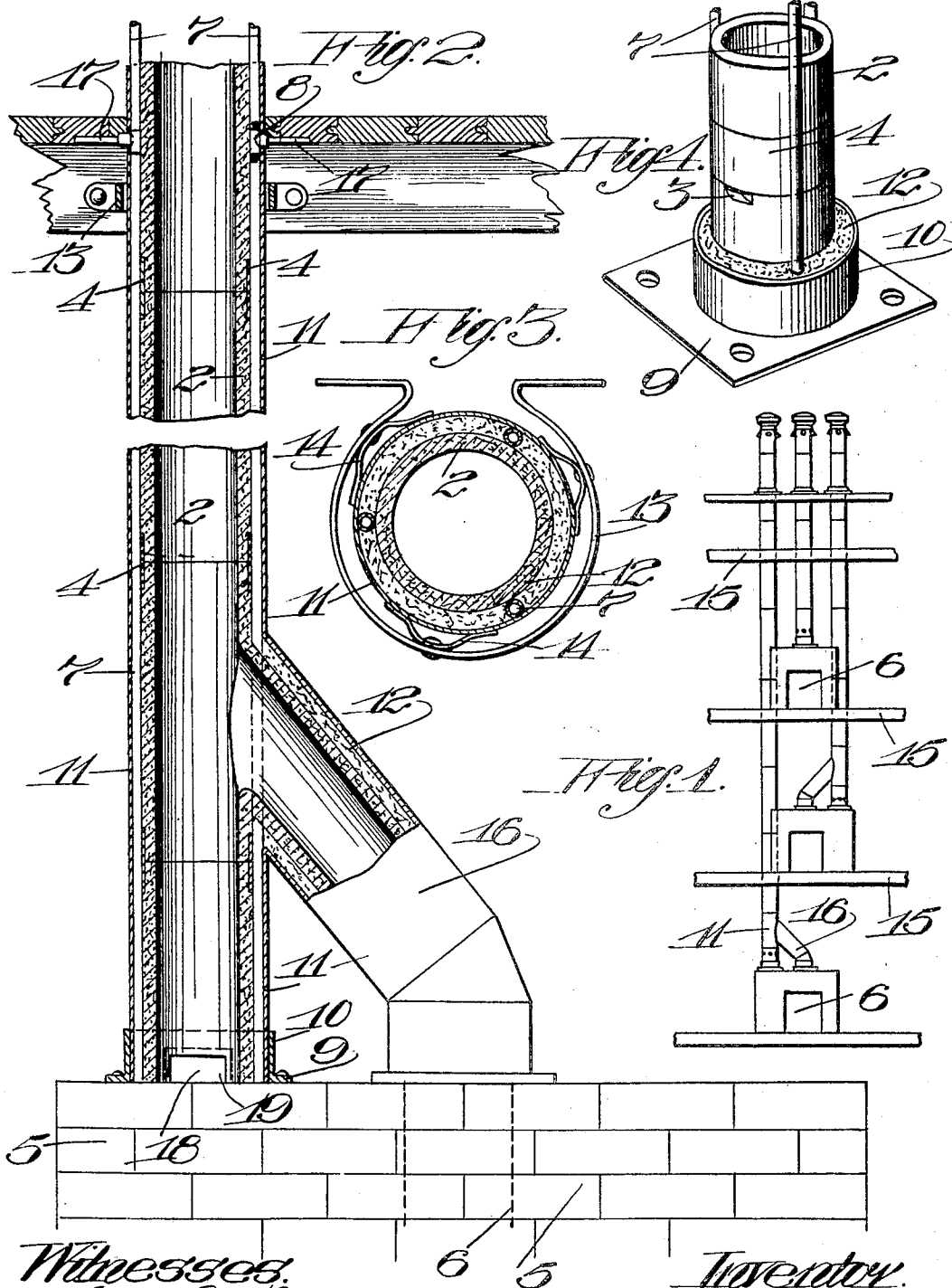


L. E. CLAWSON.
CHIMNEY.
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Witnesses:
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UNITED STATES PATENT OFFICE.

LEONARD E. CLAWSON, OF SAN FRANCISCO, CALIFORNIA.

CHIMNEY.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LEONARD E. CLAWSON, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Chimneys, of which the following is a specification.

This invention relates to chimneys, and particularly to an improved, substantial, fire proof earthquake resisting structure.

The object of the present invention is to evolve and provide a chimney structure capable of withstanding vibrations created by seismic disturbances, and also to resist fracture due to settlement of buildings in which the chimney may be erected.

A further object of the invention is to provide a substantial earthquake proof chimney which can be constructed readily, and which will be comparatively inexpensive, is light and durable.

It is another object of the invention to design a chimney structure which may be erected in a new or old building with facility, particularly in the former instance, by reason of the fact that the structure can be moved and assembled in portable sections, and cushioning means are provided whereby the chimney may be connected or braced to the building structure so that one may vibrate or move relative the other freely.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a diagrammatic view representing a chimney structure in a building. Fig. 2 is a detail sectional view of the chimney. Fig. 3 is a transverse sectional view of the chimney and plane just above the cushioning brackets. Fig. 4 is a detail sectional perspective view of the chimney structure.

As actually and successfully constructed and used, the chimney forming the subject matter of the present invention comprises a fire resisting lining which is here illustrated as formed of a plurality of superposed fire clay tubes or pipes 2, which may be of suitable length and diameter, the exterior of the tubes or sections, when these are employed, being provided with slight shoulders 3, against which may abut coupling bands 4 adapted to surround the abutting ends of the lining sections 2. The lower ends of the superposed lining tubes 2

are shown in Fig. 2 as being supported upon the top of the fire place structure 5, within the central portion of which may be provided a flue 6.

After a series of the fire proof sections 2 have been arranged in position, and temporarily coupled or connected by the bands 4 embracing the abutting ends of the sections, there is then arranged longitudinally of and parallel with the exterior of the superposed sections 2, a plurality of reinforcing members 7 which may be tubular or otherwise, as desired, these reinforcing members or rods 7, extending vertically an appropriate distance, each end of the rods 7 being connected at their adjacent ends by coupling devices 8.

Surrounding the lower end of the chimney structure, and resting upon the top of the fire place is a starting plate 9, of suitable proportions having an upwardly extending flange 10, in which may be inserted the lower end of a suitable casing 11, which may be of sheet iron or other material, this being carried upwardly outside of and resting upon the several reinforcing rods or members 7, which are placed at suitable intervals circumferentially to the lining 2. The reinforcing member 7 thus spaces the casing 11 concentrically about the lining 2, and the chamber thereby formed is filled with a suitable cementitious material, as at 12, which firmly embeds the reinforcing member 7, and surrounds the lining 2 and being supported externally by the casing 11.

By this construction there is produced a tubular chimney which may be extended any desired height directly upward from the supporting foundation floor, shelf, porch, or from the top of the fire place 5, as indicated in Fig. 2, and the whole, when the cementitious material 12 has hardened, forms an extremely rigid and substantial structure, not liable to become transversely fractured or circumferentially chipped by vibrations due to seismic disturbances, or due to the settlement of the building, or from other causes. The cementitious material 12 need not be necessarily fire proof or fire resisting, since it is protected by the fire proof lining 2, and the fire proof lining 2 need not be of excessive or great thickness to enable it to carry the superposed load, for it is carried in part by the reinforcing members, and the cementitious filling 12, and also in part by the metallic casing 11.

When the chimney is erected in a building it may be tied or connected to the girders and joists of the same by a cushioning bracket or brace, here shown as comprising a strap 13 of suitable diameter partly surrounding the chimney structure, and having a plurality of resilient arms or members 14 contacting with the casing 12, sufficient space being provided between the bracket 13 and the casing 12 to permit one to move relative the other without injury. The resilient members 14 providing for a reasonable amount of play so that vibrations or settlement of the building need not be imparted to the chimney structure, thus preventing the same from damage.

Referring to the diagrammatic view Fig. 1, there is shown a series of floors 15 in the building structure, upon each of which there is erected a fire place 6, and on the lowermost fire place is supported a chimney extending vertically upward through the several floors, and a branch 16 shown as connecting the central portion of the upper part of the fire place to the chimney. In this manner each chimney may be continued vertically upward from its supporting fire place, thereby insuring a good bearing for the load of the chimney, since the point of support is plumb under the line of the center of gravity of the chimney structure, and by means of the branch 16 a connection is made with the fire place so that the best effect of central draft can be provided in each fire place irrespective of the upper fire places. Usually when a common brick or masonry chimney is constructed, having a plurality of flues, one for each fire place, only one flue in the chimney can be led directly to the center of the fire place; the remaining flues must be diverted to one side or the other of the chimney, starting from one side of the fire place. By my present invention a central draft connection may be made with each fire place by means of the branch 16.

When desired, if the chimney be used in a building having many floors, a part of the load of the chimney may be taken from the foundation or base of the chimney by connecting to the coupling device 8 at each floor a plurality of outwardly extending members 17, which may be appropriately connected to the couplers 8, the members 17 being secured to the adjacent building structure as convenient, and thus each floor of the building may be made to carry a portion of the load of the chimney.

The lowermost portion of the chimney may be provided with an opening 18, and with a suitable cover 19, so that the chimney may be readily cleaned at required occasions,

the soot being withdrawn from the chimney from the opening 18 and the cover 19 of the opening may be adjusted if desired to permit a quantity of air to pass into the chimney, thus in a measure regulating the draft in the structure.

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

1. The combination in a chimney, of a series of fire clay tubes having reduced abutting ends and metal connecting bands, a supporting base-plate and an upwardly extending, annular metal flange of larger diameter than the tube, a metal casing fitting the flange and inclosing the tube, reinforcing and spacing rods extending upwardly between and in contact with the tube and the casing, and a filling of plastic material capable of hardening around the rods and between the tube and casing.

2. A chimney composed of tubular fire clay sections having uniting metal bands, an inclosing metal casing of larger diameter, intermediate, longitudinally disposed, metal spacing rods between and in contact with the tube and casing and a filling of plastic material, a base upon which the chimney is supported, and a diagonally disposed branch having one end connected with the chimney and the other end opening into the center and top of the fireplace.

3. A chimney composed of tubular fire clay sections having uniting metal bands, an inclosing metal casing of larger diameter, intermediate, longitudinally disposed, metal spacing rods between and in contact with the tube and casing and a filling of plastic material, a base upon which the chimney is supported, and supplemental elastic supports connecting the chimney with the succeeding floors above.

4. A chimney structure comprising a suitable base or support, a tubular fire resisting lining superposed upon said support, and a reinforce arranged circumferentially to said lining, a metallic casing concentrically spaced from said lining by the reinforce, a cementitious filler between said casing and the lining, and means connecting the chimney to a fixed part of a building, said means comprising a strap embracing the chimney and fixed to the building, and cushioning springs between the chimney and strap.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LEONARD E. CLAWSON.

Witnesses:

F. E. MAYNARD,
CHARLES EDELMAN.