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(56) Documents cited
GB A 2065191 GB A 2001374
GB A 2048360 GB 1561777
GB A 2032510 GB 1530980
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(58) Field of search
E1D
E1A

(54) Roof panels for a breeding and/or cultivating system

(57) The invention provides a mobile breeding and/or cultivation enclosure having free-standing units (14) supporting a roof framework (11) which in turn supports a roof. The roof is made up of an array of panels (2) that are placed side-by-side and provided with ducts running across the roof, heat insulating material (4), a base (6), a layer of glass (5) and profile ties 3.

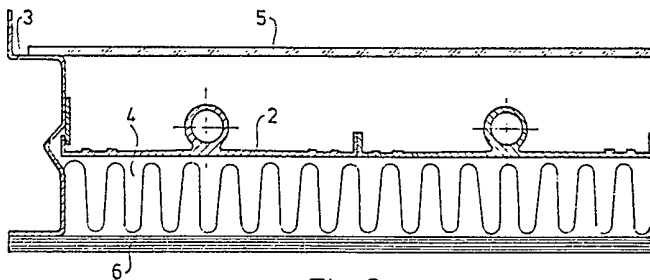


Fig.3

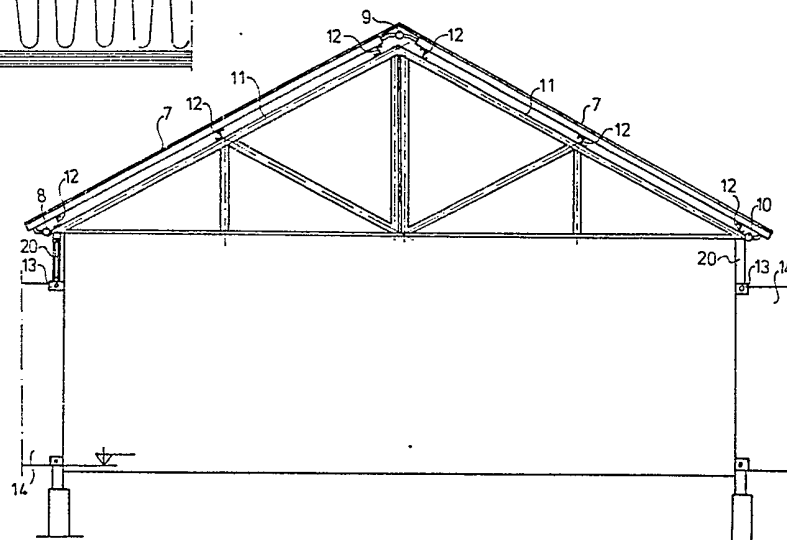


Fig.6

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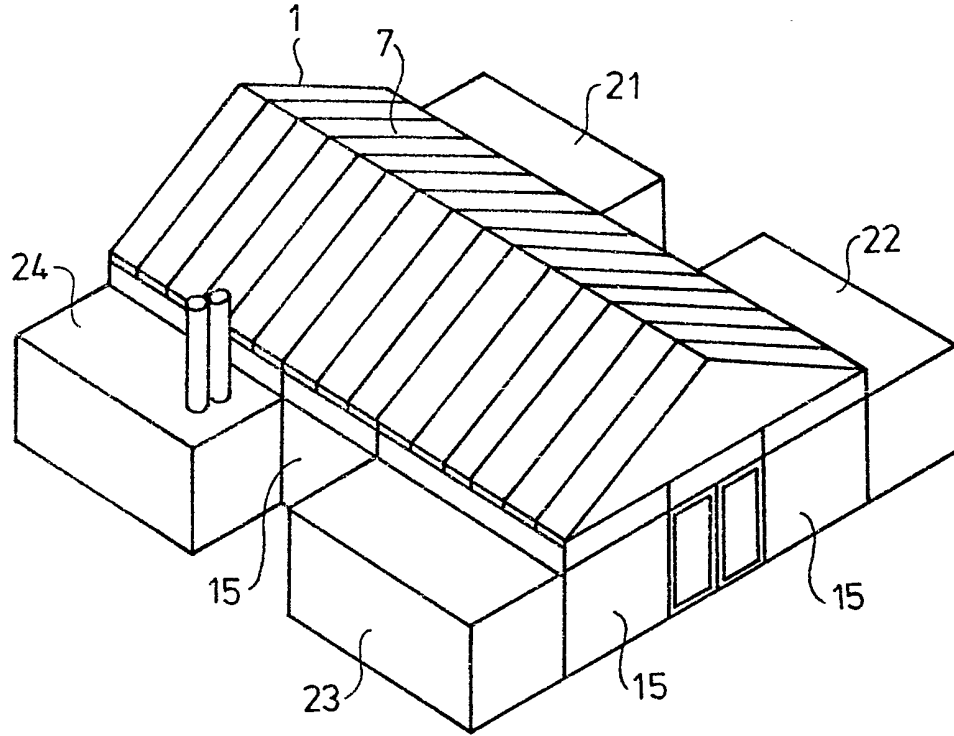


Fig. 1

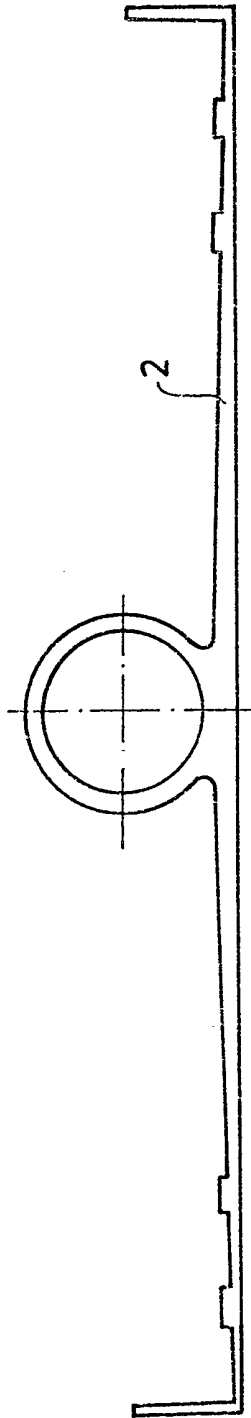


Fig. 2

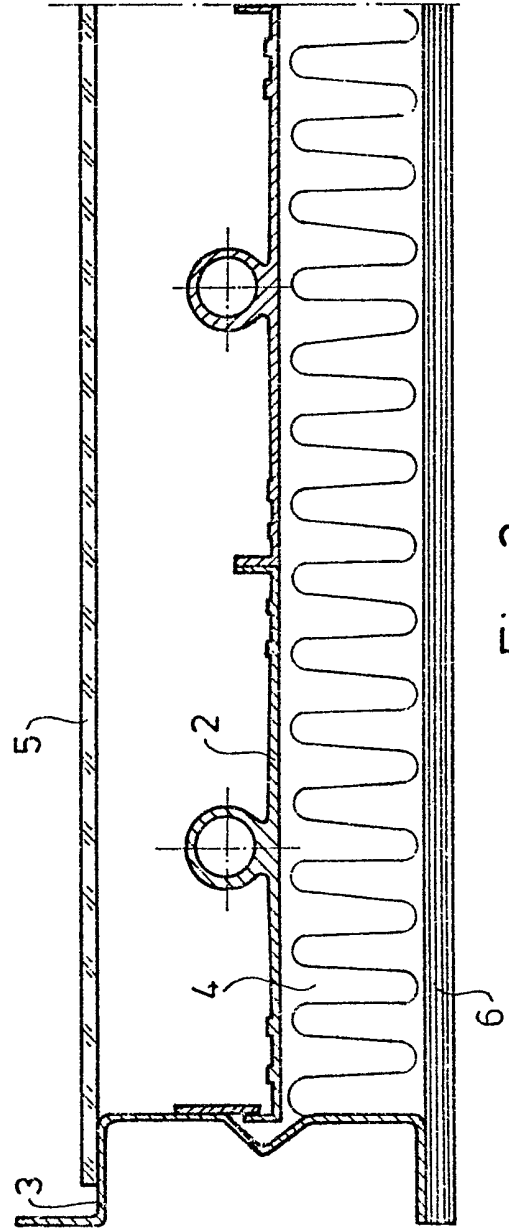


Fig. 3

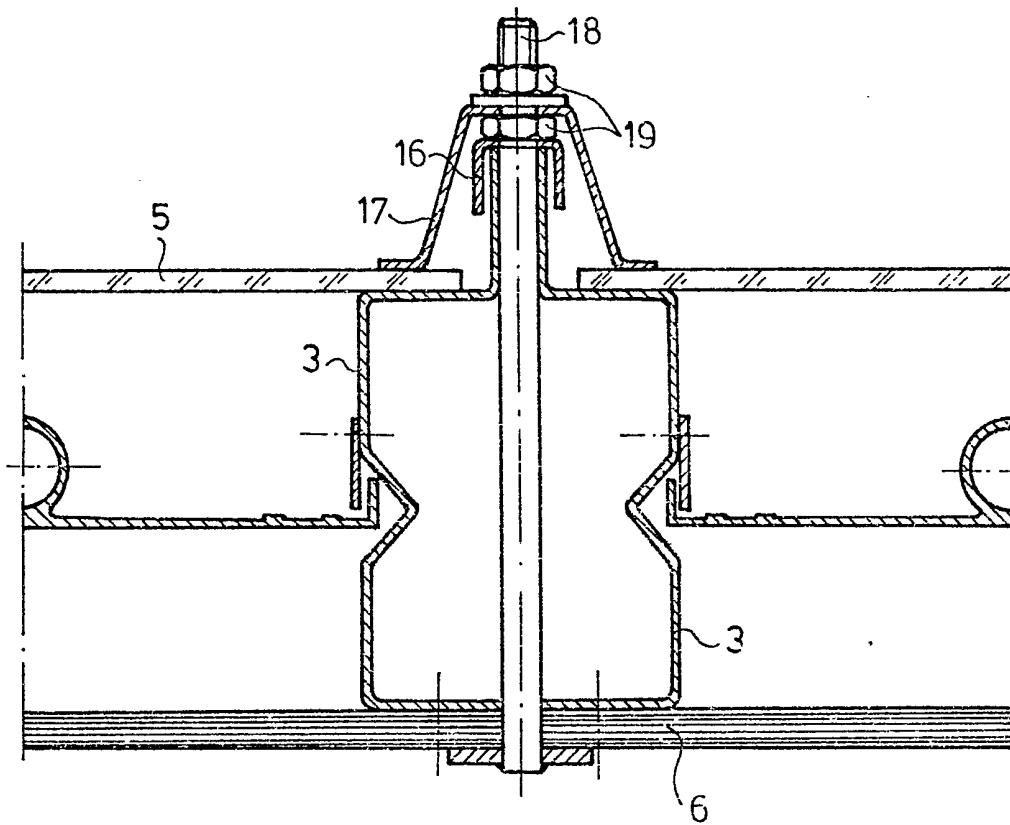


Fig. 4

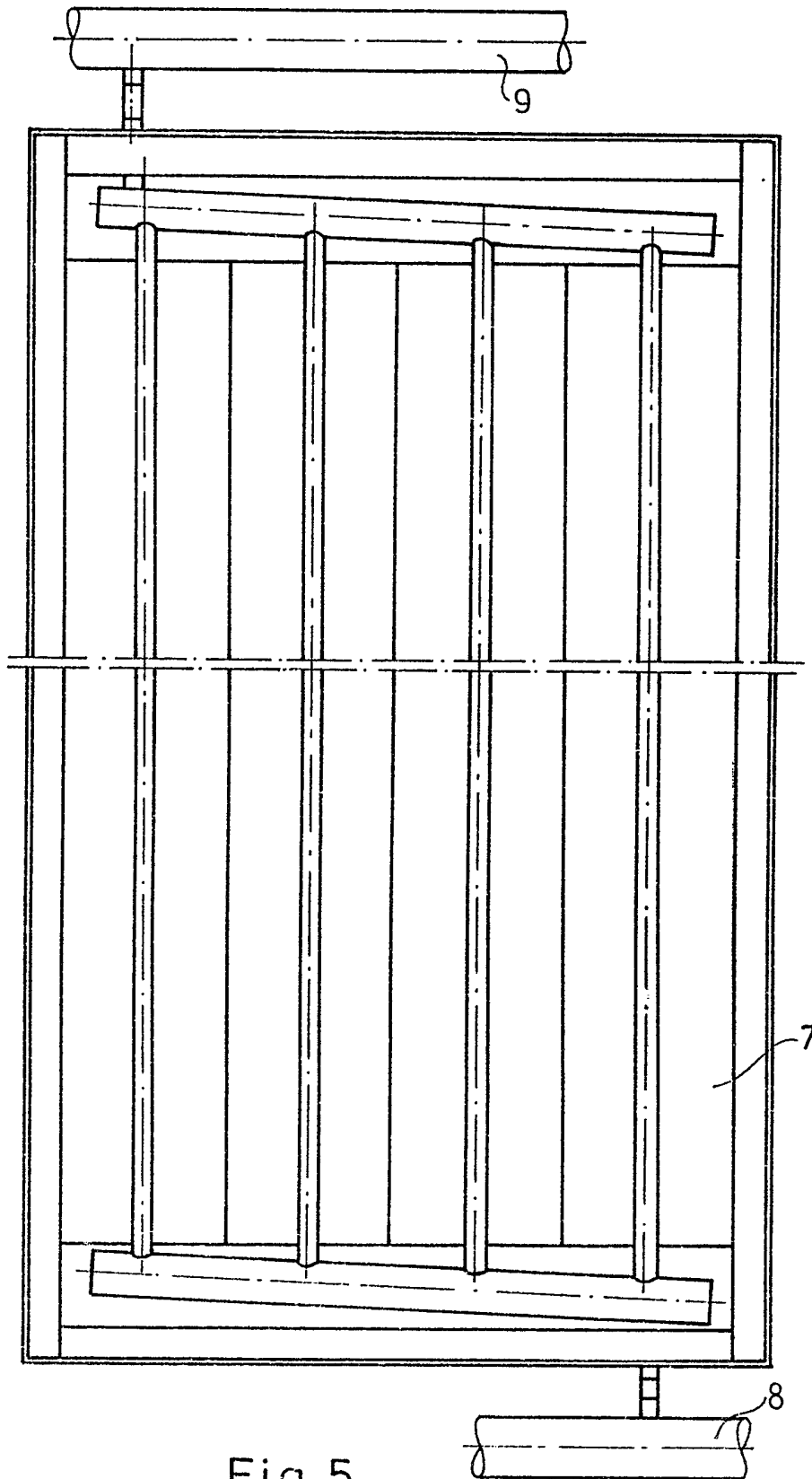


Fig. 5

SPECIFICATION

A mobile breeding and/or cultivating system of low power and water consumption

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Background of the invention

This invention relates to a mobile breeding and/or cultivating system of low power and water consumption composed of modular elements, said system comprising operating and ancillary units provided with a common roof construction.

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The general efforts tending to satisfy the worldwide increased demands of nutrition are well-known. In view of the given local conditions this demand the setting up of different projects related almost in every case to the preparation of the grown vegetables and/or of the fruterries or to the production of different kinds of meat.

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For the most part, the demanding parties do not possess either the workable buildings necessary for the project or the background industry required to their execution or the necessary technology and their devices. These circumstances require the delivery of the devices from long distances as well as their rapid setting up on the given sites.

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As practices till now, different buildings of light steel construction and of light elements have been applied. In these cases the auxiliary appliances or rather the devices and the equipment of the technology have been installed either within the certain types of buildings or separately. The disadvantage of this practice was the traditional character of the buildings that produced inflexibility of application as well as elaborateness and costliness the system.

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It is well-known that according to practices the first propagating settlements are for example individually planned where the said traditional constructions are used.

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Because of the individual planning and construction the disadvantage of these solutions is that they are expensive, both their structure and technology are inflexible.

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The building up and running of the traditionally operating fish-propagating settlements are especially difficult in those countries which are compelled to develop their aqua-culture without any industry-technology background depending on imported equipment. The conformity between the locally erected buildings and the technological devices supplied by numerous suppliers could hardly be guaranteed not mentioning the difficulties arising during delivery and mounting.

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Due to the compromises coming from the said situation, the best satisfaction of the demands of kinds of fish to be bred cannot be realized in general, that is why the propagation and breeding indexes are lower than those attainable and finishing time of the settlement is long, too.

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Object of the present invention is to provide a structure that helps to realize buildings and technologies for different kinds of production, breeding-propagating tasks which could be economically operated with a view to energy.

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Another object is to ensure that when the demand arose the building and putting the settlement into

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operation could be arranged within a short time, at low costs with the possibly minimum ground and opening work.

Still a further object is to satisfy the widest expectations regarding both the capacity and technology as well as to promoted water and energy saving technologies.

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Summery of the invention

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In accordance with the present invention, a mobile breeding and/or cultivation system is provided, which is of low power and water consumption consisting of modular elements, said system comprising operating and ancillary units provided with a common roof construction consisting essentially of trays provided with at least one pipe, heat insulating layer and base plates being arranged below and glass plates being arranged over said trays wherein said elements of the roof construction are clamped together by profile ties, which may be bolt up by distance pieces and the pipes of the trays are connected to a common circulation system.

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The roof construction may be supported by a framework, which is fixed to the operating and ancillary units and wall elements by supports.

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The invention is based on the recognition that for example the devices of the technology of fish-breeding and/or propagating settlements could be established in transportable, plantable units in a way that they are simultaneously the mounting bases of the structure, the module-system of the trussing is an integral part of heat and water exploitation. This recognition could form up every part of the building to the part of the technology, consequently not only the construction will become mobile but it ensures the obtaining of the outlined purposes.

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Respectively, the invention is a construction made up of such module-parts which is favourably applicable for the implementation of production and/or breeding processes requiring heat and water in big quantities. Using the construction of the invention not only the supplemental plant-units necessary for the procedure could be quickly and easily placed /such as calorific, water and air providing, testing-analysing units or the social and other premises of attendants/ the common trussing of the units constitutes an integral part of the heat and water exploitation. The roof is made up of trays built together with pipelines and of self-supported end-locking devices connected to those pipelines.

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In the closed space made by them under the trays there is a heat-insulating section and the elements are boarded on the bottom by carrier baseboard, expediently chipboards of cement binding and on the top by glass.

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The setting elements of trussing modules carry the roofing-elements while the trussing modules are mounted to the corner elements of mobile units by distance circuit releasable fastening. The space between the mobile units is also formed by space-limited mounted elements to the corner points with releasable fastening.

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Further advantage of the construction is that fastening to each other of self-supporting end-locking devices is threaded only at one end, at the

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other end it is ensured by lock cap on the socketed distance fastener then by the fastening cone caught by the fastening screw units.

5 *Brief description of the drawings*

Figure 1 is a rough-sketch appearance of the working unit from top view,

Figure 2 is the tray of roofing element, pipe-formed in the middle in rough sketch, section-plan.

10 *Figure 3* shows in section plan the execution of the built-up roofing-element,

Figure 4 is the mounted form of the roofing element in *Figure 3*, also in section plan in rough-sketch

15 *Figure 5* is the roofing element in top view and *Figure 6* shows in mounted position of the mobile and modul trussing in rough sketches, front view.

Description of the preferred embodiments

20 *Figure 1* of the invention illustrates the suitable building and layout formed from the mobile and module structure, where the roof construction 1 is formed by self-supporting roof-elements 7.

The mounted roof construction 1 is arranged on 25 mobil-units 21, 22, 23 and 24. These units may be social units, laboratory units, for water technology or compressed air centres or heating. The roof construction 1 is connected to said units by supports 15.

The energy saving roof construction of the mobile 30 and modular construction according to the invention is made of trays 2 illustrated in *Figure 2*. The trays 2 are arranged side-by-side above heat-insulating layer 4 placed on base plates 6 which are cement-bonded chipboards. The elements are connected to 35 each other by self-supporting profile ties 3. Glass-plates 5 are arranged on the top of the elements.

The units mounted in this way are held by distance-pieces 18 in such a manner that the profile ties 3 are held together with fastening caps 16 40 between nuts 19. Fastening cones 17 are also held by the nuts 19.

The self-supporting roof elements 7 formed in such a way and illustrated on *Figure 5* are connected to the heat-saving system through circulating pipes 45 8 and 9.

Figure 6 illustrates the set up of the roof construction 1 in accordance with the invention where fastening elements 12 carrying the self-supporting roof elements 7 are arranged on a framework 11 50 which is coupled to the supports 20 connected to corner elements 13 of the self-supporting mobile-units 14.

CLAIMS

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1. A mobile breeding and/or cultivating system of low power and water consumption consisting of modular elements, said system comprising operating and ancilliary units provided with a common roof 60 construction consisting essentially of trays provided with at least one pipe, heat insulating layer and base plates being arranged below and glass plates being arranged over said trays wherein said elements of the roof construction are clamped together by profile 65 ties.

2. The system as claimed in claim 1, wherein the profile ties are bolt up by distance pieces.

3. The system as claimed in claim 1 or claim 2, wherein the pipes of the trays are connected to a 70 common circulation system.

4. The system as claimed in any of claims 1 to 3, wherein the roof construction is supported by a framework.

5. The system as claimed in claim 4, wherein the 75 framework is fixed to the operating and ancilliary units and wall elements by supports.

6. A breeding and/or cultivation enclosure, which comprises free-standing units, and a roof supported by the units which roof comprises an array of panels 80 provided with integral ducts, heat insulating material located below the panels and a transparent or translucent material located above the panels.

7. An enclosure as claimed in claim 6, wherein the panels are made of or covered with dark heat 85 absorbing material.

8. An enclosure substantially as hereinbefore described in connection with *Figures 1* to *6* of the accompanying drawings.