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B. HERZIG
DUST-PROOF GARMENT

3,496,572

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2 Sheets-Sheet 1

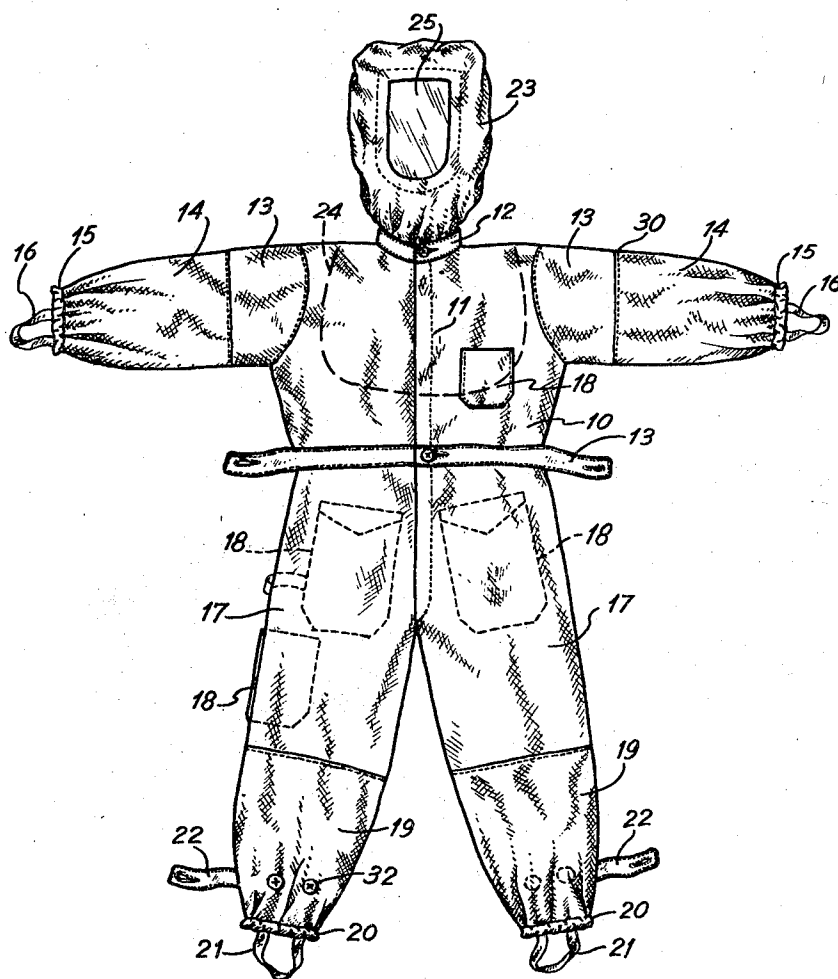


Fig. 1.

Inventor
Benno Herzig
By *Stevens, Davis, Miller & Mosher*
Attorneys

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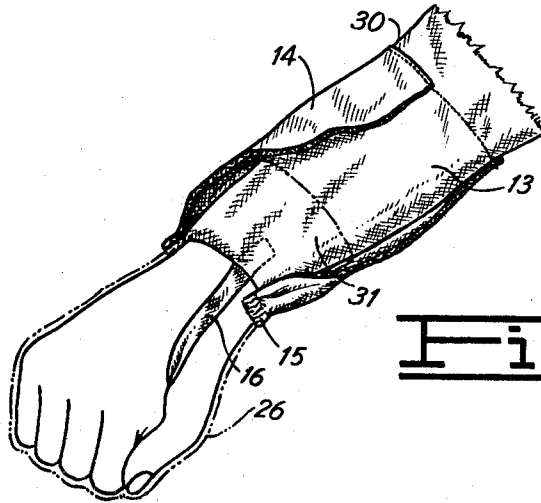
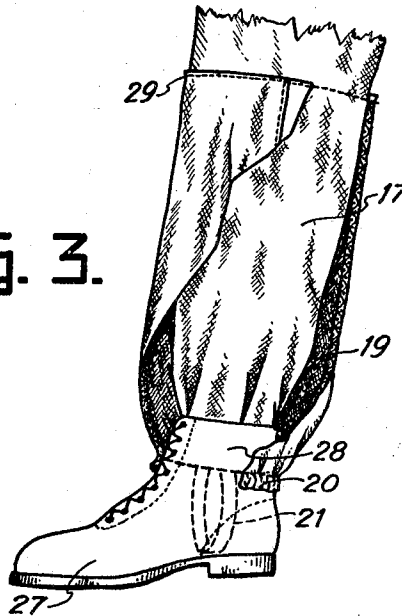


Fig. 3.



Inventor
Benno Herzig
By *Sterns, Harris, Miller & Mosher*
Attorneys

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Benno Herzig, Cerrada de San Antonio 9,
Mexico City, Mexico

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1 Claim

ABSTRACT OF THE DISCLOSURE

A dust-proof garment including a body portion with a hood and arm sleeves and leg sleeves attached thereto. The arm sleeves and leg sleeves each feature the use of an inner sleeve and an outer sleeve, the inner sleeve having a strap formed thereon for attachment to the hand or arm of the wearer, and the outer sleeve being concentrically arranged on the inner sleeve. The arrangement of these sleeves is such that the glove and shoe worn by the wearer of the garment can extend between the inner and outer sleeves in order to provide a labyrinth closure which prevents the passage of dust therethrough.

The present invention is related to the art of industrial protection and more particularly, it refers to a novel impervious dust-proof garment which provides full protection to the user and does not impede his movements at all.

Due to inadequate protection provided in industries in which dust is handled, mainly in those industries which handle dust containing toxicants of high power, such as in the manufacture, compounding and mixing of insecticides and fungicides with inert vehicles, hereinbefore many thousands of deaths have been statistically recorded due to the inadequate furnishing to workers of a suitable garment which will prevent contamination of his body by the dusts which pervades the surrounding atmosphere.

Some attempts have been effected in order to remedy the above mentioned situation, but the latter have been practically fruitless, because of the highly penetrating nature of the fine dust, which causes penetration thereof through all portions of the commonly used garments, to enter into contact with the body of the user, even if the user is wearing a very heavy suit or garment. In effect, hereinbefore, the above problem could not be solved by the provision of garments, even those in which elastic closures were used for the sleeves for the arms and for the legs, because in spite of said closures the protection was not very good, and dust could penetrate with the air into the uniforms or garments, resulting in contamination of the body with dusts which sometimes are highly toxic. Also, this type of conventional garments does not remedy the problem that the dust will very easily penetrate to get on the hands, even in the presence of gloves joined to the rest of the garment.

It is therefore an object of the present invention to provide a garment which will be completely impervious and which will not allow entrance of dust contaminating the air and at the same time, such that it will not preclude or impede the movements of the user.

It is another object of the present invention to provide a garment of the above mentioned character, which will have a double sleeve both on the arms and on the legs,

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and which will work in combination with gloves and shoes entering an intermediate position between said double sleeves, to provide a labyrinth substantially sealed against dust entrance.

Other objects and advantages of the present invention will become apparent to those skilled in the art, while still others will directly appear in the following specification of one of the preferred embodiments of the invention, taken in connection with the accompanying drawings, wherein:

FIG. 1 is a front elevational view of the double sleeve garment of the present invention, which is illustrated without the user, to give a clear idea of the manner in which the several parts of the above mentioned garment are sealed;

FIG. 2 is a detailed view of the arm sleeve and the glove, the latter being illustrated by dotted lines;

FIG. 3 is a partially diagrammatic view of the double sleeves used for the legs, working in combination with a shoe adopting an intermediate and sandwiched position between both sleeves.

Having now more particular reference to the drawings, there is shown a garment according to the present invention, which comprises a main body 10, which can have one or more pockets 18, and which is operable and closable along a vertical extent thereof downwardly from collar 12 by means of a dust-proof closing means such as zipper 11.

The body portion of the garment or uniform of the present invention, is ended at its top, by means of a straight and cylindrical collar 12, which is closed by means of a suitable button at the front of the garment, and provided also with a strap to be placed at the waist of the user, designated by means of the reference character 13 in FIG. 1 of the drawings, and which is fastened to the uniform or garment by means of a button at the front portion thereof, passing through a buttonhole opened at the intermediate portion of the above mentioned belt, said belt 13 having at each of its ends a suitable buttonhole to be held at the back portion of the garment, by means of a button provided for the purpose in said position.

The garment includes a sleeve means for enclosing each arm and leg of a wearer thereof from the wrist or ankle, respectively, all the way up to where the arms and legs connect with the trunk portion of a person's body. The arm sleeve means comprises an inner sleeve 13 which extends the full length of a person's arm from the shoulder up to the wrist, the forearm portion of said inner sleeve being enclosed by an outer sleeve 14 circumferentially joined to the inner sleeve by means such as stitching 30 at a substantial distance from the open end of inner sleeve 13. The open end of outer sleeve 14 comprises an elastic means 15 for a purpose to be described hereafter.

According to the embodiment illustrated in FIG. 2 of the drawings, the inner sleeve 13 extends under the outer sleeve 14, concentrically thereof, and reaches to the wrist, being provided at this end with a strap 16 which is held between the thumb and the palm of the hand of the user, as clearly illustrated in said figure, and this portion of the garment is adapted to cooperate with a glove 26 having a wrist portion or gauntlet, which glove should completely cover the hand and the wrist portion 31 of which penetrates under the sleeve 14, and over the sleeve 13, thereby forming a labyrinth through which it is prac-

tically impossible for the dust to penetrate into the garment.

As it can be seen, the dust is primarily stopped by the elastic closure 15, which tightens around the wrist portion of a glove 26, and furthermore the dust is impeded by relatively long and circuitous path defined between glove 26 and outer sleeve 14 and then back between glove 26 and inner sleeve 13, travel of dust along this path being practically impossible.

At the lower end of the garment, as clearly seen in FIG. 1, a pair of sleeve means for the legs are provided which include inner sleeves 17 which extend from the ankle all the way up to where the leg joins the trunk of a person's body. The inner sleeves 17 are enclosed for a substantial extent of the length thereof from the ankle opening by outer sleeves 19 joined to the inner sleeve by circumferential stitching 29. The lower or open end of outer sleeves 19 include an elastic closure means 20. The inner leg sleeve 17 is provided at its lower end with a strap 21, similar to the strap 16 as above described, and which is held by the foot of the user, surrounding it in a place where it will not bother the user when walking. The closure of the ends of the garment corresponding to the legs, is achieved by the introduction of a shoe 27, which upper portion 28 is arranged on the inner sleeve 17, firmly tightened by means of its conventional suitable cord, and within the outer sleeve 19, which is closed by means of an elastic portion 20 therearound, thereby forming a completely impervious closure, providing a labyrinth, similar to the labyrinth provided by the closure of the sleeve for the arm as above described.

The garment of the present invention is also provided with a hood 23, arranged all around the head of the user, and which is held by means of a cylindrical collar 12 of the body portion 10, which encircles a skirt portion of the hood 23 which extends down around the wearer's neck and hangs upon the wearer's shoulders over the chest and back as is shown at 24. Hood 23 includes a window or opening 25 in order to only expose the eyes, the nose and the mouth of the user. This opening 25 is covered, as it is obvious, by means of a mask, spectacles and other conventional accessories which are used in this type of work in the dust handling industries, whereby all the surface of the face will be duly protected against contamination by the above mentioned dusts.

While the illustrative embodiment described in the above paragraphs in connection with the accompanying drawings shows a uniform or garment provided with a reasonable amount of pockets 18, it is to be noted that it is desirable and convenient to build a garment with the fewest possible number of pockets both on the upper portion of the body and on the lowest portion thereof, in order to avoid powder accumulations in these receptacles. The above can solve the problem derived from the fact that the wearer of said garment sometimes deposits in his pockets certain objects which can be contaminated, with the consequent danger to the health of the worker. For instance, and very specially, when he keeps food, cigars and handkerchieves, inasmuch as by avoiding such possibility, the danger of incurring in contamination and of course intoxication, can be avoided, such as it is necessary in the insecticide industry, inasmuch as according to the bibliographic data of toxicologists of worldwide fame, this type of products can effect its action even after many years from the exposure, by which reason it is noticed that there is an extraordinary danger which must be avoided. The only two pockets which are recommended for the garment of the present invention, are those of the back portion of the garment, on the hips, in order to use them to deposit two different types of rubber gloves, which are generally used in this type of industries at the working place.

However, it must be stated that the above is a non-essential aspect of the present invention, which is primarily devoted to provide a garment by means of which penetration of dust can be completely avoided to enter into contact with the skin of the wearer, because it is well known that, for instance, the technical insecticides and fungicides commercially used at present, are absorbed through the pores of the skin and are fixed by the fat thereof, which causes dangerous intoxications which in a great number of cases have also caused death if the worker has not been duly protected.

In view of the above, it can be seen that a novel garment has been provided which completely avoids contamination of the surface of the skin of the body, head, hands and feet of the wearer, by dust which can be highly dangerous to the health, and therefore a considerable advance has been achieved in this field of industrial protection.

For instance, strips or bands 22 can be arranged on the ankle portion of the garment, in order to aid in closing the lower portion thereof, which can be the most susceptible to dust entrance, and these strips which are illustrated in FIG. 1 of the drawings, by reference character 22 are fastened by means of one or more buttons 32, arranged at suitable distances to achieve a higher or lesser tightening of said strips.

What is claimed is:

1. A dust-proof garment adapted to be worn in conjunction with gloves having a gauntlet portion, with shoes having a high ankle encircling portion, and with a face mask means whereby, when so worn, said garment together with such shoes, gloves, and mask means completely covers the wearer's body and encloses same against any part thereof coming into contact with ambient dust, said garment comprising a body portion for covering the trunk portion of a person's body, a neck encircling collar, a head covering hood connected to said collar for completely enclosing a person's head and neck and including a front opening formed therein for exposing the eyes, mouth, and nose, said opening being adapted to be peripherally sealed by a mask means, respective arm and leg sleeve means for covering each arm and leg of a wearer, each one of said arm and leg sleeve means comprising an inner sleeve attached at one end thereof to said body portion and extending therefrom, each inner sleeve having an open outer end and an outer sleeve enclosing a substantial extent of the length of said inner sleeve from said open end to a point spaced therefrom, and being circumferentially secured to said inner sleeve at said point, said outer sleeve having an elastic open end adapted to snugly fit about an ankle or wrist, said inner and outer sleeves defining an interface therebetween which is accessible from exteriorly of said open ends through resilient yielding of said outer sleeve end, said interface of said leg sleeve means being adapted to accommodate the ankle portion of high ankle shoes and said interface of said leg sleeve means being adapted to accommodate the gauntlet portion of gloves, whereby with said sleeve means being employed together with such gloves and shoes the only available passage for ambient dust to enter into said inner sleeve necessarily entails movement of such dust in one direction from atmosphere and along the interface between said outer sleeve and said glove gauntlet or shoe ankle portion to the end of said gauntlet or ankle portion and then movement of said dust in the opposite direction along the interface between said inner sleeve and said gauntlet or ankle portion, said hood including a skirt portion for extending along a wearer's neck beneath said collar, said collar comprising separable opposite end means releasably securable together so as to snugly tighten said collar about said hood skirt when worn by a person, said body portion including a dust-proof closing and opening means extending downwardly along a vertical extent thereof from said

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collar so as to permit the garment to be easily placed upon and removed from a person's body, and a loop member extending from said inner sleeve in a longitudinal direction away from said open end of said inner sleeve the loop member on said arm sleeves being adapted to be gripped in a person's palm, and the loop member on said leg sleeves being adapted to fit around a person's shoe from the inner to the outer side of the ankle.

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JORDAN FRANKLIN, Primary Examiner
 GEORGE H. KRIZMANICH, Assistant Examiner
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