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[54] **PROTECTIVE HEAT SHIELD**

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[52] **U.S. Cl.** **2/20**

[51] **Int. Cl.** **A41d 13/00**

[58] **Field of Search** ..... 2/16, 20, 161 R, 158, 170; 16/116; 38/95

[56] **References Cited**

UNITED STATES PATENTS

792,662	6/1905	Liebenstein	2/161 R X
1,377,103	5/1921	Suhr	2/16
2,068,182	1/1937	Jackson	2/20
2,448,697	9/1948	Bakke	2/161 R

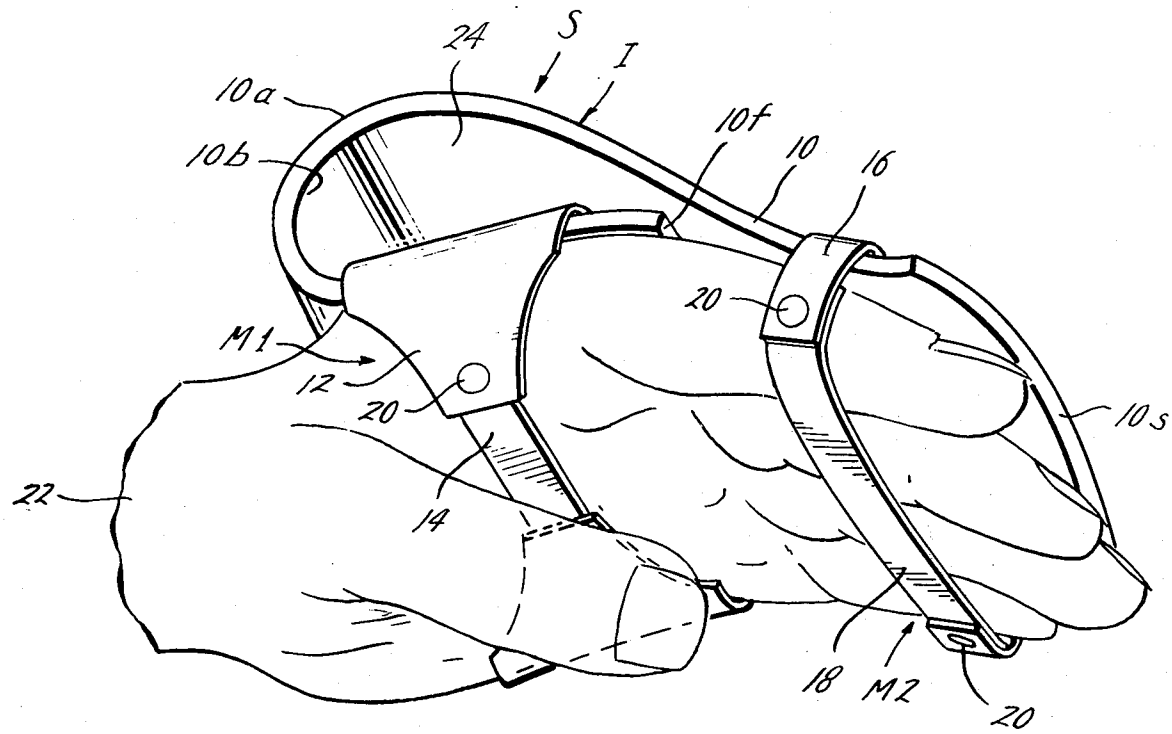
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[57] **ABSTRACT**

Protective heat shield having an overlapped asbestos sheeting adjustably mounted with the palm and fingers of the hand and forming an insulating air pocket between the overlapped asbestos sheeting and the hand, to protect the back of the hand from heat and molten metal in welding operations.

9 Claims, 2 Drawing Figures



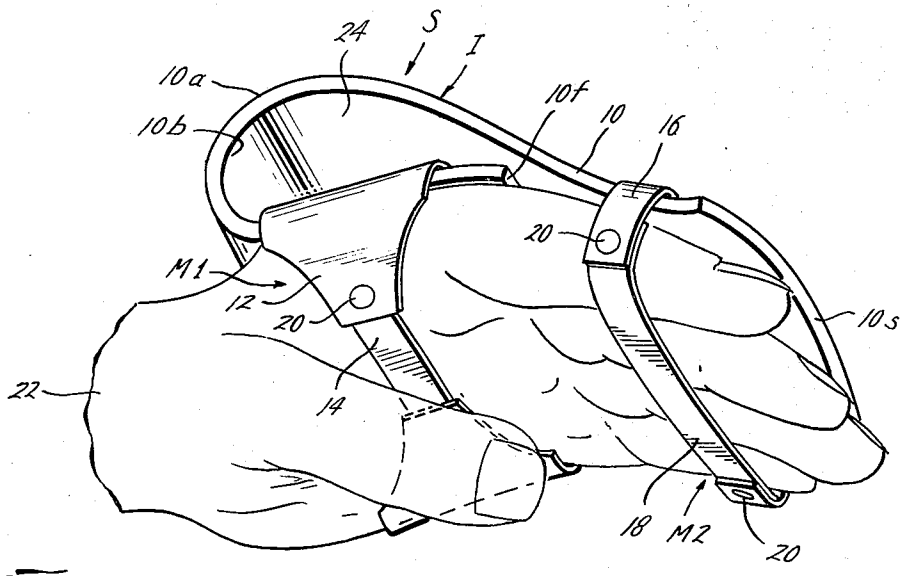

24
S
I
10a
10b
10f
10
16
20
M1
12
20
10s
22
14
18
M2
20

Fig. 1

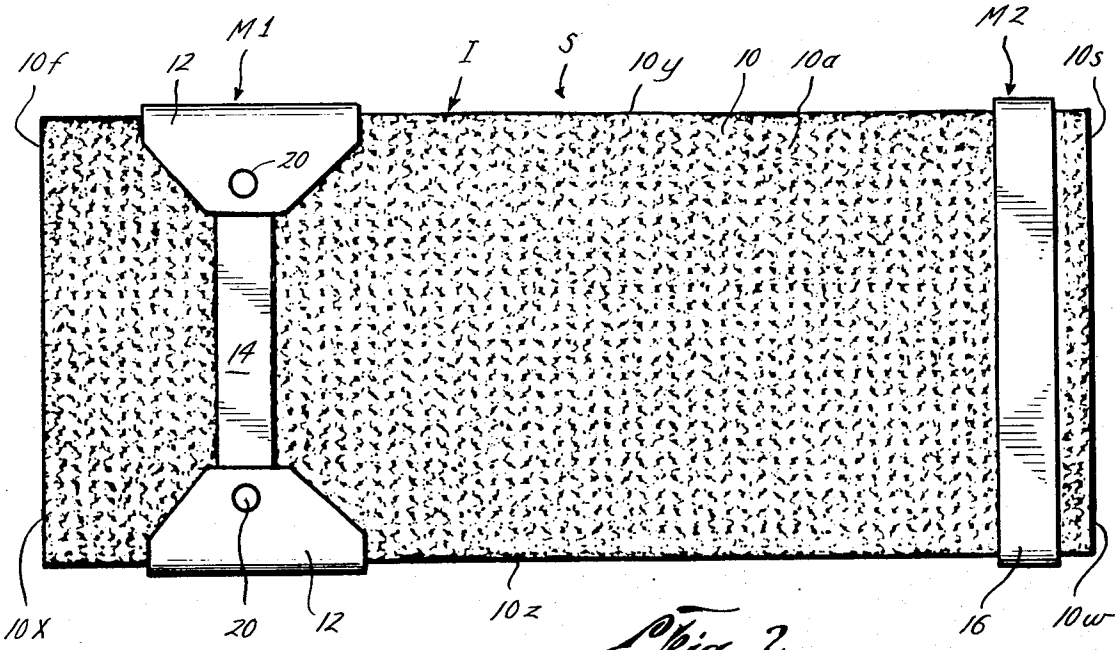

M1
M2
10f
12
I
S
10y
10
10a
10s
20
14
10x
20
12
10z
16
10w

Fig. 2

PROTECTIVE HEAT SHIELD

BACKGROUND

The field of this invention relates to heat shields for protecting the back of the hand in welding operations.

In welding operations, welders commonly find the intensity of heat so extreme that they frequently dip their gloved hands in water to get relief from the intense heat or attempt to block the heat with protective heat shields. Prior art heat shields include devices such as those disclosed in U.S. Pat. Nos. 1,377,103; 2,044,105; 2,068,182; 2,394,136; 2,448,697; 2,561,891; and 2,610,326.

Numerous disadvantages are found in the prior art, such as full gloves which are cumbersome to put on and to take off, and heat shields that have bulky, rigid configurations hampering the use of the fingers in welding operations.

SUMMARY OF INVENTION

The present invention provides a new and improved protective shield for protecting the back of the welder's hand, having a flexible, insulating, heat protective sheet mounted in an overlapped position on the back of the hand for forming an air insulation layer protecting the back of the hand from both heat and molten metal in welding operations.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an oblique view of the apparatus of the present invention as used for protecting the back of the hand; and,

FIG. 2 is a plan view of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings, the letter S designates the protective shield of the present invention. The protective shield S includes a flexible insulating material I and adjustable mountings M1 and M2, which are identical except for mounting positions.

The protective shield S has a flexible insulating material I made up of a flexible asbestos sheet **10**, having a top face **10***a*, a bottom face **10***b*, end **10***f* and end **10***s*, and sides **10***w*, **10***x*, **10***y*, and **10***z*. The flexible asbestos sheet **10** is capable of resisting and insulating against high temperatures encountered in a welding operation. The asbestos sheet **10** is of a flexible nature and of appropriate rectangular dimensions to adequately protect the back of the hand, being preferably of approximately 3 to 6 inches in width from side **10***y* to side **10***z* and of 8 to 15 inches in length from side **10***w* to side **10***x*.

Adjustable mountings M1 and M2 are adhesively bonded to the flexible asbestos sheet **10**. The adjustable mounting M1 includes a first leather strip **12** and a first elastic mounting band **14**, and the adjustable mounting M2 includes a second leather strip **16** and a second elastic mounting band **18**. The first leather strip **12** is adhesively bonded adjacent to the end **10***f* on the bottom face **10***b* extending outwardly from the top face **10***a* of the flexible asbestos sheet **10** while the second leather strip **16** is adhesively bonded adjacent to the end **10***s* on the top face **10***a* extending outwardly from the bottom face **10***b* of the flexible asbestos sheet **10**. The leather strips **12**, **16** are so constructed of leather because of the heat resistant, strength, and flexible nature of this material. Elastic mounting bands **14**, **18** are attached by metal brads **20** to the leather strips **12**, **16** respectively. The metal brads **20** are used in lieu of other connecting methods as stitching inasmuch as the brads **20** will remain relatively unaffected by the heat while alternative methods, such as stitching, may fail to hold due to the heat encountered in welding. The elastic mounting bands **14**, **18** allow for adjusting to a wide range of various hand sizes capable of using the protective shield S of the present invention without the need for variety of sizes necessary to accommodate each and every hand size, either right or left.

In the use or operation of the form of the invention illustrated in FIGS. 1 and 2, the preferred configuration of the protective shield S is illustrated in FIG. 1. A hand **22** is slipped into a loop (not numbered) formed by the flexible asbestos sheet **10** and the adjustable mounting M1 including the first leather strip **12** and the first elastic mounting band **14** such that the top face **10***a* of the asbestos sheet **10** overlies the back portion of the hand **22** with the elastic mounting band **14** running laterally across the breadth of the palm of the hand **22** and the end **10***f* of the asbestos sheet **10** facing towards the finger tips of the hand **22**. The end **10***s* of the asbestos sheet **10** is lifted up and over the end **10***f* in the direction of the finger tips of the hand **22**, and then slipping the finger tips into the loop (not numbered) formed by the flexible asbestos sheet **10** and the adjustable mounting M2 including the second leather strip **16** and the second elastic mounting band **18**. In this overlapped position an air pocket **24** is formed. Thus, a unique and novel protective shield S for the hand **22** results, having dual insulating qualities attributable to the asbestos sheet **10** and the air pocket **24**. With respect to the portion of the back of the hand **22** opposite the palm of the hand **22**, an effective heat preventative shield results as a consequence of the multi-layer overlapped configuration consisting of asbestos sheet **10**, air pocket **24**, and overlapping asbestos sheet **10** adjacent the end **10***f*. Thus the dual insulating characteristics of both the asbestos sheet **10** and that of the air pocket **24** are utilized to the benefit of the back of the welder's hand to protect it from both the intense heat generated in and around a welding operation as well as any sparks and/or molten metal resultant to a welding process.

Alternatively, the overlapped configuration may be reversed in such a fashion as to provide the air pocket **24** adjacent to the finger tips rather than adjacent the back portion of the hand **22** opposite the palm. In this configuration, the loop (not numbered) formed by the flexible asbestos sheet **10** and the adjustable mounting M2 including the second leather strip **16** and the second elastic mounting band **18** is slipped over the finger tips, palm, thumb, and onto the wrist of the hand **22** such that the bottom face **10***b* of the flexible asbestos sheet **10** overlies the wrist of the hand **22** with the end **10***s* facing away from the finger tips of the hand **22**. The end **10***f* of the asbestos sheet **10** is looped beneath the asbestos sheet **10** such that the end **10***f* faces away from the direction of the finger tips of the hand **22** as does end **10***s*. In this position the top face **10***a* of the flexible asbestos sheet **10** overlies the finger tips and the finger tips are then slipped into the loop (not numbered) formed by the flexible asbestos sheet **10** and the adjustable mounting M1 including the first leather strip **12** and the first elastic mounting band **14** with the elastic mounting band **14** running laterally across the breath

of the finger tips of the hand **22.** In this alternative configuration the air pocket **24** thus is adjacent the finger tips rather than the palm of the hand **22** providing greater heat-resistive insulating characteristics for the finger tips.

A further alternative to the above alternative is to reverse the mounting of the adjustable mounting M2 such that the top face **10***a* of the asbestos sheet **10** is adjacent the hand **22** with the ends **10***f*, 10*s* facing one another. In this configuration, an air pocket **24** is formed having overlapped portions adjacent both the back portion of the palm and the finger tips of the hand **22** forming the air pocket **24** such that it extends the entire length of the hand **22** for heat resistive protection for the same.

The only parts of the protective shield S of the present invention that will easily burn are the elastic mounting bands **14, 16** and they are in a protected position in the palm and under the finger tips of the hand **22.** Also due to the flexible nature of the asbestos sheet **10** at the looped or overlapped position, almost complete freedom of the fingers and thumb of the hand **22** exists while being protected from the heat and molten metal of a welding operation. Furthermore, the protective shield S of the present invention can be used on either hand, thus eliminating the need to make various configurations for either right-handed or left-handed welders and is easily adapted to be used over and in conjunction with presently existing commercially available welders gloves, if so desired.

The foregoing disclosure and description of the invention is illustrative and explanatory thereof, and various changes in the size, shape, and materials as well as in the details of the illustrated construction may be made without departing from the spirit of the invention.

I claim:

1. A protective shield for protecting the back of a welder's hand from the heat and molten metal of a welding operation, comprising:

flexible insulating means including a flexible, heat protective sheet for mounting with a welder's hand;

mounting means for mounting said protective sheet in a position overlapped upon itself on the back of the hand for forming an air insulation layer protecting the back of the hand from both heat and molten metal and,

said protective sheet including a protective face which, in said overlapped position, is bent to form an insulating air space with said air insulation layer.

2. The structure set forth in claim **1,** wherein said overlapping mounting means includes:

a first mounting band attached to a first end of said protective sheet for mounting said first end in an overlapped position over the back of the hand palm; and,

a second mounting band attached to the other end of said protective sheet for mounting said other end over the back of the fingers with said heat protective sheet in an overlapped position.

3. The structure set forth in claim **2,** wherein said overlapping mounting means includes:

means for flexibly mounting said protective sheet in an overlapped position for allowing greater movement of the hand during welding operations.

4. The structure set forth in claim **2,** including:

said protective sheet including first and second protective faces;

said first mounting band being attached for extending outwardly from said first face of said protective sheet; and,

said second mounting band being attached for extending outwardly from said second face of said protective sheet.

5. The structure of claim **4,** further including:

flexible heat resistant mounting means for mounting said mounting bands to said protective sheet to protect said mounting bands from heat and molten metal, said heat resistant means being adhesively bonded to said protective sheet.

6. The structure of claim **5,** wherein said heat resistant mounting means includes:

a first heat resistant mounting means and a second heat resistant mounting means being adhesively bonded to said protective sheet, said first heat resistant mounting means being bonded to said second face at said first end of said protective sheet and said second heat resistant mounting means being bonded to said first face at said other end of said protective sheet.

7. The structure of claim **5,** further including:

metal attaching means for securing said mounting bands to said heat resistant mounting means to prevent separation of said mounting bands from said heat resistant mounting means when exposed to heat.

8. The structure of claim **5,** wherein said heat resistant mounting means includes:

leather strips for mounting said mounting bands with said protective sheet.

9. The structure set forth in claim **1,** wherein:

said insulating air space is formed between opposing portions of said protective face for protecting the hand.

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