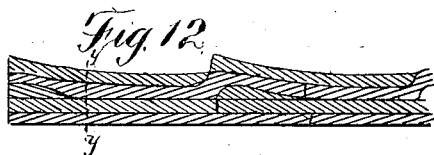
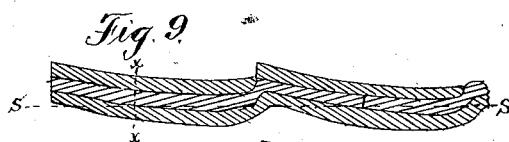
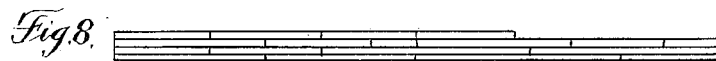
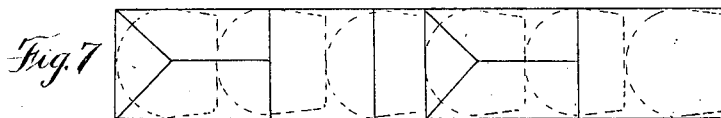
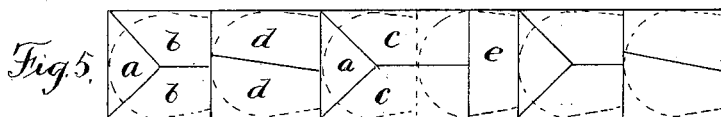
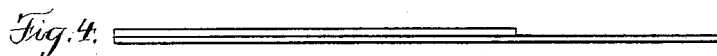
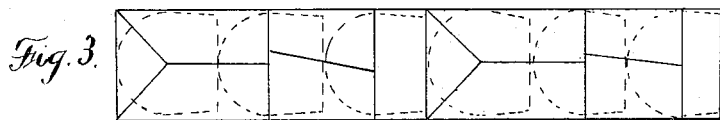
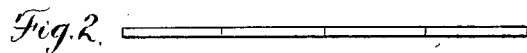
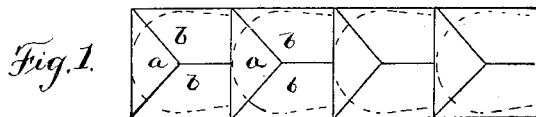


(No Model.)

F. W. COY.  
HEEL STRIP BLANK.

No. 345,122.

Patented July 6, 1886.



Witnesses:  
W. H. Brown,  
M. L. Williams.

Fig. 15.

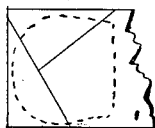


Fig. 14.



Inventor:

F. W. Coy.

by his Attys

Wright Brown & Croesley

# UNITED STATES PATENT OFFICE.

FREDERICK W. COY, OF BOSTON, MASSACHUSETTS.

## HEEL-STRIP BLANK.

SPECIFICATION forming part of Letters Patent No. 345,122, dated July 6, 1886.

Application filed March 2, 1886. Serial No. 193,775. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK W. COY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Heel-Strips, of which the following is a specification.

This invention has for its object to enable small pieces of sole-leather to be utilized in the manufacture of boot and shoe heels.

The invention consists, first, in a heel-strip composed of a series of pieced layers or lifts cemented together, each of which is composed of pieces so formed and arranged as that the strip may be cut up into heels without causing the inner edge of either of the lift-pieces to form such angle with the curved margin of the heel as to render it liable to be broken away by the action of a heel-trimming tool, the lifts breaking joints sufficiently to enable them to be secured together and form a strip of indefinite length.

The invention also consists in a heel-strip composed of pieced layers of substantially uniform thickness, and another pieced layer cut away or reduced in thickness at intervals to form a series of concavities or heel-seats at one side of the strip, all of which I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a plan of the first or heel-seat layer of my improved heel-strip. Fig. 2 represents an edge view of the same. Fig. 3 represents a plan of the second layer. Fig. 4 represents an edge view of the first and second layers. Fig. 5 represents a plan of the third layer. Fig. 6 represents an edge view of the first, second, and third layers. Fig. 7 represents a plan of the fourth layer. Fig. 8 represents an edge view of the first four layers. Figs. 9 to 14 represent methods of forming a series of concave heel-supporting surfaces on the strip. Fig. 15 represents a view showing pieces not formed in accordance with my invention.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention I assemble in the form of a layer a series of pieces of leather, *a b b*, shaped as shown in Fig. 1, the three pieces *a b b* being of such form as that a heel-lift can be cut from them, as indicated by dotted lines, there being as many series of

pieces *a b b* in the strip as there are to be heels cut therefrom. To said layer I cement a second layer, composed of pieces *a c c d d e*, as shown in Fig. 3. Said pieces break joints with the pieces of the first layer lengthwise of the strip, as shown in Fig. 4, and the six pieces designated as above constitute a series, which is duplicated in the same layer as many times as the length of the strip will allow. To the second layer I cement a third layer, composed of one or more series of pieces, *a b b d d a c c e*, as shown in Fig. 5, said pieces breaking joints with the pieces of the preceding layer lengthwise of the strip, as shown in Fig. 6. I thus continue to build up the strip until it attains the desired thickness, inward edgewise pressure being exerted on the strip to press the abutting edges of the pieces closely together.

It will be observed, by reference to the dotted lines in Figs. 1, 3, 5, and 7, indicating where the heels are to be cut from the strip, that all the division-lines between the pieces composing the layers extend radially with reference to the curved margins of the heels—that is to say, said division-lines are substantially at right angles with the portions of said curved margins which they intersect—so that liability of the breakage of a portion of any piece by the action of a rotary heel-trimmer is avoided. If the pieces were arranged so that their division-lines formed acute angles with the curved margin of the heel—for example, as indicated in Fig. 15—a rotary trimmer acting on the heel after it has been died out from the strip would be very likely to break out a portion of each piece at the surface of the heel, particularly if the cutter were dull. By my arrangement of said division-lines I avoid this difficulty.

By forming and arranging the pieces so that those of the different layers break joints lengthwise of the strip, I give the strip sufficient stiffness to enable it to be made of any desired length and fed into or through a machine which cuts out the heels from it.

The pieces of which the layers are composed are preferably cut by dies from waste scraps of leather, and may be assembled very readily, the pieces being properly assorted and placed by an operator in a suitable guide or holder.

In assembling the pieces to form the layers I use a bed having a fixed abutment for the end of the strip that is first completed, movable side abutments capable of being pressed inwardly against the edges of the strips, a top plate to bear on the upper surface of the completed portion of the strip and prevent the layers from being displaced upwardly by the edgewise pressure, and a movable plunger or presser to bear on the upper surface of the strip at a point close to the end last completed, and prevent any of the pieces from slipping endwise away from the fixed abutment while the inward edgewise pressure is being applied. By thus clamping the strip near its unfinished end, and confining it so that its layers cannot rise or "cockle up" when inward edgewise pressure is applied, I insure the tightening of all the joints by said inward pressure. It should be borne in mind, however, that the said top plate does not exert a clamping-pressure on the strip during the inward edgewise pressure, but simply bears against its upper layer sufficiently to prevent cockling up, and is afterward pressed downward to press the layers closely together.

I do not limit myself to the exact shapes of the pieces shown and described but may variously modify the same without departing from the spirit of my invention.

I find it desirable to use the five forms, *a*, *b*, *c*, *d*, and *e* in making the layers, as said forms enable me to economize stock and cut wasted pieces to good advantage; but I may use a greater or less number of different forms and may cause the pieces of one or more of the layers to break joints with the pieces of the adjoining layers. I regard it as important also that the division-lines between the pieces composing the layers should extend in such direction as that inward pressure against the edges of the strip will tighten not only those joints extending in the direction of the length of the strip, but also those joints which extend crosswise of the strip. This result is attained by the forms of pieces described and shown.

I prefer to make a series of cavities in one side of the strip to the shape of the bottom of the heel portion of last, as shown in Figs. 9 to 14. To this end I cut away portions of one of the layers, so as to convert said layer into a series of rands, *r*. This I prefer to accomplish by bending the layer into concavo-convex form at suitable intervals, and then cutting off a portion of the convex side with a flat knife, thus giving the layer a gradually-decreasing thickness from its margin inwardly, as shown. This treatment may be applied to the first layer, as shown in Fig. 14; but I pre-

fer to apply it to one of the intermediate layers, as shown in Figs. 9 to 13. In doing this I bend two or more layers into concavo-convex form; as shown in Fig. 9, using suitable dies or molds, and then cut off the convex side of the inner layer along the line *s s*, Fig. 9, thus giving the strip thus constituted one flat side and one side having a series of concavities, as shown in Fig. 11. I then complete the strip by cementing one or more flat layers to its flat side, as shown in Figs. 12 and 13. Each heel cut from the strip thus formed has a concave side formed to fit the heel portion of the last, and a flat tread-surface. It will be understood that the heels must be cut from the strip as indicated by the dotted lines, in order that the described radial relation of the division-lines to the curved margins of the heel may be preserved.

I claim—

1. A heel-strip composed of a series of cemented layers of substantially uniform thickness and of sufficient length for a series of heels, and a layer molded or formed and cut away at intervals, as described, to form a corresponding series of rand-shaped lifts having concave upper surfaces, as set forth.

2. A heel-strip composed of a series of cemented layers of substantially uniform thickness and of sufficient length for a series of heels, another layer molded or formed and cut away at intervals, as described, to form a corresponding series of rand-shaped lifts having concave upper surfaces, and a top layer molded and cemented to said concave surfaces and composed of pieces having transverse division-lines coinciding with the lines on which the strip is to be cut in forming the fronts or breasts of the heels.

3. A heel-strip composed of one or more pieced layers at one side of the strip which are molded to form a series of concavities, one or more flat layers at the opposite side of the strip, and an intermediate pieced layer cut away, as described, at intervals to form a series of rand-shaped lifts, said strip being of sufficient length to form a series of heels, and its layers made up of pieces, the division-lines of which will be substantially radial to the curved margins of the heels cut from said strip, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 20th day of February, 1886.

FREDK. W. COY.

Witnesses:

C. F. BROWN,  
H. E. BROWN.

It is hereby certified that in Letters Patent No. 345,122, granted July 6, 1886, upon the application of Frederick W. Coy, of Boston, Massachusetts, for an improvement in "Heel-Strip Blanks," an error appears in the printed specification requiring correction, as follows: In line 76, page 1, the word "levers" should read *layers*; and that the Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 13th day of July, A. D. 1886.

. [SEAL.]

D. L. HAWKINS,  
*Acting Secretary of the Interior.*

Countersigned:

M. V. MONTGOMERY,  
*Commissioner of Patents.*