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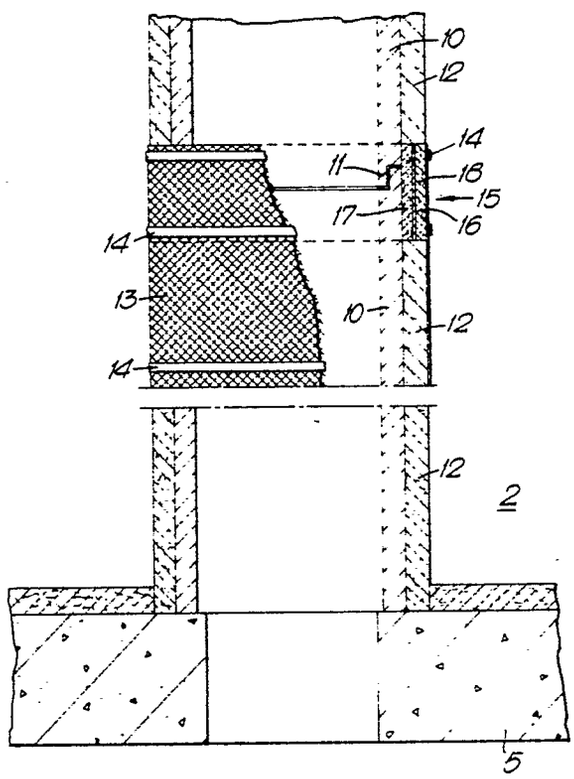
(54) Flue sealing and insulating system.

(57) A chimney flue liner section comprising a tubular member (10) having a heat insulating fibrous sheet form member (12) located therearound and having end sections (11) arranged to interfit when located one above the other. A flue sealing joint is also disclosed for locating between adjoining sections (10) of chimney flue liners, comprising a metal band (16) having at least an inner layer (17) of heat insulating fibrous material adhered thereto. Further a method of relining a chimney flue comprises locating within the chimney flue a pluraity of chimney flue liner sections one above the other, locating fire resistant jointing compound in the joints therebetween and locating a flue sealing joint therearound at each joint therebetween.

Fig.2.



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FLUE SEALING AND INSULATING SYSTEM

The invention relates to flue sealing and insulating systems and more particularly, although not exclusively, for such systems for relining chimney flues in a simple and easily achieved manner but providing good heat insulation throughout the whole flue.

In the past it has been proposed to produce a prefabricated chimney flue comprising modular elements, for example, as disclosed in United Kingdom Patent specification No. 2,156,503. However, such arrangement is intended to provide an outer chimney flue for a new structure. Problems have now been encountered, when it has become necessary to reline existing chimney flues, due to the need to chop away masonry and brickwork to gain access to the flue. This becomes an expensive,messy and time consuming exercise.

It is an object of the invention to obviate or mitigate these problems.

According to one aspect of the invention there is provided a chimney flue liner section characterised by a tubular member having a heat insulating fibrous sheet form member located therearound and having end sections arranged to interfit when located one above the other.

The tubular member may have its ends left exposed to accommodate a heat insulating joint, in use, and the insulating member may be adhered around the tubular member with fire glue.

According to a further aspect of the invention there is provided a flue sealing joint means for locating between adjoining sections of chimney flue liners,characterised by a metal band having at least an inner layer of heat insulating fibrous material adhered thereto.

An outer layer of heat insulating fibrous material may be adhered to the outer surface of the metal band. In addition a metal mesh with metal fixing straps may be located around the outer layer of insulating material.

According to yet a further aspect of the invention there is provided a method of relining a chimney flue which comprises locating within the chimney flue a plurality of flue liner sections, as hereinbefore defined, one above the other, locating fireclay or refractory cement therebetween and locating a flue sealing joint means, as hereinbefore defined therearound at each joint therebetween.

The foregoing and further features of the invention may be more readily understood from the following description of preferred embodiments thereof, by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 is a sectional view through a typical flue stack and chimney breast;

Fig. 2 is a sectional view, on enlarged scale, of the circled portion II of Fig. 1;

Fig. 3 is a sectional view, on enlarged scale, of the circled portion III of Fig. 1;

Fig. 4 is a sectional view, on further enlarged scale, of the circled portion IV of Fig. 3, and

Fig. 5 is a sectional view similar to Fig. 4 but of an alternative arrangement.

Referring now to the drawings there is shown a brick flue stack 1 located above a chimney breast 2 and topped with a chimney pot 3. A concrete lintel 4 is located above the chimney opening 5 in chimney breast 2 and a precast concrete coping 6 is located at the top of flue stack 1 beneath pot 3 with a damp proof course tray 7 located therebetween.

The lining comprises a plurality of tubular liner sections 10 made of fire clay and formed to overlap at ends 11 thereof. A heat insulating fibrous sheet form member 12 is adhered around each section 10 with end portions 11 left exposed. A layer of metal mesh 13 may be located around each member 12 with metal fixing straps 14 located there-around.

A heat insulating and sealing joint 15 (Fig. 4) is located around the ends 11 of each adjacent pair of sections 10. Each such joint 15 comprises a galvanised metal band 16 with an inner layer 17 and an outer layer 18 of heat insulating fibrous sheet adhered thereto. Metal mesh 13 and metal fixing straps 14 are also located around outer layer 18.

Fig. 5 shows an alternative form of joint 15′ in which the band 16′ merely has an inner layer 17′ of insulation adhered thereto but of the same thickness as that of layers 12 on element 10. In this arrangement the ends of band 16′ overlap the ends of layers 12 on element 10.

When two pipe sections are joined normally with a refractory cement, or putty, the material hardens initially by air drying and later irreversibly when the flue members attain the temperature of the hot flue gases. In this final baked state the cement is non-resilient and settlement movements tend to cause cracks which, in some cases, can lead to flue gas leakage. In this present method of insulating both pipes and joints it has been found that the brittleness of a fireclay joint can be greatly reduced if it is reinforced with mineral fibres and this is attained, not by adding chopped fibres to the fireclay or refractory cement but by employing the layer of fireblanket 17 on the inner surface of the band 16 of galvanised steel. In use therefore the sections 10 are abutted together with fireclay jointing, or filled sodium silicate cement e.g. "Pyruma"

(trade name) and the extruded excess is not scraped off. Instead the joint is made by the use of the inner fibre lined band 16 and 17 and the metal tensioning straps 14.

During this procedure the excess fireclay, or Pyruma (trade name) is compressed and forceably spread into the mineral fibre blanket 17 within band 16 and this further constitutes a mineral fibre/fireclay reinforced shield around the joint. It has been found that this connecting method produces a joint which is resilient to both vibration and building settlement. In addition since the flue is insulated over its complete length, cold spots are prevented thus reducing condensation.

When it is required to reline an existing flue a section 10 is located on a sling and lowered into the top of the flue stack 1, a second element 10 is engaged therewith and a joint located therearound. This is continued until a bend in the stack 1 is encountered, at which location it is necessary to chop away such portions of the stack 1 to insert angled lining sections of similar make-up to the straight sections 10. Such a method is still quicker and cheaper than having to chop away the complete stack height.

Claims

1. A chimney flue liner section characterised by a tubular member (10) having a heat insulating fibrous sheet form member (12) located therearound and having end sections (11) arranged to interfit when located one above the other.

2. A liner as claimed in claim 1 characterised in that the member (10) has its ends (11) left exposed to accommodate a heat insulating joint (Figs. 4 or 5).

3. A liner as claimed in claim 1 or 2 characterised in that the insulating member (12) is adhered around the tubular member (10) with fire glue.

4. A flue sealing joint means for locating between adjoining sections (10) of chimney flue liners, characterised by a metal band (16, 16′) having at least an inner layer (17) of heat insulating fibrous material adhered thereto.

5. A flue sealing joint means as claimed in claim 4 characterised by an outer layer (18) of heat insulating fibrous material adhered to the outer surface of the metal band (16).

6. A flue sealing joint means as claimed in claim 5 characterised in that a metal mesh (13) with metal fixing straps (14) are located around the outer layer (18) of heat insulating fibrous material.

7. A method of relining a chimney flue characterised by locating within the chimney flue a plurality of chimney flue liner sections, as claimed in any one of claims 1 to 3, one above the other, locating fireclay or refractory cement in the joints therebetween and locating a flue sealing joint means as claimed in any one of claims, 4, 5 or 6 therearound at each joint therebetween.

Fig.1.

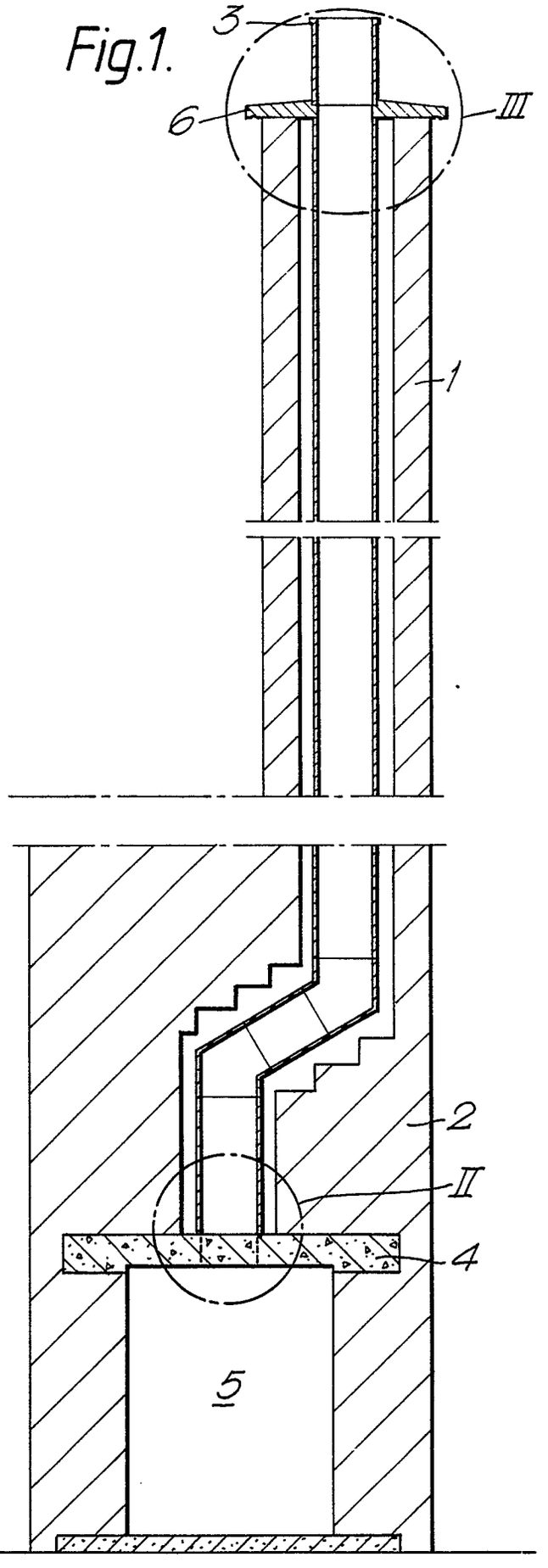

Fig.2.

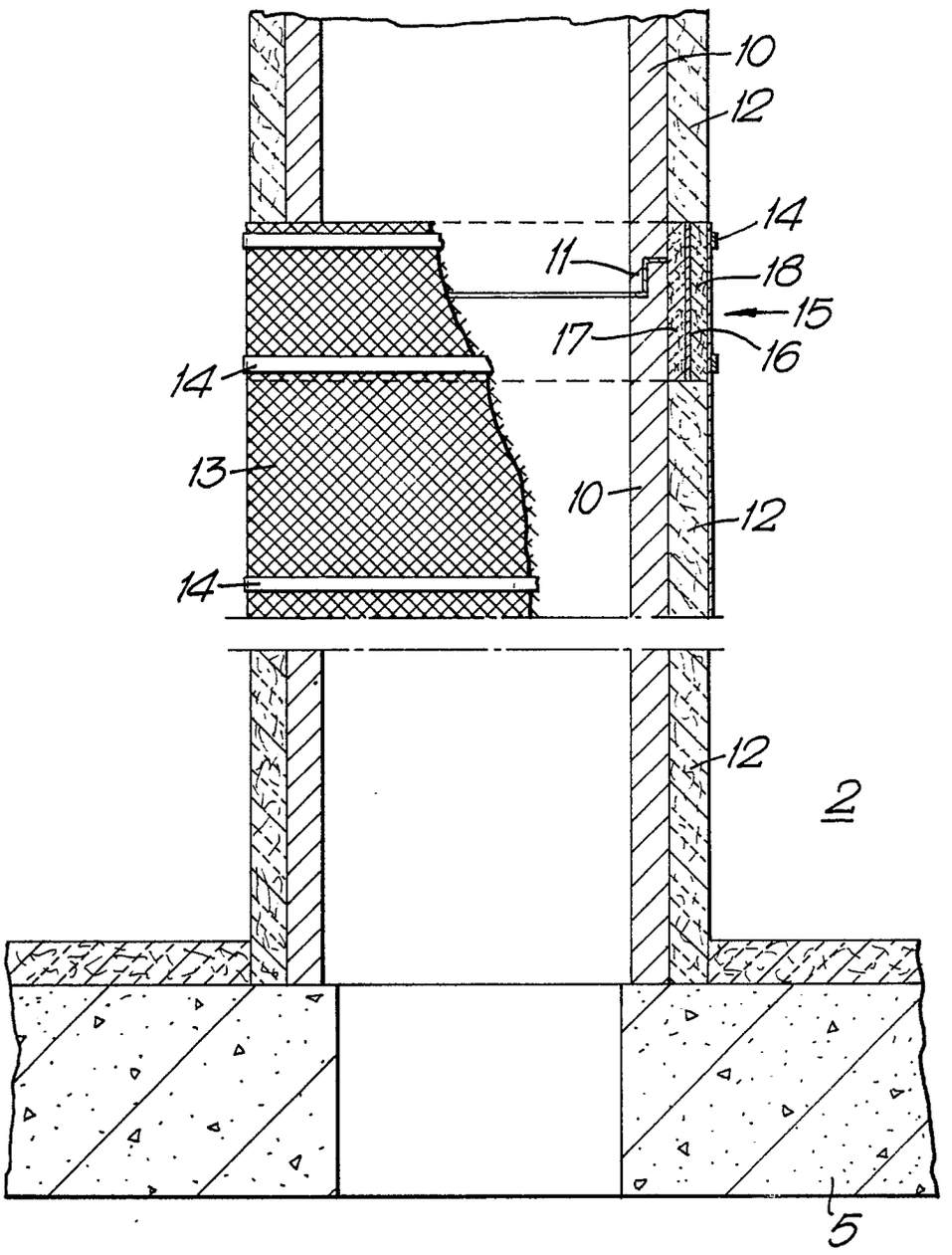

Fig. 3.

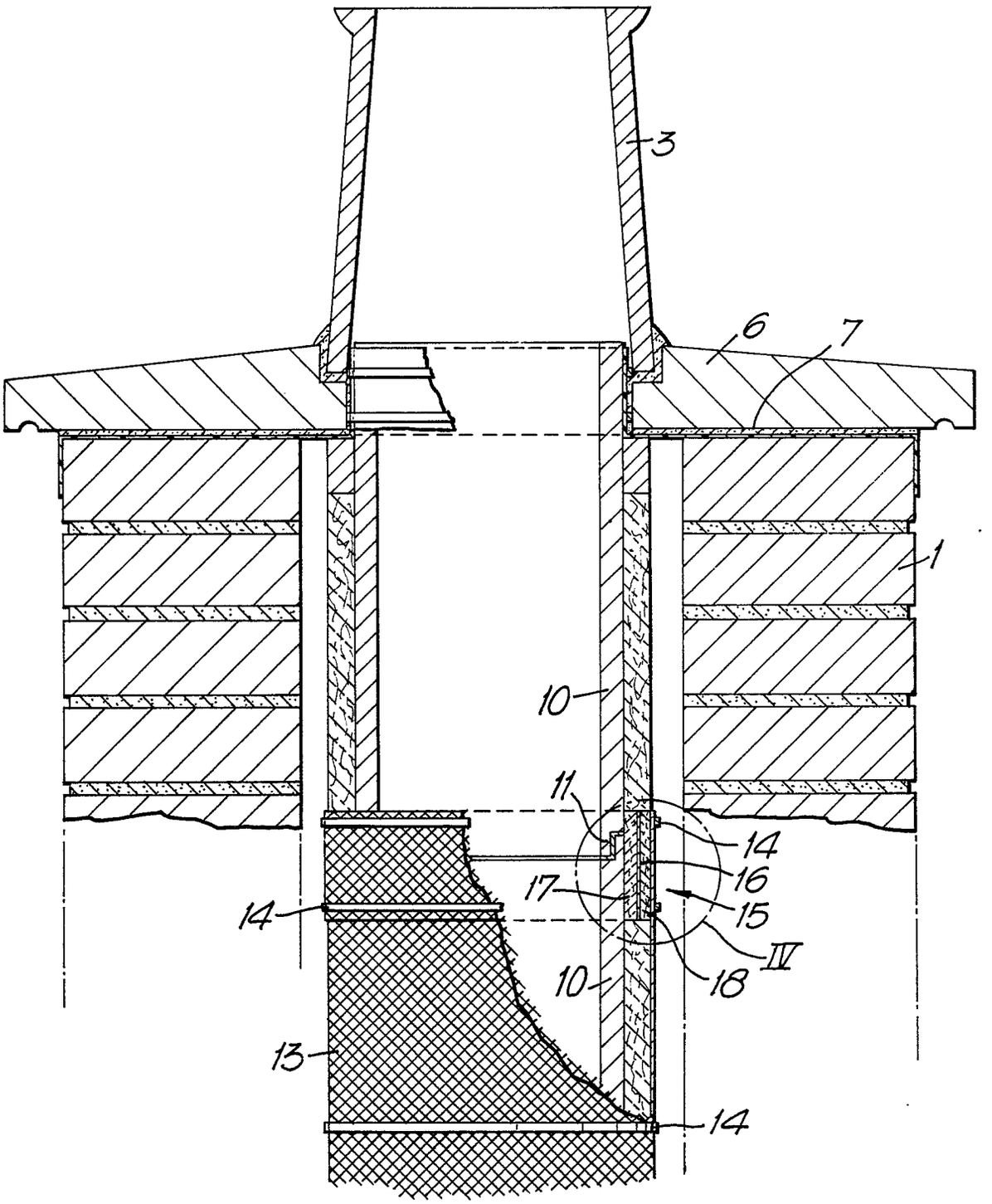

Fig.4.

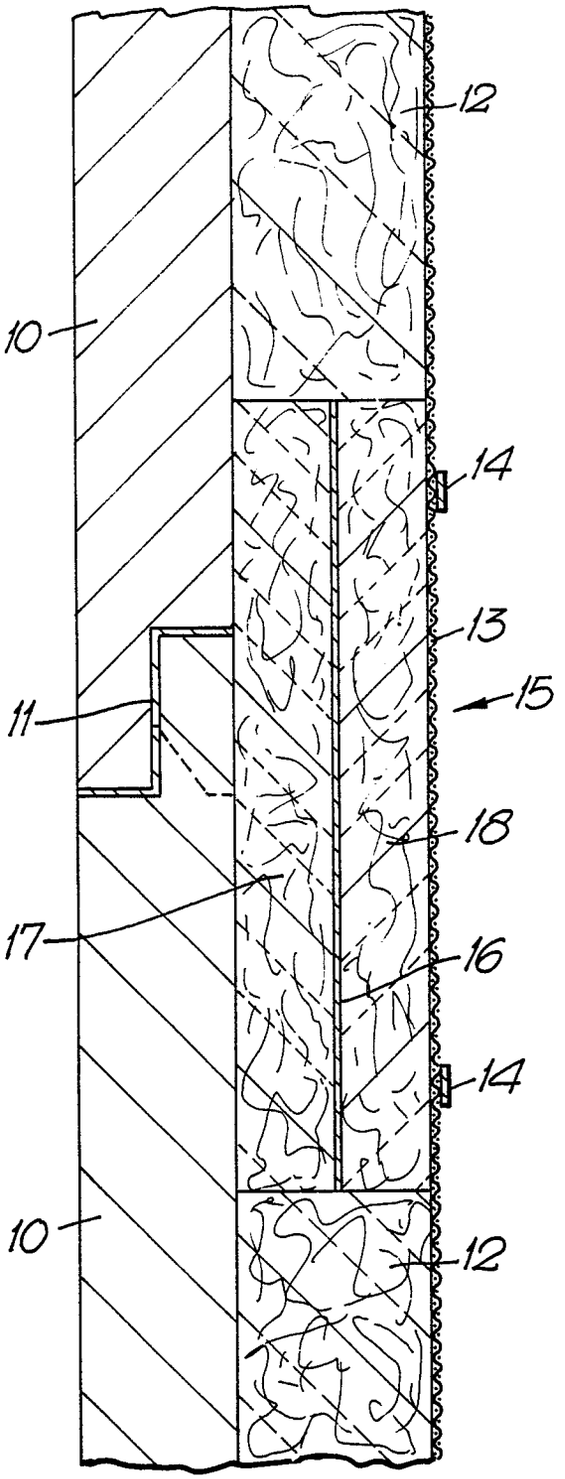

Fig.5.