(No Model.)

2 Sheets—Sheet 1.

R. GRAY.

METAL PILE.

No. 415,037. Patented Nov. 12, 1889.

Fig. 1.

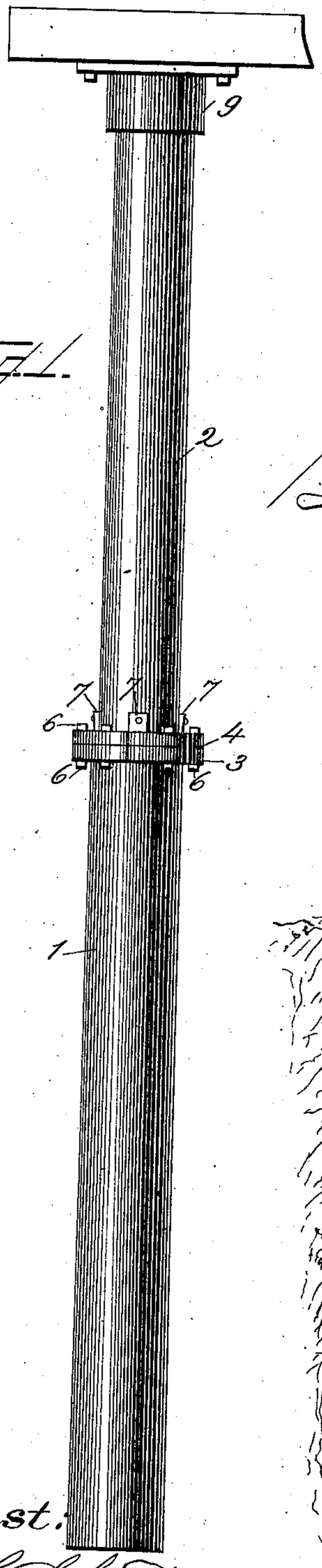


Fig. 2.

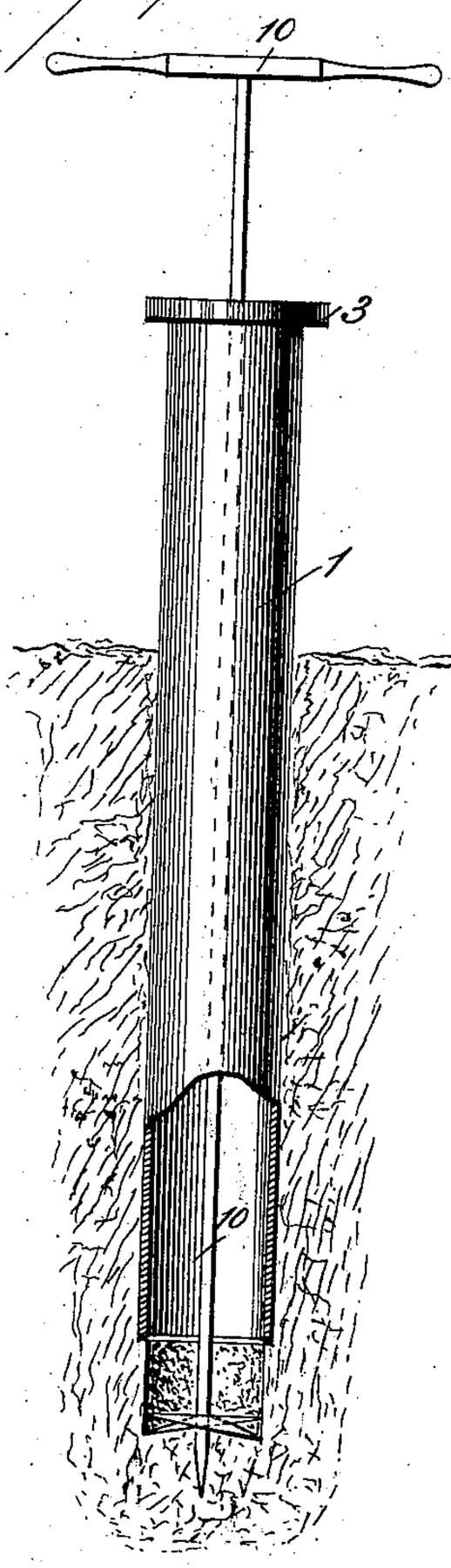
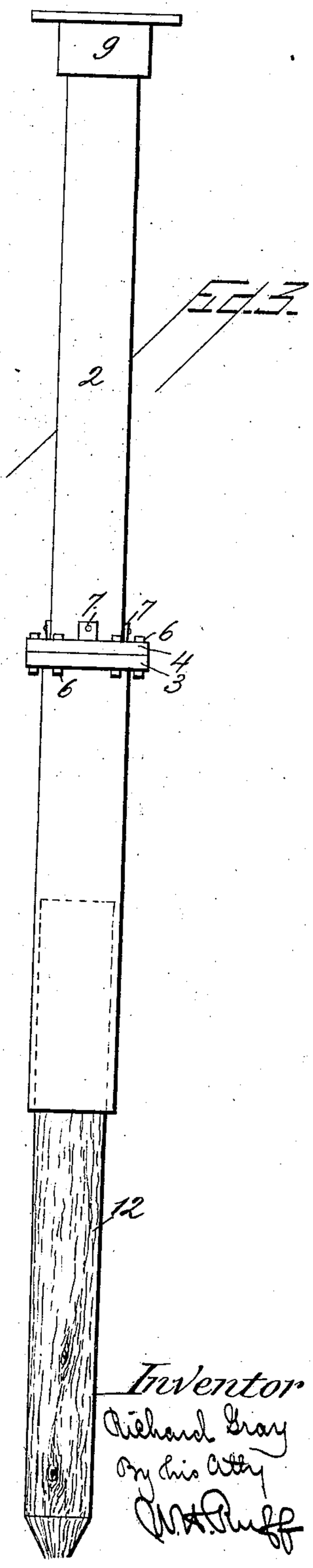


Fig. 3.



Attest:

F. H. Schott

Geo. M. Copeland

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(No Model.)

2 Sheets—Sheet 2.

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METAL PILE.

No. 415,037. Patented Nov. 12, 1889.

FIG. 3.

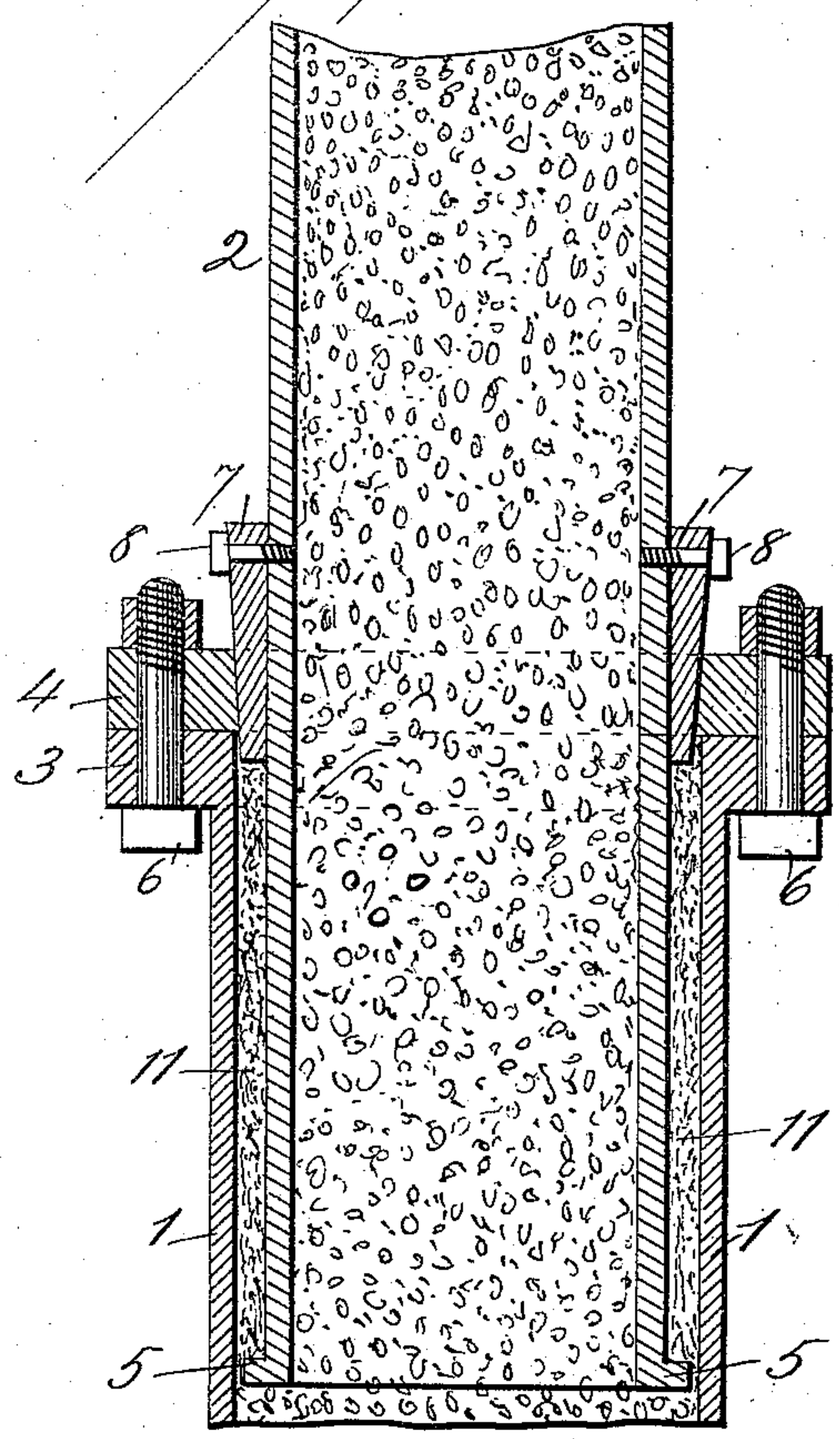
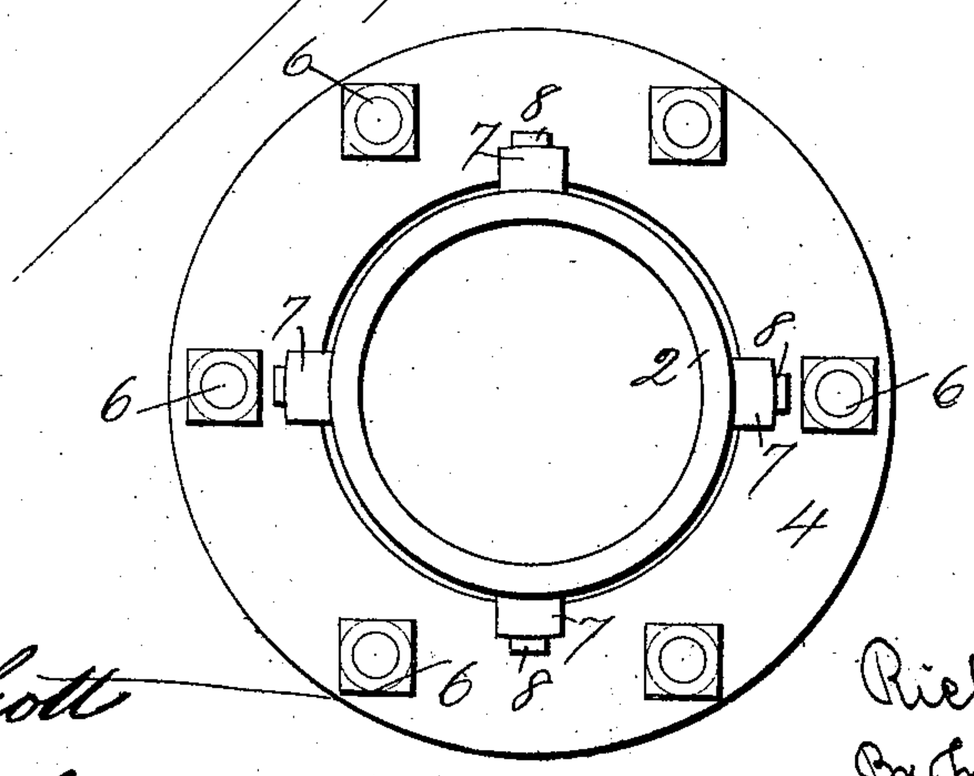


FIG. 4.



Attest:

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UNITED STATES PATENT OFFICE.

RICHARD GRAY, OF BLOOMINGTON, ILLINOIS.

METAL PILE.

SPECIFICATION forming part of Letters Patent No. 415,037, dated November 12, 1889.

Application filed April 8, 1889. Serial No. 306,371. (No model.)

To all whom it may concern:

Be it known that I, RICHARD GRAY, of Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Metal Piles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in metal piles, the object of the said invention being to provide a pile adapted to be erected without the employment of expert labor or the use of a pile-driver.

A further object is to provide a pile having a broad and accurate range of vertical adjustment; and with these ends in view my invention consists in the certain features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation of the pile. Fig. 2 is a view, partly in section and partly in elevation, of the pile and mechanism for erecting the same. Fig. 3 is an elevation of the pile resting upon a wooden support. Fig. 4 is a top plan view of the pile-coupling. Fig. 5 is a view in elevation of Fig. 4.

1 is a hollow tube, preferably of cylindrical form, and having a flange 3 at its upper end provided with suitable bolt-holes. The tube 2 is of less diameter than tube 1, whereby it is adapted to telescope within the same, and is further provided with the outward flange 5 at its lower end. The tube 2 is provided with the collar 4, loosely mounted thereon, the same being provided with bolt-holes corresponding to the holes in flange 3, and also with key-seats for the reception of the keys 7. The collar and flange are secured together by means of the bolts 6.

The keys 7 are preferably provided with bolt-holes for the reception of bolts 8, which enter corresponding holes in tubes 2, whereby the keys are secured to the tube.

9 is a cap placed upon the top of the pile to receive a superstructure.

10 is a post-auger.

12 is a wooden support.

In Fig. 2 the tube 1 is shown in process of erection. By means of the auger 10 the earth is excavated below the tube, which is driven at intervals with light blows or pressed down as the auger advances.

The pile is erected by first entering the larger tube into the earth, as described. The flange 4 is then keyed to pipe 2 in such position as to limit the distance it can telescope within the tube 1, so as to secure the desired adjustment of column 2, which, with the flange attached, is then superposed upon the tube 1 in the proper position, whereupon the whole column is filled with asphaltum, concrete, or other solidifying material. After said filling has set sufficiently to prevent displacement of column 2 the keys and collar are removed and the space 11 is filled with any suitable material. The collar is then replaced and bolted to flange 3. The keys are then firmly driven in place and secured to tube 2 by the screw-bolts 8. As the size of the hole in flange 4 is less than the inner diameter of tube 1, it is evident that a solid material in space 11, between flange 5 and collar 4, will prevent the tube 2 from being lifted upward or withdrawn. It will also be evident that the coupling permits both a wide and accurate longitudinal adjustment, thereby obviating the difficulty heretofore experienced in the erection of metal piling by reason of rocks or other obstructions.

The coupling may be employed in any metal column having two or more sections with ends adapted thereto.

The inner diameter of the lower tube is preferably contracted at or near the lower end, thereby preventing the contained column of solidified material from slipping down.

The collar 4 is preferably made of cast metal, and may be re-enforced by a wrought-iron band.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The movable collar 4, adapted to be secured to tube 2 by means of the keys 7 and the bolts 6, and having an inner measurement less than the outer diameter of flange 5, whereby the chamber 11 is formed.

2. In a metal pile, the combination, with a

tube, of a smaller tube or column inserted therein, and means for varying and limiting the extent of such insertion, and a filling of cement or other solidifying substance, substantially as set forth.

3. As a support for a superstructure, a column consisting of a tube having a wooden support and a smaller tube telescoped therewith, and means for limiting and securing the extent of insertion, and a filling of cement or other solidifying material.

4. A metal pile having an upper portion provided with an outward flange at or near its lower end and adapted to telescope within a lower hollow portion, and a movable collar secured to the upper portion and adapted to rest upon the upper end of the lower portion, substantially as shown and described.

5. The chamber 11, filled with unyielding material, in combination with the collar 4, secured to flange 3, whereby rigidity of the column is secured, substantially as set forth.

6. A metal pile having a coupling consisting of the tube 1, provided with flange 3, and a tube 2, provided with the collar 4, and the keys 7, secured to said tube 2, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

RICHARD GRAY.

Witnesses:
SAIN WELTY,
JOHN F. BOLIN.