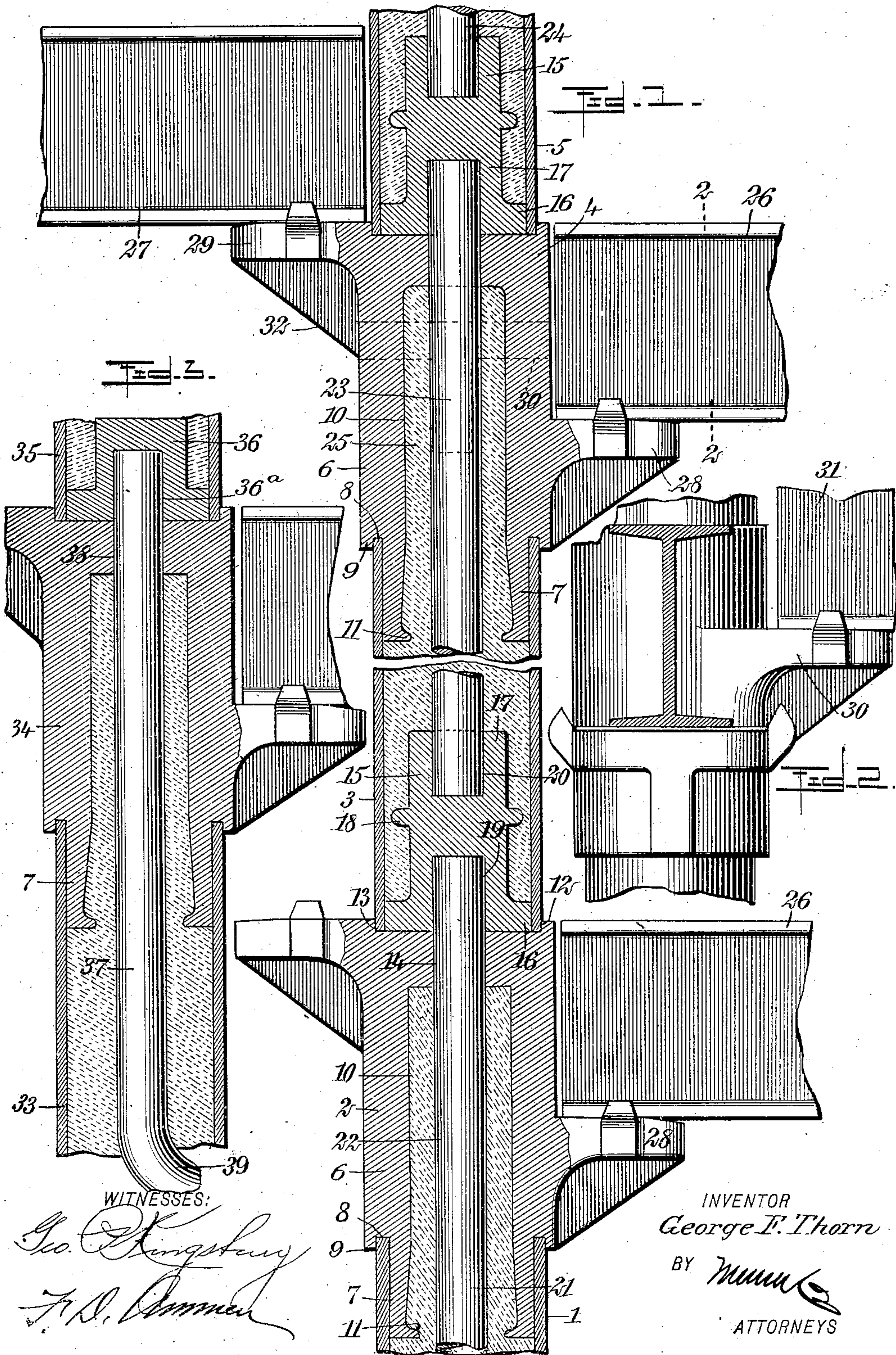


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PATENTED FEB. 19, 1907.

G. F. THORN.
COLUMN.

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UNITED STATES PATENT OFFICE.

GEORGE F. THORN, OF NEW YORK, N. Y.

COLUMN.

No. 844,974.

Specification of Letters Patent.

Patented Feb. 19, 1907.

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To all whom it may concern:

Be it known that I, GEORGE F. THORN, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Column, of which the following is a full, clear, and exact description.

This invention relates to columns such as used in building construction.

The object of the invention is to produce a built-up column which is especially adapted for supporting floor-beams at different elevations.

A further object is to provide a column of great strength and which will have unusual rigidity at the joints, while being at the same time substantially fireproof.

The invention consists in the construction and combination of parts to be more fully described hereinafter and definitely set forth in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is substantially a vertical central section of a column constructed according to my invention, the body of the column being represented as broken away and certain parts being represented in elevation. Fig. 2 is a section taken on the line 2 2 of Fig. 1 and showing a portion of the cap of the column and illustrating more fully the manner of supporting floor-beams at different elevations, and Fig. 3 is a vertical section taken through the cap of a column and showing a modified construction which I may adopt.

The present application is one of a series of copending applications filed by me and of which the others are numbered and dated as follows, namely: Serial No. 277,213, filed September 5, 1905; Serial No. 290,427, filed December 5, 1905, and Serial No. 298,116, filed January 27, 1906. All of these cases contain common subject-matter; but the matter common to this case and to the one earlier filed—to wit, Serial No. 277,213—is not generically claimed herein, as such claims are embraced in the one earlier—that is to say, I do not, for the reason already stated, generically claim herein a column having a casing, a hollow cap with an apertured end

seated on the casing, a socket member on the cap, a pin, post, or rod projecting from the aperture in the cap into the socket member, a second casing on the cap, and a filling of plastic or other material in the casings, which filling extends up into the hollow of the cap.

The present construction embodies distinguishing characteristics in respect to the earlier-filed application, among other things in the manner of connecting the columns with respect with each other, the rod, pin, or shaft in the present case extending from one column to the other through the intermediate cap and being embedded in the cement in one column and also having one of its ends received in a socket member in the column adjacent to that first mentioned. Another distinction which may be mentioned is that the socket member is a double one, one socket portion thereof receiving the end of the rod or shaft in one column, while the other socket portion thereof receives the end of the rod or shaft from the other column. The cap in the present case, furthermore, is provided with means by which it is adapted to support beams at different elevations, being in this respect an improvement on the cap of my previous case. Moreover, incidental to one of the distinguishing characteristics herein mentioned the rod, pin, or shaft referred to extends into the column from the end of the cap, which cap, as in the earlier case, is chambered or hollow and receives within its interior a suitable filling, which extends from the interior of the casing or shell and surrounds the rod. This feature of the arrangement and connection of parts is important and constitutes in itself one of the characteristic features of the present case in relation to the earlier-filed case aforesaid. These and other characteristic features which are embraced in the present case are embodied in the detail construction shown in the accompanying drawings, which construction, while in and of itself advantageous, is to be regarded as merely illustrative and preferred.

Referring more particularly to the parts illustrated in the drawings, 1 represents the upper extremity of the lower column-section, the same being of a common tubular form. Upon this casing or shell I place a cap 2, beyond which there is a second shell or casing 3, similar to the shell 1. This shell 3 sup-

ports a cap 4, which is generally similar in construction to the cap 2. This cap 4 in turn supports a third column section or shell 5. In this way the column is built up in a common manner. The caps 2 and 4 have substantially cylindrical bodies 6, which are formed at their lower extremities with reduced necks 7, and these necks are received in the upper extremities of the column-sections 1 and 3, as shown. At the roots of these necks 7 annular recesses 8 are formed, which receive the upper extremities of the column-section, as indicated. In this way projecting shoulders or lips 9 are formed, which project over the edges of the column-shells and reinforce the same, as will be readily understood. The bodies 6 of the caps are cored from their lower extremities upwardly, so as to form a bore or chamber 10 in each cap, as shown. Toward the lower extremities these chambers enlarge slightly, as shown, and the lower extremities of the necks 7 are formed with inwardly-projecting lips 11 for a purpose which will appear more fully hereinafter. As indicated, the bores 10 extend to a point near the upper faces 12 of the caps, as shown. These upper faces are provided with circular recesses or counter-bores 13, which constitute seats for the column-sections next above and which the cap supports. It should appear in this way that the shell 3 fits snugly into the recess in the upper face of the cap 2, while the shell 5 fits in a similar manner into the upper face of the cap 4.

Through the upper faces 12 of the caps apertures, preferably in the form of openings or bores 14, are formed, which communicate with the openings 10 or chambers within the bodies of the caps. The purpose of these openings will appear more fully hereinafter. In the lower extremities of the shells, as indicated at the shells 3 and 5, I provide socket members or plugs 15, which are inserted tightly therein, as shown. The lower faces of these plugs are substantially flush with the lower extremity of the column-section in which they are inserted. The lower portions of the plugs are flanged or formed into expanded heads 16, the thimbles or bodies 17 of the plugs being slightly reduced in diameter, as shown. At a suitable point these bodies 17 are provided with a laterally-projecting flange 18, which projects outwardly into the space between the plug and the shell. These plugs 16 constitute double sockets. They are each provided on their lower side with a bore or socket 19 and also with a similar socket 20 on their upper sides. These sockets 19 and 20 are preferably of substantially the same diameter as the openings 14 referred to above. It should appear that the axes of the sockets 19 and 20 coincide with the central axis of the column.

Through the interior of the column a rod or

shaft 21 passes continuously, the same being formed in sections 22, 23, and 24. The lower extremity of each of these sections is received in one of the upper sockets 20. The body of each section of this shaft passes upwardly in the body of the column, and its upper extremity passes through the corresponding opening 14, passing into the lower socket 19 of the column-section next above. The interiors of the column-casing and the caps are suitably filled with cement 25, and when this cement is set a very rigid column construction results.

The column-shells 1, 3, and 5 are preferably formed of steel tubing. The caps 2 and 4 are preferably of cast-iron or similar material. In order to enable floor-beams, such as the beams 26 and 27, to be supported at different elevations, the caps 2 and 4 are provided with laterally-projecting arms 28 and 29, said arms being at different elevations and at any desired height. As indicated most clearly in Fig. 2, a third arm 30 may be provided, which supports a third beam 31 from the cap 4. These arms are preferably made more rigid by means of integral webs 32, as shown.

The arrangement described, which consists in carrying the cement body of the column well up into the caps, gives more rigidity and strength to the caps and enables them to withstand the eccentric strains exerted upon the caps by the ends of the beams. In addition to this the core-shaft 21 operates to give great rigidity to the caps. In this connection attention is called to the fact that this core-shaft 21 is completely buried within the column, so that it is little affected by extreme heat, thus increasing the fireproof qualities of the column.

The lips 11, referred to, at the lower extremities of the necks 7 assist in retaining the same when the column is being formed. Likewise the laterally-projecting flanges 18 of the sockets operate to increase the rigidity at that point.

Instead of carrying the core-shaft 21 completely through the column, as indicated in Fig. 1, I may provide a construction as shown in Fig. 3, in which the column-shell 33 is surmounted by a cap 34 in the manner described above, the said cap supporting a second column-section 35, provided at its base with a plug 36, seating on the upper face of the cap 34 in the manner described above. This socket or plug 36 has no socket formed in the upper side thereof, but is formed with a single socket or opening 36^a, which receives the upper extremity of an anchor bolt or shaft 37, the said shaft being disposed centrally in the column and passing up through an opening 38 in the cap 34 and similar to the opening 14 described above. The shaft 37 does not extend to the base of the column, but at a suitable distance below

the cap is formed with a lateral turn or twist 39, which increases its holding power as an anchor. In this way I attain a great degree of rigidity at the caps, while dispensing with a large portion of the length of the internal shaft.

While I have represented sections of the column supposed to be above the base, it should be understood that I may use a base of any kind with caps of the construction shown, in which case the lower socket would be seated on the base, as will be readily understood.

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

1. A column having a tubular shell, a cap seating upon said shell and having a chamber formed therein from below, and communicating with the interior of said shell, and a filling within said shell and extending upwardly into the chamber within said cap, said cap having means for supporting beams at different elevations.

2. A column having a cylindrical shell, a cap seated upon said shell and having means for supporting beams at different elevations, said cap having a reduced neck projecting into the interior of said shell, and a filling within the interior of said shell and extending into the body of said cap.

3. A joint for a column, comprising a cap having a hollow body, a shell supporting the same, a filling within said shell and extending into said body, a socket supported on said cap, a shell surrounding said socket, and an anchor-shaft seated in the lower side of said socket and extending downwardly through the interior of said cap and surrounded by said filling.

4. A column comprising, in combination, a shell, a cap supported on said shell and having a hollow body, a second shell seated on said cap, a plug within said second shell and having a socket formed in the lower side thereof, and an anchor-plate seated in said socket and extending downwardly into the interior of said first shell, said cap having laterally-projecting arms adapted to support beams.

5. In a column construction, in combination, a shell composed of sections disposed one above the other, a chambered cap connecting said shells, a central shaft extending through the end of the cap and into the chamber, and a filling within the shell and chamber and surrounding the central shaft.

6. In a column construction, in combination, a tubular shell comprising a plurality of sections arranged one above the other and a cap seated on the lower section and supporting the upper section, the cap having an opening through its upper face and a chambered body, a central shaft extending from

one section to the other through the opening in the cap and a filling in the shell, extending into the chamber in the cap and in which the central shaft is embedded.

7. In a column construction, in combination, a tubular shell comprising a plurality of sections located one above the other and a cap between the sections, a socket in one of the sections, a shaft extending from the socket through the end of the cap, and a filling in the sections, in which the socket and a portion of the shaft are embedded.

8. In a column construction, in combination, a tubular shell comprising a plurality of sections located one above the other and a cap between the sections; a socket member in one of the sections, a shaft projecting from the socket member in opposite directions into the sections, and a filling in the sections, in which the socket member and shaft are embedded.

9. In a column construction, in combination, a tubular shell comprising a plurality of sections located one above the other and a cap between the sections, a filling in the sections and a shaft made in sections and extending through the end of the cap.

10. In a column construction, in combination, a tubular shell comprising a plurality of sections located one above the other and a cap between the sections, a filling in the sections, a shaft made in sections and extending through the end of the cap, and a socket member for the confronting portions of the sections of the shaft.

11. In a column construction, in combination, a tubular shell comprising a plurality of sections located one above the other and a chambered cap between the sections; a filling in the sections, extending into the chamber in the cap; and a shaft, made in sections and extending through the end of the cap.

12. In a column construction, in combination, a tubular shell comprising a plurality of sections located one above the other and a chambered cap between the sections; a filling in the sections, extending into the chamber in the cap; a shaft, made in sections and extending through the end of the cap; and a socket member embedded in the filling and engaging the confronting portions of the sections of the shaft.

13. In a column construction, in combination, a tubular shell comprising a plurality of sections located one above the other and a chambered cap between the sections; a filling in the sections, extending in the chamber in the cap; a plug supported by said cap and having sockets and embedded in the filling; and a shaft embedded in the filling and made in sections and extending into the sockets in the plug.

14. In a column construction, a tubular shell, a supporting member therefor, a socket

in the shell, a shaft projecting from the socket, and a filling in which the socket and shaft are embedded.

15. A column, comprising a shell, a cap seated upon said shell and having means adapting it to support beams at different elevations, and also having a reduced neck which extends into the shell, and a filling in the shell extending into the neck of the cap.

16. In a column, an outer casing, a cap seated thereon and having a hollow portion above the casing, a filling material in the casing and cap and a rod extending into the cap and embedded in the filling.

17. In a column, an outer casing, a cap seated thereon and having a reduced neck extending into the casing and hollow above the same, a filling material in the casing and cap, and a rod extending into the cap and embedded in the filling.

18. A new article of manufacture, comprising a hollow casing provided with a tubular cap having a neck adapted to fit inside of the casing and which cap is also provided with an upper apertured plate; a socket member consisting of a thimble and a flange adapted to fit the casing; a rod passing through the cap and projecting down into the casing and a body of plastic material filling the space within the cap and casing and surrounding the rod and socket-thimble.

19. The combination with a hollow column, of a hollow cap terminating in an apertured plate and provided with a neck adapted to fit snugly the interior of the column and a rod passing through the apertured plate and projecting outwardly beyond the same and inwardly into the column beyond the neck of the cap, the hollow column and cap being filled with cement whereby there is formed a substantial unitary column and cap with a projecting rod.

20. The combination with a hollow column, of a hollow cap terminating in an apertured plate and provided with a neck adapted to fit snugly the interior of the column and a rod passing through the apertured plate and projecting outwardly beyond the same and inwardly into the column beyond the neck of the cap, the hollow column and cap being filled with cement whereby there is formed a substantial unitary column and cap with a projecting rod, of a second column adapted to be superimposed above the first column and provided with a socket member adapted to receive the projecting rod of the first column.

21. The combination with a hollow column, of a hollow cap terminating in an apertured plate and provided with a neck adapted to fit snugly the interior of the column, and a rod passing through the apertured plate and projecting outwardly beyond the same and inwardly into the column beyond the neck of the cap, the hollow column and cap being filled with cement whereby there is formed a substantial unitary column and cap with a projecting rod, of a second column adapted to be superimposed above the first column and provided with a socket member having a snugly-fitting flange and an inwardly-projecting thimble adapted to receive the projecting rod of the first column.

22. The combination with a hollow column, of a hollow cap provided with one or more bracket members, said cap terminating in an apertured plate and provided with a neck adapted to fit snugly the interior of the column, and a rod passing through the apertured plate and projecting outwardly beyond the same and inwardly into the column beyond the neck of the cap, the hollow column and cap being filled with cement whereby there is formed a substantial unitary column and cap with a projecting rod.

23. A series of hollow columns vertically arranged, each having an upper hollow cap provided with a neck adapted to fit snugly within its column and a lower socket member having a thimble provided with means for centering it, each column provided with a rod adapted to fit into the socket of the column above it and extending downwardly beyond its cap, each column and cap being filled with cement.

24. A series of hollow columns vertically arranged, each having an upper hollow cap provided with a neck adapted to fit snugly within its column and a lower socket member having a thimble provided with means for centering it, each column provided with a rod to fit into the socket of the column above it and extending downwardly beyond its cap, each column and cap being filled with cement and each cap having one or more bracket members.

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

GEORGE F. THORN.

Witnesses:

HARRY COLE,
W. J. KLIE.