(No Model.)

J. T. FANNING.

PARTITION OR BEAM.

No. 371,931. Patented Oct. 25, 1887.

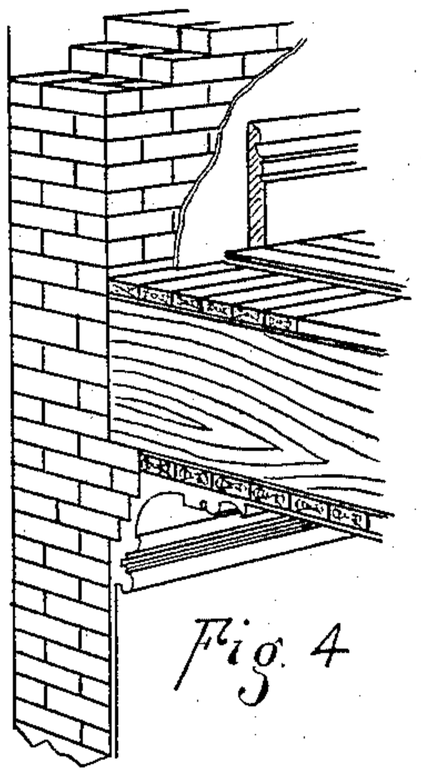

Fig. 4

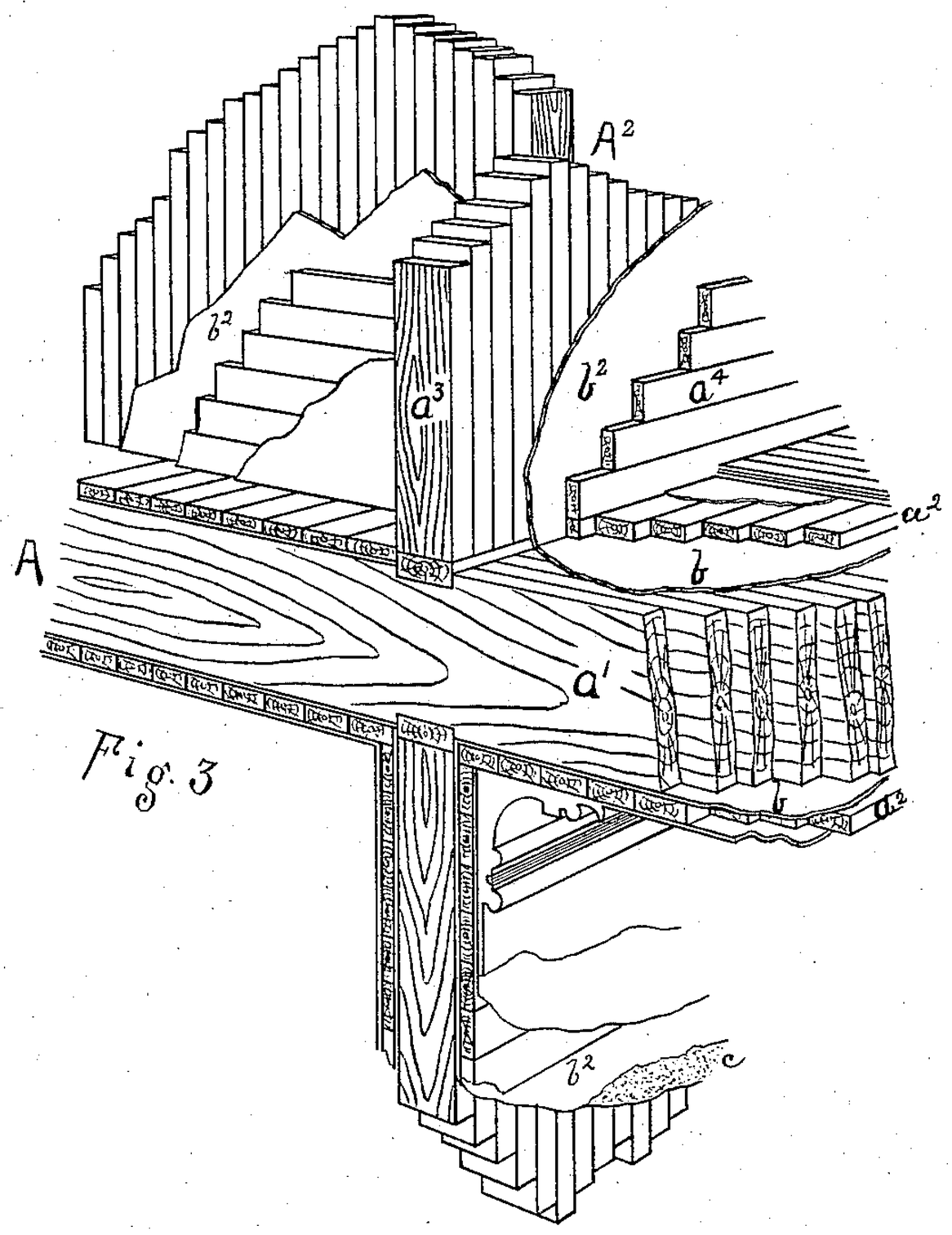

Fig. 3

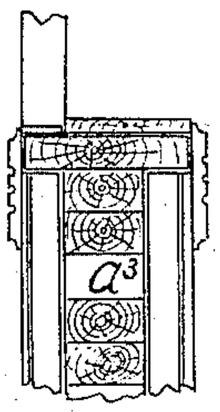

Fig. 5

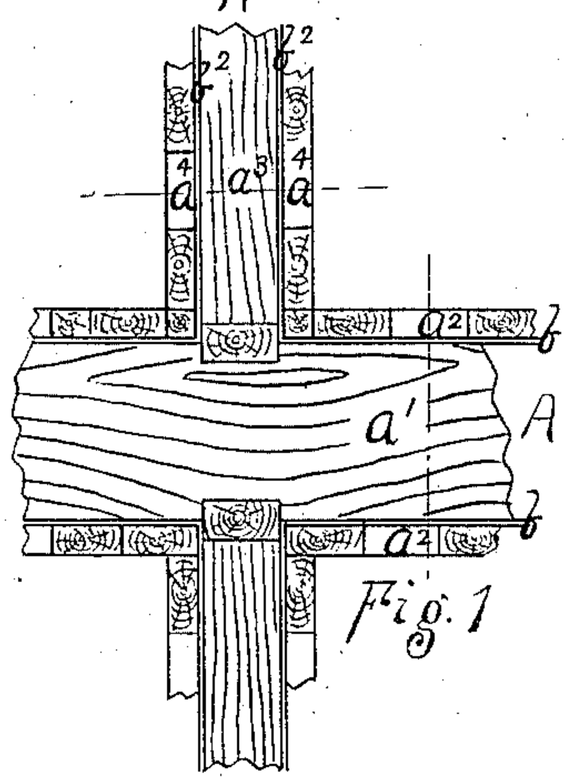

Fig. 1

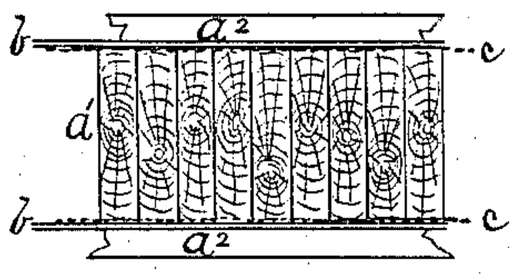

Fig. 2

Witnesses.
R. B. Fanning.
E. A. Kimball

Inventor.
John T. Fanning.

UNITED STATES PATENT OFFICE.

JOHN T. FANNING, OF MINNEAPOLIS, MINNESOTA.

PARTITION OR BEAM.

SPECIFICATION forming part of Letters Patent No. 371,931, dated October 25, 1887.

Application filed April 2, 1887. Serial No. 233,373. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. FANNING, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented a certain new and useful Improvement in Fire-Resisting Partitions or Beams, of which the following is a specification.

The object of my invention is to provide in buildings broad beams serving as solid partitions and floors, constructed chiefly of wood, but so combined with fire-proof materials and with a covering therefor as to be valuable substitutes for the usual iron and masonry fire-proof floors and partitions. My broad beams are less expensive to construct and have much less weight than the iron and masonry which they replace, and have substantially equal strength and fire-resisting qualities.

The following is a description of my improved constructions:

The hearting of my construction of beam is composed of thin rectangular wood joists set in close contact and rigidly spiked together in a solid beam. The hearting is covered with a continuous plating of smooth sheet metal or other fire-proof substance, with a continuous layer of asbestus between, on the side exposed to fire, or on both sides, if desirable. The plating is covered with another series of joists placed in close contact at an angle, and usually at right angles with the hearting-joists.

The accompanying drawings illustrate the best method of constructing my partition and beam, and form a part of this specification.

Figure 1 is a vertical section. Fig. 2 is a vertical section at right angles thereto. Figs. 3 and 4 are perspective views of the constructions, and Fig. 5 is a horizontal section.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

The horizontal beam A forms a floor, its ends resting on either partitions or walls, and the upright beam A^2 forms a partition that may rest upon a floor, preferably over a partition or wall. The hearting-joists a' a^3 are applied together to form a solid beam, without cavities or indentations. This hearting is of sufficient thickness and strength to fulfill all ordinary requirements of partitions or floors. The sheet-metal protecting-coverings b and b^2 envelop the heartings in continuous sheets, secured by screws or other fastenings, so as to be held in close contact. The covering-joists are shown by a^2 and a^4, placed in close contact with the fire-proof plating. They may be fastened together and to the hearting by long screws or bolts, (not shown,) extending through both the exterior joists and plating into the hearting or entirely through the partition.

The covering-joists lie at an angle to the hearting-joists, and are useful to strengthen either the vertical or horizontal beam, and to give it great power of resistance to heavy bodies falling against or upon it by distributing the effect of the shock, and to stiffen partitions against settling; but the covering-joists are chiefly useful herein to secure in position the fire-proof covering-sheets upon the hearting and in covering fastenings and confining ends of sheets, so they shall not be warped by heat or torn off by shocks, even though the covering-joists are partially burned or charred.

For a further protection of the hearting from effects of intense heat, I first cover the hearting with some slow conductor of heat—as sheets or coatings of asbestus felt or asbestus plaster—before applying the sheet-metal covering. In my floors I lay sheets c of asbestus upon the covering-joists and lay the finishing floor-boards on these sheets, the metal coating b lying between the hearting and the covering-joists, asbestus being used there also, if preferred. (See Figs. 2 and 3.) In partitions and ceilings of rooms, after protecting the hearting by asbestus and metal, and applying over these covering-joists a^2 a^4, I protect and preserve the covering-joists with a layer of asbestus felt, and for surface finish and decoration cover the whole with metallic lathing and plaster, after a well-known manner of finishing the common studded partitions. In each case I construct such a fire-resisting partition or beam that its hearting and internal strength shall have protection against weakening or injury by direct contact of flame or conduction of heat, or by blow or shock resulting from a neighboring fire. The solid wood partition gives great strength and elasticity, with great powers for resisting the passage of heat until it is burned

through. The burning will be very slow if air is excluded. The continuous coating of iron forbids the access of air, except where it shall be broken. The intermediate continuous layer of asbestus bridges any joint which may exist in the outer coating, or which may be made therein by any accidental strains or distortions in the progress of a fire. The exterior joists may ornament and finish, besides affording additional strength and protection.

I am aware that floors and walls of buildings have been constructed of a single row of joists set close together without fire-proof coverings, and that open-studded partitions have been covered with metal-clad sheathing-strips, and disclaim herein such constructions.

I claim as my invention—

1. The broad compound beam described, arranged to serve as a floor or partition in a building, the same consisting of a hearting of wood joists secured solidly together flatwise, and a coating of continuous plates of metal on one or both faces, adapted to serve as herein specified.

2. In a building, the fire-resisting beam described, extending, when arranged to serve as a floor, A, or partition A^2, as a solid beam from side to side or bottom to top, and end to end of its apartment, composed of a continuous hearting of wood joists, a' a^3, without internal cavities and with flush smooth faces, when combined with a continuous protecting-envelope of fire-resisting plates b b^2, and an interlaid continuous coating of non-conducting material, c, as asbestus, all secured firmly together and adapted to serve as herein specified.

3. In a building, the broad fire-resisting beam, as above described, in combination with an external protecting-envelope of joists, a^2 and a^4, arranged at an angle with the internal joists, a' a^3, all adapted to serve substantially as and for the purpose herein specified.

In testimony whereof I have hereunto set my hand, at Minneapolis, Minnesota, this 26th day of March, 1887, in the presence of two subscribing witnesses.

JOHN T. FANNING.

Witnesses:
T. P. A. HOWE,
R. B. FANNING.