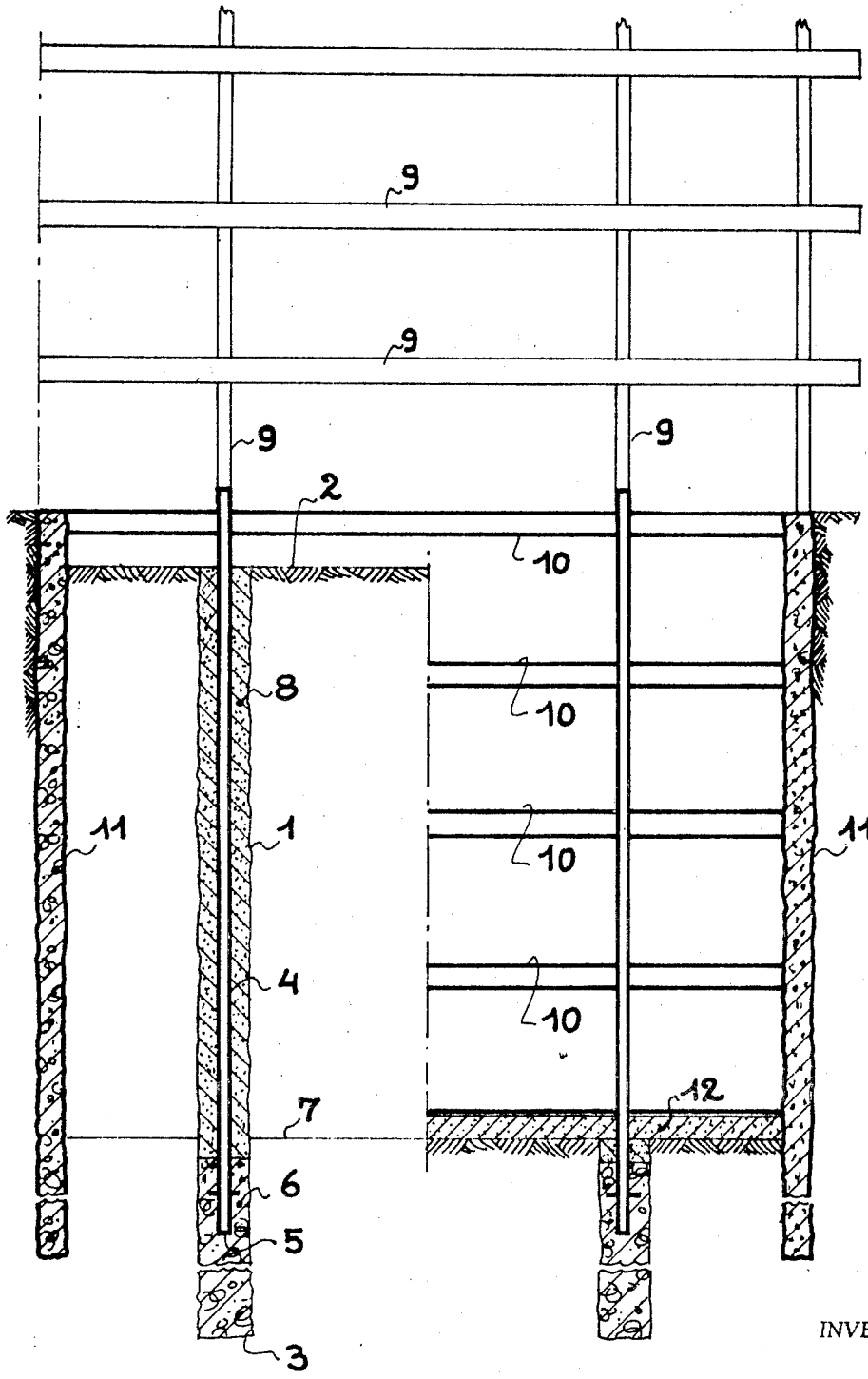
July 29, 1969 P. LE CLERCQ 3,457,690

METHOD FOR CONSTRUCTING A BUILDING SIMULTANEOUSLY BELOW AND ABOVE GROUND LEVEL

Filed Jan. 26, 1967



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United States Patent Office 3,457,690 Patented July 29, 1969

3,457,690

METHOD FOR CONSTRUCTING A BUILDING SIMULTANEOUSLY BELOW AND ABOVE GROUND LEVEL

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Filed Jan. 26, 1967, Ser. No. 611,985
Int. Cl. E04h 1/00
U.S. Cl. 52—742 1 Claim

ABSTRACT OF THE DISCLOSURE

A building is constructed by sinking shafts from initial ground level, positioning posts in the shafts, embedding the posts in concrete below the final excavation floor level prior to general excavation and then constructing the upper and basement stories concurrently supported by the posts.

The present invention relates to a method for constructing a building and more particularly to a method of construction of multistory buildings simultaneously below and above ground level.

The construction of multistory buildings by conventional methods is costly and very time-consuming and generally requires the preliminary step of a substantially complete or even extended initial excavation, than the laying of foundation members and only then the progressive construction of the basement stories followed by the successive upper stories.

It is an object of the present invention to provide a novel method of constructing a building which enables the work to proceed more rapidly and concurrently, thereby reducing the completion time and overall cost.

From one aspect the invention comprises the method of constructing a building simultaneously below and above ground level comprising the steps of sinking shafts in the ground from the initial ground level, positioning posts in said shafts, embedding said posts in concrete serving as foundation below the base level of the excavation floor prior to excavating generally to said base level, said posts being intended to support the structure of the upper and basement stories even before constructing any framework.

The method may be performed, for instance, by the preliminary drilling of shafts in the soil from the initial ground level, by positioning in each of these shafts a prefabricated post, by fixing the base of this post in concrete up to a level not exceeding the level of the future excavation floor, by back-filling if desired with a preferably non-cohesive filling material, each of the shafts up to the initial ground level, these posts being intended to support the structure of the upper- and basement-stories in general even before constructing the, if desired partial, frame.

From another aspect the invention consists in a building constructed by the method of the invention.

Various features of the invention will be seen from the following description taken in conjunction with the accompanying drawing which shows, schematically and purely by way of non-limiting example, one embodiment of the method according to the invention.

Referring now to the drawing, the method is begun by forming shafts **1**, round, square, rectangular, as a cross or any other form, from the initial ground level **2** to a depth **3** greater than the future excavation depth **7** and so as to reach a soil having sufficient load-carrying strength. The sinking of these shafts can be done by any possible process, by dry-drilling or with drilling mud, with or without casing, by machine or by hand, etc. In each of the shafts so sunk, there is placed in position a

prefabricated upright member or post **4** of suitable material such as metal, concrete, wood, synthetic material, etc. The base **5** of this post **4** will descend below the future level of the excavation floor **7** and will be embedded in concrete **6** at most to the level **7** of the future excavation floor. If the risk of buckling is the governing factor, the post **4** will be surrounded, at the upper part **8** of the column of the shaft with a material preferably non-coherent, such as sand, gravel, etc., to resist this buckling. On the post **4** thus placed in position, there can simultaneously be formed the structure **9** of the upper stories and the structure **10** of the basement stories. The structure **10** of the basement stories may if desired serve as shoring for the excavation holding the walls **11** forming the enclosing wall of the excavation. The structure **10** is then constructed as the excavation proceeds, following conventional methods but being supported on the posts **4**.

The post **4** may take up the total or partial loads of the structures **9** and **10** according to the strength given to its concrete foundation. In the case of partial loads, the remainder of the loads may be taken up by a local or general complementary foundation **12**, constructed on the floor of the excavation **7**.

To make this process as economical as possible, it is in general advantageous to provide light structures **9** and **10**, for example metallic structures. If the under-pressure of water at the bottom **7** of the excavation is greater than the weight of the light building thus constructed, a filtering and draining layer may be laid on the bottom of the excavation **7**, reducing this under-pressure to zero. This filtering layer may obviously be completed by a provisional or a permanent lowering of the water level.

On the posts **4**, all types of structure may be built as a super-structure **9** and as a substructure **10**.

The prefabricated post **4** may be effected in all conventional ways. It may be effected moreover by the aid of a metallic tube which is filled with concrete after being placed in position, thus increasing its carrying capacity. Similarly, if it is a metallic section, it may afterwards be enclosed in concrete to achieve the same result.

These different methods enable the positioning of a light post, loaded and reinforced subsequently. They are not limiting and all processes consisting in subsequent reinforcement of the post **4** placed in position in the shaft **1** may then be applied.

In certain cases, the post **4** may have a provisional character and may be removed later to be replaced by another load-carrying member constructed from the bottom of the excavation **7**.

The essential advantage of the process described consists in being able to build the superstructure before or at the same time as the basement substructure, by means of a simple procedure and at relatively little cost. There results thereby a substantial gain in time which may be materialised, is an increased profit to the contractor. This process is of maximum value in the construction of buildings comprising large basements. In general, according to data obtained, the supplementary cost of the process according to the invention relative to the cost of conventional methods is distinctly less than the profitability of the time gained.

It will be apparent that various changes and modifications may be made without departing from the essential concept of the invention as defined in scope by the appended claim.

I claim:

1. The method of constructing a multistory building simultaneously below and above ground level comprising the steps of (1) sinking vertical shafts in the earth from

an initial ground level to a base level, (2) positioning and vertically aligning prefabricated metal posts within said shafts, said shafts being of greater size than said posts, (3) embedding the lower ends of said posts in concrete below the ultimate base level of the excavation floor prior to excavating generally to said ultimate base level, (4) surrounding substantially the entire length of said posts within said shafts with a non-coherent packing material distinct from the adjacent unexcavated earth in which said shafts are sunk from the ultimate base level up to the initial ground level to support said posts throughout that portion of their length which lies within said shafts and thus prevent buckling of the posts due to the load imposed by basement and upper stories as the construction progresses, (5) progressively excavating the earth and removing said earth and said non-coherent packing material from said ground level to said ultimate base level, (6) successively constructing basement stories each of which are attached to the metal posts at spaced intervals and successively replace the support function of the non-coherent packing material relative to said

metal posts between said ground level and said ultimate base level, and simultaneously constructing upper stories above said ground level as the construction of said basement stories progresses, whereby said posts support the structure of both said upper and basement stories.

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