Jan. 7, 1958 F. L. HOLZER 2,818,945

STAIR CONSTRUCTION

Filed May 14, 1954

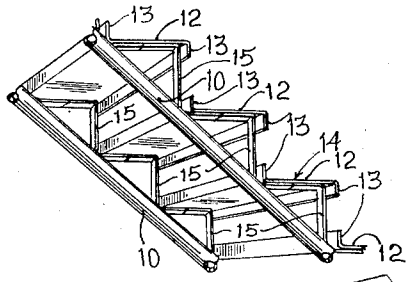



Fig. 1.

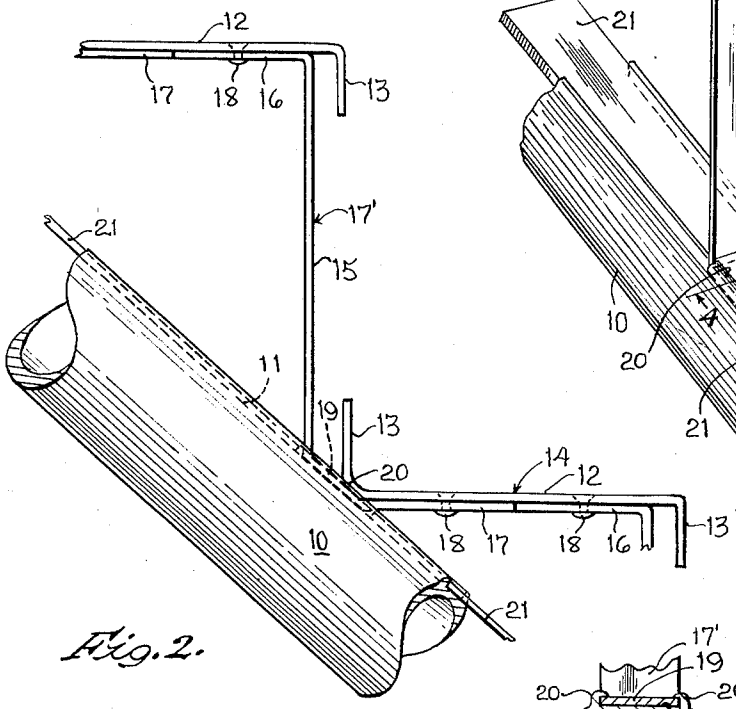



Fig. 2.

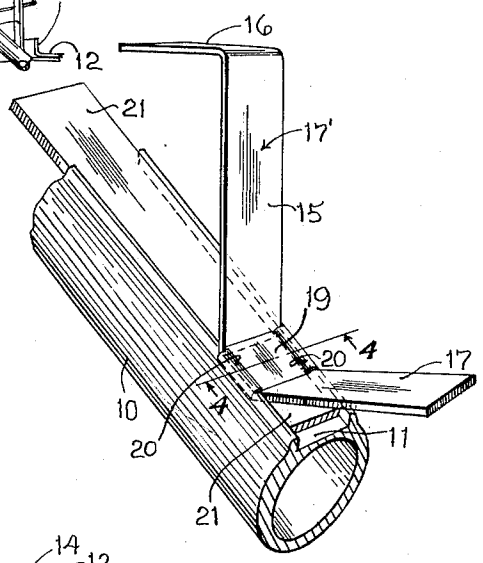



Fig. 3.

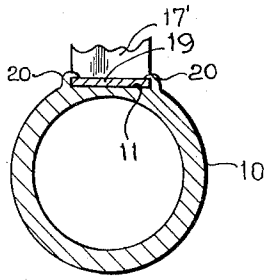



Fig. 4.

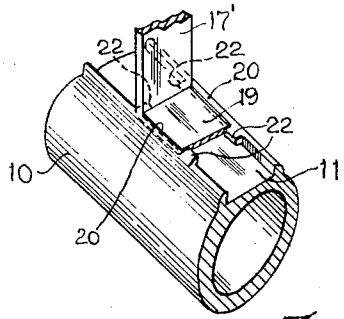



Fig. 5.

INVENTOR.
FREDERICK L. HOLZER
BY Clarence E. Rhoudy
HIS ATTORNEY.

United States Patent Office

2,818,945

Patented Jan. 7, 1958



2,818,945

# STAIR CONSTRUCTION

Frederick L. Holzer, Chicago, Ill.

Application May 14, 1954, Serial No. 429,913

1 Claim. (Cl. 189—43)

This invention relates to a stair construction and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

The present invention constitutes an improvement over that disclosed in my copending application bearing Serial No. 424,902.

Among the several objects of my present invention is the provision of a novel arrangement for attaching to the stringers the risers, whereby the several parts of the stair construction may be fabricated in the factory and either there assembled or shipped in collapsed form to the job for assembly on the job in a manner requiring the least amount of labor.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a fragmentary perspective view of a stair construction embodying my invention;

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

Fig. 3 is a fragmentary elevational view of a stringer having attached thereto the riser;

Fig. 4 is a sectional detail view taken substantially on line 4—4 of Fig. 3;

Fig. 5 is a fragementary sectional detail view of a stringer and riser embodied in the invention, but showing a modified form of construction.

Referring more particularly to the drawings showing my preferred form of construction and by which the several objects of my invention may be accomplished, the stair construction includes spaced stringers **10** arranged in parallel relation with respect to each other and preferably for strength and lightness each in the form of elongated tubes. Formed in the top surface of each stringer **10** is a groove or channel **11** extending the full length of the stringer.

The treads of my improved stair construction comprise relatively flat stair plates **12** each having its transverse edge portions bent reversely with respect to each other to provide flanges **13** substantially at right angles with respect to the medial portion **14** of the tread. The flanges **13** of the tread are in alignment with the flanges **13** of the adjacent tread. Each tread is supported by a pair of risers **15**. Each of the risers **15** is formed from an elongated strip of material having its opposite end portions **16** and **17** bent in reverse directions to provide horizontally extending arms for attachment to the treads **12**. These arms **16** and **17** may be attached to their respective treads by suitable rivets **18**. The arms **16** and **17** may by a suitable tool be adjusted relative to the portion **17'** of which they are a part so as to properly position and accommodate them with respect to the under surfaces of the tread **12**.

The arm **17** of the risers **15** is integrally connected with the intermediate portion **17'** of the riser by an inclined heel portion **19**. This heel portion **19** is adapted to be mounted in the channel **11**. The adjacent edge portions **20** defining the channel **11** are swaged upon the top of the heel portion **19** to secure the heel portion **19** within the channel **11**.



In the form shown in Fig. 3, the remaining open portion of the channel **11** between adjacent risers **15** has mounted therein a spacer or filler bar **21** which properly spaces adjacent risers in the position shown in Fig. 1.

In lieu of these spacer bars **21**, there may be provided suitable lugs **22** which serve to properly locate and retain within the channel **11**, with the cooperation of the swaged edges **20**, each riser. In the drawing I have shown four of such lugs **22**; however, it is clear that there may be employed but one pair of lugs located with respect to the heel portion to prevent downward movement thereof within the channel **11**.

The foregoing construction provides a rigid, durable and economical stair construction. As it is contemplated that the several parts be formed of suitable metal, the stair construction is also fireproof.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

A stair construction comprising a pair of parallel extending tubular stringers, each of said stringers provided on the top longitudinal surface thereof with laterally extending spaced apart flanges providing therebetween a longitudinally extending channel, a plurality of Z-shaped tread supporting members formed from a relatively flat bar bent to provide a riser portion and reversely extending top and bottom tread supporting portions of substantially equal lengths, said top and bottom tread supporting portions being of a length equal to half the distance between riser portions of corresponding tread supporting members, a removable tread connecting oppositely corresponding tread supporting portions in end abutment with respect to each other, said riser portions of each of said members at its point of junction with said bottom tread supporting portion bent diagonally with respect to said riser portion and said tread supporting portion and in parallel relation with respect to said stringer to form a heel portion, said heel portion being of a width equal to the space between said channel forming flanges so as to be slidably contained therebetween, a spacer bar of a width equal to the distance between said channel forming flanges so as to be slidably contained therebetween and of a length equal to the distance between riser portions of said tread supporting members to space said heel portions of said members in spaced relation with respect to each other, said spacer bar engaging said heel portions in said channel so as to prevent lateral movement of said heel portions in said channel and to align the members of one stringer with the corresponding members of the other stringer.

References Cited in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 696,503 | Seefels | Apr. 1, 1902 |
| 1,701,659 | Bechtel | Feb. 12, 1929 |
| 1,865,059 | Ragsdale | June 28, 1932 |
| 1,866,584 | Spencer | July 12, 1932 |
| 2,186,866 | Hussey | Jan. 9, 1940 |
| 2,287,561 | Page et al. | June 23, 1942 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 424,200 | Great Britain | Feb. 14, 1935 |