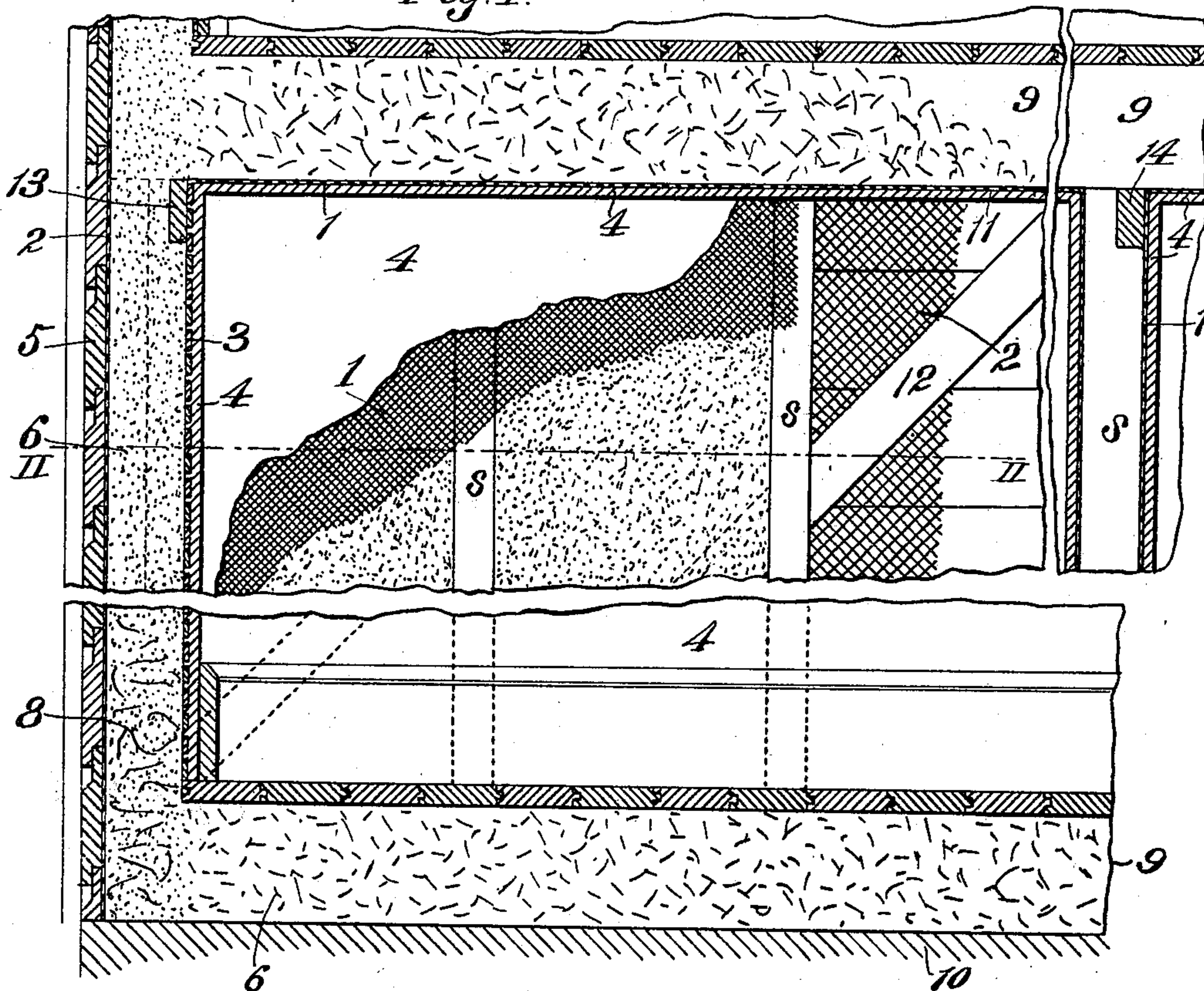


O. F. ZAHN.  
FIREPROOFING AND INSULATING STRUCTURE.

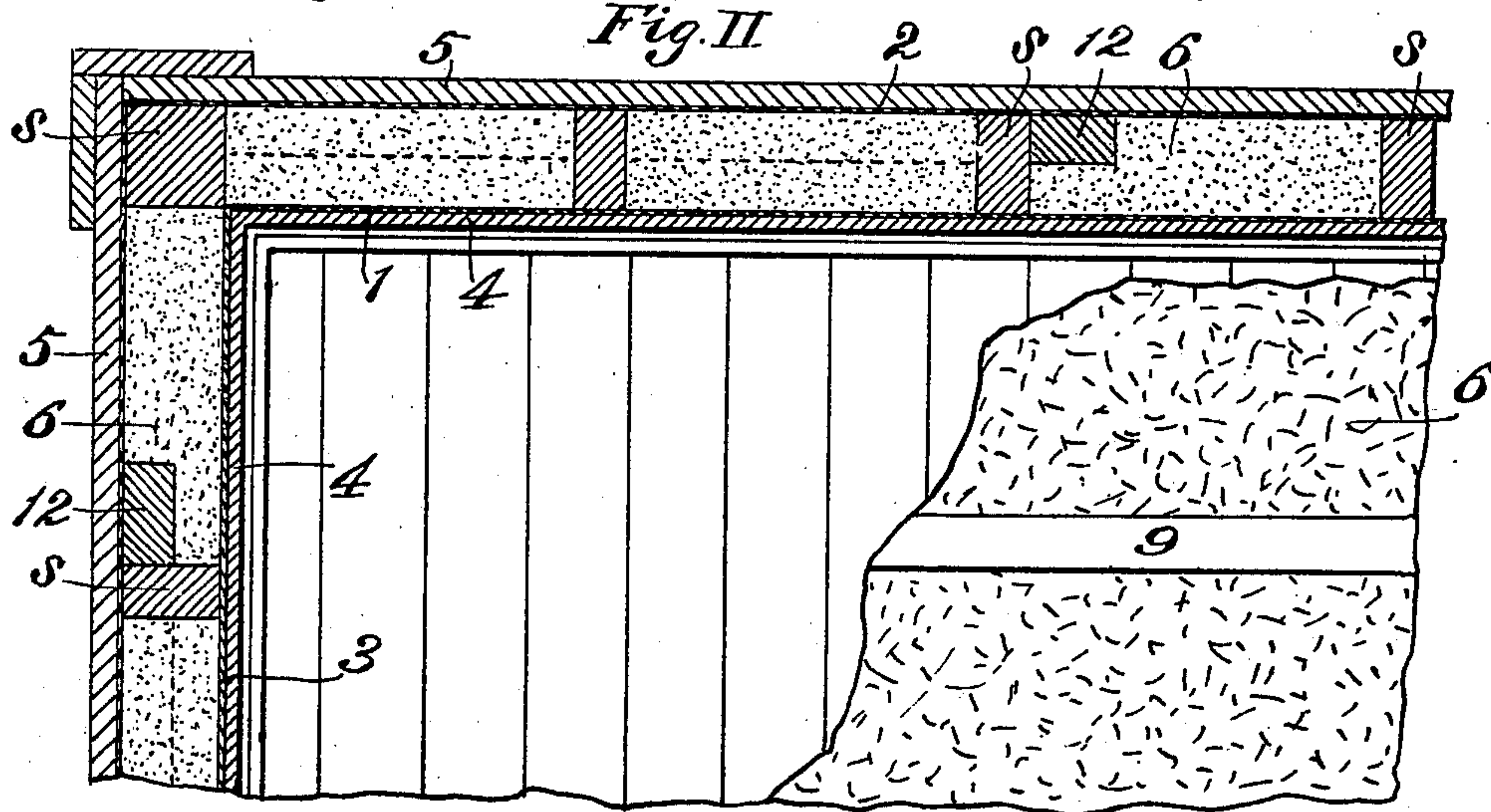
APPLICATION FILED APR. 22, 1903.

NO MODEL.

*Fig. I.*



*Fig. II*



Witnesses:

L. C. Kelly  
J. Townsend

Inventor:

Oswald F. Zahn.

*by Townsend Bros  
his attys.*



# UNITED STATES PATENT OFFICE.

OSWALD F. ZAHN, OF LOS ANGELES, CALIFORNIA.

## FIREPROOFING AND INSULATING STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 754,109, dated March 8, 1904.

Application filed April 22, 1903. Serial No. 153,749. (No model.)

*To all whom it may concern:*

Be it known that I, OSWALD F. ZAHN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Fireproofing and Insulating Structure, of which the following is a specification.

An object of this invention is to provide an improvement in frame buildings whereby at a small expense the same may be made more fire-proof and more impermeable to heat, cold, and sound.

A further object of the invention is to make provision at a minimum expense for preventing the communication of fire from one to another part of a building through cheaply-constructed walls and other parts of the building.

My newly-invented fireproofing and insulating structure comprises a retainer and a filling composed principally of diatomaceous or infusorial earth held in place by said retainer. The retainers are desirably refractory and may be variously constructed.

In structures having hollow walls open above there is a tendency in case of fire to produce a strong draft through any of the flues which may be formed by the hollow wall and through which the flames or fire may pass. Such strong draft may be in ordinary cases sufficient to cause the flame passing through such passages to be so intense as to fuse ordinary metallic lathing of lath-and-plaster walls, thus causing the destruction of the wall and allowing the flames to pass out into the adjoining rooms, thereby affording communication for the flames from room to room of the building, and an object of my invention is to prevent any draft through the walls.

The accompanying drawings illustrate the invention.

Figure I is a vertical section of a structure made in accordance with this invention, portions being broken away to contract the view. Different forms of retainers are shown. Fig. II is a horizontal section on line II II, Fig. I, parts being broken away to show underlying features.

1 2 3 indicate refractory retainers, which may be ordinary metallic lathing, ordinary

wire-netting, or other suitable device which will serve the purpose. Asbestos paper or other elements made of asbestos may be employed.

The retainers shown are desirably in the form of upright sheets fastened to the upright studding *s* of the wall.

In the drawings, 3 represents a retainer formed of laths, and 4 is plaster.

5 represents rustic or weather-board siding for the exterior of the wall.

It is to be understood that the plaster 4 in connection with ordinary wooden lath would form a retainer of good fireproofing quality when combined with the filling 6 of the diatomaceous or infusorial earth.

The filling which I prefer to use is a diatomaceous earth found in Santa Barbara county, California, and characterized by a marked lightness and porosity.

In preparing the material it may be mined from its natural bed, then sun-dried or dried by artificial heat, and then ground to a fine powder. To make it more tenacious, a small proportion of any suitable fiber may be added, which helps to hold the material in place in case the retainers should in any way become loosened during a fire. A small proportion of plaster-of-paris or hydraulic cement may be added when the filling is to be put in behind the lathing of a wall before the plaster is applied to such lathing. The advantage of this is that the moisture from the keys of the plaster—that is, the plaster extending through the openings between the laths—will be sufficient to moisten portions of the filling of the wall, so that the plaster-of-paris contained therein may harden such filling sufficiently to keep it in place after the retaining-walls have been partly destroyed. In case braces are applied between the studding they may be arranged edgewise, as indicated at 12 in Fig. II, so that the spaces between the studding *s* may be readily filled with the filling material. 13 in Fig. I is a supporting-ribbon. The plate on the studding for inside partitions may be put on edgewise, as shown at 14. In this method the filling may be applied after the plaster is on by raising a board in the floor from above. This material may be packed into place be-



tween the retainers with or without combination with fibrous binders 8, so that the filling is principally composed of said diatomaceous earth. The filling may also be applied 5 between the floor or ceiling joists 9, which serve as retainers for the same, the filling being upheld by a suitable base, as 10 and 11 in the drawings. Said diatomaceous earth is highly refractory, and when put into the wall, 10 floor, or ceiling, as stated, prevents any draft through the same. This prevents the fire from passing from one part of the building to another through the usual hollow portions of the walls or floors. The filling also affords 15 protection against rats, mice, and vermin, as it is very light and powdery and when disintegrated serves to prevent the rodents or other vermin from making runways.

A desirable method of forming the walls is 20 to disintegrate the natural diatomaceous earth to a fine powder and then pack it in between the upright retainers formed by the studding and the side boards of the wall. In the case of the floors and ceilings the diatomaceous 25 earth may be left coarser, in the form of chips or flakes—that is to say, it is desirable that

the filling of the walls be free from any interstices through which the air may pass; but the liability of a draft through the floor and ceiling spaces is not such as to require such 30 close packing. In case of fire the filling will be held in place by the side retainers of wire-netting, metallic lath, or other refractory stuff though the weather-boarding or rustic should burn away. The filling embeds the retainers, 35 thus protecting them measureably from the fire.

What I claim, and desire to secure by Letters Patent of the United States, is—

A wall comprising studding, lath and plaster 40 on one side of the studding, a retainer on the other side of the studding, and a filling of infusorial or diatomaceous earth.

In testimony whereof I have signed my name to this specification, in the presence of two 45 subscribing witnesses, at Los Angeles, in the county of Los Angeles and State of California, this 16th day of April, 1903.

OSWALD F. ZAHN.

Witnesses:

JAMES R. TOWNSEND,  
JULIA TOWNSEND.