

(No Model.)

R. S. GILLESPIE.
MEANS FOR SINKING WALL OR OTHER SUPPORTING COLUMNS.
No. 573,404.

Patented Dec. 15, 1896.

Fig. 1.

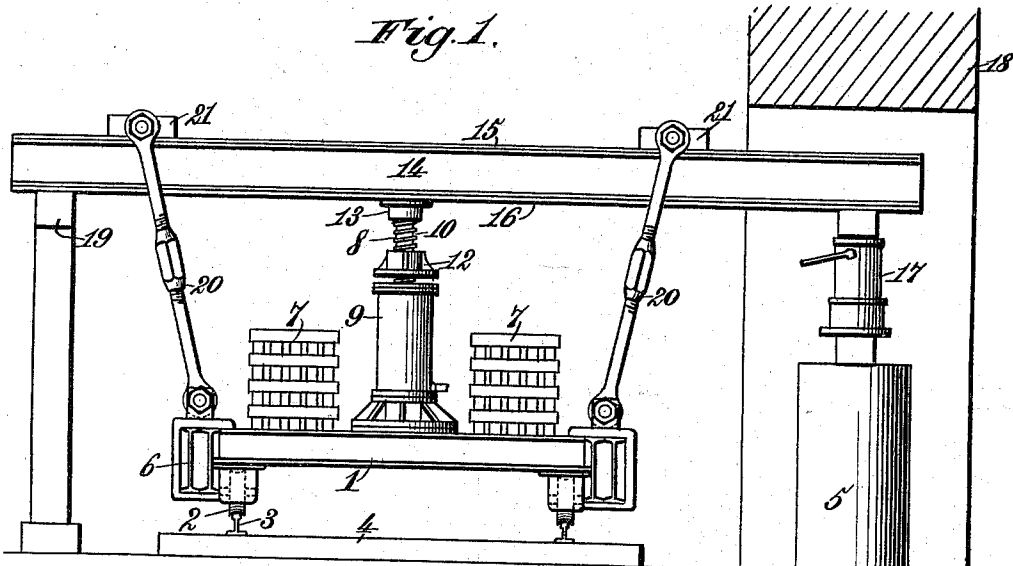
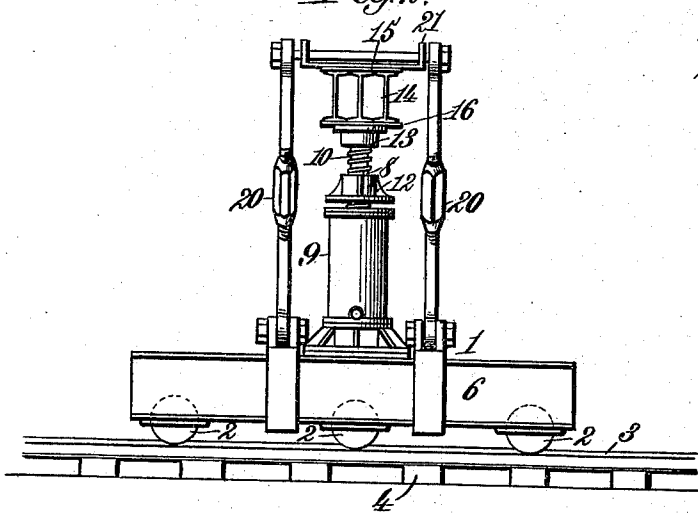


Fig. 2.



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UNITED STATES PATENT OFFICE.

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MEANS FOR SINKING WALL OR OTHER SUPPORTING COLUMNS.

SPECIFICATION forming part of Letters Patent No. 573,404, dated December 15, 1896.

Application filed July 15, 1896. Serial No. 599,281. (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 Means for Sinking Wall or other Supporting Columns, of which the following is a specification.

This invention relates to Breuchaud's system of constructing foundations or supports for the walls of buildings wherein tubular or other columns are driven or sunk perpendicularly into the earth through the medium of hydraulic jacks or rams or other means for the purpose of constituting a permanent or temporary support for the wall of an existing building or other structure, as described and shown in Letters Patent No. 563,130, dated June 30, 1896. In the patent referred to the columns are driven or sunk directly under the building-wall through the medium of hydraulic or other jacks acting on the column and engaged in a suitable manner with the lower portion of the existing wall in such manner that the superincumbent weight of the wall resists the pressure of the jacks in driving or sinking the columns perpendicularly into the earth. It is not always possible to utilize the superincumbent weight of an existing wall or other structure as a means for resisting the pressure of the jacks during the time the columns are being driven or sunk, and, moreover, it is sometimes necessary to drive or sink the columns at places or points where no building or other structure exists which can be utilized for the purpose stated.

The present invention therefore has for its chief object to promote the usefulness of the Breuchaud system and provide novel, simple, and efficient means for driving or sinking the columns without depending upon the superincumbent weight of an existing building-wall or other structure to resist the pressure of jacks or rams which are employed to act upon and drive or sink the columns perpendicularly into the earth, whereby it is possible to drive or sink any desired number of columns at any required place or point to provide a strong and substantial support for a new building or a permanent or temporary

support for an existing building or subbase or subfoundation for the wall of a building already erected and beside which it is desirable to erect a new building of any desired height.

The object of the present invention is accomplished by a portable apparatus which is susceptible of being used to support the superincumbent weight of a building-wall or for driving or sinking wall-supporting and other columns perpendicularly into the earth until they reach the required depth, said apparatus comprising, essentially, a carriage or platform provided with a ram and constructed to receive and support a load and a horizontally-arranged overhanging beam surmounting the ram and extending laterally in such manner that a hydraulic jack or ram can be engaged therewith and employed for driving or sinking columns perpendicularly into the earth at any desired place or point.

The invention also consists in other features of construction and in the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is an end elevation of an apparatus embodying my invention, a portion of an existing building-wall being shown in section; and Fig. 2 is a side elevation of the apparatus.

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 carriage or platform susceptible of being moved or transported from place to place, and for this reason it is preferably provided with supporting-wheels 2, journaled in suitable bearings and adapted to travel on rails 3, laid upon cross-ties 4. The rails and cross-ties constitute a railway, which will be arranged in proper relation to the place or point where the wall-supporting or other columns, as at 5, are to be driven or sunk perpendicularly into the earth.

The carriage or platform, as herein shown, comprises longitudinal side sills 6, preferably made of a plurality of iron I-beams rigidly connected with transverse iron I-beams, form-

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ing the main body portion of the carriage or platform. I wish it clearly understood, however, that the form or shape of the iron beam may be widely varied and that the entire construction of the carriage or platform may be changed to suit the conditions required without altering the spirit of my invention. It is also to be understood that the carriage or platform may be employed without the supporting-wheels and railway, but the employment of these features is advised, in that they greatly facilitate the movement or transportation of the carriage or platform, as is essential for the purpose of driving or sinking the wall-supporting or other columns at different places or points, as will be obvious.

The carriage or platform is designed to be provided with a load the superincumbent weight of which will hold the carriage or platform against any upward movement during the time the wall-supporting or other columns are being driven or sunk perpendicularly into the earth, as will hereinafter appear. The load placed on the carriage or platform is preferably composed of pig-iron, as at 7, but it will be obvious that any heavy material or substance will be the equivalent of pig-iron. The use of the latter is, however, advised, in that bars of pig-iron can be readily placed in position or removed whenever necessary, as, for example, when the carriage or platform is to be moved or transported.

The carriage or platform is provided at its central portion with a ram 8, arranged in operative connection with a perpendicular ram-cylinder 9, into which the working fluid can be introduced in the well-known manner for the purpose of raising the ram whenever necessary. The ram is provided at its upper end portion with a screw-thread, as at 10, with which engages a screw-nut 12 in such manner that after the ram has been raised to the required height the nut can be screwed downward upon the ram until it rests against the upper end of the ram-cylinder 9, whereby it is impossible for the ram to descend, and consequently it is enabled to support any superincumbent weight, even if leakage should occur.

The head 13 of the ram is constructed to receive and support a horizontally-arranged beam 14, one or more, preferably composed of an iron I-beam, but which may be of any desired form or shape in cross-section. In the drawings three iron I-beams are illustrated, and they are provided with upper and lower horizontal plates 15 and 16, but the number of beams may be varied, and in fact the construction of the beam may be altered or changed to suit whatever conditions are required, without affecting my invention.

The horizontally-arranged beam is so placed that it rests upon the head of the ram in juxtaposition to the central portion of the beam, and the latter is of such length that it extends some distance from either side of the carriage

or platform, so that it is possible to engage a hydraulic jack or ram 17 with one end of the beam for the purpose of driving wall-supporting columns, as at 5, perpendicularly into the earth directly under the wall 18 of an existing building or at any other required place or point. The end of the beam opposite the end against which the jack or ram 17 abuts may rest upon a support, as at 19, but this support is not indispensable and may or may not be used.

The horizontally-arranged beam is held down upon and in correct operative connection with the ram 8 through the medium of tie-rods or coupling-links, which are in the form of turnbuckles, as at 20, preferably engaged at their lower ends with the side sills or girders 6 of the carriage or platform and at their upper ends pivoted to pressure-blocks 21, which bear against the upper side of the horizontally-arranged beam 14. If the plates 15 and 16 are used, the pressure-blocks 21 will bear against the uppermost plate 15, while the lowermost plate 16 will rest against the head 13 of the ram 8. The tie-rods 20 effectually hold the beam 14 down upon the ram and maintain the beam in an approximately horizontal plane in such manner that while the jack or ram 17 is being operated to drive or sink the column 5 perpendicularly into the earth the horizontally-arranged beam serves as an abutment for the jack or ram and resists the pressure of the latter. Obviously, therefore, it is possible to drive or sink a wall-supporting or other column perpendicularly into the earth without in any manner engaging the driving or sinking jack or ram with the wall of an existing building, so that the superincumbent weight of the wall resists the upward pressure of the jack, as in the patent hereinbefore referred to.

The construction of the apparatus is such that by adjusting the turnbuckles 20 to lengthen the same and raising the ram 8 the horizontally-arranged beam 14 can be engaged directly with the wall of an existing building or other structure to support the superincumbent weight of the same. When the apparatus is used in this manner, the screw-nut 12 can be made to bear against the upper end of the ram-cylinder 9, and consequently the ram will support the wall without liability of the ram descending if leakage should occur.

The wall-supporting or other columns, as at 5, are each made in sections successively driven into the earth in substantially the same manner as in Breuchaud's patent referred to. These columns are preferably in the form of tubular cylinders, but they may be of any construction, form, or shape suitable for the purpose in hand.

In the operation of the improved apparatus for driving a wall-supporting or other column perpendicularly into the earth the first sec-

tion of the column is arranged under the jack or ram 17 while the latter is in operative connection with one end of the horizontally-arranged beam 14. The jack or ram 17 is then operated to drive the first column-section, after which the second column-section is attached to the upper end of the first driven section, and the second section is driven or sunk in the same manner as the first one. This operation is repeated until the required number of sections are driven to produce a column which reaches the required depth or until the column rests against bed-rock or other firm stratum. During the time the columns are being driven the upward pressure of the jack or ram 17 is effectually resisted by the horizontally-arranged beam 14, and this beam is held down upon the ram 8 through the medium of tie-rods or turnbuckles 20, while the carriage or platform is firmly held down by the superincumbent weight of the load 7 placed thereupon.

After the wall-supporting columns, as at 5, are driven or sunk until they reach the required depth a connection is made between the upper end of each column and the base portion of the existing wall of a building or other structure. This connection may be of any suitable construction and of any desired material, such, for instance, as brick or stone. The columns therefore become a permanent subbase or subfoundation for the existing wall, and the latter will be firmly sustained during such time as excavations are being made at one side of the existing wall for the erection of an adjoining or contiguous new building. I wish it understood, however, that the particular purpose for which the driven or sunk columns, as at 5, are employed may be widely varied without affecting my present invention, as the latter relates specifically to the means whereby the columns may be driven or sunk at any place or point without depending upon the presence of a building-wall or other structure to resist the upward pressure of the jack or ram used to drive or sink the columns.

The present apparatus promotes the usefulness of Breuchaud's system and facilitates the construction of wall and other supports which are buried, driven, or sunk into the earth.

Having thus described my invention, what I claim is—

1. An apparatus designed for supporting the superincumbent weight of a building-wall and sinking wall-supporting or other columns, consisting of a carriage or platform adapted to support a load the superincumbent weight of which holds the carriage or platform against upward pressure, a horizontally-arranged beam surmounting the carriage or platform, supported therefrom and extending laterally to one side thereof for the purpose of offering resistance to a jack or

ram for driving or sinking a column perpendicularly into the earth, and means whereby the column is held against the upward pressure of the jack or ram, substantially as described.

2. A portable apparatus designed for supporting the superincumbent weight of a building-wall and sinking wall-supporting and other columns, consisting of a carriage or platform provided with a ram and adapted to support a load the superincumbent weight of which holds the carriage or platform against upward pressure, a horizontally-arranged beam mounted on the ram and extending laterally to offer resistance to a jack or ram while driving or sinking a column perpendicularly into the earth, and devices for holding the beam down upon the ram and against the pressure of the jack or ram which drives or sinks the columns, substantially as described.

3. An apparatus for driving or sinking wall-supporting and other columns, consisting of a carriage or platform provided with a ram and adapted to support a load the superincumbent weight of which holds the carriage or platform against upward pressure, a horizontally-arranged beam mounted on the ram and extending laterally to offer resistance to a jack or ram for driving or sinking a column into the earth, and connections between the carriage and the beam for holding the latter approximately horizontally and against upward pressure, substantially as described.

4. An apparatus for driving or sinking wall-supporting and other columns, consisting of a carriage or platform provided with a ram and adapted to support a load the superincumbent weight of which holds the carriage or platform against upward pressure, a horizontally-arranged beam mounted upon the ram and extending laterally to offer resistance to a jack or ram for driving or sinking a column perpendicularly into the earth, and longitudinally-adjustable tie-rods connected to the carriage and engaging the horizontally-arranged beam, substantially as described.

5. An apparatus for driving or sinking wall-supporting and other columns, consisting of a carriage or platform mounted on wheels and provided with a ram, a horizontally-arranged beam surmounting the ram and extending laterally to offer resistance to a jack or ram for driving or sinking a column perpendicularly into the earth, and tie-rods secured at opposite sides of the said carriage or platform and provided at their upper ends with pressure-blocks which bear against and hold the horizontally-arranged beam down upon the ram and against upward pressure, substantially as described.

6. An apparatus for driving or sinking wall-supporting and other columns, consisting of a carriage or platform adapted to support a load and having a ram and longitudinal side

sills, a horizontally-arranged beam surmount-
ing the ram and extending laterally to offer
resistance to a jack or ram for driving or
sinking a column perpendicularly into the
5 earth, and tie-rods secured to the longitudi-
nal side sills and engaging the horizontally-
arranged beam for holding the latter down
upon the ram, substantially as described.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit- 10
nesses.

RICHARD S. GILLESPIE.

Witnesses:

ALBERT H. NORRIS,
THOS. A. GREEN.