Dec. 29, 1942. P. F. FOX 2,306,722

STAIR FORM

Filed April 5, 1941 4 Sheets-Sheet 1

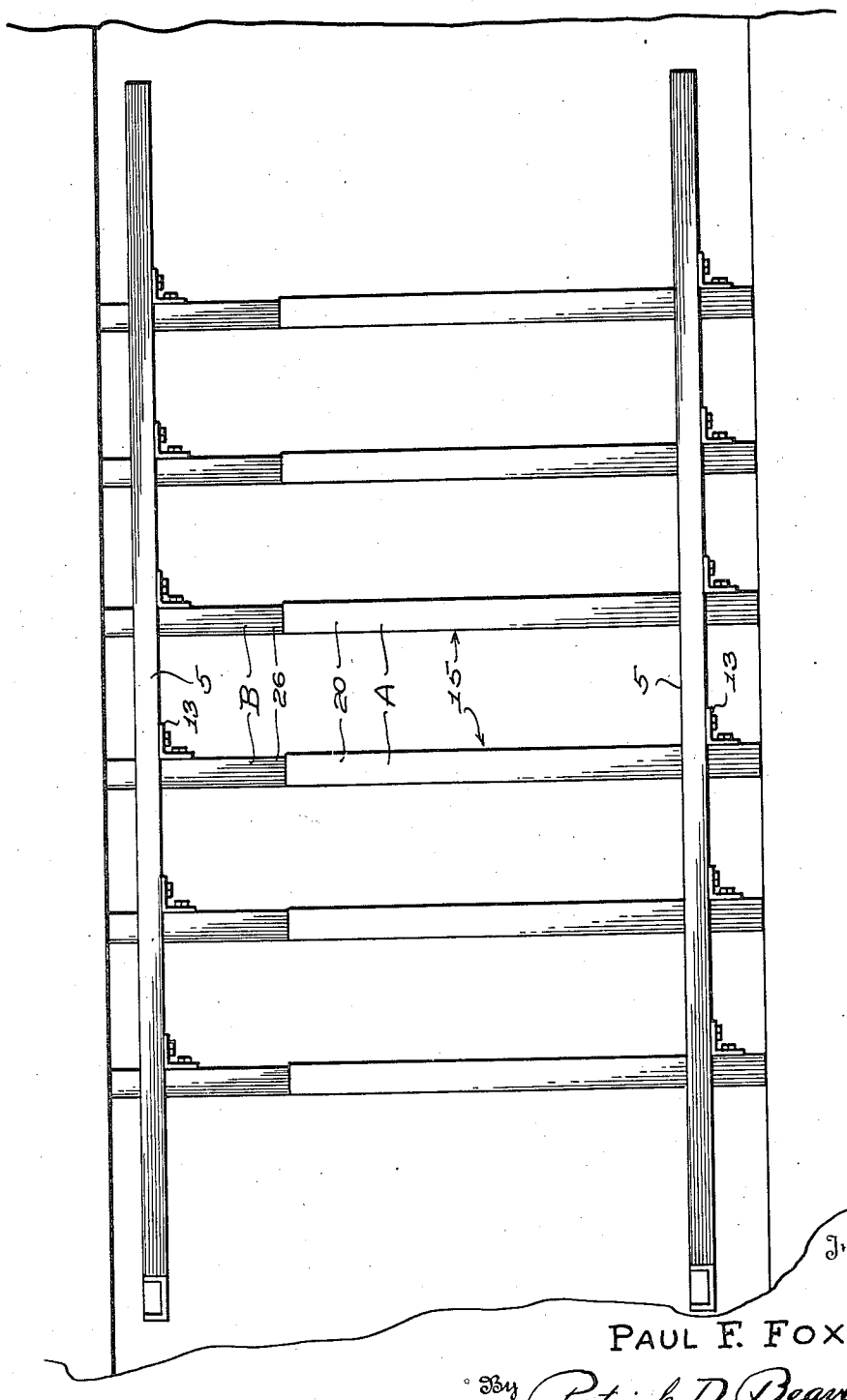


Fig. 1.

Inventor

PAUL F. FOX,

By Patrick D. Beavers

Attorney

Dec. 29, 1942. P. F. FOX 2,306,722

STAIR FORM

Filed April 5, 1941 4 Sheets-Sheet 2

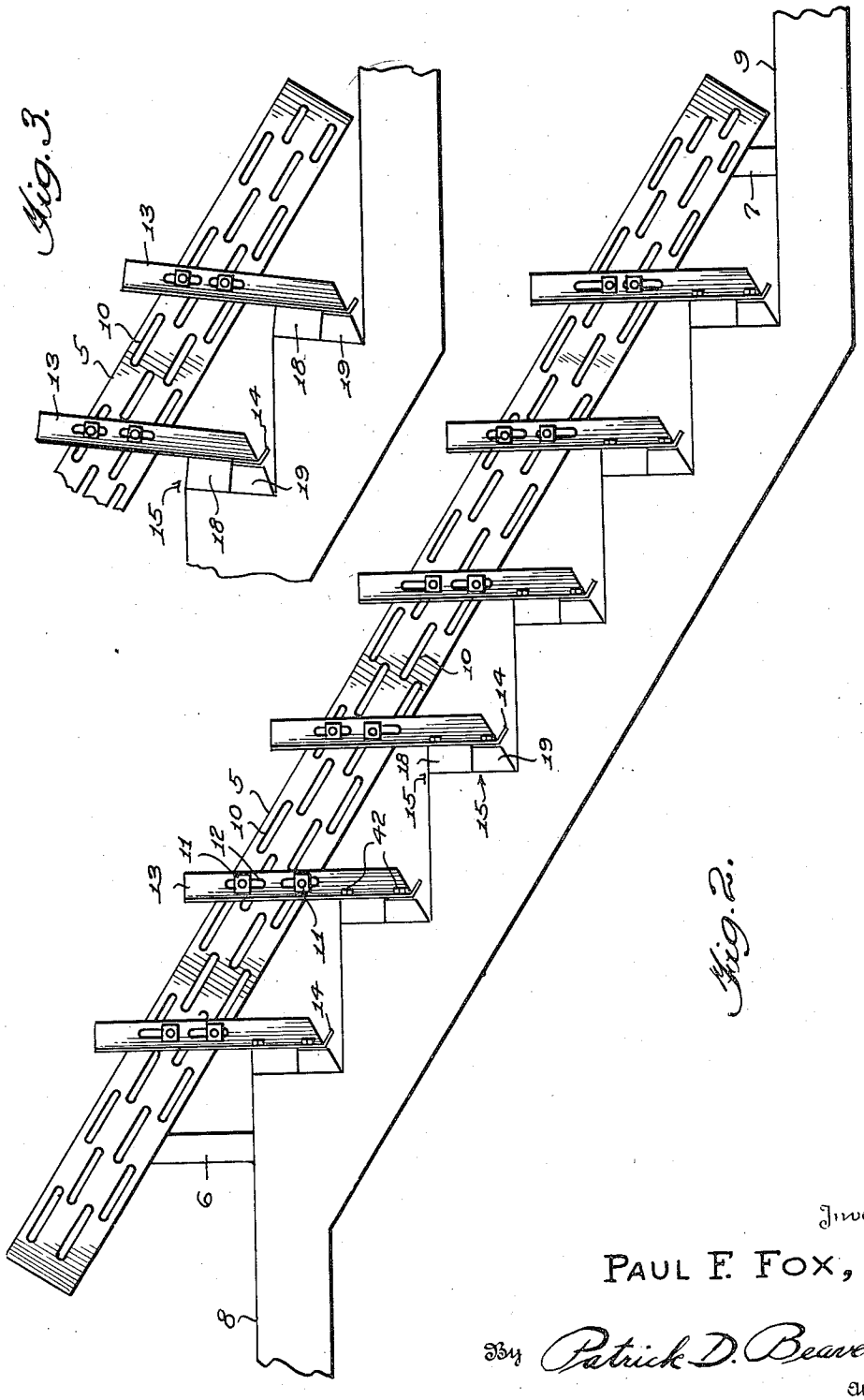


Fig. 2.

Inventor

PAUL F. FOX,

By Patrick D. Beavers

Attorney

Dec. 29, 1942. P. F. FOX 2,306,722

STAIR FORM

Filed April 5, 1941 4 Sheets-Sheet 3

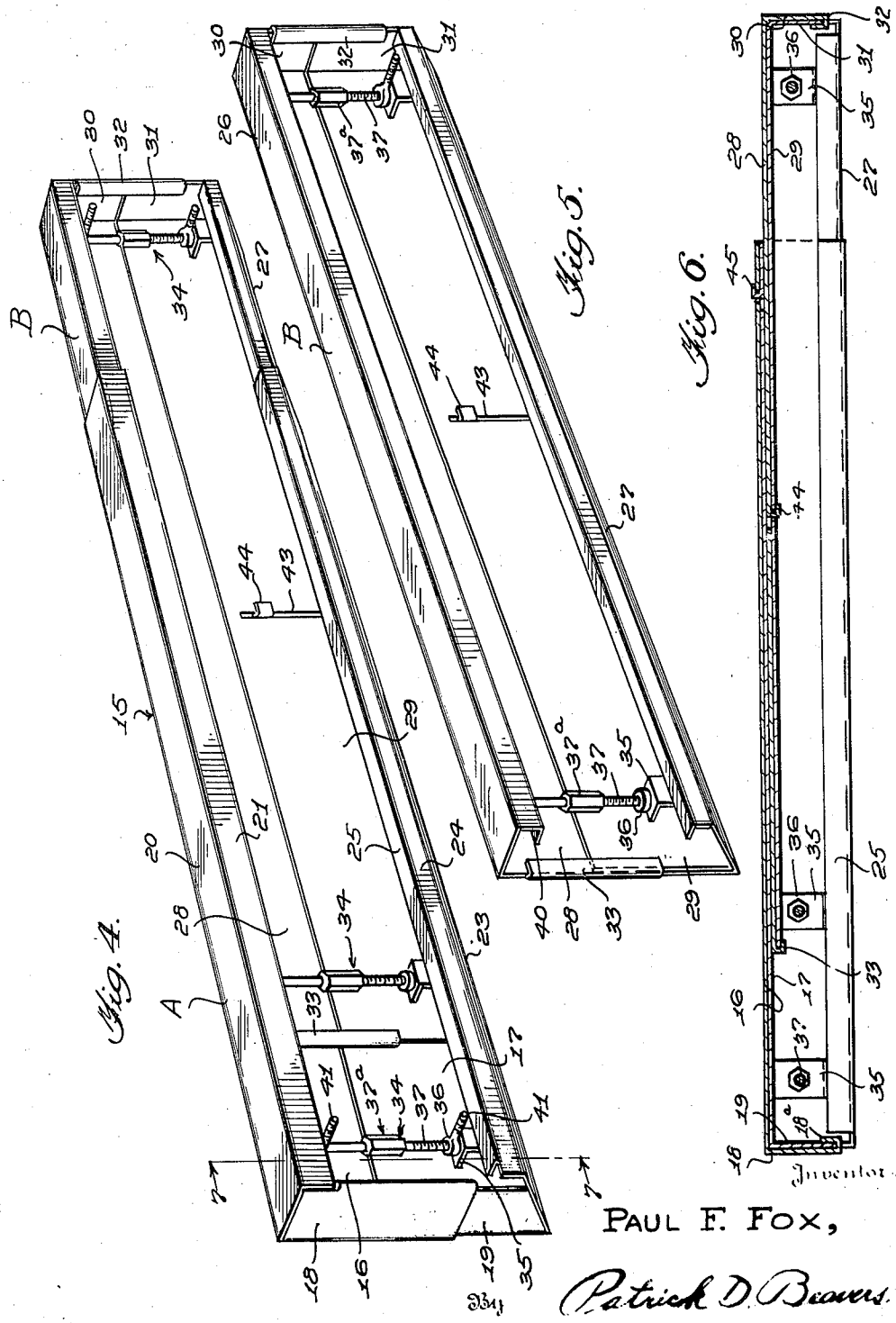


Fig. 4.

Fig. 5.

Fig. 6.

Inventor

PAUL F. FOX,

Patrick D. Beavers

Attorney

Dec. 29, 1942. P. F. FOX 2,306,722

STAIR FORM

Filed April 5, 1941 4 Sheets-Sheet 4

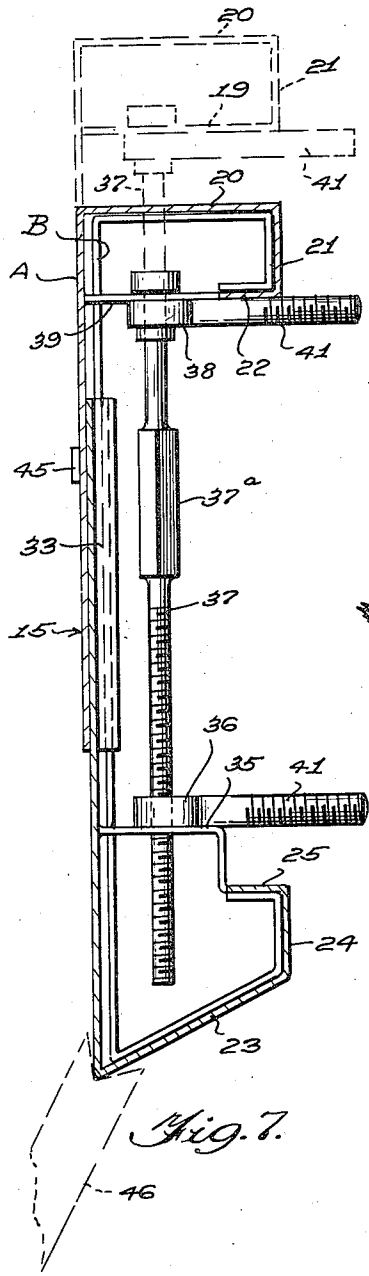


Fig. 7.

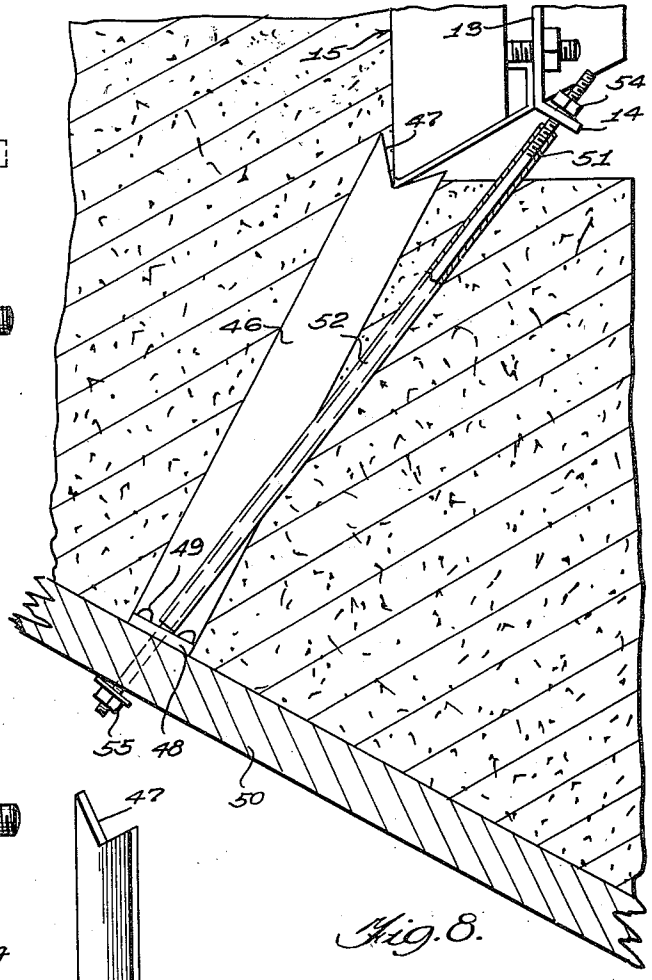


Fig. 8.

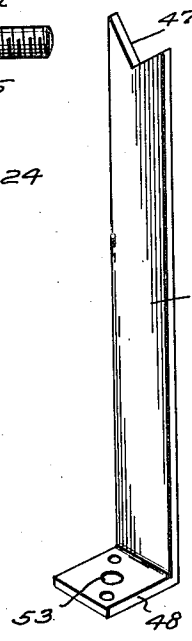


Fig. 9.

Inventor

PAUL F. FOX,

By Patrick D. Beavers

Attorney

Patented Dec. 29, 1942

2,306,722

UNITED STATES PATENT OFFICE

2,306,722

STAIR FORM

Paul F. Fox, Silver Spring, Md.

Application April 5, 1941, Serial No. 387,081

7 Claims. (Cl. 25—118)

This invention relates to new and useful improvements in stair forms and more particularly to a form which can be adjusted to varying stair jobs and architectural specification.

The most important object of the invention is to provide a form which is easily adjustable to permit the convenient forming of steps both in respect to their rise and run in a very convenient manner, thus conserving on skilled assistance substantially, and alleviating to a large extent the waste of materials which now occurs by reason of the use of lumber which quickly deteriorates and is easily damaged when knocking down form structures.

Another object of the invention is to provide a stair form which can be readily set up and which will sturdily remain in place while the concrete is being finished and under sundry other adverse conditions.

Still another object is to provide a form of the character stated which can be easily set up and knocked down, and much more so than the specially measured and cut wood type now being generally used.

A further object of the invention is to provide a stair form wherein risers are provided capable of both vertical and longitudinal extension.

Various other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings:

Figure 1 is a top plan view.

Figure 2 is a side elevational view showing the bulkhead removed to clarify the extent of the invention.

Figure 3 is a fragmentary side elevational view showing the form being used to form risers of the set back design.

Figure 4 is a perspective view of one of the risers, shown assembled as partly extended.

Figure 5 is a perspective view of the right unit of the riser assembly.

Figure 6 is a longitudinal sectional view through one of the assembled risers.

Figure 7 is a vertical sectional view through one of the risers showing in dashed lines that the same is vertically adjustable, and further that it may sit upon a soffit supported chair.

Figure 8 is an enlarged vertical sectional view showing a specially constructed soffit supported chair and retaining means for the risers.

Figure 9 is a perspective view of one of the chairs.

Referring to the drawings wherein like numerals designate like parts, it can be seen that two or more stringers 5, 5 of channeled construction are employed and the inclination of these channeled stringers 5, 5 is determined by blocks 6 and 7 upon which the upper and lower ends of the stringers rest at the upper and lower levels 8 and 9, respectively.

The stringers 5 are formed with staggered rows of slots 10, as is clearly shown in Figure 2 and these slots serve to accommodate bolts 11 which pass through longitudinal slots 12 in certain flanges of angular legs 13, each of these legs 13 being provided at its lower end with an oblique lip 14.

The purpose of the legs 13 is to desirably support the risers generally referred to by numeral 15. These risers 15 are each of telescopic construction, and capable not only of longitudinal extension, but also adjustability in width. Figure 4 shows one of the riser assemblies, the letter A denoting the left unit while the letter B denotes the right unit.

It can be seen that each of the units has approximately the same cross sectional configuration. That is to say, and drawing attention to Figure 5, that each unit has an inclined bottom and a substantially flat top, and a rise forming side which is as smooth and uninterrupted as is physically possible in a telescopic structure.

As can be seen in Figure 4, the unit A consists of an upper section 16 and a lower section 17. One end of each of these sections 16 and 17 has an outwardly bent end wall portion, these portions being denoted by reference characters 18, and as is clearly shown in Figure 4, the end wall 18 has a portion 18a bent to overlap the free vertical edge portion of the end wall 19. Thus the end walls 18 and 19 of the sections 16 and 17 are slidably united.

The section 16 has a top 20 which extends outwardly, downwardly as at 21 and inwardly as at 22 (see Figure 7). The section 17 has a slanting bottom 23 which at its outer edge extends upwardly as at 24 and inwardly as at 25 (see Figure 7).

The unit B, shown by itself in Figure 5, is of like cross sectional configuration, the same having a flat top 26 and a slanting bottom 27. Further, the unit B is constructed of a pair of sections 28 and 29, each having an end wall 30, 31, with the end wall 30 provided with an inwardly bent lip 32 overlapping the end wall 31, to the end that the sections 28 and 29 are slidably united and this is further taken care of by the provision of an inwardly bent lip 33 on

the inner end of the section 28 which overlaps the adjacent end of the section 29.

Since some means for adjusting and holding the sections of both units in adjusted relation is necessary, adjusting means such as is generally referred to in Figures 4, 5 and 6 by numeral 34 are provided. There is preferably two of these adjusting devices for the unit B while only one for the unit A, and that close to the left end thereof. However, it is obvious that the number of these adjusting devices can be increased depending upon requirement.

Each of these vertically adjusting devices consists in the provision of a bracket 35 extending from the portion 25 of the section 17, or the section 29 in the case of the unit B, to the front wall of the section (see Figure 7). On this bracket 35 is a boss 36 having a threaded bore therethrough for receiving a threaded shaft 37 the upper end of which is rotatably or swivelly disposed through a formation 38 located on a bracket 39 extending inwardly from the portion 22 of the section 16 or the portion 40 of the section 28, in the case of the unit B. The intermediate portion of the shaft 37 is provided with a polygonal formation 37a which can accommodate a wrench or other tool when the shaft is to be rotated to vertically adjust the section.

As can be seen in Figure 4, the adjusting device to the right in unit B and the adjusting device in the unit A have means associated therewith for attachment to the legs 13. That is, the upper and lower bosses or formations 38 and 36 are provided with outwardly disposed and threaded members 41, these members being disposed through openings in the legs and provided with nuts 42.

In substantially long risers, or in every instance if desired, the lower section 29 of the unit B may be vertically slotted as at 43 and a lug 44 struck from the section 28, disposed through the slot 43 and bent laterally as shown in Figure 5, thus affording an additional slide connection. Corresponding means 45 may be provided on the unit A.

Due to the fact that the aforedescribed structure would obviously be lifted by the action of concrete poured in the carriage, since the risers are not nailed to the carriage as is conventional, supporting and retaining means are provided and clearly shown in Figure 8.

Figure 8 discloses a vertically disposed chair 46 having a V-notch 47 at its upper end defining a seat for the acute angularly-shaped lower portion of the corresponding riser 15. The lower end of the chair 46 is provided with a laterally disposed and apertured flange 48, through the apertures of which nails 49 can be driven into a soffit 50 or other structure. Thus the risers are afforded proper support and this is especially desirable in view of the retaining means which will now be described.

The retaining means also encompasses a method. The structure of the retaining means consists of an elongated tie rod 51 having its ends threaded. This tie rod has a waxed tube, preferably of paper, surrounding the same and this tube is denoted by a numeral 52. As can be seen in Figure 8, one end of the tie rod 51 is disposed through the aperture of the oblique lip 14 on the lower end of the corresponding leg 13 while the lower end is disposed through an opening 53 in the chair flange 48 and through an opening in the soffit 50. As can be seen in Figure 8, the upper and lower ends of the tie rod 51 are provided with nuts 54 and 55. The waxed tube 52 extends entirely from the flange 48 to an upper point on the rod sufficiently high to clear the concrete and prevent possible adhesion of the concrete with the rod 51.

The method is of course to first set up the stringers 5, arrange the chairs 46 and properly set the risers in respect thereto. Subsequently the waxed tubes 52 are interposed between the lips 14 and the flanges 48 of the chairs 46 and the rods 51 with nuts 54 at their upper ends forced downwardly through the lips 14 and tubes 52 and passed through the flange 48 of the chair 46 and the soffit 50. A nut 55 is then placed on the lower end of each of the rods 51 and the nuts 54 and 55 tightened to the desired extent. When the apparatus is to be removed, one of the nuts 54 or 55 can be removed and the rod easily pulled through the waxed tube. This obviously eliminates the necessity of cutting off any protruding rods which requires considerable time and runs into expense.

As can be seen in Figure 3, the legs 13 can be set angularly so that the risers are on an incline when it is desired to form set back risers.

Obviously, the purpose of having the elongated slots in the stringers 5 and the risers vertically adjustable is so that treads and risers of the steps to be constructed may be formed according to specifications without requiring to any extent the measuring and cutting of lumber specific to the run and rise of the steps. This is all taken care of by quickly manipulatable adjusting means.

The present invention also contemplates the convenient moving of this apparatus from job to job with but a minimum expense in upkeep.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

1. In a concrete stair form, a riser forming unit consisting of a pair of hollow telescopically assembled sections each having a slanting bottom construction slanting in a direction to afford clearance over the entire tread surface of an underlying step to be finished.

2. A concrete stair form comprising a stringer, a plurality of step riser forming units and a soffit form supported chair supporting said riser forming unit spacially above the soffit form.

3. A concrete stair form comprising a stringer, a plurality of step riser forming units and a soffit form supported chair supporting said riser forming unit spacially above the soffit form, and soffit attached holding means in connection with said units.

4. A concrete stair form comprising an elongated stringer, step riser defining units carried by the stringer, a soffit form supported chair for certain of the units, and soffit attached tie means holding said certain units upon their chairs.

5. A concrete stair form comprising an elongated stringer, step riser defining units carried by the stringer, a soffit form supported chair for certain of the units, and soffit attached tie means holding said certain units upon their chairs, said tie means consisting of a tie rod and a concrete impervious tube surrounding the same and through which the rod can be pulled.

6. A concrete stair form comprising an elongated stringer, step riser defining units carried

by the stringer, a soffit form supported chair for certain of the units, and soffit attached tie means holding said certain units upon their chairs, said tie means consisting of a tie rod and a concrete impervious tube surrounding the same and through which the rod can be pulled, said chair having a portion formed with an opening through which the tie rod extends.

7. In a concrete stair form, riser forming units, each unit having a beveled lower portion disposed in a direction to afford clearance over the entire tread surface of an underlying step to be finished.

PAUL F. FOX.