F. O. WEYDELL.

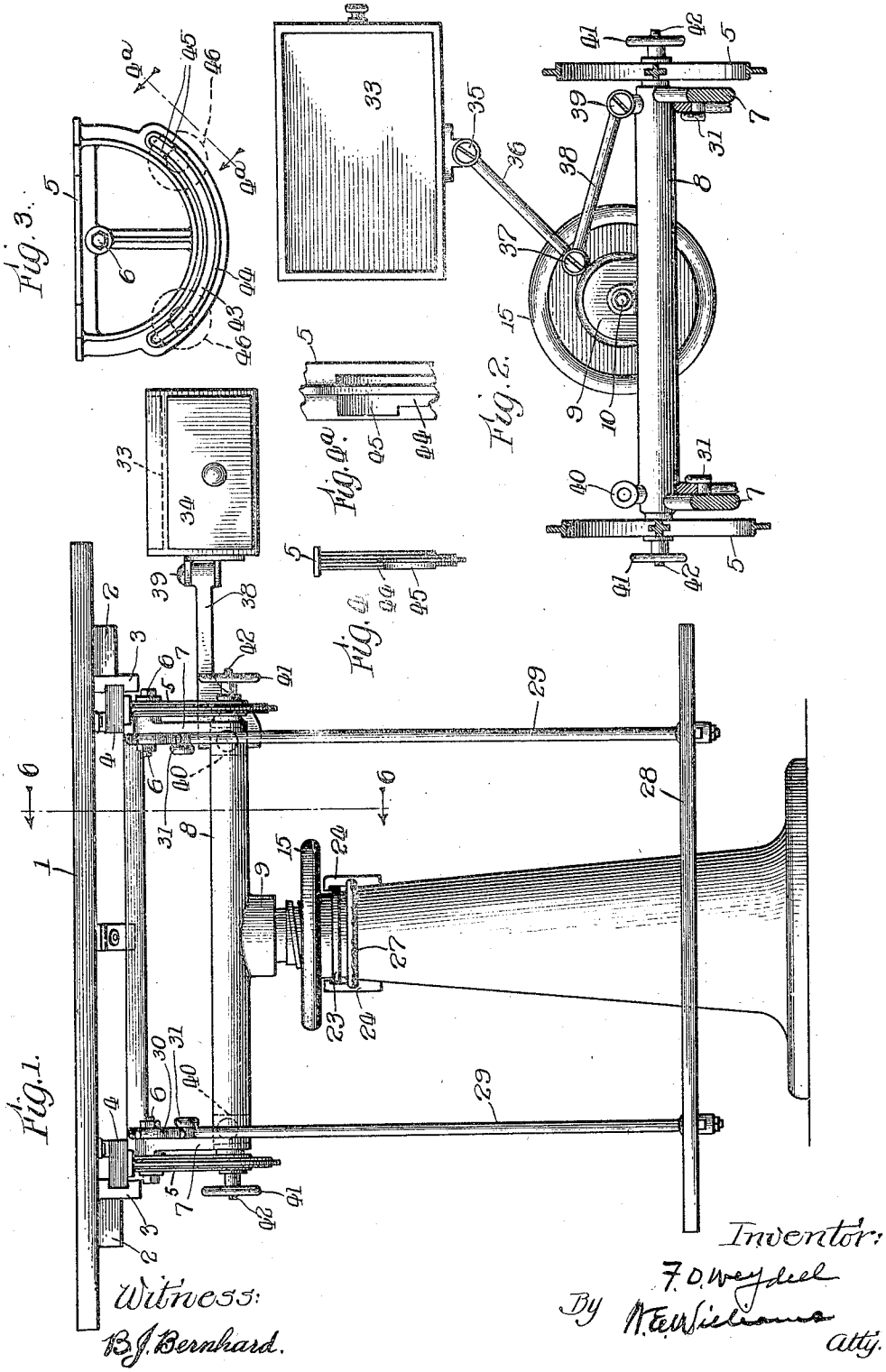
DRAWING BOARD TABLE.

APPLICATION FILED DEC. 12, 1919.

1,373,473.

Patented Apr. 5, 1921.

2 SHEETS—SHEET 1.



Witness:
B. J. Bernhard.

Inventor:
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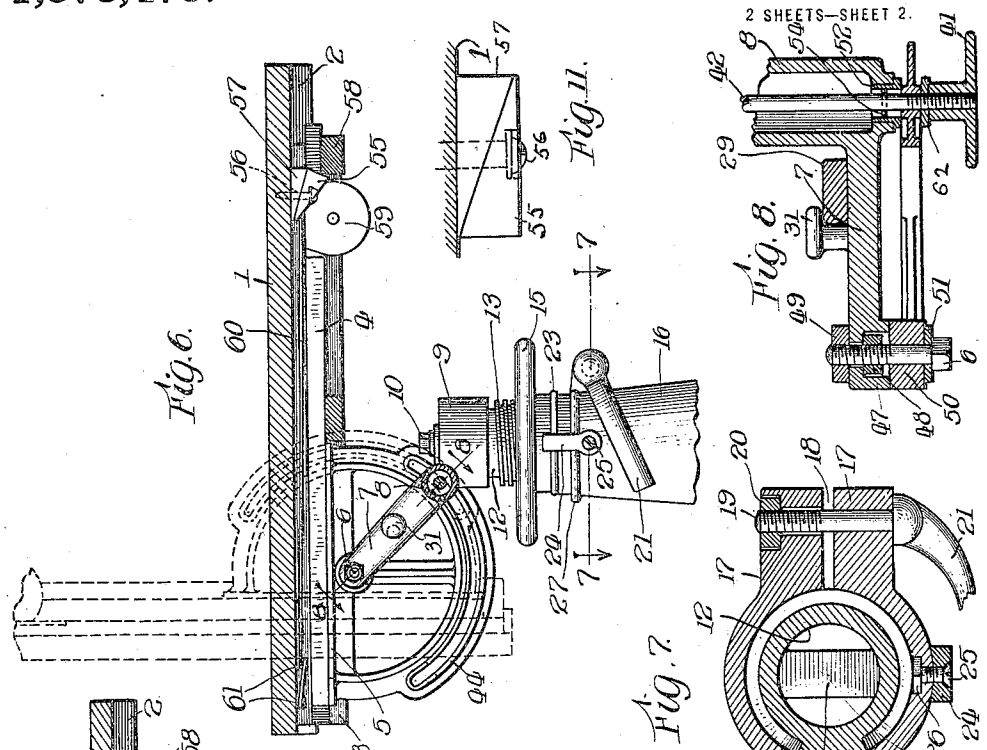

Fig. 6.

Fig. 11.

Fig. 8.

Fig. 7.

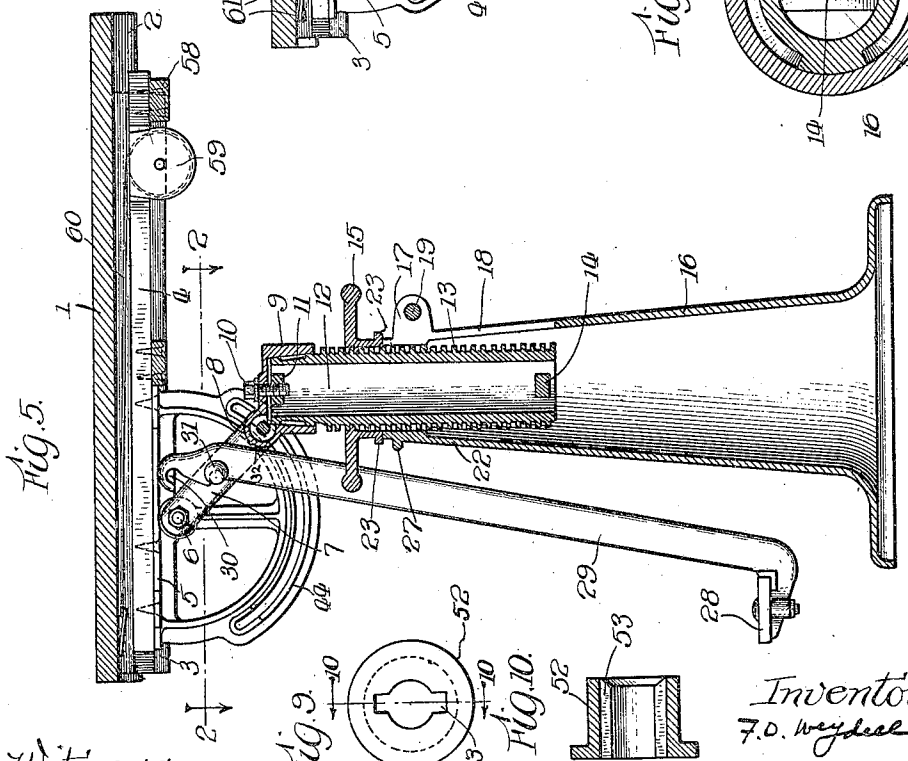

Fig. 5.

Fig. 9.

Fig. 10.

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UNITED STATES PATENT OFFICE.

FRANK OSCAR WEYDELL, OF CHICAGO, ILLINOIS.

DRAWING-BOARD TABLE.

1,373,473. Specification of Letters Patent. Patented Apr. 5, 1921.

Application filed December 12, 1919. Serial No. 344,371.

To all whom it may concern:

Be it known that I, FRANK O. WEYDELL, a citizen of the United States, a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Drawing-Board Tables, of which the following is a specification.

My invention relates to tables, ordinarily used for drawing boards, but may be used for other purposes, and the invention consists in certain novel and desirable details of construction, which permit a very cheap table to be made and one of exceptional utility.

Drawing boards as ordinarily made have usually been made entirely of wood.

Drawing boards are considered almost entirely from a utilitarian standpoint and therefore they have not been finished or made of fancy woods, so that usefulness and cost have been the controlling factors in marketing a drawing board.

Many attempts have been made to make desirable drawing boards, using more or less metal parts instead of wood, but their cost has prevented their coming generally into use.

It is the object of my invention to provide a drawing board the stand of which is made of metal with little or no machine work, with desirable features not available with wood construction, and yet at a cost allowing it to compete in the market with wood tables.

Reference will be had to the accompanying drawings, in which Figure 1 is a front elevation of the board.

Fig. 2 is a section on line 2—2 of Fig. 5.

Fig. 3 is a side elevation of one of the segment frame pieces, to which the board is connected.

Fig. 4 is an edge view of the segment shown in Fig. 3.

Fig. 4A is a detail of a part of the segment shown in Fig. 3.

Fig. 5 is a vertical sectional elevation substantially through the center of the machine at right angles to the front side shown in Fig. 1.

Fig. 6 is a sectional elevation on line 6—6 of Fig. 1.

Fig. 7 is a sectional plan on line 7—7 of Fig. 6.

Fig. 8 is a sectional detail on line 8—8 of Fig. 6.

Fig. 9 is an end elevation of the thimble detail later described.

Fig. 10 is a section on line 10—10 of Fig. 9.

Fig. 11 shows details of a locking button used to hold the drawing board in position on its guides.

In the drawing 1 indicates the ordinary wooden board member of a drawing board, and this board is mounted on ordinary stiffening cross bars of wood, indicated by 2, 3 indicates wooden slide pieces, which are fixed to the board or to the cross pieces 2. 4 indicates wooden guide beams or blocks, which are mounted on to segments made of castings as indicated by 5.

The segments 5 are secured by the pivot screws 6 to arms 7 cast integrally with the tubular body 8, which is provided with the socket head 9, centrally located on the tubular body and offset therefrom as shown in the drawing. This socket 9 is fastened by a screw or bolt 10 into the cross piece 11, cast into the head of a tubular bar 12, provided with the threads 13.

In the bottom of this tubular bar is a secondary cross member 14, which is made purposely for centering this bar for chasing up the threads 13. I prefer to cast these threads and then just clean them up by a chasing tool in the lathe without being at the expense of machining a complete thread.

Secured on to the thread 13 there is a screw threaded hand wheel 15, and this hand wheel 15 rests on the top of the hollow pedestal 16 and this pedestal is provided with the lugs 17 and an open space 18 for a short distance from the upper end of the barrel of the pedestal 16.

A screw 19, is threaded into a nut 20, which is embedded in a cavity into one of the lugs 17, so that this nut 20 may not turn when the screw 19 is turned for the purpose of loosening or tightening the screw. A handle 21 enables the operator to manipulate this screw 19, and through the spring of the barrel of the pedestal 16, in the region of the slot 18, the operator may by the handle 21, clamp the tubular member 12 in the hub of the pedestal.

A small rib or a flange 23 on the bottom edge of the hub of the hand wheel 15, is engaged by small clips 24, (see Figs. 1 and 6), and these clips are secured to the pedestal 16 by bolts 25, having nuts 26 on the

inside of the barrel of the pedestal below the region of the clamping zone 22.

The little clips 24 also embrace a bead 27 on the head of the pedestal so that the bolts 25 do not take all the strain and this bead also serves to hold the blocks in upright position and permits only one screw or bolt 25 to be used in holding the blocks 24 in place, and this saves labor in manufacturing the article.

Drawing boards are normally set up from the floor high enough to permit them to be used by one in a standing position and then for the comfort of the draftsman stools are provided higher than the ordinary chairs and this lifts the draftsman's feet from the floor. For the comfort of the draftsman I provide the foot rest 28, which is made of wood or metal as desired and is supported on arms 29, provided with notches 30, that hook over integral lugs 31 in the arms 7. The arms 29 rest at 32 (see Fig. 5) against the tubular cross member 8 and thus are held in a steady position. Two sets of notches 30 are provided so that two different heights of the board or foot rest 28 may be had for the comfort of the draftsman.

A small table 33 containing a drawer 34, is hinged at 35 to an arm 36 pivoted at 37 to the secondary arm 38, which is hinged at 39 to studs 40 in the cross member 8, whereby the drawer may be swung beneath the table or outwardly therefrom.

The segments 5 are secured in desired angular adjustment by hand wheels 41 screwed on to a rod 42 on each end thereof, and this rod 42 passes through the slot 43 of the segment 5.

A washer 62 is placed under the end of the head of the hand wheel 41 and in contact with ribs 44, and at the end of this lot 43 and ribs 44, the ribs for a short distance at each end are higher, as indicated by 45 (see Fig. 3) and the two dotted positions 46 in Fig. 3 indicate the location of the clamping wheels 41 in horizontal and vertical position of the table shown in Fig. 6, one of which last mentioned positions is dotted.

In the normal adjustment of the board about the axis or pivot 6 of the segments, the screw 41, or either one of them, will be loosened slightly and then the board may be rocked as desired to any position between the 90 degree limits indicated.

However, when a little more movement is desired in very extreme positions, the clamping wheels 41 are further loosened, which permits the washers 62 to lift up over the little high portions 45 and then allow the movement of the rod 42 the full limit of the length of the slot 43 of the segment.

The arms 7 are provided with the pivot bosses 47, through which the pivot bolts or studs 6 pass. Nuts 48 and 49 clamp this stud 6 into the arms 7. The nuts 48 are seated in a cavity in the arms, which prevents their turning while the outside nut 49 and the stud 6 itself are controlled by wrenches. The segments 5 are provided with the hubs 50, in which the studs 6 act as the hinge pins. A washer 51 under the head of the studs 50, aids in preventing the studs 6 from becoming loosened.

Where the rods 42 pass into the ends of the tubular body 8, I provide brass or other soft metal bushings 52, which are cast to size without machining, and through these bushings I provide the slots or key ways 53 and a pin 54, shown in Fig. 8, which passes through the rod 42 and slides freely in the slot 53 in the bushing 52 and thus the rod 42 is permitted to move endwise sufficiently for the clamping purposes when either hand wheel is used, and the rotary motion is prevented so that the hand wheels 41 may act on the threads without turning the rod, through the medium of this pin 54 working in the slot 53 as above mentioned.

The holes in the tubular body 8 at the end thereof, into which the bushings 52 are forced, are cored holes and not machined, and the purpose of making the bushings 52 of brass or other soft metal is that they may be forced into those cored holes without the necessity of machining the parts, and make a sufficiently tight fit for all practical purposes and thus construction expense is saved.

The detail of securing the studs 6 into the arms 7, as before described, is a further detail which lessens the construction cost in this machine.

The method of securing the socket head 9 to the screw threaded tubular member 12 is also a labor saving construction, for the drawing indicates that this socket 9 has a tapered hole which fits over the tapered end of the member 12 and thus the screw 10 is permitted to clamp the socket 9 on to this piece 12 and secure a tight fit, even though no machining has been done on the parts.

The drawing board itself, as before mentioned, is held on to the cross members or beams 4 by means of the pieces 3 which slide thereon. The board is held from moving in one direction off these slides by means of a wedge-like button 55, which is shown in Figs. 6 and 11. This button 55 is secured by a screw 56 into the board and interposed between the board and the moving button 55 is a stationary wedge block 57.

In Fig. 6 the position of the button 55 is such that it abuts against a cross member 58 of the frame and prevents the drawing board from moving off its slides in a right hand direction as indicated in said Fig. 6. By revolving the button 55 180 degrees, (see Fig. 11) it is made to lie wholly above the bar 58 and permit the drawing board itself to be moved outward to the right on the guides as previously described.

Spring balancing devices 59, which control ribbons 60, secured at 61 to the lower edge of the board, continually exert influence to push the board off the frame to the right in Fig. 6, and this spring balancing device is somewhat like a self coiling tape line and is used in other arts for example, in a sash "balance." The button 55 holds the board in position normally, but when it is desired to lift the board up or out farther this button 55 is revolved as previously described and the board is pushed outward to any position desired, inasmuch as the spring balancing device is not of itself sufficient to move the board under the friction of its weight, but only sufficient to neutralize the weight and part of the friction to assist in making the adjustment, so that it will be an easy matter to move the board as desired, but the board normally stays, by friction, in any position in which it is placed as relates to sliding on the ways or guides 3.

What I claim is:—

1. In apparatus of the class described, the combination with a pedestal having its hollow wall slotted vertically near its upper end and encircling an axial externally threaded post, of means for forcibly narrowing the slot to clamp the post, a nut resting on the pedestal and engaging the threads of the post, means for positively holding the nut down upon the pedestal, a socket secured on the top of the post and provided with a horizontal crossbar having near its ends, respectively, parallel laterally extending arms, drawing-board supports pivoted to the arms, respectively, to rock about a horizontal axis, a drawing-board carried by said supports, and means for clamping said supports in desired angular adjustment.

2. In devices of the class described, the combination with a hollow pedestal arranged to clamp an axial externally threaded post primarily sliding freely in the pedestal and supported by a nut working on the post and resting on the pedestal, of a socket resting on the post and fixed to the middle region of a horizontal crossbar having rigid lateral arms at its ends, respectively, segments pivoted to said arms, respectively, to rock on a common horizontal axis and having circular slots, clamping devices engaging in one of the slots for fixing the segment in desired angular adjustment, slides mounted on the segments, and a drawing board carried by the slides.

3. The combination with a hollow pedestal arranged to clamp an axial externally threaded post engaged by a supporting nut resting on the pedestal, a socket fixed over the top of the post and carrying a crossbar having lateral parallel arms at its ends, respectively, segments pivoted to the arms to rock about a common horizontal axis, and having slots concentric with the segment pivots, clamping devices carried by the arms, extending into the slots and locking the segments in any angular adjustment allowed by the slots, cross slides mounted on the segments, and a board secured to the slides.

4. The combination with a pedestal and a vertical post carried thereby, of means for clamping together the post and pedestal, a nut engaging the threads of the post to adjust it vertically, a crossbar supported by the post and having lateral arms, segments pivoted to said arms, respectively to rock on a common horizontal axis and provided with slots concentric with the segment pivots, a rod carried by the crossbar, passing through the slots and carrying devices for locking it therein, and a drawing-board supported by the segments.

5. In a device of the class described, a drawing board mounted upon segments and the segments pivoted upon a supporting frame structure and provided with arc shaped slots; clamping means for clamping the arc sections of the segments in any position through the length of the slots, the said segments provided with registering stops at each end of a 90 degree sweep of the said segments about their pivots and also provided with adjusting means which permits the adjustment at each end of the said arc slots, beyond the ends of said 90 degree sweep of the segments.

6. In a device of the class described, a main drawing board supported upon a frame-work on slides which permit the adjustment of the board transversely of the frame-work, the said frame-work hinged or pivoted upon its sub-supporting means, and adapted to be revolved through an angular movement varying over a range of 90 degrees through the medium of supporting segments having arc shaped slots with 90 degree registering points in both directions and with a surplus movement beyond these registering stops in either direction.

7. In a device of the class described, a vertical supporting segment for a drawing board pivoted to rotate about a horizontal axis for angularly adjusting the board, and provided with arc-shaped slots engaged by clamping means; the said slots provided with registering or indicating points over a range of 90 degrees, and with clamping means adapted to be freely adjusted through the range of the said 90 degrees and provided with extra adjustment on each end of the said 90 degrees.

8. In devices of the class described, the combination with a horizontal supporting member having rigid arms with rocking segments pivoted thereto and further having bearings, carrying a clamping rod projecting through circular slots in the seg-

ments, and provided with frictionally held soft metal bushings formed with a slotted aperture to carry and hold a pin passing through the clamping rod while allowing the latter slight longitudinal movement without material rotation, and threaded hand wheels upon the ends of the clamping rod, respectively.

9. In a device of the class described, a segment adapted to support the drawing board through the means of a pivot or hinged member connecting it to the supporting frame work; a segmentally arranged slot for assisting in clamping the segment in angular movement about the pivot, such segment being thinner through the marginal portion through the arc of movement, and thicker at each end whereby a registering limit at given points is provided.

10. In a device of the class described, the combination with a pedestal, of a terminally tapered vertically and revolubly adjustable axial post mounted in the pedestal, a socket fitting and rigidly clamped over the tapered upper end of the post, a frame carried by said socket, and board-carrying devices hinged to the frame to rock about a horizontal axis.

11. In a device of the class described, a vertically arranged pedestal supporting the super-structure frame work upon which a drawing board is mounted; a screw threaded block mounted in vertical arrangment within the pedestal, and supporting a horizontal tubular member of the frame, the ends of said tubular member provided with extending arms, the ends of which are adapted to hold hinge pins or pivots connected to supported segments, which rock about the said pins or pivots and are provided with portions having arc-shaped slots therein and adapted to register in alinement with a clamping rod which rod extends through the hollow horizontal supporting member; clamping hand wheels on the ends of said rod adapted to clamp the segments to the horizontal supporting member, and said clamping rod supported in bushings pressed into cavities in the said horizontal member.

12. The combination with a table-carrying pedestal, of an axial post therein supporting near its upper end a horizontal frame member and itself revolubly and longitudinally adjustable in the pedestal, means for clamping the post in adjusted position, means for hinging a table-supporting frame to said member, means for adjusting the table transversely with respect to the hinge axis, and means for balancing such movement of the board.

13. In a device of the class described, a board supported from the floor by a vertically arranged pedestal, provided with a central block adapted to be raised or lowered in the pedestal; means for clamping the said block in the said pedestal and means for raising and lowering the said block within the pedestal, with a horizontally disposed supporting member mounted upon the vertically arranged block within the pedestal, means for hinging the table supporting frame to the horizontal supporting member in combination with means for adjusting the board across the frame work in relation to the supporting pivots, and means for balancing the movement of the said board in its transverse action; said balancing means composed of a flexible ribbon actuated to draw into a coil through the means of a coil spring.

14. In a device of the class described, a drawing board hinged to its supporting frame; means for clamping the board in any given position around its hinge, said clamping means including a horizontal rod provided with a screw threaded hand wheel on each end thereof, to clamp the board supporting means in angular adjustment, slotted apertured bushings through which said rod passes, a pin passing through the rod and engaging the slotted aperture whereby the rod is prevented from rotating in the clamping action, but may be moved through a short distance horizontally.

15. The combination with a pedestal, of an axial externally screw threaded post clamped in the pedestal, a board-supporting framework above, and a socket, forming part of the framework, passed over the top of the post and drawn down into rigid connection therewith by a screw.

Signed at Chicago, in the county of Cook and State of Illinois, this 8th day of November, 1919.

FRANK OSCAR WEYDELL.

Witnesses:
J. B. JEFFERSON.
B. J. BERNHARD.