Sept. 26, 1950 E. I. LaCHAPELLE 2,523,702

SHOE WITH A FILLER

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Fig. 1.

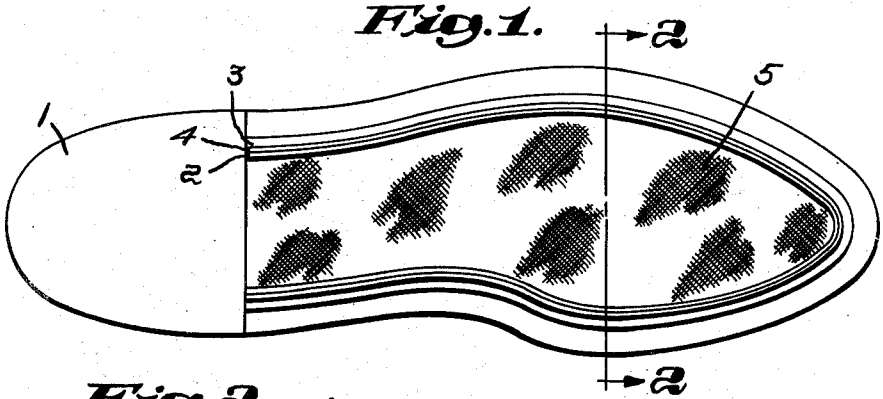


Fig. 2.

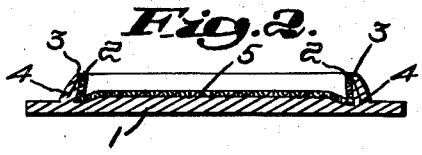


Fig. 3.

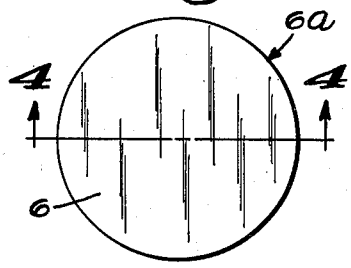
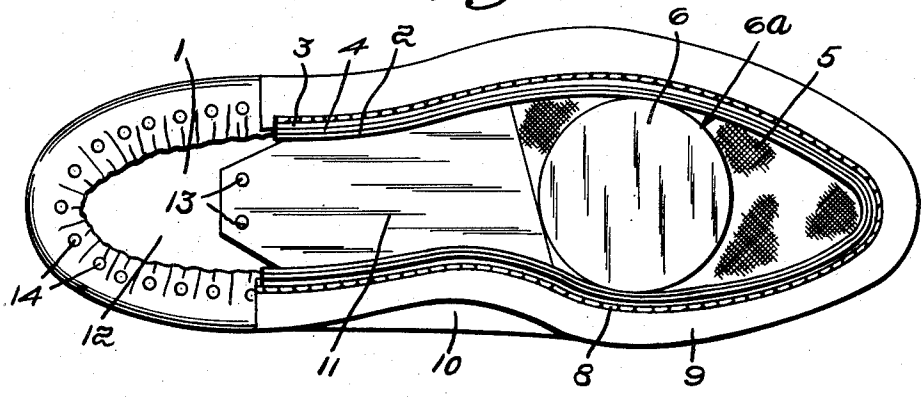


Fig. 4.



Fig. 5.



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Fig. 6.

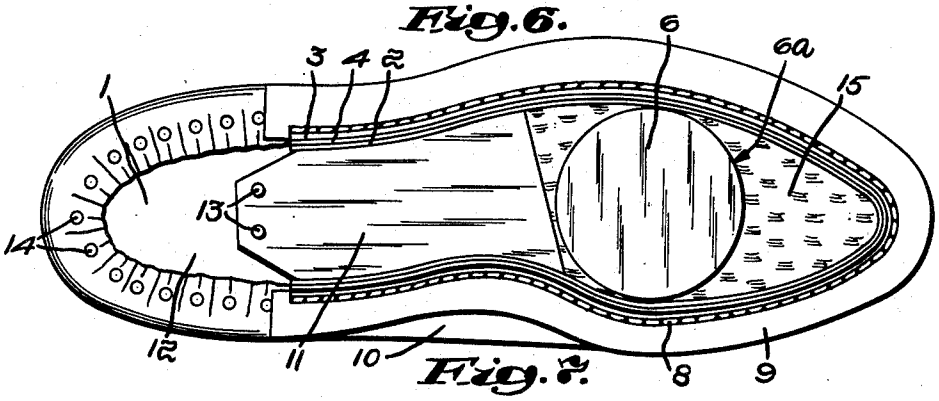


Fig. 7.

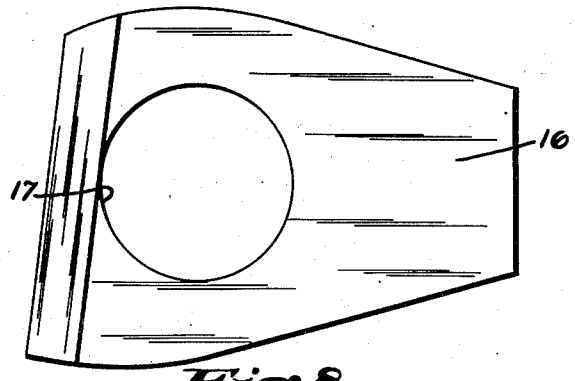


Fig. 8.

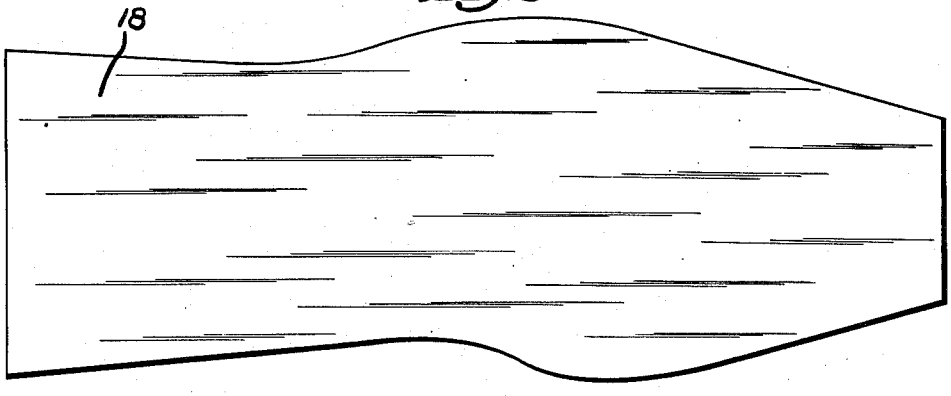


Fig. 9.



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Fig. 10.

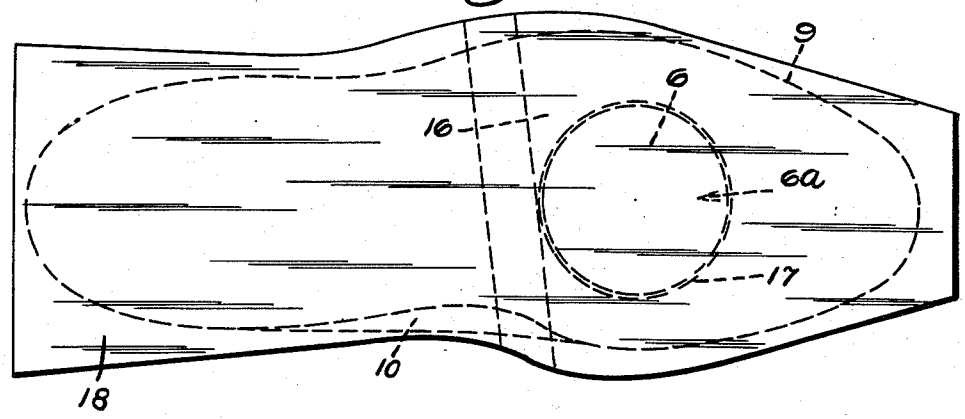


Fig. 11.

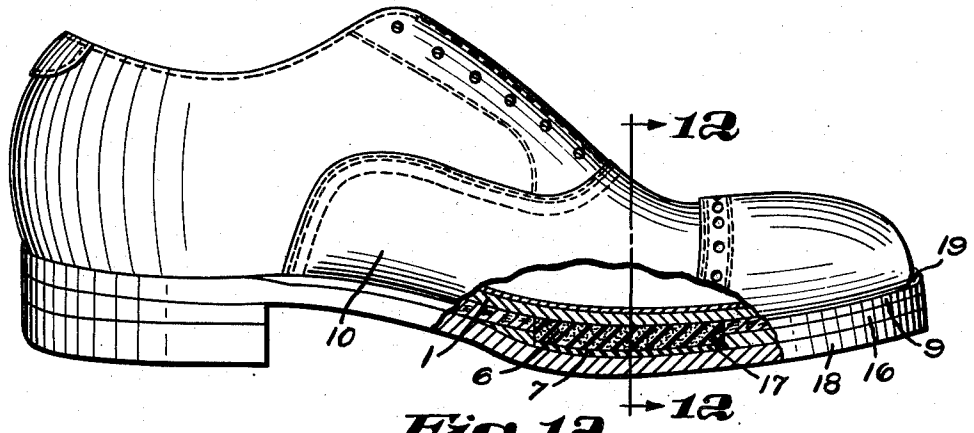
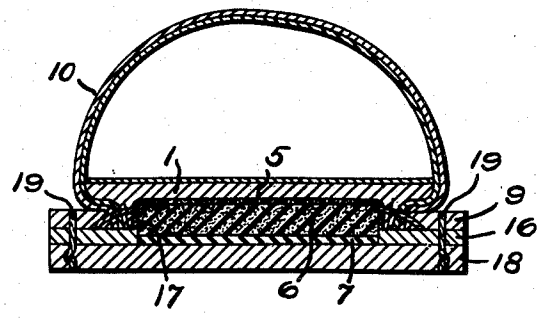


Fig. 12.



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2,523,702

SHOE WITH A FILLER

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Application December 15, 1949, Serial No. 133,124

1 Claim. (Cl. 36—28)

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This invention relates to footwear and more particularly to boots and shoes of the well known Goodyear welt process, and in a broader aspect, to any kind or type of adaptable footwear, and the claim is to be interpreted in that broad sense.

The term "shoe" occurring in the specification and in the claim is to be interpreted to include the term "boot."

The present invention has for its chief objective further to improve the shoe structure, and notably the "shoe forepart bottom filler," disclosed in applicant's Patent No. 2,439,172, granted April 6, 1948.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claim.

Sponge rubber or the like of a quality adequate to comfortably support and resiliently cushion the foot for a reasonable length of time during wear, is well recognized to be the best filler material known for a shoe forepart bottom filler, although that when extending all over the forepart bottom cavity, as with conventional fillers, the wearer's foot is thereby unduly drawn. But experiments by the applicant in making shoes of the Goodyear welt process embodying a forepart bottom filler of sponge rubber, such as shown in the aforesaid patent, disclosed that since the bottom cavity in men's shoes of the Goodyear welt process or the like was necessarily limited to a depth of only one-eighth of an inch or thereabouts, the bottom filler was thereby correspondingly limited to a thickness of only one-eighth of an inch or thereabouts, which thickness of the bottom filler is not sufficient for lasting effective results in the resiliency of sponge rubber during wear, as then the air cells are insufficient in number to withstand the pressure of the foot and they gradually break down and collapse after a relatively short time of wear.

Suffice it to say, that a shoe forepart bottom filler formed of sponge rubber or the like, such as shown in the ball area of the shoe shown in the aforesaid patent, and such as herein shown, to be practical must necessarily be of high quality and, at least, of the thickness of one-quarter of an inch or thereabouts, for satisfactory lasting effective results in resiliency during wear.

Moreover, even a shoe forepart bottom filler, notably when formed with a distinct filler portion in the ball area, as herein proposed, of any kind of cushioning filler material, to be effectively comfortable in satisfactorily cushioning the foot

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against impact during a reasonable length of time during wear, should be of the advantageous aforesaid thickness of a least one-quarter of an inch or thereabouts.

A further defective condition existing in the shoe shown in the aforesaid patent resides in the securement to the insole of the filler portion 5 disposed in the ball area of the shoe, by means of cementitious material only, which securement is far from being positively permanent against disarrangement of the said filler portion under the frictional action of the ball of the foot upon the insole during the time of wear forcing and moving from its anchorage the said distinct portion toe-wardly and thereby causing undue bulging of the inner sole back of the wearer's toes, leaving the metatarsal bones without adequate support.

My present invention aims towards the elimination of the foregoing stated defective conditions now existing in a shoe embodying a forepart bottom filler such as shown in the aforesaid patent.

As shown in the accompanying drawings:

Fig. 1 is a plan view of a conventional man's shoe inner sole intended for a shoe of the well known Goodyear welt process or the like;

Fig. 2 is a cross-sectional view of the said inner sole taken on line 2—2 of Fig. 1;

Fig. 3 shows a distinct filler portion in the ball area of the shoe forepart bottom filler;

Fig. 4 is a cross-sectional view of the said distinct filler portion taken on line 4—4 of Fig. 3;

Fig. 5 is a plan view of a shoe incorporated at that stage of manufacture shown in said Fig. 5, the inner sole in Figs. 1 and 2 and the distinct filler portion of the forepart bottom filler shown in Figs. 3 and 4;

Fig. 6 is a view similar to that shown in Fig. 5, but showing the provision of a forepart bottom filler in the form of the well known conventional ground cork-cement combination filler materials;

Fig. 7 is a view of a mid-sole with the provision of a hole therethrough adapted to receive the excess in thickness of the distinct filler portion shown in Fig. 6;

Fig. 8 is a view of an outer sole;

Fig. 9 is a view of the said mid-sole and of the said outer sole cemented together in unitary combination in readiness to be laid on the shoe;

Fig. 10 shows the unitary combination of the mid-sole and of the outer sole shown in Fig. 9, as laid on the shoe, with the excess portion of the distinct filler portion 6 and its supporting

element 7, located within the recess formed by the perforation of the mid-sole;

Fig. 11 shows an enlarged view of the improved shoe of the Goodyear welt process incorporating the invention; and

Fig. 12 is a cross-sectional view of the said improved shoe taken on line 12—12 of Fig. 11.

As further shown in the drawings:

The inner sole 1, is herein shown as formed of leather preferably of one-eighth of an inch in thickness, and is provided with the channel lips 2 and 3, leaving the between-substance 4, serving as the sewing rib, and which is reinforced by the cotton fabric 5, extending over its entire plane face enclosed by the sewing rib and upstanding along the channel lips 2, as best shown in Fig. 2.

As shown in Fig. 3, I have provided a distinct filler portion 6, preferably of circular form, and which is formed, preferably, of sponge rubber of high grade quality, of one-fourth of an inch in thickness or thereabouts, and which is one-eighth of an inch or thereabouts thicker than the conventional forepart bottom filler intended for a shoe of the Goodyear welt process, and which I have provided with a support 7, at its lower end, formed of any suitable material, such as of hard rubber or hard plastic material, preferably of one-sixteenth of an inch in thickness then forming, as a whole, the distinct filler portion, as shown at 6a, Fig. 4, and which support 7, is adapted to contact with the outer sole 18, and serve as a reinforcing support for the resilient filler material of the said distinct filler portion 6 during the time of wear.

The aforesaid support 7, is greatly beneficial in supporting and upholding on a substantially level plane the resilient portion of the forepart bottom filler 6, during the time of wear, while that portion of the outsole 18 which comes into direct contact therewith gradually wears out and weakens toward the "center of the forepart" which always is the first part of the outsole to be worn entirely through in any and all types of shoes.

As shown in Fig. 5, the shoe has reached the stage of manufacture where the welt 9, and the upper 10, have been secured to the sewing rib 4, of the insole 1, by the inseam stitches 8, formed by a welt shoe inseam sewing machine, and where the heel-seat of the shoe has been formed and permanently secured in formed condition by the tacks 14, and where a shank-stiffener 11, has been provided and secured to the insole by the tacks 13, in the open space 12, of the heel-seat, and the distinct filler portion 6, as shown at 6a, Fig. 4, and in Figs. 11 and 12, with the supporting element 7, bonded to its lower portion, has been disposed on the cementitious material already provided all over the inner plane face of the insole, as in conventional practice.

As shown in Fig. 6, the filler 15, formed, preferably, of grounded cork and cementitious material, has been provided at the toepart and in close proximity to the shankpart, making for readiness of the shoe to receive the midsole 11, and the outsole 18. In this connection it is to be noted that the filler 15, in being formed of grounded cork and cementitious material (a well known and extensively used filler) is far less resilient than the filler material forming the distinct filler portion 6, and advantageously so, in making for a firm grip upon the insole of the wearer's toes, and notably of the great toe, in propelling the body forward in the act

of walking, and in avoiding undue draw upon the extreme forepart of the foot, which is the part of the foot most confined and devoid of air during the time of wear.

In combination with the distinct filler portion 6, and the support 7, I have provided a forepart mid-sole 16, preferably formed of leather and preferably of one-eighth of an inch in thickness, through which a hole 17, has been provided in juxta-relation to the said distinct filler portion 6, which already has been disposed in the bottom cavity, for adaptation to receive the excess portion of the thickness of the distinct filler portion 6, which is one-eighth of an inch or thereabouts over the thickness of the conventional forepart bottom filler in the bottom cavity of the shoe, and I have provided the outer sole 18, to which the forepart mid-sole 16 has been secured, as in conventional practice, by cementitious material, as best shown in Fig. 9.

In this connection, it is to be noted, that without departing from the spirit of my invention, the unitary combination of the outsole and midsole, such as herein shown, is not absolutely necessary, as a single outsole of a thickness sufficient to properly be recessed, in juxta-relation to the distinct filler portion 6, to receive the excess thickness of the said distinct filler portion 6, may be adopted; and, in the event of any one doing so, I would consider my invention as being availed of in its most vital aspect.

As shown in Fig. 10, the unitary combination of the mid-sole and of the outer sole, shown in Fig. 9, has been laid on the shoe shown in Fig. 6, and thereafter the conventional shoe-making operations having been performed, the finished improved Goodyear welt shoe is, as shown in Fig. 11, and, as best shown in the cross-sectional view taken through 12—12 Fig. 11; showing that the outsole 18 has been preferably attached to the welt 9, by the lock-stitches 19, formed by an outsole stitching machine, permanently securing it to the bottom of the shoe, including the midsole, and the filler 6, and its support 7.

Thus, an improved shoe has been brought forth, which not only makes for long lasting comfort, in cushioning, by the provision of a "distinct filler portion," as herein proposed, that part of the foot which bears most of the weight of the body when either walking or standing, and/or in positively holding the said "distinct filler portion" from undue disarrangement during the entire time of wear, and which, moreover, makes for a very flexible bottom, and, it is a notable fact, that both cushioning and flexibility are required together in a shoe bottom for the best results in the performance of either of said two functions.

I claim as my invention:

A shoe having an insole provided with a sewing rib extending approximately from the breast line of the shoe around the toe portion, an outsole, a midsole positioned between the outsole andand the insole at the ball portion, said midsole having a recess therein, fillers located in the midsole recess and cavity formed by the sewing rib, said fillers being formed of a resilient and less resilient portion, the less resilient portion extending from the toe to the shank of the insole and comprising all of the filler except a portion of filler of greater resiliency located in the ball area, said filler of greater resiliency having a supporting element disposed upon the lower part thereof and being located by the recess

in said midsole and extending therein, said filler of greater resiliency being approximately in size to the depth of the combined less resilient filler and the recess in the midsole, and an outsole permanently secured to its bottom, including the midsole, and the filler and its supporting element.

EUCLID I. LA CHAPELLE.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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