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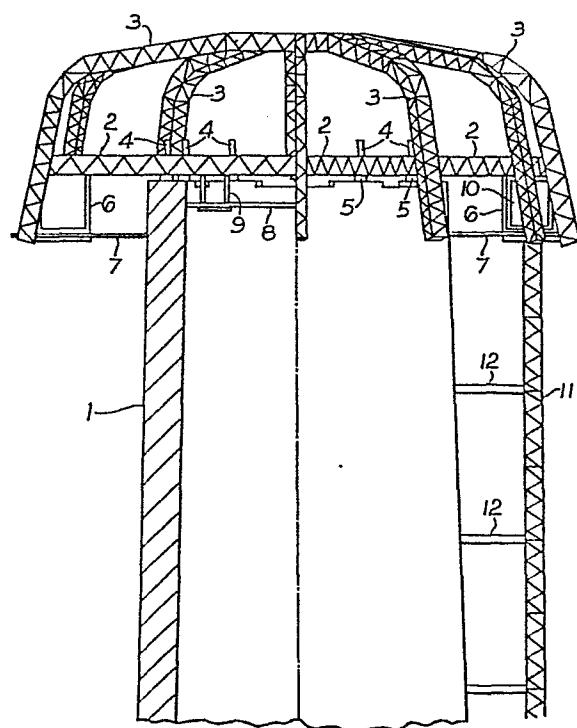
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54 Improvements in the piecemeal demolition of chimneys.

57 Factory and power-station chimneys are demolished in a piecemeal manner by having erected or placed on the rim of the chimney a rig comprising a plurality of radiating arms (2) and a jack (4) mounted on each arm (2) and adjustable therealong with a supporting foot (5) under the arm (2) in contact with the chimney rim. The rig also comprises a substantially annular platform (7) underslung from the spider from which operatives can remove the fabric of the chimney. The fabric is removed from under the feet (5) of alternate jacks (4) and then these feet (5) are lowered into supporting contact with the newly-presented surface there-under. The same is repeated with the intermediate jacks (4) and so on. Preferably, a covering structure (3) is supported by the arms (2) of the spider.



IMPROVEMENTS IN THE PIECEMEAL DEMOLITION OF
CHIMNEYS

DESCRIPTION

5 This invention relates to improvements in the piecemeal demolition of chimneys made of concrete, brick, steel, etc.

10 In the demolition of factory and power-station chimneys which have become superfluous to requirements, the simplest method is to use explosives in a controlled manner. However, when adjacent property has to be protected from damage the use of explosives is not possible and it is then necessary to demolish the chimney piecemeal from the top. The usual method of obtaining access to the top of the chimney is to ^{erect} scaffolding around the chimney from ground level or alternatively to erect flying scaffolding attached to the chimney. In the use of scaffolding erected from ground level it is necessary to dismantle the scaffolding gradually from the top as the demolition work progresses. In the use of flying scaffolding it is necessary to completely dismantle the scaffolding and re-erect it at lower levels as the demolition progresses. Both methods are labour-intensive and hazardous to personnel.

20 An object of the present invention is to obviate or mitigate the above disadvantages.

25 According to one aspect of the invention there is provided a rig for use in the piecemeal demolition of chimneys, the rig comprising a spider having a plurality of radiating arms, a jack mounted on each arm and adjustable therealong and having a supporting foot under the arm, and a substantially annular platform underslung from the spider.

30 According to another aspect of the invention there is provided a method of piecemeal demolition of chimneys, comprising the steps of either erecting or placing on the top of a chimney the above rig with the spider supported, via the jacks, on the rim of the chimney and with the substantially annular platform adjacent either the outside or the inside of the wall of the chimney,

removing the fabric of the chimney from under the feet of alternate ones of the jacks so as to form a castellated upper edge of the chimney, lowering the feet of the alternate jacks into supporting contact with the newly presented surfaces thereunder, removing the fabric of the chimney from under the feet of the intermediate ones of the jacks, lowering the feet of the intermediate jacks into supporting contact with the newly presented surface thereunder, and repeating the steps of removing the fabric of the chimney and lowering the feet of the jacks.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawing showing a chimney, partially in elevation and in section, surmounted by a rig shown partially in section.

In the drawing, a chimney 1 is surmounted by a rig comprising a spider having twelve radiating arms 2 interconnected at their outer ends, and each in the form of an aluminium lattice-work box beam. The arms 2 support at their outer ends twelve modular arch members 3, each module being also in the form an aluminium lattice-work box beam, the arch members 3 forming a framework of a dome or igloo-type of structure. Each arm 2 has a hydraulic jack 4 adjustable therealong with a supporting foot 5 in contact with the rim of the chimney. Underslung from the arms 2 via substructures 6 at the outer ends of the arms is a substantially annular sectional platform 7, the sections of which are designed to surround and be contiguous with the outside of the chimney wall. The sections of the platform 7 are slidable within the substructures 6 to accomodate the taper in the outside of the chimney wall. Inboard of the chimney rim an adjustable barrier or membrane 8 is underslung from the arms 2 via substructures 9. Flexible edge seals may be provided for the sections of the platform 7 and the barrier or membrane 8 to contact the outside and inside of the chimney wall. Communication between the platform 7 and the ground is by means of a cage 10

which can run up and down a modular lattice-work mast 11
secured to the outside of the chimney wall by outriggers 12.
The cage 10 may be driven up and down the mast 11 by a rack-
and-pinion system. The rig is covered by a tough flexible
5 plastics cover (not shown) which extends down to the platform 7,
handraild being provided within the cover for the safety of
personnel.

The rig may be either erected or placed substantially
as a whole on the rim of a chimney by using a helicopter or
10 a hoist mounted on top of the chimney to lift either parts or the
whole of the rig as appropriate. When ready for use the
operatives work from the platform 7 and remove the fabric of
the chimney from under the feet 5 of alternate ones of the jacks
4 so as to form a castellated upper edge of the chimney. Then
15 the feet 5 of the alternate jacks 4 are lowered into supporting
contact with the newly presented surfaces thereunder and the
fabric of the chimney is removed from under the feet 5 of
the intermediate jacks 4 and these feet 5 are lowered into support-
ing contact with the newly presented surface thereunder. The
20 steps of removing the fabric of the chimney and lowering the feet
5 of the jacks 4 are repeated as necessary. With brick-built
chimneys it has been found more convenient to remove the bricks
course-by-course so that as the bricks are removed the upper
edge of the chimney is alternately castellated and level.

25 As the demolition work progresses the taper of the chimney
is accomodated by adjustment of the jacks 4 along the arms 2,
adjustment of the sections of the platform 7 and adjustment of
the barrier or membrane 8. The removed fabric of the chimney
is prevented from falling into the chimney by the barrier or
30 membrane 8 and is disposed of via the cage 10.

Some chimneys have stainless steel liners spaced inwardly
from the inside of the chimney proper. In order to provide access
to the annular space between the liner and the inside of the
chimney proper, an annular platform is underslung from the arms

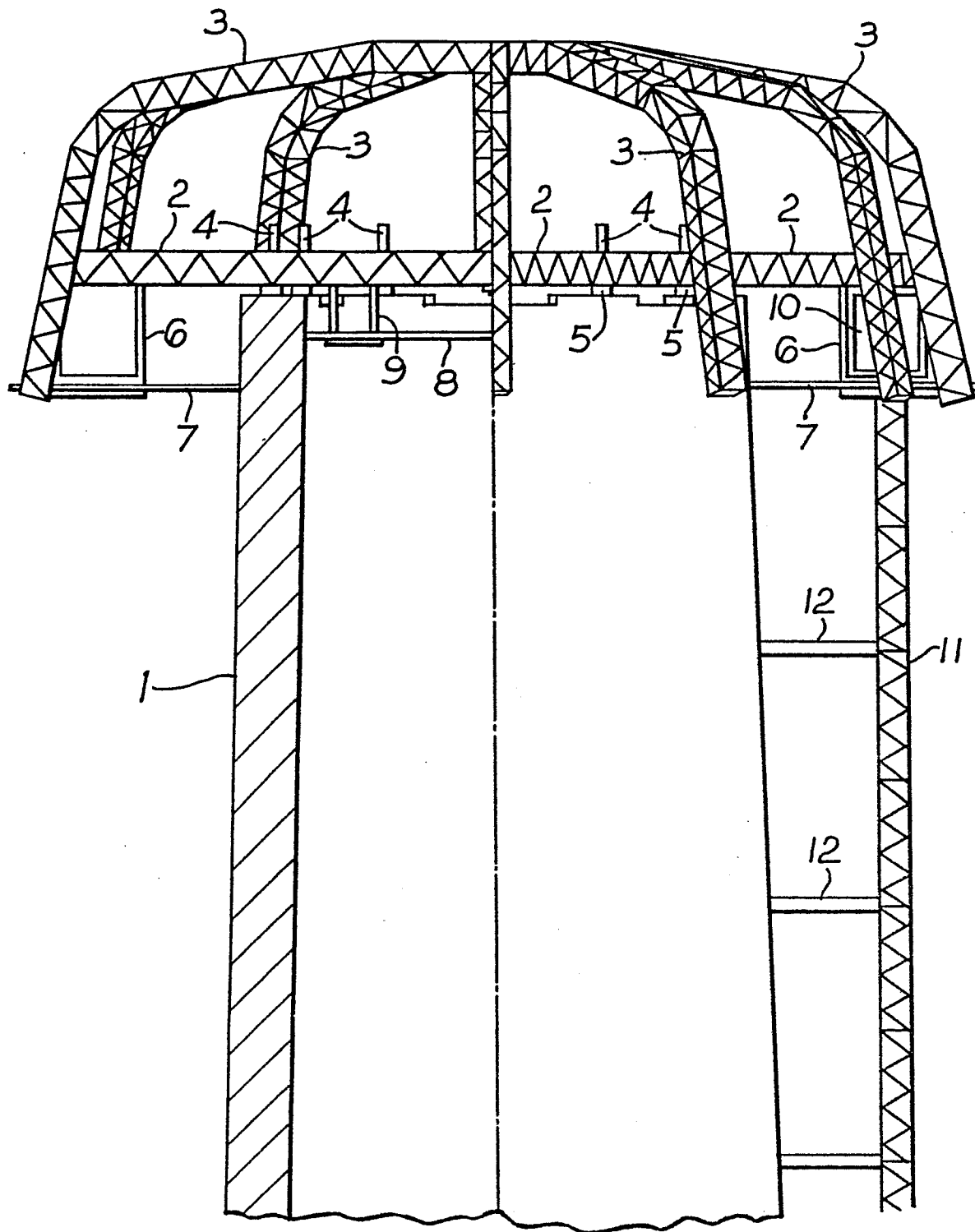
of the spider via substructures inboard from the outer-ends of the arms to enter such space, steps being provided leading to the underslung platform from an upper and outer annular platform on the outer ends of the arms of the spider and
5 extending beyond the edge of the chimney so that a hoist arrangement can be fitted in a similar manner to that shown in the drawing.

A source of power supply and facilities are provided within the covered rig to maintain controlled working conditions
10 and afford service and messing facilities for the operatives. Service tappings are available at suitable voltage from the power supply for tools, general illumination and aircraft warning lights mounted atop the rig, thus allowing the main chimney lights to be removed from the chimney prior to commencement of
15 demolition. The rig thus enables demolition work to be continued irrespective of weather conditions. However, in high winds wire ropes may be provided from the rig to the ground and be adjustably tensioned from the rig.

CLAIMS

1. A rig for use in the piecemeal demolition of chimneys, the rig comprising a spider having a plurality of radiating arms, a jack mounted on each arm and adjustable therealong and having a supporting foot under the arm, and a substantially annular platform underslung from the spider.
2. A rig according to claim 1, wherein the annular platform is underslung via substructures at the outer ends of the arms.
3. A rig according to claim 1, wherein the annular platform is underslung via substructures inboard from the outer ends of the arms, and a second outer annular platform is provided on the outer ends of the arms with access between the two annular platforms.
4. A rig according to claim 1, 2 or 3, comprising a covering structure supported on the outer ends of the arms.
5. A method of piecemeal demolition of chimneys, comprising the steps of either erecting or placing on the top of a chimney a rig according to any preceding claim with the spider supported, via the jacks, on the rim of the chimney and with the substantially annular platform adjacent either the outside or the inside of the wall of the chimney, removing the fabric of the chimney from under the feet of alternate ones of the jacks so as to form a castellated upper edge of the chimney, lowering the feet of the alternate jacks into supporting contact with the newly presented surfaces thereunder removing the fabric of the chimney from under the feet of the jacks, lowering the feet of the intermediate jacks into supporting contact with the newly presented surfaces thereunder, and repeating the steps of removing the fabric of the chimney and lowering the feet of the jacks.
6. A rig for use in the piecemeal demolition of chimneys, substantially as hereinbefore described with reference to the accompanying drawing.
7. A method of piecemeal demolition of chimneys,

substantially as hereinbefore described with reference to
the accompanying drawing.





European Patent
Office

EUROPEAN SEARCH REPORT

0133630
Application number

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3) EP 83 30 4559
A	US-A-4 068 895 (REESE)		E 04 G 23/08
A	US-A-2 710 418 (PUTNAM)		
A	GB-A-1 063 027 (SIEMENS-BAUUNION)		
A	GB-A-1 141 015 (GLEITSCHNELLBAU)		
			TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
			E 04 G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 29-03-1984	Examiner VIJVERMAN W.C.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	