

O. K. HARRY.
WALL CONSTRUCTION.
APPLICATION FILED FEB. 7, 1910.

999,221.

Patented Aug. 1, 1911.

3 SHEETS—SHEET 1.

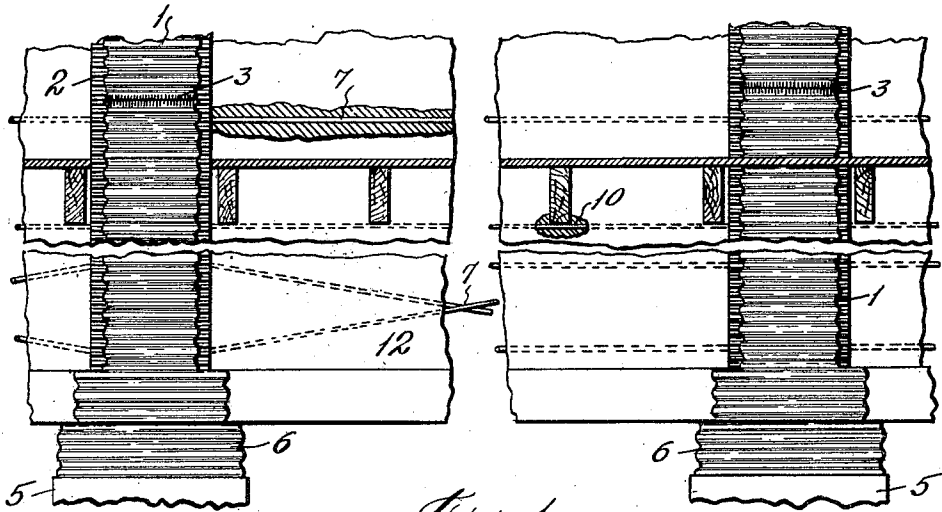


Fig. 1

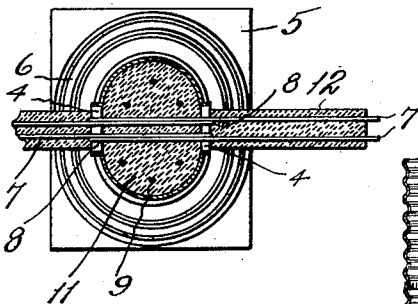


Fig. 2

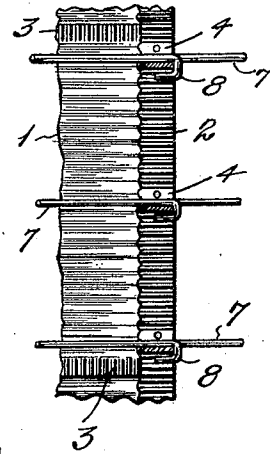


Fig. 4

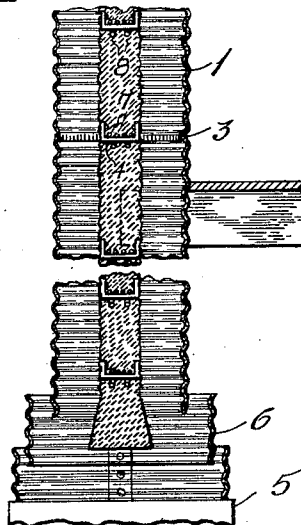


Fig. 3

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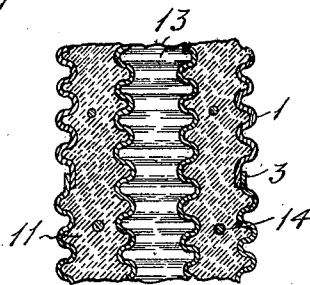
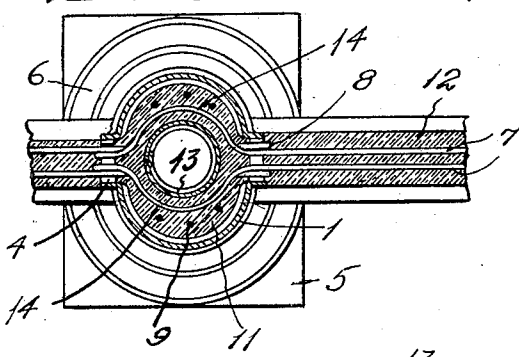
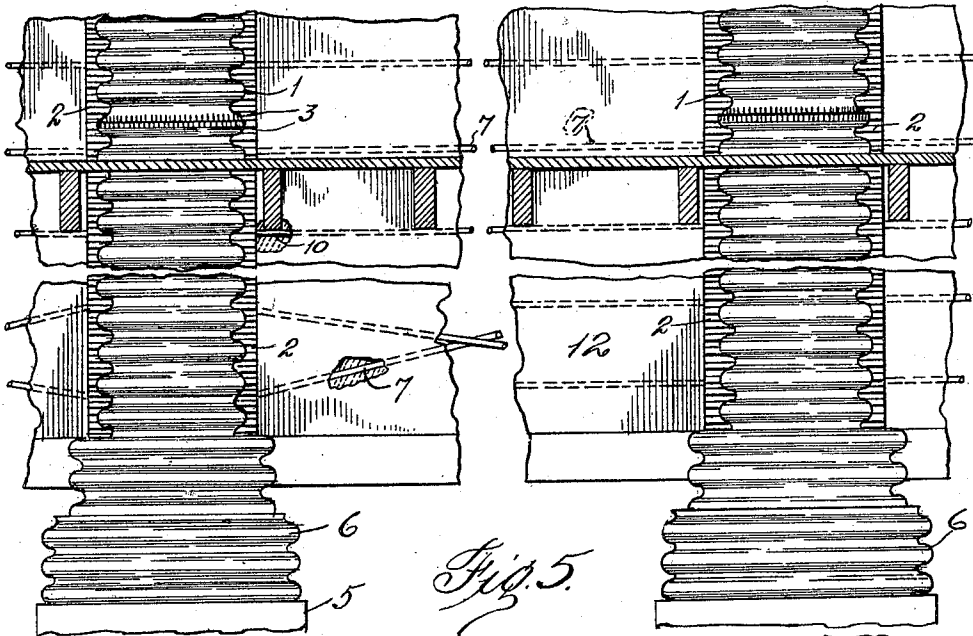
W. H. Parke.
J. L. Bowling.

INVENTOR
Owen K. Harry
BY
Schuyler
ATTORNEYS

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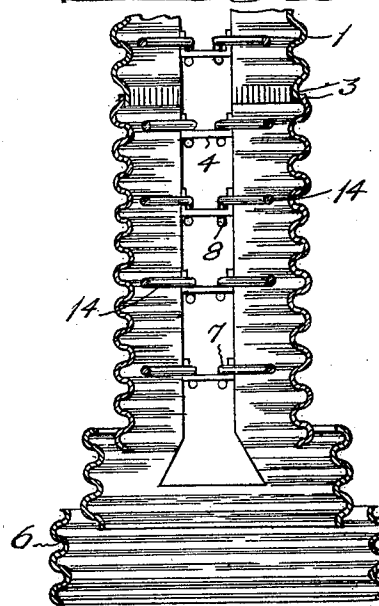
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Patented Aug. 1, 1911.
3 SHEETS—SHEET 2.



WITNESSES:

E. Marke.
J. L. Bowling.



INVENTOR

Owen K. Harry

BY

Schuyler Davis

ATTORNEYS

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3 SHEETS-SHEET 3.

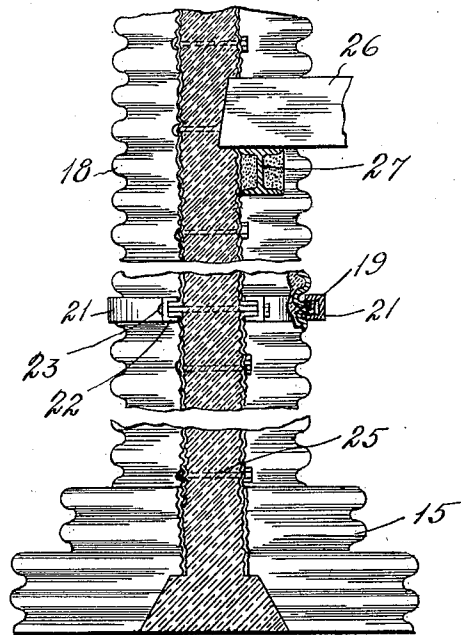
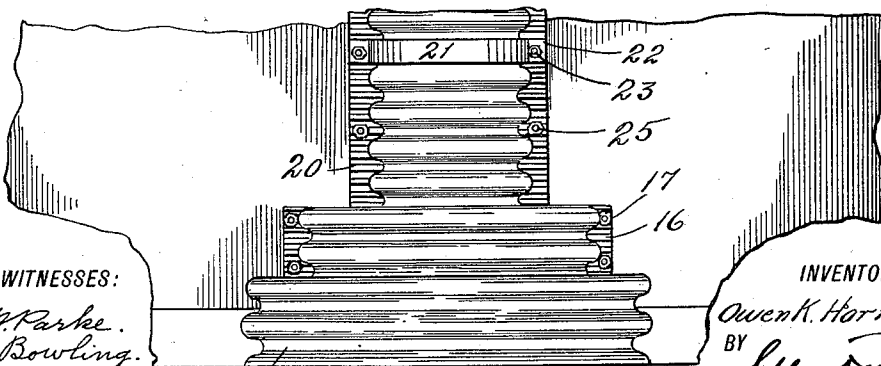
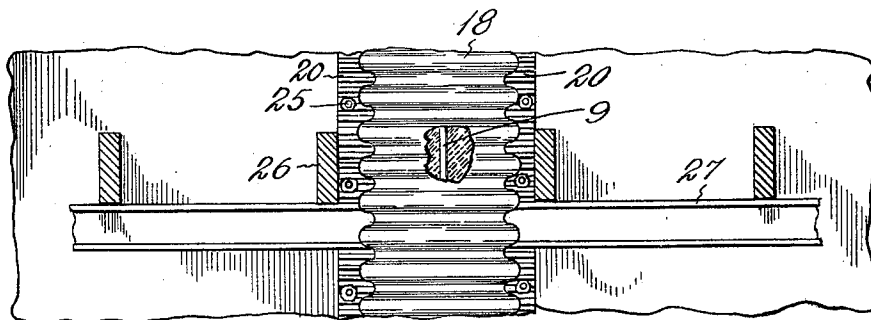


Fig. 9



WITNESSES:

W. P. Parke.
J. L. Bowling.

INVENTOR

Owen K. Harry.

BY

Shlyndavis.

ATTORNEYS

Fig. 10

UNITED STATES PATENT OFFICE

OWEN K. HARRY, OF DALLAS, TEXAS.

WALL CONSTRUCTION.

999,221.

Specification of Letters Patent.

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Application filed February 7, 1910. Serial No. 542,544.

To all whom it may concern:

Be it known that I, OWEN K. HARRY, citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Wall Constructions, of which the following is a specification.

My invention relates to new and useful improvements in building construction and particularly wall construction.

The object of the invention is to provide a reinforced wall construction involving metallic column casings and reinforcing rods.

A further object of the invention is to provide a construction whereby a reinforced wall comparatively narrow in transverse section, may be built; thus saving material and reducing the cost.

A still further feature resides in the construction whereby an old wall may be braced and reinforced or additional stories added to a building whose walls would be otherwise too weak to permit the addition.

Finally the object of the invention is to provide means of the character described that will be strong, durable, efficient, and easy of operation, simple and comparatively inexpensive to construct, and also in which the several parts will not be likely to get out of working order.

With the above and other objects in view, the invention has relation to certain novel features of construction and operation, an example of which is described in this specification and illustrated in the accompanying drawings, wherein;

Figure 1 is an interior elevation of a wall constructed in accordance with the invention, the floor being shown in section, Fig. 2 is a horizontal section of the wall below the floor, Fig. 3 is a transverse vertical sectional view of the wall shown in Fig. 1, Fig. 4 is a detail of one of the casing sections, Fig. 5 is a view similar to Fig. 1, but illustrating a modified form, Fig. 6 is a horizontal section of the same, Fig. 7 is a vertical section of the same, Fig. 8 is a vertical section of the column used in the form shown in Fig. 5, Fig. 9 is a vertical section of an old wall braced in accordance with the invention, and Fig. 10 is an interior elevation of the same.

In describing the various parts of this invention, the same reference numerals will be used to designate elements which are of

the same construction, irrespective of the form of structure with which they are used.

In the drawings, the numeral 1, designates a semi-circular column section preferably formed of corrugated sheet metal. In constructing the wall, several of these sections are employed on each side of the wall proper. Each section has an outwardly directed flange 2 along each vertical edge. Along its upper and lower ends 3, each section is crimped vertically so that when the sections are assembled in superposed relation, the lower crimped end of one section will fit the upper crimped end of the next lowest section, similar to the sections of an ordinary stove pipe.

The sections on each side of the wall are held in opposed relation with their flanges toward each other and separated a distance substantially equal to the width of the wall. The sections are secured together by angular bars 4 suitably secured at their ends to the flanges 2, and disposed with their broad faces upward. In this way the sections are united in pairs and one pair disposed on the other.

In assembling the columns, a suitable footing 5 is provided and upwardly extending pier casings 6 of corrugated sheet metal disposed thereon. These metallic casings 6 may each be formed of superposed sections, each section of a single piece having its vertical ends overlapped and fastened together. The forms (not shown) for the wall are set up between the columns after the pier casings have been placed in position. Plastic material is deposited to fill the casings 6 and form the wall up to the top of the piers. The first pair of sections is then placed on each pier. Tie rods 7 are then arranged between the columns. These rods are preferably disposed in pairs, the rods of each pair being parallel. At each end each rod is formed with a hook 8 and the rod passed through the casing between the opposed sections and having its hook engaged over the bar 4 on the opposite side. As shown in Fig. 1, the rods may extend either horizontally or diagonally. As the plastic material is deposited the sections of the columns will be filled, the wall formed and the tie or reinforcing rods embedded. If desired vertical reinforcing rods 9 may be disposed in the columns. By observing Fig. 1 it will be noted that one set of tie rods designated by the numeral 10, are disposed so

that the floor joists while embedded in the wall, will substantially rest on said rods.

The columns are so positioned as to stand between the joists and may of course be extended to any desired height. It is evident that by this construction, plastic columns 11 connected by narrow plastic webs or wall portions 12 are produced, the said columns being inclosed in metallic casings or shells and the webs reinforced. One will see that no false work or forms for temporary use are required in constructing the columns. It is further apparent that by employing the columns, a wall of less width than ordinarily used, may be constructed and possess the necessary strength and stability and at the same time a considerable saving in material, time, labor and expense effected.

In Figs. 5 to 8 inclusive another form is illustrated. In this form a tubular metallic casing or inner shell 13, preferably of corrugated cheap metal is disposed substantially in the center of each column and the plastic material deposited around this shell. The tie rods 7 are curved at 14 so as to freely pass the inner shell as shown in Fig. 6. Other than these differences the construction is the same as that illustrated in Figs. 1 to 4 inclusive. By employing this last form and not depositing plastic material within the inner shell 13, a hollow column is produced and the advantages of such a structure are too well known to require explanation.

Many times it may be desired to brace a previously constructed wall which is built either of brick or plastic material. Such a procedure may be necessary from the fact that the wall is cracked or weak or it is desired to add additional stories and the present wall is too weak. In Figs. 9 and 10 I have shown how a wall may be braced by employing certain elements of the construction involved in this invention. In bracing the wall, pier casings 15 similar to the casings 6 except that they are provided with outwardly directed flanges 16, are provided. These pier casings 15 are positioned in opposed relation on each side of the wall and at the base thereof. The pier casings are disposed along the wall at intervals and such distance apart as may be desired. The flanges 16 of one pier casing are bolted to those of the casing on the opposite side of the wall by bolts 17 or other fastenings passed transversely through the wall, openings of sufficient size to permit the passage of the bolts having been previously made. In this way the pier casings are secured to the wall and held in place. A column section 18 is mounted on each side of the wall on the casing thereunder. A number of these sections are mounted in superposed relation to form columns extending up each side of the wall. These sections are similar

to the sections 1 except that their upper and lower ends are not crimped but beaded as shown at 19 in Fig. 9. The sections are provided with outwardly directed flanges 20 similar to the flanges 2 and the meeting ends united by semicircular channel members 21 engaging over the beaded portion and provided with outwardly directed ears 22 bearing on the flanges 20. Bolts 23 are passed through the ears, flanges and wall whereby the members 21 on opposite sides of the wall are drawn toward each other and fastened, thus not only binding the sections together but tying them to the wall.

Plastic material is deposited in the pier casings and columns sections about the old wall and if desired vertical reinforcing rods may be embedded in this plastic material. In assembling a column it is desirable to place a section in position and fill the same with plastic material before another section is added, although the column may be assembled in any desirable manner. If desired additional bolts 25 may be passed through the wall and the flanges 20 connected intermediate the ends of each section. Just under the floor joists 26, an I-beam 27 is passed through the columns and extends horizontally along the inner side of the wall. This I-beam is embedded in the plastic material of the columns and provides an additional support for the floor joists. It is obvious that by this construction a wall may be greatly strengthened, as well as the entire building and additional stories added if desired.

What I claim, is—

1. In a wall construction, the combination with a wall, of a transversely curved vertical metal column, vertical flanges extending from the column member and disposed against the face of the wall, the column being disposed intermediate the ends of the wall, and a filling of plastic material deposited in the column member against the wall.

2. In a wall construction, the combination with a wall, of a transversely curved vertical metal column, vertical flanges extending from the column member and disposed against the face of the wall, the column being disposed intermediate the ends of the wall, a filling of plastic material deposited in the column member against the wall, and a joist supporting member passing the column and disposed exteriorly of the wall.

3. In a wall construction, the combination with a vertical wall, of transversely curved vertical metal half-column members, vertical flanges on each edge of the members, the members being disposed on opposite sides of the wall and separated by the wall, fastening devices passing transversely through the wall and engaging with the flanges on each side thereof, and plastic material disposed

in the column members on opposite sides of the wall.

4. In a wall construction, the combination with a wall, of metal half column members disposed directly opposite each other on opposite sides of the wall, the wall, flanges projecting from the members and lying against the face of the wall, a filling of plastic material disposed in the members, and fastening devices between the flanges of the opposed column members passing transversely through the wall.

5. In a wall construction, the combination with a vertical wall, of metal half column members disposed directly opposite each other on opposite sides of the wall,

flanges projecting from the members and lying flat against the face of the wall, stepped pier casing at the lower end of each half column member, a filling of plastic material deposited in the column members and pier casings, and fastening devices between the flanges of the opposed column members passing transversely through the wall.

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

OWEN K. HARRY.

Witnesses:

JACK A. SCHLEY,
L. E. NOACK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."