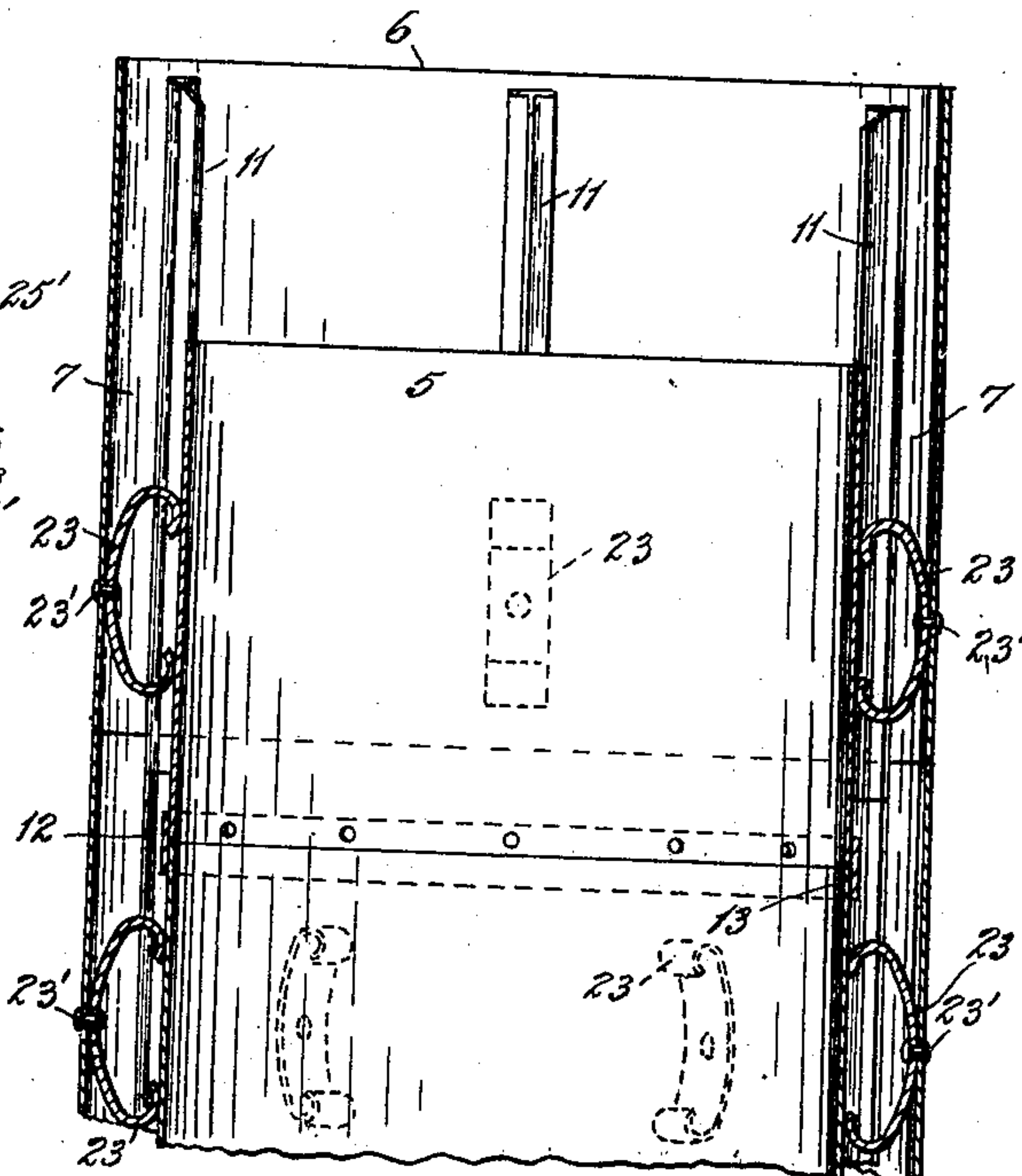
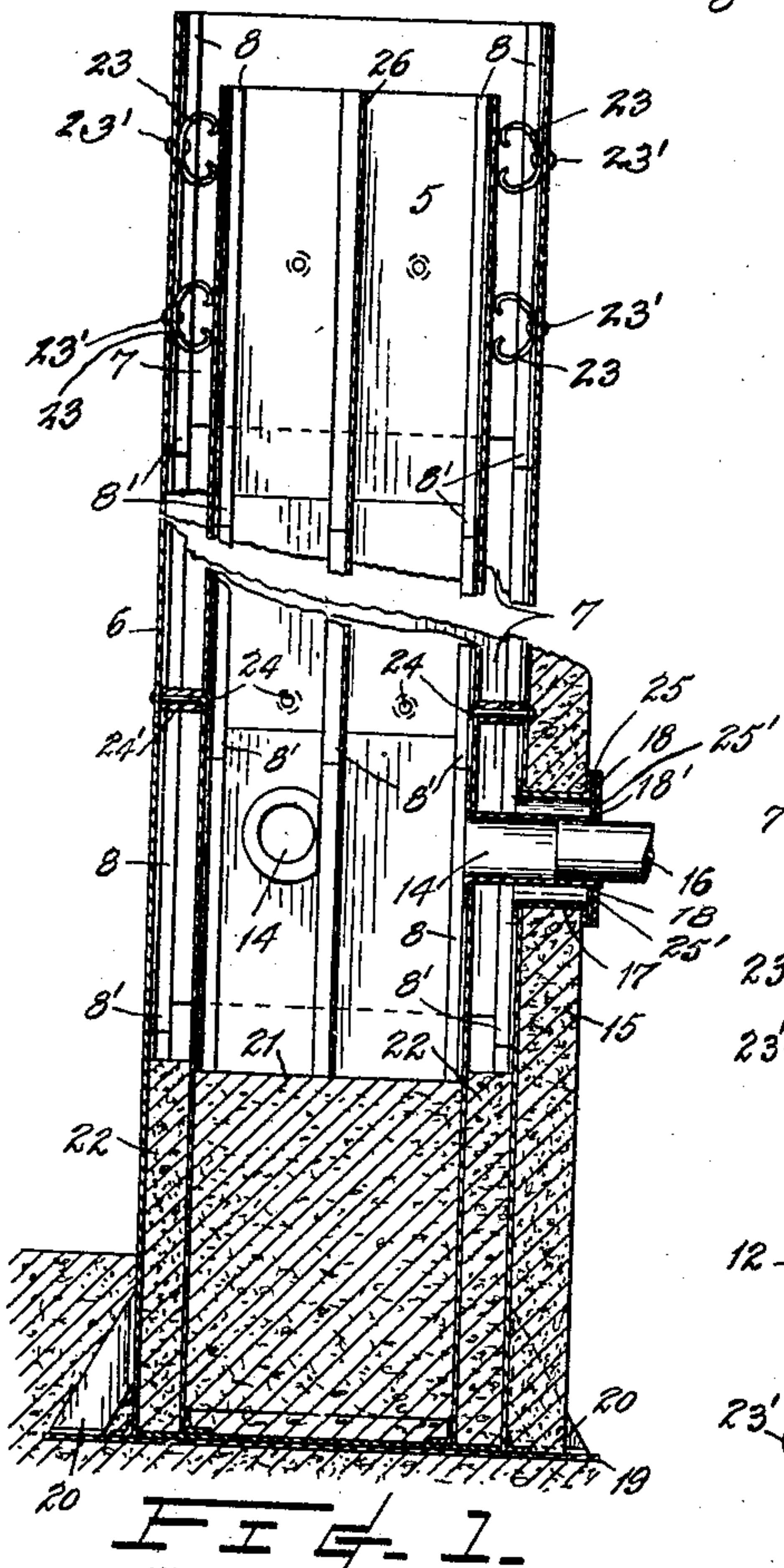
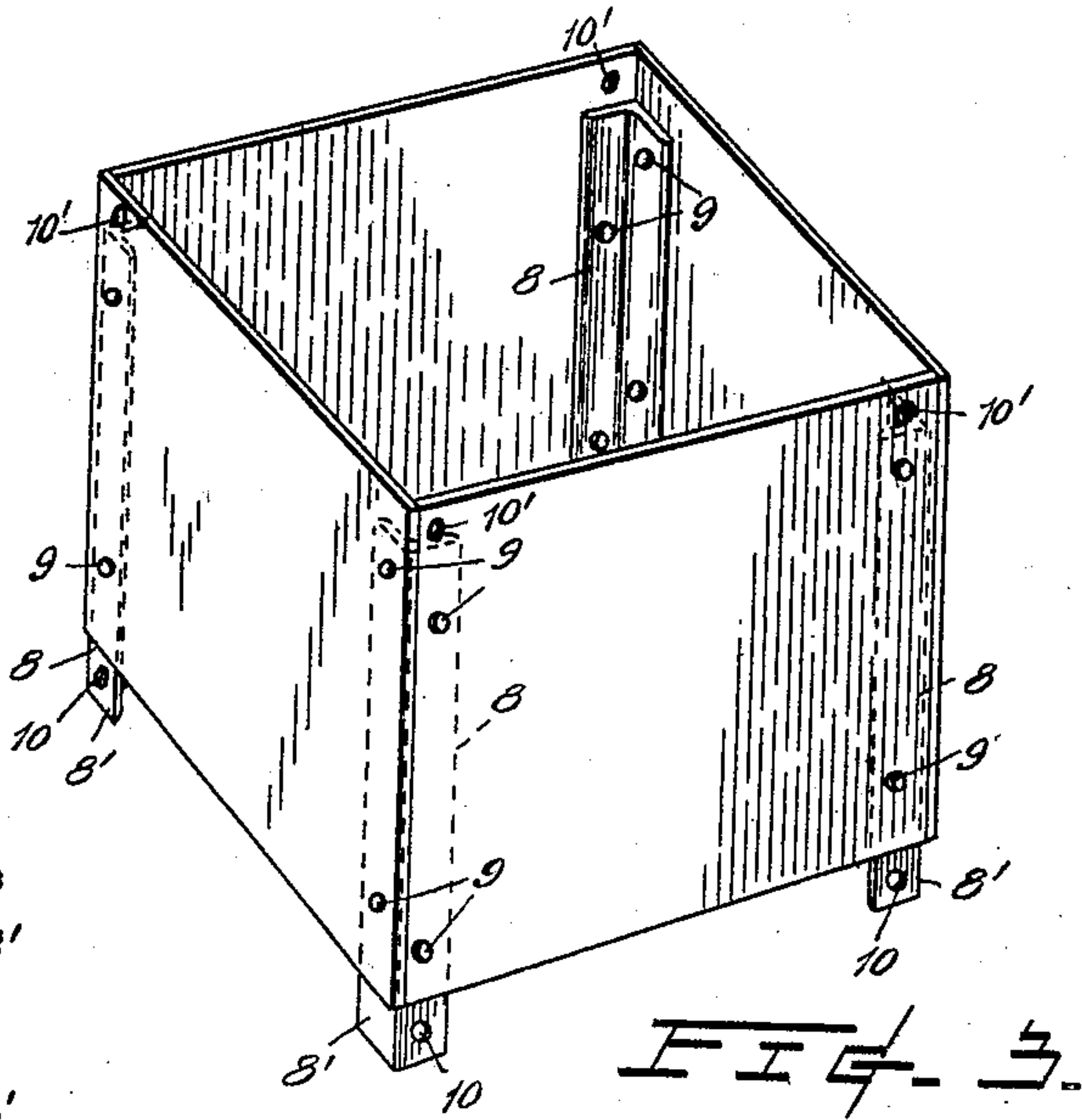
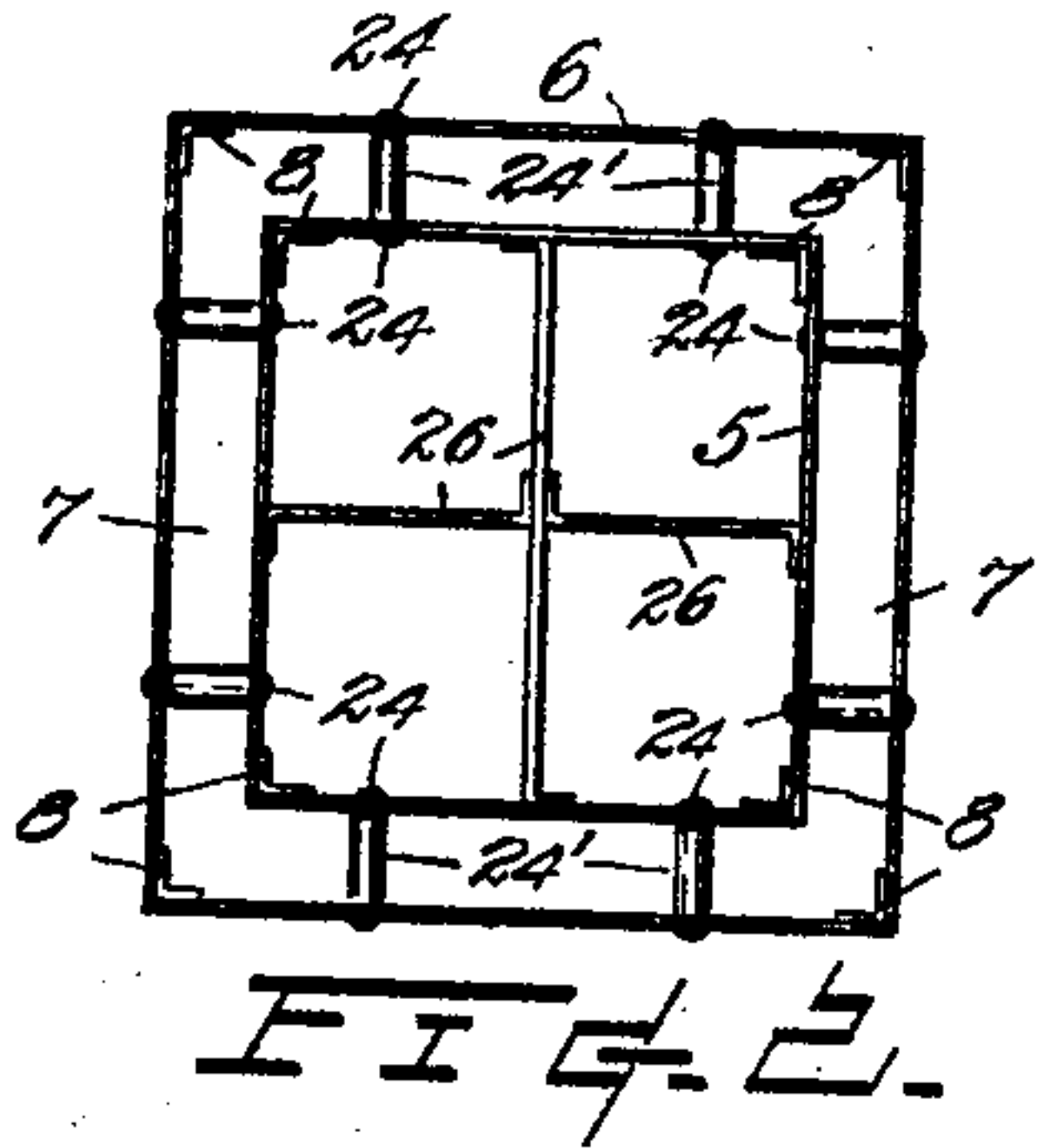


No. 865,372.

J. T. FLYNN.  
CHIMNEY.

PATENTED SEPT. 10, 1907.

APPLICATION FILED JUNE 2, 1906.



WITNESSES:

Kate H. Richeson  
Horaci Barnes.

FIG. 4.

INVENTOR

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BY

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# UNITED STATES PATENT OFFICE.

JOHN T. FLYNN, OF SAN FRANCISCO, CALIFORNIA.

## CHIMNEY.

No. 865,372.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed June 2, 1906. Serial No. 319,879.

*To all whom it may concern:*

Be it known that I, JOHN T. FLYNN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented

5 certain new and useful Improvements in Chimneys, of which the following is a specification, reference being had therein to the accompanying drawing, in which—

Figure 1 is a vertical transverse section of a chimney embodying my invention, shown in the form  
10 preferred for use in dwellings, office or other buildings; Fig. 2, a plan view of the same; Fig. 3, a perspective view of an integral part or section of a chimney such as illustrated in the preceding views; and Fig. 4, a  
15 fragmentary vertical section of a modification which is especially adapted for situations requiring high chimneys, as in factories or the like.

The object of this invention is the improvement in chimneys to meet the requirements of modern conditions involving safety, and economy both in the construction and in the consumption of fuel; and, more  
20 particularly, to provide a chimney capable of withstanding the effects of wind storms and seismic disturbances, notably, such as has recently occurred in a section of the country where nearly all of the chim-  
25 neys were either cast down or so disrupted as to render them unfit for further service.

A further object of the invention is the provision of a chimney which is capable of being manufactured in sections or units to standard, or special, dimensions at  
30 one place and erected by simply assembling such parts at other places.

A still further object is to provide means to utilize a portion of the heat from the combustion gases to create a thorough ventilation throughout the building employing my improvements.  
35

The invention consists in the novel construction and combination of parts as will be hereinafter described and claimed.

In said drawings, the reference numeral 5 designates  
40 the inner tubular shell and 6 the outer tubular shell of a chimney, each formed of sheet or cast metal and disposed concentrically to provide a space 7 for an air-jacket therebetween. These tubes may be, in horizontal sections, of any suitable shape, as circular  
45 in Fig. 4, or quadrangular as illustrated in the other views. For domestic purposes the latter construction is usually the most desirable as being more readily built into or against the walls of a building, while the circular configuration is preferable for tall chimneys of  
50 factories, or the like, through the economical use of material as well as presenting less resistance to the overturning force of high winds.

The inner and outer tubes of the chimney are each made of a plurality of sections, as in Fig. 3, which are  
55 severally provided with means to interfit with the other similar sections and comprised, desirably, of

angle-bars 8 extending from within a short distance below the top edge of a section to some distance below the bottom edge thereof, thus presenting the protruding bar ends 8' for insertion within the next section 60 below. These angle-bars also afford means, in the quadrangular type of tubes, for connecting the component side plates of each section and are fixedly secured to the adjacent edges of same by rivets or bolts 9, while in the said protruding ends are apertures 10 65 adapted to register with apertures 10' provided in the adjoining sections for the reception of securing bolts or their equivalent. Instead of employing protruding bars, as above explained, for making the connection between two tube sections, and especially with circular and high chimneys, or stacks, T or other suitable bars 11 may be employed; or a marginal hoop 12, see Fig. 4, may be substituted in the inner shell to provide a hub-socket 13 for the end of the next section, thus forming an overlap thereat to prevent the escape 75 of sparks or the passage of air through the seams even when the chimney should be considerably deflected, as by a gale of wind. Provision is made, however, to allow of a certain amount of lateral deflection or swaying of the external shell without affecting the inner 80 one by the use of springs 23 secured, as by rivets 23', to one of the shells and resiliently bearing against the other shell, and tending to maintain the two shells in their proper relative positions under normal circumstances. The same function is accomplished, though 85 in a rigid manner, at the unexposed lower portion of a high chimney and throughout in the ordinary domestic type, see Figs. 1 and 2, by bolts 24 extending through the plates of both shells and also through intermediately disposed distance pieces or pipes 24' 90 and are secured by riveting or otherwise.

The inner shell would, where required, be provided with side outlets opening into conduits 14 extended through the outer shell and house wall or partition 15 of the various rooms to receive stove pipes, as 16. 95 About each said conduit is a larger pipe 17 making communicative connection between the room and the space 7 between the chimney shells to provide a vent passage to convey away the contaminated atmosphere, and is regulated by means of a rotatable annular shaped 100 plate 18 provided with perforations 18' adapted to register with corresponding perforations 25' of a fixed plate 25 connected to the pipe 17, or to the wall. Where a number of stoves or furnaces are connected with a single chimney, the inner shell thereof may oftentimes 105 be advantageously divided into two or more ducts by partitions 26, as represented in Figs. 1 and 2.

In constructing a chimney in accordance with this invention the lower section of each shell would be firmly connected to a metal base, as 19, which is de- 110 sirable of greater diameter than the outer shell and connected thereto by diagonal stays or gussets 20 form-



ing, when inclosed or built in with concrete or masonry, a reliable anchor plate to retain the superposed structure in an erect position. The several tiers or sections of the shells are then successively placed one upon another until the chimney is completed and connected at intervals by the tie-bolts 24.

Oftentimes, and to make the structure more stable, the space within the inner tube may advantageously be filled to a certain height, say to the first side opening, by a ballast of cement or other heavy material, as at 21, and, likewise, the space intermediate the two shells, as at 22. This filling serves also to protect the chimney at the place where it is most subjected to the effects of corrosion and should the metal, notwithstanding, be thus destroyed the filling will still remain intact and the efficiency of the chimney remain unimpaired.

The operation of the invention will, it is thought, be understood from the foregoing, but it may be mentioned that the superiority of the present chimney, over others with which I am acquainted, is due to the following referred to peculiar features which it embodies: The jacket of air inclosing the inner shell, or flue proper, keeps the latter at a high temperature and, in consequence, the same can be made of much smaller dimensions than ordinary for conveying an equal quantity of smoke or other combustion products; it also requires a less waste of heat with an accompanying saving of fuel to retain the heat in the flue to the temperature necessary to create an effective draft; the inner comparatively smooth surface of the smoke flue will collect but little soot and that will be released by the expansion and contraction of the metal due to the differences in temperature thereof occurring when the chimney is to be utilized, or vice versa; safety against fire by the employment of a double wall; the action of the heated air within the space between the shells, having a greater bouyancy than the relatively cooler air within the compartments of a house, furnishes a reliable means for ventilation and which can be regulated by the registers; the relatively light

weight of the chimney; the simplicity of construction and the ease with which the various sections may be assembled by ordinary unskilled labor; and the safety against being overturned by earthquakes or wind storms.

Having described my invention, what I claim, is—

1. A chimney formed of an inner metallic shell and an outer metallic shell with a space therebetween, said shells being each comprised of a plurality of interfitting sections, a transverse vertical partition within each section of the inner shell, stay connections between said shells comprising bolts and intervening pipes, resilient members severally secured to one of said shells and bearing against the other one, a branch intake conduit for said inner shell and extending through the outer shell, a vent conduit passing through said outer shell and communicating with the space between the shells, and means to regulate the opening of said vent conduit.

2. A chimney formed of an inner metallic shell and an outer metallic shell with a space therebetween, said shells being each comprised of a plurality of interfitting sections, stay connections between said shells comprising bolts and intervening pipes, resilient members severally secured to one of said shells and bearing against the other one, a branch intake conduit for said inner shell and extending through the outer shell, a vent conduit passing through said outer shell and communicating with the space between the shells, and means to regulate the opening of said vent conduit.

3. A chimney formed of interfitting sections, said sections consisting of bars, and ends and sides, each of said bars extending from within a short distance below the top edges of the sides and ends to some distance below the bottom edges thereof.

4. A chimney formed of interfitting sections, said sections comprising angle bars, sides and ends secured to said angle bars, each of said bars extending from within a short distance below the top edges of the sides and ends to some distance below the bottom edge thereof, said last named protruding ends of the bars being formed with apertures, said sides and ends adjacent the top edge thereof being provided with apertures.

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

JOHN T. FLYNN.

Witnesses:

PIERRE BARNES,  
HORACE BARNES.