No. 816,480. PATENTED MAR. 27, 1906.

J. LALLY.

COMBINED COLUMN CAP AND BASE.

APPLICATION FILED JULY 27, 1904.

2 SHEETS—SHEET 1.

Fig. 3.

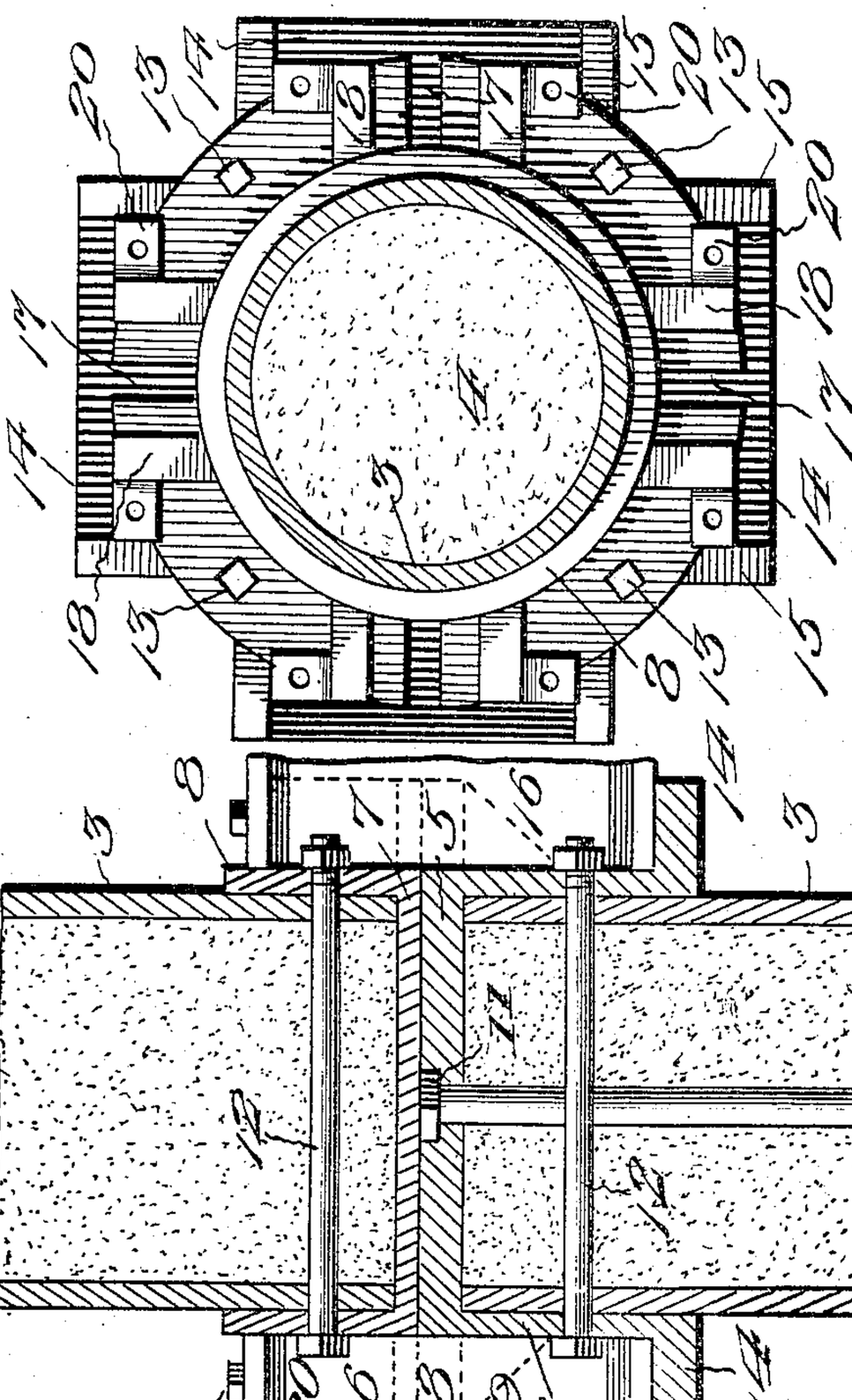


Fig. 2.

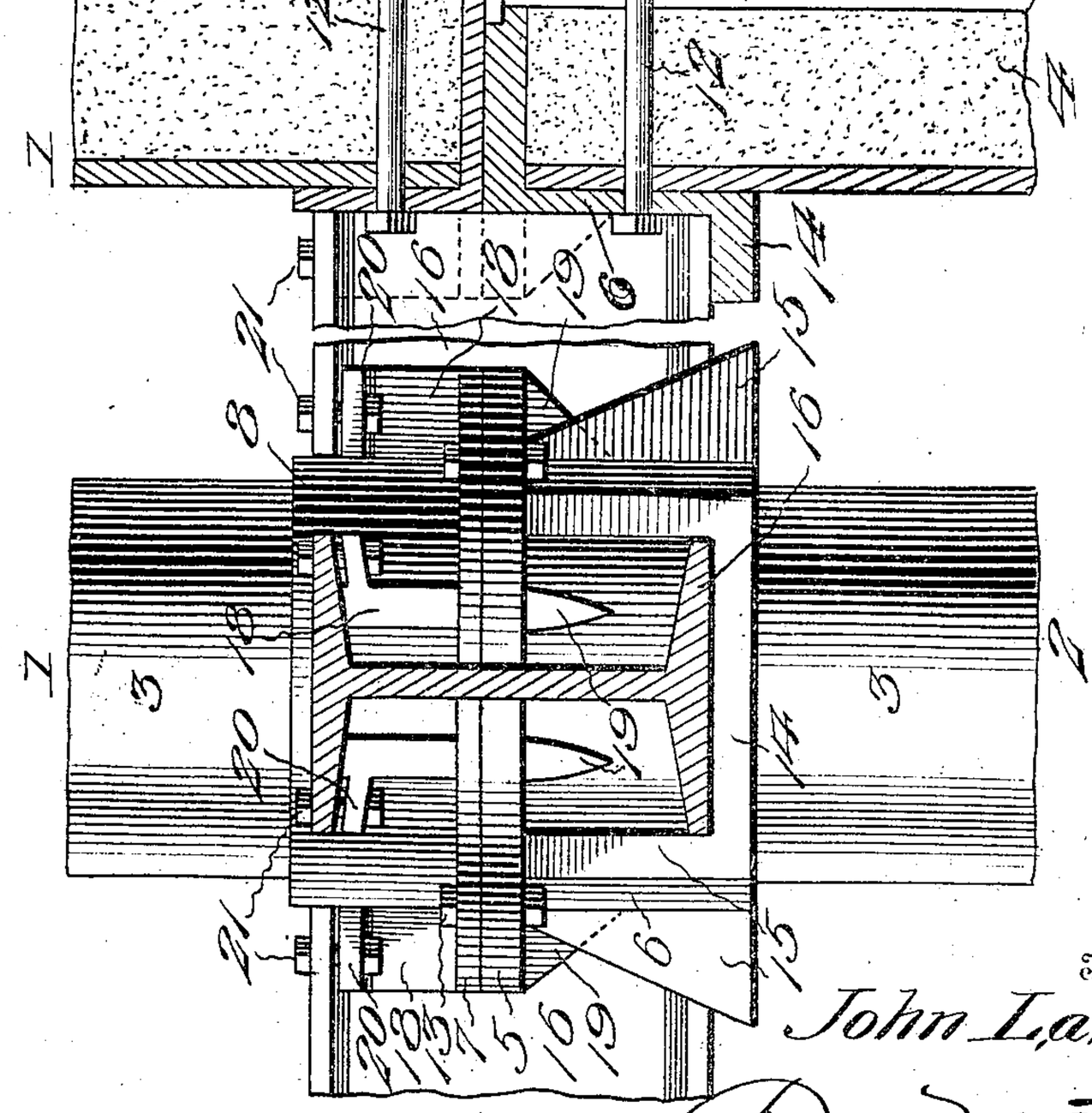
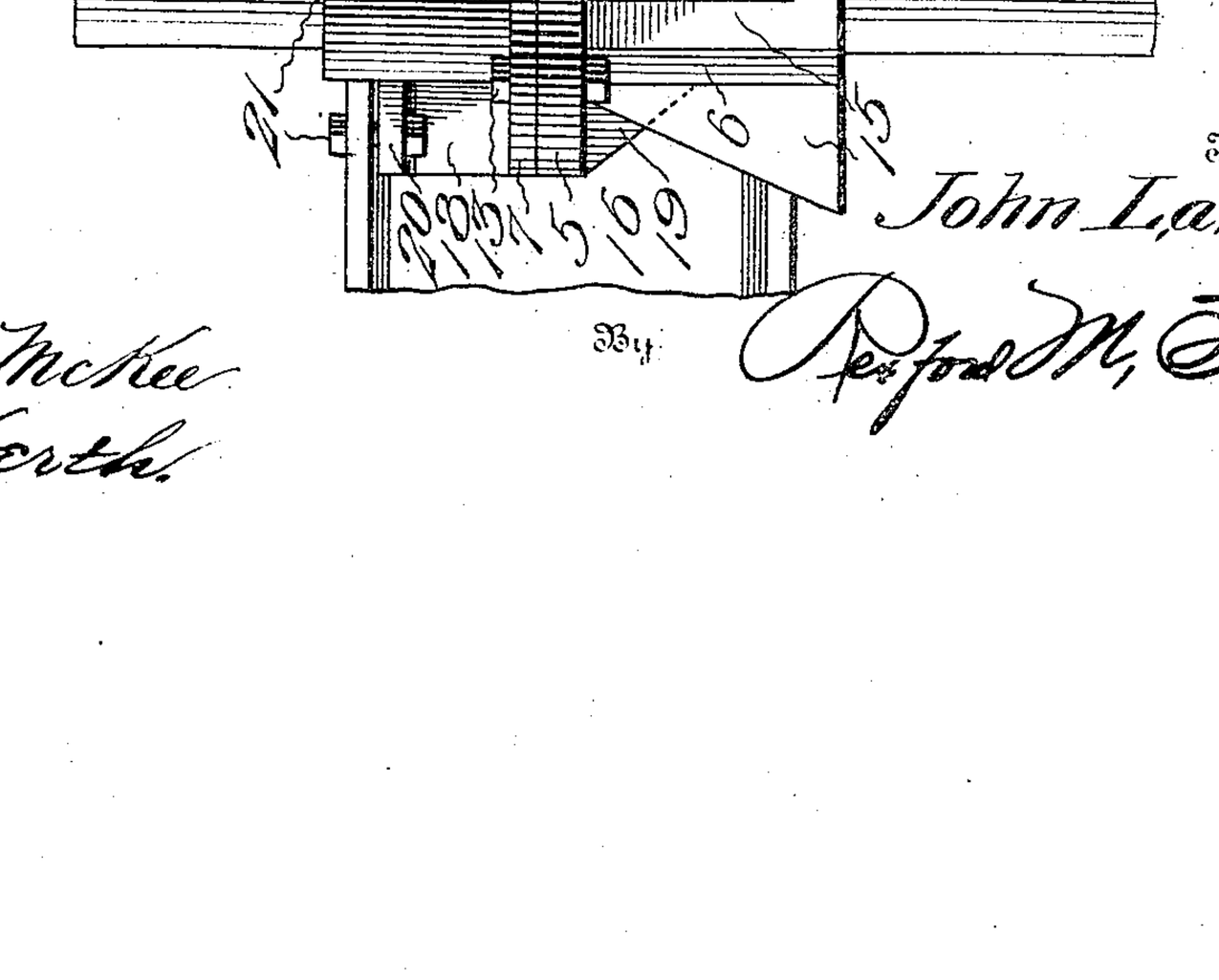


Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 6.

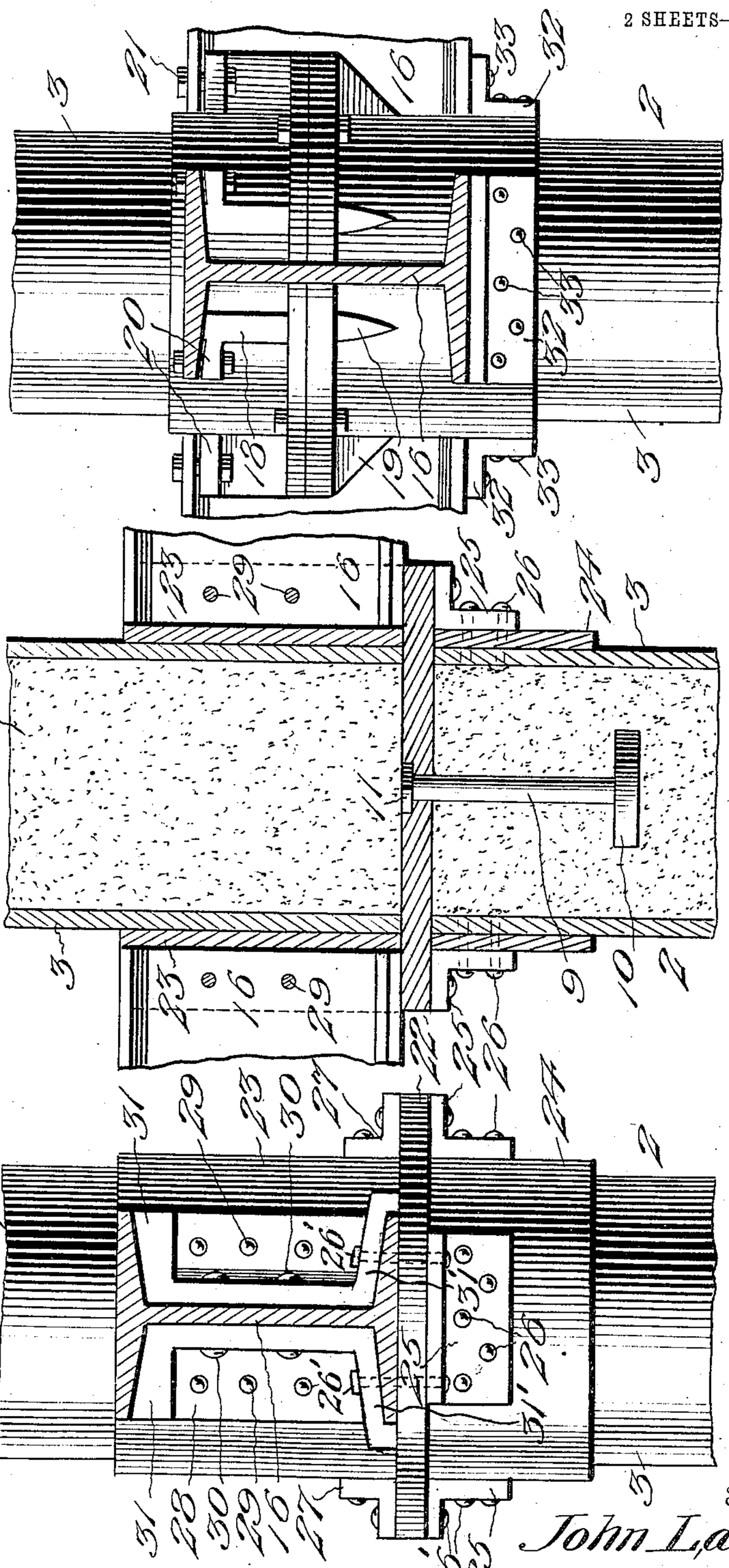

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

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COMBINED COLUMN CAP AND BASE.

No. 816,480. Specification of Letters Patent. Patented March 27, 1906.

Application filed July 27, 1904. Serial No. 218,382.

To all whom it may concern

Be it known that I, JOHN LALLY, a citizen of the United States of America, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Combined Column Cap and Base, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to columns, and has particular reference to the caps and bases of columns, the main object of the invention being to provide a cap for a column embodying novel means whereby the cap is firmly secured to the column and also adapted to support overhead beams or girders and securely connect the same to the column, the cap being adapted for use either in connection with two-way, three-way, or four-way beams or girders.

A further object of the invention is to provide what may be termed a "combined" cap and base which will not only provide for the support of overhead beams of girders, but which also adapts the superimposed sections of a column to be united and securely coupled together.

It is also an object of the invention to so construct the combined base and cap that the parts thereof may be used conjointly or separately, as may be required.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, as herein fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a sectional column, showing the combined cap and base connected therewith and supporting four-way beams or girders, one of which is shown in section. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a plan view of the combined cap and base, showing the upper portion of the column in section. Fig. 4 is a side elevation showing a two-part column with a sectional or built-up combined cap and base applied thereto and supporting two-way beams or girders, one of which is shown in section. Fig. 5 is a vertical sectional view of the same, taken at right angles to Fig. 4. Fig. 6 is a side elevation showing the combined cap and base adapted for use in connection with four-way beams or girders.

Like reference-numerals designate corresponding parts in all the figures of the drawings.

Referring to the drawings, 1 and 2 designate the upper and lower parts or sections of a column, each of which consists of an outer shell or casing 3 and an inner filling 4 of concrete, cement, or analogous composition, with which the shell is filled while said composition is in a plastic condition, the composition being allowed to harden, thus imparting great strength and lasting and fireproof qualities to the column as a whole.

In connection with the column-sections I employ a combined cap and base or, in other words, a combined column-coupling and beam-support which in the preferred embodiment of the invention (shown in Figs. 1, 2, and 3) comprises a cap which fits upon the upper end of the lower column-section and a base which fits upon the lower end of the upper column-section, as clearly shown in Fig. 2. The cap comprises an abutting plate 5, which rests upon the top of the lower column, section, and a tubular flange or sleeve 6, which surrounds the upper portion of said column-section, while the base comprises an abutting plate 7, which extends across the bottom of the upper column-section, and a tubular flange or sleeve 8, which surrounds the lower portion of the upper column-section, as clearly shown in Fig. 2.

The cap may be securely connected to the lower column-section by means of an anchor, comprising a bolt or rod 9, provided at its lower end with an enlargement or head, such as is shown at 10 in Fig. 5, the said bolt and head being placed in the column-shell before the latter is filled with the plastic composition, the latter subsequently hardening around the bolt and its head, and thereby firmly retaining the latter in place. The abutting plate 5 is provided with an opening to receive the extremity of the bolt or rod 9 and is also recessed to receive a nut 11 or its equivalent, which being placed upon the rod or bolt serves to fasten the cap to the lower column-section, as clearly shown in Fig. 2.

In addition to the anchor 9 tie-bolts 12 may be passed through the flanges 6 and 8 and also through the column-shells 3 and also through the filling 4 of the column-sections, the said bolts serving to tie the cap and base to the column-sections.

The abutting plates 5 and 7 extend outward beyond the flanges 6 and 8, as shown in Figs. 1 and 3 and also shown by dotted lines

in Fig. 2, and said extended portions of the plates are provided with openings to receive a series of tie-bolts 13, by means of which said plates are firmly secured together, thus completing the coupling of the column-sections together.

In order to support horizontal beams or girders, the cap is provided at diametrically opposite points with stirrups, each of which comprises a base or ledge portion 14 and cheek pieces or braces 15, which impart the necessary strength to the stirrups and enable them to support the lower edges of the beams or girders, which are shown in the form of I-beams 16. The projecting portions of the abutting plates 5 and 7 are provided at diametrically opposite points with radial slots 17 to receive the webs of the I-beams 16 and allow the ends of the beams to fit snugly up against the flanges 6 and 8 of the combined cap and base, as shown in Figs. 1 and 2. The base is also provided with outwardly-projecting saddles 18, arranged in pairs, one pair for each I-beam or girder, as shown in Figs. 1 and 3, the upper ends of said saddles lying directly under and in contact with the upper flanges of the I-beam, as best illustrated in Fig. 1. The saddles 18 extend from the abutting plate 7 upward, and saddle extensions 19 are formed on the flange 6 of the base so as to lie directly beneath the upper portions 18 of the saddles, and thereby assist in bracing and supporting the upper portion of the I-beam or girder, as will clearly appear in Fig. 1. The saddles are also provided with outwardly-projecting lugs 20, through which are passed bolts 21, which also pass through the upper flanges of the I-beams, the I-beams or girders being thus firmly connected to the combined cap and base, and therefore to the column.

Figs. 1 and 3 show the combined cap and base provided with saddles and stirrups for four-way beams and girders; but it will be obvious that where one or two beams are connected therewith the number of saddles or stirrups may be correspondingly reduced under the construction illustrated in Fig. 3, the said saddles and stirrups being formed integrally with the base and cap members.

In Figs. 4, 5, and 6 I have illustrated another form of combined cap and base, which, however, involves the same principle. It will be observed by reference to Figs. 4 and 5 that a single abutting plate 22 is employed and that the upper and lower sleeves or flanges 23 and 24, respectively, are formed separately therefrom, the lower sleeve being secured to the abutting plate by means of angle-brackets 25, bolted, riveted, or otherwise secured to the sleeve 24 and the abutting plate 22. If desired, the bolts 26, which secure the angle-brackets to the sleeve 24, may extend entirely through the lower column-section and its filling. Where one and two way beams are employed, as shown in Figs. 4 and 5, other angle-brackets 27 may connect the upper sleeve 23 with the abutment-plate 22. The beams or girders are adapted to rest directly on the ledge formed by the projecting portion of the abutment-plate 22, as shown in Figs. 4 and 5, while the upper flanges of the beam are supported by saddles 28, formed separately from the upper sleeve 23 and bolted, riveted, or otherwise secured thereto, as shown at 29, and similarly connected with the web of the beam, as shown at 30, each saddle comprising a portion which lies directly against the sleeve 23, another portion which lies directly against the web of the beam, and upper and lower portions 31 and 31′, which conform to and bear against the upper and lower flanges of the beam, as clearly shown in Fig. 4.

Instead of employing the stirrups 14 (shown in Figs. 1, 2, and 3) angle-brackets 32, similar to those 25, shown in Figs. 4 and 5, may be employed, as illustrated in Fig. 6, in which case said angle-brackets 32 will be bolted, riveted, or otherwise secured, as shown at 33, to the bottom flanges of the I-beam. In this way the beams or girders are firmly connected to the cap and base at both top and bottom.

The construction above described provides for firmly connecting the upper and lower sections of the column and also supporting and tying overhead beams or girders where they meet the column. It will of course be understood that where there is no superimposed column-section the cap will be employed and the ceiling beams or rafters connected thereto.

The cap and base in any and all cases may be made in one solid piece, if desired. The sleeve 24 may be made in sections riveted to the shell of the column instead of in the form of one continuous sleeve, while the sleeve 23 (shown in Fig. 4) may be cast with the bottom plate in one solid piece, thereby doing away with the brackets 27. The bolts 26′ may pass through the brackets 25, abutment-plate 22, and lower portions 31′ of the saddle (indicated in Fig. 4) thus adding greatly to the strength of the structure as a whole.

Having thus described the invention, what is claimed as new is—

1. A combined cap and base for columns comprising an abutment-plate, sleeves or flanges extending upward and downward therefrom, means for securing the sleeves or flanges and abutment-plate together, and oppositely-arranged saddles projecting outward from the upper portion of the combined base and adapted to underlie and support the upper flanges of I-beams or girders.

2. A combined cap and base for columns comprising an abutment-plate, sleeves or flanges extending upward and downward therefrom, means for securing the sleeves or

flanges and abutment-plate together, stirrups projecting outward from the combined cap and base to support the lower edges of the beams or girders, and saddles projecting outward therefrom to support the upper portions of beams or girders.

3. A combined cap and base for columns comprising an abutment-plate, sleeves or flanges extending upward and downward therefrom, means for connecting the sleeves or flanges and abutment-plate, saddles extending outward from the combined cap and base to support the upper portions of beams or girders, said saddles extending upward from the abutment-plate, and saddle extensions extending downward from the abutment-plate in line with the saddle member.

4. A combined cap and base for columns comprising an abutment-plate, sleeves or flanges extending upward and downward therefrom, beam or girder supports extending outward from the sleeves or flanges, and tie-bolts passing through said sleeves or flanges above and below the abutment-plate and adapted to pass also through the ends of column-sections inserted within the sleeves or flanges, for fastening said parts together.

5. A combined cap and base for columns comprising an abutment-plate, sleeves or flanges extending upward and downward therefrom, saddles extending upward from the abutment-plate and adapted to support the upper flanges of a beam or girder, lugs extending laterally from the saddles, and bolts passing through said lugs and flanges of the I-beam.

6. A combined cap and base for columns comprising an abutment-plate, sleeves or flanges extending upward and downward therefrom, means for securing the ends of the column-sections within said sleeves or flanges, the abutment-plate extending outward beyond the sleeves or flanges and being provided with one or more radial slots to admit the web of an I-beam, and means for supporting an I-beam or girder and securing the same to the combined cap and base.

7. The combination of tubular metallic column-sections, of a combined column cap and base comprising an abutment-plate fitting between the open ends of the sections, tubular flanges or sleeves extending upward and downward from the abutment-plate and entirely surrounding the end portions of the column-sections, means for securing the parts of the column cap and base together, and means on the combined cap and base for supporting horizontal beams or girders.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN LALLY.

Witnesses:

JOHN H. BROWN,

CHARLES E. COLLIGAN.