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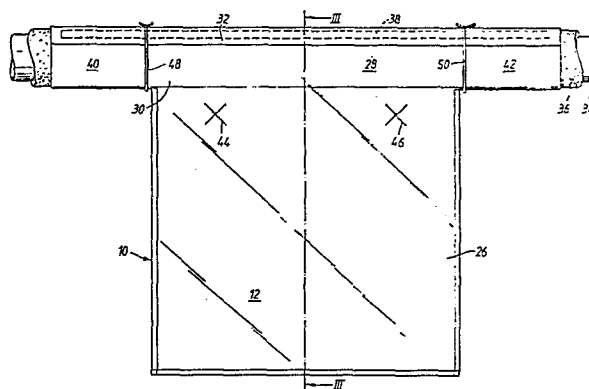
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54 **Protective device for facilitating the safe handling of substances dangerous to health.**

57 A method for stripping lagging from a length of pipe comprises placing about the length the upper portion of a plastics bag having a lower portion the interior of which communicates with the interior of the upper portion, securing the upper portion about the length, inserting the hands into the interior of the bag through one or more sleeve-free apertures to work on the pipe, and allowing the stripped lagging to fall into the lower portion of the bag.



This invention relates to a protective device for facilitating the safe handling of substances dangerous to health or safety, and it has a particularly important but not exclusive application in relation to the removal of asbestos lagging from piping.

In recent years a great deal of attention has been focussed on the long-term dangers involved in handling asbestos, and in many applications substitute materials are now being used. Asbestos lagging has, however, been used for many years, for example on pipework, and when the lagging starts to disintegrate, whether as a result of physical damage or age, it has to be stripped off. This stripping work, which often produces a great deal of asbestos dust in a confined space, is considered a hazard to health.

The present invention provides a protective device comprising a bag having a lower, preferably sealed, portion and having an upper portion the interior of which communicates with the interior of the said lower portion and which upper portion is capable of being detachably secured about a length of lagged pipe, preferably forming a seal with opposite ends of said length, said bag being made from plastics sheet material, which is preferably transparent in at least the regions thereof to be

adjacent the pipe, at least one wall of the bag having, in use, one or more apertures opening into the interior of the bag and through which an operator may insert his hands or a stripping device for work on the pipe.

The present invention also provides a method of stripping lagging from a length of pipe, which comprises placing about the said length of pipe the upper portion of a protective device comprising a bag of plastics sheet material, preferably transparent in at least the regions thereof adjacent the pipe, and having a lower, preferably sealed, portion the interior of which communicates with the interior of the said upper portion, and the said upper portion being detachably secured about the said length of lagged pipe and preferably substantially forming a seal with the opposed ends of said length, the operator, preferably wearing full protective clothing, especially a breathing mask, inserting a hand or hands or a stripping device into the interior of the bag through one or more apertures in one or more walls of the bag to work on the pipe, and allowing the stripped lagging to fall into the lower portion of the bag.

The upper portion of the bag advantageously comprises two flaps which may be placed about the length of pipe from opposed sides thereof, the flaps

meeting each other when so placed about the pipe, at least one of the flaps preferably being provided at or near its meeting edge with means for sealing or securing the two flaps together about the pipe. The said flaps may have lateral extensions capable of being releasably, and preferably sealingly, fastened about the respective ends of the length of pipe.

The bag may include means for securing the opposed walls of the bag together at a location between the upper and lower portions of the bag, for example adhesive tape or interlocking fastening strips (e.g. strips of Velcro (Trade Mark)), in order to seal asbestos and like waste in the lower portion of the bag after stripping of the lagging.

A preferred device constructed according to the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows a front view of a protective device according to the invention,

Figure 2 shows a front view of the device of Figure 1 in position on a pipe,

Figure 3 shows a cross-sectional view of the device, on the line III-III of Figure 2, and

Figure 4 shows a cross-sectional view similar to Figure 3 but with the walls of the device secured together differently.

Referring to the drawings, the protective device is made from two substantially T-shaped pieces of transparent plastics sheet material, forming front and rear walls 12, 14, respectively, welded together at seams 16, 18 along the bottom of the two arms of the T, at seams 20, 22 along both sides of the upright of the T, and at seam 24 along the base of the T. The device has front and rear walls 12, 14 forming a bag having a lower portion 26, which acts as a receptacle for the stripped asbestos or other lagging, and an upper portion 28. The upper portion of the bag, constituted primarily by the two arms of the T, has front and rear flaps 30, 32, which, in use, are placed about a length of a pipe 34 with asbestos lagging 36. At least one of the flaps, in this case the rear flap 32, carries at or near its upper edge a length of double-sided adhesive tape 38 (which, prior to use, is covered by a protective backing strip) or other sealing or securing means to enable the front and rear flaps 30, 32 to be sealed or secured together when they are placed about the pipe, either with one flap overlapping the other as shown in Figs. 2 and 3, or with the edge portions of the inner walls of the flaps abutted as shown in Fig. 4. Other sealing or securing means that could be used include, for example, hook tapes (for example, Velcro (Trade Mark)) and sliding clasp

fasteners. In some cases, it may be that the overlap of the two flaps 30, 32, as shown in Figs. 2 and 3, itself provides adequate sealing and that the adhesive tape 38 or other separate sealing means may be omitted entirely. The front and rear flaps 30, 32 have lateral extensions 40, 42 beyond the bag to cover adjoining lengths of the lagged pipe, thus forming a seal with opposite ends of the first-mentioned length. The adhesive tape 38 or other securing means extends along the extensions 40, 42.

At least one wall of the bag, in this case the front wall 12, has, in or near its upper portion 28, two apertures 44, 46 opening into the interior of the bag and through which an operator may insert his hands in order to work on the pipe. These apertures 44, 46 are each formed simply by two slits in the wall of the bag in the form of an 'X', but may, of course, be formed in other ways, for example as holes. The apertures 44, 46 may be formed during or immediately after manufacture of the device, or they may be provided by the user of the device immediately prior to use. The apertures are, in the preferred form of the device as illustrated, simple apertures and open directly into the interior of the bag, without any substantial re-entrant portions; they need not seal tightly around the operator's arms or wrists; they may be unsleeved and be without sleeve,

glove or mitten portions.

When the protective device according to the invention is to be used, the two flaps 30, 32 are placed around the length of lagged pipe 34 and, after removal of the protective covering strip from the double-sided adhesive tape 38, are secured together by means of the tape, in the position shown in Figs. 2 and 3 or Fig. 4. The flap extensions 40, 42 may be secured about the pipe by string or laces 48, 50 or other convenient means. The operator then inserts his hands and arms through the apertures 44, 46 into the interior of the bag and works on the lagging, using handtools as necessary. Alternatively, a stripping device may be inserted through one or both apertures so that the hands and arms of the operator remain outside the bag. The displaced lagging falls into the lower portion 26 of the bag, which may if necessary be supported on a table or other flat surface or in the angle of a V-shaped supporting surface. When the length of pipe has been stripped of lagging, or even during the actual stripping operation, the operator may insert a water spray through one of the apertures 44, 46 to clean lagging remnants off the pipe and to damp down dust within the bag. When the particular length of pipe has been stripped, the apparatus may be removed from the pipe by unfastening the adhesive tape 38 and the strings

or the like 48, 50, and may be emptied into or placed bodily within an outer bag for disposal in accordance with existing regulations.

When a long section of lagging is to be removed and the capacity of the bag permits, and when hangers or other supports for the pipe also permit, the bag may alternatively be moved along the pipe to the next length after the strings or the like 48, 50 have been loosened. The strings or the like are then re-secured, and work is continued on the next length of pipe. Alternatively, if the capacity of the bag permits, and if the bag can be adequately resealed, it may be removed from the pipe and placed in position on another section of pipe.

Sections of the lagged pipe not currently being worked on may, if desired, be covered by plastics sleeves having a length-wise extending sliding clasp fastener or other temporary fastening means enabling them to be placed in position and removed.

The use of the protective device according to the invention enables asbestos or other lagging to be stripped from a pipe while containing the dust and waste material in order to reduce substantially the health hazard of asbestos or like dust to which the operator is subjected.

Various protective devices have previously been proposed in order to contain asbestos or like dust

and waste more or less completely when stripping lagging from pipes and the like, and when using such devices the operator may wear minimal protective clothing. Such devices are relatively expensive, however, and there are occasions when their use is considered unjustified (for reasons of expense, for example) or impractical. On such occasions, the operators may work in full protective clothing, including in particular breathing masks, and simply allow the stripped lagging to fall to the floor to be subsequently placed into waste disposal containers by means of shovels, for example. Operating practices of that nature involve a considerable amount of dust, which places considerable demands on the operator's personal protective clothing and can be hazardous to the operator despite the use of a breathing mask; moreover, the dust may take an appreciable time to settle with consequent risks of its escaping from the operating areas.

The protective device according to the invention provides an inexpensive means of substantial containment of the waste and associated dust and is particularly suitable for use when the expense of full protective bags is considered unjustified and when the operators are wearing full protective clothing including breathing masks. The use of the device according to the invention substantially

reduces the amount of free dust, thus putting considerably less demands on the operator's personal protective clothing.

It will be appreciated that various details of the device according to the invention as described above with reference to, and as shown in, the accompanying drawings may be varied without departing from the scope of the invention. For example, the shape of the bag may be altered; the bag may be provided with gussets; and one or more of the welded seams (for example, the bottom seam 24) may be replaced by a fold of plastics material with the device as a whole being formed from a folded single sheet of material.

What we claim is:

1. A protective device comprising a bag having a lower portion and having an upper portion the interior of which communicates with the interior of the said lower portion and which upper portion is capable of being detachably secured about a length of lagged pipe, said bag being made from plastics sheet material, and at least one wall of the bag having, in use, one or more apertures free of internal sleeves and opening into the interior of the bag and through which an operator may insert a stripping device or his hand or hands for work on the pipe.

2. A device as claimed in claim 1, wherein the upper portion of the bag has means for forming a seal about opposite ends of the length of pipe.

3. A device as claimed in claim 2, wherein said means is provided in lateral extensions of the said upper portion.

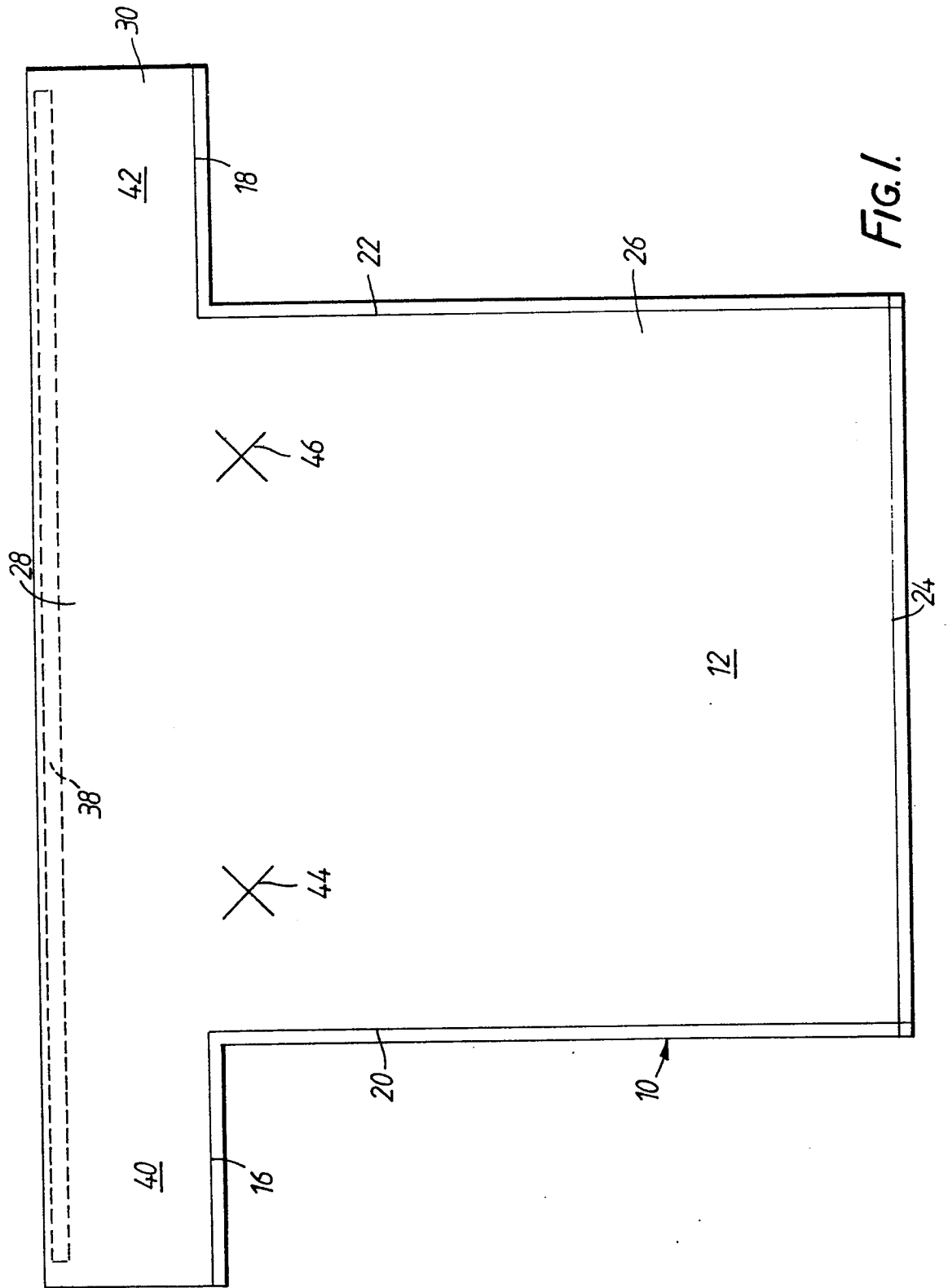
4. A device as claimed in any one of claims 1 to 3, wherein the upper portion of the bag comprises two flaps at least one of which has means at its edge regions for sealing the two flaps together about the pipe.

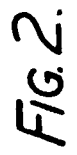
5. A device as claimed in any one of claims 1 to 4, which also comprises means for securing opposed walls of the bag together at a location between the upper and lower portions.

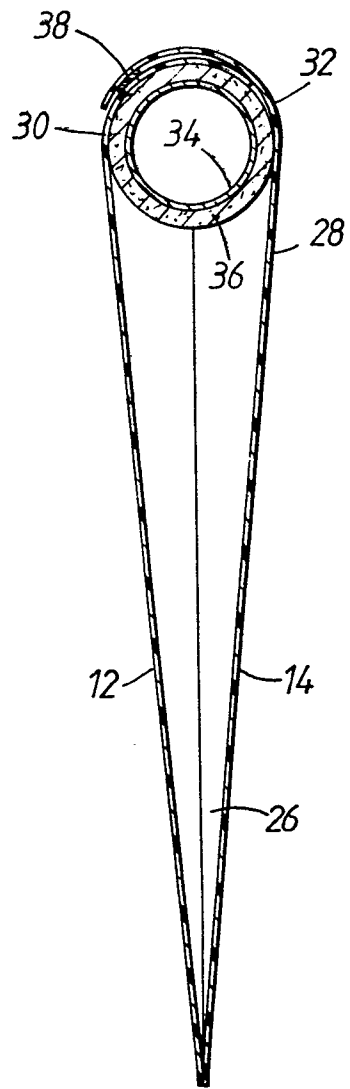
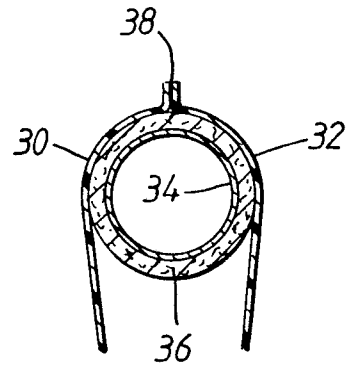
6. A method of stripping lagging from a length of pipe, which comprises placing about the said length of pipe the upper portion of a protective device comprising a bag of plastics sheet material having a lower portion the interior of which communicates with the interior of the said upper portion, the said upper portion being detachably secured about the said length of lagged pipe, the operator inserting his hand or hands or a stripping device into the interior of the bag through one or more internally sleeve-free apertures in one or more walls of the bag to work on the pipe, and allowing the stripped lagging to fall into the lower portion of the bag.

7. A method as claimed in claim 6, which also comprises sealing the said upper portion about the said length of pipe.

8. A method as claimed in claim 6 or claim 7, which also comprises sealing the said upper portion about opposite ends of the length of pipe.





*FIG. 3.**FIG. 4.*