

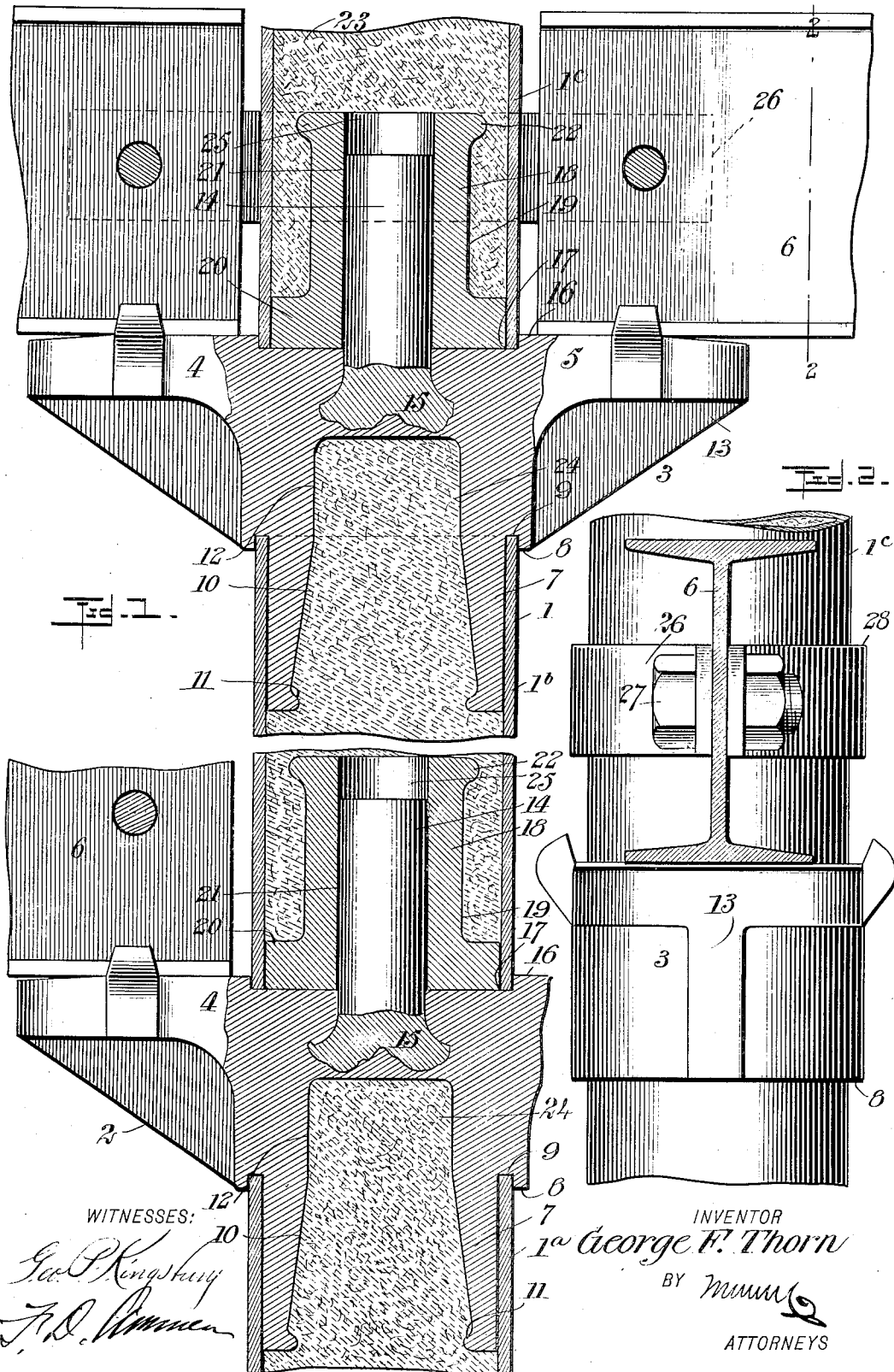
No. 844,973.

PATENTED FEB. 19, 1907.

G. F. THORN.

COLUMN.

APPLICATION FILED SEPT. 6, 1905.



# UNITED STATES PATENT OFFICE.

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

## COLUMN.

No. 844,973.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed September 6, 1905. Serial No. 277,213.

*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 the construction of buildings, and especially to their framing.

The object of the invention is to produce a column especially adapted for supporting floors and which is constructed of a plurality of sections placed one above the other.

A further object of the invention is to produce a construction at the point where these sections connect which will have great rigidity and durability.

The present case constitutes one of a series of copending applications which I have filed, including Serial No. 283,099, filed October 17, 1905; Serial No. 290,427, filed December 5, 1905, and Serial No. 298,116, filed January 27, 1906. These several cases embrace common subject-matter, and the matter common to all includes a column provided with a casing having a cap provided with a recess above the body of the casing and which recess, together with the casing, contains a filling material, preferably of plastic nature, such as cement. The cap is apertured, and a rigidly-held pin, post, or other holding means projects from the aperture in the cap into the contiguous casing. In several of the cases referred to, including the forms shown in my present case and my applications Serial Nos. 283,099 and 290,427, a socket is provided to receive the end of the rod or post referred to.

The present case is founded upon the subject-matter which is common to all the cases referred to and also upon matter which is peculiar to the form shown in the present case. 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 like parts in both the figures.

Figure 1 is a central vertical section through the ends of a column constructed according to my invention, certain parts being shown in elevation, others being broken away, as will appear; and Fig. 2 is a side elevation of a portion of my column, taken at a

point between two sections thereof. This view is substantially a section on the line 2 2 of Fig. 1.

Referring more particularly to the parts, 1 represents a casing which preferably consists of a cylindrical shell or tube. In practice this casing is preferably made of steel tubing. The column shown comprises three sections 1<sup>a</sup>, 1<sup>b</sup>, and 1<sup>c</sup>. These sections are placed end to end in erecting the column in the manner shown, the same being connected by joints 2 and 3. The joints 2 and 3 are of similar construction. These joints comprise caps 4, preferably formed of cast-iron and presenting outwardly-projecting arms 5, adapted to support the ends of beams 6 in the usual manner. The bodies of these caps are formed with downwardly-projecting necks 7 of reduced diameter, which are adapted to be received in the upper extremities of the casings, as shown. By reason of the reduced diameter of the necks 7 a shoulder 8 is formed at the lower portion of the body of each cap. In this shoulder I provide an annular recess 9, which receives the upper extremity of the shell or casing, as indicated. In this way the shoulder 8 constitutes a projecting lip, which overhangs or surrounds the extremity of the tubular shell or casing.

The necks 7 are formed each with a centrally-disposed recess 10 of enlarged diameter, and these recesses extend well up into the bodies of the caps. The mouths of the recesses are contracted slightly by lips 11, which project in from the lower extremity of the necks, as shown. The principal portion of the wall of the recesses 10 tapers inwardly, as shown, so that the upper extremity is of slightly-reduced diameter. The upper portions 12 of the recesses 10, which are formed in the body of the cap, are preferably of a uniform diameter, as indicated. The arms 5 are preferably braced by means of the usual webs or ribs 13, which connect the under sides thereof with the bodies of the caps.

The upper plate or end of the cap or base is, as stated, formed with an aperture from which projects a means which connects or forms part of the connection between the cap or base and the column contiguous thereto.

Referring now to the particular form illustrated herein, it will be noted that the aperture referred to does not extend entirely through the cap and that in forming the caps

4 each cap is provided with a pin 14, which projects upwardly from said aperture in the upper face of the cap, as indicated. It will be understood, however, that this is not essential to the generic invention. These pins are preferably of steel, having enlarged heads 15, and in practice they are, in the form illustrated in this case, conveniently molded in the cap during the casting operation. In this way they are very securely held and constitute virtually an integral part of the cap. In the upper face 16 of each cap a circular recess or counterbore 17 is formed, which is of sufficient diameter to receive the casing 1, which is disposed above.

In the lower ends of the casings 1<sup>a</sup>, 1<sup>b</sup>, and 1<sup>c</sup> sockets 18 are provided, the same having cylindrical bodies 19 with enlarged heads 20, which heads substantially fill the mouth of the casing, as indicated. These sockets 18 are forced into the ends of the casings, so that they are securely held therein, as will be readily understood, the lower faces of the sockets being flush with the lower ends of the casings, as indicated. Each of the sockets 18 is formed with a centrally-disposed bore 21, which is adapted to receive nicely one of the pins 14, as shown. The upper extremities of the sockets 18 are preferably provided each with a laterally-projecting lip 22.

The sections of the column are fitted one upon the other, as indicated, and the bodies of the casings are completely filled with concrete or cement 23. When the bodies are being applied to the casings filled as suggested, the recesses 10 are preferably filled with cement 24, which as the caps are forced into position completely fills the interior thereof, so as to constitute a continuation of the filling of the body of the casing. When this cement and filling hardens, a very rigid connection exists between the cap and the body of the column, so that for all intents and purposes the cap becomes an integral part of the column-body. In this connection attention is called to the fact that the concrete interior or core projects well out beyond the upper edge of the casing, so as to constitute a solid core for the interior of the body of the cap.

Attention is also called to the shoulder 8, and especially to the utility of the lip, which projects down at this point, so as to surround the upper edge of the casing. This lip operates to reinforce the upper end of the casing and prevents any tendency of the same to split or expand from pressure upon the cap.

The column-section which is disposed above each cap is rigidly held in a vertical position thereupon by reason of the steel pin 14, which projects up from the cap and is received in the sockets 18.

In practice I prefer that the pins 14 should not extend entirely through the upper extremities of the sockets; but I prefer to leave

a space 25 at this point, which is filled with cement before the introduction of the concrete filling 23.

The ends of the beams 6 are preferably united by means of horizontal straps 26, which are attached to webs of the beams on opposite sides by means of suitable bolts 27. The bodies of these straps are offset outwardly, so as to form yokes 28, which lie against the sides of the column and lock the beams thereof, as will be readily understood.

With a column constructed as described the upper column-sections are self-supporting and rigid immediately when set up and do not in any way depend upon the beams for their support, though of course in practice the beams do operate to brace the columns against lateral displacement. With a column constructed as described the load is taken largely by the concrete filling, and the end of the tubular casing is reinforced by the shoulders 8, as described. The lower extremities of the casings fit nicely in the recesses 17, so that the sides of the recesses reinforce the lower extremities in the same manner as the shoulders 8 reinforce the upper extremities thereof. In this way a very rigid column structure is produced. In one aspect the caps referred to may be considered as a base for the column-section just above.

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

1. A column comprising a casing, a member constituting a base for the casing and having a recess in the upper face thereof to receive the same and also having a projection rigidly secured to it and extending upward into the casing, and a filling within the casing.

2. A column comprising a casing, a member constituting a base therefor and having a recess receiving said casing, said member further having a pin rigid therewith and projecting upwardly therefrom into the interior of said casing, and a socket within said casing and receiving said pin.

3. A column comprising a casing, a member constituting a base therefor and having a recess receiving said casing, said member further having a pin projecting upwardly therefrom into the interior of said casing a socket within said casing and receiving said pin, and a filling within said casing substantially surrounding said socket.

4. A column comprising a casing, a member constituting a base for said casing and having a recess receiving the same, a socket having a reduced body and rigidly mounted within said casing and having its lower face supported on said member, a pin rigid with said member and projecting upwardly into said socket, and a filling within said casing and surrounding the body of said socket.

5. A column comprising a casing, and a cap having a neck projecting into said casing and having a lip projecting downwardly over the outer edge of the upper extremity of the said casing.

6. A column comprising a casing, a cap seating on said casing and having a recess therein extending upwardly beyond the upper extremity of said casing, and a filling for said casing projecting up into and substantially filling said recess.

7. A column comprising a casing, a cap having a neck projecting into said casing and having a lip projecting over the outer edge of the upper extremity of the said casing, said cap having a recess formed therein and communicating with the interior of said casing, and a filling within said casing and said recess.

8. A column having a casing, a cap having a reduced neck received within said casing and having a recess communicating with the interior thereof, a filling within said casing and extending up into said recess, a pin carried integrally by said cap and projecting upwardly from the upper face thereof, a second casing seating on said cap, and a filling for said upper casing and surrounding said pin.

9. A column comprising a casing, a cap having a reduced neck received in the upper extremity of said casing said cap having a recess in said neck communicating with the interior of said casing, a filling within said casing extending into said recess, a second casing seating on said cap, a socket carried within said second casing, a pin carried by said cap and projecting into said socket, and a filling for said second casing.

10. A column comprising a casing, a cap seated thereon and provided with a depending portion which extends below its seat and with a recess which extends above its seat, and a filling material in said casing and cap.

11. A column comprising a casing, a cap seated thereon and provided with a depending portion adapted to extend into said casing and with a recess which extends into the cap to a place above the plane of such depending portion; and a filling material in said casing and cap.

12. A column comprising a casing provided with a hollow cap the chamber or recess of which extends above the casing and has its wall provided with an inwardly-extending projection, and a filling material in said casing and cap.

13. A column comprising a casing, and a cap seated on the casing and provided with a lip which extends downward over the outer edge of the upper extremity of the casing and with a neck which projects into the casing below the plane of the lip, and a filling material in the casing and neck.

14. A column comprising a casing, a cap

seated on the casing and a filling material in the casing and cap; the cap having a neck which projects into the casing, a lip which extends downward over the outer edge of the upper extremity of the casing and a projecting portion which extends inward into the casing and is embedded in the filling.

15. A column comprising a casing, a member engaged with an end thereof, a filling material within said casing, and a holding means comprising a socket arranged in the casing and a rigidly-held projection extending from the member into the socket.

16. A column comprising a casing, a cap seated thereon, a socket seated on the cap, a projection rigidly secured to the cap and extending into the socket and a filling material in the casing.

17. As a new article of manufacture, a cap for a hollow column, comprising a tubular body, having an upper apertured plate and a lower neck of reduced diameter to fit snugly within the column and adapted to be filled with a plastic material and provided externally with a bracket.

18. A new article of manufacture, comprising a hollow casing provided with a tubular cap having a neck adapted to fit inside the casing and also having its upper plate apertured; a socket member; a rod extending from the aperture in the cap into the socket member and a body of plastic material within the casing and surrounding the socket member.

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, a rigidly-held rod extending from the aperture in the plate, and a filling of plastic material in the column.

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, a socket member on said cap, a rigidly-held rod extending into the socket member from the aperture in the plate, and a filling of plastic material in the column and cap.

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, a socket member, a rigidly-held rod extending into the socket member from the aperture in the plate, and a filling of plastic material in the column and cap, and a second column mounted on the cap and comprising plastic material in which the socket member is embedded.

22. The combination with a hollow column provided with a filling of plastic material, a cap for the column, a second column comprising plastic material seated on the cap, and a projecting means from the cap

embedded in the plastic material of the second column.

23. The combination with a hollow column provided with a filling of plastic material, a cap for the column, a second column comprising plastic material, seated on the cap, and a projecting means from the cap embedded in the plastic material of the second column, said projecting means comprising a socket in the second column and a rod extending into the socket from the cap.

24. The combination with a hollow column provided with a filling of plastic material, a cap for the column having an aperture, a second column comprising plastic material seated on the cap, and a projecting means from the cap embedded in the plastic material of the second column, said projecting means comprising a socket in the second column and a rigidly-held rod extending into the socket from the aperture in the cap.

25. The combination with adjacent hollow column sections, and a plastic filling therefor, of a cap fastened to one section and provided with a flange embedded in the filling of the adjacent section.

26. The combination with adjacent hollow-column sections, and a plastic filling therefor, of means for securing said sections together embodying a cap fitted to one section and provided with a corrugated flange embedded in the filling of the adjacent section.

27. The combination with adjacent hollow-column sections and a plastic filling

therefor, of a union provided with oppositely-extending flanges embedded in the filling of the sections.

28. The combination with adjacent hollow-column sections, and a plastic filling therefor, of a cap for one section forming also a supporting-base for the adjacent section, said cap having an exteriorly-corrugated flange which is embedded in the filling of one of the sections.

29. The combination with adjacent hollow-column sections, and a plastic filling therefor, of a connection between said sections having means embedded in the filling for holding the sections together.

30. The combination with adjacent hollow-column sections, and a plastic filling therefor, of a cap fitted to one section, and a flange detachably secured to the cap and embedded in the filling of the adjacent section.

31. The combination with adjacent column-sections, and a plastic filling therefor, of a connection for said sections having portions embedded in the filling, beam-rests projecting outward from the cap, and bracing webs connecting the rests and cap.

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

GEORGE F. THORN.

Witnesses:

JNO. M. RITTER,  
F. D. AMMEN