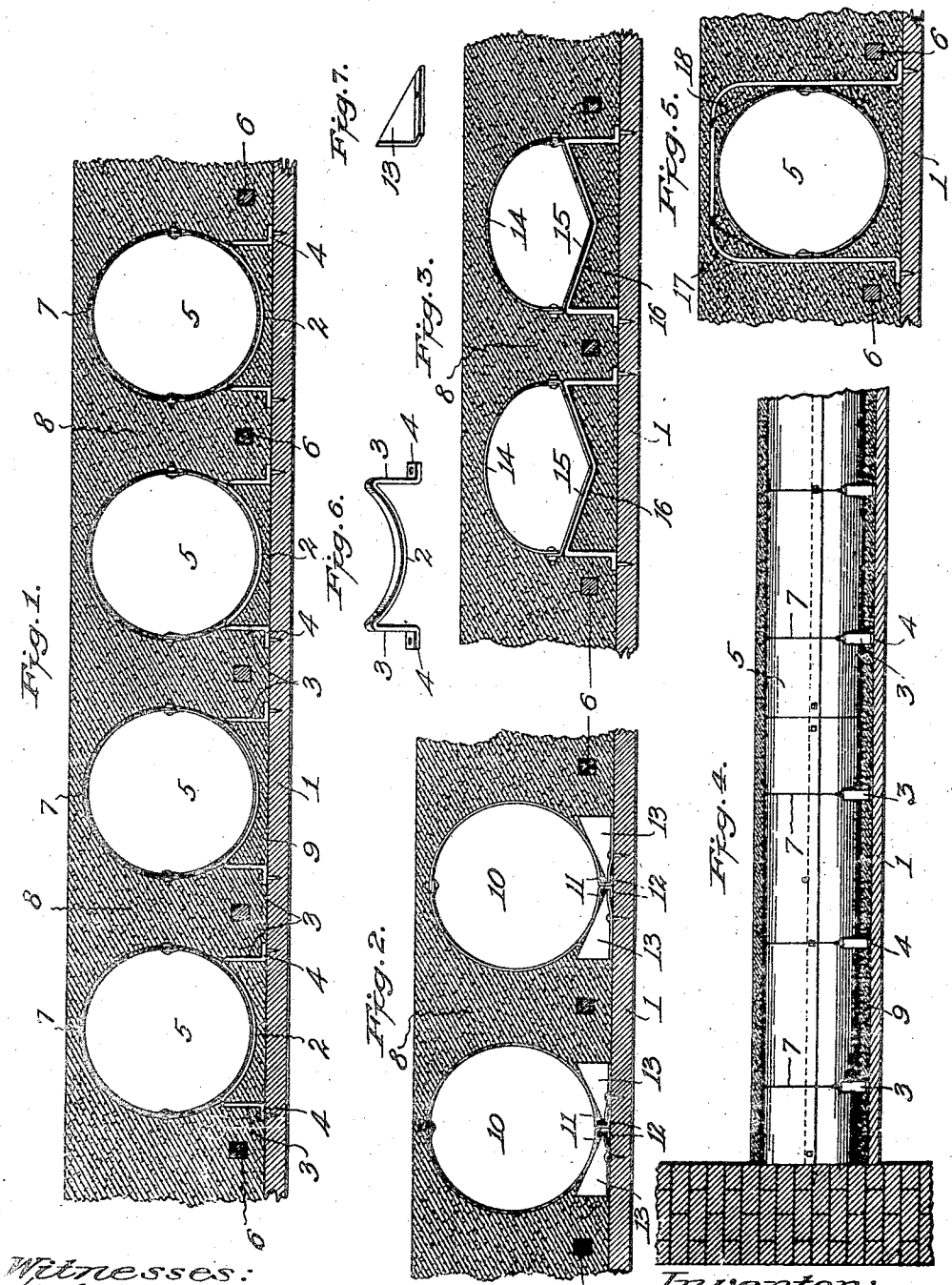
W. E. WALKER.

REINFORCED CONCRETE FLOOR CONSTRUCTION.

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1,101,767. Patented June 30, 1914.



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UNITED STATES PATENT OFFICE.

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REINFORCED-CONCRETE FLOOR CONSTRUCTION.

1,101,767. Specification of Letters Patent. **Patented June 30, 1914.**

Application filed September 18, 1911. Serial No. 649,874.

To all whom it may concern:

Be it known that I, WYTHE E. WALKER, a citizen of the United States of America, residing at Salt Lake City, county of Salt Lake, and State of Utah, have invented a new and useful Reinforced-Concrete Floor Construction, of which the following is a specification.

This invention relates to improvements in reinforced concrete floor construction.

The primary object of the invention is to provide a floor comprising a plurality of cylindrical hollow centers surrounded by concrete which forms in an integral structure both ceiling and joists. Further, to provide in a reinforced concrete floor, a plurality of tubular metal centers, surrounded by concrete, which forms joists between said centers, and a flat ceiling beneath them, said ceiling and joists being integrally connected, means being provided for temporarily supporting said centers above a temporary flooring, during the course of construction.

These objects are accomplished by the construction illustrated in the accompanying drawings, in which:

Figure 1, is a sectional view of the preferred form of floor construction, taken transversely of the centers. Fig. 2, is a similar view illustrating a modification in the supporting means for the hollow centers. Fig. 3, is also a sectional view of the floor, showing a style of center adapted for floors of less thickness than those illustrated in Figs. 1 and 2. Fig. 4, is a sectional view of the floor taken longitudinally of the centers, the centers being in side elevation. Fig. 5, is a sectional view of a portion of floor, taken transversely of one of the centers, and showing means for temporarily suspending the said centers. And Figs. 6 and 7, are perspective views respectively of the center supports shown in Figs. 1 and 2.

Similar letters of reference refer to similar parts throughout the several views.

Referring to Figs. 1 and 4 of the accompanying drawings, which embody the preferred form of construction, 1 designates a temporary floor, which may be supported in any suitable manner. Upon this floor are secured supports which are arranged in lines or rows at right angles to the usual floor beams. These supports comprise substantially semi-circular members 2, which terminate at their ends in downwardly extending legs 3, having apertured feet 4 at their lower ends, through which nails are driven to secure the supports to the temporary floor. The legs 3 of the supports extend a suitable distance below the lowest point of the semi-circular body portion 2, so that when the supports are secured to the floor, as shown in Fig. 1, a space will be left between the said body portions and the floor, for a purpose to be hereinafter shown. Upon the supports are laid tubular centers 5, which may be made of any suitable material, but which are preferably in the form of semi-circular sheet metal plates, pairs of which are bolted together along their edges as shown, to form tubular sections, which are placed in line upon the supports, with their ends abutting, a number of sections being employed in each row, to form a center of the required length. Each tubular section is preferably made of two semi-circular plates, in order that the plates may be nested, so that they will take up less space in transportation, and thus be more easily and conveniently handled. Between the centers are placed the usual reinforcing rods 6, which are spaced about the same distance above the floor as the centers. The centers may be held down upon the supports in any suitable manner, but preferably by wires 7, which are passed over the centers and secured at their ends to the supports, as clearly shown in Figs. 1 and 4. After the centers have been thus arranged and secured, the concrete is applied, and being in liquid form, not only fills the intervening spaces between the centers, but the space beneath them and the temporary floor as well, thus forming in one integral structure, joists 8 and a flat ceiling 9, thereby dispensing with lathing of any kind. In constructing a floor twelve inches thick, centers of a diameter of ten inches are preferably employed, and they are supported about ½ inch above the temporary floor, the concrete extending approximately 1½ inches above the centers, the thickness depending upon area of concrete required to resist compressive stresses.

The usual floor sleepers—not shown—are placed upon the concrete at right angles to the centers, and the spaces between them are filled in with cement, this being the usual method employed. When the concrete has become sufficiently hardened or set, the temporary floor is removed and the usual

finishing coat of plaster is applied to the ceiling, the nails which secure the supports to the temporary floor having first been bent to one side or broken off. The centers become a permanent part of the floor, and are in compression with the arched portions thereof, while the joists are maintained by tension of the reinforcing rods 6.

In Fig. 2, is illustrated a form of center 10, which is also made up of tubular sections, each of which is formed of two semi-circular plates. But in this construction, one edge of each plate is given an L-shaped bend along its length, the bent portions extending in opposite directions, when the plates are secured together as shown, so that their stem portions 11 abut or lie back to back, while their base portions 12 rest upon the temporary floor. These centers are supported upon triangular plates 13, having right angled members, which rest upon the floor and overlap the base portions or flanges 12, of the center sections. This construction does away with the use of the wires 7 for holding the centers down when the concrete is applied.

In Fig. 3, a style of center is used which is especially adapted for thin floors. In this case the center sections are made up of two plates, the upper plate 14 being substantially semi-circular in cross section, while the lower plate 15 is in the form of a shallow V, the supports 16 being of a corresponding shape to receive them. In other respects, the floor is constructed in this instance as in the manner before described.

In the construction shown in Fig. 5, the centers are similar to those shown in Figs. 1 and 4, but they are suspended from inverted U-shaped supports 17, in any suitable manner, preferably by wires 18, which are passed under the centers and their ends secured to the top of the support. Upon a support of this character, boards may be placed, if desired, to provide a walk for the use of workmen, during the construction of the floor.

I preferably employ thin sheet metal centers, as in some instances the cost of tile centers is prohibitive, but my invention contemplates the use of a tubular center made of any suitable material, supported above a temporary floor, which permits the concrete to form a ceiling and joists which are integrally connected, dispensing with the employment of any other material in forming the ceiling.

I wish it to be understood that variations of shape of the hollow centers are included within the scope of my claim, as long as such changes are within the spirit of my invention.

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

In a reinforced concrete floor construction, hollow cylindrical members surrounded on all sides by a considerable thickness of concrete; supports for said members having bases flush along their bottom edges with the underside of the floor, said bases having a length approximately equal to that of the supporting surfaces of the supports; and ties encircling the cylindrical members and connected to said supports for holding the members to the supports.

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

WYTHE E. WALKER.

Witnesses:

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L. B. VAN DYKE.