W. GOLDIE.

COMBINED METALLIC AND CONCRETE FLOOR AND CEILING CONSTRUCTION.

APPLICATION FILED JAN. 7, 1920.

1,375,288. Patented Apr. 19, 1921.

FIG. 1

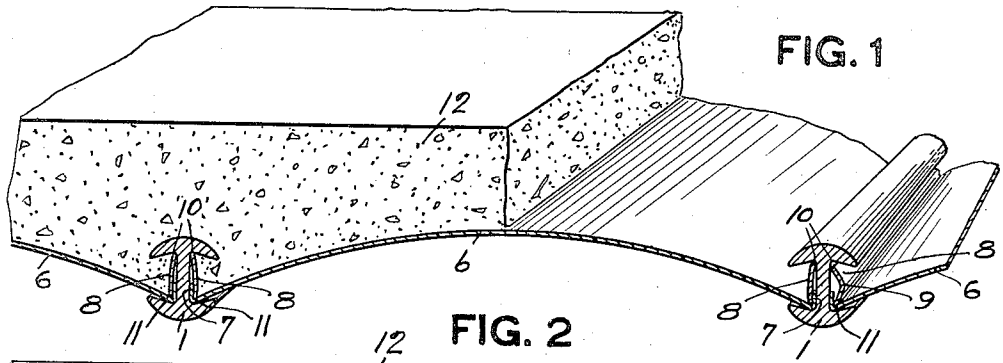


FIG. 2

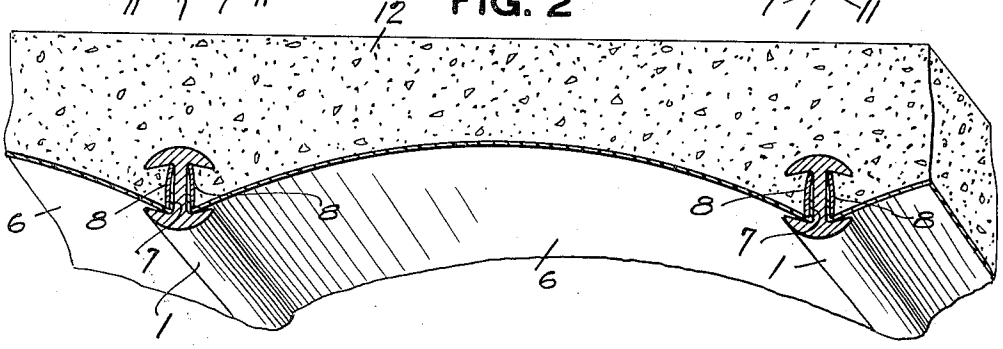


FIG. 3

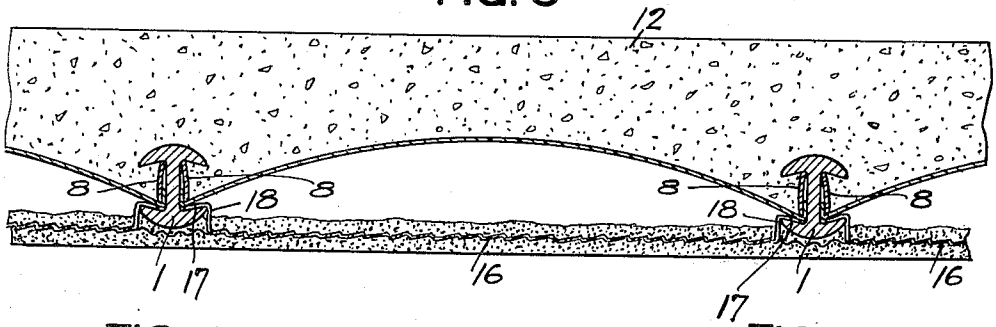


FIG. 4

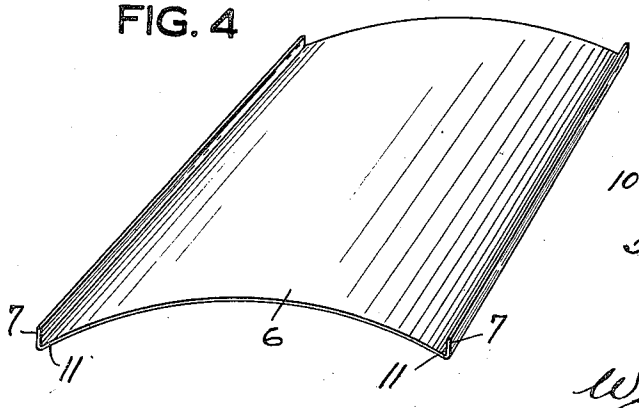
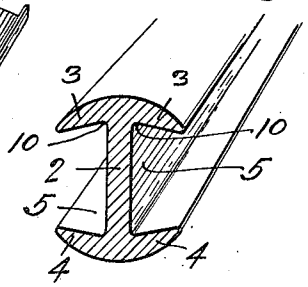


FIG. 5



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COMBINED METALLIC AND CONCRETE FLOOR AND CEILING CONSTRUCTION.

1,375,288. Specification of Letters Patent. Patented Apr. 19, 1921.

Application filed January 7, 1920. Serial No. 350,030.

To all whom it may concern:

Be it known that I, WILLIAM GOLDIE, a citizen of the United States, and resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Combined Metallic and Concrete Floor and Ceiling Constructions; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to combined metallic and concrete floor and ceiling construction, one object being to provide a simple and cheap construction adapted to hold relatively heavy loads. It comprises, generally stated, longitudinal bars having recesses in their sides, spacer sheets between the bars and flanges fitting in said recesses, locks holding said spacer sheets in the recesses of the bars, and a filling of concrete supported by said bars and spacer sheets.

In the accompanying drawings, Figure 1 is a sectional perspective view showing the general construction of the invention; Fig. 2 is a sectional perspective view taken from the under side of the construction of Fig. 1; Fig. 3 is a vertical sectional view showing a modified form of construction; Fig. 4 is a perspective view of one of the spacer sheets; and Fig. 5 is a perspective view of one of the longitudinal bars.

My invention provides a very simple form of fire-proof floor and ceiling construction suitable for fire-proof buildings. It comprises two main elements, to wit., bars 1 having side recesses, and spacing sheets 6 adapted to seat themselves in the side recesses of the bars. These two members are firmly united and form the main support for the floor of concrete which is laid thereon. For the practice of the invention I prefer to employ for the longitudinal bars 1, the bars described in Letters Patent No. 1,315,661, dated September 9, 1915, which is illustrated as having the central web 2 and the upper end flanges 3 and lower end flanges 4 forming side recesses 5 of dove-tail shape, which form has the advantage of great strength when combined with the concrete filling of the recesses as set forth in said patent. However, any suitable form of bars having central webs and outwardly extending flanges forming seats on the sides, may be employed. The other main parts of the floor construction are the sheets 6 having the side flanges 7. These sheets are of sheet metal of suitable width and can be quickly formed by rolling the sheet to the desired curve or bend, for example that shown where it extends from bar to bar on a suitable curve or arch, and at the same time rolling the lips or flanges 7 on the sheets. The bars being properly spaced on the supporting walls of the building, the sheets 6 are simply inserted in place, and they are held in the grooves by any suitable locking means, one simple means being strips or ribbons of metal 8 bent transversely as at 9 which may be of any desired length, the full length of the main bars or else only in short clip form. These locking-clips are inserted in the recesses or grooves 5 above the sheets 6, and engage with the upper inner corners 10 of the recesses and extend down to the sheet 6, and are secured in place by the blows of a hammer striking the clips and straightening them out and driving them down into the lower seats or corners 11 of the sheets 6, where they rest against the sheets 6 and lower flanges 4 of the bars. The floor as thus constructed is ready to receive a concrete filling or aggregate as at 12 forming the surfaces of the floor and which may be filled in place without the employment of any mold of any kind, the concrete extending above the metallic portion of the floor for any desired thickness. The concrete filling as thus supported by the grooved bars and the metal sheets supported and locked thereon, binds the whole structure together, and forms a well supported rigid floor for the building, and one adapted to carry a heavy load. The concrete filling support has usually an arch base formed by the bottom sheets 6, and as it enters the recesses of the bar 6 it locks itself and the sheets therein, and adds to the strength of the bar and its holding capacity, as set forth in the patent above referred to. The locking clips and the filling of concrete unite the whole structure rigidly together and bind the lips 7 at the ends of the supporting sheets 6 firmly in place and increase the carrying capacity of the floor.

The lower faces of the bars 1 and sheets 6 may be exposed in use, and form a simple metallic ceiling construction, and for many factories and the like will be sufficient, as the whole floor is fire-proof it is evident that no further protection is required. Where, however, it is desired to provide a regular plastered ceiling of even surface

this can be easily accomplished as illustrated; for example, I may employ any suitable metallic lath support on the bars 1. This is illustrated in Fig. 3 by another sheet of metallic lathing 16 having the end flanges 17 which rest on the lower flanges 4 of the bars 1, and have the vertical portions 18 extending down and uniting the lips 17 with the main body 16 of the metallic lathing. This lower lathing surface forms a proper means for supporting the plastering for the ceiling on a level. As the bars 1 are of but little width the plaster, being supported by the outer faces of the vertical portions 18 of the lathing are given sufficient support below the bars 1.

In use it is only necessary to insert the supporting bars in place, to rest the supporting sheets 6 thereon, and drive into place the clips or holders 9. The concrete flooring 12 can then be poured, so completing the simple floor construction. If a smooth ceiling is desired, it is an easy matter to insert the metal lathing 15 and 16 as above described, and plaster the ceiling thereon.

What I claim is:

1. In floor construction, the combination of recessed metal bars, spacer-sheets extending between the bars and fitting in said recesses, and expansible locking members fitting in the recesses of the said bars and holding said spacer-sheets in the said recesses.

2. In floor construction, the combination of recessed metal bars, spacer-sheets extending between the bars and having side flanges forming angles that fit in and conforming to the shape of said recesses, and locking members fitting in the recesses of the said bars and holding said spacer-sheets in the said recesses.

3. In floor construction, the combination of supporting bars having recesses in their sides, spacer-sheets fitting in said recesses, and expansible locking clips fitting in the recesses of the bars, and locking the spacer-sheets into the same.

4. In floor construction, the combination of supporting bars having recesses in their sides, spacer-sheets having side flanges fitting in said recesses, and locking clips forming angles that fit in the recesses of the bars, and locking the spacer-sheets into the same.

5. In floor construction, the combination of supporting bars having top and bottom flanges forming recesses, spacer sheets having side flanges fitting in said recesses, and locking clips engaging with the top and bottom flanges of the bars and the end flanges of the spacer-sheets.

6. In floor construction, the combination of longitudinal bars having recesses in their sides, spacer-sheets entering into said recesses, and transversely curved locking clips entering the recesses and adapted to be expanded and engage with the sheets to lock them therein.

In testimony whereof, I, the said WILLIAM GOLDIE, have hereunto set my hand.

WILLIAM GOLDIE.

Witnesses:

JOHN F. WILL,

S. F. ARMSTRONG.