

C. YOUNG.
SHOE.

APPLICATION FILED MAY 19, 1913. RENEWED NOV. 3, 1920.

1,380,879.

Patented June 7, 1921.

Fig. 1

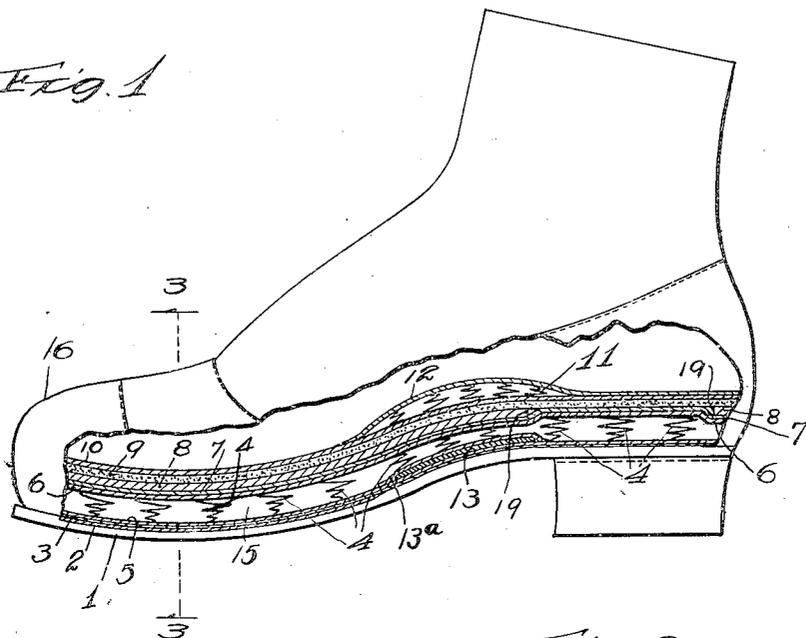


Fig. 2.

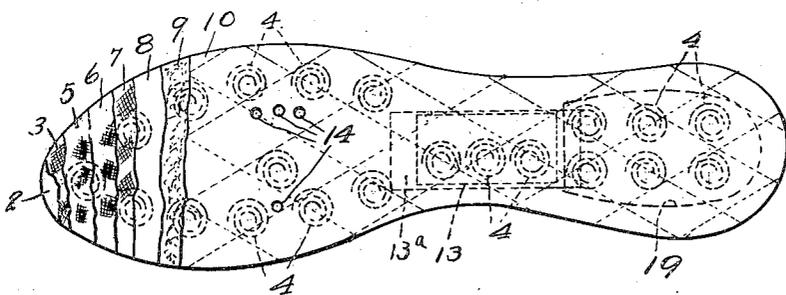


Fig. 3.

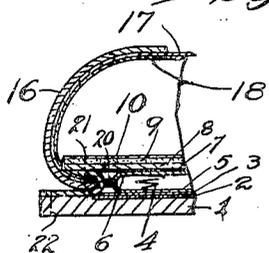


Fig. 4.

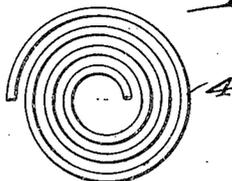
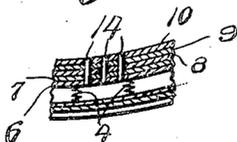


Fig. 5.



Witnesses:

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by

UNITED STATES PATENT OFFICE.

CARL YOUNG, OF CHICAGO, ILLINOIS.

SHOE.

1,380,879.

Specification of Letters Patent.

Patented June 7, 1921.

Application filed May 19, 1913, Serial No. 768,500. Renewed November 3, 1920. Serial No. 421,599.

To all whom it may concern:

Be it known that I, CARL YOUNG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Shoes, of which the following is a specification.

This invention relates to shoes and has for its object to provide a new and improved shoe of which the following is a description.

The invention is illustrated in the accompanying drawings wherein—

Figure 1 is a view of a shoe with parts broken away showing one form of the invention;

Fig. 2 is a view with parts broken away showing the inside of the bottom of the shoe;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is an enlarged view of one of the spiral springs.

Fig. 5 is a sectional view through one of the ventilating openings in the sole.

Like numerals refer to like parts throughout the several figures.

For purpose of illustration, I have shown my invention in connection with an ordinary shoe. This shoe may be provided with an exterior sole piece 1 of leather or any other suitable material. Within this sole piece, I prefer to provide a metal plate 2. Above the metal plate may be placed a piece of oil silk 3. I provide a series of spiral springs 4 located between two pieces of flexible waterproof material 5 and 6, such as waterproof canvas or other cloth. These springs are preferably made of spring wire and are coiled in a spiral form so that the several coils when the spring is collapsed may pass within each other so as to permit a proper collapse of the spring without interference, thus making the device when completely collapsed the thickness equal to the diameter of the wire. The two waterproof pieces 5 and 6 are preferably waterproofed with some adhesive material or adhesive material is used therein so that when assembling the parts, the springs will adhere to these pieces so as to keep the parts in proper relation.

I prefer to provide above the waterproofed piece 6 a piece of oil silk 7. The insole 8 is above this oil silk and a strip of felt 9 above the insole, and a piece 10 above the felt. The pieces 9 and 10 are

preferably quilted together. It is necessary that these springs be spiral springs and not coiled springs because coiled springs are impracticable.

I prefer to make the part or sole piece containing the springs separate from the shoe so that it can be sewed separately therefrom and placed in any shoe while it is being manufactured. For this purpose, I may use the pieces 5 and 6 of suitable material, preferably waterproof, and place the springs between them and then fasten them together by sewing or any other suitable means so as to keep the springs in proper relation to each other, making the device of different sizes for different size shoes so that said devices may be inserted in the shoe while being manufactured.

I also prefer to provide the shoe when desired with an arch supporting device consisting of the spiral springs 11 confined between the pieces 10 and 12 and attached to the bottom of the shoe so as to come under the arch and elastically support it. The spiral springs 4 may be placed under the toe and the heel or may extend entirely along the shoe as illustrated. By using the waterproof pieces in contact with the oil silk, I have found that the oil silk is preserved from cracking. The spiral springs may be located in proper position to elastically sustain the weight of the user of the shoe.

I prefer to place the large end of the spiral spring at the top and the small end at the bottom. The spiral springs may be held in place in any desired manner, but I have found that when the pieces 5 and 6 have adhesive qualities, the springs will be held in place and will become indented in the shoe when used so that they can not be displaced.

I also prefer to provide a steel spring piece 13 at the instep or arch supporting part of the shoe, said spring piece being located below the springs 4 as shown. A piece of leather or other suitable material 13^a is placed over the steel spring piece or shank 13. This leather deadens the noise that might be produced by the contact of metal upon metal. The leather piece 13^a overlaps the piece 13 at both ends and may be held in place by ordinary shoe tacks driven into said ends. This leather also holds the spring 13 in place.

I also prefer to provide ventilating means

for the shoes consisting of a series of openings 14 communicating with the space 15 in which the springs are contained so that when the springs are collapsed, air will be forced out through said openings.

The upper part 16 of the shoe may be made of any desired form and construction.

In walking the openings 14 are so positioned that the bones of the foot cover them and act as valves which close the openings when the weight is on the foot and thus cause the air in the space 15 to be forced out through the bottom of the shoe, the pressure of the foot when the openings 14 are closed causing this air to be forced out through the bottom seams. When the foot is lifted, the springs 4 expand and the valves, as it were, are lifted off of the openings 14 and the air comes in through the top of the shoe and through said openings into the space 15. This causes a ventilation of the shoe not noticeable to the wearer and drives out moisture which may be in the shoe. The plate 2 may be of metal or any other suitable substance. I may use the waterproof covering without the oil silk if desired. The waterproof material used may be any kind desired, mineral wax securing good results.

When the spring and inclosing parts are made at the place where the shoes are manufactured so that they can be placed in the shoe while it is being manufactured, sewing of the covering for the springs will not be necessary, as the entire intersole consisting of the springs and the waterproof covering can be placed in position in the sole of the shoe, the adhesiveness of the waterproof covering holding the springs in place during this operation.

In view of the fact that the shoe becomes quite narrow between the heel and the toe, that is at the shank, the spiral springs in this narrow portion may be placed with the small end at the top. The space 15 provides a compartment which has a tendency to equalize the temperature at all times and during all seasons. The upper part of the shoe may be lined to any extent with the waterproof material or the oil silk I have illustrated in Fig. 3. This waterproof material 17 is inserted next to the leather covering 16 and the oil silk 18 may be placed inside of it. This waterproof material and oil silk extends to the seam and forms, as it were, an adhesive lining both above and on the bottom of the shoe and is forced in around the stitching during the process of manufacture and has a tendency to waterproof the seam.

I prefer to cut away a portion of the insole 8 which is over the springs at the heel of the shoe as shown by the dotted line 19 so as to give the heel greater elasticity and an action similar to that of a rubber heel.

When this portion of the insole is removed, the springs press the waterproof material 6 and the oil silk 7 up into the space caused by the removal of this piece of insole as shown in Fig. 1.

As shown in Fig. 3 the parts 5 and 6 are connected together by the seam 20 and the upper, insole, and welt are connected by the seam 21 and the welt is connected with the outsole by the seam 22.

I claim:

1. A shoe comprising a sole made up of separated sections having a space between them extending substantially the entire length of the shoe, and a separate elastic sole piece comprising a series of spiral springs in the bottom of the shoe, and flexible inclosing pieces between which said springs are held, said separate sole piece fitting in said space and extending substantially the length thereof.

2. A shoe comprising a sole made up of separated sections having a space between them extending substantially the entire length of the shoe and a separate elastic sole piece comprising a series of spiral springs in the bottom of the shoe, and flexible inclosing pieces between which said springs are held, said flexible inclosing pieces being waterproofed, said separate sole piece contained in the space between said sole sections.

3. A shoe comprising a sole made up of sections having a space between them, and a separate elastic sole piece comprising a series of spiral springs and flexible inclosing pieces between which said springs are held, said separate sole piece fitting in said space, said flexible inclosing pieces being provided with adhesive material which tends to cause the springs to adhere thereto and to be kept in place while the separate sole piece is separate from the shoe.

4. A shoe comprising a sole made up of sections with an air space between them, a series of separate spiral springs in said space arranged so that the various coils fit in with each other when the springs are collapsed, a waterproof covering for said spiral springs, and means for causing said springs to adhere to said waterproof covering.

5. A shoe comprising a sole made up of sections having a space between them, a series of spiral springs located in said space, and a second series of spiral springs located above the first series of springs near the instep of the shoe and extending only partway along the shoe.

6. A shoe comprising a sole made up of sections having a space between them, a separate elastic sole piece comprising a series of spiral springs and flexible inclosing pieces between which said springs are held, said separate sole piece fitting in said space, said flexible inclosing pieces being provided with

adhesive material which tends to cause the springs to adhere thereto, and to be kept in place while the separate sole piece is separate from the shoe, and a second series of 5 spiral springs located above the first mentioned springs near the instep of the shoe.

7. A shoe comprising a sole having two sections with an air space between them, spiral springs located in said air space, flexible waterproofed pieces on each side of said 10 spiral springs, and a piece of oiled silk engaging the outer face of each of said waterproof pieces.

8. A shoe comprising a sole made up of 15 sections having a space between them, and a series of spiral springs in said space, said sole having ventilating openings at the point where the ball of the foot is received when the shoe is in use and connecting said space 20 with the interior of the shoe, said openings arranged so that the bones of the foot act as valves therefor to open and close said openings during the process of walking so that 25 air from the inside of the shoe passes through said openings and is forced out through the seams at the bottom of the shoe.

9. A shoe comprising a series of spiral

springs, two pieces of flexible waterproof material having a space between them into which space said springs are received, and 30 a piece of oiled silk on the upper side of the upper waterproofed piece, the pieces of waterproof material above and below said springs being sewed together so as to form a complete unitary structure. 35

10. A shoe comprising a series of spiral springs, two pieces of flexible waterproof material having a space between them into which space said springs are received, and 40 a piece of oiled silk on the upper side of the upper waterproofed piece, the pieces of waterproof material above and below said springs being sewed together so as to form a complete unitary structure, the parts above 45 the spring being provided with a series of ventilating openings communicating with said space and with the interior of the shoe.

In testimony whereof, I affix my signature in the presence of two witnesses this 17th day of May, 1913.

CARL YOUNG.

Witnesses:

MINNIE SUNDFAR,
DENIE A. WALTERS.