April 14, 1931. R. DAVIS ET AL 1,800,720

SHOE MANUFACTURE

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Fig. 1.

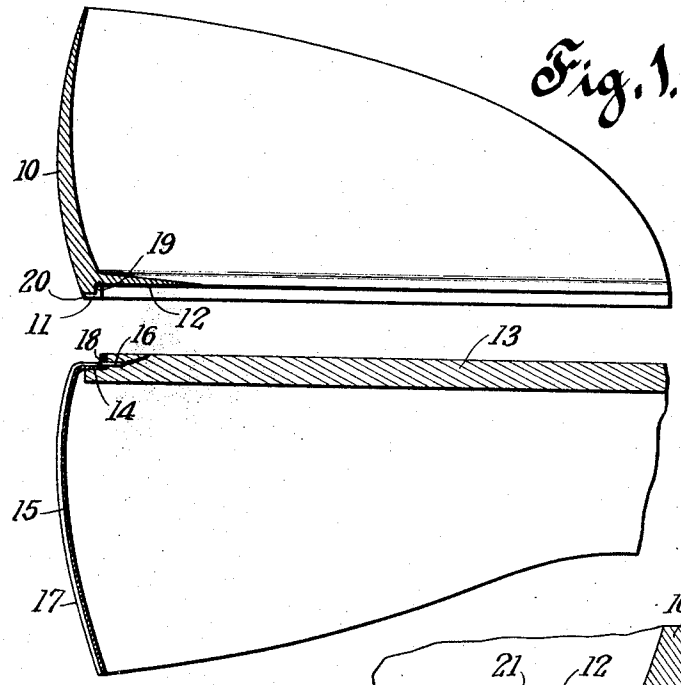
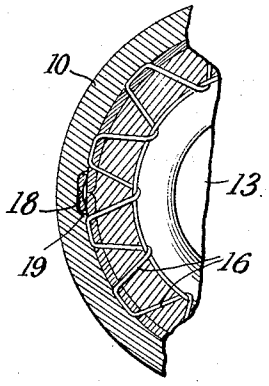


Fig. 5.



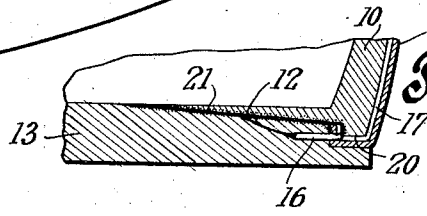


Fig. 4.

Fig. 2.

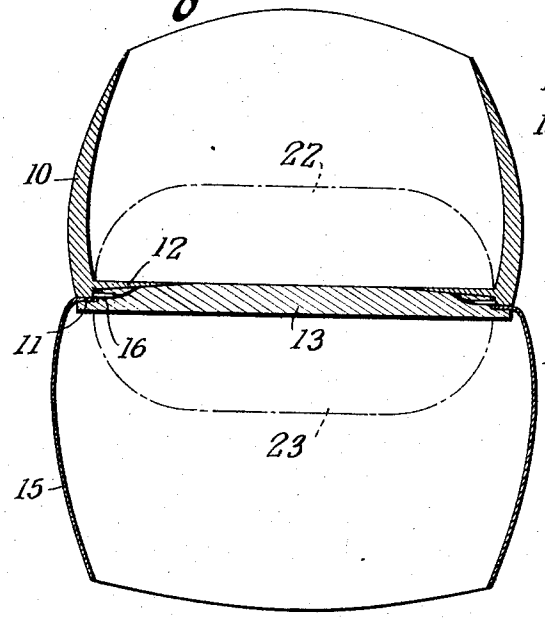
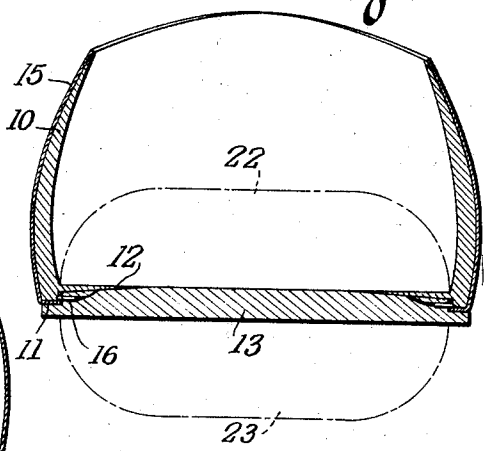


Fig. 3.



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Fig. 6.

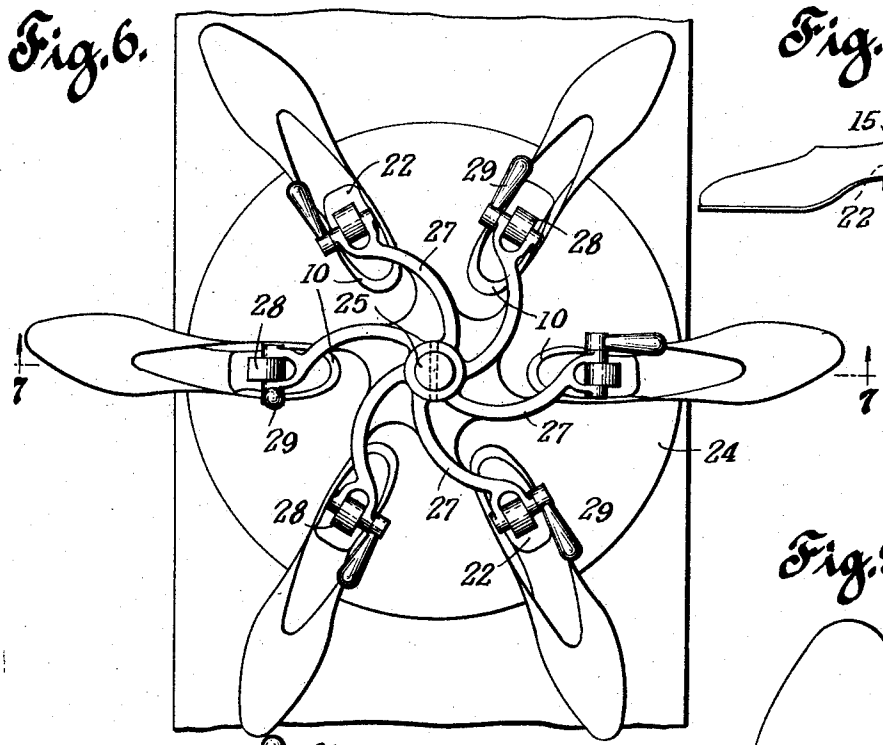


Fig. 8.

Fig. 9.

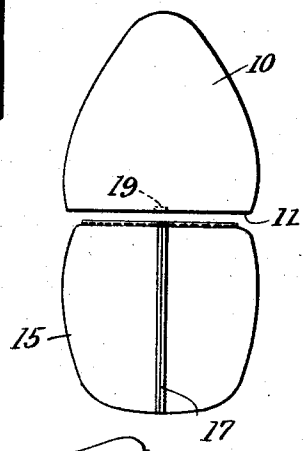
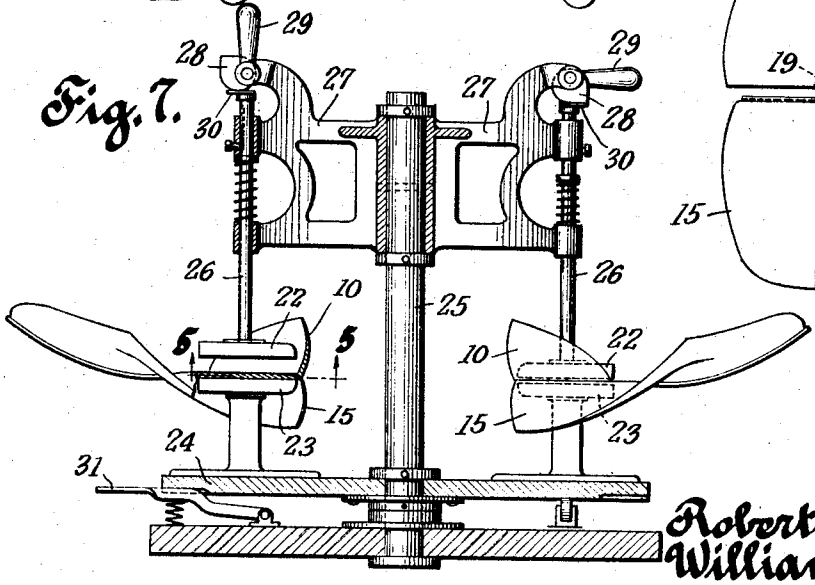


Fig. 7.



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UNITED STATES PATENT OFFICE

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SHOE MANUFACTURE

Application filed March 29, 1929. Serial No. 350,933.

Special objects of the present invention are to improve the counter construction of shoes, to facilitate the locating and the placing of the counter in proper position on the sole, to enable the secure fastening of the counter in place without resorting to nails, tacks or the like, to fasten the counter in solid, close fitting engagement with the sole and upper, and free of ridges or the like over the top of the sole and to enable the turning of the upper as a part of or continuation of the same counter securing operation.

These and other important objects are attained in this invention by the novel features of construction, combinations and relations of parts hereinafter described and claimed.

The drawings accompanying and forming part of the specification illustrate a practical embodiment of the invention and a commercial form of apparatus for carrying out the method of the invention, but it should be understood that modifications may be made, as regards these disclosures all within the true spirit and scope of the invention.

Fig. 1 is a broken sectional view illustrating the new counter and its method of application to the sole; Fig. 2 is a cross-sectional view of the counter in the act of being secured to the sole, with the upper in the reversed relation; Fig. 3 is a similar view showing the upper "turned" to final shape; Fig 4 is a broken sectional view of the parts at the rear heel portion; Fig. 5 is a broken horizontal sectional view as on substantially the plane of line 5—5 Fig. 7, showing the guide notch in the back of the counter as engaged over the back seam portion of the upper; Fig. 6 is a broken plan view of a form of machine for clamping the upper to the sole and for holding the parts in this relation while the securing medium is setting; Fig. 7 is a vertical sectional view of this machine as on substantially the plane of line 7—7, Fig. 6, showing at the left one of the clamps open to receive the sole and counter and at the right one of the clamps closed to hold these parts while the securing medium is hardening; Fig. 8 is a broken detail view showing how the upper is turned while the parts are held in the clamp; Fig. 9 is a rear view showing how the counter is placed over the sole and attached upper.

The counter as possibly best shown in Figs. 1, 2 and 3 consists in the present disclosure of an upright tapering wall 10 having a sharply angled substantially square cornered thick base 11 and above that an inwardly tapering integral attachment flange 12. This counter may be formed as disclosed in Fig. 8 of co-pending application, Ser. No. 324,673 Patent 1,714,001, of May 21, 1929, from solid leather stock by shouldering and splitting the lower thicker edge of the stock and then bending in the flange to leave the base as a heavy square cornered rib about the rim of the counter projecting below the flange, the latter being rooted directly in the thick heavy body of the counter.

To cooperate with this counter, the sole 13 is shown as rabbeted at 14 about the edge of the same to provide a substantially angular seat for the angular base of the counter. The upper 15 is indicated as secured in the rabbet of the sole by channel stitching 16. This upper may be constructed as usual with a back seam at 17, Fig. 9 and advantage is taken of this fact to aid in the proper location of the counter on the sole. The extra thickness of this seam forms, in effect, a lug 18 in the angle of the rabbet, on the center line of the sole. To fit this lug, there is formed a notch or recess 19 in the inner face of the base rib of the counter, Figs. 1 and 5. Consequently, the counter may be automatically positioned and "interlocked" on the sole by simply placing it down over the rabbet of the sole and, if necessary, shifting it slightly one way or the other until the notched portion engages over the seam lug. If desired, the foot of the rib 11 of the counter may be similarly notched as indicated at 20 in Fig. 1 to fit over that portion of the seam which extends over the "feather" of the sole.

When positioned as described, the squared base of the counter fits snugly and closely

in the angle of the rabbet and the flange 12 extends over the upper face of the sole, covering the channel stitching as in Fig. 4.

A special feature of the invention consists in securing the parts together in this solidly interfitting and interlocked relation with a securing cement, under pressure, so as to unify and effect a continuously connected integral relation.

In the present practice of the invention, a celluloid cement is employed, which under heavy pressure permeates the leather and forms a permanent bond in about three minutes' time. Fig. 4 shows, possibly somewhat exaggerated, how this cement at 21 applied to the underside of the flange and the inside of the base rib of the channel forms a continuous bond fastening the counter securely and over extensive meeting surfaces to both the sole and the upper. This bonding material also enters between the stitched edge of the upper and the sole as shown in Fig. 4, so that all parts become positively connected.

A suitable clamp or press may be employed for effecting the permanent connection of the parts, the means for this purpose being shown in Figs. 6, 7 and 8 as comprising upper and lower press members 22, 23, over a table 24 mounted for rotation by a post 25. In the illustration, the lower clamp elements 23 are in the nature of fixed anvils shaped to the general outline of the counter portion of the sole and the upper members 22, shaped to the inside outline of the counter, are carried by spring lifted plungers 26 guided in the head portion 27 of the table and adapted to be forced downward by cams 28 controlled by handles 29, said cams bearing on the upper ends of the plungers at 30. These cams are shown shaped and located so as to hold the clamps closed when turned down to the position indicated at the right in Fig. 7. In the machine shown there are six clamps on the rotating table. This number allows a sufficient time interval for the cement and the secured portions to become permanently welded together. A spring pressed trip lever is indicated at 31 for holding the table lined up, each time with a clamp in front of the operator. In the illustration, the operator's station may be supposed to be in front of the open clamp at the left in Fig. 7. With the clamp open as shown, the sole, with the upper reversed is hooked over the anvil piece and while held in this relation, the counter is slipped into position over the sole and "centered" on the same by the engagement of the notch over the seam lug. The adhesive cement or bonding medium having been previously applied within the angle of the counter beneath the securing flange, or about the rabbeted edge portions of the sole, the parts will adhere momentarily while the clamp is being closed, or a foot treadle or power means may be provided for closing the clamp while the parts are thus held in assembled relation. The upper clamp member is shaped to the desired final outline of the counter, so that when pressure is applied as in Figs. 2 and 3, it presses the flange of the counter firmly down over the sole and the foot of the counter firmly into the rabbet of the sole, this pressure being sufficient to close up any spaces and bring the contacting portions of the counter, sole and upper into a substantially solid mass as shown in Fig. 4. The clamps preferably are allowed to remain closed over the full revolution of the table, or a sufficient period to enable the cement and the penetrated portions of the parts to dry and harden in this practically solid mass. Under this heavy pressure, the tapered securing flange may be flattened down into the body of the sole substantially as indicated in Fig. 4. This leaves a substantially flat surface inside the shoe over which the shank stiffener or insole will lie flat and free of any bumps or ridges.

Before removal from the clamps, the partially completed shoes may be "turned" from the reversed relation shown at the right in Fig. 7 to the condition shown in Fig. 8 where the upper has been pulled up over the top member of the clamp. The turning of the shoes while so held in the clamps is of special advantage as the shoes are so firmly and positively held at the time. Also under these conditions, all strains are borne by the clamps which are then still holding the freshly secured parts together. Thus, even though the shoe be "turned" before the adhesive has finally set, no harm can result because at such time the parts will still be positively held together by the clamp.

The interlocking of the counter in practically solid relation with the rabbeted sole and the fastening of the parts in this relation, under pressure, with a permanent cement, makes the counter practically an integral part of the sole, eliminating the need for tacks, or other fastenings heretofore used. This is a great advantage, saving time and labor and avoiding any lumps or irregularities such as are usually left where tacks or similar fastenings are employed for securing the counter. By using the penetrating cement, interlocking the parts in solidly fitting relation and forcing the parts of the counter into the sole and holding them until the cement has set a continuous permanent bond is effected between the meeting surfaces and the parts are in effect "fused" together in a solid integral mass. This continuous "fusion" or "welding" of the counter to the sole in addition to avoiding the need for nailing the counter in place, provides a stronger, better fitting and better

appearing shoe, which will not "bulge" or gape about the counter.

The bonding material while fluid, penetrates the structure, entering the pores of the counter and sole and congealing while the parts are held under pressure in this relation forms a bond extending into the bonding portions of both counter and sole. Thus the parts are permanently secured together with a strength practically equal to or as great as the strength of the separate parts. The counter thus strengthens and reinforces the sole and similarly the sole gives its strength to the counter.

This unification of the counter and sole is of benefit also in the subsequent heeling operation when the "feather" of the rabbeted sole is trimmed away to receive the heel as the parts are so firmly braced and connected that the trimming can be quickly and easily effected and without any loosening of the pressed fit connection between the parts.

What is claimed is:

1. The method of manufacturing shoes, which comprises providing a sole and counter with cooperating shoulders interlocking in the relative lateral movement of counter and sole and with a positioning lug on one and a notch in the other to thereby locate one definitely with respect to the other, engaging said counter and sole with said cooperating shoulders interlocked and with the notch in one part fitting over the lug in the other part and pressing said counter and sole together, while interlocked in this relation with an intervening body of permanent bonding cement between the thus interlocked portions of counter and sole.

2. A shoe counter having an inwardly extending attaching flange and a dependent base rib extending below said flange, said base rib having a positioning notch on the inside face of the same.

3. A shoe counter having an inwardly extending attaching flange, a dependent base rib extending below said flange, said base rib having a positioning notch on the inside face of the same and a shoe sole having a lug in the edge of the same to fit the positioning notch of the counter.

4. A shoe counter having an inwardly extending attaching flange, a dependent base rib extending below said flange, said base rib having a positioning notch on the inside face of the same, and a shoe sole having a lug in the edge of the same to fit the positioning notch of the counter, said lug comprising the seam portion of an upper secured to the sole.

5. In shoe construction, a rabbeted sole, an upper secured in the rabbeted portion of the sole and having a seam at the back, a counter engaged in the rabbeted portion of the sole over said upper, said counter having a notch therein positioned to receive the seam portion of the upper.

6. In shoe construction, a rabbeted sole, an upper secured in the rabbeted portion of the sole and having a seam at the back, a counter engaged in the rabbeted portion of the sole over said upper, said counter having a notch therein positioned to receive the seam portion of the upper and a flange extending from said notched portion over the upper surface of the sole.

7. In shoe construction, a rabbeted sole, an upper secured in the rabbeted portion of the sole and having a seam at the back, a counter engaged in the rabbeted portion of the sole over said upper, said counter having a notch therein positioned to receive the seam portion of the upper, a flange extending from said notch portion over the upper surface of the sole and a permanent bonding cement pressed into the meeting surfaces of said flange and sole.

8. In combination with a shoe sole having a positioning lug on the edge of the same, a counter having a base rib fitting closely about the corner edge of the sole and notched to receive said positioning lug, said counter having a securing flange above said notched portion of the rib and extending inwardly over the adjacent upper surface of the sole.

9. In combination with a shoe sole having a positioning lug on the edge of the same, a counter having a base rib fitting closely about the corner edge of the sole and notched to receive said positioning lug, said counter having a securing flange above said notched portion of the rib and extending inwardly over the adjacent upper surface of the sole, said counter being secured to the sole by an intervening layer of permanent bonding cement positively pressed into the meeting faces of the flange and sole.

10. The method of manufacturing "turned" shoes, which comprises assembling a counter and sole with attached upper, with an intervening permanent bonding cement between meeting portions of the counter and sole, holding the parts together under pressure until said cement has set, and while the parts are thus held for the setting of the cement, turning the upper up over the held counter.

11. The method of manufacturing shoes, which comprises providing a counter with a notch to receive the back seam of an upper, engaging the counter with a sole having an attached upper and in position to fit the notch over the back seam of the upper and then permanently uniting the counter thus interlocked in positioned relation on the sole.

12. The method of manufacturing shoes, which comprises providing a sole with a positioning lug at the rear portion of the edge thereof, providing a counter with a

notch to receive said lug, engaging the counter over the sole in position with the notch fitting over the lug and securing the counter to the sole while interlocked in this relation by the notch and lug.

13. The method of manufacturing shoes, which comprises providing a sole with a positioning lug in the edge portion of the same, providing a counter with a notch to fit said lug, engaging the counter with the sole in position with said lug, fitting the notch, and pressing the counter and sole together while interlocked in this relation with an intervening body of permanent bonding cement between the interlocking portions of the counter and sole.

In testimony whereof we affix our signatures.

ROBERT DAVIS.
WILLIAM HEIM.