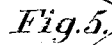
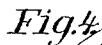
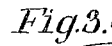


*Patented Feb. 7, 1871.*



Charles S. Close  
by his attor  
Newson and Son

# United States Patent Office.

CHARLES SAUNDERS CLOSE, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 111,610, dated February 7, 1871.

## IMPROVEMENT IN STAIRWAYS.

The Schedule referred to in these Letters Patent and making part of the same.

I, CHARLES SAUNDERS CLOSE, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improvement in Stairways, of which the following is a specification.

### *Nature and Object of the Invention.*

My invention consists in the arrangement above a spiral or other stairway, of a number of segmental plates, which can be operated so as to open or close the stairway, in the manner fully described hereafter.

The main objects of the invention are to prevent fire from communicating, by means of the stairway, from story to story of a building, and also to prevent heat from ascending from a lower to an upper story.

### *Description of the Accompanying Drawing.*

Figure 1 is a sectional elevation of a staircase, showing my improvement;

Figure 2, a sectional view of that portion of the staircase to which my invention particular relates;

Figure 3, a perspective view of the same; and

Figures 4 and 5 plan views, showing the parts in different positions.

### *General Description.*

A represents a cylindrical casing adapted to an opening in the floor to be reached by the spiral stairway.

The upright shaft B, to which the usual radial steps are secured, extends through the center of the casing A, and upon the shaft a number of segmental plates, C, C', C<sup>2</sup>, C<sup>3</sup>, and C<sup>4</sup> are arranged to turn, the plates being situated one above another, and the periphery of each being adapted to one of a number of guiding-grooves formed by a number of ribs, *a'*, on the inner surface of the casing A, in which there is also an internal flange, *b*, for a purpose described hereafter.

\* The lowest plate, C, which is also the highest step of the stairway, is permanently secured to the casing A, and above this permanent plate is the first movable plate, C', and at one corner of the latter, where the edge *c* meets the periphery, is hung a small roller, *f*, bearing on the face of the plate C, a similar roller, *f'*, at the opposite corner, bearing on the track formed by the internal flange *b*.

In like manner the remaining plates, C<sup>2</sup>, C<sup>3</sup>, and C<sup>4</sup>, are provided at their corners with rollers *f* and *f'*, the roller *f* of each plate resting on the surface of that immediately below, and the rollers *f'* of the whole of the plates bearing on the track D.

From that edge of the uppermost plate, C<sup>4</sup>, nearest to the permanent plate C, projects downward a plate, *h*, to or nearly to the said plate C.

A rib, *e*, fig. 3, on the plate C<sup>4</sup>, overlaps a like rib on the permanent plate C, and in like manner each

succeeding plate has a rib overlapping that on the next plate below.

A permanent rail, H, extends around the casing A, excepting opposite the permanent plate C, where it is discontinued, to permit access to and egress from the stairs; but the opening in the permanent railing may be closed by a section of a rail, H', secured to highest, C<sup>4</sup>, of the movable plates.

The section of the railing H' may be used as a medium for operating the plates, and it can also be provided with a suitable locking device, by which to secure it to the permanent rail, when it is desirable, to prevent any movement of the plates.

When it is desirable to so close the stairway as to prevent access to it from above or egress from below, all that is necessary is to draw the plate C<sup>4</sup> in the direction of the arrow, fig. 3, and the whole of the movable plates will follow. This action is similar to that of the blades of a fan on being opened, and the opening in the casing A will be closed, and may be secured against reopening by a suitable locking apparatus. When the plates are moved back, one sliding over the other, until the whole coincide with the permanent plate C, they will, with the latter, form the highest step of the stairs, which can now be ascended and descended without interruption.

The main object of this invention is to prevent fire from communicating, by means of the stairway, from story to story of a building, and also to prevent heat from ascending from a lower to an upper story.

Although this invention is designed specially to spiral staircases, it will be evident that it can be used in connection with ordinary straight staircases.

### *Claims.*

1. The combination, with the opening of a spiral staircase, of a series of plates, arranged to open and close with a fan-like action, substantially as set forth.

2. The said plates C, C', C<sup>2</sup>, &c., when provided at their opposite edges with rollers or wheels, *f* and *f'*, arranged substantially in the manner described.

3. The cylinder or casing A, arranged above a spiral or other stairway, as specified, and having internal flanges and grooves, and being otherwise arranged for the reception and retention of the plates C, C', &c., substantially as herein set forth.

4. The section of railing H', when attached to the upper plate, C<sup>4</sup>, so as to serve as a medium for operating the plates.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHAS. S. CLOSE.

Witnesses:

WM. A. STEEL,  
F. B. RICHARDS.