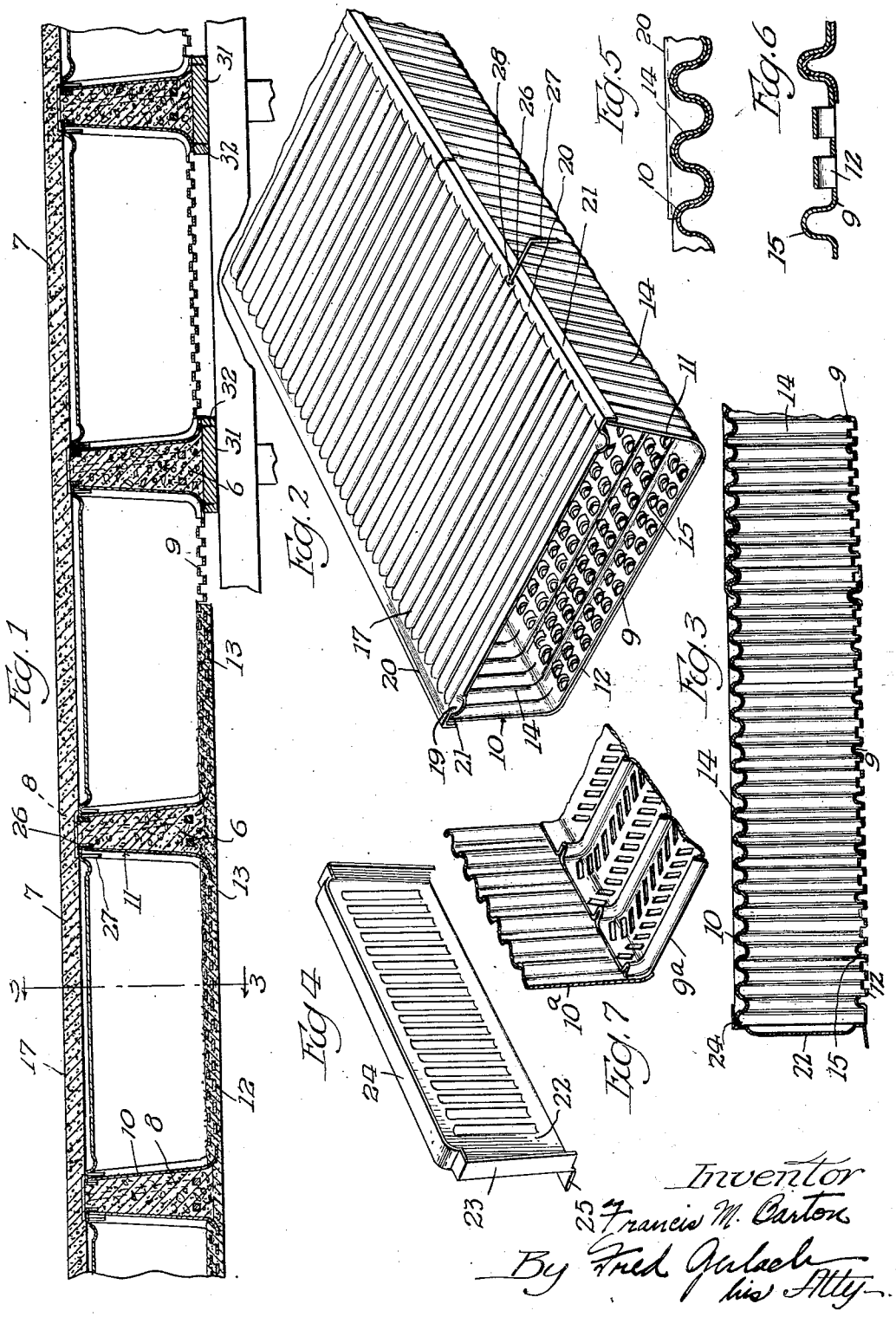
April 8, 1930. F. M. BARTON 1,753,496

CONCRETE FLOOR CONSTRUCTION

Filed Jan. 22, 1926



Inventor
Francis M. Barton
By Fred Galasch
his Atty.

Patented Apr. 8, 1930 1,753,496

UNITED STATES PATENT OFFICE

FRANCIS M. BARTON, OF CHICAGO, ILLINOIS, ASSIGNOR TO GEORGE THOMPSON, OF CHICAGO, ILLINOIS

CONCRETE-FLOOR CONSTRUCTION

Application filed January 22, 1926. Serial No. 82,891.

The invention relates to concrete floor constructions of that type in which hollow sheet-metal forms are inserted in the concrete to provide air spaces therein.

One object of the invention is to provide a form in which the lathing is integrally formed with the sheet-metal form. Another object is to provide an improved form of this character in which the bottom and upwardly extending sides are integrally formed, and in which the top is separately formed to facilitate the installation of the forms. Other objects will appear from the detail description.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Fig. 1 is a vertical section through a floor embodying the invention, one portion of the floor being complete, while the remainder is shown in the course of construction. Fig. 2 is a perspective of one of the improved sheet-metal forms. Fig. 3 is a section on line 3—3 of Fig. 1. Fig. 4 is a perspective of one of the plates for closing the end of a form. Fig. 5 is a detail section of the joint or connection between two upper members of a form. Fig. 6 is a detail section of a portion of the bottom wall of a lower member. Fig. 7 is a perspective of a portion of a form embodying a modification.

The invention is exemplified in a concrete floor construction composed mainly of the beams 6 and the slab 7 extending over and uniting the beams to form an integral construction. The beams are usually reinforced by rods 8, 8, extending lengthwise thereof and upwardly to a point in or adjacent the slab. The invention involves the use of hollow forms to form spaces or voids and to support the floor slab between the beams. These forms are made of sheet metal and comprise upper and lower members which, when secured together, form a hollow box-like structure. In the present invention, the lower sheet metal members of the forms comprise bottom walls 9 with integral upwardly extending and flared side-walls 10 and 11. The bottom wall 9 is suitably deformed, as at 12, to form a base or lath which is adapted to retain the plaster 13. The side walls 10 and 11 are vertically corrugated, as at 14, to stiffen them, and the bottom wall 9 is also provided with corrugations 15 in reduced number extending between some of the corrugations 14. The walls 10 and 11 are flared upwardly or downwardly convergent, so that the concrete beam will be thicker adjacent its lower end than at its upper end, because this formation avoids waste of concrete by providing the maximum at the lower portion of the beam where the greatest stresses occur, and the minimum thickness of the beam adjacent its upper end.

The top members of the forms consist of sheet-metal plates 17, which are corrugated transversely between the sides and are bent at each side margin to form an inner upwardly extending wall 19, a transverse wall 20 and an outer depending flange 21 which provide a channel adapted to receive the upper margins of sides 10 and 11 to form an interlock therewith. These top members form a support for the floor slab 7 and also serve as a connection between the upper ends of the sides 10 and 11, so that the latter will be held against spreading.

Each form is composed of a plurality of sections each comprising upper and lower members, the contiguous ends of which lap or extend into one another, so that the form may be extended the full length of the beam or the full length of the spaces desired between the beams, and built up of small sections which can be conveniently transported and handled. The sections are tapered slightly, so that the contiguous ends will telescope into one another.

The end of each form is usually closed by a sheet-metal plate comprising a vertical wall 22, a top flange 24, adapted to overlap the end of the top wall 17 of the end section of the form, side flanges 23 to overlap the side walls 10 and 11 of the end sections, and an outwardly turned bottom flange 25. In some instances, it is desirable to securely space the ends of the forms at the upper portions of the beams, and for this purpose spacers 26 with end legs 27 are provided.

The legs of these spacers are adapted to enter holes 28 formed in the walls 20 of the top members 17 and thus constitute spacing means between the top members of the forms.

In practice, the form-members are fabricated at the shops and shipped in stacks to the place where they are to be installed. The flared side-walls of the bottom members permits them to be telescoped or closely stacked for convenience in transportation and storage. At the place of installation, a suitable staging 30 is erected and boards 31 are placed at points corresponding to the lower faces of the beams. The lower form-members are then placed in position on boards 31, being usually secured thereto by nails 32 adjacent the lower corners of said members. These lower members are placed in lapped or telescoped endwise relation to form a continuous form of the desired length. Next, the top members 17 are placed on the lower members, and the spacers 26 inserted in position. End plates 24 are then secured in position to close the ends of the forms. Next, the concrete is poured between, around and over the forms to form an integral beam and floor-construction, as well understood in the art, it being understood that the beam-reinforcing rods 8 have been previously placed in position. When the staging and formboards 31 are removed, the plaster is applied directly to the bottoms of the forms and the beams, the integral bottom walls of the forms being formed to serve as a plaster device or retainer.

The invention exemplifies a form for a concrete floor construction, in which the lower member of the form comprises integral side and bottom walls, and the top wall is formed of separate plates; also a construction of this character in which the bottom wall of the lower member is integrally deformed to form a lath or plaster base, so that the necessity of separately installing sealing lathing is avoided. The invention also exemplifies a form in which the sides are flared upwardly and connected together at their upper ends to avoid waste of concrete in the formation of the beams.

The invention is not be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. As a new article of manufacture, a hollow substantially rectangular form for use in concrete floor construction, said form comprising a sheet metal lower member consisting of a bottom and upwardly projecting and divergent side walls formed integrally with the side margins of the bottom, and a sheet metal substantially imperforate upper member formed separately from the lower member and consisting of a top and straight flanges depending from the side margins of the top and adapted to lap the side walls to form an interlocking connection between form-members.

2. As a new article of manufacture, a hollow substantially rectangular form for use in concrete floor construction, said form comprising a sheet metal lower member consisting of a bottom and upwardly projecting and divergent side walls formed integrally with the side margins of the bottom, said bottom being deformed to form a plaster retaining base, and a sheet metal substantially imperforate upper member formed separately from the lower member and consisting of a transversely corrugated top and substantially straight and comparatively short, side flanges depending from the side margins of the top and adapted to interlock with the upper margins of the side walls.

Signed at Chicago, Illinois, this 9th day of December, 1925.

FRANCIS M. BARTON.