the film or other material of which the lacing lock is constructed. The material of which the lacing lock is constructed must be sufficiently stiff to prevent the eyelets from being tightly bunched together when the lacing is drawn through the eyelets to draw the hood about the head and face of the wearer of the hood.

The following is a specific example of the application of the invention:

EXAMPLE

Two nylon webbing tapes, each approximately three-fourths inch wide, 0.03 inch thick, and 2 ¾ inch long and having a weight per linear yard of about 0.32 ounces, made in accordance with Military Specification MIL–W–4088F, dated June 23, 1967, entitled "-Webbing, Textile, Woven Nylon," were punched with three holes in each tape in a substantially straight line spaced apart approximately three-fourths inch between centers. The holes were of such size as to accept eyelets No. 4094 and washers No. 4096 made in accordance with Military Specification MIL–E–20652D, dated Mar. 12 1969, entitled "Eyelets, Metallic, With

Washers." The eyelets were installed in the holes in the webbing tapes, as shown in FIGS. 3 and 4. The tapes were then sewn on opposite sides of the hood of a cold weather jacket near the base of the hood, as shown in FIGS. 1 and 2. A tubular textile braid lacing made of cotton yarn, approximately six thirty-secondths inch in diameter made in accordance with Type V, Class 4 of Military Specification, MIL–B–371D, dated Mar. 12 1969, entitled "Braid, Textile, Tubular," was laced through one of the lacing locks, then through a tunnel around the periphery of the opening in the hood, then through the other lacing lock, as shown in FIGS. 1 and 2, the lacing being of sufficient length to permit a knot to be formed in each end thereof and to permit the hood to be fully opened, as shown in FIG. 1. Upon drawing the two ends of the lacing downwardly, the hood was gathered about the head and face of the wearer, as shown in FIG. 2, the lacing being locked in place at any given setting by the frictional interaction of the lacing with the eyelets. However, the frictional interaction of the lacing and the eyelets is such that the wearer of the jacket may open the hood to a greater or lesser degree, as desired, by grasping the edge of the hood adjacent to the opening on one side thereof with one hand and on the other side thereof with his other hand and pulling outwardly with both hands to the extent desired.

It will be apparent from the above description of the lacing lock of the invention that the invention is useful in a manner similar to the normal use of a drawcord, but that when the opening in the hood has been reduced in size by drawing the lacing downwardly and gathering the periphery of the hood about the face of the wearer, the lacing does not need to be tied since the frictional interaction of the lacing with the three or more eyelets in each lacing lock through which it is laced is sufficiently great to maintain the hood in the degree of adjustment selected until such time as the wearer chooses to change the adjustment. When this occurs, the hood may be readily opened to a greater or lesser extent by grasping the peripheral edges of the hood on each side of the opening and pulling outwardly, thus causing the lacing to slide through the eyelets in the reverse direction from that in which they slide in closing the hood. Normal movements of the head and neck are inadequate to cause appreciable sliding of the lacing through the lock; hence, the hood generally will maintain a given adjustment of the opening or will remain effectively locked until forceful action is taken to pull the ends of the lacing downwardly or to pull the edges of the hood along the sides of the opening in an outward direction.

Although the invention has been described in terms of providing a hood with two lacing locks, it is to be understood that under some circumstances only one lacing lock will be required. For example, one end of the lacing could be anchored at the base of the hood on one side of the opening and a lacing lock applied to the hood at the base thereof on the other side of the opening. The lacing would then be pulled through the eyelets of the lacing lock on the one side of the hood, thus causing the hood to be gathered about the face of the wearer in a manner similar to that described above, but with somewhat less uniformity of adjustment of the hood opening size and configuration. Hence, the use of two lacing locks with each hood, as shown in the drawings, is preferred.

The invention has also been described in terms of having three eyelets. However, the number of eyelets may be varied somewhat if the relative sizes of the eyelets, the lacing, and the types of materials used in making the eyelets and lacing are taken into account. Four or possibly five or more eyelets may be employed in the lacing lock if the eyelets are quite large relative to the size of the lacing and particularly if the frictional interaction of the material of which the lacing is made with the material of which the eyelets or grommets are made is very low. In general, however, the optimum number of eyelets for most materials commonly used in making hoods and lacings for hooded garments has been found to be three. Less than three eyelets would not produce enough frictional interaction with the lacing to maintain adjustment of the hood unless the size of the lacing were so large in relation to the size of the eyelets as to make release of the locking device unduly difficult.

The present invention is quite useful with any type of flexible garment hood which requires occasional adjustment of the size of the opening therein through which the eyes, nose and mouth and other portions of the face and head are exposed to the ambient atmosphere. It is especially useful with hooded garments worn by the Armed Forces since it eliminates the need for tying and untying the lacing provided in most hoods up to the present time for gathering the hood about the head and face to maintain a given adjustment of the opening size. It also makes for ease in adjusting the hood opening size with heavily gloved or mitten covered hands and, therefore, is very adaptable to use in the Arctic or wherever extremely low temperatures are encountered, but where at times it becomes necessary to make a quick adjustment of the hood opening size which can be depended on to be maintained despite frequent movement of the head and neck. Hunters, skiers and others who operate outdoors under cold conditions, but who require variable adjustments of hood opening sizes in their outer garments will be greatly benefitted by the present invention. Similarly, hooded children's garments will be adaptable to use of the invention with many attendant benefits, especially safety, since the elimination of the tied lacing beneath the chin of a child greatly reduces the hazards involved in the use of the prior art types of hooded garments containing drawstrings or lacings.

I wish it to be understood that I do not desire to be limited to the exact details described herein, for obvious modifications will occur to a person skilled in the art.

I claim:

1. In combination with a flexible garment hood, said hood being adapted to substantially inclose the head and neck of the wearer of said hood while forming an opening adjustable in size therein through which the face of the wearer is at least partially exposed, a non-tying lacing and at least one locking device therefor, said lacing being slidably disposed about the periphery of the opening of said hood for adjusting the size of said opening, said locking device comprising a flexible material selected from the group consisting of webbing material and leather, said flexible material having at

least three eyelets therein spaced apart in a substantially straight line, said locking device being attached to said hood adjacent the periphery of said opening along the lower portion of one side of said hood, said lacing being laced through said eyelets, whereby said lacing is locked in place at any selected degree of closure of said opening of said hood by the frictional engagement of said lacing with said eyelets.

2. The combination of claim 1, wherein said flexible material comprises a piece of webbing material attached to said hood adjacent the periphery of said opening along the lower portion of one side of said hood.

3. The combination of claim 2, wherein said eyelets are reinforced by substantially rigid grommets.

4. The combination of claim 1, wherein said flexible material comprises a piece of leather attached to said hood adjacent the periphery of said opening along the lower portion of one side of said hood.

5. The combination of claim 4, wherein said eyelets are reinforced by substantially rigid grommets.

6. The combination of claim 1, wherein two of said locking devices are provided, one of said locking devices being attached to said hood adjacent the periphery of said opening along the lower portion of one side of said hood and the other of said locking devices being attached to said hood adjacent the periphery of said opening along the lower portion of the opposite side of said hood from said one side.

7. The combination of claim 1, wherein said eyelets are spaced apart at least three-fourths inch from center to center of successive eyelets.

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