

THE JOINT EXAMINATION BOARD

PAPER P4

5 **AMENDMENT OF SPECIFICATIONS FOR UNITED KINGDOM PATENTS/APPLICATIONS IN PROSECUTION, REVOCATION PROCEEDINGS OR OTHERWISE**

Wednesday 5th November 2008

10 10.00 a.m. - 1.00 p.m.

*Please read the following instructions carefully. Time Allowed – **THREE HOURS***

15 1. Please note the following:

- 15 a. Enter the Paper Number (P4) and your Examination number in the appropriate boxes at the top of each sheet of paper;
- 20 b. The scripts are photocopied for marking purposes. Please write with a **dark inked pen** on one side of the paper only and within the printed margins, and do not use highlighters in your answer;
- c. Do not state your name anywhere in the answers;
- d. Write clearly, examiners cannot award marks to scripts that cannot be read;
- e. Reasoning should always be given where appropriate.
- 25 i. If one or more Divisional Application(s) is/are suggested, only main claim(s) need be supplied, there is no need to provide amended specifications.

2. Under the Examination Regulations **you may be disqualified from the examination and have other disciplinary measures taken against you if:**

- 30 a. you are found with unauthorised printed matter or other unauthorised material in the examination room;
- b. your mobile phone is found to be switched on;
- c. you copy the work of another candidate, use an electronic aid, or communicate with another candidate or with anyone outside the examination;
- 35 d. you continue to write after being told to stop writing by the invigilator(s). **NO WRITING OF ANY KIND IS PERMITTED AFTER THE TIME ALLOTTED TO THIS PAPER HAS EXPIRED.**

40 3. **At the end of the examination assemble your answer sheets in question number order and put them in the WHITE envelope provided.** Do not staple or join your answer sheets together in any way. Any answer script taken out of the examination room will not be marked.

45 This paper consists of sixteen sheets including this sheet, and comprises

Instruction Sheet	Page 2
Client's e-mail	Page 3
Official Letter	Page 4
50 Client's Application	Pages 5 to 10
Reference 1	Pages 11 to 13
Reference 2	Pages 14 to 16

THE JOINT EXAMINATION BOARD

PAPER P4

5 Question

A United Kingdom patent application comprising the attached specification (identified as GB 06567890.0) was filed at the UK Intellectual Property Office on 20th December 2006, without any claim to priority. The UK Intellectual Property Office has now issued the attached Official Letter:

You have received brief comments from your client in an e-mail, which is also attached.

Your task is to prepare the following:

1. A full response to the UK Intellectual Property Office in response to the Official Letter, accompanied by a set of amended claims, if needed. Note that you are **NOT** required in this examination to make any amendments to the description of the client's patent application.
2. You are also asked to prepare an outline memorandum for your client, explaining the actions you have taken and why. You should provide full reasoning for your actions and provide an outline of future actions that your client could take to secure full protection for their commercial interests as outlined by your client, taking into account that further information may be needed. This future advice should only relate to the invention outlined in the client's letter to you. These notes should also be restricted to patent matters and you are **NOT** required to consider other matters such as copyright or design protection.

Note the following

- (a) You should accept the facts given to you and base your answer on those facts. In particular you should **NOT** make any use of any special knowledge that you may have of the subject-matter concerned, and you must presume that the prior art referred to is exhaustive. Where only extracts of documents are presented to you, you should assume that those extracts contain all relevant matter.
- (b) If the advice to your client includes a suggestion of filing a divisional application(s) you should draft the corresponding independent claim(s) and your memorandum should explain why filing a divisional is advisable. You should **NOT** draft a description or any dependent claims for a divisional application.
- (c) If you submit any amended claim set and/or divisional claims(s) put these at the top of the answer papers when handing in your answer and number the pages accordingly so as to readily identify the claims or claim sets.

E-mail from your client, Scaffold Accessories PLC

5 Thank you for agreeing to file a response to the examination report that is outstanding on my UK
Patent Application No. 06567890.0. As we discussed in our telephone conversation earlier today,
my previous patent attorney has retired and although I had thought that I could take all the
necessary actions without professional assistance, I have found that the prior art cited by the
examiner is such that I cannot identify the best way to proceed. You have my permission to take
10 whatever action you deem to be the most appropriate to defend my position.

15 As requested by you, I attach all the documents that I have. These documents are a copy of:
my patent application as originally filed, the examination report issued by the UK Intellectual
Property Office (UKIPO), and copies of the two documents referred to in the report from the
UKIPO.

20 The products that I make and sell are scaffold caps and bungs exactly as described in the patent
specification. I sell relatively few bungs although sales are increasing. My customers are
scaffolders who use the caps in the scaffold poles that they use, although I understand that some
also sell the caps on to persons unknown to me. I do not know of anyone else selling scaffold
caps that are anything like my caps. My sales are going so well recently that I imagine that it is only
a matter of time before someone copies me, especially considering how quick and easy it would be
to produce the caps and therefore because of this, I would like to have a granted patent within the
next few weeks if possible.

25 I don't know whether this is relevant to the patent application but the second embodiment is the
more important to me - the flangeless cap outsells the flanged cap by about four to one. My
customers tell me that they like the way that the flangeless cap does not interfere with the external
profile of scaffold poles so they do not have to change the way in which the scaffold poles are used
in any way. They also like the fact that, once either of my caps is installed in a scaffold tube, it
30 cannot be removed because of the interference fit. This is true for both of the embodied caps. The
bungs, which are made of a soft material can be used with both types of caps and are particularly
useful to increase the visibility of scaffolding to members of the public and to prevent injury if a
person knocks into the scaffolding. I may even consider selling my caps and bungs with scaffolding
poles to increase my company's turnover.

35 Please file a response today, explain the main changes you make and the reasons for it, and
outline any recommendations you may have for additional action to be taken later.

OFFICIAL LETTER

Application No: 06567890.0

Applicant: Scaffold Accessories PLC

Examiner: Andrew Carruthers

5 Latest date for reply: 5th November 2008

PATENTS ACT 1977

Examination Report under Section 18(3)

10 **Examination Report:**

Examination has been carried out on the basis of the application as filed.

15 **1. Unity**

There is a lack of unity of invention between claims 1 and 2, because the common matter to those claims is known from the prior art (see below). All of the claims have been examined. If multiple independent claims are to be maintained, they must exhibit unity of invention.

20 **2. Novelty/Obviousness**

Your invention is not new and/or inventive because it has already been disclosed in the following documents:

25 Ref 1 (GB 2087596) Build-it Ltd - see in particular Figures 3 and 8. Relevant to claims 1 to 6, 8 and 9 at least.

30 Ref 2 (US 3932969) Bodgers Inc – see whole document, particularly figure 5. Relevant to claims 1 to 9 at least. The described plug of the document incorporates internal and external ribs, which are formed by the right cylindrical surfaces 28.

35 Regarding each of the prior art documents, it is noted that the dimensions of the tube are not limiting on the scope of the claims, and that the bungs/plugs of the prior art documents could be used with a tube having an internal dimension such as to give rise to an interference fit. Furthermore, varying of the dimensions of any of the described prior art devices so as to fit a tube of a particular size would be within the scope of activities that the skilled person would conduct without involving an inventive step.

40 **3. Clarity/Support**

Your claims are unclear for the following reasons:

- a) The absence of a 'second end' in claims 1 and 2 at least renders the 'first end' language unclear; and
 - b) Claims 3 and 6 attempt to define the invention with reference to a tube which
- 45 is not a limitation of the relevant claims.

Yours faithfully,

Andrew Carruthers, Examiner

END CAPS

5 This invention relates to end caps and in particular although not exclusively to end caps for use with scaffold tubes.

Scaffold tubes are straight, hollow elongate metallic open ended tubes which can be connected together to form structures known as scaffold. Scaffold is often constructed, for example, up the
10 face of a building to provide platforms from which work on the face of the building can be carried out.

The open ended tubes can become resting places for debris such as welding rods, screwdrivers, dust, liquid and the like. Such debris can fall from the scaffold tubes, especially constructing or
15 deconstructing scaffold, and this poses a potential safety risk, especially if debris from the tubes falls from a significant height. It is an object of the present invention to provide means whereby debris can be prevented from entering tubes, including scaffold tubes.

Where scaffold tubes are located at around pedestrian level it is known to provide a bulbous bung, which is often blue in colour. The prime purpose of such bungs is to make the scaffold poles visible
20 so that pedestrians are less likely to walk into them. Such bulbous bungs typically have a diameter which is noticeably greater than that of the outside diameter of the scaffold tube and tend to be both easily attachable and easily removable from scaffold tubes.

25 In accordance with the present invention, there is provided an end cap, for plugging the end of an open tube, as claimed in the appended claims.

Embodiments of the present invention will now be described with reference to the accompanying drawings of which:

30 Figure 1 shows an end cap in accordance with the present invention;
Figure 2 shows the Figure 1 end cap installed in a scaffold tube; and
Figure 3 shows an end section and a lengthways section of a second embodied end cap in accordance with the present invention.

35 Referring to Figure 1, the end cap 10 comprises a generally tapered tubular portion 11, a rim or flange 12 and a plugging member 13 to block the tube. The end cap 10 is moulded from HDPE (high density poly-ethylene) coloured with a blue colorant.

5 The end cap 10 tapers from an outside diameter of 38.0 mm (3.8 cm) at A to a diameter of 41.0
mm (4.10 cm) at B, with the taper continuing onto the underside of the flange 12 at substantially
the same degree of tapering. The inside diameter of a scaffold tube always is 41.0 mm, since this
is a standard for scaffold tubes in the UK and elsewhere in Europe. The distance C between the
under side of the flange 12 to the part of the tubular portion having a diameter of 41.0 mm is 5.0
10 mm (0.5 cm). This distance is 9% of the total length of 55.0 mm of the end cap 10. The thickness
D of the plastics material forming the end cap 10 is between 3 and 4 mm throughout. The tapering
of the tubular portion 11 allows the end cap 10 to be easily moulded and also to be fitted in the
tube because the end furthest from the flange has a diameter smaller than that of the inside
diameter of the scaffold tube.

15 Referring now to Figure 2, it can be seen that the end cap 10, particularly the tubular portion 11, is
distorted at 15 by virtue of its inclusion in a scaffold tube 14. The end cap 10 is usually inserted
into the scaffold tube 14 using a hammer and the resilience of the plastics material forming the end
cap 10 allows for deformation of the end cap 10 without shattering or other damage occurring. This
20 resilience allows the end cap 10 to be self securing in the scaffold tube 14 so that it cannot be
easily removed either intentionally or accidentally. The fact that part of the tubular portion 11
(namely the part closest to the flange 12) becomes significantly smaller than its normal
uncompressed dimension ensures that there is sufficient compression of the HDPE to hold the
tubular portion 11 within the scaffold tube 14. This type of fit is known as interference fit. The
25 effectiveness of the interference fit is a function of the thickness of the tubular part and the extent
to which it is compressed. The effectiveness of the fit can be assured on producing the end cap 10
because scaffold tubes necessarily have an internal diameter of 41.0 mm (4.10 cm). In this
example, the taper is 3.6 degrees and the maximum diameter is 41.3 mm. To achieve a
satisfactory interference fit in a scaffold tube, an end cap of between 3 and 4 mm thickness needs
30 to have a taper between 2 and 5 degrees and a maximum diameter of between 41.2 and 41.4 mm.

The end cap 10 serves to close off the end of the scaffold tube 14 so that it is no longer open for
debris to enter. The plugging member of the end cap (shown as 13 in Figure 1) need not be sheet
like in structure but could equally well be replaced by a mesh or a series of bars or the like
35 although the range of alternative configurations which would prevent debris entering the scaffold
tube 14 (it may be that only large debris is desired to be prevented from entering) will be apparent
to the skilled person.

5 The end cap 10 covers metallic burrs and shards in the end cross-section of the scaffold tube 14
formed by cutting scaffold tubes to length, the presence of the end cap 10
makes the scaffold tube 14 safer to hold with fingers placed inside the tube than previously.
Because the end cap 10 is made from HDPE, a significant amount of cushioning is provided on the
end of the scaffold tube when the end plug 10 is fitted.

10 As shown in Figure 2, the end cap 10 is shown fitted with a foam bung 16. The bung 16 is self
retained by virtue of its dimensions and the resilience of the foam from which it is made. The foam
bung 16 may be used where especially high visibility is required, or where the scaffold tube is to be
used near to glass structures. This bung can also be used with the embodiment to be discussed in
15 Figure 3.

Figure 3 shows a second embodied end cap 20 consists of a tapered portion 11 and a plugging
member 13. No flange or rim is present, which allows the end cap 20 to be inserted completely into
a scaffold tube (not shown in the Figure). The external dimensions of the end cap 20 are similar to
20 those of the Figure 1 end cap. However, the internal length dimension is 75 mm. to allow scaffold
feet easily to be accommodated. Thus, the taper is shallower. Also, the thickness of the end cap is
between 2 and 3 mm. In both embodiments, the tapering of the portion 11, and the fact that it has
a continuous length of material with a degree of resilience, allows it to flex when pushed into a
pipe, and ensures a good fit of the end caps in pipes.

25 The end cap 20 further comprises longitudinal ribs 21 and 22 extending longitudinally on the outer
surface of the tubular portion 11 from the wider first end towards the plugging member end of the
end cap. The ribs 21 are 30 mm long, and thus can be termed long ribs. The ribs 22 are 20 mm
long, and thus can be termed short ribs. As can be seen from Figure 3, there are four long ribs 21,
30 which are distributed evenly around the circumference of the end cap 20. Four short ribs 22 are
located intermediate adjacent ones of the long ribs 21. Any other suitable distribution of ribs may
be used instead but the arrangement discussed is particularly good.

35 The long ribs 21 and the short ribs 22 are tapered so as to be taller at their end furthest from the
wider end of the end cap 20. When the end cap 20 is inserted into a scaffold tube, the ribs 21 and
22 are crushed and shaved off by the inner surface of the scaffold tube thereby providing a self-
securing interference fit in the scaffold tube. This allows a reduced thickness for the material of the
end cap 20, which reduces manufacturing costs.

- 5 Circumferential ribs 23 are provided at spaced intervals on the inner surface of the tubular portion 11 of the end cap 20. These ribs 23 allow the end cap to be more easily gripped in the tube, and provide means for retaining accessories such as flashing lights, tool holders and signs.

5 **Claims**

1. An end cap, for plugging the end of an open tube, comprising:
a tubular portion having at a first end an external dimension comparable to an internal
dimension of the tube; and
10 a plugging member extending transversely across the tubular portion, the end cap being
capable of insertion completely into the tube.
2. An end cap, for plugging the end of an open tube, comprising:
a tubular portion;
15 a flange connected at a first end of the tubular portion; and
a plugging member connected across the tubular portion.
3. An end cap in accordance with claim 2, in which the flange is an outwardly projecting flange
having an outer diameter substantially equal to the outer diameter of the tube with which the end
20 cap is to be used.
4. An end cap in accordance with any preceding claim, in which the plugging member extends
transversely across the tubular portion at a position spaced from the first end.
- 25 5. An end cap in accordance with any preceding claim, in which the tubular portion is tapered so as
to be larger in diameter at the first end.
6. An end cap in accordance with any preceding claim, in which the outer diameter of the tubular
portion is chosen so that the end cap forms an interference fit in the tube with which the end cap is
30 to be used.
7. An end cap in accordance with any preceding claim, in which the end cap is moulded from
plastics material as a one-piece component.
- 35 8. An end cap according to claim 1 or any of claims 4 to 7 when dependent on claim 1, comprising
ribs on the outer surface of the tubular portion.
9. An end cap according to claim 1, claim 8 or any of claims 4 to 7 when dependent on claim 1
comprising ribs on the inner surface of the tubular portion.

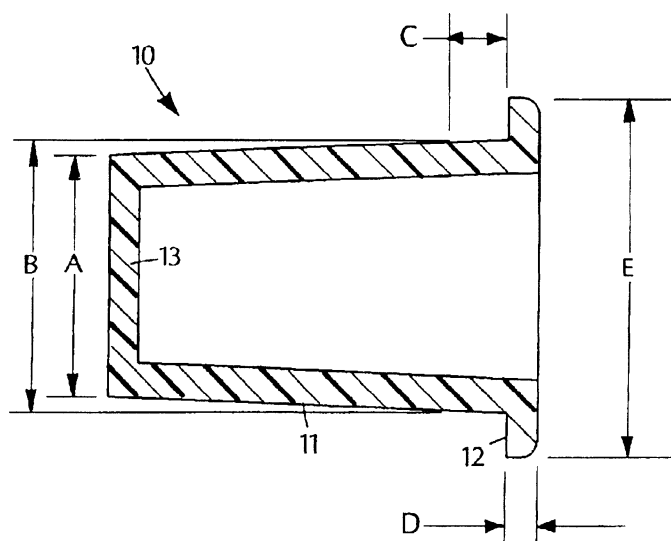


FIG.1

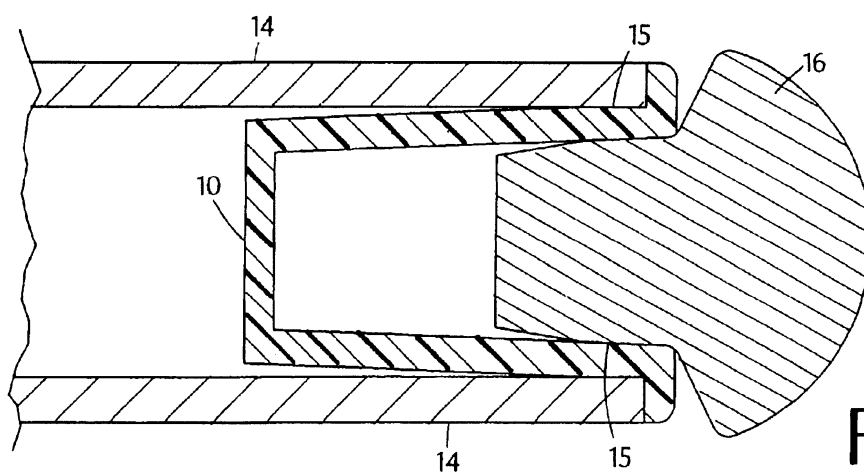


FIG.2

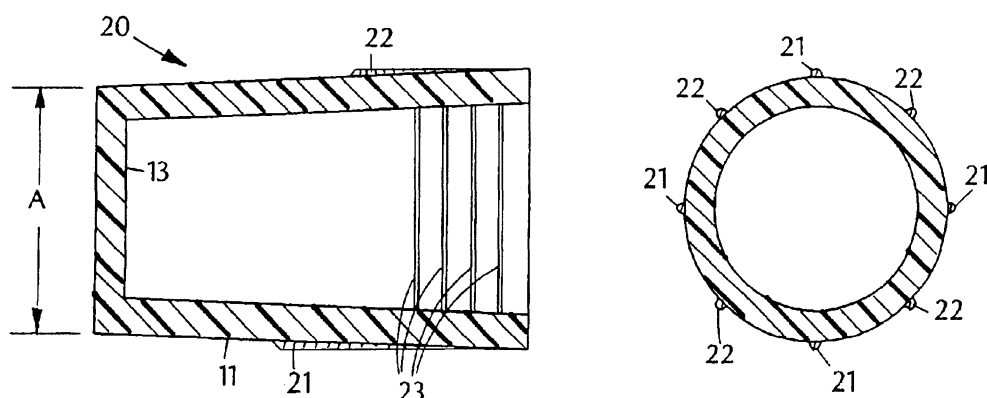


FIG. 3

5

PROTECTIVE PIPE SLEEVES AND BUNGS

10 This invention relates to pipe protectors for fitting on or in the ends of projecting pipes forming part of a central heating and/or water system in buildings. The aim of the invention being to prevent the open ended pipes from being filled with plaster, rubble or other materials during construction work .

15 When the plumber has completed the carcassing (i.e., putting in gas and water pipes but prior to attaching radiators, baths, basins and other such fittings) the pipes installed by the plumber are left poking up from the floor, down from the ceiling, or out from the walls.

These pipes can easily be damaged by being squashed, covered with plaster or bent, or they may become filled with cement, plaster and rubble as other tradesmen continue to work. A good plumber either bends the ends of the pipes over, squeezes them shut with pliers, or tapes them to prevent rubbish falling into the pipes through their open ends.

20 When the other work on the building has been completed, the plumber returns and has to cut off the end of the pipe if he has previously bent the end over or squeezed closed, or remove the tape if he has used taping to close the end of the pipe. Cutting off the end of the pipe or removal of the tape are time-consuming and wasteful operations.

25 The present invention is directed to a sleeve with a closed end or to a bung made preferably of synthetic plastics material which is adapted to fit over or into the end of a pipe so as to block the pipe end and to protect the end portion of the pipe against dirt or corrosion.

30 Gas and water pipes used in buildings are of standard diameters so it is a simple operation to produce a range of sleeves or bungs in accordance with the invention which are so shaped as to be appropriate for a particular pipe diameter. Where a plumber is fitting gas or water pipes in a building he will take along with him a batch of sleeves or bungs of a size appropriate to a particular pipe diameter and he will fit a sleeve or bung on to or into
35 each exposed pipe end throughout the building to protect the ends from damage. When he resumes his work, he simply removes the sleeves or bungs without the use of any tools.

40 Examples of sleeves and bungs in accordance with the invention are illustrated in Figures 1, 3, 5 and 8, each of which consists of a vertical section and an end view of one particular sleeve or bung.

Figure 1 shows a sleeve having a cylindrical portion 10 and a flat circular wall 12 at one end.

45 Figure 3 shows a bung comprising a frusto-conical main portion 16 having a flange end 18.

5

Figure 5 shows a sleeve in which the sleeve portion 22 has a flared outer surface 24, again to assist in removal of the sleeve from a pipe end.

10

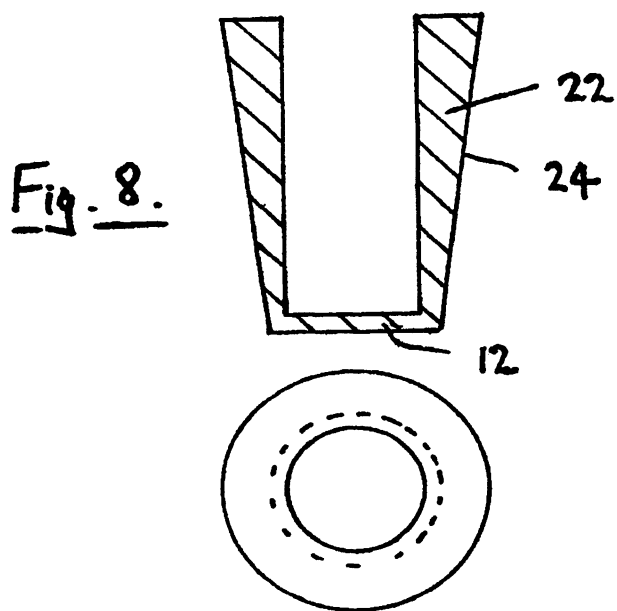
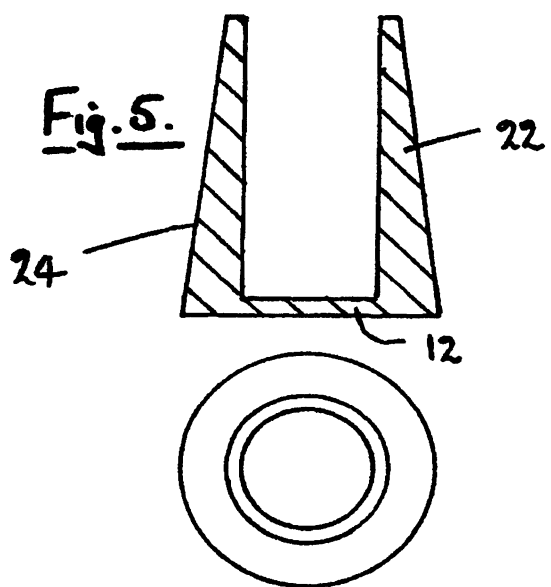
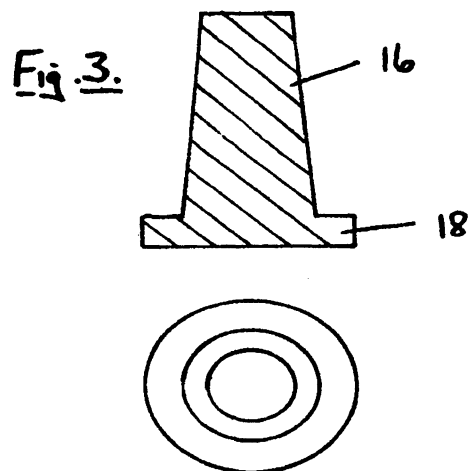
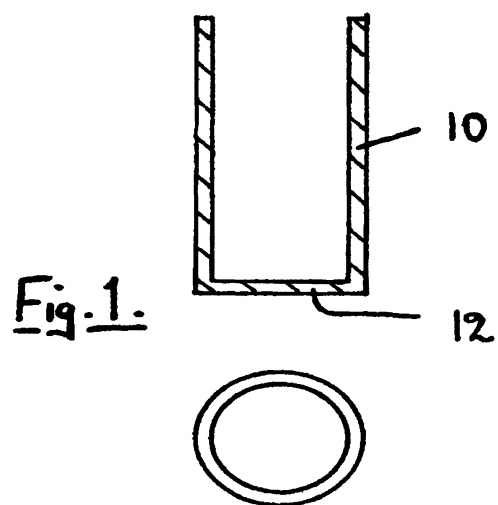
The protective pipe sleeve shown in Figure 8 is similar to that shown in Figure 5 except that the taper or flared outer surface 24 extends in the reverse direction to that shown in Figure 5.

15

All the sleeves or bungs herein are preferably made from a synthetic plastics material by an injection moulding or vacuum extraction process. A suitable material would be low-density polyethylene, although high-density polyethylene, which is more rigid, might be preferable for larger sizes of pipe protector. The range of sleeves and bungs necessary required will be based on the external diameters of pipes in general use at the time.

20

The pipe protectors herein can also be used by companies when laying of underground gas and water pipes for temporarily sealing the pipes to prevent waste matter entering them.



PLUG FOR APERTURES

It is common practice to block, occlude or stop an aperture, for example the open end of a pipe, with a tapered plug made of a soft or resilient material which is frictionally engaged into the aperture. Such plugs may be used for permanently or temporarily blocking the end of a pipe or conduit used for carrying and protecting underground electrical power lines, telephone lines and the like. The plug may permanently close the end of the pipe, prior to filling up the trench into which the pipe is lowered or, alternately, the plug may be engaged in the open end of a pipe to prevent moisture, water or dirt from being introduced into the pipe until work is resumed. When work resumes, the plug is removed and additional lengths of pipe are laid in the trench.

Plugs have been generally made in the shape of a cup that is molded from a resilient material, such as a plastic, in the form of a frusto-conical body. The plug, which is of a given nominal size, is capable of plugging apertures of various sized within a given range, or the ends of pipes or conduits of diverse internal diameters within a range. With conventional plugs there is the inconvenience that due to the relatively poor taper of the peripheral surface of their body they tend to pop out of the aperture or pipe end in which they have been forcibly inserted.

In the drawings, wherein like reference numerals refer to like or equivalent parts:

FIG. 1 represents an elevation view of a plug according to the present invention;

FIG. 2 is an end view thereof from line 2--2 of FIG. 1;

FIG. 3 is an end view thereof from line 3--3 of FIG. 1;

FIG. 4 is a sectional view thereof as seen from line 4--4 of FIG. 2; and

FIG. 5 is a schematic view showing the plug of FIGS. 1-4 in use for blocking the end of a conduit or pipe.

As shown in FIGS. 1-4, a plug according to the present invention takes the form of a hollow body 10, substantially cup-shaped, and made of a relatively resilient plastic material, such as polyethylene or the like. The plug body 10 is generally frusto-conical, or tapered from its larger diameter open end 12 to its smaller diameter end 14 which is closed by an integral end wall 16.

The larger and open end of the plug body 10 is provided with an integral outwardly projecting radial flange 18, and the end wall 16 is provided, as shown, with an integral lug or bracket 20. The cup-shaped plug body 10 has a relatively thin wall 24 (FIG. 4), so as to be substantially resilient, the thin wall 24 forming on the interior of the plug a substantially smooth frusto-conical surface 26. The plug body 10 is peripherally shaped so as to form a plurality of successive cylindrical surfaces 28, a frusto-conical surface 30 being disposed between two successive cylindrical surfaces 28. In this manner, the peripheral surface of the plug body 10 is defined by a series of such cylindrical surfaces 28 of progressively decreasing diameters from the largest diameter portion 12 of the plug body to the smallest diameter portion 14 of the plug body 10.

The plug is used to block an aperture of any diameter within a predetermined range e.g. a plug of the invention can be used, as schematically illustrated at FIG. 5, for closing the open end of a pipe or conduit, shown at 32, in a semi-permanent manner. Because the plug body 10 is made of a relatively resilient material, when the plug body 10 is forcibly pressed into the end of the pipe 32, the plug body 10 is caused to project within the pipe until a tight fit is obtained by frictional engagement (sometimes called an interference fit) between one of the cylindrical surfaces 28 and the internal bore surface 34 of the pipe 32 proximate the edge of the open end thereof. The frusto-conical surface 30 on the periphery of the plug body 10, situated immediately forward of the

5 particular cylindrical surface 28 has an appropriate diameter that permits a relatively tight fit of such
particular cylindrical surface 28 into the open end of the pipe 32. The plug is progressively and
elastically compressed at its periphery radially to enable the cylindrical surface 28 to frictionally
engage the surface of the bore 34 of the pipe 32 proximate the end thereof. The plug body 10 is
thus forcibly pressed into the open end of the pipe 32. Substantial areas of the peripheral surface
10 of the plug and the surface of the bore 34 of the pipe 32 are in engagement with each other, as
contrasted with the limited area engagement resulting from using a conventional straight frusto-
conical plug to block a pipe.

15 The progressively decreasing diameters of the cylindrical surfaces 28 have been determined as a
function of the elasticity of the material used for molding the plug body 10 and of the thickness of
the plug wall 24, such that a plug of a given nominal size is capable of securely blocking an
aperture of any diameter within a given range. Such a plug may be provided, with seven cylindrical
surfaces 28 decreasing progressively, for example, from a diameter of 110 mm proximate the
largest diameter end 12 of the plug to a diameter of 95 mm proximate its smallest diameter end 14.
20 Each pair of consecutive cylindrical surfaces 28 is separated by a frusto-conical surface 30,
approximately 6.0 mm wide.

FIG. 5 shows that electrical wires, cables and the like, which are already laid in the pipe 32, may
conveniently be tied together by means of a rope or wire, the end 36 of which may be passed
through the aperture 22 in the bracket or lug 20 integral with the bottom wall 16 of the plug body
10, and tied in a knot prior to inserting the plug body into the open end of the pipe 32. At the end of
25 a work shift, the end of cables or wires, are thus secured such that they may be retrieved at the
beginning of the next work shift. Also flange 18 provides a good and convenient grasping means
for pulling the plug free from its frictional engagement with the edge of the aperture or the internal
bore of the pipe end.

FIG. 1

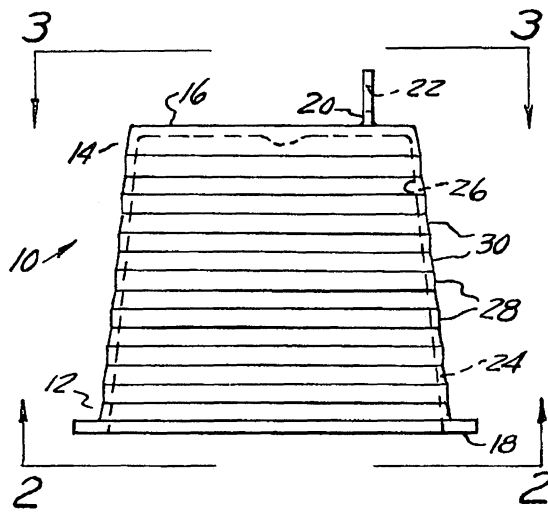


FIG. 3

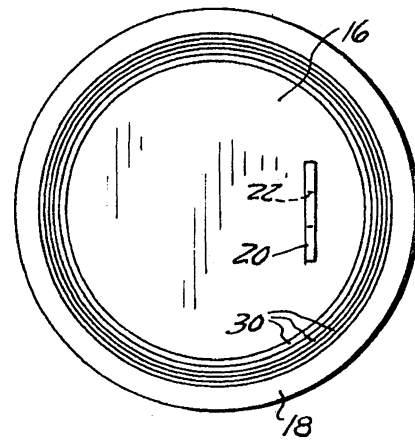


FIG. 2

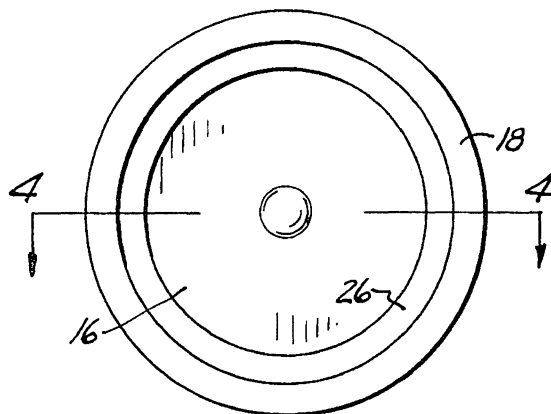


FIG. 4

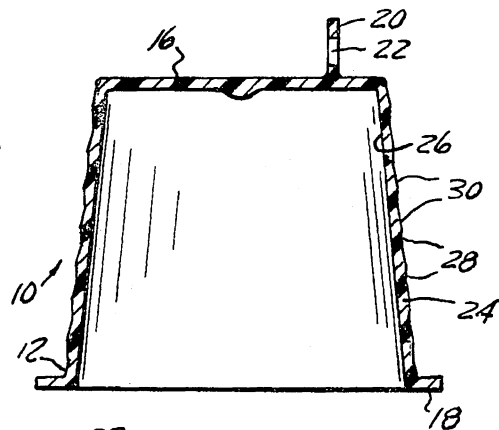


FIG. 5

