

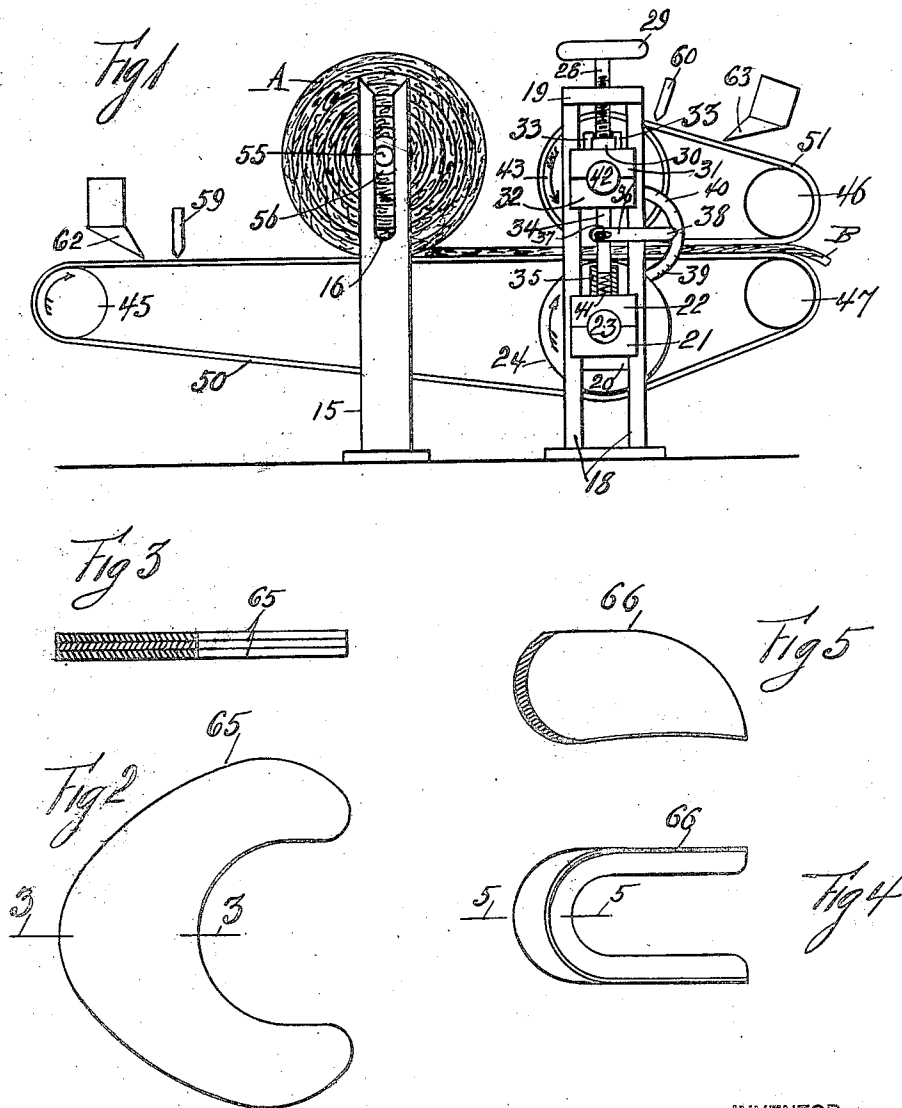
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PROCESS OF MAKING SHOE COUNTERS

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PROCESS OF MAKING SHOE COUNTERS.

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To all whom it may concern:

Be it known that I, ROLAND B. RESPESS, a citizen of the United States, and resident of the borough of Manhattan, city of New York, in the county of New York, and State of New York, have invented certain new and useful Improvements in a Process of Making Shoe Counters, of which the following is a specification.

This invention relates to a shoe counter and the process of making the same. The object of the invention is the production of a shoe counter and various other articles of manufacture composed of fiber sheets that are pressed by means of dies to the required shapes.

The organization of the invention comprise one or a plurality of untwisted fiber sheets coated and saturated with a rubber compound and subjected to pressure to take predetermined forms and vulcanized under pressure to retain their forms.

In the accompanying drawings Fig. 1 represents a side elevation of apparatus for treating untwisted fiber sheets used for making the shoe counter or other object to be produced; Fig. 2 shows a top plan view of a plurality of sheets of untwisted fibers shaped to form a shoe counter; Fig. 3 is a section of Fig. 2 on the line 3, 3; Fig. 4 shows a top plan view of the sheets shown in Fig. 3 formed to constitute a shoe counter and Fig. 5 represents a section of Fig. 4 on the line 5, 5.

Referring to Fig. 1, the apparatus indicated comprises a pair of guide columns like 15, with elongated openings 16. Two pair of guide columns like 18, have connected thereto the top cross plate 19 and the bottom stop plate 20. The members 21 and 22 of a bottom pillow block engage the guide columns 18, with the member 21 bearing on the stop plate 20. A bottom shaft 23 is journaled in the said bottom pillow block, and has fastened thereto the bottom pressure roller 24. A screw 28 is in threaded engagement with the plate 19, and has fastened thereto the operating wheel 29. A disc flange 30 is fastened to the lower end of the screw 28. An upper pillow block is indicated with the upper member 31 and the lower member 32. The upper member 31 of the top pillow block has secured to its top face a pair of cleats 33, by means of which the disc flange 30 is rotatively se-

cured to said member 31. The lower member 32 of the pillow block has extending therefrom the plunger 34, which is guided in the tubular guide 35 extending from the member 22 of the bottom pillow block. A lever 36 is pinned to one of the columns 18 and one end thereof is pinned to the plunger 34, by means of the pin 37. At the other end of the lever 36 is formed the pointer 38. The annular shaped bracket 39 extends from one of the columns 18, and has formed thereon a scale 40 for the pointer 38. A spring 41 bears between the bottom of the plunger 34 and the top face of the member 22 of the bottom pillow block. A top shaft 42 is journaled in the upper pillow block, and has fastened thereto the top pressure roller 43.

Idler rollers are indicated at 45, 46 and 47, the two latter being vertically one over the other.

A conveyer saturating supporting belt 50 extends around the idler rollers 45 and 47 and bears against the top and bottom portions of the bottom pressure roller 24.

A saturating belt 51 extends around the top pressure roller 43 and the idler roller 46. An axle 55 is guided in the elongated opening 16, and carries a hollow core 56. Knives are indicated at 59 and 60 and nozzles are shown at 62 and 63.

A bat or sheet of untwisted matted fibers A such as cotton, cotton linters, juts, etc. or a mixture thereof, is prepared with suitable pickers, mixers, carding or garnetting machines, in suitable lengths, widths and thickness. The sheet is rolled on the core 56, and from the latter is located upon the belt 50, between the pressure rollers 24 and 43. When the said rollers turn the belt 50 moves forwardly between them and unwinds the sheet A from its roll on the core 56, and said sheet is discharged by the rolls 46 and 47, as a treated untwisted fiber sheet designated in its entirety by the letter B.

A liquid adhesive binding agent such as rubber cement, is deposited on the belt 50, by means of the nozzle 62, in front of the knife 59, and also on the belt 51, in front of the knife 60, by means of the nozzle 63. As the belts move the knives 59 and 61 spread the adhesive in a thin coating thereon. The liquid adhesive on the belt 50 coats the bottom of the sheet A and the adhesive on the belt 51 coats the top face of said

sheet. When the sheet A passes between the rollers 24 and 43, the liquid adhesive is pressed into the sheet A, and flows in and about the fibers thereof from both faces of the sheet, and thereby the said sheet is completely saturated with the adhesive. This step may be modified by depositing the adhesive on only one of the belts.

After the fiber sheet has been saturated with the adhesive binding agent, it passes from the belts to another belt not shown. The latter belt conveys the prepared sheet B to a drying chamber where the solvent in the adhesive is evaporated. The sheet A is next rolled on a core, after which it is placed on a doubling machine, facing machine or calender, where the dried fiber sheet is unwound under tension to stretch it, make it porous and pressed to free it from wrinkles.

In the apparatus shown in Fig. 1 the pressure roller 43 can be vertically adjusted, by means of the screw 28, to control the pressure between it and the roller 24. This pressure is indicated by the pointer 38 and the scale 40. Pressure gauges are provided for the rollers of the doubler, calender or the facing machine with which the saturated and dried fiber sheet is pressed. The liquid binding agent may be regulated as required, and the amounts of solid and solvent in such liquid can be accurately determined by a proper recording instrument. The knives 59 and 60 serve to regulate the quantity of the liquid binding agent delivered to the belts, and pressed into the fiber sheet. By regulating the solution of the binding agent in predetermined proportions of solid and solvent and the pressure between the rollers 24 and 43, the amount of liquid pressed into the sheet A may be controlled.

Gum rubber may be pressed into the fiber sheet and remains therein after the solvent is evaporated. It is intended that the adhesive solid, is to be of a character that will remain adhesive after the solvent is evaporated, so that the saturated and dried sheet is subjected to pressure, the adhesive solid coating deposited on the individual fibers of the sheet will hold said fibers in position as pressed. Thus the density and porosity of the fiber sheet may be regulated, which is very essential for the uses of the sheet hereinafter described.

After the fiber sheet has been prepared as described it is coated with a film of sheet rubber or other suitable binding agent and cut or died out into properly shaped pieces 65 as indicated in Fig. 2. One or a plurality of the pieces are then placed in a forming die and subjected to pressure to form a shoe

counter 66 as indicated in Figs. 4 and 5. The counter is treated to retain its form by vulcanizing when rubber is used as the adhesive binding agent.

In the description of the invention, rubber has been used illustrative of a suitable binding agent. When rubber is named, it is also intended to include rubber compounds and various vulcanizing agents. Rubber is used only where it is best suited for the product to be made. Other adhesive agents such as glue and glycerine, may be used for some purposes, which may be treated with bichromate of potash to make them soluble in water.

Various modifications may be made in the invention without departing from the spirit thereof and the present exemplification is to be taken as illustrative and not limitative thereof.

Having described my invention what I desire to secure by Letters Patent and claim is:

1. That process of making shoe counters which comprises forming a bat of unspun fibres, saturating the bat with a binding agent, drying the bat, subjecting the dried bat to tension to make it porous, coating the dried and stretched bat with a binding agent, cutting a suitable shape from the bat, pressing said shape to form a shoe counter, and treating the counter to cause it to retain its shape.

2. That process of making shoe counters which comprises forming a bat of unspun fibres, saturating the bat with a rubber solution, drying the bat, subjecting the dried bat to tension, coating the surface of the dried bat with rubber, cutting a suitable shape from the coated bat, subjecting said shape to pressure in a mould to form a counter, and vulcanizing the counter to make it retain its shape.

3. That process of making shoe counters which comprises preparing a bat of unspun fibre, impregnating the bat with rubber, coating both sides of the bat with rubber, cutting a plurality of like shapes from the coated bat, superposing a selected number of said shapes to register with one another, subjecting the pile of superposed shapes to pressure to form a shoe counter, and vulcanizing the counter to bind the parts securely together and to cause the counter to maintain its shape.

Signed at Cranston, in the county of Providence and State of Rhode Island this 26th day of April, A. D. 1922.

ROLAND B. RESPESS.