

No. 610,435.

Patented Sept. 6, 1898.

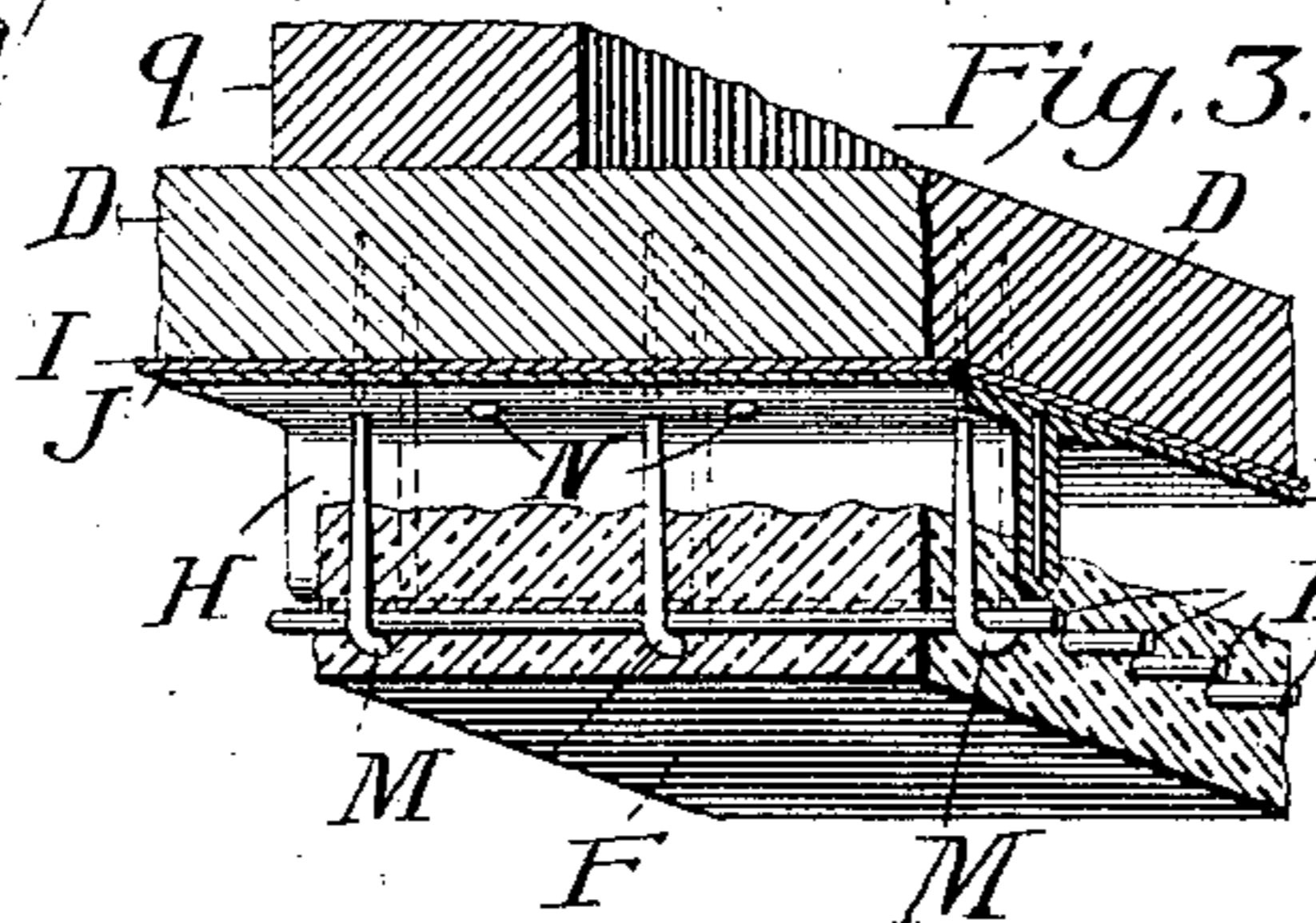
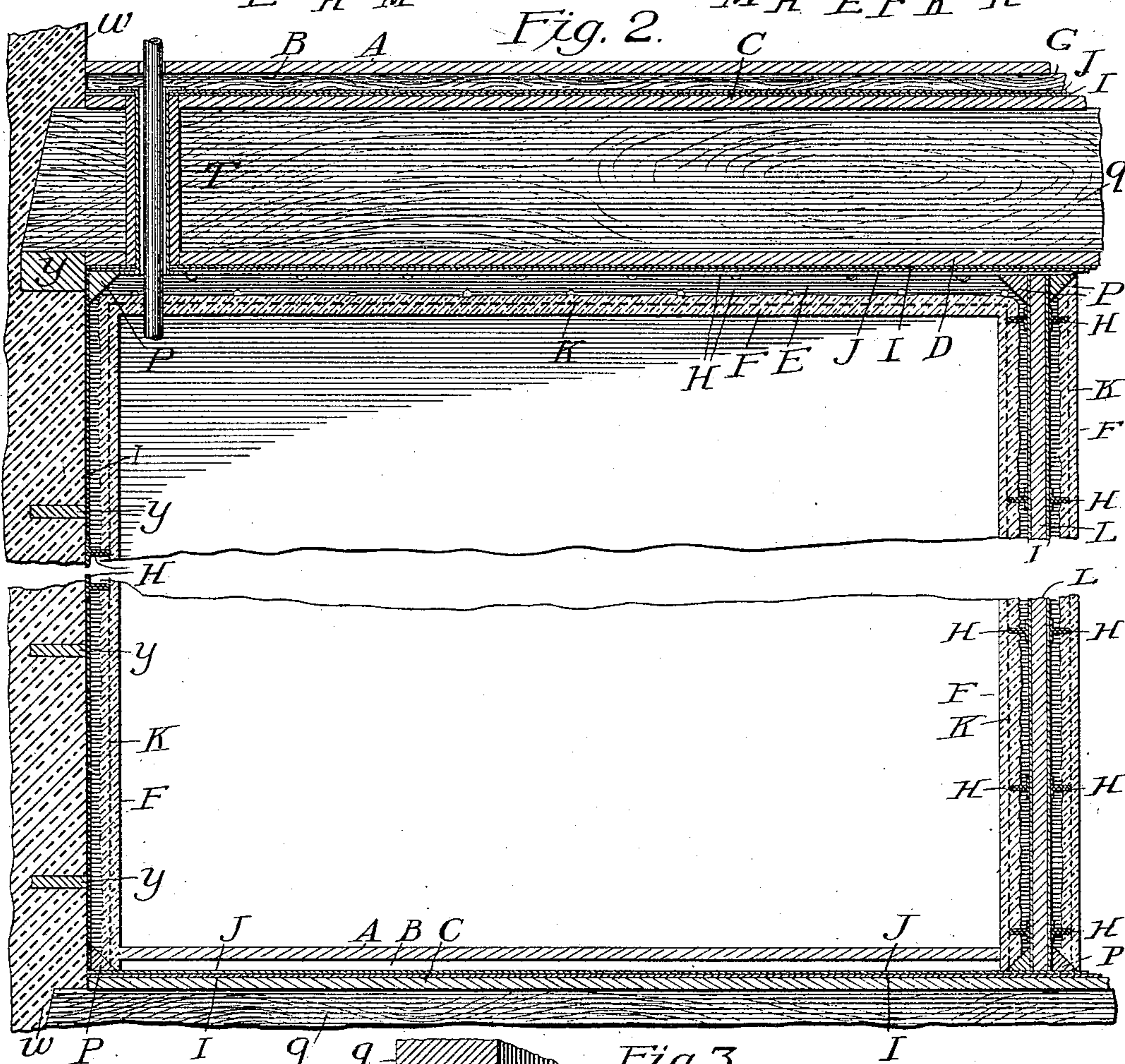
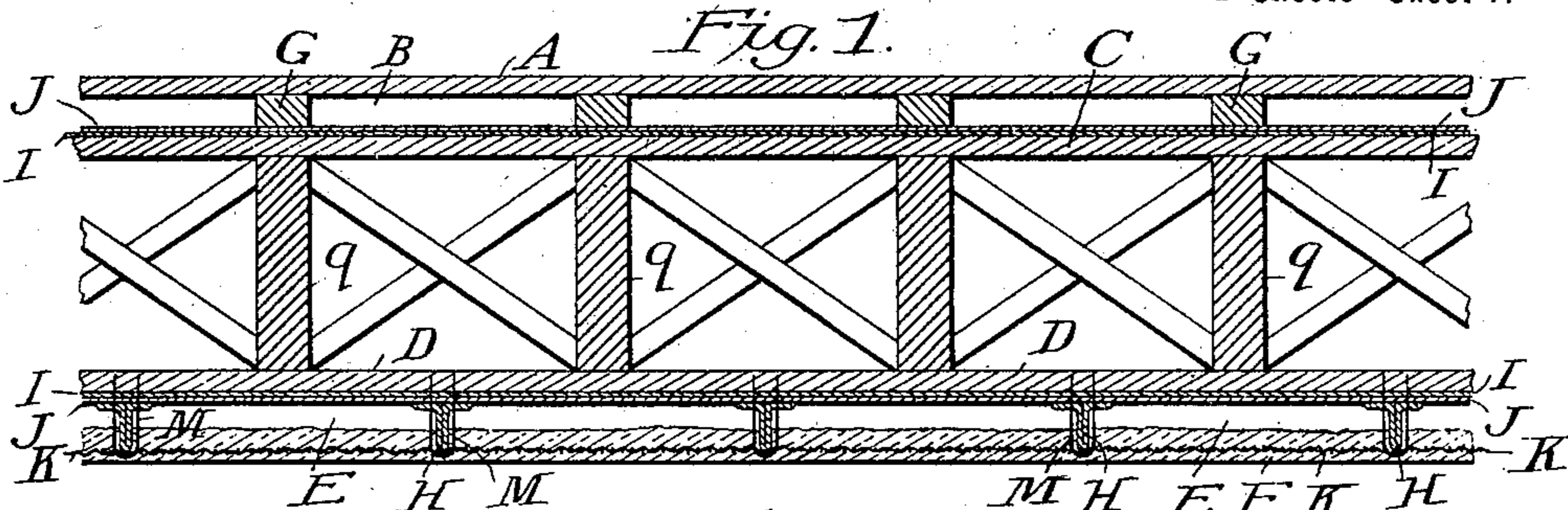
A. DE MAN.

FIREPROOFING AND DEAFENING FOR FRAME STRUCTURES.

(Application filed Apr. 10, 1895.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.
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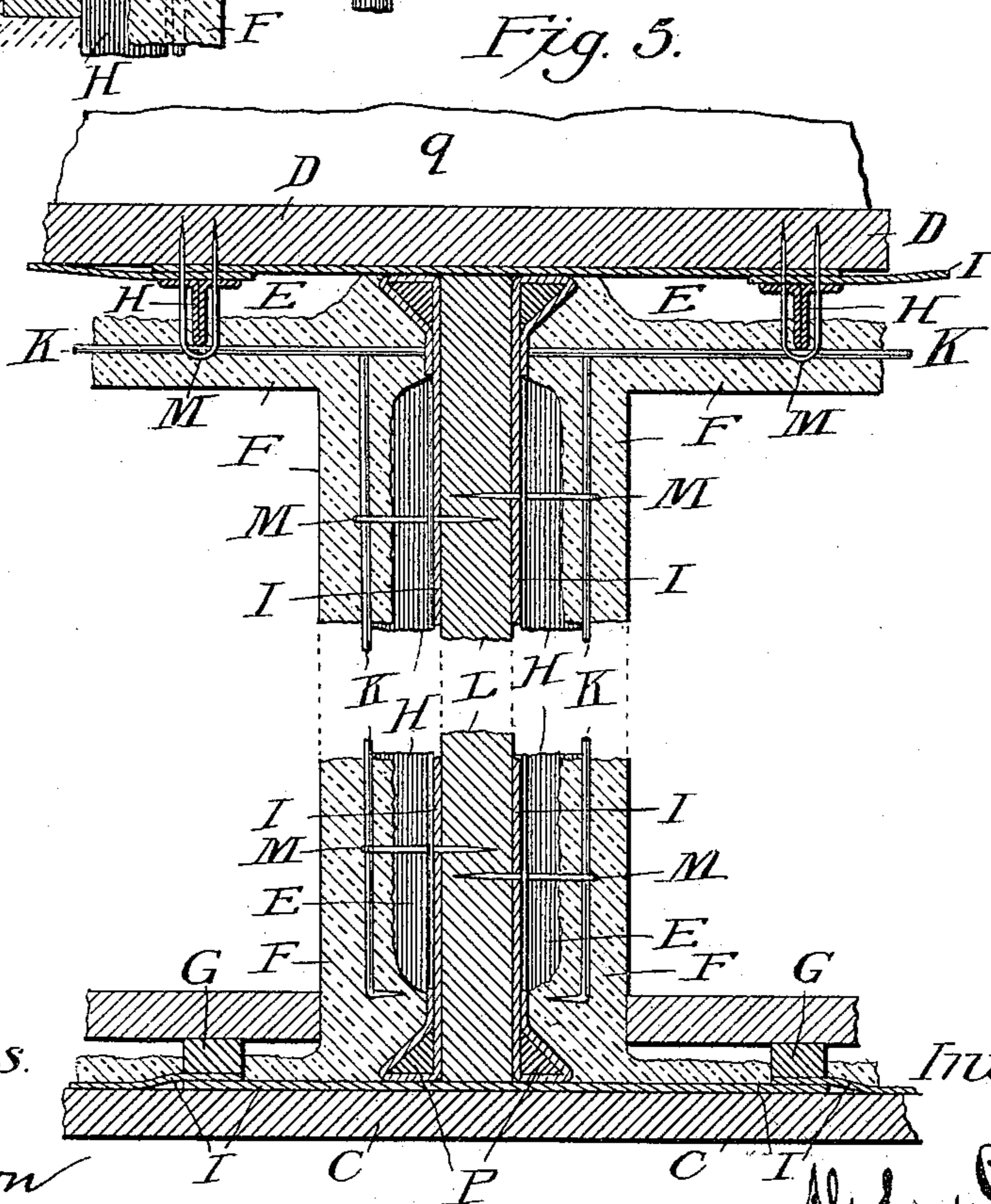
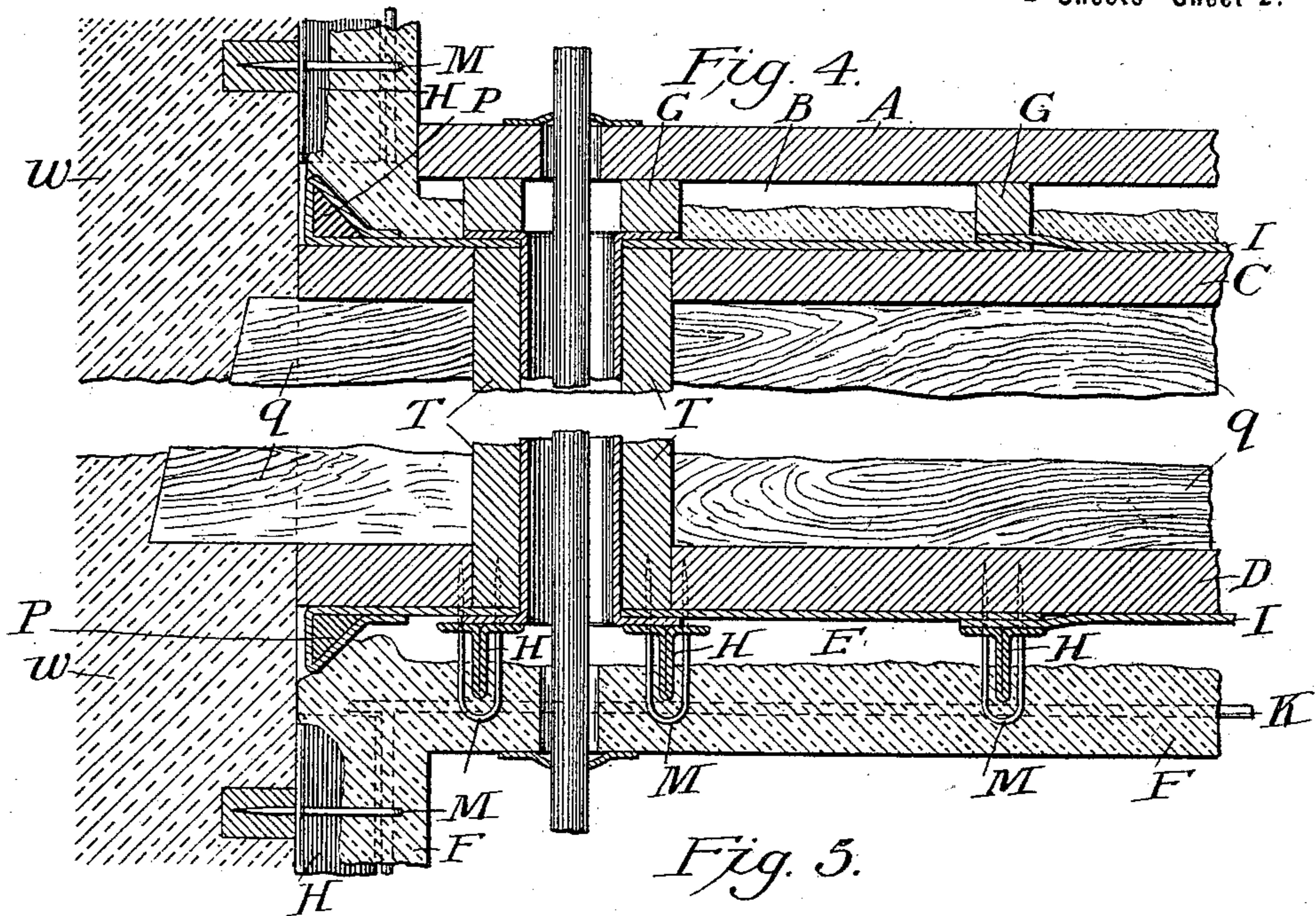
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(Application filed Apr. 10, 1895.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALPHONSE DE MAN, OF DETROIT, MICHIGAN.

FIREPROOFING AND DEAFENING FOR FRAME STRUCTURES.

SPECIFICATION forming part of Letters Patent No. 610,435, dated September 6, 1898.

Application filed April 10, 1896. Serial No. 545,255. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSE DE MAN, of Detroit, Wayne county, Michigan, have invented a new and useful Improvement in Fireproofing and Deafening for Frame-Joists and Frame Partitions in Buildings; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a cross-section through the joist, representing a portion of the floor and ceiling between the stories of a building, the broken ends showing the different members forming the combination of the floor and the ceiling. Fig. 2 is a section parallel with the joist, representing a cut through a small room, showing the full ceiling-joist and floor between the next story above, with a box-thimble lined with fireproof sheeting long enough to lap over the ceiling and the floor, also a portion of the wall and a partition broken half-way the height, and last a portion of the floor-joist with the floor constructed as above. Fig. 3 represents a cross-section, on a larger scale, of a part of the wood ceiling D, with the sheeting and metallic lining, also the metallic rib H, shown in cross-section and side view, showing also how the metallic lath are drawn up tight to the rib and the whole securely anchored to the wood by staples, (hook-nails or lag-screws can also be used for that purpose,) the parts being shown in perspective. Fig. 4 is a detail of the upper left corner of Fig. 2, showing, on a larger scale, the lapping over of the fireproof sheeting at the angle of the floor and the ceiling, protecting the cant-strip P, also the lapping over at the floor and ceiling of the fireproof sheeting forming the inside lining of thimble T, also the lap-joints of sheeting I kept tight at the floor C by the strip G and the ceiling D by the rib H, the center part of the joist Q being cut out in this figure to make the figure more compact. Fig. 5 is a detail of the upper part and lower part of the partition represented at the right-hand side of Fig. 2, showing the uninterrupted ceiling and fireproof sheeting at the connection of the partition with the ceiling and floor, also the lapping over of the fireproof sheeting

of the partition, protecting the cant-strips P, also the lap-joints of fireproof sheeting at ceiling and floor.

In all the above figures the broken ends of the incombustible sheeting, metallic lining, and wire-cloth lath are slightly deviated from their natural position to facilitate their designation by letters.

Like letters refer to like parts in each figure.

The nature of this invention is twofold. It relates, first, to fireproofing the wooden joists and partitions in a building, and, second, to deafening floors and partitions, which is obtained by dead-air spaces resulting from the special position of the several parts.

The invention consists—

First, in the arrangement by which the whole floor-joist space and the wood of the partitions is insulated. This is done by covering with a non-combustible sheeting all the exposed surfaces, including the edges of any floor-opening and at the skirtings of stairways and hatchways and protecting the holes for pipes by fireproof-lined thimbles, confining thus the whole joist-space and the wood in partitions, so that the flames and the air cannot get to it, consequently preventing combustion, or, at least, retarding it very effectually.

Second, in the peculiar construction of the partitions formed by boards or planks put upright with edges close together, preferably matched and covered on both sides with non-combustible sheeting, lapped over at all openings.

Third, in the metallic rib H, keeping a uniform space between the metallic lath and the wall or the fireproof sheeting of the partitions and ceilings, holding the sheeting against the wood and pressing with the flange the lap-joints, so as to make them tight. The ribs can be fastened by nailing them with staples straddling over the web, hooking at the same time the metallic lath, driving the staples through the flange of the rib and the fireproof sheeting in the wood of the ceiling and partition or wall strips, securing them all together.

Fourth, in connection with wood joist and partition the combination of a fireproof sheeting applied on the wood, with metallic ribs fastened to the wood through the fireproof

sheeting and a sheet of metallic lath or wire-cloth securely fastened to the wood and covered with plaster, which can be made with fireproof mortar, an air-space being left between the fireproof sheeting and plastering, all for the purpose of rendering wood joists and partitions fireproof and less conductive to sound. The space between metallic lath and plaster and the wall-partition or ceiling can be utilized to conceal pipes. When they are large, the web of the rib can be elongated, and the metallic lath can in this case be secured by means of lag-screws with flat heads and washers, drawing the lath tight up to the rib when the screw enters the wood, drawing all of the parts together.

To show how the fireproofing and deafening is applied, I have illustrated the joist construction; but it can be applied with advantage to what is known as "slow-burning" construction—namely, two-inch by six-inch joists placed edgewise on beams and nailed together, so as to form six inches of solid timber. In this case beams and columns can be protected against fire in the same manner as described above. It can be applied to any kind of construction and also to the ceilings, beams, and columns in old buildings.

In order to obtain further protection against fire and water, a metallic or waterproof lining can be applied over the non-combustible sheeting before the metallic ribs are on, but this is not essential.

In the accompanying drawings, A represents the finished floor.

B is a space left between the floor-cleats G, which can be filled out with mortar or mineral wool.

J is a metallic or waterproof lining, which is not essential.

I is the non-combustible sheeting applied on the first floor C, wood ceiling D, and wood partition-core L.

g represents the joists.

P is cant-strips nailed in corner of ceiling D and the body L of the partitions and also in corner of the floor C and walls and partitions. The fireproof sheeting of the ceiling runs through and that of the partition laps on it, and a strip of the same sheeting should be put over the cant-strips and lap on the ceiling and on the partition and floors or the fireproof sheeting left long enough to turn around the cant-strip and lap on itself, as shown.

T is a thimble-box for passage of pipes through the floor, which is lined inside with fireproof sheeting, which should be long enough to lap over on floor and ceiling.

W represents the brick wall, with bound timber and bound strips y.

K represents the metallic lath or wire-cloth which receives the plaster F.

E is a dead-air space between the plaster F and the sheeting I on the ceiling and partition.

H represents one of the many forms which

can be given to the metallic rib, which in the present illustrated form is made of bent sheet-iron.

N are nails by which the ribs can be secured to the ceiling-board D or to the partition-body L through the sheeting I and the metallic lining, if this is used.

M are staples hooking the wire lath, drawing the same tight up to the rib by being driven into the wood D, anchoring firmly the metallic lath which holds the plaster, as at F. The metallic rib is also used in place of the wood furring on the wall and is secured to it by fastening N into the bound timber or bound strips y. Staples, hook-nails, or lag-screws can be used to draw the metallic lath up to the rib H. The same rib H can be used at the partition in a horizontal or vertical position. Short cross-ribs can be used between the long ribs where it is required for the stiffness of the lath or to stop them at openings. The same rib H can be used as upright studs, to which the metallic lath can be laced with wire and plastered on two sides, forming a solid mortar partition.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with wooden floor or partition construction and adjoining fireproof walls or floors between which said construction extends, of an insulation of fireproof sheeting extending over and completely covering both faces of said construction insulating the same from all adjoining partitions and forming a tight joint with said adjoining walls or floor.

2. The combination with wooden floor or partition construction and adjoining fireproof walls or floors, between which said construction extends, of an insulation of fireproof sheet extending over and completely covering both faces of said construction and the edges of all apertures therethrough, and forming a tight joint with said adjoining walls or floor.

3. The combination with wooden floor or partition construction of an insulation therefor, consisting of sheets of fireproof material secured over both faces of said construction with the adjoining edges of said sheets overlapped and extending uninterruptedly between the supporting-walls or floors to exclude fire or air circulation.

4. The combination with wooden floor or partition construction of a facing therefor consisting of sheets of fireproof material secured over the same, and a metallic rib covering the adjoining edges of said sheets and adapted to press them against said construction.

5. The combination with wooden floor or partition construction of a facing therefor consisting of sheets of fireproof material secured over the same, a metallic lathing secured to said construction and a metallic furring-rib between said lathing and construction adapted to form an air-space therebetween.

tween and to press the adjoining edges of said sheets against said construction.

6. The combination with wooden floor or partition construction, a facing of fireproof material therefor, and a metallic lathing, of the metallic rib H of T form having single thick flanges and double thick web, substantially as and for the purpose described.

7. The combination with a hollow wooden floor or partition construction having facings

of fireproof sheeting insulating the same, of a wooden thimble passing through an aperture in said construction, and a lining of fireproof material therefor forming a tight joint with said facings.

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Witnesses:

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