

(No Model.)

R. S. GILLESPIE.

CONSTRUCTION OF SUPPORTS FOR BUILDING WALLS, &c.

No. 576,843.

Patented Feb. 9, 1897.

Fig. 1.

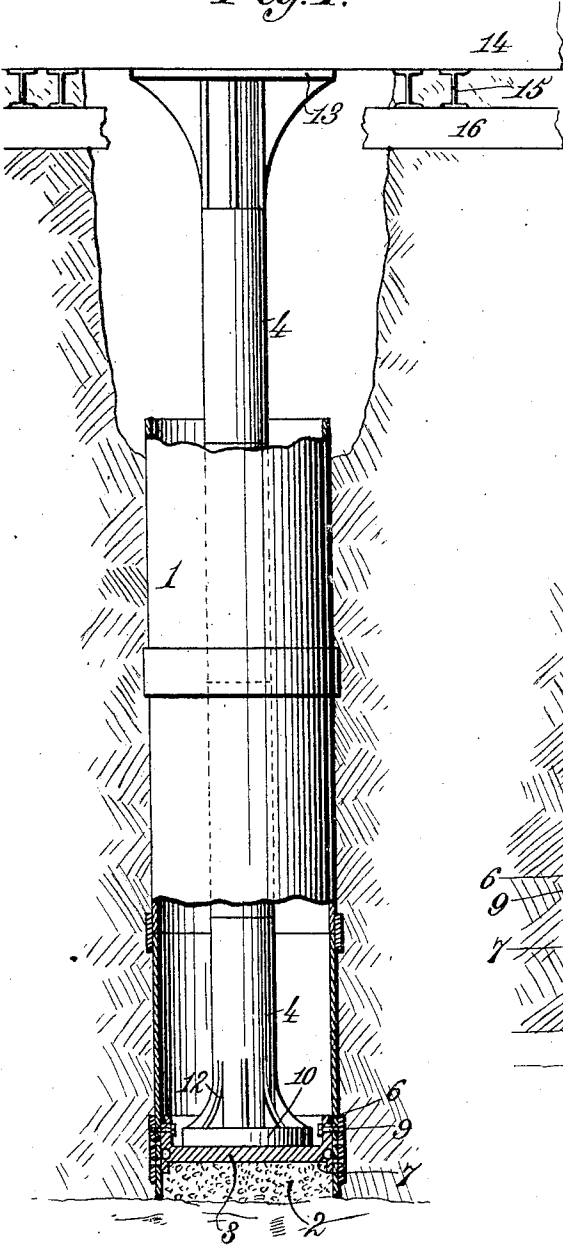
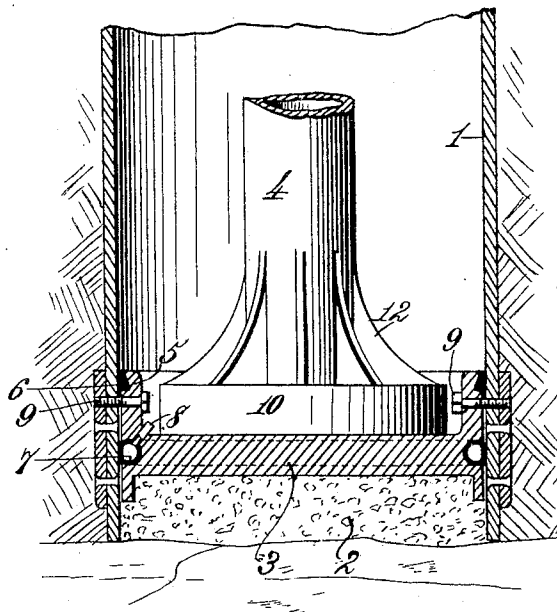


Fig. 2.



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UNITED STATES PATENT OFFICE.

RICHARD S. GILLESPIE, OF NEW YORK, N. Y.

CONSTRUCTION OF SUPPORTS FOR BUILDING-WALLS, &c.

SPECIFICATION forming part of Letters Patent No. 576,843, dated February 9, 1897.

Application filed July 10, 1896. Serial No. 598,725. (No model.)

To all whom it may concern:

Be it known that I, RICHARD S. GILLESPIE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Construction of Supports for Building-Walls, &c., of which the following is a specification.

This invention has for its object to provide new and improved means of a simple, economical, and effective character for constructing foundations for buildings, piers, and other structures whereby it is possible to excavate and extend a foundation any required depth through water-bearing or other strata.

The invention also has for its object to provide novel, simple, and efficient means for erecting wall-supporting or any other weight-sustaining columns which will serve either as the foundation for a new structure or a sub-base or subfoundation to sustain the superincumbent weight of an existing building-wall and whereby it is possible to excavate at one side of the columns to a greater or less depth whenever necessary for any purpose, such as the erection of a building or structure adjacent or contiguous to an existing building or structure.

The invention also has for its object to provide novel means whereby a construction-case, preferably in the form of a cylinder, can be sunk or driven into the earth, the earth from the interior of the case removed or excavated, and the entrance of water into the case at its lower end effectually prevented, so that it is possible to work within the case and erect a wall-supporting or foundation column therein.

These objects are accomplished in the manner and by the means hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a broken sectional side elevation of a construction-case driven or sunk into the earth according to my invention and containing a wall-supporting or other weight-sustaining column, and Fig. 2 is a detail sectional side elevation of the lower end portion of the construction-case and the column therein on a larger scale than Fig. 1.

In order to enable those skilled in the art to make and use my invention, I will now

describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a construction-case, which is herein shown as circular in cross-section, or rather in the form of a cylinder. The construction-case is made of iron or any other metal or material suitable for the purpose in hand, and it is composed of a plurality of sections adapted to be connected together through the medium of any connecting or coupling devices. The case is driven or sunk perpendicularly into the earth section by section through the medium of a hydraulic jack or ram or by the employment of the well-known water-jet. The case is driven or sunk into the earth any required depth or until it reaches bed-rock or any suitable strata. The number of sections composing the case will, of course, depend upon the depth to which it is driven or sunk into the earth, and therefore the number of sections will be varied to suit the conditions required.

After the construction-case has been driven or sunk to the required depth the earth contained within the case is removed or excavated substantially, if not entirely, the full depth of the case, and, preferably, a layer of concrete, as at 2, of greater or less depth, is laid in the lower end of the case to constitute a firm and substantial base of support for a closed head 3, which is introduced down into the case and is fitted water-tight therein, so that it is impossible for water to leak or otherwise pass through the lower end of the case to a point above the water-tight head, thereby leaving the interior of the case free and unobstructed for the erection of a wall-supporting or any other weight-sustaining column, such as indicated by the numeral 4 and which will be hereinafter explained.

Any liquid or water that may pass into the interior of the case prior to the head 3 being fitted water-tight therein may be pumped out or otherwise removed.

The head 3 is in the form of a disk having a solid body portion and a marginal flange or rim 5, containing upper and lower peripheral grooves, in which are arranged, respectively, a solid packing-ring 6 and a tubular expandible packing-ring 7. The ring 7 is made in the form of a tube, so that a fluid can be introduced therein for the purpose of expand-

ing the same and causing it to closely bear against the internal surface of the case and thus make a liquid or water tight joint between the case and the head. The fluid to
 5 expand the tubular packing-ring may be introduced through a nipple 8, one or more. The fluid may be atmospheric air, introduced in any suitable manner; but preferably air which is compressed into the construction-
 10 case, as hereinafter explained, will flow into the packing-ring and expand the same and produce a water-tight joint. The packing-ring 6 is a secondary packing, which may or may not be used. The flange or rim 5 of the
 15 closed head 2 is rigidly attached to the construction-case through the medium of bolts 9 or other suitable attaching devices.

The inserted water-tight-fitted head 2, closing the lower end of the construction-case,
 20 constitutes a base on which to erect a wall-supporting column or other foundation, which is preferably in the form of a tubular column, as at 4, having its lower end extended or enlarged into a disk or other shaped foot 10,
 25 braced to the body of the column through the medium of strengthening-ribs 12. The column 4, as herein shown, is made in sections suitably connected together, and at its upper end is provided with an enlarged head-piece
 30 13, designed to support the superincumbent weight of a building-wall 14 or any other structure the superincumbent weight of which is to be sustained.

Where the invention is used to construct
 35 a subbase or subfoundation for the existing wall of a building, as shown in Fig. 1, the building-wall will be underpinned and supported by needles, as at 15, and timbers, as at 16, until the column 4 is completed and a
 40 connection made between its enlarged head 13 and the base portion of the wall. This connection may be constructed in any manner suitable for the purpose in hand.

I have illustrated the column or foundation
 45 4 as constituting the support for the wall of an existing building, but I wish it clearly understood that the invention is designed as a foundation for any purpose whatever. It may be used as a support for an existing
 50 building or as the foundation for any structure, such as a building, a pier, or the like.

If the invention is used to constitute the subbase or subfoundation for the wall of an existing building, it will be possible to exca-
 55 vate at one side of the construction-cases to any desired depth for any purpose whatever, as, for example, the laying of a foundation to any required depth for the erection of a new building or other structure.

60 The closed head 3, fitted into the lower end of the construction-case in the manner described, is also advantageous and important in that if any settlement of the construction-case occurs the entire external frictional
 65 surface of the case acts as a powerful resistant and the closed head preserves the material in the case intact, the whole moving to-

gether. If the closed head were not employed, the material within the construction-
 case, particularly if concrete, might be forced 70 out at the bottom, if any extra weight were placed upon it, unless the material in the case rested on bed-rock. For instance, if the closed head were not provided and the construction-case were sunk in sand to the re- 75 quired depth and for any reason it were desired to fill the case with sand to produce the internal column or foundation the material inside the case would be forced out at the bottom thereof. 80

The column or foundation is represented in the drawings as made of a tubular column, but it may be composed of brickwork, stone, or any other material suitable for the purpose. Whatever material is used is built up 85 or erected on the water-tight head to the height necessary for the particular work in hand.

Under certain circumstances or conditions it may be desirable to create a certain air- 90 pressure within the construction-case during the time the earth is being removed therefrom, so that subsequently the water-tight head can be fitted into the lower end of the case, the air-pressure serving to prevent the 95 case from filling more or less with water prior to the time the head is fitted into position. After this is accomplished the air-lock is removed, and then the construction-case is perfectly comfortable and safe for the workmen 100 employed to build, construct, or erect the column or foundation 4 within the case.

The head fitted water-tight into the lower end of the construction-case constitutes an effectual cut-off for water and enables the 105 column or foundation 4 to be built or erected in a strong and substantial manner, while the workmen are protected by the walls of the construction-case, and consequently can execute the work with safety to themselves 110 and produce a column or foundation which is very advantageous as the support for the wall of an existing building or as the foundation for a new building, pier, or other structure. 115

Having thus described my invention, what I claim is—

1. The method herein described of constructing a foundation for a building or other structure, which consists in sinking a tubular 120 construction-case into the earth to the required depth, excavating or removing the earth from the interior of the case, attaching a closed head water-tight directly to the lower end portion of the case by securing de- 125 vices, and erecting a column on said head to the required height, substantially as set forth.

2. In the construction of foundations for buildings and other structures, the combination of a construction-case driven or sunk 130 into the earth, and from the interior of which the earth is excavated or removed, a closed head fitted water-tight into the lower end portion of the case and attached directly

thereto by securing devices, and a column erected in said case upon said head and adapted at its upper end to support the superincumbent weight of a building-wall or any other structure, substantially as set forth.

3. In the construction of foundations for buildings and other structures, the combination of a cylindrical construction-case driven or sunk perpendicularly into the earth and from the interior of which the earth is excavated or removed, a closed head fitted water-tight into the lower end portion of said case, a concrete base on which said head rests, and a column erected in said case upon said head and adapted at its upper end to support the superincumbent weight of a building-wall or any other structure, substantially as set forth.

4. In the construction of foundations for

buildings and other structures, the combination of a cylindrical construction-case, driven or sunk into the earth, and from the interior of which the earth is excavated or removed, a closed head provided in its periphery with an expansible packing and fitted water-tight in the lower end portion of the case, means for expanding said packing, and a column erected in said case upon said head and adapted at its upper end to support the superincumbent weight of a building-wall, or other structure, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

RICHARD S. GILLESPIE.

Witnesses:

ALBERT H. NORRIS,
THOS. A. GREEN.