Oct. 8, 1940. C. H. HERMODSSON 2,217,115

METHOD OF BUILDING HOUSES

Filed July 16, 1938 2 Sheets-Sheet 1

Fig. 1.

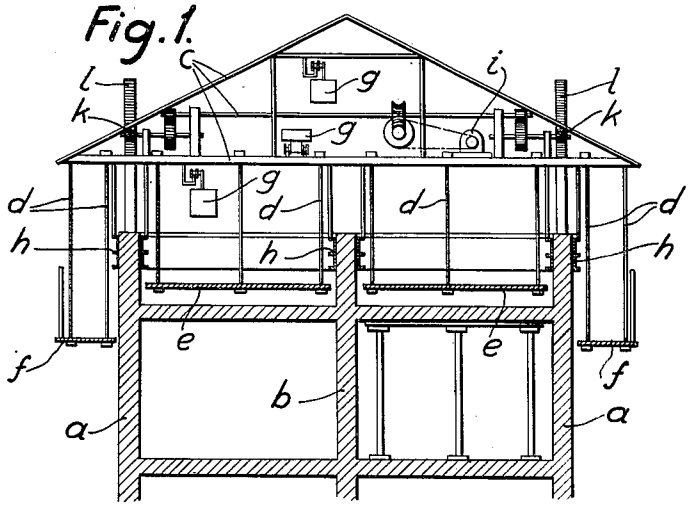


Fig. 2.

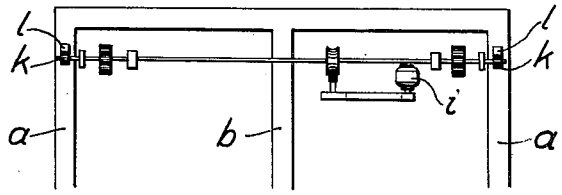
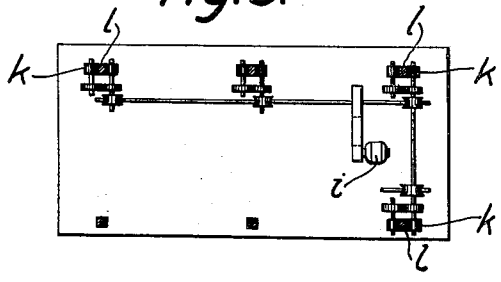


Fig. 3.



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Filed July 16, 1938 2 Sheets-Sheet 2

Fig. 5.

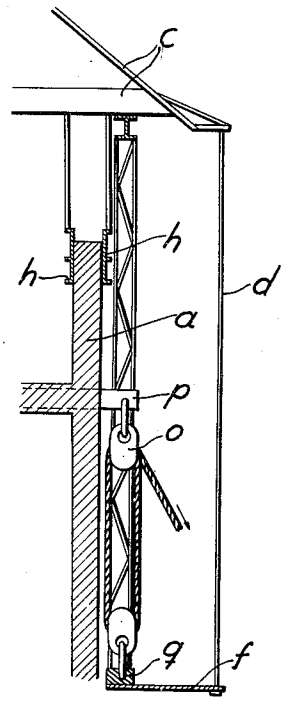
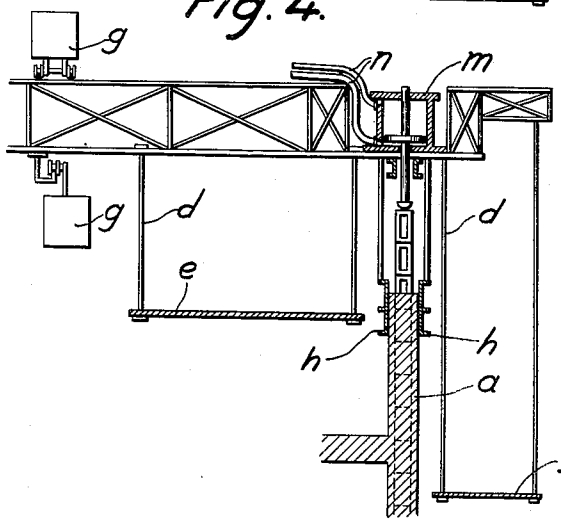


Fig. 4.



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UNITED STATES PATENT OFFICE

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METHOD OF BUILDING HOUSES

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Application July 16, 1938, Serial No. 219,654
In Sweden July 17, 1937

3 Claims. (Cl. 72—1)

This invention relates to the construction of buildings, and the principal object thereof is to provide for the economical construction of such a building both by obviating the use of scaffolding as normally used and, by arranging protection for the workmen so that the construction may proceed even when the weather is inclement.

Broadly, the invention concerns a method of constructing buildings having a plurality of floors wherein the roof structure is first completed and arranged over the foundation of the building, and the roof structure is then progressively raised while the walls and floors are being built beneath the roof. The roof structure is finally secured to the top of the walls when these are completed. The slate, tile or the like for the roof may then be added in preference to being added in the first instance. In this case the roof structure may be provided with a temporary covering so that rain or snow will not prevent the workmen from continuing the construction work.

The roof structure may carry moulds for use in the casting of the walls or other devices for use in the forming of the walls. The roof structure also carries at least one scaffolding or platform for the use of workmen in forming the walls and floors. Such a platform can be used as the lower wall of a mould for casting a floor, and a fresh scaffolding for the use of the workmen is thereafter added above the floor.

The invention is further characterized in that the lifting devices for the roof structure are detachably carried by the roof. When the house has been completed the lifting means can be removed for use elsewhere. In a like manner the roof structure may detachably carry hoisting and transporting devices.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 shows diagrammatically a vertical section of a building being erected by using the method according to the present invention;

Figure 2 is a fragmentary plan view thereof, showing particularly the method by which the roof structure can be progressively raised;

Figure 3 is a diagrammatic view of another embodiment of the lifting devices; and

Figures 4 and 5 illustrate other variations in the method of lifting the roof structure.

The building is assumed to have two outer walls *a* and an inner wall *b*. Above the building there is a complete roof structure having a framework *c* of iron or any other suitable material. From the roof framework extend supporting irons *d* carrying platforms *e* and *f* hanging inside and outside the building for the use of the workmen. At the top of the framework or below the same there are conveying devices *g* for moving building materials to points where the construction work is being carried out. The roof structure also supports wall moulds *h* which are connected with the framework in a suitable manner and which serve for casting or moulding the walls. The wall moulds hang vertically with respect to the horizontal so that no checking of the course of the walls is necessary, after the moulds have once been adjusted.

The roof structure is lifted progressively by means shown in Figures 1 and 2 consisting of a motor *i* which drives the pinions *k* through a shaft and worm gear. The pinions *k* mesh with teeth of racks *l* which are initially supported from the ground and thereafter from the building. The racks *l* may be removed after the building is completed, or they may be cast directly into the walls to serve as reinforcements therefor.

As shown in Figure 2, one motor drives two pinions. If the building is extended laterally of the shaft driving these pinions additional gear racks may be provided as shown in Figure 3 wherein two pinions cooperate with each rack.

The roof structure and the parts connected therewith may also be lifted by a pressure medium, for example compressed air, as shown in Figure 4, wherein the lifting means includes a vertically arranged cylinder *m* having a piston and piston rod. The cylinder is rigidly connected with the roof construction. The piston-rod extends through the upper as well as the lower cylinder cover. The ends of the cylinder are provided with tubes *n* which may be connected with an air or water pump or a container for a pressure medium. The lower end of the piston rod rests either directly on the wall of the building or on an intermediate block which in its turn rests on the wall. The roof structure is lifted by admitting the pressure medium into the cylinder above the piston. As the lower end of the piston rod rests on a stationary support the cylinder and the roof construction will be lifted in correspondence with the movement of the piston in the cylinder. A number of such lifting jacks may be provided along the wall. The masonry is built up successively to support the ends of the piston rods and half of the piston rods may be used to temporarily support the roof structure while the others are rearranged on higher portions of the walls.

The lifting device shown in Figure 5, consists of a pulley block *o* which hangs from a support *p*

anchored in the wall and this support may be a floor beam projecting through the wall. The lower pulley block is connected with a framework *q* which extends upwards and supports the roof construction. Thus the roof may be lifted by the pulley block. When the entire lift of the pulley block has been utilized the supporting point may be moved upwards, possibly to the level of the next floor frame. By providing a number of such pulley blocks the roof construction can be lifted successively from the lowest to the highest level of the building.

In order that the construction work may be quickly carried out, it is advantageous to make the walls of a solid outer layer and a solid inner layer and a layer of concrete cast between such layers. The friction between the walls and the moulds is then less and the moulds can be moved without damaging or disturbing the casting. The method can also be carried out in the construction of skeleton buildings in which the framework consists of iron beams or the like.

In carrying out the invention other devices or combinations than those described above may be used without departing from the scope of the invention as set forth in the appended claims.

I claim:

1. A method of constructing a building which comprises, erecting a roof structure having mould frames depending therefrom and movable therewith over the place where the building is to be constructed, pouring concrete in the mould frame to cast walls of the building, raising the roof structure to lift the mould frames, pouring concrete into the raised mould frames, and thereafter securing the roof structure to the walls.

2. A method of constructing a building after the foundation has been completed which comprises, erecting a roof structure having mould frames and platforms depending therefrom and movable therewith for the building over the foundation, casting walls of the building in said mould frames, supporting the roof structure on the cast walls and raising the roof structure thus supported to lift the moulds, pouring concrete into the raised mould frames, and thereafter securing the roof structure to the walls.

3. A method of constructing a building which comprises, erecting a roof structure having platforms suspended therefrom and movable therewith over the place where the building is to be constructed, erecting walls of the building adjacent said platforms, supporting the roof structure on said walls and progressively raising the roof structure thus supported as the walls are erected adjacent said platforms, and thereafter securing the roof structure to the walls.

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