

No. 682,683.

Patented Sept. 17, 1901.

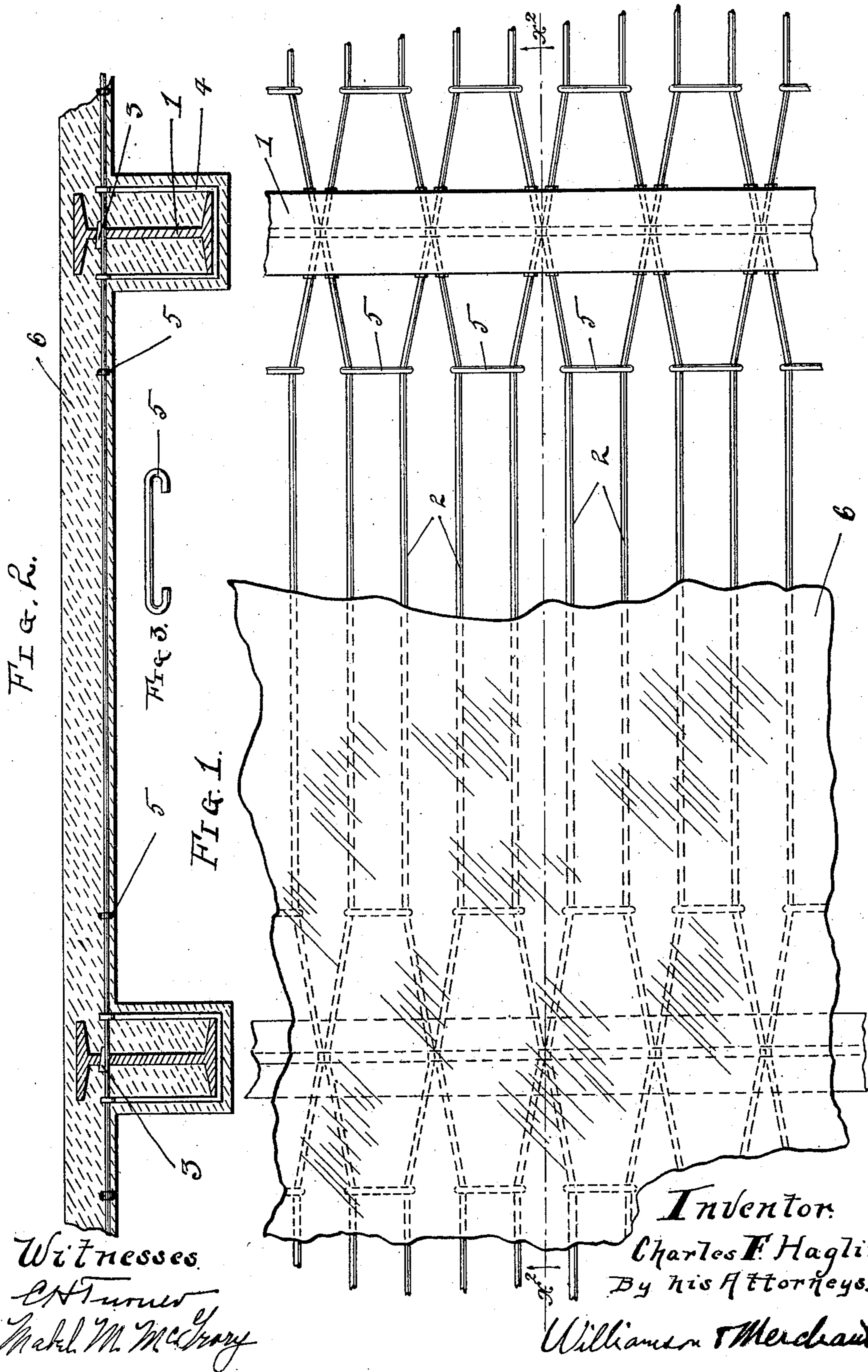
C. F. HAGLIN.

FIREPROOF FLOORING.

(Application filed Nov. 21, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 5

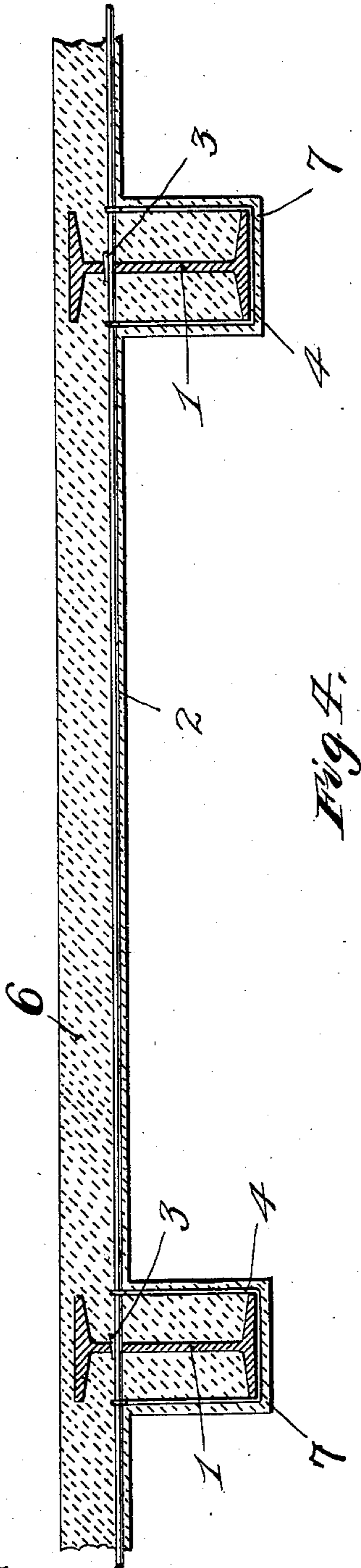
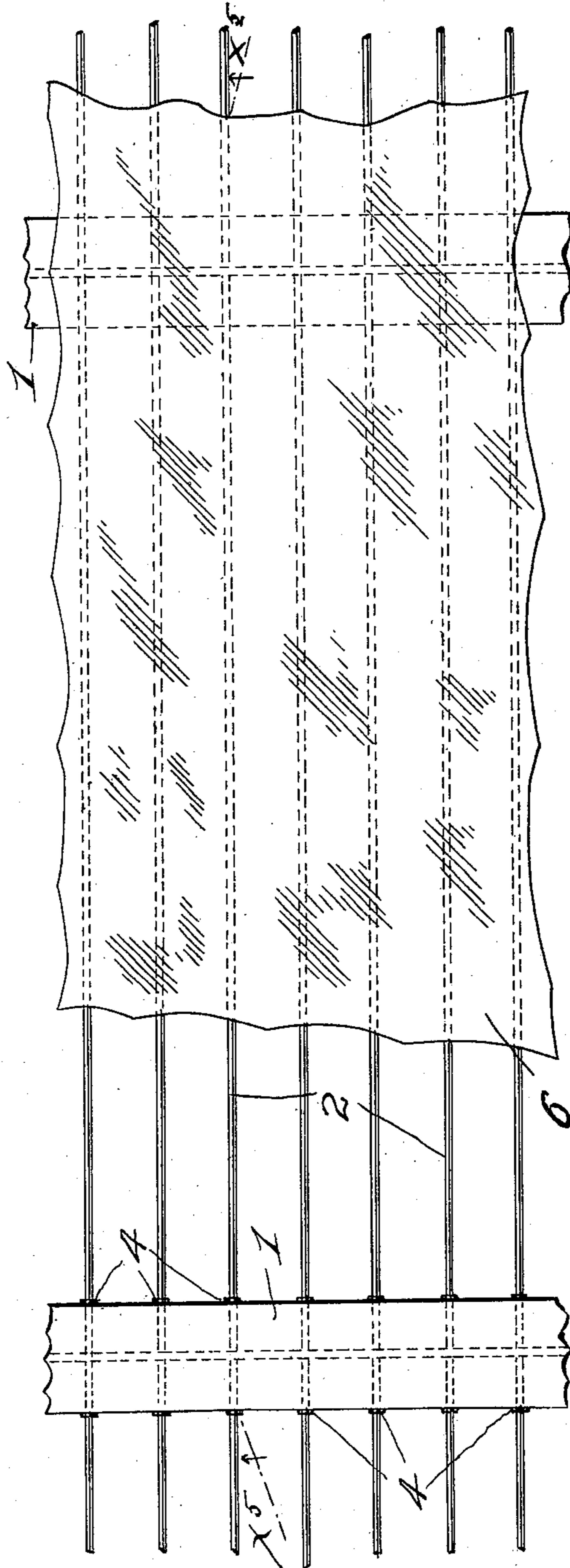


Fig. 4



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UNITED STATES PATENT OFFICE.

CHARLES F. HAGLIN, OF MINNEAPOLIS, MINNESOTA.

FIREPROOF FLOORING.

SPECIFICATION forming part of Letters Patent No. 682,683, dated September 17, 1901.

Application filed November 21, 1900. Serial No. 37,229. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. HAGLIN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Fireproof Flooring; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention has for its especial object to improve that type of fireproof floors wherein a skeleton of metal is covered by a sheet or body of concrete; and to this end it consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a plan view, with some parts broken away, showing a portion of the flooring constructed in accordance with my invention. Fig. 2 is a vertical section on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a detail view of a so-called "tightening-link." Fig. 4 is a plan view corresponding to Fig. 1 and illustrating a construction varying somewhat from that shown in Figs. 1 and 2, and Fig. 5 is a vertical section on the line $x^5 x^5$ of Fig. 4.

The numeral 1 indicates the horizontal and parallel or approximately parallel floor-beams, preferably constructed of iron or steel, of the form known as "I-beams." These beams are suitably supported at their ends and at other points, if desired, in any ordinary or suitable way. In accordance with my invention I perforate the web portions of the I-beams 1 and pass through these perforations transversely of the beams a series of floor wires or rods 2. The wires 2 are in the best arrangement rigidly secured to the webs of the beams 1, and this fastening is best afforded by small wedges 3, which are driven through the perforations of the beams and against the said wires. The yokes or stirrup-like binding-wires 4 embrace the lower portions of the beams 1, the upper ends of the same being coiled around the overlying portions of the wires 2.

In the preferred construction (illustrated in Figs. 1, 2, and 3) two floor-wires 2 are passed through each perforation of a given beam 1, and these wires are in the process of construction crossed and left with considerable slack in the first place. They are then tightened by applying the links 5, which links preferably have open sides to the adjacent wires, and then driving the said links toward the beams 1, so as to draw the floor-wires very taut. It is of course evident that the links 5 may take various forms, but must, nevertheless, be in length less than the distance between adjacent perforations in the beams 1, so that they will draw up the floor-wires as they are forced toward the secured portions thereof. These tightening-links afford an extremely simple and efficient means for drawing the floor-wires taut, and they further increase the strength of the structure by tying together the said floor-wires transversely.

In the construction illustrated in Figs. 4 and 5 the floor-wires 2 are extended approximately parallel, and the tightening-links 5, not being provided said wires must be drawn taut by other means before they are secured to the beams 1 by the wedges 3. By means of the tightening-links the wires may be put under any desired tension. In practice the wires will be normally stretched, but to an extent less than their maximum coefficient of elasticity. When the cement hardens around the wires, it adheres thereto.

The skeleton frameworks, formed by the beams and wires arranged as above indicated, are embedded in a heavy sheet or horizontally-extended body of concrete 6, having depending ridges 7, the latter of which extend parallel with the beams 1 and serve to embed the lower portions thereof and the yoke wires or stirrups 4. The yoke-wires 4, while not absolutely necessary, are nevertheless very desirable, as they reinforce and hold together the concrete ridges 7. It will of course be understood that the floor-wires 2, which are embedded in the floor-forming body 5 of the concrete, will tie together the said body and give the same the strength required to resist the loads to which it must be subjected. It will also of course be understood that the size and number of the floor-

wires will depend upon the loads or strains which are to be put upon the floor.

While the above structure is especially designed for floors, it will be understood that the same may be employed to form the walls or partitions of a building or the walls of various other structures.

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

1. The combination with a series of metal beams, of a series of wires passed transversely through the webs thereof, which wires are normally stretched, but to less than the maximum of their coefficient of elasticity, and a sheet or body of concrete embedding the said stretched wires, and adhering thereto, and strengthened thereby.

2. The combination with a series of beams, the series of wires extending transversely of said beams, said wires being first set with a slack, sliding tightening devices serving to draw the said wires taut by sliding movements thereon, and a body or sheet of concrete embedding the said wires and tighten-ers, and strengthened thereby.

3. The combination with a series of metal beams 1, of the series of wires 2 extended transversely through the webs of said beams, the keys or wedges 3 securing said wires to said beams, and the sheet or body of cement 6 embedding said wires 2.

4. The combination with the metal beams 1, of the series of wires or rods 2 passed trans-

versely through the webs of said beams, the U-shaped wires or stirrups suspended from said wires 2, and embracing the lower portions of said beams, and the concrete floor sheet or body 6 embedding said wires 2 and the upper portions of said beams, and provided with the depending ridges embedding said yokes 4 and the lower portions of said beams.

5. The combination with a series of beams, of a series of wires extended transversely through said beams, said wires being first set with slack, sliding tightening-links arranged to draw said wires taut by movements toward the said beams, and a body or sheet of concrete embedding the said wires and tighten-ers and portions of said beams.

6. The combination with a series of metal beams, of a series of wires passed through said beams and crossed at their junctions with said beams, said wires being first applied with slack, the tightening-links 5 working on said wires to draw the same taut, when driven toward the secured or cross portions of said wires, and a body or sheet of concrete embedding the said wires and strengthened and supported thereby.

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

CHARLES F. HAGLIN.

Witnesses:

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