Dec. 7, 1926. 1,609,812

J. B. GOLDSBOROUGH

UNDERPINNING

Original Filed Oct. 31, 1918

Fig. 1

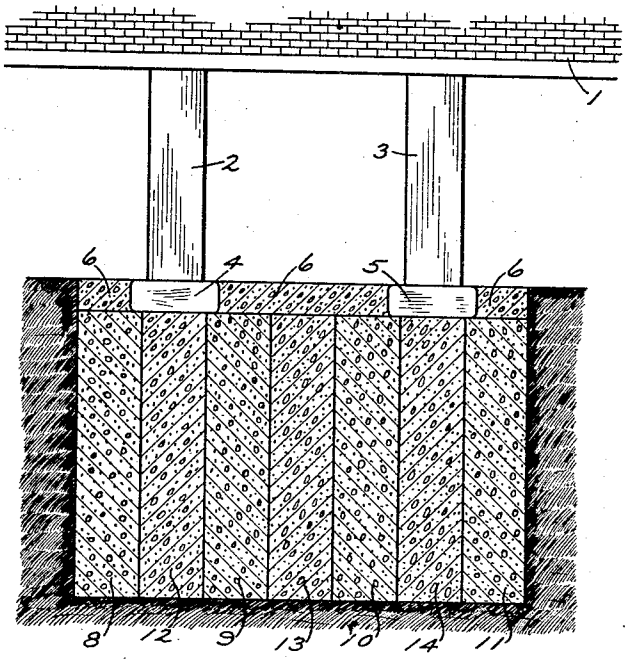
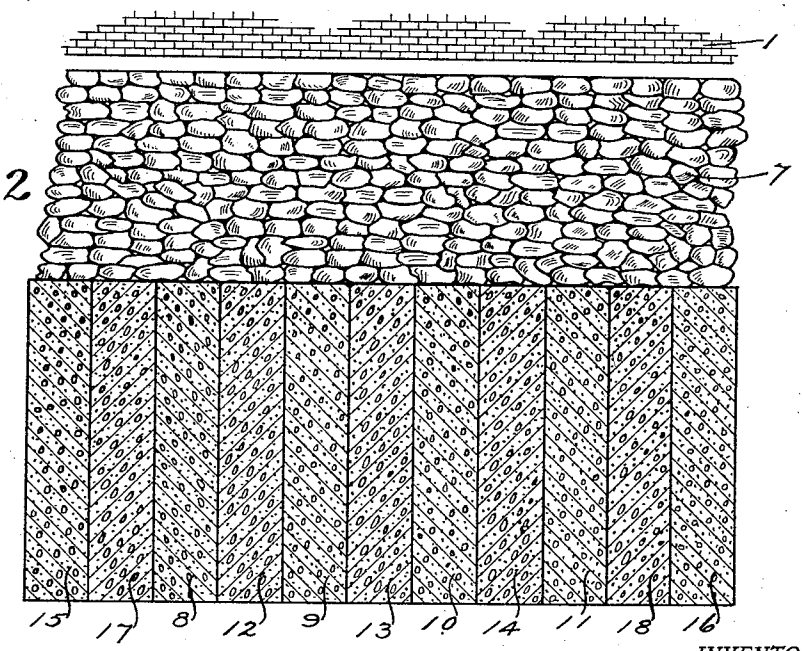


Fig. 2



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UNDERPINNING.

Original application filed October 31, 1918, Serial No. 260,514. Divided and this application filed October 15, 1925. Serial No. 62,668.

This invention relates to a method of underpinning buildings particularly in cases in which the underpinning should be in the form of a curtain wall.

In my copending application, Serial No. 260,514, filed October 31, 1918, there is disclosed and claimed a method of underpinning a building which consists generally of producing excavations in the earth beneath and in alignment with the foundation of the building while leaving it supported above each excavation by the natural arching action of the foundation, and forming in the excavations sections of new foundation consisting of piers and arches supported by and spanning the piers.

The present application, which is a division of my copending application referred to above, relates to an embodiment of the invention particularly adapted for use where a curtain wall is desirable owing to the condition of the ground or the construction of a subway or the like adjacent to the wall, or for other purposes.

The curtain wall consists of a number of immediately adjacent piers disposed underneath and in alignment with a foundation wall, or a supplemental footing joining the footings of the isolated columns of a building if it happens to be supported in that manner. The emplacement of the supplemental footing is a matter of obvious expediency in order to obtain a continuous bearing surface, in the manner of a wall foundation, for the curtain wall, and therefore is not intended to form a part of this invention.

The method of constructing the curtain wall is in general similar to the method of constructing the pier and arch support disclosed in the aforementioned copending application. Shafts are sunk at spaced intervals, while depending upon the natural arching action of the foundation or supplemental footing to support the building load and when a sufficient number of piers have been emplaced to entirely support the wall, the space intermediate the piers is then excavated and other piers sunk which are connected or joined to the first constructed piers to provide a curtain wall.

The curtain wall may be constructed beneath any type of foundation wall such as a rubble wall, brick wall, or other forms commonly used, and in the case of an isolated column foundation the footings of the columns are embedded in a supplemental footing which when completed is of substantially the character of a continuous wall.

The particular nature of the invention to which the specification relates as well as other objects and advantages thereof will appear most clearly from a description of the preferred embodiment shown in the accompanying drawings in which like reference characters designate like parts in the several views:

Figure 1 shows a curtain wall constructed in accordance with this invention beneath isolated columns bonded together by a supplemental footing, and

Fig. 2 shows a curtain wall constructed beneath a rubble masonry foundation.

Referring particularly to Fig. 1 of the drawings numeral 1 designates a buliding or other structure supported upon isolated columns, two of which, 2 and 3, are shown. In order to provide a sufficient supporting surface for the curtain wall, the footings 4 and 5 of columns 2 and 3, respectively, are joined together in a supplemental footing 6 of foundation material in any suitable manner. Having constructed the supplemental footing 6, which now has the aspect of a continuous wall such as is shown and designated 7 in Fig. 2, piers 8, 9, 10 and 11 are constructed directly beneath the footing 6 or wall 7 and in alignment therewith by sinking spaced shafts and filling them with foundation material, preferably concrete, in the manner disclosed in the aforementioned copending application. During the excavation of the shafts for piers 8, 9, 10 and 11, great care must be exercised so as to leave the surrounding earth undisturbed, the natural arching action of the footing 6 or of the wall 7 over the shaft excavations being sufficient to support the load of building 1 during the excavating operations, the load then resting on the columns of earth remaining between piers 8, 9, 10 and 11.

Having completed piers 8, 9, 10 and 11, the earth remaining between them is then excavated and the resulting space filled in with the same foundation material to form piers 12, 13 and 14 to complete the curtain wall. In the same manner as shown in Fig. 1, a number of consecutive isolated founda-

tion columns such as 2 and 3 may be bonded together in a continuous supplemental footing such as 6, and alternate piers erected therebeneath in the continuous manner shown most clearly in Fig. 2, where additional spaced piers 15 and 16 have been erected and piers 17 and 18 inserted between them and piers 8 and 11 respectively spaced therefrom. The process may be obviously continued on at each side beyond piers 15 and 16 as of Fig. 2 and likewise beyond piers 8 and 11 of Fig. 1 as desired for the purpose required.

By this method of underpinning the load of the building is transferred to a greater depth and a new foundation is provided whereby the earth contiguous to one side thereof may be freely disturbed or even removed without any danger of settling of the old foundation or of the building proper.

While this specification and the accompanying drawings disclose a specific method and embodiment of erecting curtain underpinning, it is to be understood that such disclosure is used merely for purposes of illustration, and that changes may be freely made in form and construction without departing from the spirit of the invention within the scope of the appended claims.

I claim:

1. The method of underpinning a building which consists in constructing spaced piers beneath and in alignment with the foundation of the building, excavating the earth between the piers and filling the resulting space with foundation material to form a continuous curtain wall.

2. The method of underpinning a building which consists in sinking spaced shafts beneath and in alignment with the foundation while depending upon the natural arching action thereof to sustain the load of the building, filling the shafts with foundation material to form piers, excavating the earth between the piers, and filling the resulting space with foundation material to form a curtain wall.

3. The method of constructing curtain underpinning beneath the foundation of a building which consists in erecting spaced piers underneath and in alignment with the foundation, excavating the remaining earth between the piers and under the foundation, and filling the resultant shafts with foundation material.

In testimony whereof I affix my signature.

JOHN B. GOLDSBOROUGH.