No. 787,512. PATENTED APR. 18, 1905.

A. L. A. HIMMELWRIGHT.

FIREPROOF CONSTRUCTION AND METHOD OF MAKING SAME.

APPLICATION FILED AUG. 10, 1904.

Fig. 1.

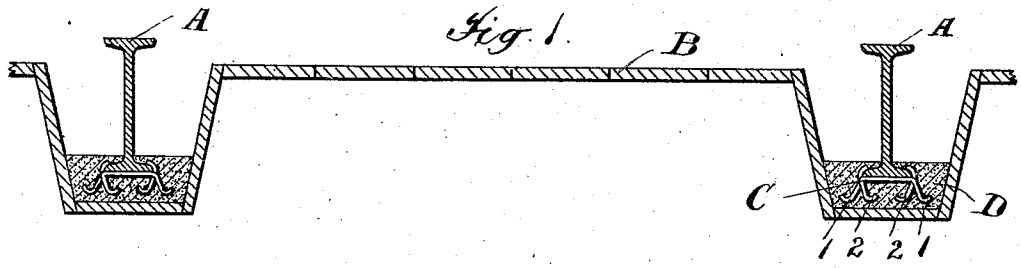


Fig. 2.

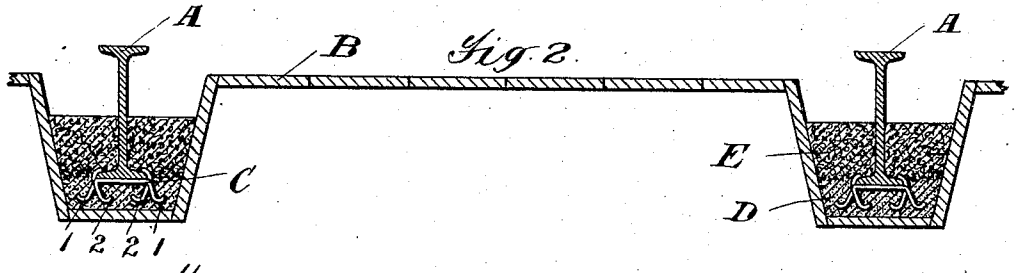


Fig. 3.

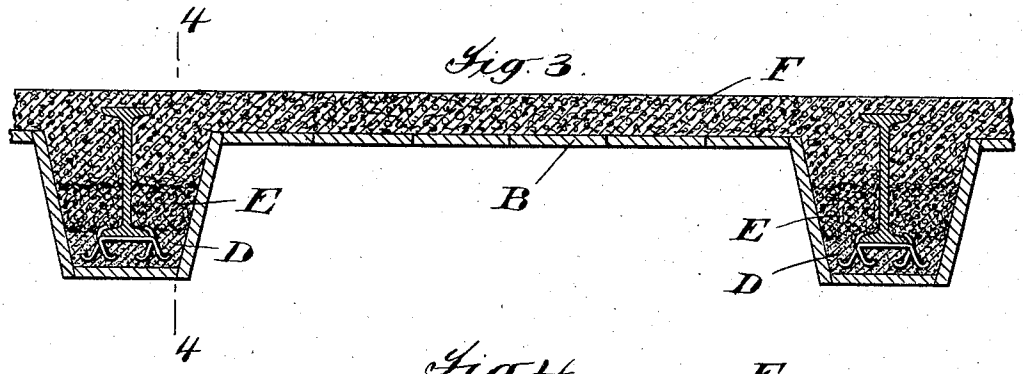
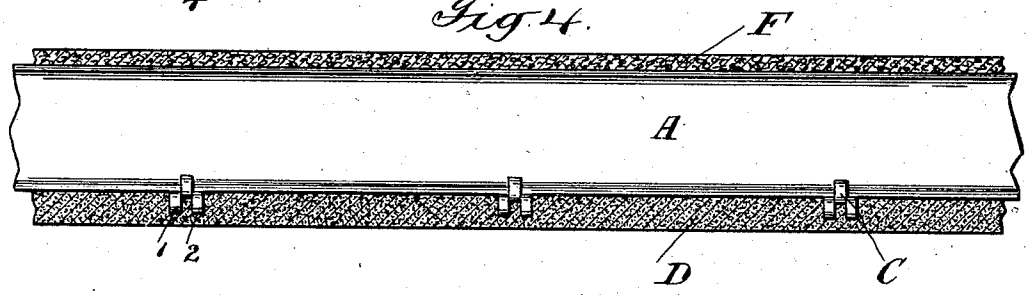


Fig. 4.



Witnesses
J. A. Graves.
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By his Attorneys
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No. 787,512. Patented April 18, 1905.

UNITED STATES PATENT OFFICE.

ABRAHAM L. A. HIMMELWRIGHT, OF NEW YORK, N. Y., ASSIGNOR TO THE NEW JERSEY WIRE CLOTH COMPANY, OF TRENTON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

FIREPROOF CONSTRUCTION AND METHOD OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 787,512, dated April 18, 1905.

Application filed August 10, 1904. Serial No. 220,179.

To all whom it may concern:

Be it known that I, ABRAHAM L. A. HIMMELWRIGHT, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Fireproof Constructions and Methods of Making the Same, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to provide an improved fireproof protection for the lower portions and under sides or soffits of beams in concrete floor constructions and an improved method of making the same.

It is now common in fireproof buildings to employ a layer of concrete on the under side of the iron beams, which is filled in with and forms a part of the floor-concrete. It has been found necessary in practice to provide some means for supporting this soffit protection, and it has proven difficult to provide such means which will efficiently support the concrete, especially as it is impossible to tamp the concrete below the beams in such a manner as to form the solid integral layer of concrete desired.

With my improved construction and method I provide a soffit protection consisting of a solid integral layer of plastic material, such as fine concrete or cement, which is solidified by the pressure and tamping of the heavy concrete above, so that its particles are held firmly together and the whole beam protection quite strongly supported by the beam-flange and the hold of the protection material upon the concrete above. While such support of this solid body may be found sufficient, it is preferable to use also some form of metallic members embedded in the beam protection and supported by the beam-flanges, and I preferably employ for this purpose clips placed along the beam-flanges at suitable distances to provide an efficient support, while at the same time permitting the material to pass freely between them to fill solidly the spaces around and below the beam-flanges, these clips being provided with arms which extend downward into the soffit protection and are of such form as to give the desired support.

My improved construction and method of making the same will now be described in connection with the accompanying drawings, forming a part of this specification, in which the invention is illustrated as applied in its preferred form, and the features forming the invention will then be specifically pointed out in the claims.

In the drawings, Figure 1 is a section transversely to the beams, showing the structure in process of making with the material of the soffit protection filled in. Fig. 2 is a similar section showing the concrete partially filled in above the soffit protection and tamped to solidify the latter. Fig. 3 shows the completed construction before removal of the centering. Fig. 4 is a sectional elevation longitudinally of the beams, showing one of the beams and its clips in elevation and the soffit protection in section.

Referring to said drawings, A represents the beams, shown as of the common I form, and B the temporary centering, which is supported in any suitable manner for filling in the concrete to form the floor. On the bottom flanges of the beams at suitable distances apart are placed protection-supporting clips C, which are shown as having two hooked arms 1 2 at each side of the beam, arms 1 extending downward and outward and arms 2 extending downward and inward, so as to give a strong support to the soffit protection. The clips being in position and the centering erected, as shown in Figs. 1 to 3, the soffit protection is first to be filled in. This consists of comparatively fine concrete or similar strong plastic material D, which is preferably made from fine aggregates—for instance, so as to pass through a three-fourths-inch-mesh screen—and made very wet, so that it has about the consistency of ordinary cement mortar. This concrete is poured into the haunch along one side of the entire length of the beam until it flows under the beam and rises on the opposite side to the proper level, preferably to a

little above the top of the beam-flange. Care must be taken that this thin concrete fills the space under and around the beam solidly, and the securing of this result may be assisted by tamping with a small tamp, although the material will preferably be thin enough so as to fill the space completely without tamping. In Fig. 1 the construction is shown with the soffit-protection material D filled in to the proper level on both beams A. Before the protection material D has set several inches of the regular floor-concrete are filled in above the material D on both sides of the beams, and this concrete is thoroughly tamped down on both sides of the beams. This crowds the soffit-protection material closer together and packs it, so as to fill any small voids that might otherwise remain in it and assure the formation of a solid homogeneous body of the material D. This also forces the coarser particles of the concrete into the upper portion of the material D, so as to weld the two bodies of material together, which materially assists in supporting the soffit protection. In Fig. 2 the construction is shown with the layer of concrete E, just described, filled in and tamped upon the soffit protection D. The soffit protection thus having been formed and the concrete directly above it filled in and tamped, the rest of the floor-concrete F is filled in and tamped in the usual manner, forming the complete construction shown in Figs. 3 and 4, the centering B being removed after the concrete is set.

It will be understood that the invention is applicable not only in connection with beams of the common I form shown, but also in connection with beams of other form, as well as to double beams or girders. In the case of beams without flanges angle-bars may be applied to form flanges if it be desired to use clips of the form shown in the drawings, or any other suitable means may be used to aid in supporting the soffit protection.

While it is preferable to use clips or other devices embedded in the soffit protection to aid in supporting the latter and I prefer to use clips arranged at intervals on the beams, as shown, it will be understood that the invention includes constructions in which the soffit protection is supported solely by the beams and the concrete above, as such support of my improved soffit protection will be found sufficient in many cases.

What I claim is—

1. In a concrete floor or similar structure, a beam protection consisting of a body of comparatively fine concrete or similar material molded around and below the bottoms of the beams, in combination with a concrete floor of coarser concrete a part of which is molded upon and into said beam protection.

2. In a concrete floor or similar structure, a beam protection consisting of a body of comparatively fine concrete or similar material molded around and below the bottoms of the beams, in combination with a concrete floor of coarser concrete a part of which is molded upon and into said beam protection, and metallic supporting members carried by and extending below the beams and embedded in the beam protection.

3. In a concrete floor or similar structure, a beam protection consisting of a body of comparatively fine concrete or similar material molded around and below the bottoms of the beams, in combination with a concrete floor of coarser concrete a part of which is molded upon and into said beam protection, and clips arranged at intervals on the flanges of the beams and provided with arms extending below the beams and embedded in the beam protection.

4. In a concrete floor or similar structure, a beam protection consisting of a body of comparatively fine concrete or similar material molded around and below the bottoms of the beams, in combination with a concrete floor of coarser concrete a part of which is molded upon and into said beam protection, clips arranged at intervals on the flanges of the beams and provided with inclined hooked arms extending below the beams and embedded in the beam protection.

5. The method of building concrete floors or similar structures, which consists in pouring in thin concrete or similar material to fill the space around and below the bottoms of the beams to the desired height, filling in a portion of the coarser floor-concrete onto the thin concrete before the latter has set, and tamping the coarser concrete into the thin concrete and then completing the filling in of the floor-concrete.

6. The method of building concrete floors or similar structures, which consists in placing at suitable intervals along the beams clips having supporting-arms extending below the beams, pouring in thin concrete or similar material to fill the space around and below the bottoms of the beams and clips to the desired height, filling in a portion of the coarser floor-concrete onto the thin concrete before the latter has set, and tamping the coarser concrete into the thin concrete and then completing the filling in of the floor-concrete.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ABRAHAM L. A. HIMMELWRIGHT.

Witnesses:
S. WINTHAL,
C. J. SAWYER.