Nov. 10, 1925. 1,560,583

W. J. KENT

RUBBER HEEL

Filed July 27, 1923

Fig. 1.

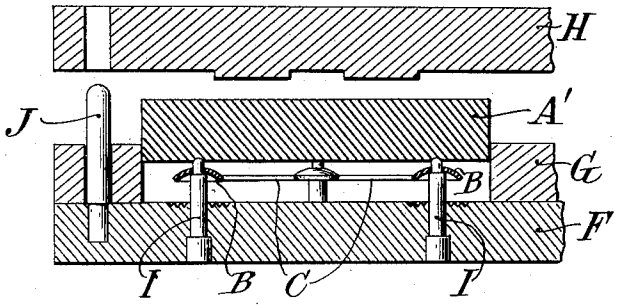


Fig. 2.

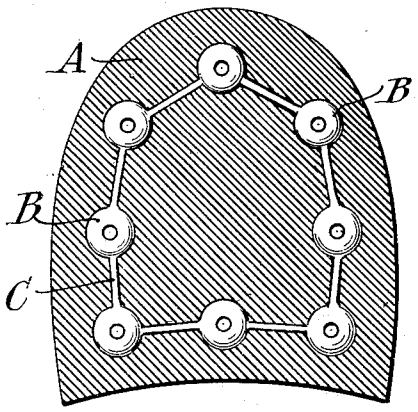


Fig. 3.

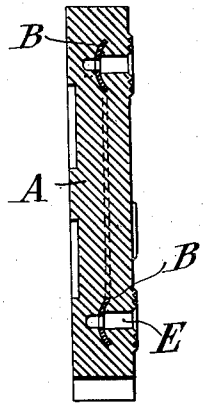


Fig. 4.

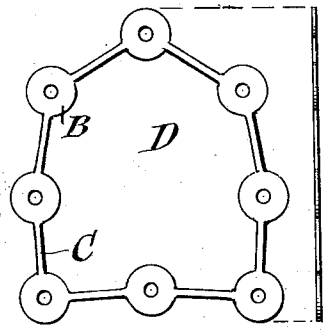


Fig. 5.

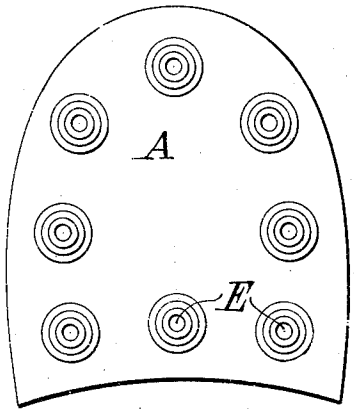


Fig. 7.

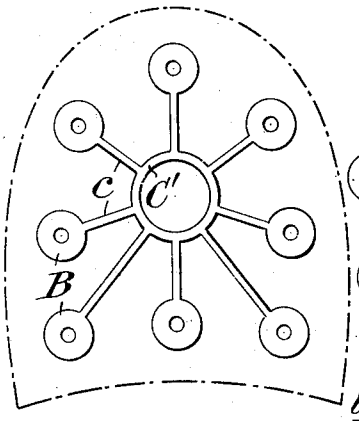
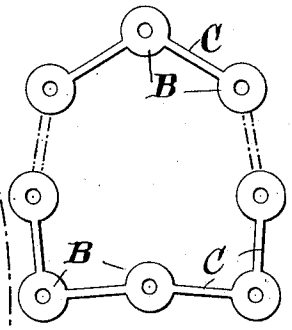


Fig. 6.



INVENTOR

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UNITED STATES PATENT OFFICE.

WILLIAM J. KENT, OF BROOKLYN, NEW YORK.

RUBBER HEEL.

Application filed July 27, 1923. Serial No. 654,175.

To all whom it may concern:

Be it known that I, WILLIAM J. KENT, a citizen of the United States of America, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Rubber Heels, of which the following is a specification.

This invention relates to heels of plastic composition, such as rubber heels for boots or shoes. Such heels usually have on their outer or tread portion recesses or depressions through which to insert nails for nailing the heel to the shoe, and they commonly have metal washers embedded about midway the thickness of the heel at the bottoms of these depressions to receive the heads of the nails which fasten them to the shoe and distribute the pressure thereof to the adjoining portions of the composition. In the molding of the heels these washers have to be separately placed within the mold on gauging pins, which is a very slow and troublesome operation. According to the present invention the washers are connected together by integral intervening tie portions so as to form a single punching, so that the entire series of washers (usually about eight in number) may be handled as one, thus saving much time and facilitating and cheapening the manufacture; while the connecting tie portions are made so pliable that in the finished heel they have no function and do not impair the normal pliability or resilience of the rubber cushion.

In the accompanying drawings,—

Figure 1 is a vertical section of the mold, showing the washers in place and the block or blank of rubber laid over them and partly within the mold cavity, and the top section or follower above the blank.

Fig. 2 is a mid-section of the heel.

Fig. 3 is a longitudinal mid-section thereof.

Fig. 4 shows in face and edge views the connected washers.

Fig. 5 is a plan or bottom view of the heel, and

Figs. 6 and 7 show modifications of the connected washers.

The heel A is of any suitable rubber composition or other plastic material, and has metal washers B B embedded within it about midway of its thickness in quite the usual way, except that these washers (which may be flat or cupped, as desired) are connected together by intervening tie portions C, so that they form an integral punching D, shown in Fig. 4. The heel has the usual recesses or depressions E E coinciding with the holes in the washers through which to drive nails for nailing on the heel.

In the manufacture of such heels a mold is used, a fragment of which is shown in section in Fig. 1, where F is the bottom plate, G is a detachable cavity plate, and H is the top plate or follower. Usually 36 (or other convenient number) of heel cavities are formed in the plate G (only one being shown), and the plate F is formed with as many pins I I projecting into each cavity, as the required number of washers. These pins are made with a larger portion to form the cavity E, and a reduced portion to enter through the holes in the washers to hold them in place. When the washers are in place the heel blanks, one of which is shown at A′, are placed partly in the cavities resting on the pins, as shown. When all of the blanks are thus placed, the follower H is laid on. The bottom plate F has suitable dowel pins J entering holes in the other plates for properly registering the plates. The multiple mold is then placed in a suitable vulcanizing press on a steam-heated table, whereby the rubber composition is rendered plastic, and the press platen gradually forces down the follower H, so that the mass of rubber flows into the mold cavity and around the pins and washers. The mold is continued under heat and pressure until the vulcanization of the rubber composition is completed. The mold is then removed from the press, the follower H taken off, the cavity plate G lifted off from the bottom plate F, and the completed heels pushed out of the cavities, whereupon the plate G is replaced and the same operation is repeated. While one composite mold is undergoig the heat, another duplicate mold is being emptied, resupplied with washers, and re-charged with the heel blanks.

In the ordinary method where the washers are separate disks, the operation of placing these in position on the pins is slow and requires considerable care. It often happens that one or more washers are dropped, and because the pins and mold are hot it is difficult to pick up such washers and properly place them, even when a magnet is used for this purpose. In order to re-charge one mold while the other is undergoing the heat,

it is necessary for the pressman to have one or two assistants to aid him in this work, as otherwise it would take nearly twice as long to prepare the mold as the time required during the heat, so that two molds would be outside the press while one mold was undergoing curing in the press.

By the present invention the washers are all connected together as one integral stamping, so that all of the washers can be put in position in the time required to put a single individual washer in position. It results from this that the pressman, alone and unaided, can do all the work of preparing one mold while another mold is undergoing the heat in the press. This enables two molds to serve for one press, instead of requiring either three molds or additional labor as heretofore. In fact, it would be possible with this invention for one pressman to operate two presses, preparing the molds for both during the period required for the heat. Thus, my invention has the advantages of reducing the capital expenditure for molds one third, and saving all the cost of additional labor for assisting the pressman, whereby very important economies are effected.

While the washers may be flat, as shown in the edge view in Fig. 4, yet it is preferable that the washers be cupped, as shown in Figs. 1 and 3. The cupped washers are placed in the mold in the manner shown in Fig. 1, with their concave portions downward, so that their upper sides receive the pressure of the unvulcanized block as the latter is forced down, and greatly diminish the resistance to the flow of the rubber. This is desirable as it reduces the strain upon the steel pins I, I, which hold the washers in place.

The intervening tie portions C, C, require to be made of such thinness, or so narrow and slender, that their sole function is to hold the washers in their proper relative positions before and while being placed on the pins in the mold, after which they have no perceptible function in the finished heel; it would defeat the purpose of my invention if they were to interfere in any way with the pliability or resiliency of the finished heel. By making these tie portions suitably slender, the finished heel is as resilient as if made with individual or disconnected washers.

While it is preferable to connect all of the washers together in a single stamping, as shown in Fig. 4, yet it is within the invention to subdivide this stamping into two sections in any suitable manner, as shown in Fig. 6, for example. This, however, doubles the time required to place the washers on the pins, and is consequently less desirable.

The invention is not limited to the precise arrangement of connecting ties shown in Figs. 4 and 6. As an illustration of a modified form, the arrangement shown in Fig. 7 is given, where the washers B B are arranged as before, and the tie portions consist of a ring C′ connected by radiating ties *c c* to the washers.

It will be understood that while the preferred means of practicing the invention has been illustrated, yet, nevertheless, other ways and constructions may be followed, as dictated by taste or preference, and within the scope of the appended claim.

I claim as my invention:

A rubber heel comprising a block of resilient rubber having nail holes, and washers embedded within it coincident with such holes and at a sufficient distance from the opposite faces of the block to afford a substantial intervening cushion, and relatively slender tie-portions connecting said washers, the washers and tie-portions being a single punching from a sheet of metal of uniform thickness, and the tie-portions being strong enough to connect the washers and hold them in spaced relation until placed in the mould, while so pliable as not to materially affect the pliability or cushioning action of the rubber heel.

In witness whereof, I have hereunto signed my name.

WILLIAM J. KENT.