C. W. REVEAL.

STAIR PROTRACTOR.

APPLICATION FILED MAY 29, 1916.

1,249,496.

Patented Dec. 11, 1917.

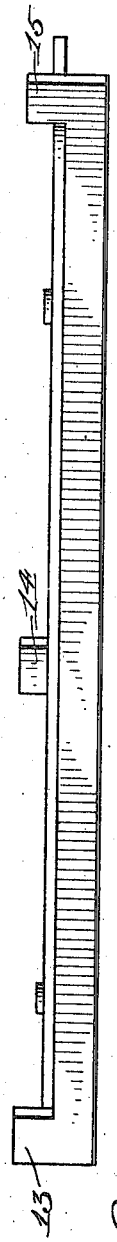


Fig. 2.

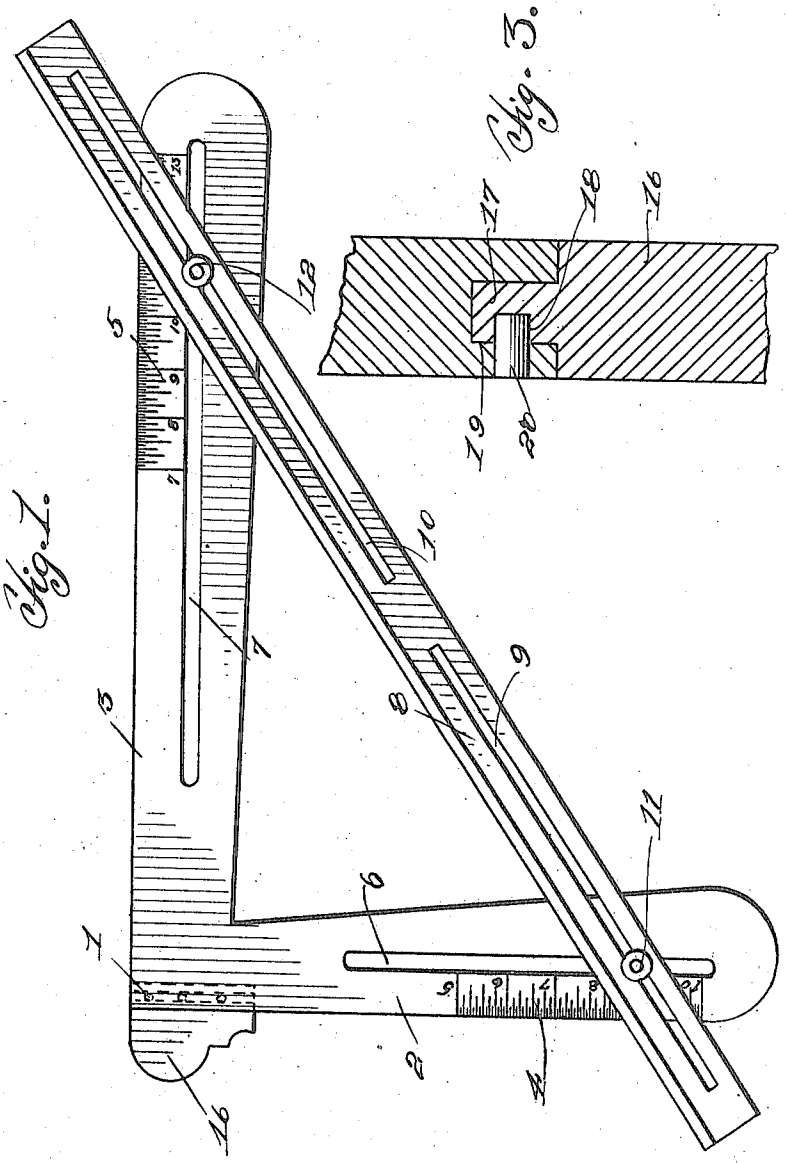


Fig. 1.

Fig. 3.

Charles W Reveal
INVENTOR

By Geo. P. Kimmel.
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES W. REVEAL, OF ST. JOSEPH, MISSOURI.

STAIR-PROTRACTOR.

1,249,496. Specification of Letters Patent. Patented Dec. 11, 1917.

Application filed May 29, 1916. Serial No. 100,541.

To all whom it may concern:

Be it known that I, CHARLES W. REVEAL, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Stair-Protractors, of which the following is a specification.

The present invention relates to new and useful improvements in geometrical instruments, and has particular reference to new and useful improvements in stair protractors and the like.

The primary object of my invention is to provide a stair protractor having an improved structure and arrangement of parts whereby the same may be adapted for laying off various types of stair-ways, either for open or housed stairs. The device is also particularly adapted for use wherein a portion of the stair-way, that is, the outer edge is exposed to view, and the inner edge is flush with a wall or the like. My invention will be found particularly adapted for laying off "wall" and "face" strings in a manner which will hereinafter appear.

Other objects and advantages to be derived from the use of my improved stair protractor will be seen from the following detail description and the claims, taken with an inspection of the accompanying drawings, in which:

Figure 1 is a plan view of a stair protractor embodying the improvements of my invention;

Fig. 2 is a side elevational view of the same; and

Fig. 3 is an enlarged fragmental sectional view of the detachable nose portion.

Referring more particularly to the drawings, wherein similar characters of reference designate like and corresponding parts throughout the various views, 1 designates the square of my improved protractor, the same being composed of the blades 2 and 3. The outer edges of the blades 2 and 3 are relatively at right angles. The inner edges are relatively at an acute angle whereby to form tapering blades.

The blades 2 and 3 are provided with scales in inches designated 4 and 5, said scales being arranged on the outer edges of the blades. The blades are also provided with longitudinally extending slots 6 and 7, said slots terminating short of the ends of the blades. The string engaging arm of my invention includes an angle-iron 8 having one of the portions thereof provided with a pair of longitudinally extending alined slots 9 and 10, fastening screws and nuts 11 and 12 passing through the slots 6 and 7 and said slots 9 and 10 for retaining the arm 8 in the position to which the same is moved. The arm 8 is also provided with a plurality of inwardly extending lugs 13, 14, 15, said lugs being arranged at the extreme ends of the said arm 8 and at the intermediate portion thereof, said lugs serving as stair engaging members for supporting the device during the "laying off" operation.

I provide a removable nose designated 16, the inner marginal edge thereof being provided with a reduced portion 17 formed with a longitudinally extending recess 18. The reduced portion is in the form of a tongue and is receivable in a groove 19 formed in the outer marginal edge of the blade 2 and opening through the marginal edge of the adjacent blade. A plurality of pins 20 rigidly carried by the blade engage the longitudinally extending recess 18 and serves to frictionally retain the nose 16 in position.

In use the diagonal arm 8 is set to the "rise" and "tread" of the steps. The rise and tread are determined definitely before attempting to lay off the steps, the scales 4 and 5 being employed for coöperation with the arm 8 to indicate in inches the rise and tread. The device is now placed upon the board which is to be cut and the arm 8 engages with the guiding strip. Of course it will be understood that the lugs 13, 14, and 15 may be engaged with the marginal edge of the board if it be possible. By drawing lines along the outer edges of the blades 2 and 3 the proper tread and rise of the stairs may be laid off on the plank or board. The nose 16 may be employed for giving the correct beading or edge on the stair tread.

The nose also serves to give the proper cove. The inner edges of the blades serve to properly lay off the wedge of the tread and rise in the event that a recess joint is to be made between the tread and rise at their inner edges.

If the stairs to be laid off are composed of a "wall" string and "face" string with a mitered riser then the nose 16 is removed. The face string is then laid off working in the usual manner. It is unnecessary to

state the angle of the diagonal bar 8 and therefore, it will be seen that accidental disalinement of the parts is practically impossible.

From the above description taken in connection with the accompanying drawings, it is thought that a clear and comprehensive understanding of the construction, operation and advantages of my invention may be had, and while I have shown and described my invention as embodying a specific structure I desire that it be understood that I may make such changes in said structure as do not depart from the spirit and scope of the invention as claimed.

What I claim as new and desire to secure by Letters Patent is:

1. A stair protractor of the class described including right angularly arranged blades, said blades being provided with slots, an angle iron diagonal guide arm arranged on said blades, one of the portions of said arm having slots therein, fastening means extending through the slots in said arm and blades, and a plurality of lugs on said arm arranged at the extreme ends and intermediate portions thereof and projecting oppositely from the upright portion of the arm and in a single plane therewith for the purpose specified.

2. A stair protractor including a body composed of right angularly arranged blades, a diagonal guide arm arranged on said blades, the outer edge of one of said blades adjacent its jointure, having a longitudinally extending groove therein opening through the adjacent edge of the other blade, a nose having a reduced portion adapted to engage the said groove, said reduced portion having a longitudinally extending recess at one side thereof, and pins carried by the blade and engageable in said recess to frictionally retain the nose in position.

In testimony whereof, I affix my signature hereto.

CHARLES W. REVEAL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."