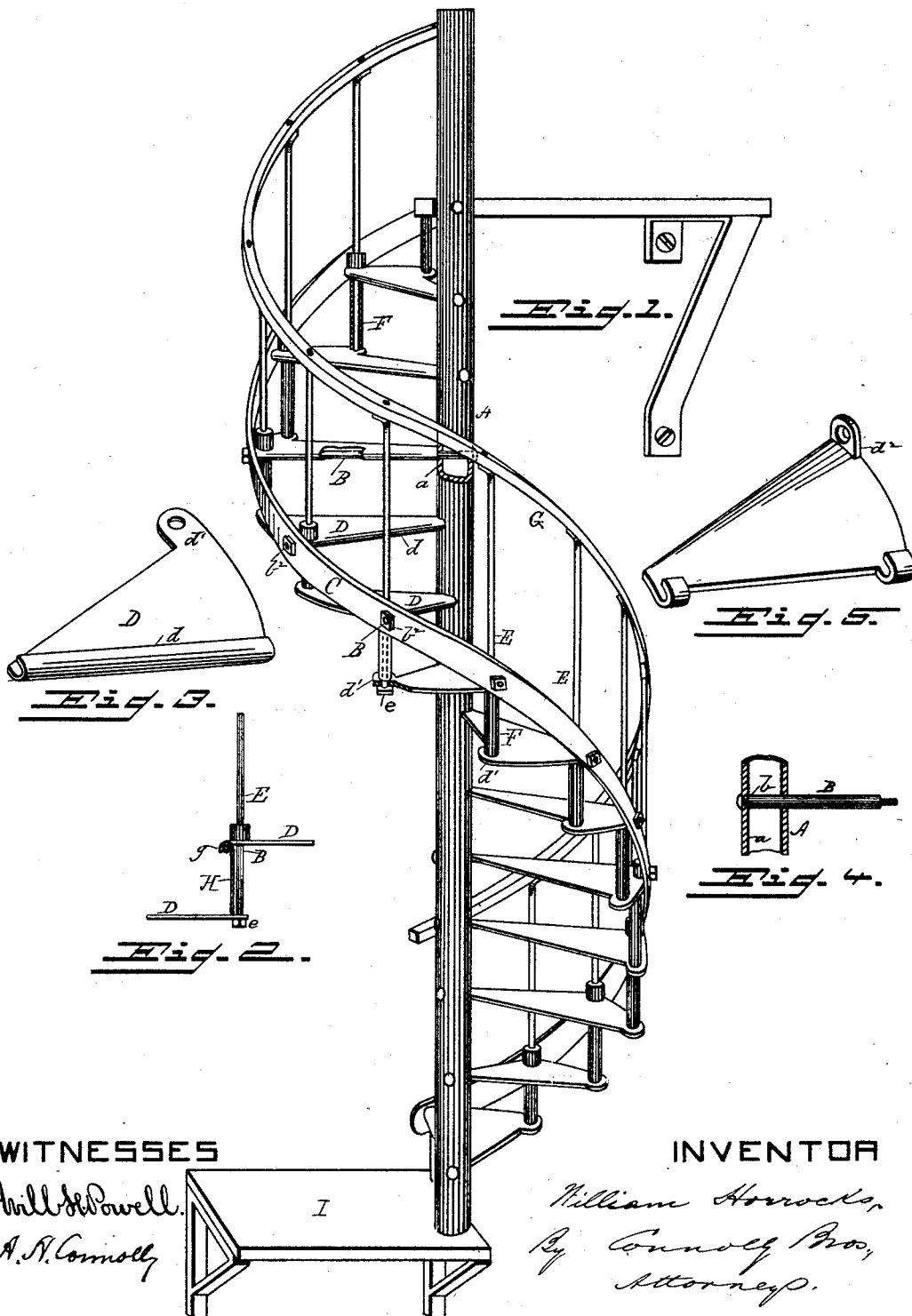


(No Model.)

W. HORROCKS.
SPIRAL STAIRWAY.

No. 348,908.

Patented Sept. 7, 1886.



UNITED STATES PATENT OFFICE.

WILLIAM HORROCKS, OF PHILADELPHIA, PENNSYLVANIA.

SPIRAL STAIRWAY.

SPECIFICATION forming part of Letters Patent No. 348,908, dated September 7, 1886.

Application filed April 20, 1886. Serial No. 199,531. (No model.)

To all whom it may concern.

Be it known that I, WILLIAM HORROCKS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Spiral Stairways; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is an elevation of a spiral stairway embodying my invention. Fig. 2 is a vertical detail section of a modification. Fig. 3 is a perspective of tread-plate inverted. Fig. 4 is a vertical detail section. Fig. 5 is a perspective of modified form of tread-plate inverted.

My invention has for its object to provide an improved construction of a spiral stairway made of metal.

My improvements consist in the peculiar construction and combinations of parts, hereinafter fully described and claimed.

Referring to the accompanying drawings, A represents the central post or column of the stairway, which is composed of metal, and is preferably tubular, although it may be a solid rod.

B B represent rounds, which are rods projecting radially from the central post, A, and arranged to form a spiral. The rods B B pass completely through the post A, and are riveted therein. When the post is tubular, the rods are turned, forming shoulders *b*, which abut against the inner walls, *a*, of the post, and the ends of the rods are riveted on the latter, as shown.

C represents a metallic strip of spiral form, which connects the outer ends of the rounds, said ends passing through openings in the strip, and having nuts *b'* applied thereto, as shown.

D represents the treads, which are of the form shown, having their front edges bent over, forming hooks or curved flanges *d*, which embrace the rounds. The rear outer end of each of the treads has a projection, *d'*, forming lugs for the reception of the lower ends of the baluster-rods E. Said baluster-rods pass, as shown, through the outer end of each tread

near its front edge, and also through the lug or projection of the tread below.

F represents sleeves or tubes, which encircle the baluster-rods between the tread-plates D, and keep the latter a proper distance apart. Below each tread a nut, *e*, is secured on the lower ends of each of the rods E E.

G represents the hand-rail, which is riveted to the upper ends of the baluster-rods E E.

The foregoing construction refers to an open stairway without risers; but, if desired, risers may be employed for each of the steps. Said risers may be of the form shown in Fig. 2, and will consist of metallic plates H H, whose lower edges rest on the treads D D below them, their upper edges having hooks *g g*, which hook over the rounds B B. Where said risers are employed, they will serve to keep the treads at the proper distance apart, and in such case the tubes surrounding the baluster-rods may be dispensed with.

If it be desired to make a closed or incased stairway, a sheet of metal of the proper height or width and spirally arranged may be substituted for the narrow strip C and baluster rods or rails E, the outer ends of the rounds B B being attached thereto, and a hand-rail, if desired, being also secured to the inner side of the spiral sheet, which latter will form a casing. The casing may be wholly closed by using a metallic strip of such width that the edges of the spiral will meet; or it may be of less width, leaving a spiral opening for the entire length of the casing.

The construction described is mainly intended for spiral stairways used as fire-escapes; but it may be employed in any other case where a metallic spiral stairway is desirable. The post A may rest directly on the ground or be fastened to any suitable abutment; or it may be caused to rest upon a platform, I, duly fastened to a wall by brackets, braces, or other supports. It will be noticed that the balusters or rods E pass through the tread-plates just back of the rounds, so that said balusters keep the treads in position and prevent them from slipping forward off the rounds.

If desired, I may construct the tread-plate with a lug, *d''*, for the reception of a bolt, as shown in Fig. 5, by means of which bolt the tread-plate can be secured to the spiral strip

C, thereby dispensing with the use of sleeves or tubes.

What I claim as my invention is—

1. A spiral stairway consisting of a central post or column, spirally-arranged radial rounds B B, fastened to said post, a spiral strip, C, securing the outer ends of said rounds and forming a support therefor, and treads supported on said rounds, substantially as shown and described.

2. The treads herein described for stairs, consisting of metallic plates having their front edges bent over or turned over, forming curved flanges or hooks, in combination with rounds B B, substantially as shown and described.

3. The combination, in a spiral stairway, of central post, A, spirally-arranged radial rounds B B, spiral strips C, treads D, and baluster-rods E, having encircling sleeves or tubes F between each of the treads, substantially as shown and described.

4. The combination of central post or column, A, spirally-arranged rounds B, spiral strip C, connecting said rounds, tread-plates D, baluster-rods E, and hand-rail G, substantially as shown and described.

5. The combination, with rounds B and tread-plates D, of balusters or rods E, passing through said plates and holding the latter in position on the rounds, and sleeves F, encircling said rods E, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of April, 1886.

WILLIAM HORROCKS.

Witnesses:

R. DALE SPARHAWK,
WILL H. POWELL.