Dec. 4, 1956 H. W. STEWART 2,772,450

LABORATORY SAFETY SHIELD

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Fig. 1.

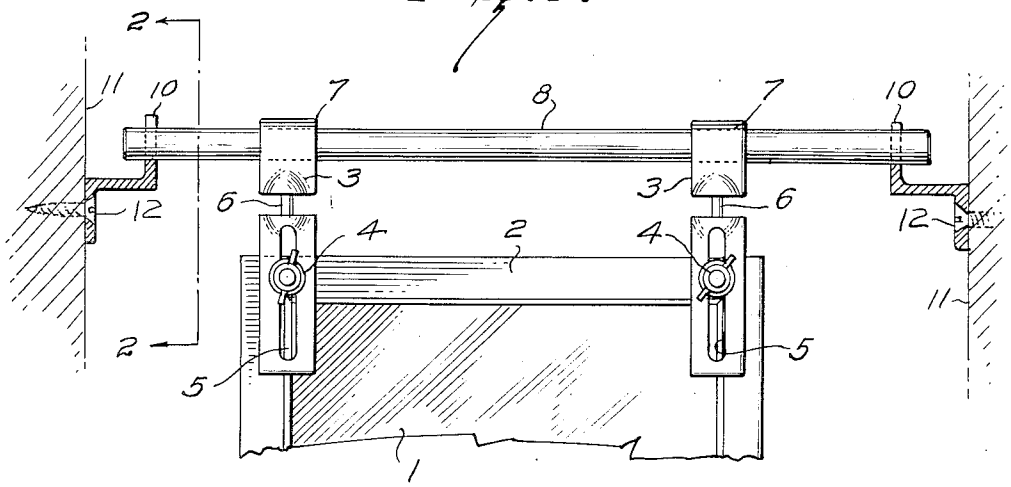
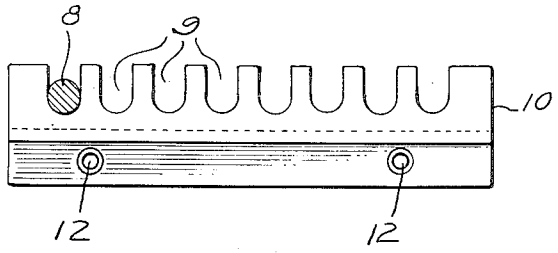


Fig. 2.



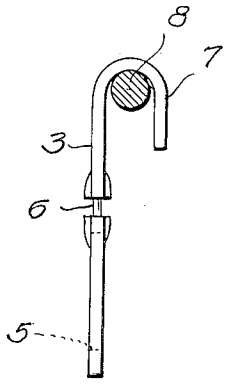


Fig. 3.

INVENTOR

HUGH WENDELL STEWART,

BY

Robert Lowe Stewart

ATTORNEY

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LABORATORY SAFETY SHIELD

Hugh W. Stewart, Plainfield, N. J., assignor to American Cyanamid Company, New York, N. Y., a corporation of Maine

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1 Claim. (Cl. 20—53)

This invention relates to a protective shield for use in chemical laboratories. More particularly, it relates to a sheet of shock and shatter-resistant material which is suspended in front of a space where hazardous operations are conducted.

In chemical laboratories hazardous and noxious work is conducted in confined areas that are well ventilated. The most common of such areas is the laboratory hood. The standard practice is to provide such hoods with safety shields which slide vertically on tracks. Alternatively, a safety shield may be in the form of a hinged dood on the hood or, more simply, a portable shield mounted and clamped on up-right supports that are weighted at the base.

The sliding and hinged door type of shield have the disadvantage of exposing the operator when he works on the material inside the confined area since the door must be opened to permit access. Furthermore, the entire hood space must be reserved for the single operation even though relatively little space is required. The portable shield has the disadvantage of being heavy and inconvenient to maneuver in addition to occupying useful bench space.

The disadvantages heretofore existing in laboratory safety shields have now been obviated by the combination of this invention which comprises a sheet of transparent shatter resistant material and a horizontal bar, the sheet of shatter resistant material having attached thereto means to suspend the sheet from the horizontal bar. In the preferred form of the invention, the horizontal bar rests in parallel notched brackets which are fixed to opposite side walls or posts. By a further embodiment of this invention the safety shield can be made maneuverable and adjustable by the use of swivel joints, notches in the bracket, and a slot in the suspending means whereby vertical adjustment is achieved.

For the purposes of this specification, "suspending means" is taken to mean any hanging device fixed to the shatter resistant material or its frame and which is combined with the horizontal bar so as to permit the safety shield to be free to swing. In the preferred form, the suspending means is a flat hook that fits over the horizontal bar with the terminal end sufficiently long so that the shield will be free to swing to and fro without falling from the horizontal bar. Alternatively, the suspending means may be fixed to the horizontal bar by any suitable means in which case the horizontal bar must be free to rotate.

The invention will be readily understood by referring to the drawings in which:

Fig. 1 is a front view of the preferred embodiments of this invention;

Fig. 2 is a sectional view across the line 2—2; and

Fig. 3 is a side view of the preferred means by which the safety shield is suspended in front of the working area.

Referring to Fig. 1, transparent shatter-resistant material 1 is encased in a frame 2 which has suspending

means, such as hooks 3, attached. If desired, suspending means 3 may be attached directly to the transparent material in which case the frame 2 is not needed. In the preferred form, a frame is used since replacing the transparent material is simplified if the suspending means 3 are attached to the frame 2. Furthermore, the frame eliminates the danger of cutting the operator due to sharp edges on the transparent material. Advantages thus result from lower maintenance costs and greater safety. The suspending means 3 may be attached to the frame by any suitable means such as wing nuts and bolts 4. The shield can be adjusted vertically by providing slots 5 in the suspending means 3.

The suspending means 3 may be a single piece of metal or other suitable material, or optionally, it may be in two pieces with a swivel joint of suitable design, shown generally at 6, between the two pieces. When not in use, the safety shield may be lifted off the bar 8 and stored, or if the optional swivel joint 6 is used, one hook 3 is lifted from the bar 8 and the safety shield is swiveled into the hood. A further advantage of the swivel joint is that two or more shields can be placed in normal position so as to isolate a single operation in a minimum space.

The suspending means should be designed so as to permit the safety shield to swing through a large arc, say 90°. If the hook 3 is used as is shown in Fig. 3, the terminal end of the hook 3 is elongated, as shown at 7, and is suitably adapted to fit over the horizontal bar 8. The bar 8 is placed in a notch 9 which may be one of several notches in a bracket 10 (Fig. 2). The bracket 10 is fastened to side supports 11 by any suitable means as with screws.

One advantage of the combination of this invention is the ease with which the safety shield can be adjusted in any direction. If desired, the shield can be suspended from the rod 8 so as to swing freely or it may rest on the bench top by suitable adjustments of the nuts and bolts 4. Lateral adjustment is achieved by altering the location of the bar 8 in the notches 9.

The transparent material from which the shield is constructed may be selected from a variety of materials such as wire glass, safety glass or glass of the shatter proof laminated type. Transparent plastic material such as Plexiglas is also satisfactory.

The frame 2 may be constructed of metal or wood with the former being preferred because several advantages accrue, namely, replacement of the transparent material is facilitated, the weight is lower and the cost of installation is low.

It is preferred that the hanging means 3 be constructed of flat metal strips as shown in Fig. 1. However, many suitable means for hanging the safety shield can be designed without departing from the spirit of this invention. The suspending means may be constructed of a variety of materials, such as hard rubber, molded plastic and the like. The horizontal bar 8 can likewise be a plastic material, wood or metal with the last being preferred in order to give a greater measure of safety.

The bracket 10 may also be constructed of plastic, wood or metal with metal being preferred. In the preferred form, the bracket 10 has several notches 9 to permit lateral adjustment.

The side supports 11 to which the brackets are attached may be opposite side walls as in a hood or can be vertical posts that are fixed to opposite ends of a workbench. Another advantage of the combination of this invention is that a large area can be shielded by using several safety shields in juxtaposition.

In order to work in the area behind the safety shield, the operator slides the shield a minimum distance to make the desired working area available. Thus, exposure

of the person is thereby reduced to a minimum which is one of the principle advantages of this invention. Furthermore, the impact of an explosion is diminished because the safety shield is not rigidly fixed, thus permitting the expanding gases to escape without a large build-up of pressure.

Having thus described the invention, I claim:

A safety shield, comprising in combination, a sheet of transparent shatter resistant material encased in a frame, a horizontal bar and sole suspending means to suspend said frame from said horizontal bar, said sole suspending means comprising two separate open end inverted U-shaped members, said U-shaped members overlying said horizontal bar, the other end of each of said U-shaped members having a longitudinal slot, means passing through said slot and said frame fastening the frame to the sole suspending means; a swivel joint located between said open end members and said frame; said horizontal bar resting in a pair of notched brackets, said notched brackets being fixed to side supports, whereby said sheet is free-swinging from said horizontal bar.

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