No. 883,859. PATENTED APR. 7, 1908.

T. CORRIS.

FRAMING SUPPORT FOR CONCRETE CONSTRUCTION.

APPLICATION FILED AUG. 14, 1907.

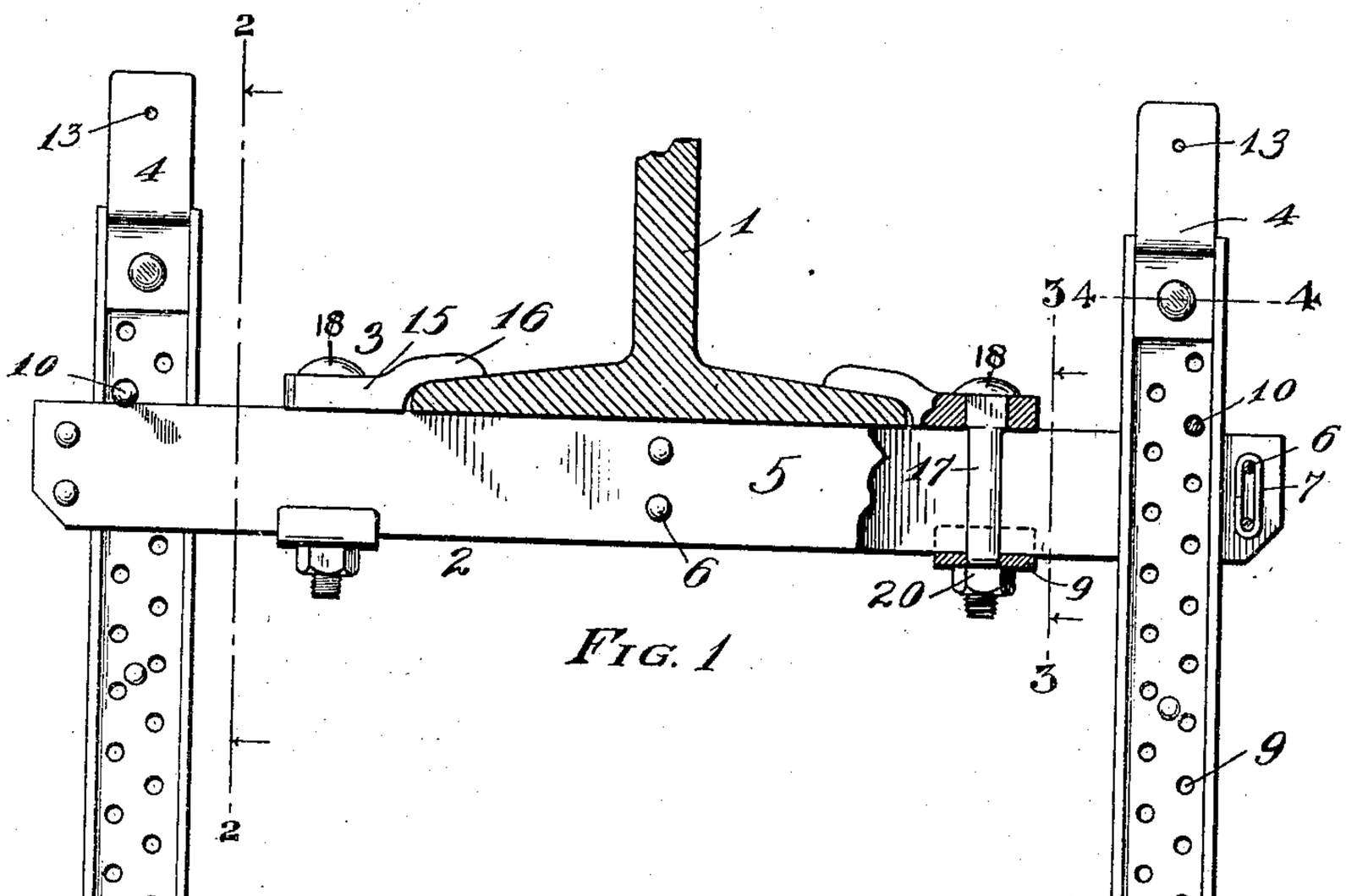

FIG. 1

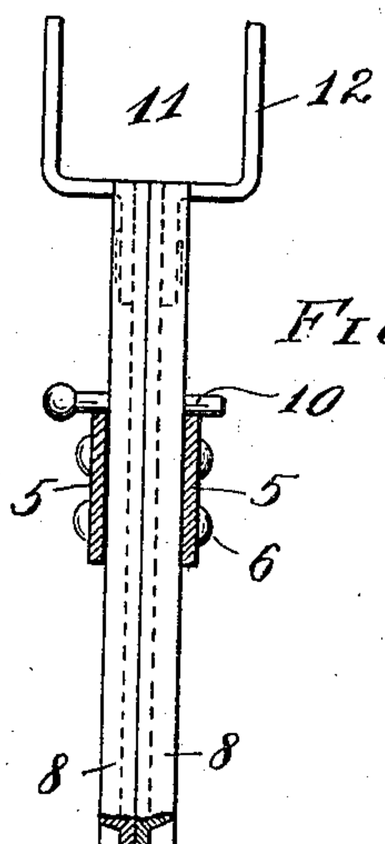

FIG. 2

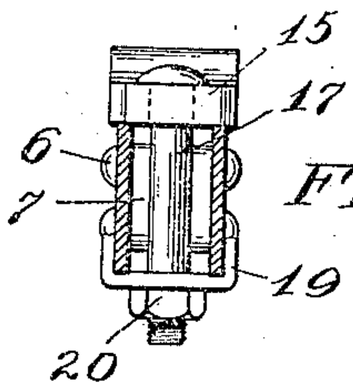

FIG. 3

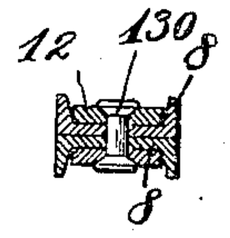

FIG. 4

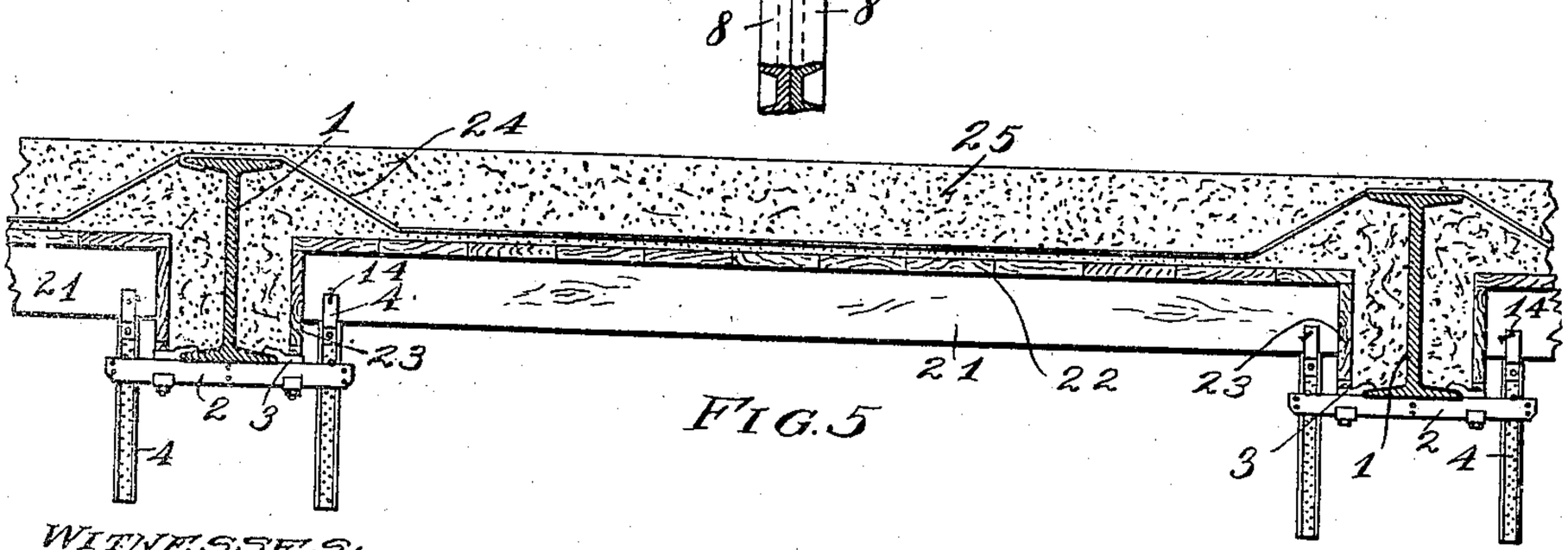

FIG. 5

WITNESSES:

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FRAMING-SUPPORT FOR CONCRETE CONSTRUCTION.

No. 883,859. Specification of Letters Patent. Patented April 7, 1908.

Application filed August 14, 1907. Serial No. 388,468.

To all whom it may concern:

Be it known that I THOMAS CORRIS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Framing-Supports for Concrete Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to the supports for the framing whereby concrete constructions, particularly floors, are sustained during the drying and setting of the concrete material. In providing buildings with concrete floors, it is customary, after the structural iron beams have been placed, to support therefrom a temporary framing by means of which the concrete flooring may be supported while drying and setting. This framing consists of a deck made of boards which are carried by means of joists extending from one structural iron beam to another and supported therefrom. So far as I am aware, the universal manner of supporting these joists from the beams is by means of a suitable number of wooden supporting blocks which are suspended from the lower flanges of the beams by means of bolts, the upper ends of which are bent to permit them to engage the flanges of the beams. Small wooden spacing blocks of sufficient height to support the joists in proper position are nailed or otherwise temporarily secured to the supporting blocks which are suspended from the beam flanges. The preparation of the wooden supporting and spacing blocks requires a large amount of labor and, as the distance at which the joists will be supported from the supporting blocks varies in different buildings, it is generally necessary for the carpenters to make new sets of spacing blocks in each building and often to make new sets of such blocks for the different floors in the same building. After the concrete flooring has set, the workmen generally knock off the spacing blocks, and these blocks are lost and are not utilized again, even should their height be suitable for use with the next floor with which the framing is to be employed. Furthermore, in removing the supporting blocks, it is necessary to rotate the bolts by which they are supported to permit of the disengagement of the bolts from the beam flanges. This results in tearing large and irregular holes in the concrete which has been filled in around the beam, and these holes have to be filled in, in order to make a finished appearance in the beam.

It is the object of my invention to provide framing supports which are permanent and durable in character, which can be readily applied to and removed from the structural iron beams from which the framing is to be supported, which will be capable of quick and ready adjustment to support the joists employed with the decks of the different floors, to arrange the parts so that there will be no liability to the clogging thereof by the concrete, and to reduce to a minimum the amount of filling or finishing which must be done to the concrete incased beams after the supports have been removed therefrom.

I accomplish the above results by the embodiment of my invention illustrated in the drawings forming a part hereof, wherein

Figure 1 represents a view in elevation of a device constructed in accordance with my invention, the structural iron beams being shown in section and parts of the device being broken away and shown in section for clearness of illustration; Fig. 2 represents a sectional view on the correspondingly numbered line of Fig. 1 looking in the direction of the arrows; Fig. 3 represents a sectional view on the line 3—3 of Fig. 1 looking in th edirection of the arrows; Fig. 4 represents a sectional detail on the correspondingly numbered line of Fig. 1; Fig. 5 represents a sectional view taken through the flooring and showing the temporary framing therefor supported by devices constructed in accordance with my invention.

Describing the parts by reference numerals, 1 represents one of the structural iron floor beams, the same being shown as an I-beam, from the opposite flanges of which my supporting devices are carried. Each of these devices comprises generally a base or supporting member 2 which extends transversely of the beams; clips or clevises 3 carried thereby and adjustable longitudinally thereof for engaging and disengaging the flanges of the beams, and vertically adjustable carriers 4 carried thereby for supporting the framing joists.

The supporting member or base 2 is conveniently formed from a pair of sheet metal plates 5 secured together at the central and end portions by means of rivets 6, with spacing sleeves 7 interposed therebetween.

These spacing sleeves may conveniently be formed by bending a piece of sheet metal of appropriate length and width into the form of a loop of sufficient length to receive the shanks of a pair of rivets, as indicated in Figs. 1 and 3. Adjacent to each end thereof and between the outer rivets 6 and the center thereof, the supporting member 2 is provided with the vertically adjustable carrier 4 by means of which the deck joists are supported. Each of these carriers is conveniently and economically constructed from a pair of small channel bars 8 riveted together back to back to form an I-beam and provided with perforations 9 through the webs thereof. These perforations are adapted to receive the pin 10 which rests on the upper edges of plates 5 and supports the carriers in any desired position. The distance between the centers of the perforations 9 may be $\frac{1}{4}''$ or $\frac{1}{2}''$, and the length of the carriers will be such as to enable them to accommodate all ordinary variations in depth of flooring and floor beams, as well as of the joists by which the deck is carried. Each carrier 4 is provided at its upper end with the yoke 11, which may be conveniently formed by a pair of angular or Z-shaped plates 12 having vertically extending portions adapted to fit in between the flanges of the channel bars 8 and secured to the webs of said bars as by means of rivets 130. The upper ends of the plates 12 are each provided with an aperture 13 for the reception of a nail or other securing means 14 whereby the joists may be temporarily secured thereto in such manner as to prevent their lateral movement.

The supporting member or base 2 is also provided with a pair of adjustable clips 3 to which reference has been made herein before, each of said clips comprising a clevis or flange-engaging member 15 and a clamp therefor. The clevis 15 is provided with a base which rests on the tops of the plates 5 and is provided with an upwardly and inwardly extending portion or hook 16 adapted to engage the outer upper surface of the beam flange. To clamp said clevis in position, I provide the same with a bolt 17 having at the upper end a rounded head 18 which covers the angular aperture through the base and protects the same from access of the concrete thereto. The upper portion of the shank is angular to fit the aperture in the base, and the body of the shank extends downwardly between the plates 5 and is provided at its lower end with a U-shaped washer 19, the upwardly projecting flanges of which engage the lower edges of plates 5. Bolts 17 are provided at their lower ends with nuts 20. By the arrangement described and the employment of the washer 19, the clevises may be adjusted longitudinally of the supporting members or bases without altering their angular relation thereto.

In Fig. 5 there is illustrated the manner in which my invention is utilized to support the framing and the concrete flooring thereon. In this view, 21 denotes the joists by which the deck 22 is supported, 23 the boards which inclose the lower portions of the I-beams and form a receptacle for the concrete material in which the beams are to be embedded; 24 denotes a common form of metal reinforcing bar or strip by means of which the concrete when hardened is supported from the tops of the I-beams.

It will be readily seen that the carriers 4 may be quickly and conveniently adjusted to support the joists, no matter what may be the depth thereof or the distance of the lower faces thereof from the supporting member or base plate 2, and that when the concrete flooring 25 is hardened, the task of removing the framing is a very small one, it being only necessary to withdraw the nails 14 and move the clevises outwardly to disengage the supporting devices from the I-beam flanges.

It will be observed that the distance between the outer face of each clevis and the inner face of the adjacent carrier is sufficient to permit the clevises to be moved outwardly until their inner ends free the I-beam flanges. This obviates the necessity for twisting each clevis on a pivot in order to disengage the same from the I-beam, with the result that only small and even apertures are left in the concrete material by the removal of the clevises therefrom, which apertures may be quickly and easily filled. Furthermore, the task of recessing the bottoms of the boards 23 for the reception of the inner ends of the clevises is light compared with the recessing which must be done to permit the turning of the bent ends of the bolts which are usually employed to hang the wooden supports from the beams. Where fine adjustment is desired, the apertures 9 may be staggered, as shown, and the employment of the apertures and pins provides an adjustable support for the carriers which is free from liability to clog by the access of cement or concrete thereto.

Having described my invention, I claim:

1. In a device of the character set forth, the combination of a supporting member or base, means for securing said member or base to opposite sides of a beam, and a pair of vertically adjustable carriers supported from said member or base on opposite sides of said securing means, substantially as specified.

2. In a device of the character set forth, the combination of a base comprising a pair of spaced plates, a pair of clips adjustable along said plates and adapted to clamp opposite sides of a beam, a pair of carriers extending between said plates and vertically adjustable with relation thereto and located

on opposite sides of the pair of clips, and means for supporting said carriers in adjusted position, substantially as specified.

3. In a device of the character set forth, the combination of a pair of spaced plates forming a supporting member or base, a pair of clips mounted on said member or base and adjustable longitudinally thereof, each clip comprising a base and an inwardly projecting hook, a bolt extending through the base of each clip and extending between said plates, washers on said bolts having upturned flanges engaging said plates, nuts on said bolts, and vertically adjustable joist-carriers mounted between said plates on opposite sides of the pair of clips, substantially as specified.

4. In a device of the character set forth, the combination of a supporting member or base, a pair of vertically adjustable carriers supported thereby, each of said carriers having at its upper end a yoke and being provided in the body thereof with a plurality of apertures, a pin for each carrier adapted to be applied to the apertures thereof and to rest on top of said supporting member or base, and adjustable means for securing said supporting member or base to opposite sides of a beam, substantially as specified.

5. In a device of the character set forth, the combination of a supporting member or base, a pair of clips adjustable thereon, and a pair of carriers supported by said member or base on opposite sides of said pair of clips, substantially as specified.

6. In a device of the character set forth, the combination of a supporting member or base adapted to be applied to an I-beam beneath the lower flanges thereof, clips adjustable longitudinally of said supporting member and adapted to engage opposite flanges of such beam, and a pair of joint-carriers on opposite sides of said clips each having at its upper end a yoke adapted to engage a joist and being provided with a series of vertically spaced apertures, and pins extending through said apertures and supporting the joist carriers on the supporting member or base, substantially as specified.

7. In a device of the character set forth, the combination of a supporting member or base, a pair of joist-carriers adjustably supported thereby, each of said carriers comprising a vertical member having flanges at the edges thereof and a connecting web extending between said flanges, a pair of joist-engaging members secured to opposite sides of the web between the flanges, and a pair of clips adjustable longitudinally along said supporting member or base and adapted to engage opposite flanges of a beam and located between said joist-carriers, substantially as specified.

8. In a device of the character set forth, the combination of a supporting member or base, a pair of clips adjustable thereon and adapted to engage opposite flanges of a beam, and a pair of vertically adjustable carriers supported from said member or base on opposite sides of said pair of clips, substantially as specified.

9. In a device of the character set forth, the combination of a vertically slotted supporting member or base adapted to be applied to an I-beam beneath the bottom flanges thereof, a pair of clips longitudinally adjustable along said member or base and having securing means projecting downwardly through the slot thereof, a pair of vertically adjustable joist-carriers also mounted in said slotted member or base on opposite sides of said pair of clips, and means for supporting said carriers in adjusted position, substantially as specified.

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

THOMAS CORRIS.

Witnesses:
J. B. HULL,
E. I. HUTCHINSON.