Feb. 18, 1941. J. J. DALY 2,232,216

METHOD OF MAKING A VULCANIZED TWIN HEEL SEAT UNIT

Filed July 10, 1939

Fig. 2

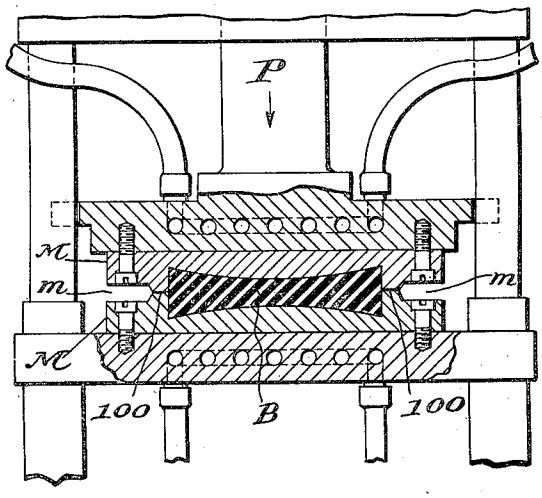
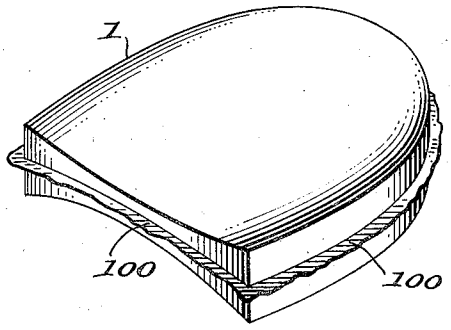


Fig. 1



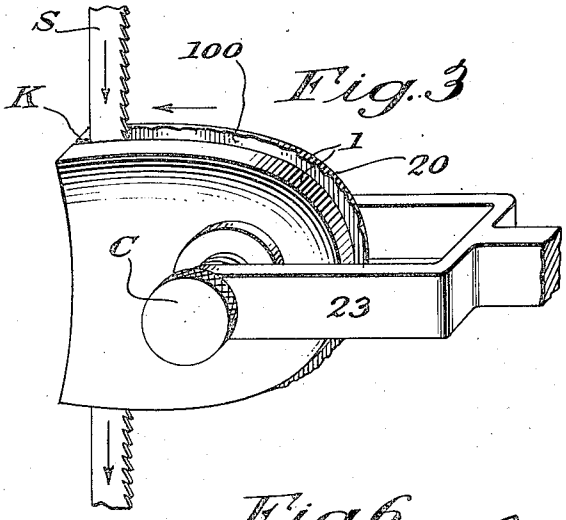


Fig. 3

Fig. 4

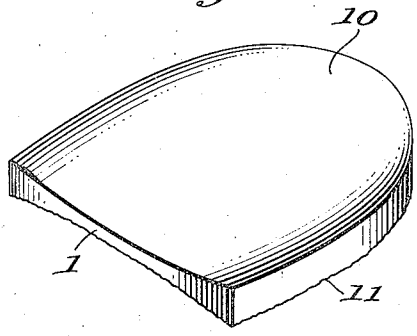


Fig. 6

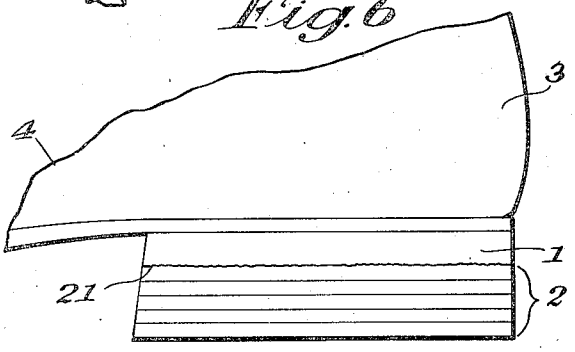
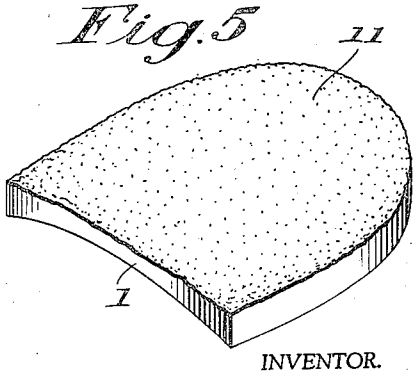


Fig. 5



INVENTOR.
John J. Daly
BY Spear Rawlings & Spear
ATTORNEYS.

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METHOD OF MAKING A VULCANIZED TWIN HEEL SEAT UNIT

John J. Daly, Hyannis, Mass., assignor to Daly Bros. Shoe Co. Inc., Boston, Mass., a corporation of Massachusetts

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2 Claims. (Cl. 18—47.5)

In the production of resilient or cushioned heel structures, notably those of rubber or vulcanizable compositions, it has been proposed and even attempted to obtain in the heel of the shoe a cushioning effect for the calcaneum area, while having a non-frictioning wear surface like leather, as an outer lift to prevent the catching of the heel and the tripping of the wearer.

According to my concept I provide for my shoe heels an upper or seat lift thick enough to cushion the shocks of stepping down in walking but so thin as to be light and not load the rear portion of the shoe. This is important in any shoe, but particularly in low shoe types where there is apt to be a drag and slippage causing discomfort or blistering as well as wearing out of the heels of stockings.

To attain this at a practical commercial shoemaking basis of cost various factors are required. A smooth heel seat, breast and rear curvature is desirable, as is also its edge where it is exposed in the heel.

On the other hand, for modern processing it is increasingly important to have such a lift hold the cement of assembly so as to get a quick tight bond to and with adjacent lifts.

To produce rubber lifts of a vulcanizable grade or quality, the molding is usually of a soft biscuit, pressed to the desired shape and vulcanized under pressure.

According to my concept I use a novel mold and method of procedure by which I attain the desired results and on an economical basis under which I produce my lifts in pairs, as by analogy to the fact that shoes are produced in pairs, and I do so by providing a bottom face of the lift produced integrally with and on the median plane or zone of the molded resultant unit.

Another novel phase of my concept lies in the reducing of the twinned integral lift units to their individual lift state. In this I make the mold divided so as to be separable on a central transverse plane and sever the unit at that plane to eliminate the vulcanized soft rubber fin which has exuded through the mold crack. I am aware that many articles have been made in duplicate, triplicate or other plural assemblies which would then be dissected. My method, however, produces new and unpredictable results, i. e. elimination of fin and creation of a rough cementing surface.

As to the latter new result I am aware that heel lifts for rubber heels have been made with a special surface molded in, but they were not resilient cushion lifts but molded of rather hard fibered stock. The cushion or resilience was in the softer rubber heel cemented to it. They further missed the concept of my smooth harder mold glazed heel seat because they had rough heel concavities for sticking down other parts.

The foregoing new invention and various other features of improvement are included or includable according to my invention, all as will more fully appear in the following specification and as illustrated in the accompanying drawing.

In the drawing I have shown a practical type of cushion lift and have schematically indicated a mold and method basis of production. Throughout the specification and drawing like reference characters are employed to indicate corresponding parts, and in the drawing:

Fig. 1 is the unit produced for my lift pairs showing the soft fin about its median line.

Fig. 2 is a schematic indication partly in section suggestive of a hydraulic or like press in which the vulcanizing and compressing mold with its biscuit is placed.

Fig. 3 suggests the vulcanized unit of Fig. 1 held tightly in a clamp which is moved on the fork of a carriage (not shown) up to an indicated saw.

Figs. 4 and 5 are the resultant halves of the heel unit after severance, the lower half being shown with a stippled face to indicate the roughness produced by the saw cut, and

Fig. 6 is a portion of the heel of a shoe with one of my cushioning lifts in place.

Referring first to the drawing, it will be seen that in Fig. 6 that a heel structure may be provided having all the cushioning effects necessary for good orthopedics, with real resistant wear tread. In such an illustrative structure I have shown at 1 my combined top lift and heel seat, and at 2 non-resilient wear lifts of leather or the like.

A shoe is partially indicated in rear or heel part as at 3 rearwardly of a shank portion 4. These parts may be variously assembled but it will be noted that the concaved heel seat face 10 of the resilient upper lift 1 is adapted snugly to find the heel area of the sole or other shoe portions overlying it and close it against gaping. For obtaining this fit a firm surface is needed on the softer resilient rubber.

Such a heel seat lift would be expensive to make under ordinary methods of operation, but, as above suggested, by twinning this cushion lift as in Fig. 1, I get a substantial reduction in cost as well as the other advantages which I will now explain.

First I may mention that my invention provides for the elimination of the fin 100 which is a rather tricky flexible web that is left after heat and pressure are applied to the biscuit and the twinned unit 1 removed from the mold. This fin has to be removed which would mean one step or operation, even if buffing be not counted.

Briefly, I provide for this by a saw cut or kerf K at the fin base which eliminates the fin and severs the twin blanks as separate lifts 1. For this operation I refer to the schematic view of Fig. 3. In this the blank 20 is indicated as clamped between jaws 23 of the clamp C which hold it tight and preferably slightly compressed or tensioned so that the kerf K may be a clean one. In doing this, the glaze or skin left from the mold is only locally disturbed. The saw indicated at S leaves a slightly roughened unglazed surface 11. This severing operation exposes the surfaces 11. These surfaces 11 will be bound to have a high affinity for assembling or attaching cements of rubbery or like bonding character, as indicated at 21.

Heels constructed in accordance with my invention have a good cushioning effect but are firm and wear resistant. The rubber or like vulcanizable compound for the biscuit indicated at B in Fig. 2, may be made as thick as desired to form a heel.

As illustrative of a practical basis of my curing, I preferably apply in mold about 2000 lbs. pressure and vulcanize at about 225–300° F., but the temperature and pressure may vary considerably with the rubber or like mix according to the judgment or practices of the rubber manufacturer or his expert workmen.

In molding I may use a simple divided frame M having a median or central planar line of separation as at *m*. Through this at high pressure and preferably with the relatively soft mixes, there is almost certain to be extruded the fin 100 which has to be eliminated as before described.

Although capable of various modifications as to forms of heels and methods of making, my inventions provide a very substantial practical working basis, as will be readily apparent to those skilled in this art, within the teachings of my invention and as defined in the following claims.

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

1. The method of making a pair of duplicate heel lifts, which comprises placing within the mold cavity of a two-part mold whose edges meet substantially midway of the depth of the mold cavity when the mold parts are closed, a charge of vulcanizable material of greater mass than required exactly to fill the mold cavity, pressing said mold parts together in a direction substantially normal to the plane of the mold charge to express the excess material from the mold cavity past the meeting edges of the mold parts as a flash or fin, vulcanizing the mold charge remaining within said mold cavity while maintaining said pressure in said direction thereon, opening the mold and removing the vulcanized unit, and simultaneously severing said unit in half and eliminating said fin by sawing the unit along the fin line.

2. The method of claim 1, and the step of clamping the vulcanized unit between opposing clamping members during the sawing operation.

JOHN J. DALY.