

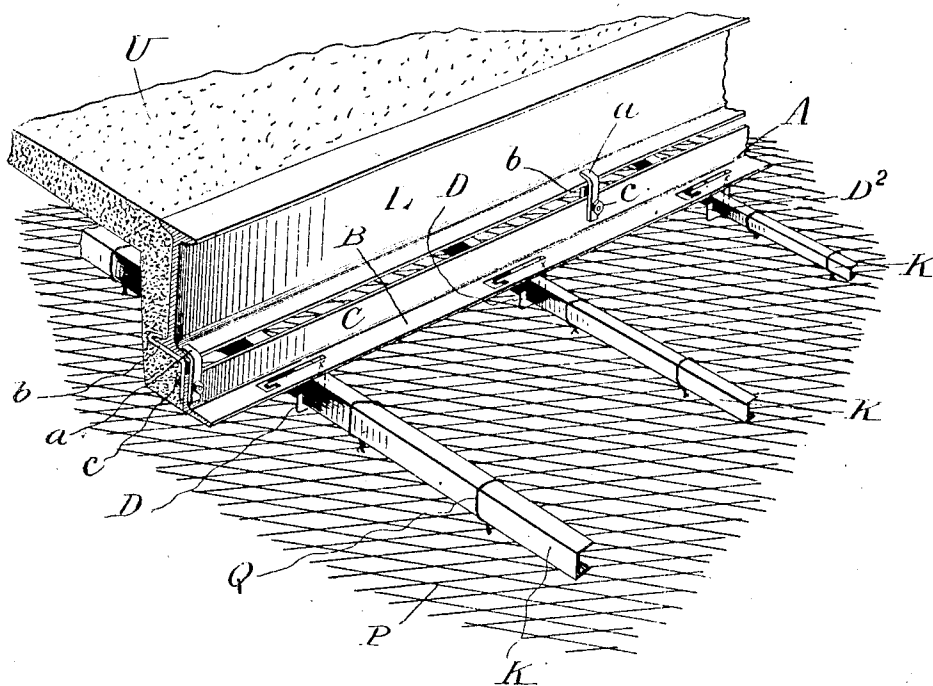
904,856.

G. E. ESCHER.
FIREPROOF BUILDING CONSTRUCTION.
APPLICATION FILED FEB. 24, 1908.

Patented Nov. 24, 1908.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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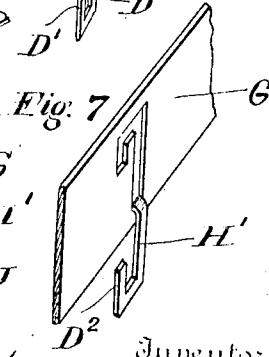
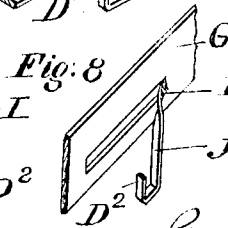
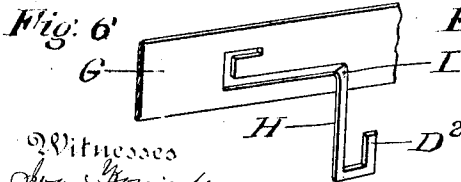
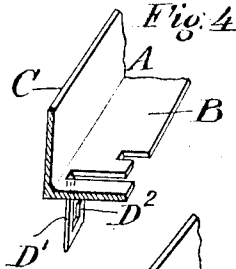
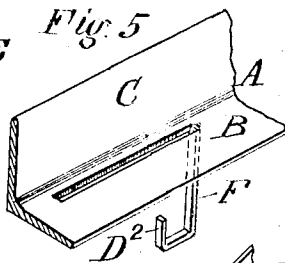
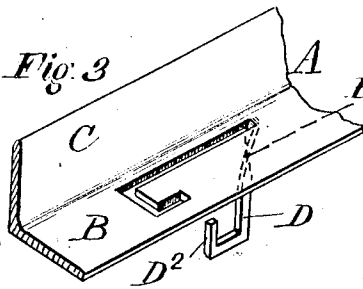
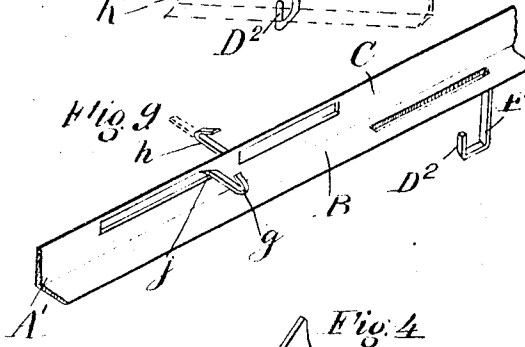
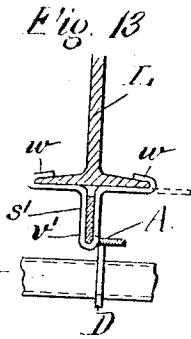
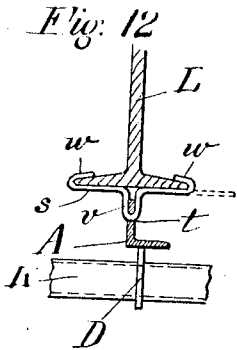
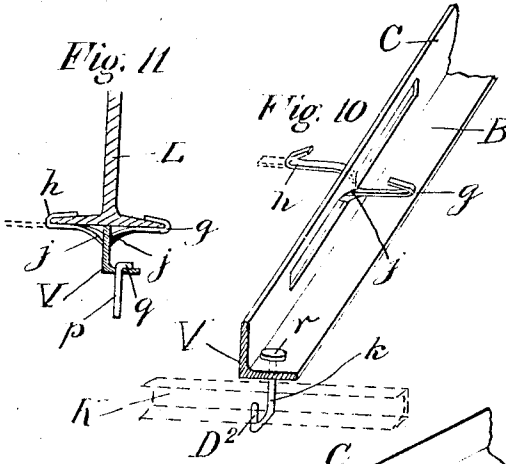
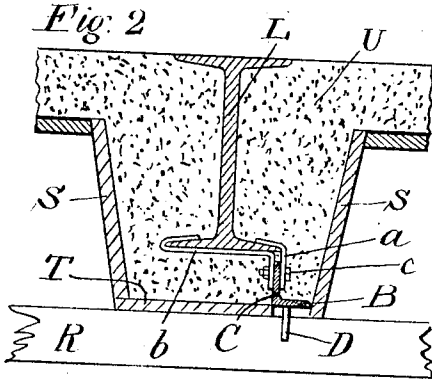
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By his Attorneys
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2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

GUSTAV EDWARD ESCHER, OF NEW YORK, N. Y.

FIREPROOF BUILDING CONSTRUCTION.

No. 904,856.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed February 24, 1908. Serial No. 417,410.

To all whom it may concern:

Be it known that I, GUSTAV EDWARD ESCHER, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented a certain new and useful Improvement in Fireproof Building Construction, of which the following is a specification, accompanied by drawings.

10 This invention relates to fire proof building construction, more particularly to ceiling construction, although the invention may be used in any connection in which it is found applicable.

15 The objects of the invention are to produce a rigid and cheap construction, which is easy to assemble and leaves practically nothing to the efficiency of workmen, because the mode of construction is a mechanical process throughout.

20 Further objects of the invention will hereinafter appear and to these ends the invention consists of a construction for carrying out all of the above objects embodying the features of construction, combination of elements, and arrangement of parts, substantially as hereinafter fully described and claimed in this specification, and shown in the accompanying drawings, in which

30 Figure 1 is a perspective view partly in section, illustrating one form of my improved fire proof construction; Fig. 2 is a transverse sectional view of one form of the construction corresponding to Fig. 1, with the mold boards in place; Figs. 3, 4 and 5, are perspective views of portions of suitable forms of furring bar for use in the construction; Figs. 6, 7 and 8 are perspective views of portions of modified forms of the furring bar; Fig. 9, is a perspective view of a portion of a furring bar provided with improved means for securing the bar to a beam or other support; Fig. 10, is a perspective view of a portion of a furring bar like Fig. 9, provided with a different form of hooked-shaped tongue or stirrup; Fig. 11, is a transverse sectional view of a beam having a furring bar like that shown in Fig. 10, secured thereto; Figs. 12 and 13, are transverse sectional views of a beam illustrating modified forms of clips for securing the furring bar to the beam.

Referring to the drawings, and more particularly to Figs. 3, 4 and 5, a furring bar A is shown comprising in this instance an angle bar having the flanges B and C. At

suitable intervals in the length of the horizontal flange B, hooked-shaped tongues or stirrups D are cut longitudinally out of the flange and bent out of the plane of the flange 60 to form hangers. In order that the hooked-shaped stirrups D may be in proper position to support cross furring bars transversely of the furring bar A, the hook is twisted at E Fig. 3 into a plane at an angle to the flange 65 B. By cutting the hooks D longitudinally out of the metal of the flange B the whole bar is not substantially weakened because the upright leg is not reduced, and because longitudinally extending webs are left at 70 each side of the slots. The twist E in the shank of the hook D also strengthens the hook and makes it more rigid.

In Fig. 4, the angle bar A, has one or more hooks D' cut transversely out of the 75 flange B and bent out of the plane of the flange. In this instance, the hook D', is in proper relationship to support cross furring bars without twisting the shank of the hook. This construction, however, weakens the angle 80 bar A to a much greater extent than in the construction shown in Fig. 3.

In the modification shown in Fig. 5, one or more straight tongues are cut longitudinally out of the flange B and bent into 85 hooked-shaped form as illustrated at F to support cross furring.

Figs. 6, 7 and 8 illustrate furring bars comprising flat strips G instead of angle bars. In Fig. 6, one or more hooks H are 90 cut longitudinally out of the length of the bar G and bent out of the plane of the bar with a slight twist at the point I to bring the hooks into position to support cross furring. 95

In Fig. 7, one or more hooks H' are cut transversely out of the body of the bar G which weakens the bar to some extent, and in Fig. 8, straight tongues are cut longitudinally out of the bar G and bent into hooked-shaped form as shown at J, with a twist at I' to bring the hooks into position to support cross furring. 100

Fig. 1 illustrates a fire proof construction for a ceiling, utilizing the furring bar A 105 like that shown in Fig. 3 with the hooked-shaped tongues or stirrups D cut longitudinally out of the horizontal flange B and bent and twisted into the desired plane for supporting the cross furring bars K. 110

It is to be understood that a furring bar A is connected to each beam L and these fur-

ring bars may be angle bars or straight bars as desired. The cross furring K may be in the form of channel bars as shown, or any other suitable form. The furring bars A are arranged longitudinally of the beams L and suitable means are provided for securing the upright flanges C of the bars A, to the lower flanges of the I-beams L. In this instance, I have shown an improved form of clip for this purpose, comprising the bent members *a* and *b* which grip the lower flanges of the I-beams and are suitably secured to the furring bar as by means of the bolt *c*. The metallic lath P is suitably secured to the cross furring bars K as by means of the wires Q or any other means may be used.

There are a great many advantages of the fire proof construction disclosed in Fig. 2. By reference to Fig. 2, it will be seen that the horizontal flange B of the furring bar A forms in effect a portion of a horizontal mold board for the concrete beam. In forming the beam the studs R are placed temporarily underneath the I-beams L, the mold boards S are placed at each side of the beam and the horizontal mold board T extends up to the angle bar A thereby forming an inclosed form into which to pour the concrete U. After the concrete has set, the studs R and mold boards are removed. Preferably, the top of the vertical flange C of the furring bar A is arranged at a sufficient distance below the bottom of the I-beam L to permit the concrete to entirely surround the vertical flange of the furring bar and inclose the same, thus fire-proofing the beam.

According to this construction, the clips *a*, *b* for the furring bars may be arranged at substantial distances apart in the length of the beams, a few in number, and there may be as many hooks or stirrups D as desired at very much closer intervals apart. The whole construction is rigid and cheap and easy to assemble, because the hooks D form an integral part of the furring bars. Since the hooks D are all the same length, practically nothing is left to the efficiency of the workmen in constructing the ceiling and the ceiling is necessarily level throughout. The hooks D and the other forms of hooks illustrated and described, should be left sufficiently open to permit the cross furring bars K to be readily dropped thereinto. The toe D² on the hook D prevents the cross furring bar K from falling out. This toe is indicated on each of the other forms of the hooks by the same reference numeral D².

In Fig. 9, a modified form of furring bar A' is shown comprising an angle bar having clips *g* and *h* cut out of the upright flange and bent at an angle to said flange to enable the furring bar to be secured to one of the beams L or other support. These clips *g* and *h* are arranged at suitable inter-

vals in the length of the bar and they are twisted at *j* to bring them into the proper plane to enable them to be secured to the beam. By cutting the clips or tongues *g* and *h* longitudinally out of the bar A', said bar is not weakened to an appreciable extent.

In Fig. 10, a furring bar V is shown, having the securing clips *g* and *h* and a separate and independent hook *k* inserted through an aperture in the horizontal flange of the bar. In Fig. 11, the furring bar V is shown secured to the I-beam L by means of the clips *g* and *h*, and the hook *p* is provided with a bent head *q* instead of a bolt head *r* like the hook *k* in Fig. 10.

In Fig. 12, the furring bar A is secured to the beam L by means of the clip *s* which passes through an aperture *t* in the upright flange of the furring bar A.

In Fig. 13, instead of having a separate aperture through which to pass the clip *s'* said clip is passed through the slot formed by the bent hook D, and thus supports the furring bar A. These clips *s* and *s'* as shown are provided with the loops *v*, and *v'* and the bent ends *w*.

According to my invention, it is to be understood that the different forms of furring bars and clips for securing the bars to the beams, may be interchangeably used, and may be assembled in varying combination of parts, for I do not limit myself to any particular figure or combinations of figures.

The invention may also be used in connection with terra-cotta arches, or arches of any other material.

I claim and desire to obtain by Letters Patent the following:

1. As a new article of manufacture, a furring bar provided with flat hook shaped tongues having their shanks cut out longitudinally from within the limits of the body of the bar, and bent and twisted out of the plane of the bar to bring the plane of the hook shaped end substantially longitudinally of the bar, whereby a hanger is produced.

2. As a new article of manufacture, a furring bar comprising an angle-iron provided with hook shaped tongues having their shanks cut out longitudinally from within the limits of one flange of said angle-iron, and bent and twisted out of the plane of said angle-iron to bring the plane of the hook shaped end substantially longitudinally of the bar, whereby a hanger is produced.

3. As a new article of manufacture, a furring bar having oppositely arranged clips cut out from within the limits of the body of the bar and bent into hook shaped form at each side of the bar, the adjacently located shanks of said clips being sufficiently twisted to bring the plane of the shank substan-

tially longitudinally of the bar, in order to enable the bar to be secured underneath a beam or support, whereby a hanger is produced.

4. As a new article of manufacture, a furring bar provided with oppositely located clips projecting from opposite sides of the bar cut out from within the limits of the body of the bar and adapted to be bent into hook shaped form, the adjacently located shanks of said clips being sufficiently twisted to bring the plane of the shank substantially longitudinally of the bar, and tongues also cut out of the body of the bar.

5. As a new article of manufacture, a furring bar, provided with tongues cut out from within the limits of the body of the bar, to form supports for an additional furring bar, and oppositely arranged clips also cut out from within the limits of the body of the bar and projecting from opposite sides of the bar, to form means for attachment to a supporting beam.

6. A fire-proof building construction, comprising in combination, a beam, an angle bar extending longitudinally of the beam with one flange substantially horizontal, said horizontal flange being provided with integral hook shaped tongues cut out from within the limits of the body of the bar, and said angle bar also being provided with clips for securing the vertical flange of the bar underneath the beam.

7. A fire-proof building construction, comprising in combination, a beam, a furring bar extending longitudinally of the beam and provided with hook shaped tongues, said bar also provided with clips for securing the same to the beam and cross furring bars extending transversely to the said furring bar and supported in said hooked-shaped tongues.

8. A fire-proof building construction, comprising in combination, beams, furring bars, extending longitudinally of said beams and secured thereto, said furring bars being provided with integral hook-shaped tongues formed out of the bodies of said bars, cross furring bars extending transversely of said furring bars and supported in said hook-shaped tongues, and metallic lath suitably secured to said cross furring bars.

9. A fire-proof building construction, comprising in combination, a beam, a furring bar in the form of an angle-iron having one flange substantially horizontal and provided with hook-shaped tongues bent and twisted out of the plane of the bar, and clips for suspending the vertical flange of the angle-iron underneath the beam.

10. A fire-proof building construction, comprising in combination, a beam, a furring bar provided with hook-shaped tongues bent and twisted out of the plane of the bar, and also provided with clips for suspending the

bar underneath the beam, and cross furring bars extending transversely to the said furring bar and supported in said hook-shaped tongues.

11. A fire-proof building construction, comprising in combination, a beam, a furring bar provided with hook-shaped tongues bent and twisted out of the plane of the bar, cross furring bars extending transversely to the said furring bar and supported in said hook-shaped tongues, and means for suspending the furring bar underneath the beam.

12. A fire-proof building construction, comprising in combination, beams, furring bars hung underneath the same, said furring bars being provided with integral hook-shaped tongues formed out of the bodies of said bars, cross furring bars extending transversely to said furring bars and supported in said hook-shaped tongues, and metallic lath suitably secured to said cross furring bars.

13. As a new article of manufacture, a furring bar having hook-shaped tongues formed with retaining toes cut out of the body of the bar without cutting the bar through to the edges, thereby leaving longitudinally extending webs at the sides of the slots, the shanks of the tongues being sufficiently twisted to bring the planes of the shanks longitudinally of the bar, whereby a hanger is produced.

14. As a new article of manufacture, a furring bar in the form of an angle-iron having flat hook-shaped tongues formed with retaining toes cut out of the body of the bar without cutting the bar through to the edges, thereby leaving longitudinally extending webs at the sides of the slots, the shanks of said tongues being sufficiently twisted to bring the planes of the hook-shaped ends substantially longitudinally of the bar, whereby a hanger is produced.

15. As a new article of manufacture, a furring bar having tongues cut out of the body of the bar without cutting the bar through to the edges, thereby leaving longitudinally extending webs at the sides of the slots, the shanks of the tongues being sufficiently twisted to bring the planes of said shanks longitudinally of the bar, whereby a hanger is produced.

16. As a new article of manufacture, a furring bar having tongues cut out of the body of the bar without cutting the bar through to the edges, thereby leaving longitudinally extending webs at the sides of the slots, said tongues having hooked-shaped ends formed with retaining toes and the shanks of the tongues being sufficiently twisted to bring the planes of the hooked-shaped ends longitudinally of the bar.

17. A fireproof building construction comprising in combination, a beam, a furring bar in the form of an angle iron,

extending longitudinally of the beam and hung underneath the beam, with the horizontal flange of the angle iron extending beyond the foot of the beam, said beam being embedded in plastic material, and the horizontal flange of the angle iron forming a portion of the bottom side of the plastic material along one edge.

18. A fireproof building construction comprising in combination, a beam, a furring bar in the form of an angle iron extending longitudinally of the beam, and hung underneath the beam without touching the same, leaving a space between the upright flange of the angle iron and the bottom of the beam, the horizontal flange of the angle iron extending beyond the foot of the beam, said beam being embedded in plastic material and the horizontal flange of the angle iron forming a portion of the bottom side of the plastic material along one edge.

19. A fireproof building construction, comprising in combination, a beam, a furring bar in the form of an angle iron, extending longitudinally of the beam and hung underneath the beam with the horizontal flange of the angle iron extending beyond the foot of the beam, said angle iron

being provided with hook-shaped tongues for supporting cross furring bars, said beam being embedded in plastic material and the horizontal flange of the angle iron forming a portion of the bottom side of the plastic material along one edge.

20. A fireproof building construction, comprising in combination, a beam, a furring bar in the form of an angle iron extending longitudinally of the beam and hung underneath the beam without touching the same, leaving a space between the upright flange of the angle iron and the beam, the horizontal flange of the angle iron extending beyond the foot of the beam, said angle iron being provided with hook-shaped tongues for supporting cross furring bars, said beam being embedded in plastic material and the horizontal flange of the angle iron forming a portion of the bottom side of the plastic material along one edge.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GUSTAV EDWARD ESCHER.

Witnesses:

E. VAN ZANDT,
HERBERT G. OGDEN.