May 19, 1959 A. L. MORNINGSTAR ET AL 2,887,154

DEFORMABLE SELF-SUPPORTING SHIELD

Filed April 26, 1952

FIG. 1

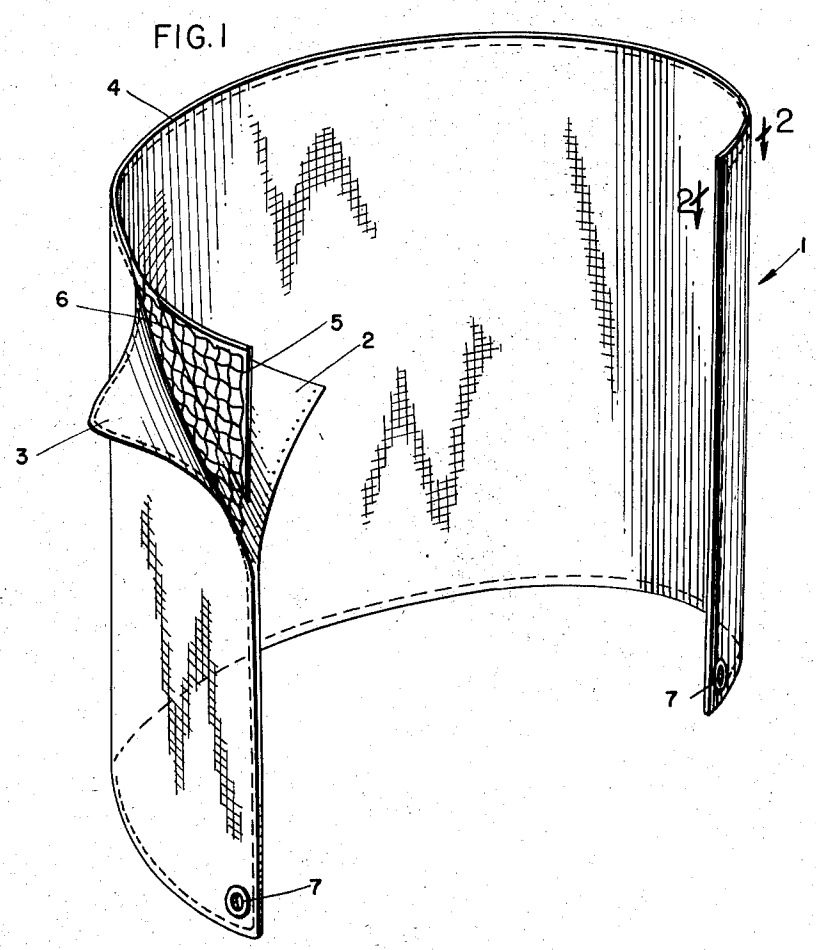
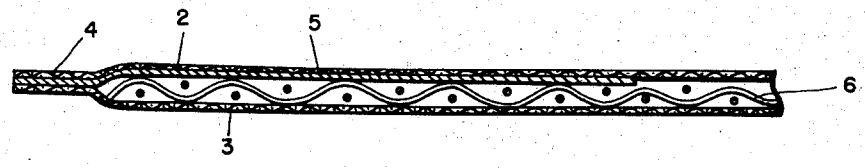


FIG. 2



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DEFORMABLE SELF-SUPPORTING SHIELD

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Application April 26, 1952, Serial No. 284,544

1 Claim. (Cl. 160—351)

This invention relates to a shielding article and particularly to a fire-resistant shield which can be deformed into a contoured shape and to a method for making said shield.

It is an object of this invention to provide a shield which can be deformed about a work-piece to encompass a substantial part thereof.

Another object of the invention is to provide a shield which is capable of standing alone.

A further object of the invention is to provide an inexpensive, portable, fire-resistant shield.

Still another object of the invention is to provide a method of making a self-supporting, fire-resistant, deformable shield.

The foregoing and numerous other important objects, advantages, and inherent functions of the invention will become apparent as the same is more fully understood from the following description which taken in connection with the accompanying drawings, discloses a preferred embodiment of the invention.

In the drawings:

Figure 1 is a perspective view of one embodiment of a shield according to the invention with a corner pulled apart to show the internal structure thereof; and

Figure 2 is a sectional view taken along the lines 2—2 of Figure 1.

In the accomplishment of the foregoing objects and according to the invention there is now provided a portable shield which is self-supporting and flexible and which may be deformed both transversely and longitudinally into a contoured shape. In the shield two layers of fire-resistant fabric are joined at the peripheral edges thereof to form an envelope, and a flexible metallic mesh screen is positioned within the envelope. The screen is of such construction that it is self-supporting but may be easily deformed into a contoured shape. The result is a light-weight, inexpensive shield which can be shaped closely about the work-piece so as to encompass a substantial portion thereof.

Referring to the drawings in greater detail it will be observed that the shield 1 in Figure 1 is rectangular in shape and yet may easily be deformed into a contoured or tubular form as shown. It should be understood that the shield 1 may also be deformed along the longitudinal dimensions thereof as well as transversely as illustrated in the drawing. The shield is assembled by forming an envelope from two pieces of fire-resistant fabric 2 and 3 by joining them at their peripheral edges in a suitable manner, as by the stitching 4. Reinforcing members such as the triangular piece 5 may be located at the corners

of the shield 1 if desired and will then be stitched into the envelope formed by the layers 2 and 3. The metallic mesh screen 6 is placed within the envelope prior to the closing thereof and thereafter provides the support for the shield 1. If desired a plurality of grommets 7—7 may be formed in the corners or along the periphery of the shield 1 in order to provide convenient means for hanging or suspending the shield.

A shield of the type previously described has a large number of uses and in general may be employed wherever it is desired to prevent the flashing of sparks or flame. The shield is particularly suitable for use in welding, grinding, soldering, localized burning and the like. One of the chief advantages of the shield resides in its deformability by which the shield can be placed close to the source of the spark and to substantially encompass it. This feature makes it feasible to use much smaller shields than has heretofore been possible in containing the sparks which tend to fly off radially from the source and may endanger the personnel and property in a wide area. By substantially encompassing the source with a shield of the type described herein, which can be placed close to and around the work, it will be apparent that the radial sparking is substantially prevented. This feature also makes it possible for several welders to work on the same piece of work without endangering one another. The shield is adapted to be self-supporting by virtue of the metallic wire screen therein. This feature makes the shield readily portable from one job to the other since no further standards or the like are required. At the same time the shield may be bent both longitudinally and transversely to substantially encompass a work-piece.

In making a shield of the type described one places layers of fabric on either side of the wire mesh material and joins the layers by sewing, stapling or adhesively bonding along the edges thereof. Alternatively one may form an envelope and leave one side open for insertion of the mesh material. After insertion the one side is sealed.

The fabric used in the shield may be any suitable fire-resistant cloth which is either naturally fire-resistant or has been treated to render it fire-resistant. Inexpensive fabrics such as canvas and duck are suitable if treated, and are characterized by strength and long life. Other lighter weight fabrics may be used if it is desired to reduce the weight of the finished shield and it is contemplated that the light weight synthetic fabrics such as nylon and the acrylonitrile polymers may be employed. One of the outstandingly fire-resistant fabrics which may be used in the shield if economically feasible is glass fabric. By "fire-resistant" as the term is used herein it is intended to mean that the material will not support combustion. This does not necessarily mean that the material will not be destroyed if a flame is applied to it.

The metallic mesh material used herein is preferably a woven article of large mesh wire such as 17 gauge soft wire. Other sizes and types of material may be used so long as they provide sufficient rigidity to the shield to render it self-supporting but at the same time readily deformable both longitudinally and transversely.

This application is a continuation-in-part of our co-pending application Serial No. 166,288, filed June 5, 1950, now abandoned.

It is thought that the invention and its numerous at-

tendant advantages will be fully understood from the foregoing description, and it is obvious that numerous changes may be made in the form, construction and arrangement of the several parts without departing from the spirit or scope of the invention, or sacrificing any of its attendant advantages, the form herein disclosed being a preferred embodiment for the purpose of illustrating the invention.

The invention is hereby claimed as follows:

A self-supporting durable flexible portable welding shield which comprises a fire-resistant fabric envelope consisting essentially of two layers of fire-resistant fabric joined at the peripheral edges thereof, and a flexible metallic mesh screen positioned within said envelope, said

shield being deformable both transversely and longitudinally into a contoured shape, said screen constituting the sole support for said shield and having sufficient rigidity to support said shield upright on an edge thereof while being transversely and longitudinally deformable into a desired contour.

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