O. J. VOELPEL.

SUPPORTING CHAIR FOR SUPPORTING REINFORCING BARS.

APPLICATION FILED SEPT. 8, 1919.

1,378,202.

Patented May 17, 1921.

2 SHEETS—SHEET 1.

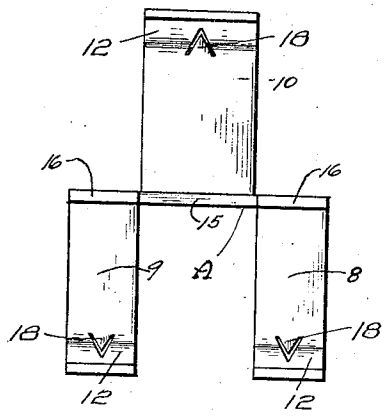


Fig. 1.

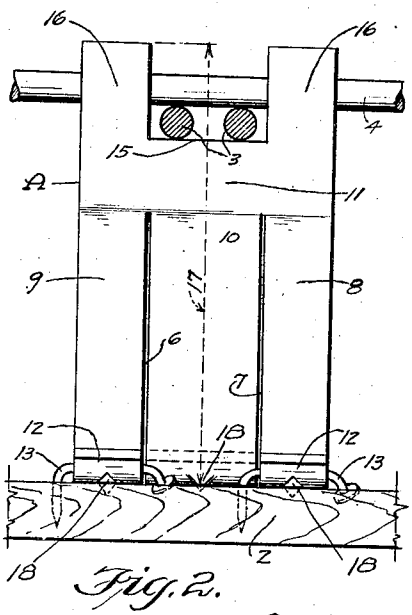


Fig. 2.

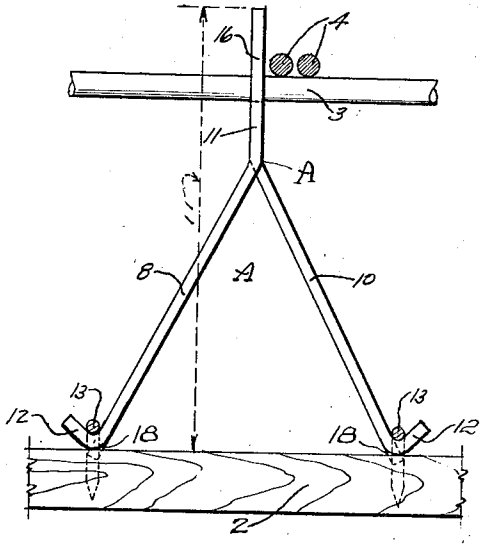


Fig. 3.

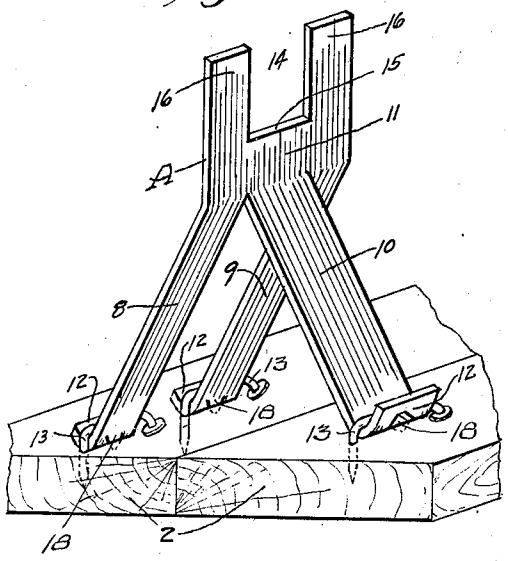


Fig. 4.

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2 SHEETS—SHEET 2.

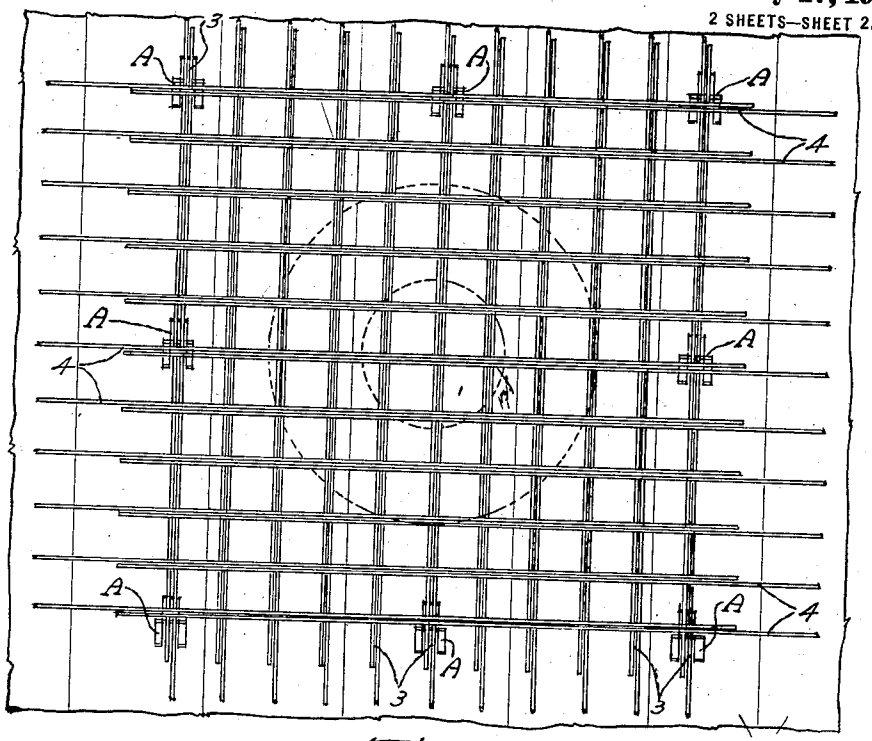


Fig. 5.

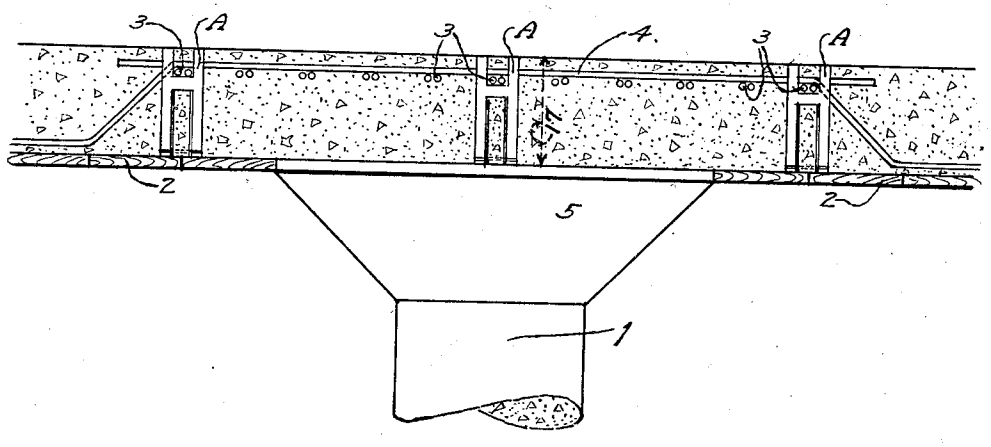


Fig. 6.

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UNITED STATES PATENT OFFICE.

OLIVER J. VOELPEL, OF ST. LOUIS, MISSOURI.

SUPPORTING-CHAIR FOR SUPPORTING REINFORCING-BARS.

1,378,202. Specification of Letters Patent. **Patented May 17, 1921.**

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To all whom it may concern:

Be it known that I, OLIVER J. VOELPEL, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented a new and Improved Supporting-Chair for Supporting Reinforcing-Bars, of which the following is a specification.

This invention relates to an improved form of supporting chair, providing the following advantages, for supporting reinforcing bars at the required distance above the forms in concrete structures, particularly in the class known as flat slab construction, and serving as a gage or screed for gaging the thickness of the slab.

In flat slab construction where, by reason of the tensile stresses coming over the column heads in the top of the concrete slab, the steel reinforcing bars which take up the tensile stresses must be bent up from the bottom of the slab, on account of change in stress, into the top of the slab and pass over the column heads. My supporting chair has a seat which provides a substantial support to hold the reinforcing bars at the proper distance above the forms as intended by the design.

My supporting chair is provided with arms to prevent the rods from slipping off of the seat and thus becoming displaced laterally during the process of construction and pouring of the concrete. These arms are extended up above the seat so that the concrete can be poured level with the top surface of the arms of the chair, thus the device serves the purpose of a gage, or screed. To illustrate more definitely, if the design calls for a seven and one half inch thick slab, the chair will be made so that the perpendicular distance from the bottom edge of the legs to the top surface of the arms above the seat will be seven and one half inches, equivalent to the thickness of the slab required. The chairs are placed on the form work at intervals around each column head over the entire floor to support the reinforcing bars. The workmen, pouring the concrete, will know that the required thickness of the slab has been attained when the concrete reaches a level with the top surface of the arms of the supporting chair.

The base of each one of the legs of my supporting chair is bent outwardly and upwardly thereby forming a foot which provides a bearing for the nails, or staples, so that the supporting chair may be temporarily fastened to the form work to resist upsetting, until the required stability is provided by the weight of the reinforcing bars which the chairs support, when then the nails, or staples may be removed. It will be noted, that by having the curved ends or feet at the base of the legs of the chair, that only a thin edge comes in contact with the wood forms, thus allowing concrete to flow under the curved portion or feet so that when the form work is stripped and the concrete exposed there will be nothing unsightly showing on the ceiling.

The legs of the supporting chair are spread the proper distance apart so that they possess the necessary stability, when the reinforcing bars which they support are being tamped upon.

The shape of the supporting chair is so made that it will allow the concrete to flow freely under, through and around every part of it, embedding it completely in the concrete and making it an integral and natural part of the reinforced concrete construction.

With the above and other objects in view, the invention comprises the novel features of construction described in the following specification and finally pointed out in the claims hereto appended.

Referring to the accompanying drawings forming a part of this specification wherein like characters of reference denote similar parts throughout the several views:

Figure 1, is a plan view of my improved chair.

Fig. 2, is a side elevation thereof showing same supporting reinforcing bars.

Fig. 3, is an end elevation of a chair supporting reinforcing bars.

Fig. 4, is a perspective view of my improved chair showing the manner in which it is temporarily fixed to the wood forms, or centering.

Fig. 5, is a plan view over a column head showing the reinforcing bars, and clearly showing the position and use of a plurality of my improved supporting chairs supporting the reinforcing rods.

Fig. 6, is a section view showing the supporting chairs in elevation supporting reinforcing bars, and showing the guide arms gaging the thickness of the slab by having the concrete come level with the top surface of the arms of the chair.

Referring to the drawings, the reference

character 1 designates a supporting column. 2 represents the floor forms, or centering, while 3 designates reinforcing bars running in one direction and 4 the reinforcing bars running at right angles thereto. The reinforcing bars 3 and 4 are shown bent up and elevated above the head 5 of the column 1.

In carrying out the aim of my present invention, I construct a chair for supporting the reinforcing bars from a blank, or single rectangular sheet of metallic material.

The chair designated A, comprises a rectangular metallic blank sheared longitudinally of the blank from the lower edge thereof toward the upper edge thereof, as at 6 and 7, to provide three supporting legs 8, 9 and 10. The legs 8 and 9, known as the side legs, are bent outwardly at a suitable angle to the vertical body portion 11 of the chair A and on one side thereof, while the center leg 10 is bent outwardly in the opposite direction to legs 8 and 9 to provide a tripod support for the chair body 11, so that the chair will possess the necessary stability against upsetting. The lower end of each leg 8, 9 and 10 is curved upwardly and outwardly forming a suitable foot 12 to permit the legs to be temporarily fixed to the wood floor forms 2 by means of suitable fasteners, such as nails 13. By having the lower ends of the supporting legs curved, it will be understood that the lower end of the legs will not be exposed after the concrete floor has been formed, as the cement and sand will flow under the curved portion and practically conceal the entire lower curved foot, or surface of the supporting legs, as is manifest. The nails 13 are preferably removed before the concrete is poured, the nails only being employed to hold the chairs in the proper spaced relations and prevent their upsetting until the reinforcing bars have been positioned thereon, when the weight of the reinforcing bars will provide the necessary stability.

The upper portion 11 of the chair A, is provided with a cutaway portion 14, open at its upper end, to provide a rod supporting edge, or seat 15 and side guides, or arms 16 to prevent the reinforcing bars from rolling, or falling off of the chair and becoming displaced during the process of construction and the pouring of concrete. The arms 16 with the balance of the chair form a gage, or screed to gage the thickness of the slab. The arms 16 are extended up far enough above the seat 15 so that measuring a perpendicular distance 17 from the base of the legs, or the form work to the top surface of the arms 16 will be equivalent to the required thickness of slab. The concrete slab is to be leveled off with the top surface of the arms 16.

From Figs. 2 and 3, it will be clearly seen that the rods designated 3 lie, or rest upon the supporting edge, or seat 15 of the body portion 11 of the chair, while the cross-bars designated 4 are supported by the reinforcing bars 3.

It will be further observed that a chair, constructed in accordance with my invention, is so formed as to permit the concrete to flow freely under, through and around every part of it, inclosing each supporting leg as well as the body 11, the side guides, or arms 16 and curved feet 12, embedding the chair in the concrete slab so that it becomes an integral and natural part of the concrete.

In order to prevent any possible chance of the supporting legs 8, 9 and 10 from spreading from the weight of the reinforcing bars 3 and 4, I provide a V-shaped prong 18 at the lower end of each supporting leg, which when a load is applied to the chair, will seat themselves in the wooden boards 2 of the floor form, as is manifest. It will be observed that should the nails 13 be forgotten, or work loose for any reason, the prongs 18 would prevent the supporting legs of the chair from spreading under a load.

From the foregoing description, it is evident that I have formed a chair for the use intended, that will be simple and comparatively inexpensive in construction, durable and efficient.

The many advantages of the hereindescribed chair will readily suggest themselves to those skilled in the art to which it appertains.

I do not wish to be understood as having limited myself to the exact details of construction shown and described, but desire to have it understood that the chair I have shown in the drawings is merely illustrative, as it is manifest that various minor changes may be made in the form, shape and particular arrangement of parts without departing from the spirit of my invention, hence reserve the right to make any such changes or modifications as may fairly fall within the scope of the appended claims when fairly construed.

What I claim is:

1. A chair for supporting reinforcing bars in reinforced concrete slab construction comprising a body portion having a seat for supporting the reinforcing bars, guide arms to prevent extreme lateral movement of the reinforcing bars upon their seat, supporting legs having feet for said body portion, prongs formed integral with the legs adjacent the feet thereof to prevent spreading of the legs when a load is applied to the chair and said guide arms together with the other members of the chair adapted to serve as a slab thickness gage.

2. A chair for supporting reinforcing bars in reinforced concrete slab construction comprising a single metallic plate having its

upper end provided with a relatively deep right angular cutaway portion to form a seat for a plurality of reinforcing bars and to provide opposed guide arms to prevent extreme lateral displacement of the reinforcing bars laid upon the seat of the chair while depositing concrete thereabout, said metallic plate being provided with two longitudinal slits extending from the lower edge of the metallic plate to a point below the seat of the chair to provide a plurality of supporting legs for the chair, said supporting legs having feet and being spread apart at their lower ends to form a tripod support for the chair, and each leg adjacent the foot thereof being provided with a prong integral therewith to bite into form boards to prevent spreading of the legs when reinforcing bars are laid upon the seat of the chair and the aforesaid guide arms together with the associated members of the chair adapted to serve as a slab thickness gage.

In testimony whereof, I have hereunto signed my name to the specification.

OLIVER J. VOELPEL.